

AI implementation in the financial sector: opportunities, challenges and EU policy priorities

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1. The growing use of AI in financial services

Artificial Intelligence (AI) is becoming a cornerstone of competitiveness in the European financial sector. Adoption is accelerating, driven by the need to boost productivity, reduce costs, manage risk, and personalise services. While early use cases focused on repetitive task automation and productivity, AI now enables structural transformations both at the front and back ends of the financial value chain¹.

In banking and insurance, AI is now structural: it is embedded in credit scoring, fraud detection, compliance, claims automation, and customer service.

1.1 Automation and productivity gains

According to McKinsey's 2025 State of AI report, over three-quarters of organisations now use AI, compared to just over half in 2023². In Europe, 60% of financial institutions use AI for fraud detection, and 50% of trading firms use it to inform strategy. EIOPA's 2024 survey reports AI adoption by 50% of non-life insurers and 24% of life insurers³.

Firms are restructuring⁴ workflows to capture measurable benefits, with large players investing in governance, roadmaps, and KPIs. This expansion also brings new responsibilities: data quality, cybersecurity, and intellectual property risks require close management.

AI is transforming workforce strategies⁵. Demand for data scientists, ML engineers, and compliance

staff is rising, while some customer service roles may shrink. Many firms aim to redeploy staff to higher-value tasks. AI, especially GenAI, is now central to finance⁶. Its potential will be fully realised only when embedded into institutional strategy, governance, and culture.

AI supports the streamlining of back-office tasks like data entry, reconciliation, and compliance. According to *Eurofi Views* (April 2025), this brings efficiency gains but also calls for regulatory alignment to prevent fragmentation.

In trading, AI improves execution, detects arbitrage, and strengthens portfolio management. Recommendation engines and dynamic pricing improve user experience and retention⁷.

In banking, leading institutions such as BNP Paribas and ING have adopted structured strategies to scale AI responsibly, while in insurance, AXA and Allianz have integrated AI into pricing, fraud detection, and claims handling, ranking among the global AI leaders in their sector. In Canada, Intact Financial's 500+ models generate \$150 million annually, confirming the transition from experimental to fully operational AI systems⁸.

AI also enhances supervisory capacity. The Czech National Bank uses AI for macroeconomic forecasting and monitoring online investment advice⁹, while EIOPA coordinates cross-border standards in cooperation with the IAIS. These initiatives show how supervisors are evolving into both regulators and users of AI, underlining the growing need for in-house expertise to test and audit increasingly autonomous systems.

1. Eurofi. *AI Act: Key Measures and Implications for Financial Services*. Eurofi Regulatory Update, September 2024.

<https://www.eurofi.net/wp-content/uploads/2024/12/ii.2-ai-act-key-measures-and-implications-for-financial-services.pdf>

2. *AI in the workplace: A report for 2025* | McKinsey. <https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/superagency-in-the-workplace-empowering-people-to-unlock-ais-full-potential-at-work>

3. European Insurance and Occupational Pensions Authority (EIOPA). From "Traditional AI" to "Generative AI": Implications for the Insurance Sector. https://www.eiopa.europa.eu/publications/traditional-ai-generative-ai-implications-insurance-sector_en?utm_source=

4. McKinsey & Company. *The State of AI: How Organizations Are Rewiring to Capture Value*. McKinsey & Company – QuantumBlack, March 12, 2025. PDF. https://www.mckinsey.com/~media/mckinsey/business%20functions/quantumblack/our%20insights/the%20state-of-ai/2025/the-state-of-ai-how-organizations-are-rewiring-to-capture-value_final.pdf

5. Mirishli, Shamar. "Regulating AI in Financial Services: Legal Frameworks and Compliance Challenges." *arXiv*, March 17, 2025. <https://arxiv.org/abs/2503.14541>

6. *Ibid.*

7. Eurofi. *AML: Progress and Priorities*. Eurofi Views Magazine, April 2025. <https://www.eurofi.net/wp-content/uploads/2025/07/7.2-aml-progress-and-priorities.pdf>

8. Intact Financial Corporation. 2024. *AI and Automation Performance Metrics Report*. Toronto. <https://thelogic.co/news/canadian-insurers-are-using-ai-more-than-their-global-rivals/>

9. Czech National Bank. 2025. *First Use of AI in Inflation Forecasting at the CNB*, CNB Blog, https://www.cnb.cz/en/about_cnb/cnblog/First-use-of-AI-inflation-forecasting-at-the-CNB/

1.2 Customer-facing innovation and supervisory applications

Beyond productivity, AI is profoundly transforming customer interaction, product design, and service delivery across the financial industry. From conversational banking to hyper-personalised insurance products, AI technologies are redefining how financial institutions engage with clients and create value¹⁰.

