Artificial Intelligence as a driver of transformation in the EU

For a sovereign, competitive and innovation-friendly AI ecosystem in Europe

Executive Summary

Artificial intelligence (AI) is not only an innovation factor, but also a sovereignty factor. The EU must therefore make AI the strategic core of its industrial policy in order to secure its digital sovereignty and competitiveness. Otherwise, Europe runs the risk of regulatory overclocking without ensuring industrial connectivity. An innovation-oriented, simply regulated and empowered European AI ecosystem is necessary for the transformation of the European economy. To secure this, Europe must create a coherent growth environment for users and manufacturers of AI by enabling sovereign computing capacity and cloud offer, efficient use of data and data space and coherent and practical legal frameworks. Industrial AI applications in general and AI robotics, defense applications and green tech in particular are drivers of an industrial policy understanding of AI as a central transformation driver in the EU.

The current EU policies on AI, including the AI Continent Action Plan, the Apply AI Strategy, the Cloud and AI Development Act, the European Strategy for AI in Science and the EU Simplification Package, are ambitious and necessary steps to strengthen Europe's position in the global AI competition and to bundle AI initiatives. These initiatives aim to secure Europe's technological sovereignty, expand infrastructure, improve access to high-quality data and promote the use of AI in strategic sectors.

Despite the positive intentions and ambitious goals, there are considerable challenges and risks that could jeopardize the successful implementation of these policies. Bureaucratic hurdles, slow decision-making processes, a lack of pragmatism and dovetailing with national interests and insufficient practical relevance could delay or hinder the implementation of the measures. It is crucial that the EU creates clear and binding framework conditions in order to secure investment, mobilize private capital and promote cooperation between member states and stakeholders. Besides, Europe faces a critical "last-mile" gap between AI research and daily value creation in firms. Case studies show the ultimate barrier is not technology but human capability to integrate AI systems effectively. Europe will thrive on its competitive advantage – human judgement and expertise – if it drives an integrated "AI-literate Europe" framework that builds a coherent capability ladder focused on human-AI teaming. Only through a coherent and coordinated approach Europe can strengthen its technological sovereignty and ensure its competitiveness in the global AI competition.

Key messages

Transformation areas of AI

The potential of AI is particularly evident in various transformation areas. Industrial applications such as predictive maintenance and robotics offer enormous opportunities to increase efficiency and reduce costs. In the field of GreenTech, AI is central to the development of energy-efficient production processes, the minimization of CO2 emission, intelligent power grids and the optimization of hydrogen infrastructures. AI also has the potential to significantly enhance European security – not only through its role in defense applications, but also in explicitly defense-related and security technologies. From digital health platforms to drug research and development, from efficiency gains to improved patient outcomes, AI has already shown great potential in healthcare and continues to do so. However, Europe's lack of scalable, sovereign computing and cloud capacity is hampering growth and innovation in these areas. It is therefore of utmost importance that Europe invests in the expansion of its AI data centers and cloud infrastructure.

For a pragmatic and innovation-oriented EU AI policy

The EU must enable a lean, innovation-open and business-friendly AI legal framework that guarantees companies legal certainty and at the same time optimizes the conditions for an AI ecosystem through a level playing field in the European single market. The ambitious initiatives and proposed measures, including funding programs under the umbrella of the AI Continent Action Plan must be implemented swiftly and with little bureaucracy.

Dovetailing national and European policies

German and French governments together have a central role to play in shaping and implementing a coherent strategic vision for artificial intelligence as a driver of economic transformation in Europe that takes both national and European interests into account. As the EU's largest member states, Germany and France must take a leading role and ensure that national initiatives are dovetailed with European goals and strategies. This requires close cooperation between the member states and the European institutions in order to ensure uniform and effective implementation of the EU AI Act and to efficiently shape European strategic initiatives such as the AI Continent Action Plan and the Cloud and AI Development Act (CADA).

International dimension

In the global context, Europe must strengthen and diversify its relations with international partners. International cooperation remains crucial to develop common standards and norms for AI and to ensure that Europe is not isolated in the global technology competition. Europe should also strengthen the collaboration with international organizations such as the OECD and UNESCO, which play a crucial role in setting best practices and recognized standards in AI. At the same time, Europe must identify and develop an independent role to secure its technological sovereignty and develop independent data center, cloud, and innovation capacities.

Technology competition between USA and China

The technology competition between USA and China has a significant impact on Europe. Both countries are investing heavily in AI and using these technologies strategically to secure their economic and military dominance. Europe must respond to these developments by increasing its own investment in AI technologies while ensuring that European companies can play a leading role in AI development while having access to the necessary resources and infrastructure.

