LEITMOTIV

03. July 2025

Response to the EU AI & Cloud Development Act

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Key Takeaways & Recommendations

1. Better Assumptions for Better Policymaking

1. Europe does not lack computational infrastructure at present.

2. More AI development and deployment does not necessarily equal prosperity.

3. More American-style digital infrastructure development in Europe does not necessarily equal a more competitive Europe.

4. More AI development and deployment does not necessarily solve all of humanity's problems – and may pose some new ones.

2. Improve Market Design

- **Establish a European Digital Resource Exchange** — Create a marketplace for digital resources that enables price discovery, transparency, and competition in the digital infrastructure markets.

- **Integrate EuroHPC super computing capacity** into the Digital Resource Exchange for public access to AI training infrastructure.

- **Enforce interoperability standards** for digital resources offered on the exchange.

- **Require all digital services** offered within the EU Single Market to procure digital resources from a European exchange.

- **Verify that public sector purchases** of digital and AI services use digital resources procured through a European exchange.

- **Establish a regulatory oversight body** at the European level to monitor and enforce rules for the Digital Resource Exchange.

3. Address Anti-Competitive Practices

- **Address anti-competitive reservation practices** in data centers by:

  - Requiring transparency on reserved vs. utilized space.

- **Conduct assessment of existing data center capacity utilization** before implementing policies to expand facilities.

- **Regulate IT Service Providers (ITSPs)** by:

  - Offering EU-funded alternative training/certification for European platform and infrastructure services.

  - Creating transparency on incentives offered by cloud platforms.

  - Addressing anti-competitive free training and certification offerings.

4. Implement Targeted Support for Market Development

- **Create a migration financing facility** to help European providers finance the migration of services and customers to European infrastructure or a European exchange.

- **Provide targeted financial support** for European cloud platforms focused on:

  - Low-interest loans for IT equipment with payment structures aligned to business models.

  - Incentives for purchasing refurbished equipment or equipment produced in Europe in line with the EU Green Deal.

- **Provide an alternative financing mechanism for cloud platform credits:** Reduce dependence of European startups on cloud platform subsidies. Level the playing field by either banning credits or providing equal credits through the Exchange.

5. Operating Within Planetary Boundaries While Serving the Well-Being of People

1. Undertake a rigorous impact assessment of the climate and broader environmental impacts of expanding Europe's data center footprint as proposed in the Cloud and AI Development Act to enable a rational and evidence-based public debate about the future of digital infrastructure markets in the EU.

2. Commit and ensure that current and future development of data center capacity in Europe operates within planetary boundaries.

3. Pledge that promoting peace, its values and the well-being of its peoples is the first and foremost priority in policies regarding cloud and AI.

4. Base policies in this area on the precautionary principle given severe negative social externalities and human rights impacts of AI.

5. Any further investment in, or enabling of, AI development and deployment in Europe must be accompanied by a strengthening and broadening of regulatory frameworks.

Glossary

Economic and Market Concepts

Term	Definition
Value Chain	The digital infrastructure market spanning from upstream inputs (energy, water, land, resources) through data centers to downstream digital services
Digital Resources	The essential outputs of data centers: compute, storage, and transport/networking capacity; the ability to process, store and transport data
Agile Production	The production process for digital services that requires rapid development and continuous updates through customer and market feedback
Shared Factory Model	Analogy describing cloud platforms as shared factories where multiple companies use the same "machinery" (infrastructure and platform services) to produce digital services
Market Concentration	The dominance of three major cloud platforms (Amazon AWS, Microsoft Azure, Google Cloud) controlling the majority of the EU market
Lock-in	The situation where customers become dependent on a single cloud platform due to high switching costs
Switching Costs	The prohibitive expenses involved in migrating from one cloud platform to another, including data transfer, service rebuilding, and architecture adjustment
Price Discovery	The process by which an exchange reveals the true market price for digital resources through open bidding and competitive offers
Opaque Market	A market lacking transparency, characteristic of the current digital infrastructure market
True Cost/True Pricing	Pricing that reflects all external costs including environmental and social impacts, not just production costs
Reservation Practices	Large scale cloud platfroms reserving data center space without utilizing it to hinder competition
Revenue Sharing	Financial incentives paid to ITSPs for selling bundled cloud services
Exclusivity Agreements	Contracts preventing digital service companies from offering their services on multiple cloud platforms
Self-preferencing	Cloud platforms favoring their own platform and digital services over third-party alternatives
Egress Fees	High charges for transferring data out of a cloud platform, creating switching barriers
Free Training/Certification	Programs offered by large cloud platforms to create knowledge dependency on their specific platform services
Credit Schemes	Free usage allowances (up to €350,000) offered by cloud platforms to startups in exchange for platform lock-in
De Minimis Rules	EU state aid rules allowing up to €300,000 in support over 3 years without notification
Market Investigation Powers	Regulatory ability to study markets and implement remedial actions

Technical Terms

Term	Definition
Data Centers	Facilities that combine ICT equipment with electrical & mechanical infrastructure (cooling, power distribution) to transform inputs (energy, water, land, minerals) into digital resources
ICT Equipment	Information and Communication Technology hardware including servers, storage systems, and networking devices
Infrastructure-as-a-Service (IaaS)	A service which virtualizes and enables flexible and scalable access to digital resources
Platform-as-a-Service (PaaS)	Building blocks and ready-made software components that enable faster digital service production
Software-as-a-Service (SaaS)	Complete digital services built using infrastructure and platform services
Cloud Platforms	Vertically integrated businesses spanning all digital infrastructure markets - data centers, IaaS, and PaaS.
Hyperscalers	Cloud platforms that built and operate large-scale ('hyperscaled') data centers for the sole production of virtualized digital resources (IaaS)
IT Service Providers (ITSPs)	Companies that deliver full IT solutions (assembled from multiple digital and platform services) to business customers, often acting as intermediaries between cloud platforms and end customers
EuroHPC	European super computing network for high-performance computing (HPC) and AI model training
Bundling	Practice of tying digital resources with value-added services (PaaS, SaaS), preventing separate purchasing

Environmental Concepts

Term	Definition
Planetary Boundaries	Nine critical global processes that regulate Earth's stability and resilience, within which humanity must operate (Stockholm Resilience Center)
Scope 1 Emissions	Direct greenhouse gas emissions from sources owned or controlled by an organization (e.g., backup generators)
Scope 2 Emissions	Indirect emissions from purchased electricity, steam, heating, and cooling
Scope 3 Emissions	All other indirect emissions in the value chain (e.g., supply chain, product use)
Resource Efficiency	The amount of digital resources that can be produced from a fixed amount of natural resources (energy, water, metals, minerals)
Green Deal	EU's plan for sustainable growth, aiming for climate neutrality and decoupling economic growth from resource use
Energy Transition	The shift from fossil fuels to renewable energy sources
E-waste	Waste from Electrical and Electronic Equipment (WEEE)
Critical Minerals	Essential minerals required for the production of ICT equipment
Utilization Rate	The percentage of available capacity (space, equipment, digital resources) actually being used productively

Interoperability Standards	Technical requirements, ensuring infrastructure and platform services can work across different platforms
Energy Efficiency Directive	EU regulation requiring reporting on data center facility and IT equipment efficiency

Market Participants

Term	Definition
Startups	New companies for whom time to market is critical and capital is limited, using cloud platforms for rapid development of their products and services
IT Consultancies and Service Providers (ITSPs)	Service providers focused on cost-effectiveness and reusability, assembling digital services from pre-made components primarily for business and public sector organizations
Researchers/Developers	Individual customers requiring quick experimentation and short-term access to digital resources with pay-as-you-go pricing
Enterprise/Public Sector	Organizations maintaining hybrid models with own infrastructure while using cloud platforms for the agile production of new digital services
European Cloud Platforms	Examples include Scaleway (FR), OVHcloud (FR), and STACKIT (DE), offering competitive pricing but limited platform services

Introduction

Our submission seeks to support the European Commission in developing a comprehensive AI and Cloud Development Act. We strongly believe that Europe must define its own path forward on digital infrastructure. Europe's digital future is only possible and sustainable, however, if it promotes fair and effective competition, commits to operating within planetary boundaries[1] and promotes the fundamental values and well-being of the people of Europe.

In this document, we first outline our thoughts on the assumptions underlying the Cloud and AI Development Act and the policy documents on which it rests. (Part 1). We then introduce a set of workable policy interventions that would enable fair and robust competition on the digital infrastructure markets in Europe (Part 2).

Finally, we argue how the updated assumptions in Part 1 together with the policy interventions for fair and robust competition on European markets for digital infrastructure in Part 2 would be meaningless if the EU does not also consider the wider context in which these markets operate and stays close to the very foundations on which the Union is built. As a Leitmotiv for the future of European digital infrastructures, the EU should commit to making sure digital infrastructure markets operate within planetary boundaries, including but not limited to its climate goals[2], and respect and promote the fundamental values and well-being of the people of Europe (Part 3).

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[1] "The planetary boundaries framework (*1, 2*) draws upon Earth system science (*3*). It identifies nine processes that are critical for maintaining the stability and resilience of Earth system as a whole. All are presently heavily perturbed by human activities. The framework aims to delineate and quantify levels of anthropogenic perturbation that, if respected, would allow Earth to remain in a "Holocene-like" interglacial state. In such a state, global environmental functions and life-support systems remain similar to those experienced over the past ~10,000 years rather than changing into a state without analog in human history." Katherine Richardson et al. , 'Earth beyond six of nine planetary boundaries.' Sci.Adv.9, eadh2458 (2023). DOI:10.1126/sciadv.adh2458

[2] EU 2040 Climate Targets: https://climate.ec.europa.eu/eu-action/climate-strategies-targets/2040-climate-target_en

The Economics of The Digital Infrastructure Market

The Value Chain

The following visual illustrates the value chain[3] of the digital infrastructure market. Upstream, energy, water, land and natural resources are essential inputs for data centers, which house ICT equipment. Data centers, in turn, produce 'digital resources' (compute, storage and transport/networking capacity). These digital resources are the essential inputs for infrastructure services (IaaS) which virtualize and enable the access to digital resources. Platform services turn those digital resources into building blocks, from which digital services (which may be AI services) can be built.
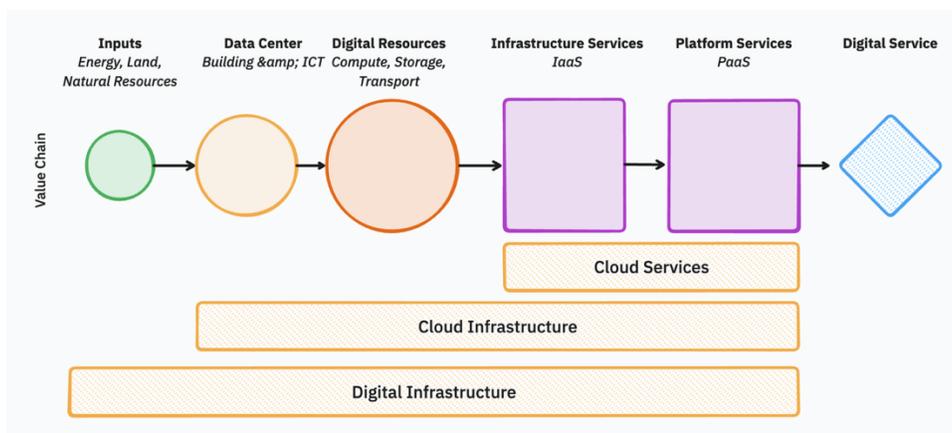
Source: Leitmotiv

Prior to the emergence of cloud platforms, each part of the diagram represented a market on its own. Cloud providers have successfully integrated all these markets into single cloud platforms. Major cloud platforms own the digital resource production, including data centers and ICT equipment, virtualize those digital resources into infrastructure services, provide platform services, and increasingly offer digital software as a service including AI services built on their platform services.

