Comitato Digital Finance Assogestioni

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AI IN ASSET MANAGEMENT: FROM VISION TO ACTION

Strategies, policies and new perspectives in Italian Asset Management

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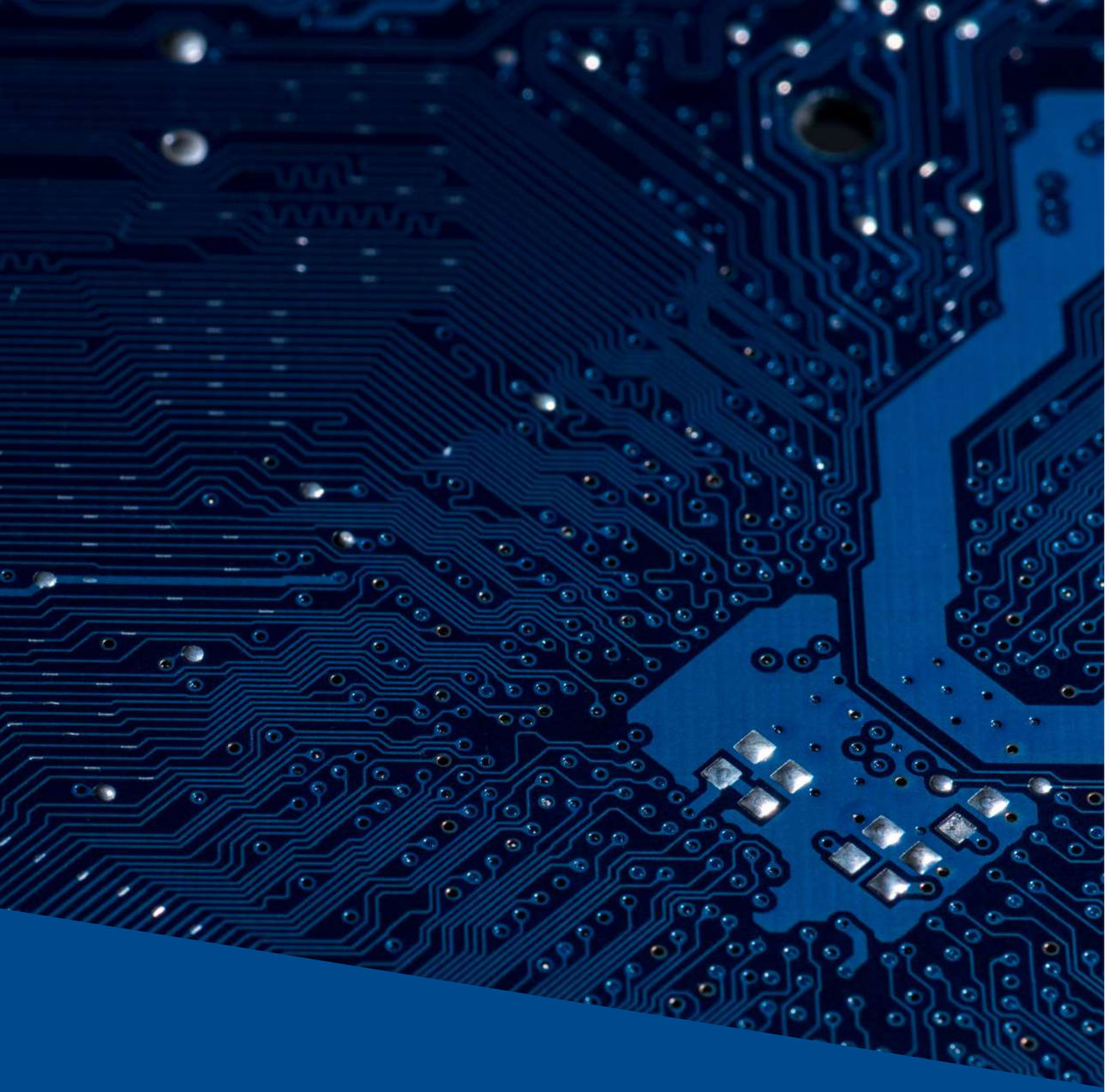
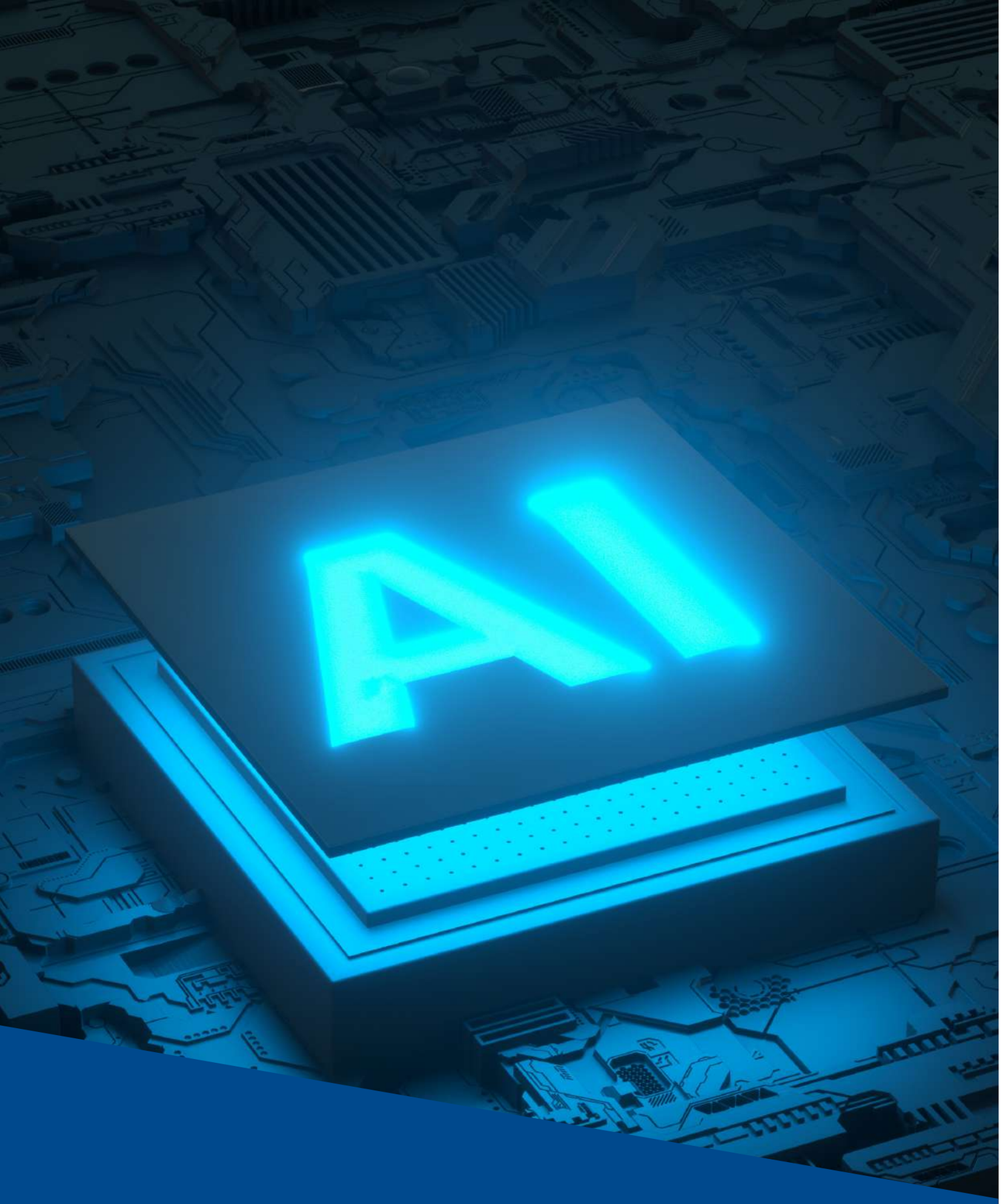


TABLE OF CONTENTS



EXECUTIVE SUMMARY

Artificial Intelligence (AI) is becoming an increasingly prominent topic on the global stage, particularly with the rise of Generative AI (GenAI), which has significantly expanded AI's application potential. GenAI is unlocking new possibilities in advanced automation, content generation, and predictive analytics, marking a profound shift in how organizations can leverage AI across operations.

Driven by technological progress, greater data availability, and reduced computing costs, AI has emerged as a tangible lever for innovation across industries, including Asset Management. In Italy, data show that AI adoption within Asset Management companies is already underway, although maturity levels and strategic approaches vary significantly across firms.

This White Paper has a primarily practical purpose: to serve as a valuable resource for Asset Management companies, supporting them in navigating the adoption of AI in a responsible, informed, and regulatory-compliant manner.

The work sets out to achieve two main objectives: first, to help companies ask themselves the right strategic questions and, depending on their desired positioning on AI, identify the key operational and decision-making levers to build an effective roadmap through a structured framework, second, to support the practical application of a multi-level regulatory framework, where the prudential principles of UCITS and AIFMD, the ethical and functional safeguards of the AI Act, the individual rights protections under the GDPR, and the technological standards of DORA all intersect.

To that end, the White Paper begins with **a comprehensive overview of the technological, regulatory, and market landscape,** followed by a presentation of findings from a dedicated survey conducted among a representative sample of Asset Management companies operating in Italy. Compared to the earlier study conducted by Assogestioni in collaboration with Consob, whose results have been published in the 2022 Consob Report *"Artificial Intelligence in Asset and Wealth Management"*, this new survey expands the analytical horizon to include the use of generative AI and a broader analysis of AI implementation across the full Asset Management value chain.

The white paper therefore proposes a **strategic framework** to support AI adoption across the Asset Management value chain –providing practical tools for prioritizing, structuring the roadmap, and enabling factors for full AI scalability– and an **"integrated" regulatory framework** that harmonizes the various levels of regulation applicable to AI adoption by Asset Managers, promoting a proportionate and responsible approach in line with evolving European legislation.

In today's rapidly evolving technological context, where the pace of innovation often outpaces regulatory developments, it is crucial to equip the industry with practical, actionable tools to manage this transformation. This White Paper aims to serve as a strategic guide, supporting the Italian Asset Management sector in embracing AI in a sustainable and forward-looking way, while also contributing to the long-term competitiveness and credibility of the industry.

1. TECHNOLOGY OVERVIEW

1.1. Artificial intelligence systems

In recent years, **artificial intelligence (AI) systems have undergone an unprecedented technological evolution**, establishing themselves as a key driver of innovation and development across numerous sectors.

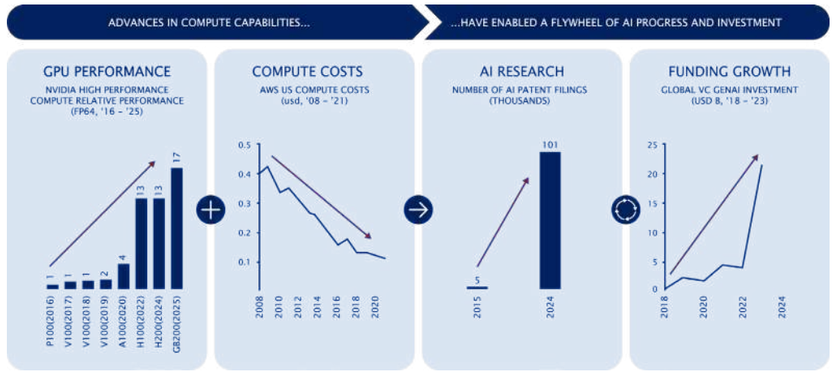
- **Advances in computational capabilities:** The performance improvements in **Graphics Processing Units (GPUs)** have significantly boosted the computational power required to train complex models. Since 2012, GPUs have experienced exponential growth in processing capacity, largely driven by companies like **NVIDIA**, which introduced the **Ampere architecture in 2020**, followed by **Hopper**, both designed specifically to support advanced AI workloads[1]. These advancements have enabled the use of large-scale deep neural networks, enhancing both the **speed and scalability** of AI systems.

- **Reduction in cloud computing costs:** The decreasing cost of cloud infrastructure has made advanced computational resources more **accessible and affordable**, eliminating the need for companies to invest in costly hardware. Additionally, the rise of **AI-as-a-Service (AIaaS)** has further democratized access to AI technologies, allowing organizations of all sizes—including **small and medium-sized enterprises (SMEs)**—to leverage machine learning models and advanced analytics tools without needing in-house infrastructure. This greater accessibility has spurred increased experimentation and application of AI across various domains, driving **accelerated innovation and growth**[2].

- **Data abundance:** The growing availability of data has been a **crucial catalyst** in the development of AI. In recent years, the **volume, variety, and velocity** of data generation have grown exponentially, fueled by diverse sources such as **social media platforms, IoT devices, digital transactions**, and **e-commerce systems**. This wealth of data serves as the essential foundation for training increasingly **sophisticated AI models**, enhancing their **accuracy, scalability**, and **effectiveness** across a wide range of applications.

These factors have created a **fertile environment for innovation**, as demonstrated by the significant rise in AI-related patent filings—**from approximately 22,000 in 2015 to over 60,000 in 2019**, according to data from the **World Intellectual Property Organization (WIPO)**[3]. In parallel, the **rapid surge in venture capital investments**, which **exceeded $75 billion in 2021** for AI startups, has fostered a **virtuous cycle** that continues to drive progress and the development of innovative AI applications across various sectors, including **asset management, financial analysis**, and **market forecasting**[4].

1. GPU Technology Trends and AI Scalability: Performance Advancements in the Last Decade, NVIDIA Research and Development, (2025).
2. State of AI in the Enterprise, 4th Edition, Deloitte Insights, (2021).
3. WIPO Technology Trends 2019 – Artificial Intelligence, World Intellectual Property Organization, (2019).
4. State of AI 2022 Report, CB Insights, (2022).



Source: AWS, NVIDIA, Crunchbase, GitHub, Center for Security and Emerging Technology, 2024, Bain analysis
Fig. 1 Evolution of AI enabling factors

1.1.1. Classification of artificial intelligence systems

Artificial Intelligence (AI) is a branch of computer science focused on developing systems capable of performing tasks that typically require human intelligence. Over the decades, AI has evolved through various stages, leading to the creation of increasingly sophisticated methodologies and approaches.

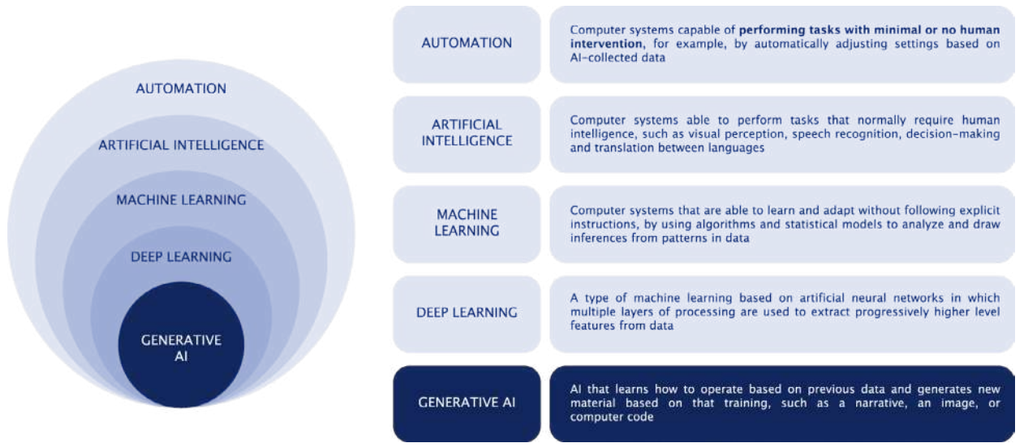


Fig. 2 Classification of AI systems

As illustrated in Figure 2, at the foundation lies **Automation**, which enables the execution of repetitive tasks with minimal or no human intervention. Building upon this layer is Artificial Intelligence in the proper sense, which introduces the ability to understand data, make decisions, and interact with the surrounding environment, as seen in applications such as speech recognition or machine translation.

Artificial intelligence systems can then be divided mainly into three hierarchical categories: **Machine Learning (ML), Deep Learning, and Generative AI** are distinct branches within the broader field of artificial intelligence, each characterized by specific features that make them particularly suited to different application contexts.

- **Machine Learning** is one of the foundational technologies of AI. It relies on algorithms that **learn from data** to progressively improve their performance, without being explicitly programmed to carry out specific tasks. This **data-driven approach** enables algorithms to **identify patterns** and **leverage them to make predictions or decisions** on new data[5].

  There are **three main categories of Machine Learning (ML) methods: supervised learning, unsupervised learning**, and **reinforcement learning**.

  - **Supervised learning** is based on **labeled data**[6] and is commonly used to **predict future outcomes**. In the context of asset management, this approach is often applied to **forecast stock returns**. For instance, **regression models** can be trained on historical price data, macroeconomic variables, and market indicators to predict the future performance of specific securities.
  - **Unsupervised learning** focuses on **identifying patterns or structures in data without the use of labels**. It is particularly effective for analyzing large volumes of complex data. In asset management, this technique is used to detect **unusual trading behaviors**, such as abnormal buying or selling trends by institutional investors. For example, asset managers may apply **clustering algorithms** to market data to segment assets—identifying groups of companies or sectors with similar risk profiles or correlation structures.
  - **Reinforcement learning** is based on a **trial-and-error process**, where an algorithm learns by receiving **rewards or penalties** based on its actions. This approach is useful for **dynamic decision-making and continuous** optimization. In asset management, it is used in scenarios such as **dynamic risk management**, where the algorithm learns to mitigate risk by **adjusting portfolio exposure** in real-time as market conditions evolve.

- **Deep Learning** is an advanced subcategory of machine learning, characterized by the **use of deep neural networks that may comprise many layers (or layers) of interconnected nodes**. This approach allows the algorithm to **analyze data at different levels of abstraction**, which is particularly useful for complex tasks such as image recognition and natural language understanding . In Asset Management, deep learning is widely used to analyze the **sentiment**, i.e., the positive, negative, or neutral opinion associated with a company or industry. Algorithms analyze massive amounts of textual data, such as financial news, analyst reports, and quarterly statements, to detect patterns and trends. However, training deep neural networks requires **significant computational resources and large data sets**, which makes this technology more demanding in terms of hardware and time than more traditional machine learning techniques[8].

