EUROPEAN CLUSTER COLLABORATION PLATFORM

Technologies of the Future: AI, Quantum and Beyond

Summary

EU Clusters Talks
3 December 2025, 8:30 – 9:45 CET

An initiative of the European Union

Ahead Technologies of the Future: AI, Quantum and Beyond

The European Cluster Collaboration Platform, on behalf of the European Commission, hosted the EU Clusters Talk "**Technologies of the Future: AI, Quantum and Beyond**" on 3 December, from 8:30 – 9:45 CET. The session explored the uptake of these technologies by the industry, activities of clusters, and needed actions to advance.

Agenda of the meeting

Moderation: Jennifer Baker

1. News from the European Cluster Collaboration Platform
   Nina Hoppmann, team member of the European Cluster Collaboration Platform
2. Apply AI Strategy
   Gaspard Demur, Deputy Head of Unit 'AI Innovation and Policy Coordination', EU AI Office, European Commission
3. Panel debate
   Aitor Moreno, Head of Quantum Technologies and Systems, LKS Next
   Katja Eichinger, Project Manager, AIR Artificial Intelligence Regensburg
   Juha-Pekka Alanen, AI Expert, Robocoast EDIH
   Mathias Schumacher, Project Manager Technology & Innovation, EIN.Quantum.NRW
   Merete Nørby, International Senior Consultant, MADE – Manufacturing Academy of Denmark
   Thomas Roeblreiter, Co-Chair Sector Group Digital, Enterprise Europe Network
4. Funding opportunities
   Nina Hoppmann, team member of the European Cluster Collaboration Platform

Key messages

- Quantum is a time-critical frontier for EU industry, especially for optimisation and simulation.
- AI is too often reduced to chatbots, and quantum still lacks clear business cases, so fast PoCs matter.
- Data readiness and scale-up are blocked by fragmented datasets, skills gaps and weak management buy-in.
- Clusters and EDIHs enable uptake through living labs, test-before-invest, matchmaking and training.
- Adoption must address energy footprint and post-quantum cybersecurity risks.

1. News from the European Cluster Collaboration Platform

Nina Hoppmann, team member, European Cluster Collaboration Platform

The following news items were presented:

1. Survey: Help shape the future EU for Business Network, until 30 January 2026
2. EU consultation on public procurement; deadline 26 January 2026
3. Call for evidence and public consultation for the Advanced Materials Act; deadline 12 January 2026
4. EU opens registration for craft and industrial product names, under new geographical indication protection

2. Apply AI Strategy

Gaspard Demur, Deputy Head of Unit 'AI Innovation and Policy Coordination', EU AI Office, European Commission

Gaspard Demur outlined how the European AI Office is rolling out the April 2025 AI Continent Action Plan and the October Apply AI Strategy, stressing that clusters, the Enterprise Europe Network and European Digital Innovation Hubs (EDIHs) are essential to make the policy real for companies. The goal is to keep Europe competitive in advanced AI while reducing reliance on foreign models by building EU capacity in computing infrastructure, cloud, data, skills and easier regulatory compliance, with a strong focus on sectoral uptake.

On infrastructure, Europe has established 19 AI Factories by upgrading existing supercomputers with AI GPUs and support services (training, priority access, remote access points). Because this still lags the US and China, the EU is moving to 4–5 AI Giga-Factories of 100,000+ processors each, financed through a new public–private model (about two-thirds private, one-third public). An expression-of-interest round showed great interest, and a formal call will follow in early 2026. In parallel, a Cloud and AI Development Act (expected around March 2026) aims to triple EU data-centre capacity within 5–7 years by speeding up permitting and enforcing energy and water efficiency standards.

Gaspard Demur presented data as another bottleneck. The new Data Union Strategy will increase the volume and quality of EU data, using trusted “data labs” inside AI/Giga-Factories to support sector-by-sector pooling (including synthetic data and pseudonymisation) under clearer legal and contractual rules.

Regarding the uptake of AI, Gaspard Demur said Europe’s edge is applying AI in its strong industries, not building models for their own sake. Following the Draghi report, the EU targets 10 priority sectors plus the public sector, but SME adoption is low (around 13.5%). The Apply AI Strategy therefore seeks to match Europe’s large AI start-up base with sector needs through an Apply AI Alliance platform and workshops, leading to flagship actions. EDIHs and clusters will guide firms through a “client journey” to the right support node (factories, data labs, testing facilities, training).

Finally, on regulation and skills, the AI Skills Academy and EDIH/cluster training will expand capabilities across firms and society, while the AI Act Service Desk offers fast practical advice on compliance. The Commission is also extending high-risk AI timelines because standards are not yet ready, in line with broader simplification efforts.

3. Panel debate

Aitor Moreno's intervention centred on the idea that quantum computing is a difficult but urgent next step for European industry. He notes that, if AI adoption is already challenging, quantum will be even more so; yet it offers real near-term advantages in optimisation and simulation, and could underpin new kinds of quantum-based AI. Europe therefore needs to move quickly into real industrial applications or risk becoming dependent on others. He also argued that AI is currently being misperceived as mostly "ChatGPT-style" tools, which hides the broader industrial value of AI and creates a skills and awareness gap among companies and clients. Traditional AI has been used in industry for years, so that opportunity is now mature and competitive, whereas quantum technologies open a fresh window for leadership—though he warns this could close in the next 3–5 years as platforms consolidate.

He further stressed that the main bottleneck is on the demand side, so public proof-of-concept programmes are vital. He cited regional and Spanish initiatives already funding dozens of real projects in sectors such as health, banking and industry. With computation at the core of modern economies, he sees quantum's parallel power as key to solving problems classical computers cannot, especially in new materials, chemistry, health solutions and industrial process improvement.