Cloud Platforms and 'Agile Digital Service Production'

The economic reality of the production of digital services is that they need to be developed rapidly and are continuously updated and changed through direct and indirect customer feedback[4]. The production process for digital services is termed 'agile production'. Agile production requires a digital infrastructure which can adapt to the shifting demands of customers and markets, developing software in this way has far-reaching consequences for the business of computing.[5] At the same time, investments in digital infrastructure are

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[3] Value Chain Model by Michael Porter: https://www.isc.hbs.edu/strategy/business-strategy/Pages/the-value-chain.aspx

[4] „Responding to change over following a plan": https://en.wikipedia.org/wiki/Agile_software_development

[5] Gürses, Seda, and Joris van Hoboken. 2018. "Privacy after the Agile Turn." In *The Cambridge Handbook of Consumer Privacy*, edited by Evan Selinger, Jules Polonetsky, and Omer Tene, 579–601. Cambridge Law Handbooks. Cambridge: Cambridge University Press. https://doi.org/10.1017/9781316831960.032.

capital-intensive, and this infrastructure is not continuously utilized. It was Amazon Web Services (AWS) that realized in 2006 that they could allow startups and other enterprises to use the digital infrastructure they had originally built for Amazon's e-commerce business. Thereby, AWS increased the utilization of Amazon's digital infrastructure, while allowing startups to engage in agile digital service production without capital investment in the underlying digital infrastructure.

This was the birth of the infrastructure-as-a-service market, or now referred to as cloud infrastructure. Quickly afterward, AWS also started to launch platform services, building blocks, that enabled even faster agile production using re-usable software components. These building blocks were popular open-source software products, operated by AWS and bundled with their cloud infrastructure.

It is important to emphasize that, unlike the downstream digital economy (social media platforms, for example), the business model for digital infrastructure is not centered on surveillance and data collection. Rather, it is based on exploiting underutilized data center capacity through a shared-usage model to produce digital resources (compute, storage and networking) for businesses downstream.

The Customers

The main customers of what is being produced in the digital infrastructure value chain are:

1. **Startups:** For whom time to market is critical and capital is limited; they can use ready-made digital infrastructure to quickly built and improve their digital services and rapidly respond to customer demands.
2. **IT Consultancies and IT Service Providers (ITSPs)**: For whom costs and re-usability are key. Instead of building bespoke digital services for each customer, they can offer off-the-shelve digital services or assemble digital services based on the pre-made platform services tailored to the customer needs quickly.
3. **Researchers and Individual Software Developers:** When quick experimentation or fast access to digital resources for a short-term is the goal, cloud & AI infrastructure are attractive. With flexible, pay-as-you-go pricing, and ready-to-use digital services–from data science, to complex research and fast prototyping services, everything is found in a single cloud platform.
4. **Enterprise and Public Sector Organizations:** This group often keep existing own digital resource production in place (data centers, IT equipment), but use the cloud platforms and their platform services to quickly built out new part of their digital offering, e.g., new customer-facing digital services (also referred to as a 'Hybrid' model).

The 'Shared Factory'

To better understand the value chain of cloud platforms, it is helpful to use the analogy of an 'older' industrial economy. In such an economy, there exist privately owned factory

buildings that house privately owned machinery that use a range of inputs (energy, water, land, minerals, chemicals etc.) to produce output that are sold on the market. Cloud platforms share many of the key characteristics of such an industrial economy:

- The inputs are energy, water, land and critical minerals (used to manufacture IT hardware) which are transformed – inside data centers – into digital resources: compute, storage and networking.

- The outputs are digital services that are produced using these digital resources and sold on the market.

The crucial difference, however, is that the factory in this analogy is the cloud platform of a company like AWS and that this factory is a **shared** among many digital service producers. Many startups and other corporations all utilize this shared factory to produce their digital services using the "machinery" owned by the cloud platform. The machinery in this analogy are the infrastructure and platform services available within the platform. . The machinery within the platforms is provided on-demand and flexibly. This flexibility enables digital services to be manufactured quickly and responsive to customer demands, supporting the agile production model. While digital services companies can also buy digital resources directly within each cloud platform, many use the ready-made 'machinery' (PaaS) offered by the shared factory, as it reduces upfront investment costs.

The following diagram shows the shared factory model:
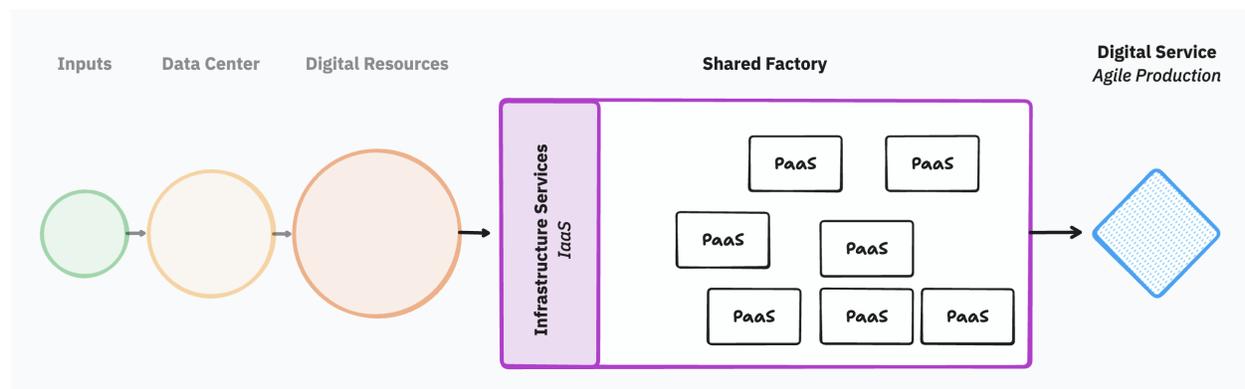
In essence, cloud platforms have created vertically integrated businesses that span multiple markets:

1. The market for data centers & digital resource production
2. The market for infrastructure-as-a-service
3. The market for platform services

And recently, they began offering software-as-a-service as well, with the goal of adding yet another market to their platforms.

An important factor for startups especially are the costs of producing digital services. Lower production costs are an important factor in producing digital service output. The rapid increase in the number of SaaS companies launched since 2006, coincides with the

launch of Amazon's cloud platform (AWS) in March 2006. The introduction of the 'shared factory' by Amazon rapidly changed the business model for creating new digital services:

- Infrastructure-as-a-Service (IaaS): Instead of having to buy servers and renting space in a data center, SaaS companies could directly rent digital resources (IaaS), turning fixed capital expenditures into variable operating expenses.

- Platform-as-a-Service (PaaS): SaaS companies, instead of building their own machinery or platform services, could rent those as well in the 'shared factory', further reducing the initial investment cost required.

This can be witnessed in the amount of software-as-a-service (SaaS) startups that have emerged since 2006, the year AWS launched, as seen in the statistic below by market research firm Ascendix.
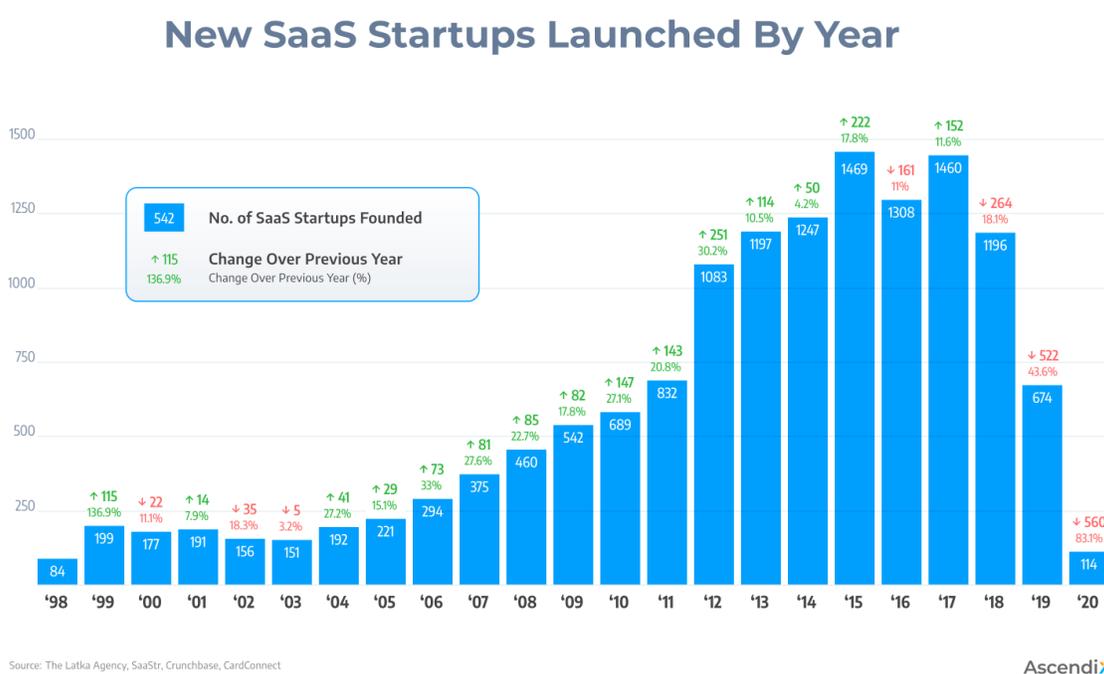
Source: Ascendix Tech[6], March 2025

Competition and Cloud Platforms

Because of vertical integration by key players, Amazon, Microsoft and Google in particular, it is difficult to distinguish separate digital infrastructure markets, as explained above. These top three cloud platform owners also own and rent data centers which they fill with their own IT equipment, producing their own digital resources. At the same time, they offer IaaS, PaaS and (increasingly) SaaS via their cloud platforms ('shared factories'). What is more, these same three players are also increasingly active on markets further upstream (procuring and producing energy and IT equipment, for example) and, of course, further downstream (producing digital services). European cloud providers like Scaleway (FR),

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[6] Ascendix Tech, https://ascendixtech.com/number-saas-companies-statistics/

OVHcloud (FR) and STACKIT (DE) are only active on parts of these markets and do not have the equivalent of a 'shared factory' described above.