- **Generative AI (GenAI)** is one of the most advanced and contemporary applications of artificial intelligence, marking a significant evolution toward systems that go beyond interpretation or prediction to **create original content**. GenAI is capable of autonomously and realistically generating **images, text, audio, and other media**. This technology has broad applications across **creative industries**, including **design, simulation, entertainment**, and **augmented reality**, and is often used to produce **hypothetical scenarios** or enhance user experiences through synthetic content. While **computationally more demanding** than other forms of AI, requiring substantial processing power and large volumes of training data, **Generative AI**

5. Deep Learning with Python, F. Chollet, Manning Publications, (2018).
6. Imagine a virtual assistant that needs to learn how to distinguish between spam and non-spam emails. To do so, it is shown various email messages, each accompanied by a label indicating its category: a deceptive promotional email labeled as *"spam,"* a work-related email labeled as *"non-spam,"* a phishing scam labeled as *"spam,"* a communication from a bank labeled as "non-spam," and so on. This supervised learning process enables the assistant to correctly recognize and classify emails in the future, based on the patterns it has learned from the labeled data.
7. Deep Learning with Python, F. Chollet, Manning Publications, (2018).
8. Deep Learning, I. Goodfellow, Y. Bengio, & A. Courville, MIT Press, (2016).

represents the frontier of artificial creativity, offering **enormous potential** for innovation across multiple domains.artificiale con enormi potenzialità.

1.1.2. Generative AI (GenAI), Large Language Models (LLM) e Small Language Models (SML)

As mentioned earlier, **Generative AI (GenAI)** represents a **turning point** in the evolution of artificial intelligence, enabling machines to go beyond traditional applications such as trend analysis or prediction, and instead **produce original content**. What distinguishes GenAI is its ability to generate entirely new outputs – **text, images, audio, or even video** – that closely resemble content created by humans. This is made possible through the use of **advanced machine learning techniques and deep neural networks**. Unlike traditional AI models, which are limited to interpreting and analyzing existing data, **GenAI learns from training data to generate outputs that do not exist in the original dataset**. For example, it can write coherent articles, complete sentences with contextual accuracy, create visual designs, or simulate realistic conversations.

Within this landscape, **Large Language Models (LLMs)** represent a particularly advanced evolution of Generative AI, specifically designed to **understand and generate natural language** at scale[9]. These models are trained on massive corpora of text and leverage **deep learning architectures** to recognize complex linguistic patterns and contextual relationships. As a result, LLMs are particularly effective in producing **realistic, coherent, and contextually appropriate text**[10]. Thanks to their ability to process and learn from vast amounts of data, **LLMs can answer questions, summarize content, generate creative text, and support a wide range of applications** in commercial, educational, and creative domains. However, their effectiveness comes at a cost: these models require **significant computational resources** and must be supported by **robust data management practices** to ensure the **relevance of responses** and to **minimize biases** inherent in the training data[11].

Companies adopting GenAI solutions can choose from several approaches that vary according to the degree of internal development required, from building proprietary models (LLM) to using more commercial solutions[12].

- **Construction of proprietary LLMs in-house** *(e.g., BloombergGPT by Bloomberg, Gemini by Google, Italia 9B by iGenius first LLM specialized solely on Italian language):* This approach allows companies to develop fully customized Large Language Models (LLMs) tailored to their specific organizational needs. By adopting this strategy, leading firms can maintain high standards of data security and privacy, ensuring that sensitive information remains under full control. However, this path also entails significant challenges, as it requires advanced technical expertise, access to highly skilled talent, and substantial investment in computational infrastructure, such as GPU clusters or farms, to support the intensive demands of model training.
- **Use of open-source LLMs** *(e.g., LLaMA 2 from Meta, PaLM 2 from Google, Falcon 180B from Technology Innovation Institute, BLOOM from BigScience):* Companies may opt to adopt open-source language models, developing custom AI applications tailored to their specific needs. This strategy enables organizations to leverage the capabilities of advanced models without having to build an AI system from the ground up, thereby reducing initial development costs. However, the use of open-source LLMs requires substantial technical expertise—both to customize the model effectively and to integrate it seamlessly into existing business workflows. Additionally, companies must ensure regular updates and maintenance to preserve model performance and relevance over time. While this approach offers greater flexibility and control compared to proprietary solutions, it also demands a sustained investment in resources and technological know-how, making it best suited for organizations with strong internal AI capabilities.
- **Access to advanced models developed by third parties through APIs** *(e.g., OpenAI's GPT-4, Anthropic's Claude, Amazon Web Service's Amazon Titan):* Through vendors such as OpenAI or Anthropic, organizations can access advanced language models via APIs, eliminating the need to build models from scratch. This approach offers rapid scalability and enables companies to integrate pre-trained models into custom applications, accelerating deployment and innovation. However, the use of APIs is typically subject to the provider's terms of service, which may limit customization options and impose restrictions on usage, data handling, or model behavior. As a result, while API-based solutions offer convenience and speed, they may be less suitable for organizations requiring full control and deep customization of their AI systems.
- **Using Off-The-Shelf AI solutions without customizations** *(e.g., ChatGPT Enterprise from OpenAI, Cohere):* Companies may opt for turnkey platforms such as ChatGPT Enterprise or Cohere, which offer ready-to-use generative AI solutions with minimal requirements for internal technical resources and short implementation timelines. These solutions allow organizations to quickly leverage the potential of Generative AI without relying on a robust in-house technical team. However, this convenience comes with limited customization options, and organizations may find themselves highly dependent on the service provider for functionality, updates, and data management. As a result, while turnkey platforms offer speed and simplicity, they may be less appropriate for firms requiring deep integration or strategic control over their AI systems.

The high computational cost of LLMs has encouraged the emergence of the **Small Language Models (SLM)**, that enable more efficient models by using significantly fewer parameters than traditional LLMs *(e.g. DistilBERT, Mistral 7B)*. These models, however, are suitable for vertical and well-defined tasks, and to date models are trained on **specific data** at **circumscribed areas** (e.g., sentence completion or text classification) and are less suitable for generalization.

9. *"Language Models are Few-Shot Learners,"* T. Brown et al., Proceedings of the 34th International Conference on Neural Information Processing Systems, (2020).
10. *"BERT: Pre-training of Deep Bidirectional Transformers for Language Understanding,"* J. Devlin, M.-W. Chang, K. Lee, & K. Toutanova, NAACL-HLT, (2019).
11. Deep Learning with Python, F. Chollet, Manning Publications, (2018).
12. *"GPT-4 Technical Report."*, OpenAI, (2023); Anthropic. *"Introducing Claude."* *Anthropic Blog, (2023); Almazrouei, E., et al. "The Falcon Series of Open Language Models."* arXiv:2311.16867, (2023); Scao, T.L., et al. "BLOOM: A 176B-Parameter Open-Access Multilingual Language Model." arXiv:2211.05100, (2022).

2. IA MARKET OVERVIEW

2.1. Global market

The **global artificial intelligence (AI) market** is experiencing an **exponential growth phase**, with estimates projecting a value of **$480 to $520 billion by 2027**, up from approximately **$185 billion in 2023**—reflecting a compound annual growth rate (CAGR) of **25–30%**[13]. Within this broader landscape, the Generative AI segment, which currently represents around 10–15% of the market, is expected to grow sevenfold by 2032, according to analysts. This growth will be driven by increasing adoption across a wide range of industries, including entertainment, marketing, and finance, and is anticipated to account for a growing share of overall enterprise AI spending.

Note: Includes software spending and investments in harware and cloud infrastructure supporting AI
Source: IDC, 2023
Fig. 3 AI market value

The **AI market shows significant geographical disparities**, with some regions being more advanced in the adoption and development of these technologies than others. The **United States and China** are the **global leaders in AI**, driven by substantial investments in **research and development**, broad access to data, and a dynamic technological ecosystem. The **United States** maintains its leadership position thanks to the presence of **major tech players**, which continue to invest heavily in **Generative AI and Large Language Models (LLMs)**[14]. Meanwhile, **China**, backed by strong **government support**, is rapidly accelerating its AI development as part of a broader strategy to **strengthen its economic and technological standing** on the global stage.

In **Europe**, the adoption of AI is growing but it is progressing more slowly because of the **high fragmentation of the market** and a **more limited availability of venture capital**. This is likely to disadvantage European players compared to those in regions such as the United States and China.

In **2023, the total spending by Italian companies on AI solutions was estimated to be in the range of €700–800 million**[15], while in **2024**, the market experienced a sharp acceleration,

13. IDC, Gartner, Bloomberg, (2023).
14. Generative AI to Become a $1.3 Trillion Market by 2032, Research Finds. Bloomberg, (2023).
15. Osservatorio Artificial Intelligence 2024, Politecnico di Milano, (2024).
16. Osservatorio Artificial Intelligence 2024, Politecnico di Milano, (2025).

surpassing the €1 billion mark for the first time and **reaching approximately €1.2 billion**[16]. The growth trend appears well established, with an expected compound annual growth rate (CAGR) of 30% to 35% between 2023 and 2027. However, the years 2023 and 2024 do not yet fully reflect the impact of Generative AI technologies, whose effects are expected to become more prominent starting in 2025.
The main areas of investment remain data exploration, forecasting, and optimization systems (34%), followed by text analysis and conversational systems (32%), which have shown the fastest growth. Recommendation systems rank third (17%), a field where Generative AI is playing an increasingly important role.

As for **Asset Management companies in Italy**, AI-related spending in 2024 is estimated to be between **€26 and €32 million**[17], with **projections reaching €60 to €70 million by 2027.**

2.2. Market Overview - United Kingdom

The United Kingdom is one of the leading countries in Europe in the adoption of artificial intelligence within the financial sector. According to the Artificial Intelligence in UK Financial Services (2024) report by the Bank of England and the Financial Conduct Authority (FCA), 75% of UK financial firms are already using AI—an increase from 53% two years earlier. The UK government has continued to support AI innovation through initiatives such as the AI Sector Deal, which includes investments in R&D, skills development, and cross-sector collaboration. However, concerns around algorithmic transparency and compliance with financial regulation remain key challenges for the sector.[18]

Examples of relevant use cases in Asset Management:

- **Schroders**: Developed an internal platform called the Data Insights Unit, which uses AI to analyze large volumes of alternative data and support investment decisions.
- **Man Group**: Developed an internal Large Language Model (LLM) in 2023 named ManGPT, and uses machine learning algorithms to detect patterns in market data and enhance quantitative trading strategies.

2.3. Market Overview – France

France is consolidating its position as a European hub for artificial intelligence, with public and private investments projected to reach **€109 billion** over the coming years. Through initiatives such as the AI for Humanity program, the French government has allocated €1.5 billion to promote AI research and foster its adoption across the national economy. Additionally, the public investment bank **Bpifrance has announced a €10 billion financing plan through 2029** to support the integration of AI technologies within enterprises.

Examples of relevant use cases in Asset Management:

- **Amundi**: Developed AI-based tools for asset allocation and risk management, aimed at enhancing operational efficiency and portfolio performance.
- **BNP Paribas Asset Management**: Utilizes AI to support ESG (Environmental, Social, and Governance) analysis, enabling more accurate evaluations of the sustainability performance of its portfolio companies.

17. Bain Analysis on data of Banca di Italia, IDC, Gartner, Bloomberg, survey (2024).
18. AI Sector Deal, UK Government, (2023).

2.4. Market Overview – Spain

Spain is intensifying its efforts to promote the adoption of artificial intelligence through targeted government initiatives and significant public investments. In 2020, the Spanish government announced an initial investment of €600 million for the period 2021-2023 to foster AI development across the country.

This strategy was later expanded, with a total budget of €1.5 billion allocated for 2024-2025, which includes key initiatives such as the development of a national AI model called "Alia"[19].

Example of a relevant use case in Asset Management:

- **Santander Asset Management**: For over five years, Santander Asset Management has applied AI in its quantitative and systematic investment processes. The firm uses models incorporating activity and inflation indicators to determine optimal multi-asset portfolio structures based on prevailing market conditions. In addition, it applies algorithms based on volatility and asset correlation data to define the most effective portfolio weighting strategies.

2.5. Market Overview – Netherlands

The Netherlands is among the leading European countries actively promoting the adoption of artificial intelligence in the financial sector. The Dutch government supports technological innovation through the Dutch Digitalisation Strategy, which encourages the integration of AI across various industries, including finance. A key factor contributing to the success of AI adoption in the country is the strong collaboration between financial institutions and technology startups, fostering a dynamic ecosystem for innovation and applied research.[20]

Examples of relevant use cases in Asset Management:

- **Robeco**: Implemented AI for data analysis and risk management. In particular, Robeco uses machine learning tools in quantitative investment processes to optimize portfolio performance.
- **NN Investment Partners**: Uses Truvalue Labs' AI to integrate real-time ESG data into investment processes. Through machine learning and natural language analysis, monitors unstructured sources to improve ESG assessment and optimize sustainable investment strategies.

2.6. Market Overview – Luxembourg

Luxembourg is a major financial center in Europe with a strong commitment to technological innovation in the Asset Management sector. The Association of the Luxembourg Fund Industry (ALFI) has recognized AI as one of the key trends for the future of Luxembourg's financial sector. [21]

In general, the adoption of AI in Luxembourg's Asset Management sector is still at an early stage. Key challenges include the need to develop specialized expertise and implement appropriate regulations to ensure ethical and safe use of AI technologies. However, Luxembourg continues to invest in technology infrastructure and foster innovation.

19. https://alia.gob.es/
20. Dutch Digitalisation Strategy, Dutch Government, (2023).
21. Capital Markets Union & AI, ALFI, (2024).

2.7. Market Overview – United States

The United States is a global leader in the adoption of artificial intelligence within the Asset Management industry. According to a 2023 report by the Securities and Exchange Commission (SEC), more than 60% of U.S. asset management firms have already integrated AI solutions to enhance operational efficiency and optimize investment strategies. The U.S. government actively fosters technological innovation through initiatives such as the American AI Initiative, launched in 2019, which aims to promote the development and adoption of AI across key sectors, including finance. In addition, the Project Stargate, announced in 2025 and currently under discussion, envisions a $500 billion investment in advanced computing infrastructure and data centers. This ambitious initiative involves major technology companies such as OpenAI, Microsoft, Nvidia, and Oracle, with the goal of positioning the United States as a global leader in AI innovation and infrastructure.

Example of a relevant use case in Asset Management:

- **Vanguard Group**: It uses AI for sentiment analysis and portfolio optimization, improving the efficiency of investment strategies.
- **State Street**: Applies AI within a range of strategic use cases, ranging from building evolved portfolios, to improving data quality, to optimizing manual middle-office processes.

2.8. Market Overview – China

In recent years, China has made significant progress in the field of artificial intelligence, with a stated goal of becoming a world leader in the field by 2030. Despite U.S. restrictions on the export of advanced chips, Chinese companies such as Alibaba and Tencent have developed cutting-edge AI models, demonstrating the country's ability to overcome technological hurdles and maintain a competitive position globally[22].

In the financial sector, AI is playing a growing role, particularly in Asset Management. According to a recent analysis, more than 20 Chinese Asset Management companies-including Sinolink Securities, China Universal Asset Management and Tiger Brokers-are integrating advanced language models (LLM) and machine learning technologies into their internal processes to transform activities such as financial research, risk management, market analysis and customer engagement.[23]

Example of relevant use cases in Asset Management:

- **Ubiquant**: Is a Beijing-based hedge fund company. Since 2018, it has started using AI methods based on big data to guide trading operations. It has also established an AI lab to develop new trading strategies based on artificial intelligence
- **High-Flyer**: Is a quantitative hedge fund headquartered in Hangzhou. The company uses advanced AI models for trading decisions and has developed a supercomputer, Fire-Flyer II, with 10,000 Nvidia A100 GPUs for deep learning. In 2023, High-Flyer founded DeepSeek, a research lab focused on general artificial intelligence.
- **Ant Group**: Chinese fintech giant controlled by Alibaba, active in digital payments and financial services. Launched Zhixiaobao 2.0 and Zhixiaozhu 1.0, AI assistants for retail investors and professionals, used for portfolio analysis and decision support.

22 New Generation Artificial Intelligence Development Plan, DigiChina, Stanford University (2017).
23. Tiger Brokers adopts DeepSeek model as Chinese brokerages, funds rush to embrace AI, Reuters, (2025).

3. REGULATORY CONTEXT

In recent years, the rapid deployment of artificial intelligence technologies has posed unprecedented regulatory challenges, prompting institutions to develop regulatory frameworks capable of balancing innovation with the protection of fundamental rights. The European Union is distinguished by a proactive and structured approach aimed at creating a regulatory ecosystem that fosters technological development and ensures transparency, security, and respect for human rights. **OECD AI Principles** were among the first international standards to establish key values such as inclusiveness, safety and accountability, providing a basis for more specific regulations. These include the **EU AI Act** (European Artificial Intelligence Act) which represents the first global attempt to regulate AI in a systematic way[24]. In addition to the EU AI Act, the Digital Operational Resilience Act[25] (**DORA**) and the General Data Protection Regulation (**GDPR**)[26].

3.1. OECD AI Principles

The OECD Principles on AI, adopted in 2019 and updated in 2024[27], represent one of the first international standards for reliable and human-centered artificial intelligence. These principles are articulated in five core values: promotion of inclusive and sustainable growth, respect for the rule of law and human rights, transparency and *explainability* of systems, security and robustness, and assigning responsibility to AI actors. Recommendations for national policies and international cooperation suggest investing in research, building an inclusive ecosystem, developing human capacity for the labor market, and fostering international cooperation..

The 2024 updates reflect the new challenges posed by generative AI and include measures to preserve information integrity, ensure security, and promote environmental sustainability. To support collaboration and knowledge exchange between governments and stakeholders, the following have been established **the OECD AI Policy Observatory** and the **network ONE AI**[28], thereby promoting responsible adoption of AI on a global scale[29].