GenAI-powered chatbots and virtual assistants now provide 24/7 support, automate routine inquiries, and improve client satisfaction by offering consistent, real-time responses. In parallel, recommendation engines and predictive analytics enable hyper-personalised financial advice, dynamic pricing, and tailored investment solutions. These tools strengthen customer loyalty and retention while opening new revenue channels¹¹.

In retail banking, AI enables predictive credit scoring, real-time transaction analysis, and behavioural risk modelling, enhancing both customer experience and operational efficiency¹². In insurance, AI supports customer onboarding, policy customisation, and claims management through automated document reading and fraud detection. Such systems not only shorten response times but also reinforce transparency and fairness in client interactions.

At the same time, AI is reshaping the supervisory and compliance perimeter of customer-facing activities. Automated content monitoring, chatbot auditability, and bias detection are becoming central to regulatory discussions. As *Eurofi Views* (April 2025) underlines, the trust dimension is critical: financial AI systems must ensure explainability, non-discrimination, and traceability to maintain consumer confidence in highly regulated environments.

These developments highlight a broader transition from a reactive service model to a predictive and adaptive one where AI becomes both the infrastructure and the interface of financial interaction. The main challenge ahead will be balancing innovation and ethical responsibility: maintaining consumer trust and data protection while scaling new forms of automation and personalisation across the sector.

1.3 New trends: Generative AI and Agentic AI

Generative AI (GenAI) is increasingly recognised as a transformative force in finance. It accelerates insight generation, boosts productivity, and improves customer engagement. According to McKinsey, GenAI could unlock \$300 billion annually for banking¹³.

It is already used to automate reporting, personalise communication, detect fraud, and refine analytics. As capabilities expand, so do governance and ethical concerns. Trust in AI remains fragile due to opacity, systemic bias, and integration challenges. As noted in *Eurofi Views* (April 2025), explainability and traceability are essential in regulated environments. *Finance Watch* however warns that AI in insurance pricing can result in discrimination, especially when based on biased data¹⁴. The NGO argues that many AI systems in finance should be classified as "high-risk" under EU law.

Agentic AI is pushing innovation further. By combining multimodal data (text, images, speech, behavioural patterns), financial firms can now simulate personalised scenarios such as portfolio stress tests or risk forecasts directly within customer interfaces. Startups and incumbents are developing "AI advisors" capable of summarising complex financial information, adjusting recommendations in real time, and improving financial inclusion by simplifying user interfaces.

The convergence of AI with high-performance computing, quantum technologies, and blockchain will drive further innovation in finance. Quantum-enabled AI could revolutionise risk modelling, while blockchain may enhance post-trade automation.

However, adoption remains uneven due to costs, complexity, data quality, and skills shortages. Supervisors must adapt tools and frameworks to ensure innovation aligns with financial stability and consumer protection.

2. Objectives and key measures of the AI Act

The EU Artificial Intelligence Act (AI Act) establishes a harmonised regulatory framework to govern the

10. McKinsey & Company. *The State of AI: How Organizations Are Rewiring to Capture Value*. McKinsey & Company – QuantumBlack, March 12, 2025. PDF. https://www.mckinsey.com/~media/mckinsey/business%20functions/quantumblack/our%20insights/the%20state-of-ai/2025/the-state-of-ai-how-organizations-are-rewiring-to-capture-value_final.pdf

11. Eurofi, *Eurofi Views: AI in Financial Services – Opportunities and Risks* (April 2025).

12. *Ibid.*

13. McKinsey & Company. *The State of AI: How Organizations Are Rewiring to Capture Value*. June 2025. https://www.mckinsey.com/~media/mckinsey/business%20functions/quantumblack/our%20insights/the%20state%20of%20ai/2025/the-state-of-ai-how-organizations-are-rewiring-to-capture-value_final.pdf