An appeal to Europe

Europe is at a crossroads. It is crucial that the EU and its member states pursue a clear and coordinated AI strategy that encompasses both the promotion of homegrown innovation and the necessary regulation without compromising European advantages in providing trustworthy and secure AI solution. Europe must identify and develop an independent role in the global technology competition while keeping the channels of communication with international partners open. Only through a strategic and coordinated approach Europe can strengthen its digital sovereignty and succeed in the global AI competition.

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Europe's moment of decision

Artificial intelligence (AI) is fundamentally changing industrial value chains, science and production processes and global competitive dynamics. In the United States and China, AI superstructures are emerging with massive government and private sector investment – from chip design and hyper-scalers to application conglomerates. Europe, on the other hand, runs the risk of over-regulation without ensuring industrial connectivity.

As the Federation of German Industries (BDI) and the French Business Confederation (MEDEF), we emphasize this: The EU must make AI the strategic core of its industrial policy. It needs an innovation-oriented, rule-based and actionable European AI ecosystem.

Europe's starting position in the global AI competition

Europe faces considerable challenges in the global competition for supremacy in AI. While the United States are pursuing an innovation-focused industrial policy and China is integrating AI into national strategies and military applications, the debate in Europe is dominated by risks and by overregulation. This asymmetry weakens Europe's competitiveness and digital sovereignty. It is crucial that Europe finds a balance between necessary regulation and the promotion of innovation in order not to fall behind its global competitors.

The industrial use of AI offers enormous potential for increasing efficiency and reducing costs in research, development and various production processes. AI also plays a central role in robotics, where it is used to control and optimize automated production processes. In order to fully exploit this potential, Europe must invest in the expansion of its AI infrastructure and create an innovation-friendly environment.

In addition to centralized AI infrastructures, the strategic importance of Edge AI must be recognized as a key pillar of European industrial competitiveness. Europe’s lead markets – automotive, industrial automation, and home IoT – are increasingly dependent on intelligent, embedded systems that operate at the edge. These Edge AI systems enable real-time, decentralized data processing directly on devices such as industrial robots, connected vehicles, and smart energy systems. They offer ultra-low latency, enhanced data protection, and high operational reliability, even in offline or low-connectivity environments. This is particularly critical in safety-sensitive applications like autonomous production lines and mobile robotics, where functionally safe decision-making must occur at the point of action. Europe is uniquely positioned to lead in this domain by leveraging its traditional strengths in mechanical, plant, and automotive engineering, combined with cutting-edge capabilities in embedded systems, microelectronics, and safety-certified architectures. To fully unlock this potential, targeted investment and policy support are needed to establish Edge AI as a complementary infrastructure alongside cloud-based systems.

Another aspect of the geopolitical context is Europe's dependence on foreign technologies and infrastructures. The lack of scalable, sovereign computing capacity and the fragmentation of data spaces are significant obstacles. To overcome these challenges, Europe must invest in developing its own AI

infrastructures while ensuring that data availability and interoperability are improved. When building AI infrastructures, it must be ensured that companies have fair and affordable access to computing capacity – for example through targeted funding for regional data centers, shared platforms, or subsidized use of AI services. Funded intermediaries, clear licensing models, and technical standards can help small businesses to access data capacity.

Another strategically relevant field is defense and security, where AI technologies can be applied in both civilian and military contexts. While the term “dual use” is often used solely as a legal classification, it encompasses a wide range of applications – including consumer technologies. However, in the context of geopolitical resilience, it is essential to explicitly address AI’s role in defense capabilities. Strengthening Europe’s position in this domain is vital for ensuring technological sovereignty and strategic autonomy.

In the area of GreenTech, AI is crucial for the development and optimization of sustainable and energy-efficient solutions. AI-supported systems can optimize energy consumption in production processes and make smart grids and hydrogen infrastructures more efficient, contributing to the reduction of CO2 emissions. Europe must therefore invest in promoting research and development in the field of green tech in order to strengthen its competitiveness and digital sovereignty.

Pharmaceutical manufacturing is a strategically important sector for Europe’s health resilience and industrial sovereignty. As a highly regulated and innovation-driven industry, it offers significant potential for the application of AI – particularly in quality assurance, production monitoring, and process optimization. To enable AI-driven transformation in this field, the EU should promote targeted investment, ensure legal certainty at the interface between the AI Act and pharmaceutical regulation (e.g. GMP), and expand secure cloud infrastructure tailored to health-critical applications. This will help strengthen Europe’s competitiveness and supply security in a globally contested sector.

Only through a strategic, complementary and coordinated approach can Europe strengthen its digital sovereignty and compete globally in AI by creating an innovation-friendly environment that promotes the development and application of AI technologies.