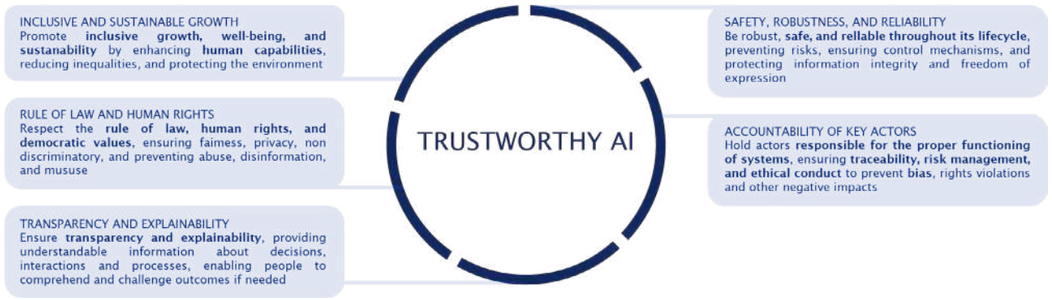


Fig. 4 Principles for reliable AI (OECD)

24. At national level, the legislative process is underway for the adoption of the draft law *"Provisions and delegation to the Government on artificial intelligence"*, which complements the regulatory framework outlined by the AI Act within the scope of domestic law.
25. At national level, the provisions for the adaptation of national legislation to DORA are contained in Legislative Decree of 10 March 2025, No. 23 (published in the Official Gazette, General Series, 11 March 2025, No. 58).
26. At national level, the provisions for the adaptation of national legislation to the GDPR are contained in Legislative Decree of 10 August 2018, No. 101.
27. OECD Recommendation on Artificial Intelligence (OECD/LEGAL/0449, 2019, amended 2024).
28. ONE AI Network (OECD Network of Experts on AI), OECD, (2019, amended 2023).
29. Recommendation of the Council on Artificial Intelligence, OECD, (2019, amended 2023).

3.2. EU AI Act

The **EU AI Act** represents the first global attempt to establish a comprehensive regulatory framework for the use of artificial intelligence, with the aim of ensuring safety, transparency, and the protection of fundamental rights of European citizens.

The EU AI Act is designed to **promote an environment of trust in AI and to foster responsible innovation, by striking a balance between rights protection and technological development**. The European Commission expects the AI Act to accelerate the adoption of high standards for AI, positioning the EU as a global leader in ethical and secure regulation of these emerging technologies.

The EU AI Act applies across all sectors. Specific provisions are identified for the banking, financial and insurance sectors, in recognition of their specific characteristics and the complex regulatory landscape governing these fields.

The EU AI Act is based on several key elements to regulate the use of AI systems:

1. **Definition of AI systems and General Purpose AI** (GPAI): The EU AI Act introduces a definition of AI systems and general-purpose AI systems.

2. **Classification of AI systems based on risk:** The EU AI Act identifies different categories of risk for AI systems (minimal, limited, high, and prohibited), with corresponding safeguards of increasing intensity.

3. **Obligations based on risk levels:** The EU AI Act prohibits certain AI practices, establishes requirements for compliance, monitoring and transparency for high-risk AI systems, and provides transparency obligations for limited-risk systems, to ensure that users are aware when they are interacting with an AI system.

4. **Roles and obligations of the actors involved:** The EU AI Act clarifies the responsibilities of all actors along the AI value chain, particularly providers and deployers, imposing documentation, risk management and monitoring obligations to ensure the safe and compliant use of AI systems.

These elements are intended to balance technological innovation with the protection of fundamental rights, promoting the responsible and secure adoption of AI in Europe.

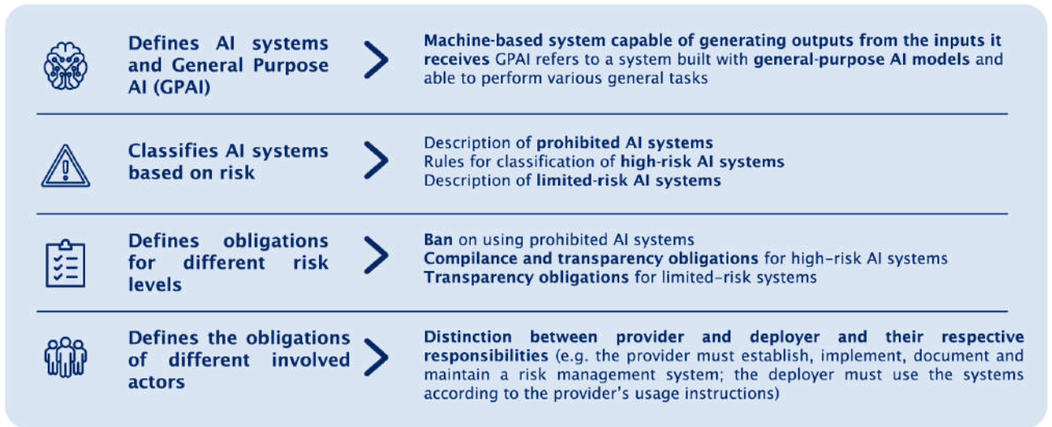


Fig. 5 Key elements of the EU AI Act

The EU AI Act went into effect on August 1, 2024, and includes a number of key compliance deadlines that organizations must meet. Here are the key milestones[30]:

- **February 2, 2025**:
  - **General Provisions and Literacy:** General provisions on subject matter and scope, definitions, and obligations regarding AI literacy are applicable.
  - **Prohibited AI practices**: Provisions prohibiting the use of certain AI systems considered to pose unacceptable risk, such as those for "social scoring" or using subliminal or intentionally manipulative techniques, also apply.
- **August 2, 2025**:
  - **Obligations related to general purpose AI (GPAI) models**: Providers of general purpose AI models must comply with the new rules, which include transparency and risk management requirements.
  - **Standards of governance**: Provisions for AI governance, including the designation of competent national authorities and the establishment of regulatory sandboxes to facilitate safe innovation, apply.
  - **Other provisions**: Rules on penalties, notifying authorities and notifying bodies, and confidentiality of authorities and others involved in the enforcement of the AI Act are applicable.
- **August 2, 2026**:
  - **General application of the AI Act**: Most provisions of the regulation become applicable, including obligations for high-risk AI systems.
- **August 2, 2027**:
  - **Article 6(1) and corresponding obligations**: The requirements for high-risk AI systems incorporated into products regulated in harmonized Union legislation apply.

3.3. Definition of AI System and GPAI Model

AI System

The **EU AI Act** defines an **artificial intelligence system** as "a machine-based system that is designed to operate with varying levels of autonomy and that may exhibit adaptiveness after deployment, and that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments" (Art. 3(1) AI Act). This definition is instrumental in delineating the scope of the AI Act[31].

Recital 12 explains the rationale for this definition, pointing out in particular that it is based on key features that distinguish AI from traditional software systems or simpler programming approaches, and that it should not cover systems based on rules defined solely by individuals to perform operations automatically.

30. As referred to in Article 113 of the AI Act.
31. The definition is aligned with the OECD Recommendation on Artificial Intelligence (*OECD/LEGAL/0449*, 2019, amended 2023).

The characteristics of an AI system under the AI Act can be summarized as follows[32]:

(i) **Machine-based system:** An AI system is designed to function because of components **hardware and software**. Hardware components refer to physical elements, such as processing units, memory, and storage devices; software components, on the other hand, include, for example, code, programs, and operating systems. The term "machine-based" refers to a wide range of computational systems, including emerging quantum computing systems.

(ii) **Variable levels of autonomy:** An AI system must be able to operate with **a degree of independence of action from human intervention**. This implies that while the system can be supervised, it does not have to operate exclusively through full human involvement and manual intervention. The level of autonomy is a necessary condition for determining whether a system qualifies as an AI system.

(iii) **Possible post-deployment adaptability:** Some AI systems possess capabilities of **self-learning**, that allow them to modify their behavior over time based on data and accumulated experience. However, adaptability **is not a decisive requirement** to fall within the definition of AI: a system can be considered AI even without changing its operation after deployment.

(iv) **Explicit or implicit goals:** An AI system operates by pursuing **one or more objectives**, which may be explicitly defined by developers (e.g., maximizing a given performance function) or emerge implicitly from data analysis and interaction with the environment. The goals of the AI system are distinguished from its "Intended Purpose," which depends on the specific context in which the system is designed to be used.

(v) **Inferential capacity:** The hallmark of an AI system is its ability to **deduce how to generate output** from the input received. The inferential capability of an AI system transcends basic data processing by enabling learning, reasoning or modeling. This is a **precondition** to distinguish AI Systems from other types of systems.

This capacity is manifested in two main stages:

1. **Use phase**: The system generates outputs based on the inputs received (e.g., predictions, recommendations, decisions), which can influence the physical and virtual environments.
2. **Building phase**: The system can derive models or algorithms, or both, from input or data, using techniques of *machine learning* or logic- and knowledge-based approaches.

(vi) **Output production:** An AI system is designed to generate different types of outputs based on the data received. These outputs may include:

- **Forecast**, that is, an estimate of an unknown value (the output) from known values provided to the system (the input);
- **Contents**, which refers to the generation of new material by an AI system. This can include text, images, video, music, and other forms of output;
- **Recommendations**, as suggestions for specific actions, products, or services aimed at users based on their preferences, behaviors, or other input data;
- **Decisions**, that is, conclusions or choices made by an AI system, which traditionally require human intervention.

32. See also the Commission Guidelines on the definition of an artificial intelligence system established by Regulation (EU) 2024/1689 (AI Act).

(vii) **Impact on physical or virtual environments:** AI **is not passive**, but **interacts with and modifies the context in which it operates**. This environment can be **physical** – AI will then be able to influence physical, tangible objects, as in the case of a robotic arm – or **virtual**, including digital spaces, data flows and software ecosystems.

GPAI Model

The EU AI Act also addresses General Purpose AI (GPAI), defining the "**general-purpose AI model**" (so-called "GPAI model") as an AI model that is characterized by significant generality and capable of competently performing a wide range of distinct tasks, and that can be integrated into a variety of downstream systems or applications[33]. These models do not in themselves constitute AI systems, but are generally integrated into AI systems and form part of them[34]. A typical example of a general-purpose AI model is large generative AI models, as they allow for flexible content generation, for example in the form of text, audio, images or video, which can readily address a wide range of distinct tasks[35]. GPAI models are therefore distinguished by their ability to handle multiple tasks, not being limited to a single use case or specific domain. This makes them key technologies for cross-cutting applications that can be easily adapted to different industrial sectors and operational contexts[36].

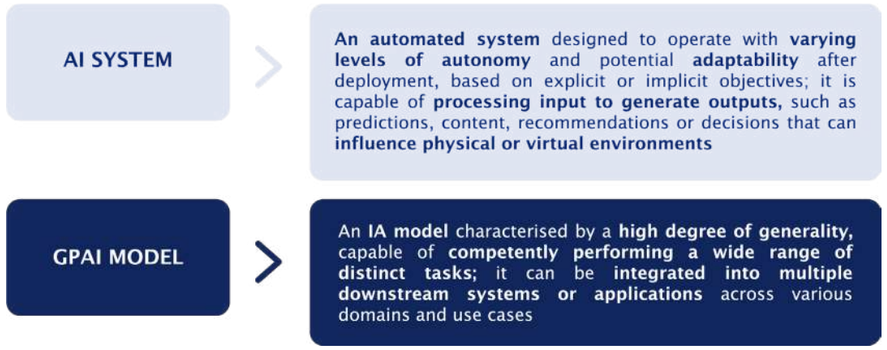


Fig. 6 Definition of AI System and GPAI Model according to the EU AI Act

33. Recital 98, AI Act, and Article 3(63), which definers a *"general-purpose AI model"* as *"an AI model, including where such an AI model is trained with a large amount of data using self-supervision at scale, that displays significant generality and is capable of competently performing a wide range of distinct tasks regardless of the way the model is placed on the market and that can be integrated into a variety of downstream systems or applications, except AI models that are used for research, development or prototyping activities before they are placed on the market"*.
34. Recital 97, AI Act. Moreover, an *"AI system with general-purpose intent"* is considered to be an AI system based on a general-purpose AI model, where the model has the capability to serve multiple intended purposes, either through direct use or through integration into other AI systems (Article 3(66), AI Act).
35. Recital 99, AI Act.
36. On this topic, see the recent FAQs published by the European Commission on general-purpose AI models.

3.4. Risk classification and related obligations

The EU AI Act follows a risk-based approach, and proposes a classification of AI systems into four categories according to their level of risk, to which specific obligations correspond. General-purpose AI models constitute a separate category[37].

1. **Prohibited AI system (unacceptable risk)**: This category includes AI applications that the EU considers a threat to safety, rights, and human dignity. Examples of such applications include AI systems that use subliminal or intentionally manipulative techniques, or that are designed to exploit the vulnerabilities of a natural person or group of persons, social scoring systems that result in detrimental treatment, AI systems used to infer emotions in the workplace or in educational institutions, and biometric categorisation systems used to deduce sensitive characteristics (**Article 5, AI Act**). These applications are prohibited under the Regulation.

2. **High-risk AI system**: This is the most detailed category under the AI Act and includes systems that may have a significant impact on people's lives and rights (**Article 6 and Annexes I and III, AI Act**), including biometric categorisation systems based on particular sensitive attributes or emotion recognition, systems used for recruitment, selection or staff management. It also includes typical applications in the financial sector, such as systems used to assess the creditworthiness of natural persons and those used for risk assessment and pricing in life and health insurance. High-risk systems must comply with strict requirements on transparency, data quality, traceability and human oversight. Companies implementing such systems are required to carry out conformity assessments and provide detailed documentation on decision-making processes and data used.

3. **Limited-risk AI systems (transparency risk)**: This category includes applications with a moderate level of risk, such as chatbots and virtual assistants. The Regulation establishes a set of transparency obligations for providers and users of various limited-risk AI systems (**Article 50, AI Act**). These include, by way of example: AI systems intended to interact directly with natural persons; AI systems that generate synthetic audio, image, video or text content; emotion recognition systems or biometric categorisation systems; AI systems that generate or manipulate content constituting a "deep fake"; or systems that generate or manipulate text published with the aim of informing the public on matters of public interest.

4. **Minimal-risk AI systems**: This category includes applications considered to pose low risks to safety and individual rights, such as spam filters, product recommendation systems, and voice assistants in smart homes. These systems are not subject to specific compliance requirements, as their impact on users' lives is considered marginal. However, **Article 4 of the AI Act** provides for a general obligation for providers and users of AI systems to adopt measures to ensure, as far as possible, a sufficient level of AI literacy among their staff and any other person involved in the operation and use of AI systems on their behalf.

In parallel, by 2026 the European Commission will adopt several pieces of secondary legislation, including delegated acts, implementing acts and guidelines that will specify the practical modalities for applying the provisions of the AI Act. Delegated acts will cover areas such as the definition and classification of AI systems and GPAI models, transparency and documentation requirements, while implementing acts are expected to focus more on

37. With regard to such models, specific transparency requirements were introduced during the final stage of the Regulation's adoption process. Moreover, where these models are classified as general-purpose AI models with systemic risk, additional obligations related to risk assessment and mitigation apply, as set out in Chapter V of the AI Act.

operational guidance for the implementation of the AI Act, such as codes of conduct and the establishment of the AI Act's governance system. In addition, the Commission will provide practical guidance on more specific aspects of the implementation of the AI Act, such as the recently published **Guidelines on the definition of an AI system** and **prohibited practices under the AI Act**.

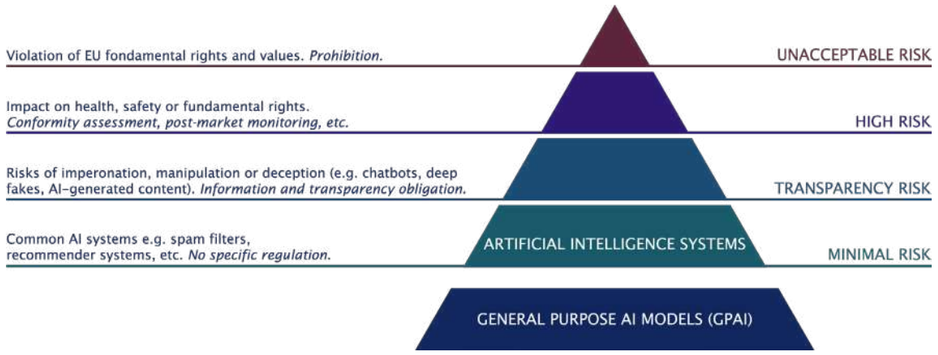


Fig. 7 Risk-based approach of the EU AI Act[38]

3.5. Roles and obligations of stakeholders

The **EU AI Act** introduces a structured framework that assigns specific obligations to various actors involved in the development, distribution and deployment of Artificial Intelligence Systems. This approach aims to ensure that all stakeholders are responsible for meeting safety standards, transparency, and regulatory compliance, while minimizing the risks associated with AI. Actors identified include **providers, distributors and importers, deployers and supervisors**[39].

1. **Obligations of providers**[40]: Providers of AI systems are subject to the most stringent requirements. Depending on the type of AI systems provided (high-risk, limited-risk or GPAI models), they would be subject, by way of example, to the following obligations:

- Ensure compliance of the system with EU regulations before placing it on the market.
- Provide detailed technical documentation, including, by way of example, a description of the AI system, its components and the development process, information on the data used to train the system, and instructions for use addressed to the deployer.

38. European Parliament, summary document on the AI Act (*September 2024*).
39. Proposal for a Regulation on a European Approach for Artificial Intelligence (AI Act), European Commission, (2021); Artificial Intelligence in the EU: Ensuring a Comprehensive Regulatory Framework, European Parliament, (2023); Artificial Intelligence Act: Overview and Key Provisions, Council of the European Union, (2024).
40. According to the definition set out in Article 3(3) of the AI Act:"*a natural or legal person, public authority, agency or other body that develops an AI system or a general-purpose AI model, or has such a system or model developed, and places it on the market or puts the AI system into service under its own name or trademark, whether for payment or free of charge.*"

- Implement a risk management system that assesses and mitigates potential issues throughout the entire lifecycle of the product.
- Ensure human oversight during the period the AI systems are in use, in order to prevent or minimise risks to health, safety or fundamental rights.

2. **Obligations of distributors**[41] **and importers**[42]: Distributors and importers are responsible for conducting certain checks to ensure that the high-risk AI systems they place or make available on the market comply with the Regulation.