14. Finance Watch. *Artificial Intelligence in Finance: How to Trust a Black Box?* March 2025. https://www.finance-watch.org/wp-content/uploads/2025/03/Artificial_intelligence_in_finance_report_final.pdf

use of AI technologies across sectors¹⁵. It aims to protect fundamental rights, ensure safety, and foster responsible innovation. Designed to complement existing sectoral rules, such as those in finance, the AI Act introduces safeguards tailored to AI risks without duplicating existing obligations.

As the world's first comprehensive AI law, it positions the EU as a global standard-setter in ethical AI governance and reinforces its "human-centric" digital strategy.

2.1 Risk-based approach to AI regulation

At the heart of the AI Act is a four-tier risk classification: minimal, limited, high-risk, and prohibited AI systems.

In the financial sector, the following AI systems are classified as high-risk (Annex III of the Act):

- Systems used to evaluate the creditworthiness of individuals or determine a credit score (excluding those used solely for fraud detection),
- Systems used for risk assessment and pricing in life and health insurance.

These systems are subject to conformity assessments, mandatory risk management procedures, human oversight, robust documentation, cybersecurity controls, and must be registered in an EU-wide database. Regular post-market monitoring and audits are required, and violations may result in fines of up to 3% of global turnover¹⁶.

Separately, AI systems deemed to pose unacceptable risks such as real-time biometric surveillance in public spaces, social scoring, or emotional manipulation are outright prohibited. These bans took effect on 2 February 2025.

2.2 Specific measures for generative AI Systems

In response to the rise of general-purpose AI (GPAI), including large language models (LLMs), the AI Act introduces targeted obligations to mitigate potential systemic risks. These apply whether GPAI is used directly or fine-tuned for downstream applications.

Key obligations for GPAI providers include:

- Maintaining technical documentation, including risk assessments and adversarial testing,

- Ensuring copyright compliance, with summaries of training datasets and transparency on provenance,
- Disclosing AI-generated content and preventing illegal outputs,
- Supporting downstream users with clear instructions and risk information.

For high-impact GPAI models, the European Commission may impose additional safeguards, including mandatory incident reporting and systemic risk mitigation procedures.

On 10 July 2025¹⁷, the Commission published a voluntary Code of Practice for GPAI, structured around three chapters: transparency, copyright, and safety/security. This Code supports providers in demonstrating early compliance with Articles 53–55 of the AI Act. Signatories may benefit from regulatory leniency during implementation, though final guidance is expected later in July 2025.

2.3 Governance of the AI Act implementation

To oversee implementation, the European Commission has established a new AI Office, responsible for:

- Drafting secondary legislation and guidance,
- Coordinating Member State authorities and ensuring uniform interpretation,
- Overseeing GPAI compliance and systemic risk monitoring.

The AI Office coordinates with the European AI Board and receives support from two advisory bodies for technical and stakeholder input. While national authorities are responsible for enforcing most rules, the AI Office plays a central role in GPAI governance, incident coordination, and EU-level consistency.

In late July 2025, just days before the AI Act's obligations for general-purpose models took effect on 2 August, the Commission issued detailed guidelines clarifying the interpretation of the Act. These guidelines provide a definition of general-purpose AI, including technical thresholds based on computational power, and offer the market a clearer analytical framework. The document, eagerly awaited by both industry and cultural sectors, seeks to reduce legal uncertainty and give

15. European Parliament. *EU AI Act: First Regulation on Artificial Intelligence*. Updated July 2024. <https://www.europarl.europa.eu/topics/en/article/20230601ST093804/eu-ai-act-first-regulation-on-artificial-intelligence>

16. European Union. *Artificial Intelligence Act, Article 99 – Penalties*. Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 March 2024. Accessed July 20, 2025. <https://artificialintelligenceact.eu/article/99/>

17. European Commission. *General Purpose AI – Code of Practice for GPAI Providers (Articles 53–55 AI Act)*. Published July 10, 2025. <https://digital-strategy.ec.europa.eu/en/news/code-practice-general-purpose-ai>

practitioners a more operational understanding of the Act¹⁸.