In the current cloud platform market in the EU, European cloud providers are strong at producing low-cost digital resources – they have developed innovative production capabilities and are outperforming on price (see our comparison[7]). Some of these capabilities include using refurbished IT equipment[8], utilizing renewable energy at the source[9], using existing buildings[10] or recovering heat[11] from their facilities. However, European cloud providers do not have the equivalent of the 'shared factory' described above, with the same variety of machinery (PaaS) of its own. To compare, AWS lists more than 300 platform services on its website, Scaleway (FR) lists 17. As a result, they have not been able to capture a larger part of the market.

The market remains highly concentrated at present. As research by Ofcom showed, Amazon and Microsoft alone, provide between 70-80% of IaaS and PaaS combined in the UK, with Google the largest third market player with 5-10%.[12] The Dutch Competition Authority reached a similar conclusion a year before Ofcom.[13] The vertical integration of these three players – also reaching other markets upstream and downstream – only enhances the dominance of these players. Consider the free cash flow and revenue of these three dominant players, which offers these market players a range of advantages, for example where it comes to investing in new digital infrastructure:

Cloud Platform	Free Cash Flow (across all business units)	Revenue (cloud business only)
Microsoft Azure	$18,32 Billion[14] (2024) after $96,97 Billion in Investments	$64,7 Billion[15] (2024) Total: $245 Billion

[7] Leitmotiv: https://leitmotiv.digital/publications/breaking-the-cloud-monopoly, Table 2

[8] OVHCloud Server Manufacturing: https://us.ovhcloud.com/about/server-production/

[9] WindCores deploys it's digital resource production within existing on-shore wind farms: https://www.windcores.de/, BULK Infrastructure leverages Norwegian hydropower capacity directly: https://bulkinfrastructure.com/

[10] Penta Infra (NL) and nLighten (DE) specialize in buying existing data center facilities and extending their lifetime: https://penta-infra.com/, https://www.nlighten.com/en/

[11] Maincubes (DE) re-uses the waste heat at it's FRA02 location: https://www.maincubes.com/en/data-centers/frankfurt-02/, Quarnot (FR) and LeafCloud (NL) deploy digital resource production facilities directly in building for heating: https://qarnot.com/en, https://www.leaf.cloud/

[12] Ofcom, 'Cloud Services Market Study', 5 October 2023, p. 74.

[13] "ACM has established that the cloud services of the two largest competitors, Microsoft Azure and Amazon Web Services (AWS), both in the Netherlands and in Europe, have very large market shares on the IaaS and PaaS layers (both of them have market shares of 35 to 40 percent). Google is the third competitor in the market, but a very strong one. There is a high degree of concentration in the market for cloud services." Autoriteit Consument & Markt, 'Market Study Cloud Services', 5 September 2022.

[14] https://www.microsoft.com/en-us/Investor/earnings/FY-2024-Q4/cash-flows

[15] https://www.microsoft.com/en-us/investor/earnings/FY-2024-Q4/press-release-webcast

| Amazon AWS | $78,68 Billion[16] (2024) | $108 Billion[17] (2024)
Total: $638 Billion |
| Google Cloud (Alphabet) | $125,3 Billion[18] (2024) | $43,23 Billion (2024)
Total: $350,01 Billion |

One response to this current market situation has been to propose building alternative, European, PaaS offerings, such as the EuroStack[19] and Dynamo Cloud[20]. There are also well-funded private companies emerging, like STACKIT[21], which use their vast cash reserves in an attempt to establish themselves as the de facto European 'shared factory'. However understandable these plans are, they rely on re-creating what is, in essence, a US model of a 'hyperscaled' shared factory. Even if that would be wise, it is questionable whether it is doable. The EuroStack report[22], suggests spending EUR 300 billion over a decade on an effort to build a European alternative, a huge amount of money.

To put these revenue figures in perspective - EDF, Europe's largest energy company, annual revenue is about 150 billion EUR (Statista, 2025).

At the same time, there are significant barriers to effective competition in these markets, to which these three dominant market players also contribute. First, some barriers reduce the possibility of switching. There are technical barriers that limit a customer's ability to switch between cloud platforms, egress fees which customers pay if they move data outside a provider's infrastructure and significant discounts.[23] Second, there are barriers to entry and expansion for competitors, including the high investments in digital infrastructure, developing a broad product portfolio and costs of acquiring new customers.[24]

Another potential indicator of significant market barriers is shown in our own work, which shows that digital resources offered within the three dominant cloud platforms cost to 5-10x more compared to the top three of European platforms.[25] In a market with fair and

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[16] https://www.sec.gov/Archives/edgar/data/1018724/000101872424000161/amzn-20240930.htm

[17] https://s2.q4cdn.com/299287126/files/doc_financials/2025/ar/Amazon-2024-Annual-Report.pdf

[18] https://www.sec.gov/Archives/edgar/data/1652044/000165204425000014/goog-20241231.htm

[19] Eurostack: https://www.euro-stack.info/

[20] Dynamo Cloud: https://www.dynamo.cloud/

[21] Schwarz Digits: https://schwarz-digits.de/

[22] "With a proposed investment of €300 billion over the next decade, EuroStack aspires to deliver transformative economic, social, and environmental benefits", EuroStack Report, p. 9, https://www.euro-stack.info/docs/EuroStack_2025.pdf

[23] Ofcom, 'Cloud Services Market Study', 5 October 2023, Chapter 5.

[24] Ofcom, 'Cloud Services Market Study', 5 October 2023, Chapter 6.

[25] https://leitmotiv.digital/publications/breaking-the-cloud-monopoly

effective competition, companies offering significantly lower prices are in principle expected to gain market share. However, in the cloud platforms market, this is not the case. While ACM[26] estimates that the market has grown by 20-30% each year between 2017-2021, OVHcloud was growing only 10,3% in 2024[27] and IONOS at 9,6%[28], while offering a 5x lower price on digital resources. The real European weakness is the market design, in which European providers cannot gain market share and scale to create competition[29]. The reasons why there remain barriers to effective competition are explained in the competition law reports cited in this submission, and some are expanded upon in chapter 2 of this submission, but let us summarize one particularly harmful practice by dominant cloud platforms that hinders effective competition:

Cross-subsidies and bundling: Dominant cloud platforms bundle the digital resources they produce in their own or rented data centers with the value-added services *(IaaS and PaaS)* and often offer them for free to lure in new startups. At the same time, dominant cloud platforms offer significant revenue shares to 'enterprise gatekeepers' to lure new customers onto their cloud platforms and cover initial migration costs.

The harm of cross-subsidization is the ability of cloud platforms to offer services far below normal market prices, which smaller providers cannot possibly compete with. While the public list prices of the providers are higher than European providers, Ofcom has effectively shown that discounts can be significant and are offered during private contract negotiations[30].

The second harm is on customer choice. A customer may want to purchase a cloud service such as Microsoft's Office 365, but cannot choose to run it on their own or third-party infrastructure services. The service is restricted to use within the cloud platform of Microsoft.

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[26] https://www.acm.nl/system/files/documents/public-market-study-cloud-services.pdf, p. 32

[27] https://corporate.ovhcloud.com/sites/default/files/2024-10/2024_10_24_-_ovhcloud_annual_results_fy24_pr_vdef4.pdf

[28] https://www.ionos-group.com/fileadmin/Publications/Berichte/IONOS_Annual_Report_2024.pdf

[29] https://leitmotiv.digital/publications/breaking-the-cloud-monopoly

[30] Ofcom Cloud Market Study, Page 63, Section 4.65, https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-3-4-weeks/244808-cloud-services-market-study/associated-documents/cloud-services-market-study-final-report.pdf?v=330228

Part 1: Better Assumptions for Better Policymaking

The proposal for a Cloud and AI Development Act cannot be understood in isolation. As referenced in the call for evidence, it is the outcome of a longer process within the European Commission that started with the highly influential[31] September 2024 Draghi Report and also includes the Competitiveness Compass of January 2025 and the April 2025 AI Continent Action Plan. In this section, we challenge some key assumptions underlying the proposal for a Cloud and AI Development Act and the policy documents and reports on which it is based.

Europe Does Not Lack Computational Infrastructure

Mario Draghi identifies a computational infrastructure gap as a critical weakness in his report[32], but omits two important nuances: (1) Europe already has enough data center capacity and (2) European providers already produce digital resources that are significantly cheaper than those of the top three cloud platforms competitors (for a comparison see Introduction – 'Competition on cloud platforms' or our research[33]).

1. Europe has significant data center capacity in terms of space, which is currently underutilized. This under-utilization comes from the fact that many hyperscale cloud providers reserve most of the available space across Europe to hinder competition. This practice is obfuscated by data center facility providers, who own and operate the majority of facility space in Europe, by neither sharing the utilization of their facilities nor which customers are utilizing the space or have placed reservations.

Further, some European cloud platforms share the data center facilities with their US competitors. US cloud platforms regularly place large reservations in these facilities, hindering the expansion of competitors. Reservations on facility space should be considered an anti-competitive practice, as it increases prices and hinders competition.

> *In the economics of the cloud platforms market, paying rent on unused, reserved capacity simply to hinder competition, is a low-cost strategic activity. No energy is used—which makes up the majority of the rental costs—and only rent for the real-estate has to be paid, the costs of which make up less than 1-5% of the total operating costs.*

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[31] "*Beyond what is listed in your individual mission below, I would like all Members of College to draw on recent or upcoming reports. This notably includes the Draghi Report on the future of European competitiveness* [...]. Mission Letter to Executive Vice-President Henna Virkkunen, 17 September 2024.

[32] Draghi Report, Part B, Chapter3, 3.2 Computing and AI

[33] Leitmotiv: https://leitmotiv.digital/publications/breaking-the-cloud-monopoly

We have no transparent facts on the current utilization rate of any part of digital infrastructure that could guide decisions to increase capacity:

- The current occupation rate of data center facilities within Europe (e.g., how much space is rented vs. actually utilized?) → do we need to build more?

- The utilization rate of IT & AI equipment within the data centers (e.g., of 1 GW of electricity allocated to data centers, how much of that capacity is productively used to generate digital resources?) → Do we need to buy & install more IT equipment, or can we improve the utilization of the existing equipment?

- The usage of digital resources across the European digital economy (e.g., how much compute, storage and network capacity, do European digital companies utilize for their services?) → are they lacking digital resources? Is availability a key issue, or price?

Before implementing policies to grow data center facilities across Europe, **we therefore urge the Commission to conduct a full assessment of the utilization rate of existing data center capacity in Europe and address the anti-competitive reservation practices.** This could be done in part using the information collected on data centers under the Energy Efficiency Directive.