3. **Obligations of deployers (users)**[43]**:** Deployers of AI systems, depending on the type of system used (high-risk or limited-risk), may be subject to various obligations, including:

- Using and monitoring AI systems in accordance with the instructions for use.
- Assigning human oversight to natural persons with the necessary competence, training, authority and support.
- Fulfilling transparency obligations towards end users who interact with AI systems[44].

4. **Role of competent authorities:** Member States must designate national competent authorities for the purposes of applying and enforcing the Regulation. These authorities are responsible for:

- Monitoring compliance with the AI Act by the various actors, and imposing sanctions where necessary.
- Establishing regulatory sandboxes to promote innovation in a controlled environment.

The identification of the above roles ensures that all actors along the AI value chain assume their share of responsibility, fostering an ecosystem that combines innovation with the protection of fundamental rights.

The supervisory framework is complex and fragmented, involving the European Commission, as well as the National Competent Authorities, which, under the current institutional structures, correspond to the relevant sectoral authorities. At the European level, a particularly prominent role is assigned to the AI Office, established within the European Commission as a centre of expertise on AI and forming the cornerstone of a unified European AI governance system.

The AI Office relies on its expertise to support the implementation of the Artificial Intelligence Act, in particular by:

- Contributing to the consistent application of the AI Act across all Member States;
- Developing tools, methodologies and benchmarks for assessing the capabilities and scope of general-purpose AI models and for classifying models presenting systemic risks;

41. According to the definition set out in Article 3(7) of the AI Act: "*a natural or legal person in the supply chain, other than the provider or the importer, who makes an AI system available on the Union market.*"
42. According to the definition set out in Article 3(6) of the AI Act: "*a natural or legal person located or established in the Union who places on the market an AI system under the name or trademark of a natural or legal person established in a third country.*"
43. According to the definition set out in Article 3(4) of the AI Act: "*a natural or legal person, public authority, agency or other body using an AI system under its authority, except where the AI system is used in the course of a personal non-professional activity.*"
44. For a more detailed overview of the cases in which the Asset Manager assumes a specific role, see chapter 6.3 below.

- Developing state-of-the-art codes of conduct;
- Investigating potential breaches of the rules;
- (v) preparing guidelines, recommendations, delegated acts and other instruments to support the implementation of the AI Act.

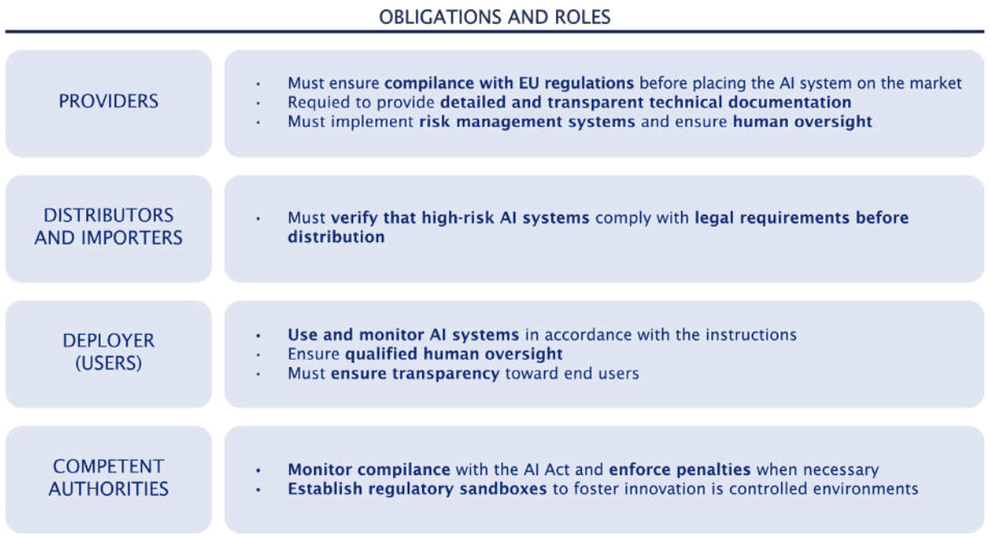


Fig. 8 Examples of specific obligations of different actors involved in the development, deployment and use of AI systems introduced by the EU AI Act

3.6. Interconnections with other European regulations

The EU AI Act does not exist in isolation, but interacts with existing financial legislation and with other European regulations, including the General Data Protection Regulation (GDPR) and the Digital Operational Resilience Act (DORA). These regulations govern not only data protection and operational resilience, but also provide the foundation for a responsible and transparent implementation of AI technologies, reducing the risks associated with their use.

General Data Protection Regulation (GDPR)

An AI system that uses personal data, for example, to train or make decisions, must ensure that such data are processed in compliance with the privacy protection rules set out in the GDPR, with particular reference to the following aspects:

- **Prohibition of automated decisions:** Article 22 of the GDPR sets out a general prohibition on subjecting a data subject to a solely automated decision which produces legal effects concerning him or her or similarly significantly affects him or her. However, three exceptions to this prohibition are provided for when the decision: (i) is necessary for entering into, or the performance of, a contract between the data subject and a data controller; (ii) is authorised by Union or Member State law to which the controller is subject; or (iii) is based on the data subject's explicit consent. Such processing should nevertheless be subject to appropriate safeguards, including the right to obtain an explanation of the decision and to contest it or obtain human intervention (Recital 71 GDPR)[45].
- **Processing of a special categories of personal data:** The prohibition on processing certain special categories of personal data set out in Article 9(1) GDPR must be taken into account, except for the limited exceptions provided in Article 9(2) GDPR.
- **Compatibility of processing purposes:** Article 6(4) GDPR provides that, for some legal bases of processing, the controller must assess, based on specific criteria, whether the processing for a new purpose is compatible with the original purpose for which the personal data were collected.
- **Transparency and the right to rectification and erasure:** Adequate transparency must be ensured in relation to the processing of personal data by AI systems. In particular, under the right to information (Articles 13 and 14 GDPR), where automated decisions are involved, the data subject must be provided with meaningful information about the logic involved, as well as the significance and envisaged consequences of such processing. The data subject's rights to rectification and erasure (Articles 16-17 GDPR) must also be guaranteed when the AI system has been developed using personal data[46].
- **Data minimisation:** When using AI systems, the principle of data minimisation must be respected, i.e., personal data must be adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed (Article 5(1)(c)). This principle must be ensured throughout the system's entire lifecycle and during all stages of development. The AI models themselves should therefore be trained on datasets limited to the personal data necessary for the intended processing purposes.
- **Data accuracy:** Throughout all phases of AI system development and use, the principle of accuracy must be upheld, according to which data must be accurate and, where necessary, kept up to date ; all reasonable steps must be taken to erase or rectify inaccurate data in a timely manner in relation to the purposes for which they are processed (Article 5(1)(d)). This implies verifying the structure and content of datasets used to train models, including third-party data, and monitoring output data through regular human oversight. When the AI system is supplied by third parties, the use of procedures to ensure data accuracy during development should be contractually stipulated and documented.
- **Security:** Article 32 GDPR requires the implementation of appropriate technical and organisational measures to ensure a level of security appropriate to the risk to the rights and freedoms of natural persons. In addition to traditional IT security controls, operators should implement specific safeguards to address new vulnerabilities arising from the AI and GenAI systems used.
- **Anonymisation and legitimate interest as a legal basis:** The recent Opinion 28/2024 of the EDPB[48] provides useful guidance on the protection of personal data during the development and deployment of AI models, in particular regarding the anonymisation of AI models, including methods for verifying anonymisation, and on assessing when legitimate interest can be considered an appropriate legal basis for processing.

45. For further details, refer to the *"Guidelines on Automated Individual Decision-Making and Profiling for the purposes of Regulation 2016/679,"* issued by the WP29, as last revised and adopted on February 6, 2018.
46. For an analysis of the techniques and methods that may be used for this purpose, see the EDPB report *"Effective implementation of data subjects' rights"* (January 2025).
47. Also relevant on this point is the recent EDPB report *"Bias Evaluation"* (January 2025).
48. EDPB Opinion 28/2024 on certain aspects of data protection regarding the processing of personal data in the context of AI models, adopted on 17 December 2024.

More generally, such measures should be implemented **by design and by default** (Article 25 GDPR). Furthermore, intermediaries should carefully document their assessments regarding compliance with applicable data protection principles, for which they are responsible (Article 5(2), **accountability principle**), and should implement and regularly update technical and organisational measures suitable to continuously ensure the lawfulness of processing under the GDPR, considering the specifics of their own context (Article 24(1)). Lastly, particularly in relation to the use of new technologies, where the processing may present a high risk to the rights and freedoms of natural persons, a **data protection impact assessment (DPIA)** must be carried out (Article 35 GDPR)[49].

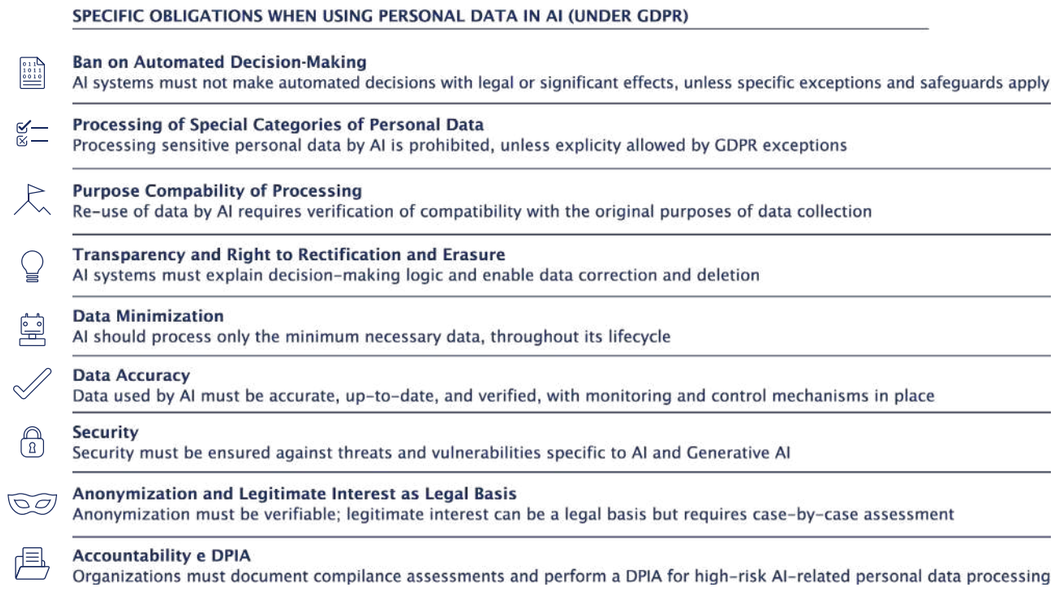


Fig. 9 Specific obligations when using personal data under the GDPR in AI

49. For further insights, see the *"Guidelines on Data Protection Impact Assessment (DPIA) and determining whether processing is 'likely to result in a high risk' for the purposes of Regulation (EU) 2016/679"*, issued by WP29, as last revised and adopted on 25 May 2018.

Digital Operational Resilience Act (DORA)

The use of **AI systems can significantly impact the operational resilience** of financial institutions. When AI systems are employed in critical functions, such as risk management, it becomes essential to ensure that these systems are resilient and secure, in accordance with the **Digital Operational Resilience Act (DORA)**. This Regulation introduces a **harmonized framework** across the EU financial sector to identify, mitigate, and manage risks stemming from **information and communication technologies (ICT)** and to promote **the supervision of third-party providers** within the scope of ICT services. This framework imposes a series of obligations on financial entities regarding the ICT services they use, including for the use of AI systems[50]. The widespread adoption of AI may in fact have implications for systemic cyber risk in the financial market, which DORA aims to address. However, DORA **alone** is not sufficient to manage the specific risks arising from the use of AI, which require integration with the requirements set out in the AI Act.The obligations arising from DORA can be summarised under the following areas:

- **ICT risk management:** In order to ensure a high level of digital operational resilience, financial entities must adopt: (i) specific governance and organisational measures, which include a central and leading role for the management body, as well as (ii) a robust, comprehensive and properly documented ICT risk management framework. Within this framework, financial entities are required, in particular, to: (a) map the AI systems used and the supported functions and identify specific risks; (b) prepare and test appropriate business continuity plans and response and recovery plans for the AI systems used; (c) define and implement policies, procedures, protocols and tools to ensure the security of the AI systems used and minimise the impact of AI-specific risks.
- **Incident management and reporting:** Financial entities must have in place a framework for managing, classifying and reporting ICT-related incidents, taking into account the specific attacks and vulnerabilities associated with the use of AI. In particular, they must: (i) define, establish and implement a process for managing ICT-related incidents; (ii) record all ICT-related incidents and significant cyber threats; (iv) classify ICT-related incidents as major and cyber threats as significant based on certain criteria; and (v) notify the competent authority of major ICT incidents (mandatory) and significant cyber threats (voluntary).
- **Digital operational resilience testing:** Financial entities must establish, maintain and review, as an integral part of their ICT risk management framework, a robust and comprehensive digital operational resilience testing programme, also for the purpose of assessing their preparedness for AI-related incidents and identifying weaknesses, gaps and deficiencies in their digital operational resilience.
- **Third-party ICT risk management:** The DORA Regulation sets out several obligations for financial entities concerning the management of ICT risks arising from third parties, which also apply to contractual agreements with third-party providers of ICT services for the use of AI systems. These obligations are reinforced where such AI systems support critical or important functions (hereinafter "CIF"). These obligations include: (i) adoption of a strategy for ICT third-party risk; (ii) pre-contractual due diligence for the use of ICT services; (iii) inclusion of mandatory clauses in contracts with third-party ICT providers, including in the event of subcontracting a TIC service supporting a CIF or significant parts thereof; (iv) maintenance and updating of a register of information on all contractual agreements for

50. See, in this regard, Recital 158 of the AI Act, according to which: *"Union financial services law includes internal governance and risk-management rules and requirements which are applicable to regulated financial institutions in the course of provision of those services, including when they make use of AI systems."*

the use of ICT services provided by third-party suppliers; (v) definition of clauses enabling the termination of ICT service contracts in specific circumstances and exit strategies for ICT services supporting critical or important functions.

In this context, a key aspect of operational resilience is the **voluntary sharing of cyber threat intelligence and information between industry entities**. The Regulation indeed encourages collaboration among financial institutions to enhance collective capacity to prevent, detect and respond to cyberattacks. The **structured sharing of threat intelligence** enables the timely identification of **emerging vulnerabilities and the adoption of more effective mitigation measures**.

Fig.10 Key principles of DORA (Digital Operational Resilience Act)

4. MARKET PARTICIPANTS' POINT OF VIEW

This chapter presents the findings of a **survey conducted by Assogestioni**, which involved a selection of leading **Asset Management companies** operating in the Italian market. The survey explored the **maturity level of AI solutions** in the Asset Management sector, as well as the **main perceived risks**. It also examined the adoption of both **traditional and Generative AI** technologies across the **entire Asset Management value chain, the key benefits and barriers** encountered, and the **enabling factors**, including technology infrastructure, organizational models, and governance frameworks. Furthermore, the analysis considered the **regulatory implications** of emerging frameworks, in particular the **EU AI Act**.

A total of **12 companies** participated in the survey, comprising **five international players** and **seven Italian firms**. Collectively, they account for approximately **68% of assets under management in Italy** as of **September 2024**, representing **80% of Assogestioni's membership base**[51].

4.1. Market view on AI solutions in Asset Management

The survey reveals a **general perception of limited maturity** in the application of AI solutions across the **entire Asset Management value chain**, with an **average score of 2.6 on a scale from 1 to 5**.

As illustrated in Figure 11, the areas with the **lowest reported maturity levels** include **target market identification, risk management, and compliance**. In contrast, respondents indicate **higher levels of maturity** in domains such as **data management and analysis, the investment and portfolio management process, and operational efficiency**.

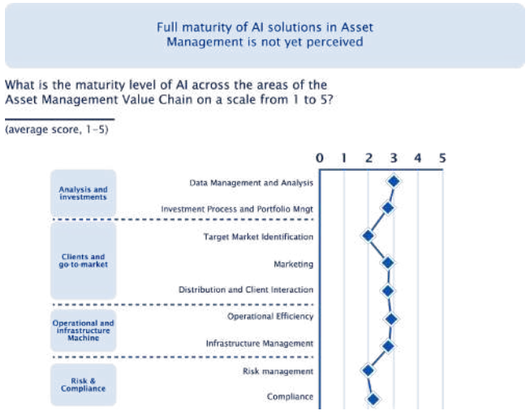


Fig. 11 Perception of the maturity of AI solutions along the AM Value Chain

Figure 12 presents the **top five challenges to AI adoption** as reported by the surveyed companies. The most frequently cited obstacle is the **lack of internal expertise**, highlighted by **75% of respondents**. This is followed by concerns related to **privacy**, and the **transparency and explainability** of algorithms and their outputs[52], both identified by **65% of participants**. Additionally, **data access** and **additional costs** were each reported as barriers by **55%** of the respondents.

51. Data refer to the main asset management companies operating in Italy, updated as of September 2024.
52. Ability of an algorithm, especially one based on artificial intelligence or machine learning, to make the decisions or outputs it produces understandable to a human being.

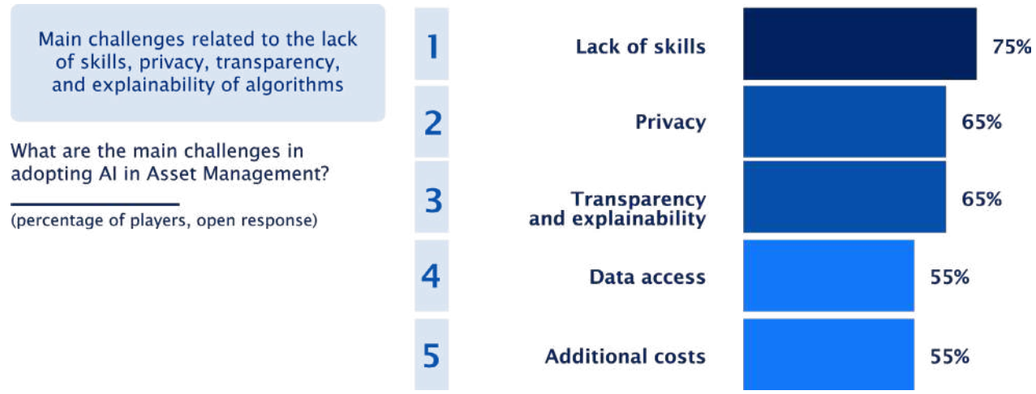


Fig.12 Main perceived challenges to the full adoption of AI in the MA

4.2. Use of AI solutions

All companies surveyed reported being **active in at least one AI use case**, reflecting a strong momentum toward **experimentation and the adoption of new applications**. On average, each firm indicated having:

- **2 use case in full deployment**
- **2 use case in pilot testing / finalization**
- **4 use case in experimentation, evaluation or exploration**

In terms of implementation timelines, approximately **40% of the companies** have been using AI for **1 to 3 years**, while the remainder report **more established experience**. Notably, only **25% of respondents** indicated they have been using AI for **more than five years**.