Supervisors are also increasingly users of AI, not just regulators. For example, central banks and authorities are testing AI for document automation, online content monitoring, and macroeconomic forecasting. As discussed in *Eurofi Views*, the challenge is to ensure human oversight, robust validation, and governance capacity, especially as AI tools become embedded in compliance and decision-support processes.

3. Priorities for the new European political cycle (2024–2029)

3.1 Enhancing Europe's AI competitiveness and digital sovereignty

At the AI Action Summit in Paris (April 2025), Commission President Ursula von der Leyen called for a bold redefinition of Europe's role in the global AI race. Rather than imitating other models, she argued, Europe must forge its own path: "Too often, I hear that Europe is late to the race... I disagree. The AI race is far from over. The frontier is constantly moving. And global leadership is still up for grabs".

Her message set the tone for the 2024–2029 political cycle: Europe must accelerate not by copying others, but by building on its strengths, industrial and scientific data expertise, collaborative innovation, and a growing open-source ecosystem.

With €10 billion invested and €200 billion mobilised via partnerships like InvestAI, this ambition forms part of a broader strategy to make Europe a competitive and trustworthy "AI Continent".

The Draghi Report (2024) points out Europe's underperformance in technology deployment compared to global peers¹⁹. While the EU hosts only 4 of the world's top 50 tech companies, its R&D investment lags by €270 billion per year. Draghi warns that Europe is "over-regulating and under-delivering" and estimates that, if fully leveraged, AI could boost EU GDP by up to 2.7 percentage points by 2030. The report calls for simplified regulation, increased public-private partnerships, and a scalable, cross-border digital ecosystem.

The Letta Report (April 2024) had already underlined these concerns, highlighting structural barriers in the single market that hinder AI deployment and scale-up²⁰. It advocates a harmonised, interoperable regulatory framework across Member States, with reduced compliance fragmentation, especially for highly regulated sectors such as finance. The report also calls for investment in digital infrastructure and high-performance computing to close the innovation gap.

Eurofi Views (April 2025) recalls that the EU currently has over 100 digital-related laws and more than 270 regulators operating across Member States²¹. This legal complexity is seen as a major obstacle to experimentation and innovation, particularly in AI. Financial institutions, in particular, face overlapping regulatory obligations that reduce incentives to test or deploy new technologies. Legal clarity is frequently cited as a condition for increased AI uptake in the sector.

In stark contrast, the United States has taken a deregulatory turn. In July 2025, the Trump administration unveiled an AI Action Plan largely shaped by Silicon Valley lobbyists. Drafted with input from prominent tech investors, the plan pledges to eliminate bureaucratic obstacles, condition federal AI funding on states avoiding stricter rules, and accelerate the construction of domestic AI infrastructure. Positioned as a strategy to counter China and reinforce U.S. leadership, it underscores the divergent transatlantic approaches: Europe doubles down on regulation and safeguards, while Washington bets on unfettered innovation²².

3.2 Strengthening European AI strategic capabilities

The EU Competitiveness Compass (2025) identifies the expansion of "trustworthy AI systems" as a top priority²³. It calls for both foundational model training and sector-specific adoption, especially in finance and health. The Apply AI initiative will fund real-world integration in these areas, while new standards aim to support interoperability across the EU.

3.2.1 Strengthening digital infrastructure for AI

At the Paris AI Forum (April 2025), President Macron underscored that Europe must ensure

18. Marina Alcaraz, "AI Act: Bruxelles précise le 'mode d'emploi,'" *Les Échos*, July 26, 2025, <https://www.lesechos.fr/tech-medias/intelligence-artificielle/ai-act-bruxelles-precise-le-mode-demploi-2177143>

19. Mario Draghi, *High-Level Report on the Future of European Competitiveness* (Brussels: European Commission, July 2024).