More AI Development and Deployment Does Not Necessarily Equal Prosperity

A central assumption on which the Cloud and AI Development Act appears to be based is that more AI development and deployment ultimately leads to a more prosperous Europe, although the exact reasoning in this regard remains muddled and unclear at best. Existing evidence on the impact of AI development and deployment on prosperity, defined narrowly as growth in productivity and GDP, is limited at present.[34] While Mario Draghi has been presented as – and relied on as — an authority in this area by the European Commission[35], permit us to refer here to another authority, the winner of the 2024 Nobel Prize in Economic Sciences, Daron Acemoglu[36] In a paper published in January 2025, Acemoglu estimates that AI will lead to only modest GDP growth in the United States of between 0.93-1.56% over the next 10 years[37], with a maximum productivity growth in that decade of 0.9%.[38] As Acemoglu has pointed out, such gains in prosperity are not irrelevant, but rather disappointing in light of the significant economic promises often associated with AI and the

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[34] "*Research into the economic impact of AI, in terms of the productivity gains of businesses implementing it as well as the implications of those gains for the economy's growth, is still relatively new.*" US Congressional Budget Office, 'Artificial Intelligence and Its Potential Effects on the Economy and the Federal Budget', December 2024, p. 4.

[35] "*Mario Draghi – former European Central Bank President and one of Europe's great economic minds* […]." https://commission.europa.eu/topics/eu-competitiveness/draghi-report_en

[36] https://www.nobelprize.org/prizes/economic-sciences/2024/press-release/

[37] Daron Acemoglu, 'The simple macroeconomics of AI', *Economic Policy* (Vol. 40, Issue 121, January 2025), p. 54.

[38] Daron Acemoglu, 'The simple macroeconomics of AI', *Economic Policy* (Vol. 40, Issue 121, January 2025), p. 18.

enormous investments made.[39] What is more, Acemoglu also estimates that the uptake of AI may actually lead to negative welfare effects[40], increase "*overall (between-group) inequality and reduce the real earnings of low-education women*" and "*will also further widen the gap between capital and labor income*".[41]

More American-Style Digital Infrastructure Build-out in Europe Does Not Necessarily Equal a More Competitive Europe

Another, closely related, assumption underlying the Cloud and AI Development Act is that tripling the EU's data center capacity in the next 5–7 years will enhance the EU's competitiveness.[42] What is striking is the extent to which AI development and deployment is portrayed as a race[43] that can either be won or lost[44] and in which the EU is lagging behind.[45] Here, too, we think it is wise to challenge these assumptions.

First, we should critically assess the ability of AI development and deployment to raise competitiveness in the first place. Last year, Goldman Sachs's Head of Global Equity Research expressed skepticism that the estimated 1 trillion USD investment in AI in the coming years – most of which will be spent on data centers – will deliver an appropriate return on investment, stating: "*Replacing low-wage jobs with tremendously costly technology is basically the polar opposite of the prior technology transitions I've witnessed*". Adding: "*While the question of whether AI technology will ever deliver on the promise many people are excited about today is certainly debatable, the less debatable*

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[39] https://economics.mit.edu/news/daron-acemoglu-what-do-we-know-about-economics-ai

[40] Daron Acemoglu, 'The simple macroeconomics of AI', *Economic Policy* (Vol. 40, Issue 121, January 2025), p. 47.

[41] Daron Acemoglu, 'The simple macroeconomics of AI', *Economic Policy* (Vol. 40, Issue 121, January 2025), p. 52.

[42] "[…] *with the underlying objective to strengthen the EU's competitiveness* […]." European Commission, Call for Evidence for an Impact Assessment: Cloud and AI Development Act, 9 April 2025; "*The European Union is committed and determined to become a global leader in Artificial Intelligence, a leading AI continent.*" European Commission, AI Continent Action Plan, 9 April 2025; "*Europe needs to be at the forefront of innovation in tech sectors that will matter in tomorrow's economy – such as Artificial Intelligence* […] *to enhance* […] *competitiveness.*" European Commission, 'A Competitiveness Compass for the EU', 29 January 2025, p. 5; "*AI developments are an opportunity for EU industrial players to boost their competitiveness but also a risk to lose their leadership and profitability if AI is not rapidly integrated in their offerings.*" Mario Draghi, 'The Future of European Competitiveness – Part B', p. 79; "*Europe's competitiveness is hamstrung by its lower productivity compared to its direct global competitors. Central to this is the insufficient diffusion of digital technologies, impacting our ability to use tech to develop new services and business models.* […] *We must now focus our efforts on becoming a global leader in AI innovation.*" Ursula von der Leyen, 'Europe's Choice: Political Guidelines for the next European Commission 2024-2029', 18 July 2024, p. 9-10.

[43] "*The global race for leadership in AI is far from over.*" European Commission, AI Continent Action Plan, 9 April 2025

[44] "*The EU suffers from limited capacity to benefit from 'winner takes most' dynamics, network effects and economies of scale in key technologies* […]". Mario Draghi, 'The Future of European Competitiveness – Part B', p. 68.

[45] "*The EU current lags behind the US and China in terms of available data centre capacity.*" European Commission, Call for Evidence for an Impact Assessment: Cloud and AI Development Act, 9 April 2025; "*The EU's weak position in developing AI means that, in the future, it may not fully leverage its competitive advantage across several industrial sectors, with the risk of EU companies' market and value share potentially eroded by non-EU players.*" Mario Draghi, 'The Future of European Competitiveness – Part B', p. 79; "*The EU currently lags behind the US and China in terms of available data centre capacity, relying heavily on infrastructure installed in and controlled by other regions of the world, that EU users access via the cloud.*" European Commission, AI Continent Action Plan, 9 April 2025.

point is that AI technology is exceptionally expensive, and to justify those costs, the technology must be able to solve complex problems, which it isn't designed to do." [46]

Second, we should not assume too hastily that adopting the American model of AI development and deployment is the right way forward for Europe. Mario Draghi's conclusion is clearly that what is needed to succeed in AI is to have economies of scale, availability of private venture capital, high-skilled professionals and 'regulatory light-handed rules'.[47] Draghi, this European Commission,[48] as well as other prominent voices in the AI debate in Europe,[49] thereby embrace the American economic model that has led to only a handful of Big Tech corporations dominating significant parts of the digital economy. Yet, should America really be the model for what the EU wants to look like in the foreseeable future? Several years ago, Paul Nemitz, one of the architects of the GDPR, warned of a future in which AI would accelerate the concentration of digital power in the hands of just a few mega corporations and its pernicious effects on democracy and markets alike.[50] Suffice it to say that many of his fears are currently materializing across the Atlantic. If 'winning' the AI race means allowing private actors to become massive and powerful, supported by large swaths of private capital and enabled by 'light-touch' regulation, we should perhaps re-assess our objectives.

More AI Development and Deployment Does Not Necessarily Solve All of Humanity's Problems — and May Pose Some New Ones

There is a tremendous amount of belief in AI's potential to solve some of the world's most complex problems that underlies this proposal. In an influential European report that came out in February 2025, AI was touted as a 'transformation game' that would lead to technology, workforce, commercial and societal transformation.[51] Among the potential benefits described are that "*AI can challenge long-standing power dynamics, creating*

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[46] Goldman Sachs Global Macro Research, 'Gen AI: Too Much Spend Too Little Benefit?', *Top of Mind* (Issue 129, 25 June 2024), p. 10.

[47] "*The strong position of the US is mostly due to the scale of cloud hyperscalers [...] and the availability of venture capital [...]. Moreover, the EU has a low total number of new data scientists vis-à-vis the US and China. [...] As in global AI competition 'winner takes most' dynamics are already prevailing, the EU faces now an unavoidable trade-off between stronger ex ante regulatory safeguards for fundamental rights and product safety, and more regulatory light-handed rules to promote EU investment and innovation [...].*" Mario Draghi, 'The Future of European Competitiveness – Part B', p. 79.

[48] "*The EU has all the assets to lead in the global economy of tomorrow. It has unrivalled talents and a skillful workforce, a large pool of private capital, a continental size Single Market, a stable and predictable legal environment, rule of law and a unique social market economy.*" European Commission, 'A Competitiveness Compass for the EU', 29 January 2025, p. 1; "European start-ups have a hard time expanding within the Single Market because of persisting regulatory barriers. They also have less access to venture capital [...]. European Commission, 'A Competitiveness Compass for the EU', 29 January 2025, p. 4.

[49] "*...European companies did not enjoy the same initial speed, scale or network effects as their US and Chinese counterparts, whose vast, homogenous and integrated consumer markets allowed new platforms to innovate fast, scale to large user bases and secure globally dominant positions*" General Catalyst, 'An ambitious agenda for European AI', February 2025, p. 2.

[50] Nemitz, 'Constitutional Democracy and Technology in the Age of Artificial Intelligence', Phil. Trans. R. Soc. A 376 (2018).

[51] General Catalyst, 'An ambitious agenda for European AI', February 2025, p. 5-6.

opportunities for more equitable participation in economic and social decision-making and bridging gaps in access to critical resources for underserved communities".[52] This echoes many such (radically) positive visions for AI, often reaching European shores from across the Atlantic.[53] In a recent essay titled 'Machines of Loving Grace, the CEO of Anthropic expresses the belief that powerful AI could arrive as early as next year.[54] Such an AI model would be smarter than a Nobel Prize winner, he believes, and could be copied millions of times, effectively becoming, in his words, "*a country of geniuses in a datacenter*". This country of geniuses would lead, he believes, to treatments for all infectious diseases, would eliminate most cancer, prevent Alzheimer's, double the human lifespan, probably cure most mental illness and mitigate climate change, among many other hoped-for benefits.

Weighed against such a potential future, tripling Europe's data center capacity in the next 5–7 years to allow for a boom in AI development and deployment in Europe seems an entirely rational response. Except for the fact that none of these promised benefits are even close to materializing, often originating from sources with a clear stake in having us believe these future visions.[55] At the same time, accelerating data center development to allow for an American-like model of AI development and deployment also accelerates the risks involved. The current proposal by the European Commission is clearly inspired by a sense of urgency and action, but where it comes to AI it might be wise to keep in mind the following words of caution by Daron Acemoglu on risks: "*The risk that our children or grandchildren in 2074 accuse us of moving too slowly in 2024 at the expense of growth seems far lower than the risk that we end up moving too quickly and destroy institutions, democracy, and beyond in the process. So, the costs of the mistakes that we risk making are much more asymmetric on the downside. That's why it's important to resist the hype and take a somewhat cautious approach, which may include better regulatory tools, as AI technologies continue to evolve.*"[56]

Part 2: Interventions for Strong and Competitive European Digital Infrastructure

In this chapter, we outline six policy interventions that aim to improve fair and effective competition in the European digital infrastructure markets. It is important to highlight that our interventions will likely trigger a rapid acceleration of the creation of new digital services in Europe. Through the proposed policy interventions, competition will increase on the across all digital infrastructure markets – from data centers to infrastructure and platform services, as well as affect cloud platforms that span across those markets. Other

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[52] General Catalyst, 'An ambitious agenda for European AI', February 2025, p. 6.

[53] https://ia.samaltman.com/

[54] https://www.darioamodei.com/essay/machines-of-loving-grace

[55] See, e.g., James Temple, 'Sorry, AI won't "fix" climate change', *MIT Technology Review*, 28 September 2024; Matteo Wong, 'AI Executives Promise Cancer Cures. Here's the Reality', *The Atlantic*, 25 April 2025.