For a pragmatic and innovation-oriented EU AI policy

AI Continent Action Plan

In addition, Europe must be able to respond quickly to the changing demands of the global AI market. The AI Continent Action Plan can be a decisive step towards Europe's competitiveness, as Europe has the opportunity to ensure that it does not fall behind its global competitors by making targeted investments and building powerful data centers and AI factories. The mobilization of €200 billion through the InvestAI initiative and the creation of a single market for data are important measures to accelerate the development and application of AI in strategic sectors and strengthen Europe's position in global competition. The AI Apply Strategy aims to identify barriers to AI adoption, promote new industrial applications of AI and improve the delivery of public services. By investing in cloud and data centre capacity as well as AI Gigafactories, Europe can ensure that it has the necessary infrastructure to remain at the forefront of international competition and secure technological sovereignty.

Industry has consistently emphasized that four key components are essential to driving AI innovation: access to AI models and data, access to Cloud capacity and high-performance computing infrastructure, and access to skilled talent. To remain competitive, the EU must improve all four areas complemented by an efficient, industry-oriented AI governance framework. We therefore welcome the AI Continent Action Plan, which addresses these core pillars.

Despite the ambitious goals of the Continental AI Action Plan and the AI Gigafactories in particular, the success factors lie in practical implementation and funding. It must be possible to attract private capital and enable business models that allow for a reasonable return on investment. To this end, bureaucratic hurdles must be removed and planning and approval procedures accelerated. It is crucial that the EU creates clear and binding framework conditions so that companies can implement the use of AI computing infrastructures as easily as possible. Non-bureaucratic application formats must ensure that companies of all sizes (including SMEs) can realize their innovation projects.

To this end, the adoption of AI by businesses should be encouraged through operational, sector-specific and shared solutions for all sectors, so that businesses of all sizes and in all sectors can embrace AI. This dynamic must also incorporate the strategic potential of sectoral data spaces, which are capable of hosting high-quality industrial data and providing a basis for developing contextualised generative AI with a strong economic impact.

Europe must capitalise on its differentiating strengths: a data-rich business fabric, developing infrastructure and recognised scientific expertise.

Cloud and AI Development Act (CAIDA)

The demand for data center capacity in the EU will increase, necessitating the expansion of computing infrastructure and EU-based cloud computing services. The Cloud and AI Development Act (CADA), with its goal of tripling EU data center capacity in the next 5-7 years and fostering a competitive European Cloud and AI ecosystem is welcomed is needed to reduce Europe’s dependence on foreign technologies and strengthening its position in the global AI market. Moreover, the current market situation is highly concentrated, and companies do not have the necessary transparency and choice to make a robust business decision, especially when sensitive data is concerned. Alignment with strong verticals for industry specific use cases, such as the automotive industry or health sector, and the development of pre-defined cloud packages for direct use cases could be helpful. A common European approach is essential but must be practical and clearly structured. There is a risk that the tripling of data center capacity may not be achieved within the planned timeframe, and reliance on highly critical use cases could limit the flexibility and innovation of cloud services. Layered compliance models for security and certification can help companies to consume – or even provide – cloud services without disproportionate audit costs.

We welcome the Commission's initiative to expand data center capacities and promote competitive and secure European cloud computing services through targeted public investment and public procurement. A balanced, forward-looking solution that considers both operators' and customers' interests can be achieved through coordinated incentives across member states but must be accompanied by a targeted regulatory framework for cloud services.

With regard to the creation of new computing resources, an in-depth assessment of market demand for computing capacity is necessary in order to best adapt the political response, particularly if European taxpayers' money is mobilized to meet concrete challenges.

A clear distinction between the services run by the data center operators and pure cloud service providers is essential. Any legal framework must sufficiently differentiate the different purposes of data centers, as for example data centers used for upholding connectivity already face regulations regarding security and resilience which may lead to trade-offs with sustainability. Since the implementation of the revised EED is still underway, the EU Commission should avoid any additional regulation. Furthermore, member states should also avoid taking actions that lead to a fragmented European market. Positive incentives can be created by integrating data centers into local energy supply, expanding renewable energy, offering tax benefits, and substantially lowering energy costs altogether. Mandates for municipalities to use a certain percentage of heat supply from data center waste heat for district heating networks could benefit both municipalities and data center operators. Municipalities could gain additional heat sources, while operators could benefit from reduced energy needs and feed-in tariffs. Integrating data centers into local energy supply and planning, particularly through the use of waste heat, could significantly contribute to energy efficiency. Tax incentives for data center operators could provide further motivation. Expanding the necessary infrastructure, especially ensuring long-term availability of affordable electricity and rapid network expansion, would offer planning security.

Further legislative action is needed to simplify and ensure security. Support measures should always be linked to improved performance for users and reduced bureaucracy. Setting up a one-stop-shop to centralize and manage authorization requests at all administrative levels and reducing the time required to obtain environmental permits and authorizations are needed steps to achieve a competitive offer in Europe. We propose "standard contractual clauses" for cloud providers to reduce data protection bureaucracy in the form of negotiating individual DPAs. Special insolvency rules for data center operators, which provide a minimum period for continued operation, are also recommended. Enhanced protection of infrastructure and customer data is of great importance. Appropriate fire protection measures and redundant systems should be implemented to ensure data security.

