Open standards for Europe's AI Gigafactories:
unlocking Europe's largest AI investment

The investment

The AI Gigafactory initiative is the most significant infrastructure investment the EU has ever made in artificial intelligence. With up to €20 billion in public capital at stake, it will shape European AI capability through the 2040s. The regulation governing this investment entered into force on 20 January 2026. Calls for Expressions of Interest launch in Q1 2026.

This investment must work for the European Union. It should create the conditions for European AI companies, researchers and entrepreneurs to build on publicly funded infrastructure – not merely consume it as customers of a closed ecosystem. Open standards are the mechanism that makes this possible: they ensure that the value created by public investment flows into European jobs, European intellectual property and European technological capability. Openness is a necessary condition for this. It is not, on its own, sufficient – but does encourage and should be paired with procurement strategies that encourage supply-chain resilience. Without these, no amount of industrial policy can unlock the infrastructure for European innovation.

The problem

Open standards and interoperability have repeatedly unlocked innovation by ensuring no single vendor controls key infrastructure. Their importance extends to AI infrastructure: they are essential to an innovative, vibrant AI ecosystem in the EU.

Vendor lock-in does not principally arise from hardware. It arises from dependence on proprietary toolchains, closed software stacks and models optimised for a single backend. Increasingly, lock-in is also shifting upward to the model optimisation layer – proprietary quantisation pipelines, deployment toolchains and inference runtimes that bind users to a specific vendor's ecosystem even when the underlying hardware appears diversified.

When the interoperability baseline is defined by one proprietary platform, that one vendor effectively controls what is interoperable. This is not a technical limitation. It is an architectural choice, and it is one that procurement criteria can and should address.

We are not calling for the exclusion of any supplier. International technology providers will rightly form part of gigafactory consortia. Our concern is narrower and more precise: the software layer – and the networking protocols that increasingly function as an extension of it.

Lock-in at the networking layer

Lock-in extends beyond compute software into interconnect infrastructure. Today, the integrated high-performance networking fabric for AI clusters – InfiniBand – is proprietary and controlled by a single vendor. This creates a secondary dependency: even where consortia might wish to diversify their accelerator hardware, proprietary networking protocols constrain that choice by requiring vendor-matched equipment across the entire cluster.

Open alternatives exist. The Ultra Ethernet Consortium is developing open, high-performance networking standards specifically designed for AI workloads, with broad industry backing. The Call for Expression of Interest should recognise networking as a critical layer where open standards are both available and necessary and should evaluate proposals on their adoption of open networking fabrics alongside open software stacks.

The economic case for openness

The case for openness is ultimately an economic one. When publicly funded infrastructure is built on open, documented interfaces, European companies can compete to provide components, services and optimisation at every layer of the stack.

European chip designers entering the market in 2028 or 2030 can integrate their accelerators without requiring a full redesign of the software environment. European software developers can build tools, runtimes and deployment frameworks that work across the infrastructure. European cloud operators and system integrators can offer services on top of it.

Closed architectures foreclose these opportunities by design – not because European technology is inferior, but because the integration surface is controlled by a single provider. The question is not whether Europe can match every global supplier today. It is whether the infrastructure built now keeps the door open for European technologies as they mature. Open standards are what make that possible.

However, technical openness is undermined if the physical supply chain remains hyper-concentrated. If a bidder relies on a single non-domestic supplier for most of its critical components, the system remains vulnerable to external shocks regardless of the software architecture. As a result, the European Commission should also evaluate the supply-chain concentration to encourage consortia to form local partnerships.

What we ask

We call on the European Commission to require, through the Call for Expression of Interest and the Hosting Agreements, that AI Gigafactory infrastructure adopts open, non-proprietary software standards as the interoperability baseline.

This means mandating support for open standards such as ONNX, OpenXLA and SYCL; requiring that core software enabling hardware utilisation – including frameworks like PyTorch and TensorFlow, drivers, compilers and runtime libraries – is available under open-source licences; and evaluating workload-specific performance rather than synthetic benchmarks that favour architectures optimised for training over inference.