[56] https://safe.ai/work/statement-on-ai-risk#open-letter

providers than the three largest cloud platforms that currently dominate will increase their market share and will drive down prices and increase service quality.

The current lack of fair and effective competition and the high degree of concentration on the market has contributed to a situation in which digital infrastructure markets lack transparency to a significant degree (it is an '**opaque market'** at present). This lack of transparency hinders accountability and fairness and robs the European authorities of a solid evidence base for policy and regulatory interventions. By improving fair and effective competition in these markets, the number of market players will likely grow and market power will become less concentrated. In that new market equilibrium, it will be more straightforward for European authorities to hold market players to account and monitor and regulate these markets.

1. Creating a Public Exchange for Digital Resources

The AI and cloud market is at a crossroads we have seen before — high levels of concentration combined with significant market barriers, limiting effective and fair competition. Such was the situation in European energy markets before the 1990s. Yet, instead of state-owned vertically integrated dominant market players in this market, we see private vertically integrated dominant actors which rival energy utilities in their scale.

The first solution we propose to this market situation is inspired by the playbook for introducing effective competition in the energy sector in the EU. In that sector, the EU successfully created electricity exchanges and an integrated power system. This enabled the free flow of energy across Europe under competitive conditions, benefiting the European economy as a whole. Together with strong institutions which regulate the energy market, the ability to freely trade electricity across the EU's Single Market, enables a competitive and open market environment, resulting in lower prices and higher quality for businesses, industry, and consumers alike than under the previous market structure.

An exchange offers the following benefits:

- **Price Discovery and Transparency**: Creates a centralized mechanism that reveals the true market price for digital resources through open bidding and competitive offers, eliminating information asymmetries.

- **Liquidity and Market Depth**: Concentrates buyers and sellers in one marketplace, ensuring resources can be bought and sold quickly without significant price impacts.

- **Risk Management**: Enables standardized contracts and derivatives that allow market participants to hedge against future price volatility in computational resources.

- **Reduced Transaction Costs**: Eliminates the need for multiple bilateral negotiations by standardizing contracts and creating a trusted clearing mechanism.

- **Market Efficiency**: Ensures digital resources flow to their highest-valued uses through competitive pricing signals.

- **Equal Access**: Provides a level playing field where both small and large participants can compete under the same transparent rules.

- **Regulatory Oversight**: Creates a centralized venue where standards can be enforced, and market behavior monitored to prevent manipulation.

- **Policy Implementation**: Offers a mechanism to embed European priorities into market design, such as sustainability requirements or geographic diversity targets.

- **Data Collection**: Generates valuable market data on pricing trends, supply-demand dynamics, and resource utilization that can inform future policy decisions.

- **Cross-Border Integration**: Facilitates seamless trading of digital resources across European member states, strengthening the Digital Single Market.

- **Investment Signals**: Provides clear price signals that indicate when and where new infrastructure investments are economically justified.

Such an exchange would have the additional benefit of not undermining the rules of the World Trade Organization, while still creating an environment in which the digital resource needs of European businesses and public administrations can be fulfilled. It does not exclude market actors or offer special treatment to specific actors, instead it creates competition on price[57]. In this competition, as we have shown before, European actors are already ahead and well positioned to win significant share in the market.

It would also enable European Member States to equally participate in producing digital resources in their countries, driving innovations in energy efficiency in countries that have less energy resources available, while enabling the distribution of digital resource production towards countries that have a higher concentration of green energy sources available. It therefore supports the overarching vision and idea of a European Union's Single Market.

The technologies required to enable such an exchange have already been developed as part of many of the IPCEI and Horizon Europe projects that have been funded by the Commission. Therefore, the missing piece is a regulatory framework that enables the creation of a European Digital Resource Exchange. This can be done using several mechanisms, which collectively address all the overarching goals of the AI & Cloud Development Act:

1. All digital services sold within the European single market must procure their digital resources from a European exchange.

2. No Service Provider may enter an exclusive agreement with a digital resource producer or cloud platform outside the Exchange.

3. When European public sector organizations purchase digital or AI services, they must verify that the digital resources used to run them are procured through a European exchange.

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[57] and resource-efficiency if combined with recommendation 8) of our proposal.

4. The digital resources on the exchange are classified according to a European standard, making them interoperable (see SCS[58]).

5. A regulatory oversight body is established on the European level to monitor the adherence and enforcement of these rules.

6. Optional: As in the Energy Market, regulation can be used to prioritize digital resources in the exchange (by lowering their costs) which have been produced in accordance with sustainable practices in line with the EU Green Deal (see recommendation 6).

The exchange provides short and medium-term, as-needed digital resource contracts, as well as a spot market (where unutilized digital resources can be sold) and long-term capacity contracts (futures) which enable businesses to lock-in the price of digital resources over long periods, hedging themselves from price volatility.

The benefits of such an exchange are numerous and would position Europe as the global leader for the creation of highly efficient open cloud and AI infrastructure. It would give a massive boost to the competitiveness of the European tech & AI sector, ensuring a reliable supply of low-cost digital resources. It would accelerate the digital transformation of European businesses by lowering the costs of digital products and services. And lastly, it would aggregate all of Europe's digital resource production capacity, at a scale unmatched by other countries, and make it accessible for a fast-paced Continental AI & Digital Transformation.

The approach leapfrogs the inefficient development path of overbuilding data center capacity and replaces it with an advanced marketplace in which available capacity is fully utilized and made available to businesses without constraints. It also encourages private investment in capacity in Europe through transparent demand and supply signals and the ability to hedge investments through future contracts.

Within AI training, the European Commission has already brought underway policies to build shared computational infrastructure in the context of the EuroHPC network to enable the development of new foundational & specialized AI models. It should be considered to connect this new capacity to the proposed exchange, as this would provide open access and efficient utilization. It would enable widespread access for businesses across Europe. The exchange could deliver clear price signals to indicate when more super computing capacity needs to be added. Organizations and individuals working on new AI models could be subsidized for purchasing super computing resources through the Exchange.

However, it's important to note that this new super computing capacity is only useful for the training of AI models and thus does not address the larger issues of access and pricing of more generalized digital resources which our proposal addresses.

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[58] https://scs.community/

After an AI model is trained on the super computing capacity, it will need to be turned into a service for commercialization. To operate that service, the AI model needs to run on lower-cost inference infrastructure and access vast amounts of storage and network capacity, which would have to be provided outside the super computing ecosystem as the cost of the highly specialized systems would be too high for continuously operating an AI service. If an AI model is developed on Euro HPC infrastructure and afterward deployed on a US hyperscale cloud for commercialization, the issues of dependence, sovereignty, and capturing value creation in Europe won't be addressed.

2. Addressing Startup Credit Schemes Through EU or National State Alternatives

As explained above, dominant cloud platforms capture startup demand by offering free use of their 'shared factory'. This is effectively a subsidy for startups, locking them into a cloud platform. By adjusting their production process to the available machinery (PaaS) in the provider's cloud platform, startups lose the ability to switch to another cloud platform. With the pressure by venture capital investors to go bring a digital service to market quickly, a 'shared factory' that already exists and offers free prototyping and initial production is very attractive.

With the credits, akin to subsidies, providers are placing bets on startups, reaping the benefits if any of them are successful and growing. When they grow, three forces disincentivize them to migrate off the cloud platform: investor pressure to focus on scaling, rather than cost optimization, the cloud platform supports their scale and grows with them, and the switching costs are too high, given that the startup is likely still financed by cost-conscious investors.

One force has changed with the advent of AI use in digital services and startups building new AI services: The infrastructure costs are now so significant that investors have

Google's Startup Program offers 350.000 EUR of free usage for startups building their digital services on Google's cloud platform.

become more risk-averse. As the investors pick up the bill for the cloud platforms when the credits run out, they place AI bets more carefully, well knowing that they can't afford as many failures as with traditional digital services. Investors focus on AI startups that have a viable product that creates enough value for customers to eventually become profitable. Recent interviews with venture capitalists conducted by Leitmotiv show that compared to software-as-a-service startups, which could expect up to 80% margins after 5–7 years, for AI services, the number is much lower at 50-60%, mostly due to the higher cost of digital resources and infrastructure.

Policy Interventions

With the Cloud & AI Development Act, the Commission can direct the creation of national policies that provide funds for national startups to utilize equivalent credit facilities (or create a European equivalent) to reduce the initial product development cost and level the playing field for infrastructure providers.

If used with national or European-wide marketplaces/exchanges (see policy intervention 1) that is fully or partly state-owned, the EU or national governments would benefit from tying the credit use to the exchange, meaning startups could only utilize them for buying digital resources on the exchange. They would become locked-in to a public marketplace for covering their digital resource needs. Member States and/or the EU would earn back those credits through the profits of the exchange from transaction fees.

This intervention could be made even stronger, when coupled with regulation that enforces fair competition, forcing cloud credits by private companies to be transferrable to any European digital resource exchange. Another possibility is to attach EU priorities to the use of publicly funded credits such as open-source, sustainability or requirements to reduce geopolitical dependency.

Immediate action (3-6 months):

- Launch public exchange as a pilot program under **de minimis** state aid rules (€300.000 worth of credits over 3 years for startups)

- This could be considered as "Digital Innovation Support" for digital startups

- The terms in total would have to be better than the ones of private providers

Parallel track (6-12 months):

- Draft transferability regulation, enabling the transfer of credits from private providers to any EU exchange.

- Position it as "startup choice" or "vendor portability rights"

3. Addressing the Enterprise Gatekeepers

Enterprise and public sector customers usually work with managed service providers, system integrators and other types of IT service providers (ITSPs) that deliver a full solution, not infrastructure or a single service, but rather a suite of services, tied to infrastructure. Enterprises, instead of utilizing the shared factory provided by cloud platforms to build digital services themselves, outsource this work.

ITSPs are heavily incentivized by cloud platforms to utilize their shared factories and ready-made digital services. They receive free training and certifications to enable them to use the shared factory and proof that they are adept at using it to produce digital services. Further, they receive a revenue share, a strong financial incentive, whenever they leverage a cloud platform or utilize a pre-made digital service to deliver solutions to their customers.

Policy Interventions

Policy interventions can be applied to improve the market and diversification–empowering ITSPs to diversify their use of cloud platforms and empower them to use European alternatives.

- **Public procurement** could be used to set criteria requiring ITSPs to provide multiple options for the digital services and infrastructure used for offering a solution. They should be required to show a comparison of the options by costs, environmental impact, and dependence on foreign corporations (or a combination of these); thus creating a market for alternative options to be considered.

- **Transparency and Disclosure Requirements:** Require cloud platforms to publicly disclose the terms of their revenue-sharing agreements with ITSPs. As an example, due to regulatory pressure, Microsoft agreed to develop products allowing competitors to run Microsoft software on their platforms with equivalent pricing[59].