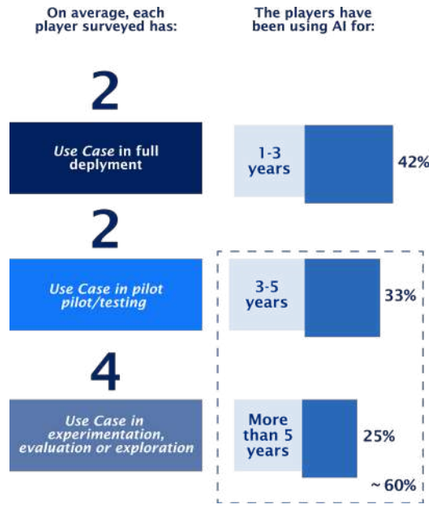


Fig. 13 Average number of AI use cases (open answer); Percentage of companies by time of AI use (closed answer)

Analyzing the differences between **Italian and international players** reveals a **stronger drive toward AI innovation among international firms**. While the **average number of fully deployed use cases** is comparable—**1.7 for Italian players** versus **1.8 for international players**—significant differences emerge in the **number of use cases under development**. International players report a **higher number of pilot and exploratory projects**, suggesting a more proactive and structured approach to **scaling AI initiatives** across the organization:

- In the **pilot testing or finalization phase**, Italian players report an average of **1.6 use cases**, compared to **2.0** among international peers.
- In the **experimentation phase preceding pilot testing**, the average is **0.6 use cases** for Italian firms, versus **1.0** for international firms.
- In the **exploration or early evaluation phase**, Italian players report **2.0 use cases**, while international players report a significantly higher average of **3.2**.

Analyzing the data by **type of player**, **Figure 14** highlights some notable differences in the **adoption timeline of artificial intelligence systems** between Italian and international firms. Most **Italian players** report having used AI for **one to five years**, whereas **international firms** are more likely to have **over five years of experience** in AI adoption. This points to a **temporal and technological gap**, with international players having **initiated AI implementation earlier**, potentially allowing them to develop more **mature capabilities** and achieve a **greater level of integration** across their operations.

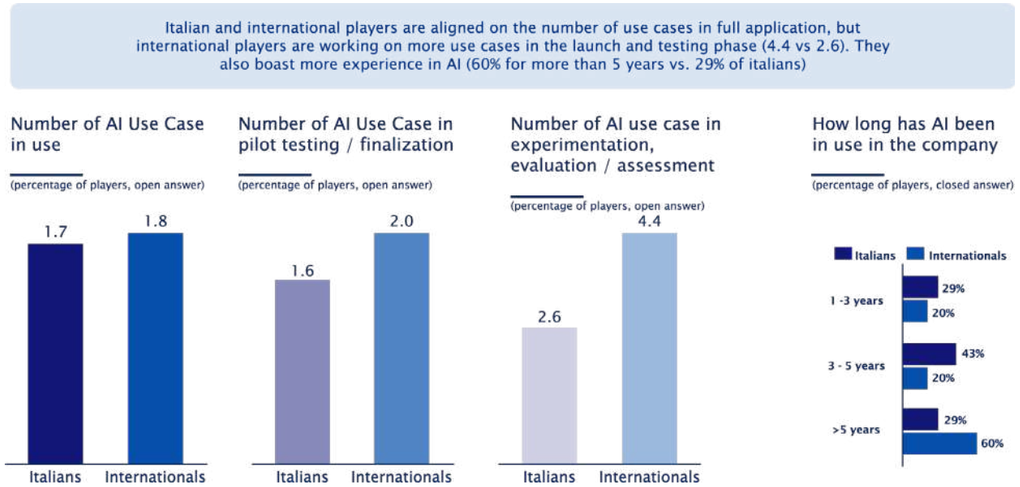


Fig. 14 Differences between Italian players and international players

The **application areas of AI** among the surveyed Asset Management companies reveal a **predominant focus** on the **investment process, data management and analysis, operational efficiency**, and **marketing**. These domains exhibit the highest levels of activity, with a combination of **use cases in full application** (represented by dark green bars) and **use cases in the pilot testing/finalization phase** (represented by light green bars), as illustrated in **Figure 15**. In particular, the **investment process** emerges as the **primary area of implementation**, with approximately **60% of respondents** (7 out of 12 companies) reporting **at least one use case in full deployment**. These findings are **consistent with the results observed in 2022**, confirming a continued trend toward prioritizing AI in core investment-related functions.

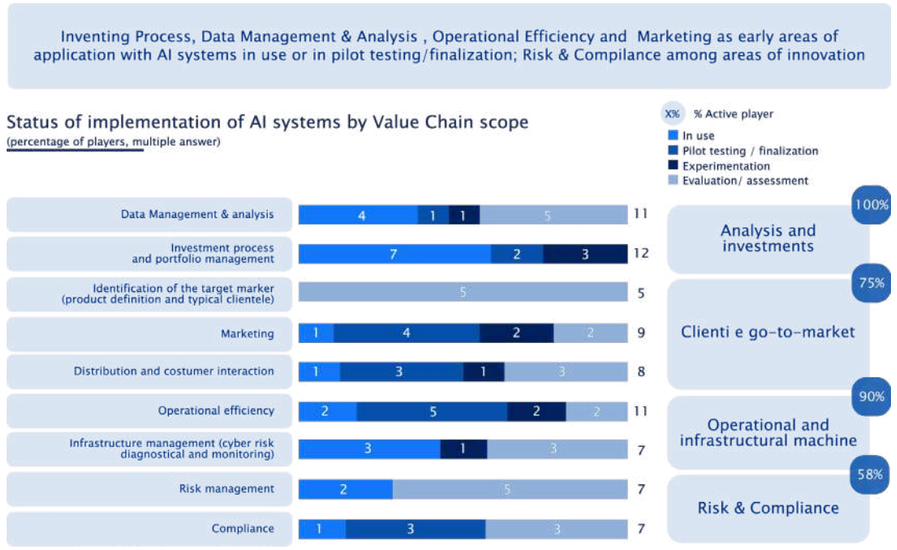


Fig.15 Number of active companies with at least one use case

The companies surveyed identified a total of **30 key use cases** of artificial intelligence distributed across various stages of the asset management value chain. Notably, approximately **70% of these use cases** incorporate **Generative AI (GenAI) technologies**, reflecting their increasing applicability in diverse operational contexts. Among the most representative examples of AI and GenAI application:

- **Data Management and Analysis**: Development of global ESG (Environmental, Social, and Governance) databases, automated synthesis of research materials, and generation of investment insights.
- **Investment Process and Portfolio Management**: Deployment of deep learning models for stock selection, dynamic asset allocation, and extraction of financial analysis to uncover new market opportunities.
- **Marketing**: Use of advanced language models (LLMs) to produce customized educational content and implementation of intelligent chatbots to enhance client engagement.
- **Operational Efficiency**: Automated extraction of information from documents, application of generative models to optimize business processes, and AI-driven analysis of cyber threats to enhance security.
- **Risk Management and Compliance**: Automation of risk controls, detection of data anomalies, and AI-supported reviews of regulatory compliance and corporate policies.

The **adoption of AI systems** continues to deliver **significant benefits** to asset management companies, consistent with the findings of previous surveys. As shown in **Figure 16**, the most frequently reported benefit is **improved operational efficiency**, cited by **67% of respondents**. This is followed by improvements in **data quality and error reduction**, and **simplification of processes and tasks**, each reported by **33%** of participants. Compared to the 2022 data, the **focus on operational efficiency** remains a top priority, confirming a clear trend in the strategic value attributed to AI implementation.

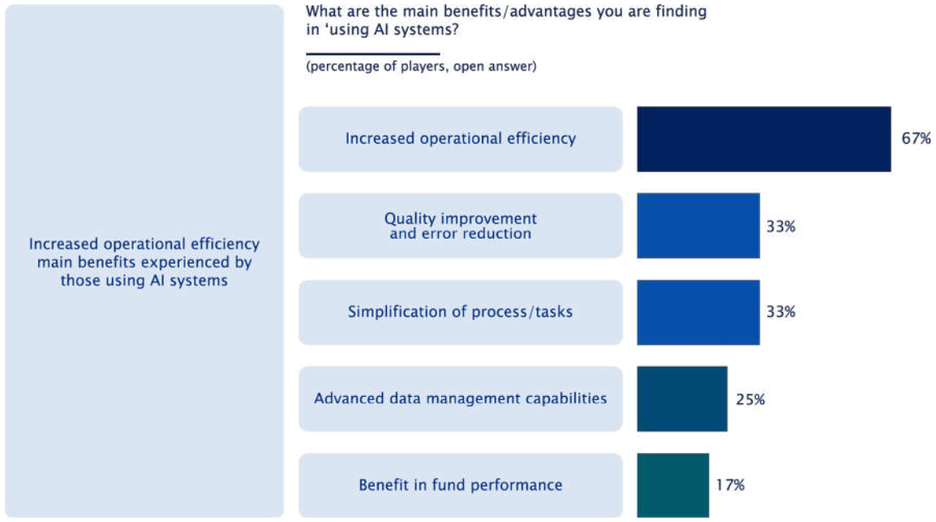


Fig. 16 Main benefits found in the use of AI

However, **significant challenges remain**. As shown in **Figure 17**, the main difficulties encountered by companies in the adoption of AI are led by the **lack of adequate skills and internal resources**, reported by **65%** of respondents. This is followed by **low technological maturity** and **high implementation costs** (each cited by **45%**), as well as **privacy concerns** and issues related to **change management and adoption**, mentioned by 30% of participants. These findings highlight two key issues. First, there is a **clear need for continued investment** in the development of **in-house expertise** to manage and implement AI solutions effectively. Second, they underscore the importance of **accelerating technological maturity**, with the goal of delivering **more standardized, scalable, and accessible AI tools** that can help overcome current operational barriers and enable broader, industrial-scale adoption.

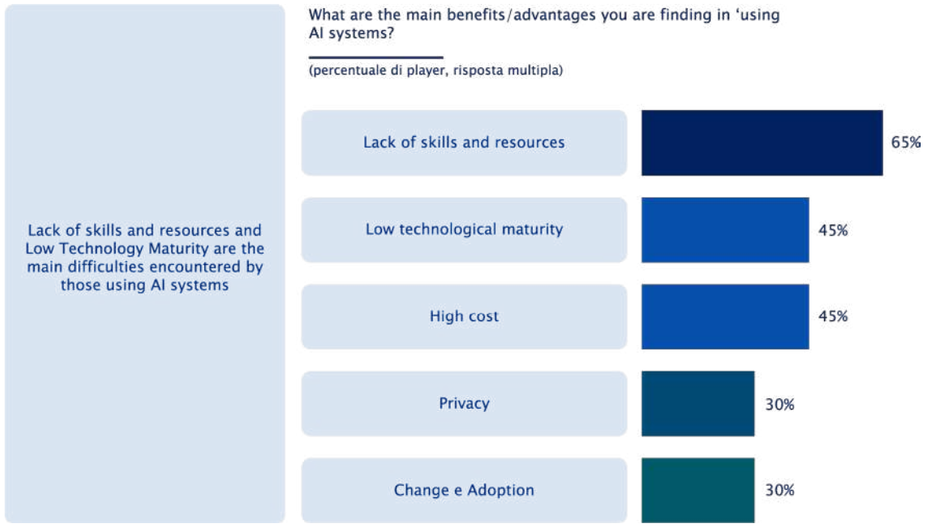


Fig.17 Main difficulties encountered in using AI

4.3. Technology, data, organization, and governance

Technologies

The survey reveals that **nearly all participating firms** are already leveraging **Generative AI (GenAI)**, **Machine Learning**, and **Deep Learning** technologies, with **OpenAI's GPT** emerging as the **most widely adopted** platform. However, other GenAI solutions are also being explored, albeit to a lesser extent. Specifically, **Mistral** is used by **33%** of respondents, **Anthropic's Claude** by **25%**, while **Meta's LLaMA** and **Google's LaMDA** are each cited by **8%** of participants. These alternative technologies are primarily adopted by **international players**, who tend to show a **greater inclination toward experimentation and innovation** in their AI strategies.

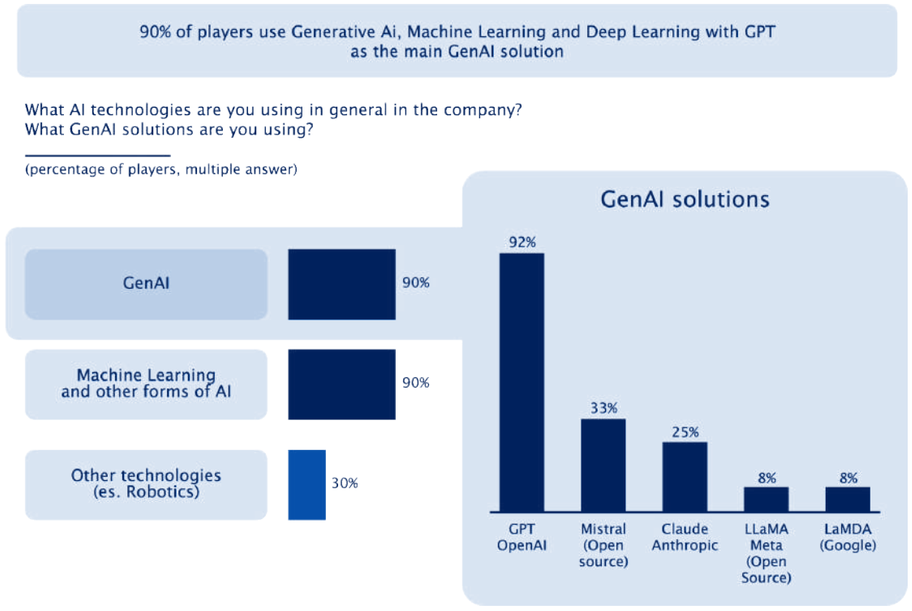


Fig. 18 Types of AI technologies and GenAI solutions

One notable finding concerns the **degree of autonomy** of AI systems adopted by the surveyed companies. **60%** of respondents report using AI solutions in which **human intervention remains predominant**, while **20%** employ **partially autonomous systems**, where human input still plays a role in influencing outcomes. Another **20%** adopt a **human-in-the-loop** approach, where final decisions are made by humans after AI-generated suggestions, indicating a consolidated trend toward a **cautious and supervised use of AI**. Importantly, **no company currently reports the use of fully autonomous AI systems**. These results—consistent with the 2022 survey—highlight the sector's continued emphasis on **human oversight** to ensure **transparency, accountability, and trust** in the deployment of AI technologies.

AI Use Case Development Model

As shown in the first bar of **Figure 19**, survey responses indicate that AI use cases are **primarily developed through a mixed model (54%)**, combining **adapted third-party solutions** with **custom in-house components**. This approach reflects the dual need to **compensate for internal skill gaps** while **accelerating implementation timelines**.

The **fully in-house model (35%)** is typically preferred in cases where AI solutions are expected to deliver a **distinct competitive advantage**, or when they are designed as **vertical applications** tailored to specific functions, such as **data management and analysis** or the **investment process**.

In contrast, **pure outsourcing** remains relatively limited **(11%)** but is more frequently observed in areas such as **infrastructure management** and **risk management**, where standardized services and external expertise can provide effective support.

Overall, the prevalence of **custom and hybrid development models** confirms that the market does not yet offer **fully standardized AI solutions** tailored to the specific needs of the Asset Management industry. As a result, companies continue to **balance internal capabilities with external support** to maximize the impact and efficiency of their AI initiatives.

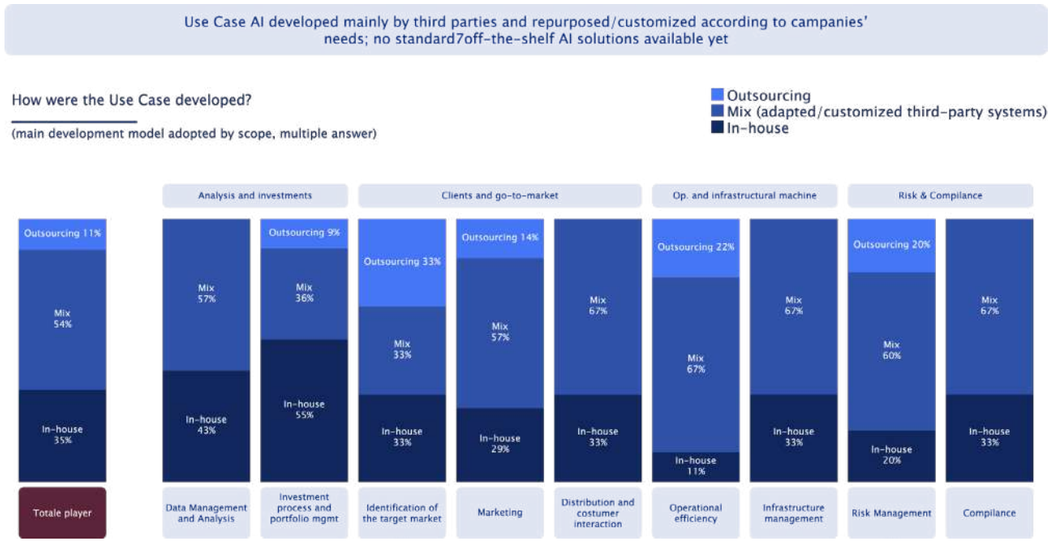


Fig.19 AI solution development model

Differences between Italian and international players in the **development models** of AI use cases are clearly evident. **Italian players** show a **stronger preference for the mixed model (61%)**, but with a **lower incidence of in-house development** compared to their international counterparts. In contrast, **international players** demonstrate a **more balanced approach**, with **48%** adopting a mixed model and **41%** opting for **fully in-house development**, reflecting a **greater capacity or inclination to build AI solutions internally**. In both groups, the use of **pure outsourcing remains marginal**, at around **10–11%**.