20. Enrico Letta, *Much More Than a Market: Speed, Security, Solidarity* (Brussels: European Commission, April 2024).

21. Eurofi, *Eurofi Views – Warsaw 2025: AI in the Financial Sector* (April 2025), <https://www.eurofi.net/wp-content/uploads/2025/03/eurofi-views-warsaw-2025-1.pdf>

22. Hortense Goulard, "IA: Donald Trump a-t-il exaucé la 'wish list' de la Silicon Valley?," *Les Échos*, July 25, 2025, <https://www.lesechos.fr/tech-medias/intelligence-artificielle/ia-donald-trump-a-t-il-exauce-la-wish-list-de-la-silicon-valley-2178165>

23. European Commission, *2025 EU Competitiveness Report – Compass Update*, https://ec.europa.eu/commission/presscorner/detail/en/ip_25_1682

competitive AI infrastructure. The European Commission reaffirmed its support for next-generation digital infrastructure, including sovereign cloud services and advanced computing.

In 2025, the Commission proposed a new regulation, the Cloud and AI Development Act, which addresses critical bottlenecks such as permitting, resource scarcity, and energy efficiency. It aims to promote secure, interoperable, and sustainable data centre infrastructure. Plans include strengthening EuroHPC capacity and deploying green, AI-ready supercomputers to ensure Europe's technological sovereignty.

3.2.2 Investing in AI talent and innovation

Europe's competitiveness also hinges on its ability to attract and retain top AI talent. While 22% of top AI researchers worldwide studied in Europe, only 14% currently work there. The Letta Report proposes a European AI Campus to consolidate training, R&D, and advanced skills development.

The Competitiveness Compass calls for investment in AI academies, reskilling programmes, and talent mobility schemes. Legal migration pathways are also under discussion to attract global talent. As highlighted during the Paris AI Forum, Europe has 30% more AI researchers than the US, but structural issues, fragmented infrastructure, limited incentives, and heavy regulation undermine retention²⁴.

3.2.3 Developing AI Gigafactories

In line with the AI Innovation Package (2024)²⁵ and the AI Continent Action Plan (April 2025), the EU has launched a flagship initiative to develop AI Gigafactories: large-scale compute infrastructures dedicated to training advanced foundation models with hundreds of trillions of parameters. AI Gigafactories serve as innovation hubs offering industrial-grade, pre-trained models for commercial use and acting as catalysts for cross-sector deployment across Member States.

These hubs will be accessible to startups, researchers and businesses. Amendments to the EuroHPC Regulation adopted in July 2025 extended the initiative's mandate to support these Gigafactories, which will complement and federate existing AI development centres across the Union. Gigafactories

3.2.4 Strengthening Europe's quantum computing leadership

As AI models grow more sophisticated, demand for compute power and secure cloud infrastructure has surged. Quantum technologies are increasingly seen as foundational to European digital sovereignty, particularly in sectors such as pharmaceuticals, energy, national security, and AI. The Draghi Report (2024) stresses that quantum breakthroughs will define Europe's edge in foundational model development, while the Letta Report calls for a dedicated AI-Quantum roadmap and integrated funding through Horizon Europe.

To implement this vision, the Commission launched the Quantum Europe Strategy (July 2025), with the ambition of making Europe a global leader in quantum by 2030. The strategy focuses on five pillars²⁶: foundational research and innovation, infrastructure development, ecosystem expansion, dual-use and space quantum tech, and advanced skills.

The revised EuroHPC Regulation now includes a dedicated Quantum Technologies Pillar, coordinating hybrid systems, national competence centres, and public-private co-investment. As noted in institutional statements, "Europe must turn quantum excellence into economic and industrial value".

A Quantum Act is expected in 2026 to enshrine these priorities into EU law, streamline national programmes, and unlock private capital.

In parallel, the EU is expanding the Quantum Flagship and strengthening the EuroQCI and EuroHPC frameworks to integrate quantum capabilities into AI development. These infrastructures will support advanced use cases like next-generation encryption, real-time simulation, and high-frequency trading optimisation.

3.2.5 Cloud computing measures to support AI

Yet Europe remains heavily reliant on non-EU providers: over 80% of AI workloads are processed by US-based hyperscalers.

To address these dependencies, The Cloud and AI Development Act (2025) sets minimum standards for the security, interoperability, and sustainability of cloud services in the EU.