4. Supporting European IT & Cloud Infrastructure Growth Through Loan Facilities for IT Equipment

Purchasing and investing in IT assets (servers, storage systems and networking devices) represents the most capital-intensive investment for digital infrastructure providers (even more so in AI infrastructure). Commercial banks struggle to provide adequate loan facilities to finance these investments due to the perceived limited useful life of the asset. Accounting standards suggest a useful life of three to five years, however, in practice the useful life is often 8 to 12 years, according to our own survey data. Further, commercial banks often do not finance refurbished equipment at all, which hinders circularity practices and the sourcing of low-cost equipment which would enable competitive digital resource production.

The financing of IT assets creates a competitive rift between large cloud platforms and other providers, irrespective of size. The majority of large cloud platforms are vertically integrated, having core businesses which generate significant cashflow. In the case of Amazon, it's an e-commerce business, in the case of Google, it's advertising and for Microsoft, it's licensing. These businesses generate vast amounts of cash–which can be invested in the IT assets to built and operate their cloud platforms. They are not dependent on capital markets or other financing to build their platforms. And they can take risks, e.g. purchasing large volumes of IT assets at discounted prices without having secured adequate demand to put the assets to use. They can even use their purchasing power to restrict supply to competitors, as is the case for GPUs in the AI infrastructure market[60].

To address this rift, the EU should step in, either by acting as a guarantor for IT asset financing or by providing a loan facility. It should not subsidize IT asset purchasing as this would mostly benefit foreign original equipment manufacturers (OEMs), such as HPE, Dell,

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[59] Microsoft in $22 mln deal to settle cloud complaint, ward off regulators | Reuters

[60] Aschenbrenner, 'Situational Awareness: The Decade Ahead', June 2024, p. 77.

Nvidia, Supermicro and others. By providing loan-facilities, rather than subsidies, the EU can de-risk itself from creating oversupply.

A loan structure offers another advantage. Assuming IT and digital infrastructure is rapidly expanding, the EU could earn interest income on the loans provided, giving taxpayers a means to indirectly participate in the profits of the growing businesses. Instead of plain subsidies, the EU becomes an investor in the growing digital & AI infrastructure market.

Policy Interventions:

- Set up an EU loan facility which offers low-interest loans for IT asset investments, either as co-financing, guarantees or direct loans. This could also be implemented through national investment & development banks and can be modelled on previous EU regulation, such as the COSME program[61]

- Provide guarantees to commercial or national investment and development banks to incentivize more investment in IT Assets

5. Addressing Switching Costs Through a Migration Loan Facility

One barrier to effective competition in the cloud market are the high switching costs. Once an enterprise, public sector organization or startup is locked into a cloud platform, the costs of migrating to another platform are high.

This is due to a number of reasons, including:

- The services (PaaS) provided by the cloud platforms are not interoperable: The majority of cloud services are already built on open-source. Cloud platforms package the open-source software with their infrastructure and proprietary APIs. This means that while the underlying technology of most cloud services is open-source and thus interoperable, the cloud platforms break the interoperability by-design to ensure lock-in.

- The way the services integrate is proprietary: When an organization builds a digital service using a cloud platform, they often utilize many services offered by the provider. The services integrate seamlessly, enabling them to be used as building blocks for the digital service. This seamless integration is not portable, nor transparent, it's the intellectual property of each provider.

- Prohibitive costs: While most cloud platforms offer many free services, support and even free consulting to migrate onto their platforms, exiting them is often prohibitively expensive. Data needs to be transferred and migrated, the services need to be rebuilt and the architecture of the digital services either adjusted or rebuild from scratch.

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[61] COSME: https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32013R1287

While a migration can yield long-term savings, the initial migration costs can be crippling for many organizations. A prominent case study is Dropbox, a large digital service offering storage products. While their migration off Amazon's cloud platform yielded long-term savings, $79 Million over two years, the initial investment costs were likely significant (but are not disclosed in public filings)[62].

As large cloud platforms can **subsidize the migration onto their platforms**, to ensure fair competition, the EU should consider creating an equal migration facility for customers to **migrate off those platforms.** As this will lead to long-term savings for the companies involved, a loan facility is better suited than a subsidy.

Policy Intervention

1. Set up an EU Cloud Migration Fund (EUCMF) which provides 3-5 year loans to ITSPs, Startups, Enterprise and Public Sector organizations. These loans should be purpose-bound to migrations between cloud platforms. This loan facility can be modelled on previous EU regulations, such as the COSME program[63]

2. The loans should have progressive payment schedules on interest and principal payments. This ensures the migration can be performed without repayment pressure.

3. The loans should be available only to the service provider or cloud platform performing the migration, as they should have the payback obligation.

6. Promoting Transparency, Lower Environmental Impacts and Larger Societal Benefits

Should our proposed policy interventions be implemented, a likely consequence will that the production of digital services within the EU, including the production of AI, will increase drastically. It is crucial that the EU nudges such an expanding market in the right direction, centered around its values and priorities. There are a number of interventions the EU should consider in this regard:

1. The EU should consider requiring that every digital service offered in the European single market provides detailed environmental and social impact metrics to arrive at True Costs. This allows European authorities to assess whether digital services are priced considering the environmental and social externalities they produce.[64]. With a True Cost requirement, the EU can ensure that the price of a digital service reflects all external costs, including environmental and social costs.[65] The EU should

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[62] https://www.sec.gov/Archives/edgar/data/1467623/000119312518055809/d451946ds1.htm

[63] COSME: https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32013R1287

[64] At present, AI services are subsidized by venture capital investment, obfuscating the true costs of these services (not even taking into account environmental and social externalities). As Sam Altman from OpenAI made clear, even on a $200/month plan, OpenAI is still losing money for example. See: https://techcrunch.com/2025/01/05/openai-is-losing-money-on-its-pricey-chatgpt-pro-plan-ceo-sam-altman-says/

[65] The Impact Institute, on behalf of the City of Amsterdam, has recently conducted a study to determine the true price of cloud storage, in this case AWS S3, and showed that the true cost of a terabyte of storage is about three times higher than

consider forcing all digital service companies operating in the European single market to use true cost accounting when calculating their product price.

2. For startups to innovate into a specific direction, it is helpful to create demand and make that demand public and transparent. For example, if the EU can aggregate a set of critical problems that have a high value to solve and find businesses from other industries who would buy a solution, this could create a direction ('honeypot'). This would mean forming a pre-market consortium of customers and would give startups a market to innovate toward.

3. Assuming a European digital resource exchange has been established, the EU could go a step further to implement its environmental and climate targets in this context by regulating exchanges to not only drive competition on price, but also introduce metrics related to matters like resource efficiency. Resource efficiency expresses the amount of digital resources (compute, storage, transport) that a provider can produce from a fixed number of resources (energy, water, metals, minerals).

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what is actually being charged to customers: https://www.impactinstitute.com/nl/portfolio/gemeente-amsterdam-inzicht-in-de-true-price-van-dataopslag/

Part 3: Systemic Considerations for Cloud & AI Development

Operating EU Digital Infrastructure and AI Services Within Planetary Boundaries

> "*Perhaps the wildest part is that willingness-to-spend doesn't even seem to be the binding constraint at the moment, at least for training clusters. It's finding the infrastructure itself: 'Where do I find 10GW?' (power for the $100B+, trend 2028 cluster) is a favorite topic of conversation in SF. What any compute guy is thinking about is securing power, land, permitting, and datacenter construction.*"
>
> Aschenbrenner, 'Situational Awareness: The Decade Ahead', June 2024, p. 77.

The race to dominate the AI and Cloud markets has in important respects become a race to obtain the critical material resources necessary to build the digital infrastructure on top of which this race takes place. This industry perspective on the market as a race for resources has also been adopted by the European Commission in its call for evidence for a Cloud and AI Development Act: "[T]he initiative seeks to address the problems that currently inhibit the expansion of the EU's data center capacity. These include difficulties in accessing natural resources (energy, water, land), as well as complicated and slow permitting processes […]."

As indicated in Part 1 above, this perspective is based on assumptions with little relationship to facts on the ground. There is no data on the actual capacity utilization rate, both of the data center facilities or the IT equipment within those facilities. It is also not clear that utilization of existing capacity is efficient. Even more importantly, the EU needs to acknowledge what the implications are of this race for natural resources for the natural environment in the EU and across the globe.

It is important to acknowledge what the implications are of this race for natural resources for the natural environment in the EU and across the globe.

Energy is a crucial input for the cloud and AI markets. Data centers consume massive amounts of grid electricity to power the IT hardware housed inside and for cooling purposes. In addition, data centers also consume energy on-site, either to directly power the data center or as a back-up source of energy. A 100 MW hyperscale data center can consume as much electricity annually as 100,000 households. [66] The largest data center currently under construction, however, is around 2000 MW and can consume as much

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[66] IEA, 'Energy and AI' (2025), p. 38.

electricity annually as 2 million households. The largest *planned* data center development is for 5000 MW and can consume more than 3 million households. [67]

In the US, data centers already represent 4.4% of total national electricity use, a figure which could rise to as much as 12% of total US electricity consumption by 2028 according to a recent report by Berkeley Lab. [68] In Europe, we are seeing similar trends, albeit increasing energy dependence and scarcity on the continent[69]. In Ireland, data center electricity consumption was 21% of total national consumption in 2023, up from 5% in 2015. [70] The IEA estimated in a report last year that data center electricity consumption in Ireland could reach 32% of total consumption in 2026. [71] In the Netherlands, a recent report by electricity grid operators estimated that data centers could consume 40 to 70% of the current total Dutch electricity consumption by 2050. [72] Under a high-demand scenario calculated by the IEA, data centers could consume 1,700 TWh annually worldwide by 2035, a figure which approaches all the electricity produced in the EU in 2023. [73]

A significant portion of the estimated rise in electricity demand from data centers comes from AI workloads, with some estimating that AI will be responsible for nearly half of data center electricity consumption soon. [74] However, AI's energy consumption is especially expected to take off when it starts being deployed on a larger scale. When used for so-called 'inference', AI is less energy-intensive per use, but the total impact on electricity consumption may be much higher if used millions or billions of times across societies. 'Inference' is already responsible for the large majority of AI's electricity demand. As the use of AI chatbots, image and video generators and other AI applications are being marketed and adopted by more and more businesses, individuals and other organizations, the corresponding rise in energy demand could - without hyperbole - be unprecedented. [75]

As a result of the steep rise in electricity consumption, scope 2 greenhouse gas emissions from data centers are also on a steep upward trajectory. According to the IEA, global scope 2 emissions from data centers could be as high as 475 Mt CO_2 by 2030, [76] a figure which is close to the projected emissions for the whole of Germany by 2030. [77] There has been relatively little research on greenhouse gas emissions from data centers, however,

[67] IEA, 'Energy and AI' (2025), p. 38.

[68] Berkeley Lab, '2024 United States Data Centre Energy Usage Report', December 2024, p. 5.

[69] https://www.iea.org/regions/europe/energy-mix

[70] Data Center Dynamics, 'Irish data centers used more than 21 percent of nation's total metered electricity', 23 July 2024.

[71] IEA, 'Electricity 2024: Analysis and forecast to 2026', January 2024, p. 32.