Katja Eichinger gave some examples of current flagship activities of their cluster, which include an innovation network on multimodal AI for adaptive intralogistics and robotics, and an "AI driver's licence" initiative aimed at citizens, offering a short, engaging introduction to AI to build basic understanding, curiosity and reduce fear. The cluster also hosts working groups on embedded AI and a newer one on quantum technologies. A key pillar of their approach is knowledge transfer from science into industry, supported by close cooperation with universities and links to a European Digital Innovation Hub.

On adoption challenges, she highlighted that data readiness remains a major bottleneck and that many projects struggle to move from pilots to scaling. She stressed the need for realistic expectations about what AI can and cannot do, especially among SMEs. Successful uptake depends heavily on management buy-in, access to skills, and active exchange with other organisations. Their practical advice is to start from a clear use case with demonstrable added value, then scale step by step. Finally, they argue for an "AI-first mindset": rather than layering AI onto unchanged processes just to "use AI", companies should redesign workflows where AI genuinely fits and allow sufficient time for implementation and upskilling. She further said that moving from AI pilots to scale is easier when SMEs can experiment in real settings, such as living labs and "test-before-invest" facilities. Europe needs sovereign compute and data infrastructure so firms can develop and use AI within GDPR-compliant environments without excessive privacy concerns, while improving energy efficiency and avoiding vendor lock-in—linking this to initiatives like AI Gigafactories. Finally, she noted that barriers are even stronger for quantum technologies, where commercialisation is still less mature and significantly more expensive.

Juha-Pekka Alanen identified a key barrier to AI uptake in traditional industries, many of which are family-owned and have operated for decades. These companies have accumulated huge amounts of data, but often don't know what they have or how to use it. The challenge is not a lack of AI tools—those exist—but the difficulty of locating, cleaning and integrating data scattered across old and new systems, PDFs, emails and even tacit knowledge held by staff. They compare the task to needing "data geologists" to find value in a mountain of information. Until firms get expert help to make their data usable, they struggle to apply AI effectively in production or business processes like bidding and tendering.

Furthermore, he spoke about the customer/demand side: SMEs need fast, low-friction funding to run real-world demos and proof-of-concept tests with their customers. At present, there isn't a dedicated mechanism for this, so organisations must hunt through open calls or local schemes, which slows adoption. A simple, rapid PoC funding tool would make it much easier to validate AI solutions in practice and move towards uptake.

Mathias Schumacher noted that AI feels familiar because tools like ChatGPT are easily accessible and widely used, whereas "second-revolution" quantum technologies are still less visible and not yet something most people can try directly. He argued that the main hurdle for quantum providers is turning promising use cases into credible business cases, partly because quantum demos are often benchmarked against unrealistic classical comparisons. To overcome this, he proposed a stronger public-sector role: universities, research centres or ministries should act as early buyers of quantum hardware/software through staged procurement, place it in application centres, and open access to companies. This would create real demand, reduce reliance on VC models, and give SMEs a trusted environment to experiment. On the user side, he sees growing industrial interest in his region—especially in energy optimisation/trading, logistics, materials and pharma—and stressed that networking and cluster-style matchmaking are vital to connect suppliers, quantum software developers and adopters.

He also highlighted a critical risk: mature quantum computing could break parts of today's cryptography, so Europe must advance post-quantum security in parallel with adoption. Finally, he expects quantum's impact to arrive through steady evolution over the next decade and addes that AI's sustainability challenge is not only software-driven but hardware-driven too.

Merete Nørby said that AI has become a major theme in their offers over the past two years, with predictive/optimised maintenance highlighted as a common, accessible entry use case. She cited a recent Danish survey showing a misleadingly high headline AI uptake: 73% of SMEs claim to use AI, but closer inspection reveals this is largely ChatGPT-type use, with only about 7% having AI fully integrated into production processes. Uptake is also uneven across sectors, concentrated more in communication-related activities than in core manufacturing such as metals or electronics. The dominant barriers are skills and leadership.

She added two sustainability cautions. First, manufacturing needs to prioritise take-back systems and remanufacturing as part of the green transition, where AI and related technologies can help. Second, the energy cost of data-heavy technologies often ignored. she urged that Europe measure and address this footprint alongside the benefits, not treat digital/green goals as cost-free.

Thomas Roeblreiter stressed that support must be tailored to company size: larger SMEs often have in-house digital skills, while micro-companies need hands-on guidance to identify opportunities, understand data/GDPR issues, and take first steps. To close this gap, he highlighted the value of fast, low-barrier "test-before-invest" services offered through EDIHs. As an example, the AI4Production EDIH delivered 120 test cases in the previous period, giving firms a response within two weeks and guiding them to quick proofs of concept—an approach that generated strong industrial demand and helps SMEs build confidence and a roadmap for further funding or collaboration. Finally, he provided a concrete success story: an Austrian SME developed an AI solution to optimise district heating systems, piloted in two networks and demonstrating up to 20% energy savings. They present this as evidence of AI's practical sustainability impact when SMEs receive the right, rapid support.

4. Funding opportunities

Nina Hoppmann, team member, European Cluster Collaboration Platform

Closing the EU Clusters Talk, Nina Hoppmann shared the following examples of funding opportunities:

1. Consolidation of the Network of European Digital Innovation Hubs (EDIHs with reinforced AI focus); deadline 3 March 2026
2. Data Space for Manufacturing; deadline 3 March 2026
3. Scaling up deep tech ecosystems; deadline 20 January 2026.