The Commission is also promoting a federated cloud model to integrate public and private

24. Speech by President Emmanuel Macron at the Paris AI Forum, April 2025 (summary in Eurofi and press coverage).

25. European Parliament, *AI Act: First Regulation on Artificial Intelligence* (updated July 2024), <https://www.europarl.europa.eu/topics/en/article/20230601STO93804/eu-ai-act-first-regulation-on-artificial-intelligence>. European Commission, *AI Continent Action Plan – AI Gigafactories and Deployment Roadmap* (April 2025), https://ec.europa.eu/commission/presscorner/detail/en/ip_25_1682

26. European Commission, *Quantum Europe Strategy 2030* (Brussels, July 2025), https://ec.europa.eu/commission/presscorner/detail/en/ip_25_1682

resources and ensure scalable, secure access. By 2030, global data centre power demand is projected to exceed 130 GW, with AI centres alone consuming over 800 TWh annually. A key objective is ensuring European data centres meet energy-efficiency and Green Deal standards.

4. Remaining challenges in the implementation of the AI Act for the financial sector

While the AI Act provides the EU with a pioneering regulatory framework, several concerns remain regarding its practical effectiveness, particularly in financial services. These challenges relate to legal uncertainty, sectoral overlaps, data governance, environmental impacts, and the need for supervisory adaptation. In addition, as global funding for AI startups soars over \$230 billion in H1 2025²⁷, with more than half allocated to AI and new generations of AI systems emerge with Gen AI and agentic AI, pressure mounts to strike a regulatory balance in European policy between risk mitigation and innovation and to implement initiatives likely to support the adoption of AI across the European economy, including financial services.

4.1 Balancing protection and innovation in the implementation of the AI Act

The implementation of the AI Act prioritises legal clarity and proportionality. Industry stakeholders have voiced concerns about the risk of overburdening regulated sectors. Ambiguities around definitions such as what qualifies a financial institution as a GPAI provider have also been flagged as potential deterrents to innovation.

A recurring concern among stakeholders is that regulatory ambiguity or excessively codified legislation may discourage experimentation and slow the deployment of innovative AI systems. As noted during *Eurofi* discussions and in public communications from several firms, financial institutions are hesitant to engage in testing or roll-out due to unclear compliance thresholds and responsibilities especially regarding generative and adaptive systems.

On 3 July 2025, a coalition of major companies including Dassault Systèmes, ASML, Mistral, Airbus, Axa, BNP Paribas and Siemens sent a joint letter to the European Commission requesting a two-year delay in the AI Act's main obligations²⁸. Their argument: the absence of harmonised technical standards, guidance documents, and clear definitions (e.g., GPAI provider status) risks legal fragmentation and regulatory chilling effects. They propose a "clock-stop" period to allow the publication of interpretative materials and reduce compliance uncertainty²⁹.

Several civil society organisations, including Finance Watch, have also warned that opaque AI systems in financial services could amplify market and consumer risks if not properly governed.

To respond, the Commission is preparing detailed guidance documents to clarify compliance pathways, particularly for firms already subject to strict financial supervision. The Responsible AI Initiative and European AI Observatory will support monitoring, ethical deployment, and coordination among Member States.

4.2 Interactions of the AI Act with European data regulations

The AI Act interacts with other major EU laws, notably the GDPR, Data Act, Digital Services Act (DSA), and Digital Markets Act (DMA). However, many financial actors report a lack of clarity on how AI-specific obligations such as data transparency, explainability, or the right to human intervention intersect with existing data protection frameworks. Legal grey zones persist: GDPR's Article 22, data minimisation vs. AI data needs, and explainability in non-deterministic outputs.

Without harmonised guidance, these overlaps risk creating regulatory deadlocks or over-compliance. This is particularly problematic in financial services, where AI models often process sensitive personal and financial data under multiple legal regimes.

The European Data Protection Board (EDPB) has already confirmed it will work with the Commission's AI Office to draft guidance on the interplay between the AI Act and data protection law, though the timing and final form remain uncertain³⁰.