[72] Netbeheer Nederland, 'Scenario's Editie 2025', May 2025, p. 87.

[73] See: https://www.consilium.europa.eu/en/infographics/how-is-eu-electricity-produced-and-sold/

[74] De Vries-Gao, 'Artificial intelligence: Supply chain constraints and energy implications', *Joule* (2025).

[75] "This unprecedented surge in power demand for AI is in line with what leading companies are announcing." MIT Technology Review, 'We did the math on AI's energy footprint. Here's the story you haven't heard', 20 May 2025.

[76] IEA, 'Energy and AI' (2025), p. 93.

[77] Clean Energy Wire, 'Germany's greenhouse gas emissions and energy transition targets', 19 February 2025.

and some estimates are much higher than those of the IEA. [78] What is more, the IEA also notes that there might be significant 'rebound effects' (also referred to as Jevons Paradox) which could mean that data center scope 2 emissions will be much higher than the above-mentioned estimate in the near future. [79]

While the scope 2 emissions from data centers are already significant, it is furthermore deeply concerning that they are rapidly rising instead of declining. Research from the US has shown that scope 2 CO2e emissions from data centers in that country went up from 0.5% of US total CO2e emissions in 2018 to 1.66% in 2022, more than tripling in four years time. [80] The IEA estimates that data centers are among the few sectors of the global economy where emissions are increasing instead of declining, with data centers seeing the largest emissions growth of all economic sectors globally in some scenarios. [81] A recent report by the UN International Telecommunications Union and the World Benchmarking Alliance calculated that location-based scope 2 emissions by Amazon, Microsoft, Google and Meta - some of the most important players on the cloud and AI market - were, on average, 150% higher in 2023 than they were in 2020. [82]

Note that research in this area is hampered by a significant lack of transparency in the sector. In a recent report by Berkeley Lab in the United States, the researchers stated the following: "It is important to note that the methodology used here to calculate indirect water and emission impacts does not incorporate any power purchase agreements between individual data center facilities and their electricity providers or on-site "behind the meter" generation, which could significantly affect water consumption and emissions estimates, depending on the electricity source. Nevertheless, due to the unavailability of facility-level data, we are constrained to assume the same electricity grid mix as that provided by the local balancing authority for all data centers within its jurisdiction." [83] Not only could the current estimates of scope 2 emissions by data centers be an undercount, even less is known about the scope 1 and 3 emissions of data centers, which are likely significant. [84] These include emissions from back-up generators as well as emissions in the data center supply. [85]

It is evident that there is tension between the EU's climate goals and the goal of the European Commission of tripling the EU's data center capacity in the next 5–7 years. For one, because rising emissions from the data center sector would necessitate deeper emission cuts in other parts of the European economy. At present, the Commission's plans

[78] Financial Times, 'Energy-hungry Big Tech shrinks from the spotlight at UN climate summit', 21 November 2024.

[79] IEA, 'Energy and AI' (2025), p. 251-252.

[80] Guidi et al., 'Environmental Burden of United States Data Centers in the Artificial Intelligence Era', 14 November 2024, available from: https://arxiv.org/html/2411.09786v1#bib

[81] IEA, 'Energy and AI' (2025), p. 247.

[82] Beyond Fossil Fuels, 'System Overload: How new data centres could throw Europe's energy transition off course', p. 16.

[83] Berkeley Lab, '2024 United States Data Centre Energy Usage Report', December 2024, p. 57-58.

[84] Greenpeace, 'Chipping Point: Tracking Electricity Consumption and Emissions from AI Chip Manufacturing', April 2025, p. 11.

[85] Kaack et al., 'Aligning artificial intelligence with climate change mitigation', *Nature Climate Change* (Vol. 12, June 2022), p. 521.

to become an 'AI Continent' contain no concrete plans on how to meet the goals of the Paris Agreement and the EU Green Deal while also building out Europe's data center capacity on this scale. Therefore, we propose to expand capacity by improving the utilization and efficiency of Europe's existing digital resource production, before stimulating the creation of new infrastructure. At the very least, our interventions provide the level of transparency required to design targeted interventions and rather than a blind expansion of capacity, which may actually depress market prices and hurt European providers the most.

Second, the rapid build-out of data centers makes the 'energy transition' in Europe even more difficult - a transition that is already without any historical precedent. [86] A recent study on data centers in the EU concluded that "[n]ew data center demand alone could consume as much as the added power needed for the electrification of the entire transport sector in the EU by 2030." It raised concerns "that the EU's current renewable expansion plans are inadequate to meet power demand growth from data centers and other sectors". [87] Instead of meeting demand from data centers entirely with *additional* renewable electricity, a more likely scenario that is currently unfolding is that data centers will 'eat up' existing renewable electricity production that could have gone to other economic sectors while also increasingly relying on fossil fuels, thereby extending the EU's reliance on fossil fuels. [88] Similarly, recent academic research from Ireland concluded: "[U]nchecked data center growth poses a significant threat to Ireland's climate commitments. Without decisive action, data centers will continue to divert renewable energy to serving demand growth rather than displacing fossil fuels, deepen reliance on fossil fuels, and exacerbate Ireland's carbon budget overshoot [...]." [89]

While the European 'green energy transition' was already extremely difficult to achieve, the race towards AI makes creates another sector that requires massive quantities of new renewable energy.

An explosive growth in energy consumption and production is furthermore only one of the material impacts of the expansion of cloud and AI markets in the EU. Data centers, the buildings and the ICT equipment, also consume significant amounts of other natural resources, including water, land and critical minerals and are responsible for serious forms of pollution. These impacts are and will be felt both inside and outside the EU. A few facts to illustrate the impact:

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[86] Fressoz, *More and More and More* (2024).

[87] Beyond Fossil Fuels, 'System Overload: How new data centres could throw Europe's energy transition off course', p. 16.

[88] In the US, demand for natural gas-fired turbines is rapidly accelerating as a result of data center growth. See: https://www.spglobal.com/commodity-insights/en/news-research/latest-news/electric-power/052025-us-gas-fired-turbine-wait-times-as-much-as-seven-years-costs-up-sharply

[89] Prof. Hannah Daly, 'Data centres in the context of Ireland's carbon budgets', report commissioned by Friends of the Earth Ireland, December 2024, p. 3.

- One recent study estimated that the scope 1 and 2 water use of global AI is projected to reach between 4.2 and 6.6 billion cubic meters in 2027, equivalent to four to six times the total annual water withdrawal of Denmark. [90]

- Another recent study estimates that electricity production needed for data centers "in 2030 [...] could cause, among others, approximately 600,000 asthma symptom cases and 1,300 premature deaths, exceeding 1/3 of asthma deaths in the U.S. each year. The overall public health costs of U.S. data centers could rival or even exceed those of on-road emissions of the largest U.S. states, such as California." [91]

- Research has shown that the production of CPUs and GPUs, essential IT-hardware to operate data centers that underlay the cloud and AI markets, is associated with significant water pollution. [92]

- Recent research estimates that the AI boom alone could lead to approximately 16 million tons of e-waste between 2020 and 2030, or roughly 11% of the global total. [93] The UN has catalogued the environmental and public health impacts caused by e-waste, [94] most of which are borne by people and ecosystems in the Majority World. [95]

- The explosion in data center growth has raised demands for critical minerals even further, often the same minerals needed in the renewable energy sector. [96] These minerals are mined in countries such as China, DRC and Chile where there are severe risks of environmental harm and human rights abuse linked to the mining of these minerals. [97]

Like with the EU's climate goals, there is tension between the material impacts of data center expansion in the EU on land use, water use, use of critical minerals, e-waste and related forms of pollution and the EU's commitment to operate within planetary boundaries on these issues. In its 8th Environmental Action Programme, the EU has committed to a priority objective of living within planetary boundaries and, more specifically, to pursue

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[90] Li et al., 'Making AI Less "Thirsty": Uncovering and Addressing the Secret Water Footprint of AI Models', 15 January 2025, p. 2, available at: https://arxiv.org/abs/2304.03271

[91] Han et al., 'The Unpaid Toll: Quantifying the Public Health Impact of AI', 9 December 2024, pp. 4-5, available at: https://arxiv.org/abs/2412.06288.

[92] See: https://xrw.craft.me/semiconductorfieldguide

[93] Zhang et al., 'E-waste Challenges of Generative Artificial Intelligence', *Nature Computational Science* (Vol. 4, 2024), pp. 818–823.

[94] UNITAR, 'The Global E-Waste Monitor 2024', 2024, pp. 50-51.

[95] Njoku et al., 'Environmental Injustice and Electronic Waste in Ghana: Challenges and Recommendations', *Int. J. Environ. Res. Public Health* (2024), pp. 21-25.

[96] EA, 'Energy and AI' (2025), p. 213; See also: https://unctad.org/news/critical-minerals-boom-global-energy-shift-brings-opportunities-and-risks-developing-countries

[97] PBL Netherlands Environmental Assessment Agency, 'Environmental Impacts of Extraction and Processing of Raw Materials for the Energy Transition' (2024); Owen et al., 'Energy transition minerals and their intersection with land-connected peoples', *Nature Sustainability* (Vol. 6, February 2023), pp. 203-211; See also: https://globalwitness.org/en/campaigns/transition-minerals/in-numbers-critical-mineral-production-ownership-and-social-unrest/;

"zero pollution" and "halting and reversing biodiversity loss". 98 Apart from climate pledges, the EU Green Deal commits Europe to "economic growth decoupled from resource use" and "no person and no place left behind". 99 The EU owes its people and nature, as well as the people and nature of the rest of our planet, an explanation on how the strong growth in the EU's cloud and AI market is possible while also meeting its pledges to operate within planetary boundaries.

We urge the European Commission to:

- **undertake a comprehensive assessment** of the climate and broader environmental impacts of expanding Europe's data center footprint as proposed in the context of the AI Continent Action Plan and Cloud and AI Development Act before taking any further steps. Without such an assessment, it is virtually impossible to have a **rational and evidence-based public debate about the future of the cloud and AI markets in the EU.**

- assess those potential effects via a **rigorous impact assessment**. The European Commission and Member States have, via Commission Delegated Regulation (EU) 2024/1364 of 14 March 2024 on the first phase of the establishment of a common Union rating scheme for data centers, access to a European database with key performance indicators and other information that should provide a basis for any such impact assessment, although additional scientific evidence and input from civil society actors and (potentially) affected communities in the EU and outside the EU should be considered in this process as well. It should be added that, as per the text of the above-mentioned regulation (article 5 (2) and 5 (5) in particular), information, and key performance indicators, communicated to the European database, and the data center sustainability indicators, remain confidential. Such confidentiality is antithetical to having a meaningful and comprehensive democratic debate on the climate and environmental impacts of the European data center sector and should be reconsidered.