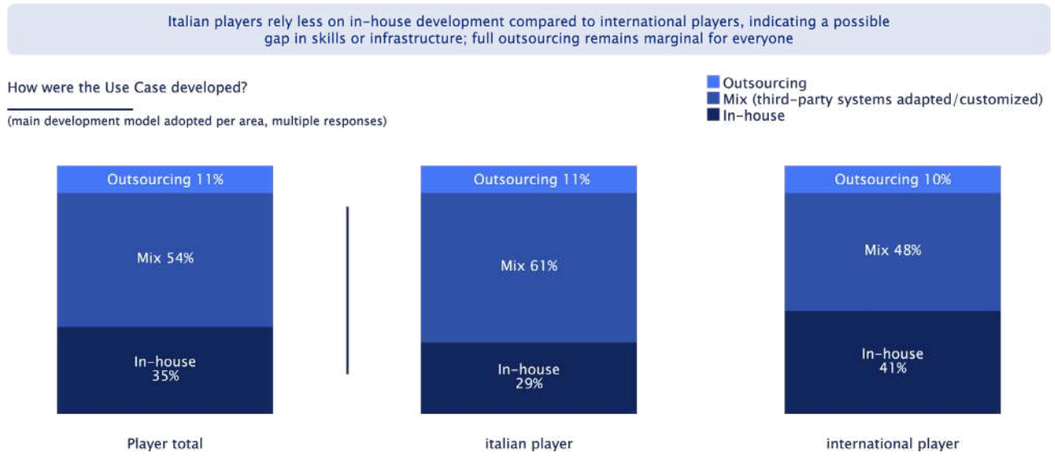


Fig.20 Differences between the development model of Italian players and that of international players

Data

The **use of data** represents a **foundational pillar** in the AI applications of the surveyed companies. All respondents (**100%**) reported using **structured data**, which serve as the core input for many AI systems due to their **clear and consistent organization** in formats such as tables or databases. Structured data—such as financial transactions, pricing histories, or performance metrics—are critical for **precise numerical analysis** and **predictive modeling**, where accuracy is essential. However, a significant **90% of companies** also incorporate **semi-structured and unstructured data** into their AI processes, thereby **expanding the analytical scope and versatility** of their solutions. This includes data formats such as emails, research reports, text documents, or social media content.

The use of **diverse data types** highlights the growing need to **integrate heterogeneous sources** to fully support AI-driven analysis. By balancing the **accessibility and reliability of structured data** with the **richness and contextual value of less organized data**, companies are better equipped to tackle **complex challenges** and unlock the **full potential of advanced AI technologies**.

Organization

The survey highlights that **80% of the participating companies** have established **one or more organizational units dedicated to artificial intelligence**, either by integrating AI expertise within existing teams or by creating new, specialized structures such as **AI Labs**. These units typically have a **cross-functional role**, working across different departments to **maximize the impact of AI solutions** along the entire value chain.

In addition to IT, the **most involved functions** are **Marketing & Business Development, Management/Investment**, and **Administration & Data Management**. Among these, the **Management/Investment function** stands out as the area **most positively impacted by AI**, also being the one with the **longest-standing use of traditional AI technologies**. Despite this growing organizational focus, **resource allocation remains limited**. As shown in **Figure 21, 60% of companies** report having **between 1 and 5 Full-Time Equivalents (FTEs)** dedicated to AI initiatives. Another **20%** report **teams of 5 to 15 FTEs**, while only **10%** have more than 15 resources assigned. Notably, **one company** stated that it does **not have any staff exclusively dedicated to AI.**

A comparison between **Italian and international players** shows that the **latter tend to allocate larger teams**, with an average of **more than 10 FTEs** dedicated to artificial intelligence, underscoring a **greater organizational commitment** to AI innovation among international firms.

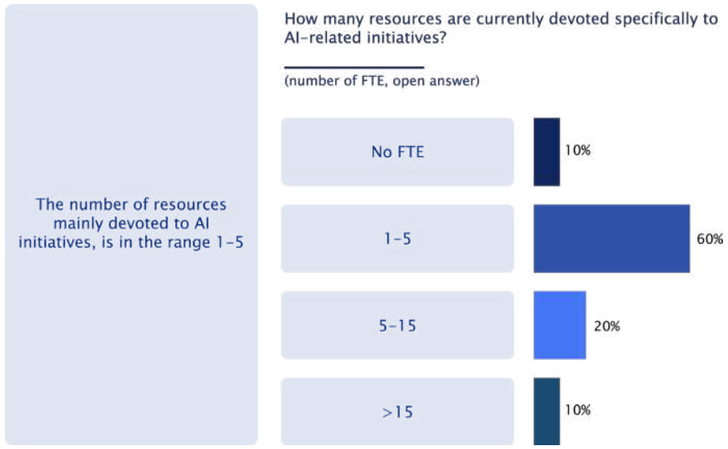


Fig. 21 Number of internal FTEs dedicated to AI

Among the professionals involved in AI initiatives, the **most prevalent roles** are the **Data Protection Officer, Data Engineer**, and **AI Specialist**, each present in approximately **70% of the surveyed companies**. These roles underscore the dual need to ensure **regulatory compliance** and to support the **technical development** of AI solutions. Emerging roles more specific to **Generative AI**, such as the **GenAI/Prompt Specialist** (present in **30%** of companies) and the **AI Platform Engineer/Cloud Architect (40%)**, remain **less widespread**, suggesting **significant potential for growth** in these specialized skill areas.The presence of **Chief Data Officers** in **50%** of companies and **Data Scientists** in **70%** reflects a **heightened strategic focus** on data governance and advanced analytics as key enablers of AI adoption.

In terms of training, the survey reveals that **75% of companies** primarily rely on **generic AI literacy courses** to build internal awareness and competencies. These are often conducted with the support of **external providers** offering domain-specific expertise. Among these companies, **25%** complement their programs with **targeted workshops** focused on specific use cases or business functions, demonstrating a growing effort to tailor learning paths to organizational needs.

In terms of the **operating models** adopted, the **strategies for developing and activating AI-related skills** vary significantly among the companies surveyed. One company reported the creation of a **dedicated Innovation Team**, composed of professionals from different functional areas, with the goal of **sharing AI best practices** across the organization. Another company indicated its intention to continue the **recruitment of highly technical profiles**, such as **Machine Learning Engineers**, to strengthen internal capabilities. A third company has implemented a **structured internal program** to identify and train individuals as **"AI Champions"**—employees tasked with developing AI strategies, defining technological requirements, and supporting the execution of AI projects across different business units. In addition to generic AI literacy courses, this company has also introduced **mandatory, specialized training programs** on AI and advanced technologies for all employees, with a specific focus on **regulatory compliance** and the **development of technical expertise** within dedicated teams.

This **increasing focus on AI literacy** reflects not only a strategic effort to promote **informed and responsible adoption** of emerging technologies, but also a response to the **regulatory requirements** introduced by the **EU AI Act,** which imposes **specific obligations** related to AI knowledge and training for all parties involved in the **development, deployment, and use** of AI systems.

Governance

As shown in **Figure 22**, the survey highlights a **growing focus on data governance** among the participating companies. **75% of respondents** report having already implemented **formal data governance policies**, with **50%** doing so at the **local Asset Management Companies level**, and an additional **25%** at the group level. This trend reflects an increasing recognition of the strategic importance of **data quality, ownership, and accountability** in enabling trustworthy and compliant AI adoption.

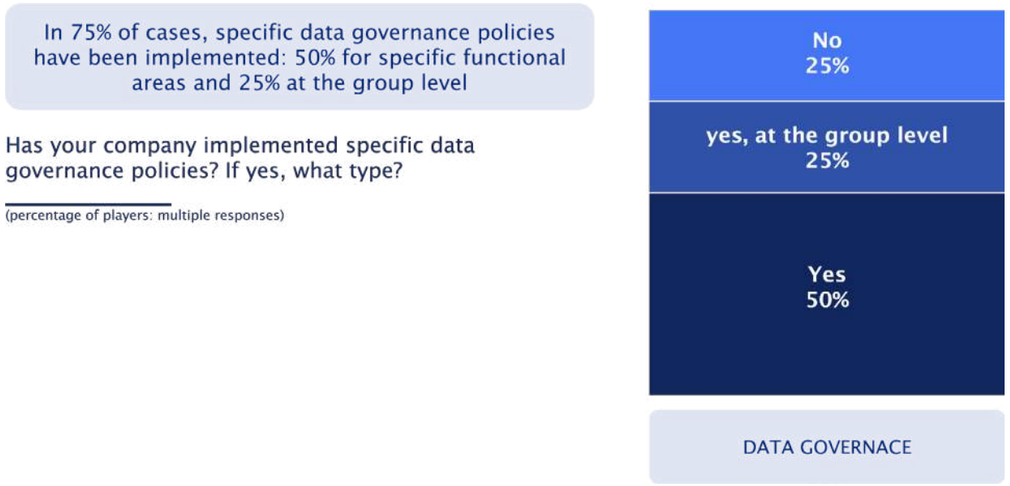


Fig.22 Presence of data governance policy

In contrast, **algorithm governance (algo governance)** remains at an early stage of development. Only **33% of companies** have adopted **specific policies** for governing algorithms, while the remaining **67%** report **not having dedicated tools or frameworks** in place.

This gap is largely attributable to the **greater technical complexity** of algorithmic governance, which requires advanced capabilities to ensure **transparency, explainability**, and the **mitigation of bias**. Moreover, unlike data governance—where well-established regulatory frameworks exist—**algorithm governance lacks clear, standardized guidelines**, making its implementation more challenging.

Additionally, the **risks associated with algorithms** are often perceived as **less immediate or visible** compared to those tied to data quality and protection. This distinction reflects a **natural progression in AI adoption**: organizations tend to view **data governance as a foundational prerequisite**, whereas algorithm governance represents a **more advanced area**, requiring **higher levels of technological maturity, regulatory clarity, and cross-functional coordination** to fully implement.

Provisions of the EU AI Act

As illustrated in **Figure 23**, the survey indicates that **most operators have already begun aligning with the provisions of the EU AI Act**. Specifically, **81%** of respondents report having **already initiated or planned the compliance process**, demonstrating proactive engagement with the upcoming regulatory requirements. A smaller share (**9%**) plans to begin the process in the near future, while another **9%** report **having no specific initiatives currently in place**. These results reflect a growing awareness across the industry of the **strategic and regulatory implications** of the AI Act, and the need to embed compliance efforts early in the development and deployment of AI systems.

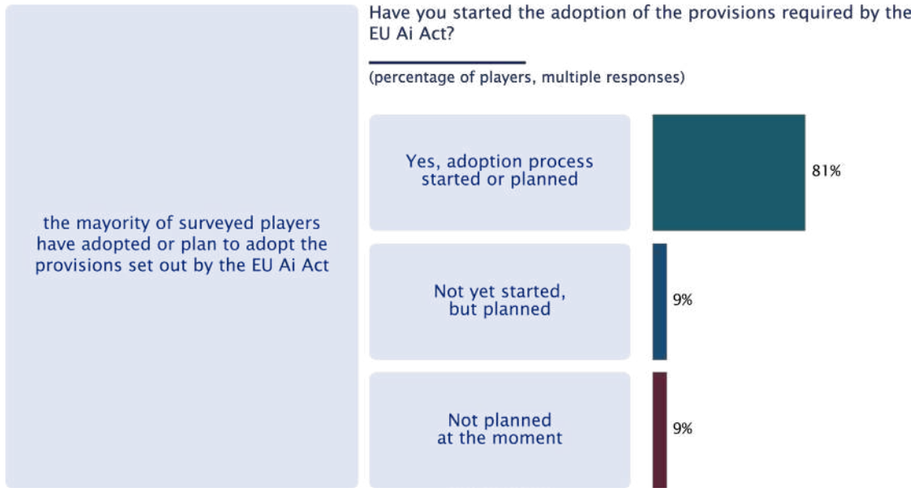


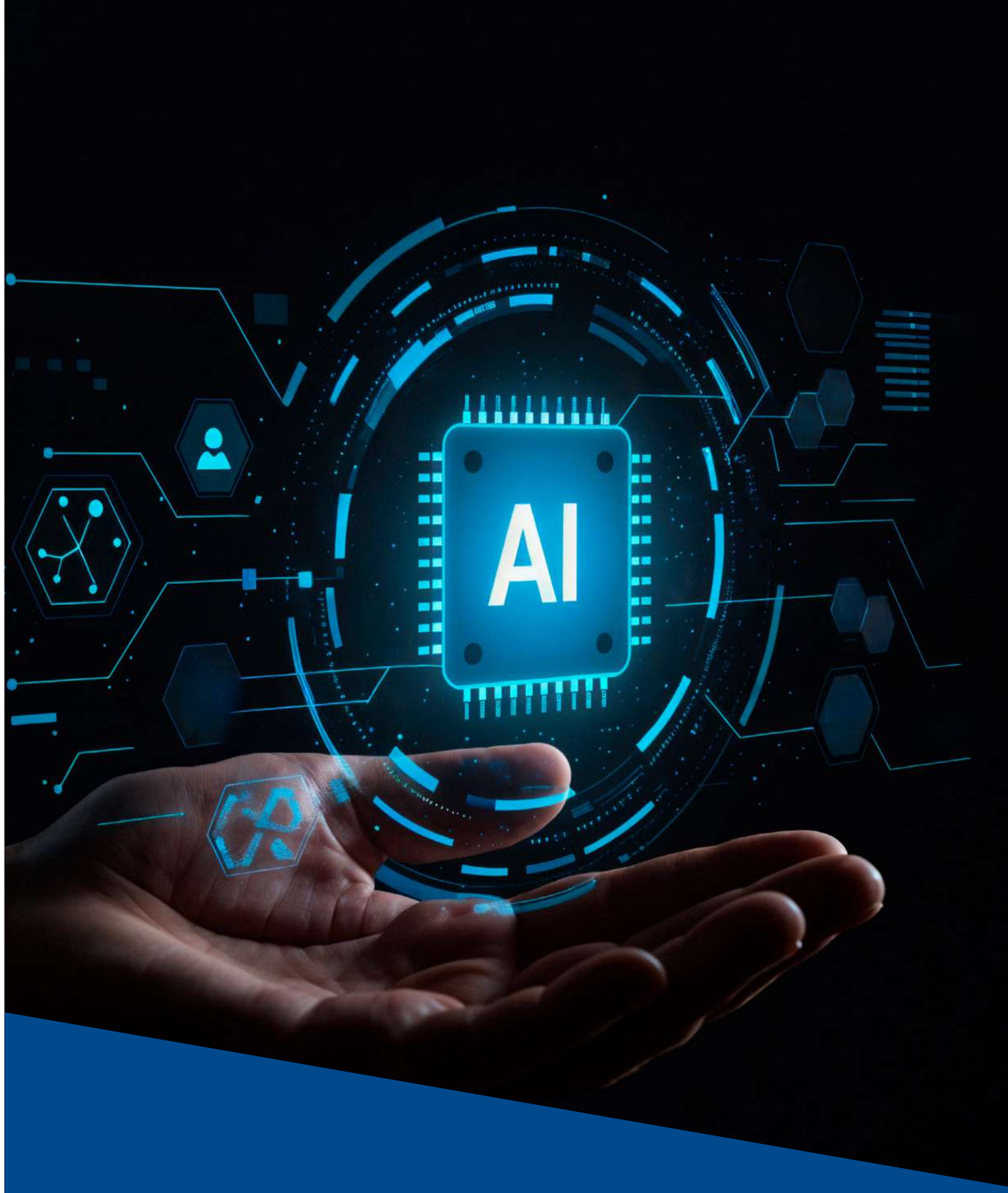
Fig. 23 Adoption of provisions under the EU AI Act

In parallel, **40% of the surveyed companies** report having adopted or are in the process of adopting **codes of conduct or internal guidelines** in line with **Article 95 of the EU AI Act**. This article encourages organizations to develop voluntary frameworks that promote the **responsible, transparent, and ethical use of AI systems**, including those that do not fall under the "high-risk" category. These codes have been developed primarily **internally**, although one company specified that it intends to **draw on international guidelines** issued by bodies such as the **OECD, G7**, and **ISO**.

The remaining **60% of companies** have not yet established internal guidelines or adopted specific codes of conduct, indicating that **industry-wide efforts to formalize responsible AI practices are still in development**. This reflects an evolving path toward defining **clear**, **shared standards** for the ethical and trustworthy use of AI in asset management.

The survey also reveals that a significant majority **(83%)** of Asset Management companies use **GPAI models**, for which the AI Act sets out specific requirements applicable to providers. Moreover, **67%** of firms employ AI to **generate synthetic content**, such as audio, video, or text, for purposes including training and automated reporting, **50%** of them use AI to **create written content on topics of public interest**, and **only 17%** utilize AI for **direct interaction**, for example through internal assistants or customer-facing chatbots – categories that may trigger specific transparency obligations under the AI Act –.

Notably, **none of the companies surveyed** currently use—or plan to adopt—AI systems classified under the AI Act as **high-risk or prohibited**, such as systems for biometric identification, recruitment and personnel evaluation, or those using subliminal techniques.



5. *FRAMEWORK* FOR IMPLEMENTING AI IN ASSET MANAGEMENT

The **adoption of artificial intelligence by Asset Managers** represents a **strategic opportunity** to enhance performance, unlock innovation, and create long-term competitive advantage. However, to fully realize the benefits of AI, a **structured and deliberate approach** is essential.