27. *Les Échos*. 2025. "Start-up : l'IA capte plus de la moitié des fonds levés", *Les Échos*, consulté via *Les-Echos.fr*. <https://www.lesechos.fr/start-up/ecosysteme/start-up-lia-capte-plus-de-la-moitie-des-fonds-leves-2174702>

28. *Le Monde*. 2025. "Intelligence artificielle : 45 entreprises européennes demandent une pause dans l'application de l'AI Act", *Le Monde* (4 juillet 2025). https://www.lemonde.fr/economie/article/2025/07/04/intelligence-artificielle-45-entreprises-europeennes-demandent-une-pause-dans-l-application-de-l-ai-act_6618086_3234.html

29. European Commission. *Proposal for a Regulation laying down harmonised rules on Artificial Intelligence (AI Act)*, COM(2021) 206 final. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0206>

30. European Data Protection Board (EDPB). "EDPB to Work with AI Office on New GDPR and AI Act Interplay Guidelines." *Freevacy*, 2025. <https://www.freevacy.com/news/edpb/edpb-to-work-with-ai-office-on-new-gdpr-and-ai-act-interplay-guidelines/6311>

4.3 Data quality and standardisation issues

Effective AI oversight depends on the accuracy, relevance, and representativeness of training data. However, concerns persist over the use of non-financially relevant data such as social media activity, geolocation, or behavioural proxies in insurance underwriting and credit scoring. These data points, often opaque and weakly correlated with financial risk, raise fairness and discrimination concerns.

Supervisory authorities, including the European Insurance and Occupational Pensions Authority (EIOPA)³¹, have highlighted the lack of harmonised standards for data quality and bias detection across the EU. Inconsistent documentation practices and fragmented validation methodologies make it difficult to assess the reliability and auditability of AI-driven decision systems.

The main challenges identified by regulators and market participants include:

- the absence of EU-wide technical standards on data quality and traceability,
- limited interoperability between datasets and model documentation across jurisdictions,
- difficulties in detecting and measuring algorithmic bias at scale, and
- information asymmetries between AI providers and financial institutions deploying these systems.

Addressing these gaps will be key to ensuring that AI applications in finance remain transparent, explainable, and compliant with EU non-discrimination principles.

4.4 Environmental and energy impacts of AI

The environmental footprint of AI is becoming increasingly visible. Training large models requires vast quantities of electricity, water, and rare earth materials, raising serious concerns about the sustainability of digital transformation. Indeed, training a single advanced language model can emit over 100 tons of CO₂e³². GreenIT estimates that AI-related emissions in Europe exceeded 3 million tons CO₂e in 2024: equivalent to 20 billion kilometres driven by combustion-engine cars³³.

Google reported a 48% increase in its carbon footprint between 2019 and 2023, driven largely by AI workloads³⁴.

These findings raise serious questions about AI's compatibility with the EU Green Deal. Institutions like Ademe and CESE call for lifecycle assessments, eco-design, and environmental labelling³⁵

31. EIOPA. *AI Governance Principles for the Insurance Sector*. 2024. <https://www.eiopa.europa.eu/publications>

32. Hao, K. "Training a Single AI Model Can Emit as Much Carbon as Five Cars in Their Lifetimes." *MIT Technology Review*, 6 juin 2019, cité dans *Project Exigence*, "Training a Single AI Model Can Emit as Much Carbon As Five Cars in Their Lifetimes", Green ICT Digest, consulté via <https://projectexigence.eu/green-ict-digest/training-a-single-ai-model-can-emit-as-much-carbon-as-five-cars-in-their-lifetimes/>

33. Le Monde, "Climate: Annual Use of Digital Media Is Equivalent to a 3,500-Kilometre Road Trip," *Le Monde (Pixels)*, February 7, 2025, https://www.lemonde.fr/en/pixels/article/2025/02/07/climate-annual-use-of-digital-media-is-equivalent-to-a-3-500-kilometer-road-trip_6737909_13.html

34. The Guardian, "Google AI Emissions: How Much Carbon Does Training an AI Model Really Use?" *The Guardian*, July 2, 2024, <https://www.theguardian.com/technology/article/2024/jul/02/google-ai-emissions>

35. Ademe and CESE. "Évaluer les impacts environnementaux de l'intelligence artificielle." Paris: 2025. https://www.lecese.fr/sites/default/files/pdf/Avis/2025/2025_02_IA.pdf