Precision by stack layer

Interoperability requirements should be defined with precision at each layer of the stack. At the orchestration, model representation and serving API layers – where tools such as Kubernetes, ONNX and Hugging Face model formats are already widely adopted – open standards are mature and enforceable, and lock-in risk is highest. At the hardware execution layer, where tightly coupled architectures deliver genuine performance advantages, requirements should focus on documented APIs at the hardware–software boundary rather than mandating full homogeneity.

This distinction strengthens rather than weakens the case: it demonstrates technical credibility and ensures that European hardware innovators can compete on performance within an open framework.

Why now

If open interoperability requirements are not embedded now, the technology stack will crystallise before future competition rules take effect. European chip designers, software developers and system integrators entering the market in 2028 or 2030 will find the door closed. The purpose of requiring open standards today is precisely to ensure that when European alternatives emerge, they can integrate seamlessly into publicly funded infrastructure.

The solution, in detail

Require all consortia – regardless of whether they include technology infrastructure suppliers – to demonstrate how their architecture supports genuine multi-vendor portability at the software layer. Additionally, incorporate a "Resilience" scoring module into the evaluation:

This need not mean that every gigafactory individually deploys a heterogeneous hardware environment from day one. But the portfolio of gigafactories collectively should ensure architectural diversity, and each individual facility must demonstrate that its software stack permits the progressive integration of alternative hardware without requiring wholesale redesign.

Bids that demonstrate high resilience through reliance on onshore supply chains, multi-vendor strategy that includes EU suppliers and clear pathway for the integration of open standards, **should receive a 'Resilience' score upgrade**. By rewarding consortia that mitigate concentration, the EU can ensure that AI Gigafactories remain agile, diverse and resilient to long-term supply chain disruptions, thereby securing operational continuity through a competitive supplier base.

Score proposals on open-standard compliance, not just peak performance benchmarks. Include a specific evaluation question: how will the consortium prevent software lock-in and ensure workload portability across hardware platforms?

In the hosting agreement

Define the "enhanced conflict-of-interest safeguards" required under Article 12b(17)(h) Council Regulation (EU) 2026/150 to include binding commitments to open software interfaces, a prohibition on contractual arrangements requiring exclusive reliance on a single vendor's proprietary software license that effectively locks out competing software or hardware providers, and documented APIs enabling third-party integration. Interpret the strategic autonomy provision in Article 12b(17)(b) to require software-layer openness as a condition for safeguarding the Union's strategic interests.

Define the "enhanced conflict-of-interest safeguards" required under Article 12b(17)(h) to include binding commitments to open software interfaces and documented APIs. Interpret the strategic autonomy provision in Article 12b(17)(b) to require both software-layer openness and supply-chain diversification as conditions for safeguarding the Union's strategic interests.

In evaluation and monitoring

Require annual reporting on software dependency metrics and vendor concentration to the public governance body. Assess proposals not only on current performance but on their capacity to evolve – the ability to integrate new technologies progressively, including emerging European accelerators, without requiring full hardware homogeneity from day one.

To promote transparency, each AI gigafactory Consortium should make publicly available their AI workload. For this purpose, a transparent, multi-stakeholder workload benchmark framework should be developed, covering both training and inference, designed in collaboration with European operators, AI developers and hardware providers.

Delivering long-term European prosperity

The trade-off is not performance versus diversity. A heterogeneous, open software stack requires more upfront integration work, but it delivers supply chain resilience, competitive pressure on pricing, European IP and jobs, and architectures optimised for emerging workloads. The trade-off is a short-term integration effort to deliver long-term European prosperity.

Finland's LUMI factory already proves this is achievable: world-class AI performance on alternative hardware, using open-source software, under European control.

Europe's AI Gigafactories will define the continent's technological infrastructure for a generation. The decisions made in Q1 2026 will determine whether that infrastructure serves as a platform for European innovation – or as a distribution channel for technologies developed and controlled elsewhere. Open standards are how Europe ensures that its largest-ever AI investment generates returns for European businesses, European researchers and European citizens.

We urge the Commission to use the implementation instruments at its disposal to ensure that Europe's most critical AI infrastructure investment serves European strategic interests – by requiring that the software foundations remain open, competitive and ready for the European technologies of tomorrow.

Signatories

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