To support this journey, it is helpful to rely on a **framework for AI implementation**, as illustrated in **Figure 24**, which is built around **three core dimensions**:

- **Definition of "Value and Ambition"**: This dimension focuses on articulating the strategic vision and AI ambition level the organization intends to pursue. It involves defining the posture toward AI—whether as an efficiency driver, a differentiator, or a transformative force.
- **Definition of "Where to Play"**: Identifying the **priority areas for AI application** is critical. This includes assessing **use cases** across the value chain, establishing **prioritization criteria**, and developing a **phased implementation roadmap** aligned with business impact and readiness.
- **Construction of "How to Win"**: This dimension refers to the **orchestration of operational and organizational enablers** required for successful deployment. Key components include: operating model, skills development, technology infrastructure, tools to ensure adoption, governance and risk management.

The proposed framework serves as a **practical model for planning, prioritizing, and scaling AI adoption**, aligning with both **business objectives** and **available resources**. It enables organizations to strike a **balance between innovation and operational sustainability**, fostering responsible and value-driven AI deployment.

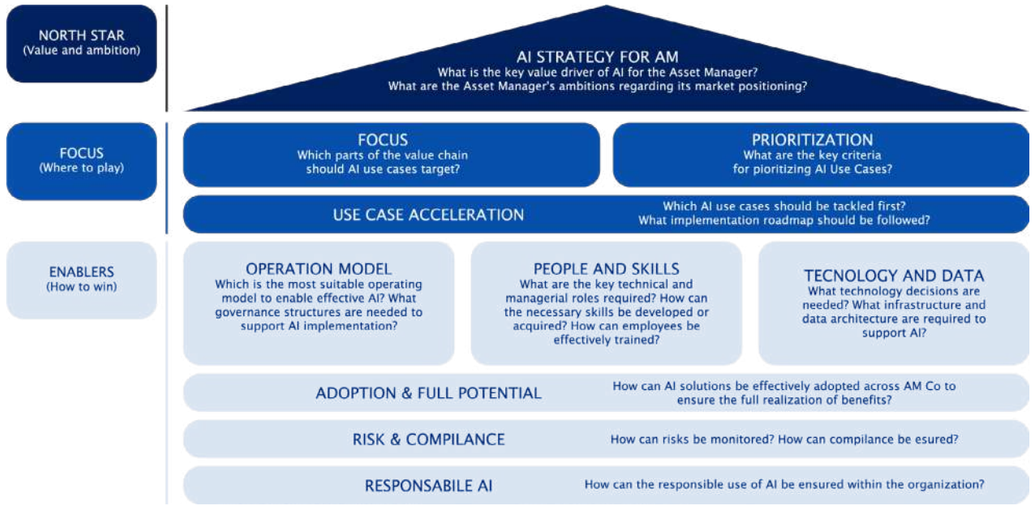


Fig. 24 Strategic framework for AI implementation (Bain&Co)

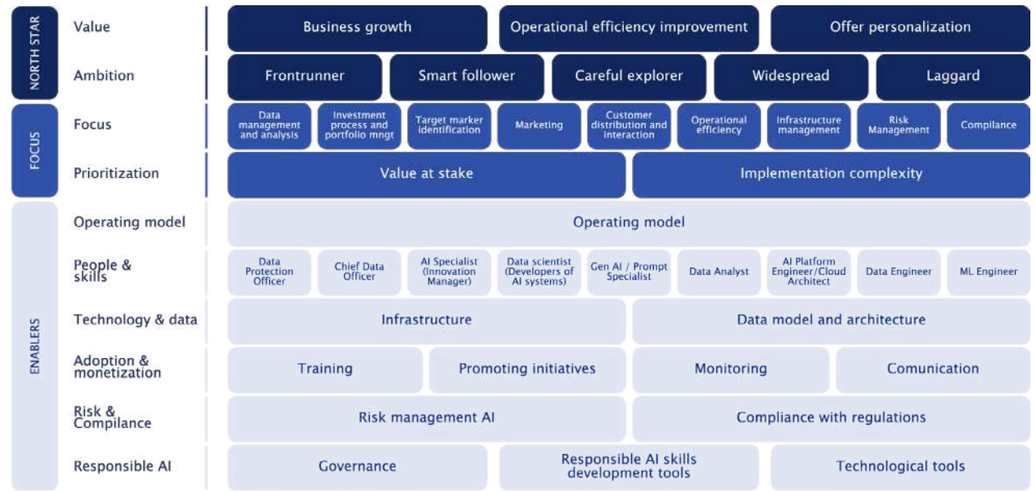


Fig.25 Strategic levers for effective AI implementation (Bain&Co)

5.1. Definition of Value and Ambition

The introduction of AI by Asset Managers can start with a reflection on the strategic objectives to be pursued through its development. Some of the **main areas of impact** include:

Examples of strategic goals	
Business Growth and Innovation	Develop AI-driven investment strategies to attract new clients and expand the range of financial product offerings
Increased Operational Efficiency	Automate existing processes to reduce operational time and costs, improving overall productivity
Customization of the Offer	Enhance the investor experience through personalized investment strategies enabled by advanced data analytics

The **second key element** to consider relates to **societal ambition** and how it aligns with the organization's **own competitive positioning** in relation to AI. Each organization must clearly define **the role it intends to play** within the broader landscape of technological innovation.

Examples of competitive positioning in relation to AI (not exhaustive)	
Front runner	Leads in the adoption and application of AI, distinguishing itself through a proactive and innovative approach
Smart follower	Adopts proven AI solutions with a focus on integrating innovative elements, while avoiding excessive risk
Careful Explorer	Takes a phased and targeted approach, implementing AI selectively and evaluating outcomes carefully
Widespread tester	Experiments with multiple AI solutions across the organization, but lacks clear strategic alignment, resulting in fragmented efforts and uneven maturity
Laggard	Maintains a conservative stance toward AI, due to uncertainty about its tangible benefits or lack of readiness for adoption

The **responses to these reflections**, when **shared and discussed with key business stakeholders**, can serve as the foundation for building a **coherent, long-term, and goal-oriented AI strategy**.

5.2. Definition of "Where to play”

Identifying key areas of AI application is helpful in turning strategy into concrete action.

Areas of intervention

Practical examples of applying AI along the typical value chain of an Asset Management company are presented below.

Area	Phase	AI Use Case Examples (not exhaustive)
Analysis and investment	Data management and analysis	AI can be leveraged to **summarize financial and market information**, processing large volumes of data in real time to generate insights that support **strategic planning**. Additionally, AI contributes to the development of **global ESG databases** by analyzing and structuring data related to climate, environmental, and governance factors, thereby promot–ing **more sustainable investment strategies**. The technology also enhances **content assessment for due diligence**, accelerating the identification of risks and opportunities in **investment and acquisition processes**. Finally, **document intelligence**, powered by advanced **Natural Language Processing (NLP)** techniques, can automate the extraction of information from **contracts, financial statements, and company reports**, improving **accuracy** and significantly reducing analysis time.
Analysis and investment	Investment process and portfolio management	AI offers powerful new tools for **data analysis and decision optimization. Predictive models** based on machine learning can be used to **identify investment opportunities** and **anticipate future trends**, supporting improved performance and enhanced returns. In addition, AI enables the **construction of personalized portfolios** by analyzing **behavioral data** and **investor preferences**, allowing for the development of tailored strategies aligned with individual objectives and risk profiles. Finally, AI assists managers in **generating and testing alternative market scenarios**, simulating future developments based on **historical data, macroeconomic variables**, and **emerging trends**. This allows for better assessment of potential impacts from adverse events—such as **financial crises, geopolitical shocks, or interest rate changes**—and helps to **optimize allocation strategies** to mitigate risk and maximize returns.

Area	Phase	AI Use Case Examples (not exhaustive)
Costumers and go-to-market	Identification of the target market	AI can support **target market identification** in Asset Management by enabling **more precise and data-driven investor segmentation**, while ensuring compliance with **market transparency** and **suitability requirements**. Using **machine learning algorithms**, AI can analyze **historical, behavioral, and financial data** to identify **clusters of investors** who share common needs and preferences—such as an interest in **ESG-focused products** or **stable-return investment solutions**. In addition, **predictive models** can be applied to **anticipate client needs**, helping to identify investors who may be interested in **new products** or **emerging market opportunities**, thereby supporting **more proactive and personalized engagement**.
Costumers and go-to-market	Marketing	AI is transforming marketing strategies by making them **more data-driven and personalized**. **Machine learning algorithms** can process large volumes of data on investor behaviors and preferences, enhancing the ability to **customize campaigns** and **optimize messaging** for each target segment. In addition, **Generative AI** can be used to produce **tailored content**, such as **summary market reports and promotional materials** adapted to specific audiences. Another key application is the **automation of client interactions** through **chatbots and advanced virtual assistants**, which can provide fast, accurate responses to client inquiries, thereby improving the overall **user experience**. Finally, AI can support **predictive analysis** of marketing campaign performance, helping managers identify the **most effective strategies** and **maximize return on investment**.
Costumers and go-to-market	Distribution and customer interaction	By analyzing customer data, **AI can identify the most effective distribution channels** for specific investor segments, optimizing **product offerings** based on detected preferences and behaviors. Additionally, tools such as **chatbots** and **virtual assistants** can enhance the **quality and responsiveness of client interactions**, answering complex queries and providing timely information about portfolios and investment products. Furthermore, **predictive modeling** can be used to identify clients who are **most likely to redeem**, enabling managers to take **proactive measures** to mitigate the risk of outflows and improve client retention.

Area	Phase	AI Use Case Examples (not exhaustive)
Operational and infrastructural machine	Operational efficiency	AI offers effective solutions to **automate processes and reduce operational costs**. One of the most impactful applications is **document intelligence**, which enables the **automated extraction of relevant information** from complex documents such as **financial reports** and **contracts**, significantly **accelerating processing times** and **reducing human error**. Additionally, the use of **generative models**, such as **Large Language Models (LLMs)**, can support the creation of **deterministic reports and standardized outputs**, helping to **streamline workflows** across various functions. Moreover, **general-purpose AI assistants** and **internal chatbots** can provide **real-time support** to operations teams by managing information requests and facilitating **more efficient internal communication**.
Operational and infrastructural machine	Infrastructure management	AI can significantly enhance the **security and efficiency of IT infrastructure**. One key application is in **cyber threat analysis**, where AI can detect **suspicious activity, prevent potential attacks**, and deliver **timely responses** to mitigate risks. AI also plays a role in **infrastructure monitoring and maintenance**, using **predictive analytics** to anticipate system failures and optimize performance. Furthermore, **internal chatbots** and **AI assistants** can support IT teams by handling **technical requests**, reducing response times and improving **operational effectiveness**. Another promising area is **software development support**, where **generative AI tools** assist with **coding and bug fixing**. These tools can **analyze code**, identify **errors or vulnerabilities**, and even suggest **automatic fixes**. Through machine learning, AI can also **optimize debugging processes**, recognizing common error patterns and recommending solutions based on **industry best practices**.

Area	Phase	AI Use Case Examples (not exhaustive)
Risk and Compliance	Risk Management	AI can unlock **new opportunities in Risk Management**, making the **identification and mitigation of risks** faster, more accurate, and more effective. One key application is the **automation of data analysis**, where AI can **detect anomalies** that may signal critical exposures or sudden changes within portfolios. Additionally, AI can **monitor real-time market information**, supporting the early detection of potential investment risks. By leveraging **advanced simulations** and **hypothetical scenario analysis**, AI can generate insights that empower managers to make **more informed and proactive decisions**.
Risk and Compliance	Compliance	AI enables more efficient and effective **compliance management** in Asset Management by reducing both the **time and cost** associated with meeting regulatory requirements. A key application is in supporting **client onboarding processes**, particularly in areas such as **Know Your Customer (KYC)** and **Anti-Money Laundering (AML)**. AI can analyze **large volumes of structured and unstructured data** to detect **anomalies** or **potentially suspicious activities**, improving risk detection and streamlining compliance checks. Additionally, AI can **automate the generation of compliance reports**, enhancing **accuracy** and significantly **reducing the time and effort** needed to comply with both l**ocal and international regulatory frameworks**.

Prioritization criteria

After identifying focus areas and use cases, it is useful to establish criteria for prioritizing them. This helps optimize resources and maximize business impact. Asset management companies can use a framework based on two key factors: **value at stake and implementation complexity**.

La **value at stake** of use cases can be evaluated through the analysis of certain criteria:

- **Economic contribution:** Estimated economic benefits resulting from the implementation of the use case, such as increased commercial effectiveness (e.g., revenue growth) or improved operational efficiency (e.g., cost reduction);
- **Strategic alignment:** Degree of alignment with the organization's strategic posture and long-term objectives, ensuring the use case supports overall business direction;
- **Scalability and cross-functional reusability:** The potential for the use case to be extended to other areas or business functions, generating incremental value without requiring a complete reengineering of processes or systems;
- **Dissemination of skills:** Contribution to the widespread development of AI-related competencies among employees, fostering a broader culture of innovation and digital maturity.

Implementation complexity, which assesses how **practical** and **feasible** it is to develop and deploy a given use case, can also be evaluated based on the analysis of specific criteria:

1. **Resource Requirements:** Use cases that require minimal internal and external resources (e.g., time, budget, personnel) are assigned a high score; those demanding significant investment receive a lower score.
2. **Availability of Ready-to-Use ("Off-the-Shelf") Solutions:** Use cases supported by easily configurable, market-ready solutions from reputable third-party vendors receive a high score; those requiring complex in-house development are rated lower.
3. **Need for Organizational Changes:** Use cases that involve minor or incremental adjustments to existing structures or processes receive a high score; those requiring substantial organizational transformation are assigned a lower score.

The intersection of the two variables can be used for overall prioritization of use cases and identification of an implementation roadmap by placing them in a two-dimensional matrix.

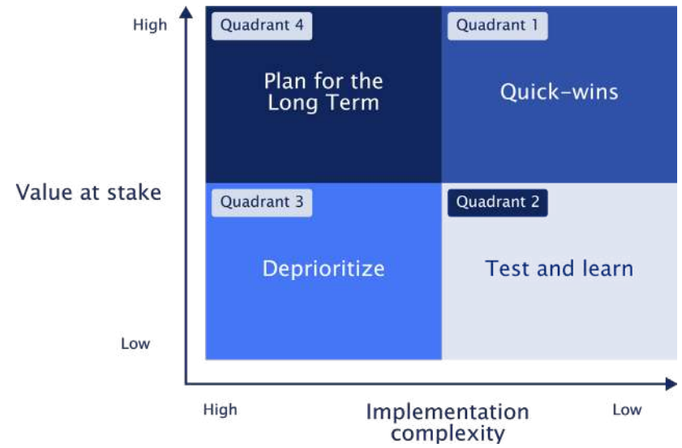


Fig. 26 Hypothetical use case prioritization matrix (Bain&Co)

Use case acceleration

By assigning a **relative weight to each dimension** and **calibrating the maximum score** according to strategic priorities, the **prioritization process** can be **adapted to the specific characteristics of each company**, ensuring a more effective alignment with **organizational goals and needs**.

Each use case is placed within the **two-dimensional matrix presented earlier** (value at stake and implementation complexity), based on the **score obtained for each of the two axes**.

- **High value at stake and low implementation complexity:** Use cases that should be developed in the short term to maximize return with limited effort (Figure 26 – Quadrant 1: Quick wins).
- **High value at stake but high implementation complexity:** Use cases with high strategic potential, but requiring significant resources; recommended for long-term planning (Quadrant 2: Plan for the Long Term).
- **Low value at stake and high implementation complexity:** Use cases that serve as technical enablers to support more strategic initiatives; ideal for a test-and-learn approach (Quadrant 3: Test and learn).;

- **Low value at stake and high implementation complexity:** Low-priority use cases that should not be prioritized, unless further benefits are identified (Quadrant 4: Deprioritize).

As illustrated above in the **prioritization matrix**, use cases can be ranked based on a balanced evaluation of their value at stake and implementation complexity. This methodology enables companies to deploy AI initiatives in line with available resources, ensuring a strategic and scalable progression in the adoption of the identified solutions.

After defining priorities, use cases can be positioned within an **evolutionary roadmap** (see Figure 27), beginning with initial "quick-win" developments. These typically include use cases featuring basic AI functionalities, proofs of concept (PoCs), or implementations limited to a single business function. From there, organizations can progressively scale up, advancing through "test and learn" initiatives and more sophisticated applications, ultimately working toward fully integrating AI within the organization's operating model and unlocking its full strategic potential.