- **commit and ensure** that the current and future development of data center capacity in Europe operates within planetary boundaries. These planetary boundaries are also encapsulated in a range of international agreements and EU law and policy to which the Union and its Member States are bound. This includes, *inter alia*, the UNFCCC, the UN Convention on Biological Diversity, the Paris Agreement, the Kunming-Montreal Global Biodiversity Framework, the EU's 8th Environmental Action Programme, the EU Green Deal, the Zero Pollution Action Plan, the EU Climate Law, the EU Nature Restoration Law, amongst many other sources of law and policy. At the very least, this means that the EU will have to monitor and enforce absolute aggregate limits to the climate and broader environmental impacts of the EU Cloud and AI markets, both within its territory as beyond. Merely imposing measures to increase the efficiency and reduce the impact at the individual data

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[98] Decision (EU) 2022/591 of the European Parliament and of the Council of 6 April 2022 on a General Union Environment Action Programme to 2030, article 2.

[99] See: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

center level is not enough, as it is the total, aggregate, impacts of the industry that matter for people and nature.

The Union's Primary Purpose Is to Serve the Well-Being of Its People, Not Technological Competitiveness

In times of fast change and upheaval like these, it is worth remembering the foundations on which the European Union was built. As article 3 (1) of the Treaty on European Union (TEU) unambiguously states: "The Union's aim is to promote peace, its values and the well-being of its peoples." The values referred to here are listed in article 2 TEU: "The Union is founded on the values of respect for human dignity, freedom, democracy, equality, the rule of law and respect for human rights, including the rights of persons belonging to minorities. These values are common to the Member States in a society in which pluralism, non-discrimination, tolerance, justice, solidarity and equality between women and men prevail."

Yet, the cloud and AI markets and the downstream digital economy they enable have produced outcomes which are at odds with the Union's aims and values. Apart from the environmental 'externalities' we addressed above, the cloud and AI markets are responsible for 'social externalities' that are equally harmful. This submission is not the place for a lengthy analysis, but let us briefly highlight just a number of systemic issues:

- AI and other digital services have already proven to be undermining the functioning of democracy, including in the EU. [100] A recent replication study of a 2023 systematic review on digital media and democracy confirmed that digital media "contribute to negative outcomes such as declining political trust, rising populism, and increased polarization, especially in established democracies" [101] Another recent study by the International Panel on the Information Environment, counted 215 incidents with Generative AI in 50 countries holding national elections in 2024. 80% of these countries had an incident involving AI during their elections, and 69% of the incidents were described as having a harmful role in the election. [102]

- AI is increasingly deployed in warfare, with the risk of significant violations of international human rights law and international humanitarian law as a result[103]. In February, Associated Press revealed that "*U.S. tech giants have quietly empowered Israel to track and kill many more alleged militants more quickly in Gaza and Lebanon through a sharp spike in artificial intelligence and computing services.*" AP detailed how the use of, *inter alia*, Microsoft and OpenAI cloud and AI services by

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[100] Le Monde, 'Romania's presidential election canceled over TikTok disinformation investigation', 7 December 2024; New York Times, 'A.I. Is Starting to Wear Down Democracy', 26 June 2025.

[101] Xia, Ziqian & Ye, Jinquan & Debnath, Ramit, 2025. "A Comment on "A Systematic Review of Worldwide Causal and Correlational Evidence on Digital Media and Democracy" by Lorenz-Spreen et al., (2023)," I4R Discussion Paper Series 206, The Institute for Replication (I4R).

[102] IPIE, 'Generative AI in Electoral Campaigns', Summary for Policymakers, SFP2025.1.

[103] https://www.kcl.ac.uk/events/clearing-the-fog-of-war-protecting-freedom-of-expression-in-armed-conflict

the Israeli military spiked since the October 7 attacks by Hamas. [104] In April last year, +972 magazine revealed "that thousands of Palestinians — most of them women and children or people who were not involved in the fighting — were wiped out by Israeli airstrikes, especially during the first weeks of the war, because of [an] AI program's decisions." [105] The global AI in aerospace and defense market size is estimated by one market research firm at USD 28 billion this year, and expected to grow to over USD 65 billion by 2034. [106]

- AI is expected to only worsen the already endemic levels of digital addiction among young people, especially - next to other mental and physical impacts of engaging with digital tools. [107] A 2024 World Health Organization survey across 44 countries and regions of Europe, Central Asia and Canada of children aged 11, 13 and 15, showed that "*36% of adolescents reported continuous online contact (almost all the time throughout the day)*" These findings also revealed "*a sharp rise in problematic social media use among adolescents, with rates increasing from 7% in 2018 to 11% in 2022. This, coupled with findings that 12% of adolescents are at risk of problematic gaming, raises urgent concerns about the impact of digital technology on the mental health and well-being of young people.*" [108] In May, The Guardian reported on a survey of 1,293 young people in the UK that found that nearly half of young people" would rather live in a world where the internet does not exist". According to the same survey, "70% of 16- to 21-year-olds feel worse about themselves after spending time on social media". [109]

- In 2020, a Dutch court was ahead of the curve in ruling that an algorithmic welfare fraud detection system violated the European Convention on Human Rights, also weighing the discriminatory and stigmatizing effects of this system. [110] The EU took note of such potential human rights violations in the process of drafting the AI Act, stating that the use of AI systems in government welfare systems "may have a significant impact on persons' livelihood and may infringe their fundamental rights" [111] Yet, recent news reports indicate that such use of AI in government social

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[104] AP, 'As Israel uses US-made AI models in war, concerns arise about tech's role in who lives and who dies', 18 February 2025.

[105] +972 Magazine, ''Lavender': The AI machine directing Israel's bombing spree in Gaza', 3 April 2024.

[106] See: https://www.precedenceresearch.com/ai-in-aerospace-and-defense-market

[107] One recent study that compared students writing an essay with their brain only, with the help of a search engine and with Chat GPT. It found that "Brain connectivity systematically scaled down with the amount of external support: the Brain-only group exhibited the strongest, widest-ranging networks, Search Engine group showed intermediate engagement, and LLM assistance elicited the weakest overall coupling." Kosmyna et al., 'Your Brain on ChatGPT: Accumulation of Cognitive Debt when Using an AI Assistant for Essay Writing Task', June 2025, available at: https://arxiv.org/abs/2506.08872

[108] WHO, 'Teens, screens and mental health', 25 September 2024.

[109] The Guardian, 'Almost half of young people would prefer a world without internet, UK study finds', 20 May 2025.

[110] Available from: https://uitspraken.rechtspraak.nl/details?id=ECLI:NL:RBDHA:2020:1878

[111] Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence, para. 58.

protection systems continues in the EU and beyond. [112] In fact, the Draghi report has chosen to focus on supposed cost reductions in government and helping the business sector: "Digitalization and the deployment of artificial intelligence (AI) are also essential to the ability of public administrations to deliver European public goods, for example in the field of health, justice, education, **welfare**, mobility and environmental protection. They can, in addition, contribute to reducing the cost of public services and help to maximize support to businesses." [113]

A key pillar of the European Commission's plans related to the AI and Cloud markets in the EU is to improve the 'competitiveness' of Europe by growing the number of data centers on the continent rapidly. The answer, according to the Commission, is to increase private investment in these markets by facilitating access to natural resources and cutting 'red tape'. [114] Yet, growing these markets does not address the severely negative social externalities of AI adoption. Rather, given the domination of a select number of American Big Tech corporations on these markets, they are the likely winners of this possible EU policy, while many of the people of Europe will face the severe negative impacts on their human rights and their broader well-being.

Nobel Laureates in economics Daron Acemoglu and Simon Johnson fundamentally challenge the assumption that technological innovation automatically benefits society. In their research, they demonstrate that "the broad-based prosperity of the past was not the result of any automatic, guaranteed gains of technological progress. We are beneficiaries of progress, mainly because our predecessors made the progress work for more people." [115] Without deliberate intervention beyond the blind pursuit of European competitiveness, AI will follow the same pattern as previous instances of technological innovation—concentrating benefits among those who already hold most power and capital. This is nicely illustrated by the capital investment by Amazon, Microsoft, Google and Meta in data center infrastructure this year, which is expected to exceed USD 300 billion. [116]

As Acemoglu has warned in a paper on the macroeconomic effects of AI, "[...]there is no evidence that AI will reduce inequality, as some are forecasting. Rather, my analysis suggests that it may have a small positive effect on overall (between-group) inequality and reduce the real earnings of low-education women. It will also further widen the gap between capital and labor income.'" [117] As Acemoglu and Johnson also write, what separates beneficial technological periods from harmful ones is the balance of power

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[112] MIT Technology Review, 'Inside Amsterdam's high-stakes experiment to create fair welfare AI', 11 June 2025; Amnesty International, 'Denmark: AI-powered welfare system fuels mass surveillance and risks discriminating against marginalized groups – report', 12 November 2024.

[113] Draghi, 'The Future of European Competitiveness: Part B, In-depth Analysis and Recommendations', September 2024, p. 67.

[114] European Commission, 'AI Continent Action Plan', 9 April 2025, COM(2025) 165 final, p. 10.

[115] Financial Times, 'Big Tech lines up over $300bn in AI spending for 2025', 7 February 2025.

[116] Acemoglu, 'The Simple Macroeconomics of AI', *Economic Policy*, January 2025, p. 52.

[117] Dario Amodei, 'Machines of Loving Grace', October 2024; Aschenbrenner, 'Situational Awareness: The Decade Ahead', June 2024.

between workers and employers, between society and shareholders, a balancing act reliant on well-functioning democratic institutions and regulation.

We urge the European Commission to:

- pledge unequivocally that promoting peace, its values and the well-being of its peoples is its first and foremost priority in all policies regarding the cloud and AI markets in Europe, instead of promoting European competitiveness first and foremost.

- ensure its policies in this area are based on the precautionary principle already laid down for environmental policy in article 191 TFEU, given the severe negative social externalities associated with AI, effects which have already materialized and caused harm to human rights and well-being inside and outside the EU.

- adapt a more sober and rational perspective on the development of cloud and AI markets in Europe and its potential benefits. Rather than a policy mindset focused on 'winning' a supposed race on AI, the European Commission needs to develop a framework in which any decision to fund or otherwise support AI development and deployment is carefully weighed against alternative roads towards European prosperity and well-being. Many of the most significant crises facing Europe today, from structural unemployment, poverty and economic precarity to the Triple Planetary Crisis, deserve priority attention and will not be resolved through expanding cloud and AI markets in Europe.

- Any further investment in, or enabling of, AI development and deployment in Europe must be accompanied by a strengthening and broadening of – instead of a hollowing out of - regulatory frameworks in the EU, including (but not limited to) the AI Act, Digital Markets Act and GDPR. As Mario Draghi wrote, "the EU faces now an unavoidable trade-off between stronger ex ante regulatory safeguards for fundamental rights and product safety, and more regulatory light-handed rules to promote EU investment and innovation [...]." [118] We agree, and it is obvious to us that the balance should tilt towards protecting the human rights and well-being of the people of Europe via strong regulation and oversight.

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[118] Draghi, 'The Future of European Competitiveness: Part B, In-depth Analysis and Recommendations', September 2024, p. 79.

Acknowledgements

We want to acknowledge the support of Corinne Cath and Maria Luisa Stasi of ARTICLE 19 for their feedback and reviewing this document.