Skills in AI

Investing in AI skills is vital for Europe's future. Through strategic measures, the EU can enhance its position in the global AI competition, ensuring technological sovereignty and competitiveness. BDI and MEDEF emphasize that the EU must strategically invest in AI education and skill development, aligning with the AI Continent Action Plan to strengthen Europe's leadership in AI. Proficiency in handling and analysing large datasets is fundamental for AI development and application. Expertise in creating and training complex models is highly sought after. The ability to integrate AI solutions into existing systems and processes is essential for practical industrial applications. Understanding the ethical and legal frameworks governing AI use ensures responsible and compliant deployment of AI technologies. The AI Continent Action Plan includes several measures to foster the development of AI skills, such as extensive funding for educational programs to equip the workforce with necessary AI skills, establishing infrastructure across Europe to support AI training and application, and encouraging research projects and innovations in AI to ensure continuous advancement.

Access to AI talent remains very heterogenous across the EU. The ability to attract and retain top talent is closely linked to the size and vitality of local AI ecosystems – as exemplified by the success of

Switzerland's ecosystem around ETH Zurich. To address this, Europe must work toward building a truly pan-European AI ecosystem that is recognized and valued by AI professionals across the globe. This includes making greater use of programs such as the Marie Skłodowska-Curie Actions (MSCA) and Erasmus+ and significantly increasing investment in digital and AI skills development. These efforts should target all age groups and focus especially on underserved regions to ensure inclusive and sustainable growth.

Beyond attracting talent, Europe must also ensure that its workforce is equipped with the right skills to apply AI effectively in real-world settings. While global competitors focus on achieving computational supremacy, Europe's strategic opportunity lies in addressing the "last mile" challenge of industrial AI adoption. Research shows that the key to unlocking AI's full value lies not only in technology, but in human capabilities such as judgment, domain expertise, and the ability to work effectively with AI systems. To build an "AI-literate Europe," the EU should mobilize the €1.3 billion Digital Europe Programme to support cross-sector AI sandboxes that generate transferable best practices. Initiatives such as ARISA and the AI Skills Academy must be leveraged to foster human-AI teaming competencies, while Horizon Europe should be directed toward developing evidence-based playbooks for boards, works councils, and regulators. Programs like Susa – which aims to train 7,000 healthcare professionals by 2028 – should serve as blueprints for similar efforts across other sectors. Crucially, Europe must establish mechanisms to advance workforce AI readiness at all levels, ensuring that investment, skills development, and governance evolve in alignment. Once the foundations are laid, private and public sector entities can then build on and add to these AI skills with their own, specific AI literacy programs, taking into account the innovative and challenging aspects that are characteristic for their organization and their use cases. The EU AI Act's approach towards AI literacy, in contrast, places the burden on the economic operators while leaving it open to interpretation how exactly the responsibilities between operators are to be shared, with impending penalties for non-compliance with these uncertain obligations.

This institutionalized approach must encompass both technical competencies and human judgment capabilities. Additionally, attracting foreign skilled workers is vital for addressing Europe's labor shortages and enhancing its AI capabilities. European countries are increasingly offering skilled worker visas to encourage top talent to join their workforce. This includes simplifying visa processes and providing incentives such as tax benefits and pathways to permanent residency. Moreover, Europe has the potential to attract top graduates from prestigious foreign universities, who may choose to pursue their careers in Europe due to its robust AI ecosystem and favorable living conditions. By institutionalizing judgment capabilities alongside technical expertise, Europe elevates AI from a mere tool to a strategic force multiplier, defining its unique trajectory toward AI leadership through human excellence.

European Strategy for AI in Science

A comprehensive policy approach to AI in science is important to enable transfer to industry, support spin-offs, promote AI expertise and concentrate know-how in Europe's top institutions. By establishing a European AI Research Council and supporting scientists in the application of AI technologies, Europe can consolidate its position in international competition and ensure that it does not lag behind the technological advances of other leading nations.

Conclusion

French and German industries advocate for a growth-oriented approach that includes targeted measures to strengthen the European AI ecosystem and reduce regulatory burdens for businesses. Technological sovereignty is essential for transforming Europe into a resilient, strategically independent, and self-determined region. Only through trustworthy, sustainable, and future-proof frameworks for AI application and regulation can Europe secure its competitiveness and expand its digital sovereignty.

Artificial intelligence is not a sector-specific issue but a strategic cross-cutting enabler. It must be embedded across all industrial value chains to unlock its full potential. Only by integrating AI broadly and effectively into industry can Europe ensure its economic resilience and long-term competitiveness.

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