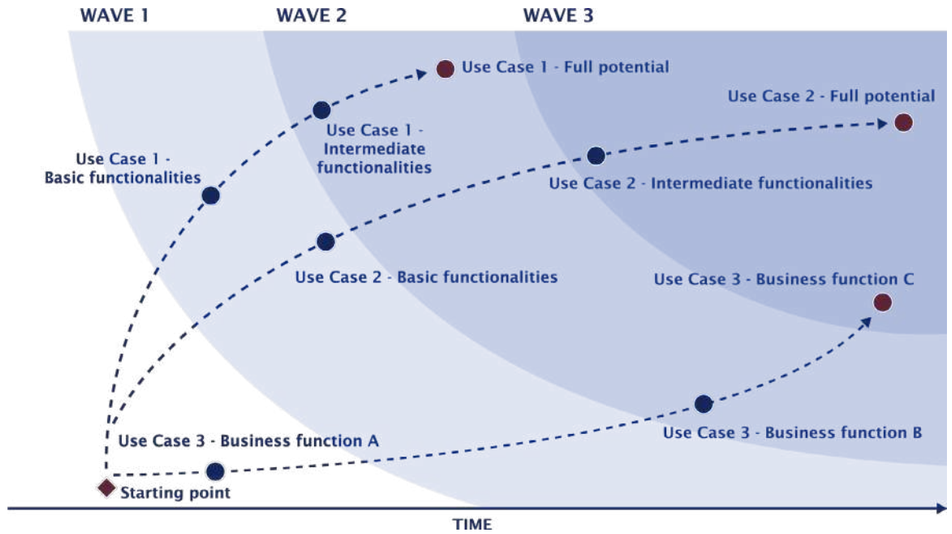


Fig. 27 Evolutionary roadmap hypothesis (Bain&Co)

Examples of AI Use Cases evaluation process

AI MARKET INSIGHT & OPPORTUNITY FINDER	
SCOPE	**Analysis and investments**
AI SOLUTION	**AI system that analyzes market data to identify emerging trends and suggest investment oppurtunities with high potential**
RISK LEVEL	**Minimal risk:** Should not pose any particular risk to individuals Regulatory compliance: explicability of system outputs, recommended monitoring, documentation and records on the use of AI, personal data protection (GDPR), digital operational resilience of the system (DORA), organisational requirements and rules of conduct provided for by the UCITS and AIFMD Directives **Human in the Loop:** Yes – AI provides insight, but investment decisions are monitored by Asset Managers to ensure accuracy and consistency with business strategies
USE CASE	• **Predictive market analysis:** Examines macroeconomic data, capital flows and industry metrics to identify emerging trends • **Alternative data processing:** Integrates unconventional data such as sentiment analysis, social media, earning calls and economic news to detect market signals not yet reflected in asset prices, supporting the construction of long-short or thematic strategies • **Segmentation and ranking of investment opportunities:** Identifies assets and sectors with potential for outperformance using clustering and classification models • **Continuous and dynamic monitoring of market conditions:** Provides real-time alerts on changes in risk drivers, correlations between asset classes and anomalies in capital flows, allowing asset managers to quickly adjust portfolio hedging or rebalancing strategies
MAIN BENEFITS FOR THE ASSET MANAGER	• **Accelerated market analysis:** Reduced time to identify investment opportunities • **Improved objectivity and reduction of bias:** Preparation of analyses based on advanced quantitative data, eliminating cognitive biases and providing objective assessments • **Speed in identifying anomalies in market trends:** Detect anomalous patterns in a timely manner, such as sudden changes in liquidity, divergences in trading volumes or discrepancies in ETF flows, allowing you to anticipate critical trends or market events • **Optimisation of the allocation of corporate resources:** The automation of processes makes it possible to reduce the burden of repetitive activities on staff, making them focus on "decision making" activities (with added value)
MAIN BENEFITS FOR THE INVESTORS	• **Customisation of investment strategies:** Construction of tailor-made portfolios based on investors' objectives and preferences (e.g., ESG) • **Reduction of the risk to which the customer is exposed:** Improvement of the manager's stock picking capacity and consequent reduction of risks for the customer
POTENTIAL CRITICALITIES/ BARRIERS TO ADOPTION	• **Risk of incorrect input data:** Data must be accurate, up-to-date and sourced from certified sources to prevent incorrect AI insights from driving investment decisions • **Potential algorithmic bias:** It is crucial to ensure that AI algorithms do not introduce bias in investment decisions, which requires continuous oversight and validation • **Difficulties in calibrating AI models on volatile markets:** AI can outperform in normal market conditions, but needs additional validation for high volatility scenarios
KEY TAKEAWAYS FOR SUCCESSFUL ADAPTION	• **Structure a data architecture for multimodal inputs:** Adopt a lakehouse date to integrate structured data (prices, indices, capital flows) and unstructured data (news, earning calls), improving the quality of IA forecasts • **Define new roles for AI adoption in investment teams:** Create an AI Investment Strategist or Quant AI Analyst, which facilitate the interpretation of IA models within traditional decision-making

DIGITAL ASSISTANT & CHATBOT	
SCOPE	**Client support**
AI SOLUTION	**AI Assistant can provide investors with quick and detailed answers on portfolio performance, market trends and investment strategies**
RISK LEVEL	• **Limited risk:** It could involve risks of deception and impersonation in the cases indicated in art. 50 of the AI Act. • **Regulatory requirements:** Transparency towards investors on the use of AI, recording and storage of interactions with the system, protection of personal data (GDPR), digital operational resilience of the system (DORA), organizational requirements and rules of conduct provided for by the UCITS and AIFMD Directives. • **Human in the loop:** Human monitoring in the development phase, spot and KPI checks , final responsibility for humans.
USE CASE	• **AI support for portfolio tracking:** Provides customized information on the performance based on the investor's portfolio, integrating in real time with wealth management platforms. • **Analysis and explanation of market trends:** IA processes macroeconomics, interest rate and monetary policy data, suggesting possible impacts on specific assets. • **Chatbot:** Automates the first level of response for inquires such as statements, historical returns and MIFID II documentation.
MAIN BENEFITS FOR THE ASSET MANAGER	• **Reduce workload for relationship managers:** Reducing the number of repetitive, low-value requests to relationship managers, allowing them to spend more time on HNVM clients and more complex investment strategies. • **Compliance and control of legal risk:** Automatically generate responses that comply with regulations such as UCITS/AIFMO, MFID II and GDPR while meeting transparency requirements.
MAIN BENEFITS FOR INVESTORS	• **Fast responses to investors:** Timely identification of precise insights into fund returns and investment strategies without having to wait for a human response. • **More advanced analysis of investor needs :** Frequently asked questions to identify emerging issues in assets under management and provide insight to portfolio managers.
POTENTIAL CRITICALITIES/BARRIERS TO ADOPTION	• **Difficulties in integrating AI with existing platforms:** The chatbot must be able to access real-time portfolio data via API with wealth management systems, ensuring speed and security. • **Risk of generic answers on complex cases:** AI can handle standard requests, but it must be able to recognize questions about extraordinary events and direct the costumer to an expert advisor. • **Resistance from institutional investors:** Some investors may prefer to interact with a human advisor, especially for highly customised portfolios and alternative investment strategies.
KEY TAKEAWAYS FOR SUCCESSFUL ADOPTION	• **Create work teams with trasversal skills:** Integrate new figures such as AI Product Owner and Data Analyst for AM, who collaborate with Asset Managers to refine the predictive and interpretative capabilities of AI in customer interactions. • **Implement a federated and scalable data model:** Adopt a data architecture that combines Data Lakehouse and Federated Data Architecture, allowing the chatbot to access structured (portfolios, financial KPIs) and semi-structured (transcripts of customer meetings, sentiment analyst on news) in a real time • **Ensure regulatory compliance and traceability of AI interactions:** Integrate the chatbot with compilance monitoring systems with applicable regulations, ensuring that each interaction is traceable, audiatable and stored in a manner that complies with applicable regulations.

5.3. Enablers – Elements Enabling Success

To effectively **scale AI solutions**, companies can develop a structured and integrated ecosystem built around six key and interconnected pillars: **operating model, people and skills, technology infrastructure, adoption strategies, risk management and compliance**, and **Responsible AI**. These pillars work synergistically to ensure a sustainable, scalable, and ethically aligned implementation of AI across the organization.

5.3.1. Enablers – Operating Model

To **develop and scale AI effectively**, companies must define a **resource management model** that aligns with their organizational structure and strategic goals. Common models include:

- **Centralized structure (AI Hub or AI Center of Excellence - CoE):** A dedicated central team is responsible for developing AI capabilities, managing infrastructure, and supporting business units across the organization. This model ensures greater consistency, control, and standardization, but may slow down adoption at the operational level due to its top-down nature.
- **Decentralized structure:** Individual business units independently manage their AI use cases, with dedicated teams embedded within each function. This model offers greater agility and adaptability, allowing business units to move quickly, but it can lead to fragmentation, misalignment, and governance challenges.
- **Hybrid structure:** A central AI team provides strategic support and governance, while business units maintain operational autonomy in developing and managing their AI use cases. This model strikes a balance between coordination and flexibility, enabling efficient resource allocation while supporting innovation at the local level.

In many cases, even companies that adopt a decentralized structure maintain a central function to oversee critical aspects such as the AI platform, particularly with the growing relevance of Generative AI (GenAI), as well as risk and compliance resources and change management initiatives.

AI adoption is often sponsored by a leadership figure with a cross-functional strategic vision. In most cases, this role is filled by the **Chief Strategy Officer (CSO)**, supported by the **CTO or CIO**, to ensure a well-calibrated balance between technological innovation and business objectives. The Program Sponsor plays a key role in:

- Defining the **strategic vision** and ensuring top management buy-in
- Aligning AI priorities with overall **business goals**
- Overcoming operational barriers and promoting **effective cross-functional adoption**

Regardless of the organizational model adopted, it is often beneficial to establish a cross-functional **AI Committee**. This committee is responsible for overseeing the AI roadmap, setting implementation priorities, and monitoring the value generated over time.

5.3.2. Enablers – People & Skills

Companies should also clearly define the **key internal roles** related to AI, identifying both the technical and strategic skill sets required to accelerate adoption and ensure successful implementation. Roles involved in the development and deployment of AI initiatives may include:

Role (non-exhaustive)	Responsibility
Data Protection Officer	Ensures data protection and regulatory compliance, particularly with frameworks such as **the GDPR**
Chief Data Officer	Oversees **data quality**, **governance**, and **compliance** (GDPR, DORA); promotes strategic data usage to enable AI initiatives
AI Specialist	Coordinates AI projects, ensuring alignment with **business strategy** and organizational priorities
Data scientists (experienced developers of AI systems)	Designs and optimizes **machine learning algorithms** for applications such as **market analysis** and **forecasting**
Gen IA / Prompt Specialist	Develops and manages **generative AI applications**, including prompt engineering and output validation
Data Analyst	Performs data analysis using **advanced analytics tools** to extract insights and identify strategic trends
AI Platform Engineer / Cloud Architect	Designs and manages the **technological infrastructure** required to deploy and scale AI solutions securely and efficiently
Data Engineer	Prepares and structures data to make it **accessible and usable** for AI models and analyses
ML Engineer	Implements, maintains, and optimizes **machine learning models** in production environments

5.3.3. Enablers – Technology, Data & Technology Partnerships

To successfully implement AI use cases, **Asset Management companies** should clearly define the **technology infrastructure**, the **types of data** to be leveraged, and the **architectural framework** to be developed. These elements, when strategically aligned and integrated, form the **foundation for ensuring the effectiveness, security, and scalability** of AI solutions across the organization.

Technology infrastructure

The **choice of infrastructure** is essential to effectively **support the varying needs of AI projects:**

Infrastructure	Description
On-premise	The infrastructure is hosted internally, with physical servers owned and managed by the company. It provides **maximum control and security**, making it ideal for processing **highly sensitive and regulated data**. However, it entails **high upfront and maintenance costs**, requires **dedicated IT resources**, and has **limited scalability** compared to cloud-based options. Example: A company managing **highly regulated funds** adopts an on-premise infrastructure to protect sensitive client data and **mitigate compliance risks**.
Private Cloud	A **dedicated cloud environment**, managed either internally or by a specialized provider. It offers a **balance between flexibility and security**, with **greater scalability** than on-premise solutions and a **reasonable level of control over data**. However, it may be **more costly** and **less scalable** than public cloud services. Example: A company runs **quantitative trading algorithms** on a private cloud to ensure performance and **protect proprietary models and data** from exposure to public environments.
Public Cloud	A firm runs **quantitative trading algorithms** on a private cloud to ensure performance and **protect proprietary models and data** from exposure to public environments. Example: A company uses a public cloud platform to **analyze market data in real time** and generate **dynamic investment strategies**, benefiting from scalable computing resources.
Hybrid solutions	A **combination of on-premise and cloud** (private or public), designed to **balance data security with processing scalability**. Sensitive data can be stored and managed on-premise, while intensive AI workloads are processed in the cloud. While offering **flexibility and cost optimization**, hybrid models require **complex integration and advanced system orchestration**. Example: A company stores **sensitive financial data on-premise** but runs **AI-powered risk models** in the cloud to leverage computing power for **high-complexity simulations**.

Data model and architecture

Data quality and organization are critical enablers of the effectiveness and reliability of AI solutions. Traditionally, companies have relied on **structured data**—such as demographic information, investment holdings, and macroeconomic indicators. However, as AI models become more advanced, there is a growing need to **integrate semi-structured and unstructured data**, including emails, client interactions, meeting transcripts, and financial reports.

To ensure that such data can be effectively processed by AI systems, it is essential that information from **diverse sources** is properly **collected**, **organized, and standardized**, with continuous attention to **security** and **regulatory compliance**.

The **choice of data architecture** to support AI is not solely a technological decision—it has **direct implications** for the **operating model** of the Asset Management company, particularly with respect to **data ownership** and **governance**. The selected architecture determines **who controls and accesses the data**, thereby shaping **organizational structures** and **AI-related decision-making processes**.

A **centralized AI management model** will typically favor more **structured and governed architectures**, such as a **Data Warehouse**, to ensure consistency and control. In contrast, a **decentralized model** may benefit from **more flexible and distributed architectures**, such as a **Federated Data Architecture**, enabling greater autonomy across business units. Accordingly, **the technology and architectural choices** must be **aligned with the operating model**, taking into account factors such as **scalability, accessibility, data security**, and **ownership responsibilities**. To support the effective implementation of AI, Asset Management companies rely on various **data architectures**, each offering different capabilities in terms of structure, scalability, governance, and adaptability to operating models.

- **Data Warehouse:** A **centralized and structured architecture** optimized for managing **structured data**, such as financial databases, portfolio performance, and historical transactions. It is well-suited for **financial analysis** and **regulatory reporting**, offering standardized and easily accessible data. However, it requires **centralized data management**, a clearly defined **data owner**, and **established governance frameworks** to ensure consistency and control.
- **Data Lake:** A **flexible and scalable repository** capable of storing **structured, semi-structured, and unstructured data**. It is particularly effective for advanced AI use cases involving **ESG analysis, financial news, social sentiment**, and **textual documents**. Without robust governance, however, a data lake risks becoming a **"data swamp,"** where data is difficult to manage, access, or validate.
- **Data Lakehouse:** A **hybrid model** that combines the **structured approach** of a data warehouse with the **flexibility** of a data lake. It allows for **real-time data access** for AI model training and advanced analytics. This architecture provides a **balanced solution**, offering both **control** and **scalability**, making it ideal for **mixed operating models** where data is centrally governed but accessible across functions.
- **Federated Data Architecture:** A **decentralized model** that enables organizations to link and access **multiple distributed data sources** without migrating them to a central repository. AI systems can query these datasets in place, supporting **local data ownership** and **enhanced security**. This architecture is particularly well-suited to **decentralized operating models**, where business units maintain deep knowledge and stewardship over their data. However, implementation is more complex, as it requires **strong collaboration** between business units and the central AI team to ensure **data consistency and quality**, and it lacks a single point of access.

5.3.4. Enablers – Adoption strategies and full potential

To ensure that **AI tools are fully integrated and effectively utilized** within Asset Management companies, it is essential to adopt a **systematic and inclusive approach** that promotes **operational integration** and supports the achievement of the **economic benefits** identified during the **use case prioritization phase**.

Training

AI-related skills should not remain confined to specialized teams. The **EU AI Act** underscores the importance of ensuring the **safe, transparent, and accountable use of AI**, making it essential to invest in the **training of all employees involved**. Broad-based AI literacy supports **informed adoption** and helps maximize the **organizational benefits** of AI technologies. The integration of AI into daily workflows must be supported by **targeted training programs** designed to help teams **understand the potential** of AI and **overcome resistance to change**. Addressing the **"fear factor"**—the perception that AI may threaten existing roles—is a key step in enabling cultural adoption. Demonstrating how AI can **augment human capabilities** fosters greater acceptance and enables more effective collaboration between people and technology.To be successful, AI tools must be **simple, accessible,** and **tailored to operational needs**. Their effectiveness should be monitored through **clear performance metrics (KPIs)** that reflect real business impact. Indicators such as **increased operational efficiency** or **improved forecasting accuracy** can build **trust in AI** and help justify **continued investment and scaling** across the organization.

Promotion of adoption

In parallel, it is useful to identify **"AI Champions"** within the company's key functions. These individuals are tasked with promoting the adoption of AI within their respective teams, always **in coordination with the unit responsible for AI**, thereby facilitating a smoother and more inclusive transition. Moreover, **first-line managers can act as sponsors** of these initiatives, communicating AI not as an isolated technology, but as an enabling tool capable of amplifying the value of business activities.

Monitoring adoption

The **operating model chosen to govern AI** plays a **central role** in ensuring effective oversight and coordination. In a **centralized or hybrid model**, a **dedicated team** is typically responsible for **monitoring the adoption** of AI solutions across the organization. In contrast, a **decentralized model** assigns monitoring responsibilities to **individual functional teams**, with a **central coordinating body**—such as the **Finance department**—acting as a **facilitator** to ensure alignment and cross-functional coordination. AI adoption should be approached as an **iterative and flexible process**. Continuously collecting **user feedback**—for example, through structured questionnaires—enables tools to be adapted to **emerging needs** and ensures that they remain **aligned with strategic objectives**. In parallel, tracking the **actual use of AI tools** through **objective KPIs** allows organizations to evaluate performance and confirm that AI continues to **generate value over the long term**, fostering a culture of **continuous improvement and sustainable innovation**.

Communication of results

Another important element is the transparent communication of results. Showcasing the successes of AI initiatives through concrete use cases—such as cost reductions, improved efficiency, or enhanced customer personalization—helps generate a virtuous cycle of trust and engagement. Clear, tangible outcomes not only overcome internal resistance but also contribute to building widespread organizational acceptance, reinforcing the strategic value of AI and motivating further adoption.

5.3.5. Enablers – Risk & Compliance

The adoption of AI in Asset Management companies represents an opportunity to improve operational efficiency and create value, but it also introduces significant responsibilities in terms of **risk management and regulatory compliance**.

Risk management along the AI life cycle

Risk management of artificial intelligence (AI) should be integrated across the entire lifecycle of AI systems—from the design phase through to deployment and ongoing use—to ensure safety, transparency, and alignment with regulatory objectives. This principle was already emphasized in CONSOB's 2022 research ("*Artificial Intelligence in Asset and Wealth Management*"), which identified the main "traditional" risks associated with AI adoption in the financial sector[53]:

- **Bias and Algorithmic Discrimination:** AI systems can reflect or amplify biases present in unrepresentative historical datasets, poorly designed models, or inadequate human oversight. This can result in discriminatory outcomes, such as excluding certain categories of investors or delivering skewed recommendations.
- **Privacy and Data Security:** The extensive use of big data in AI models raises concerns regarding the confidentiality of personal information and the potential misuse of data by internal or third-party actors, especially in the absence of robust data protection safeguards.
- **Opacity and Limited Explainability (Black Box Models):** The use of machine learning and deep learning techniques often results in models that are difficult to interpret, making it challenging to explain how decisions are made. This lack of transparency impairs accountability, auditability, and regulatory compliance.
- **Reliability and Operational Stability**: AI models may suffer from overfitting[54], produce systematic errors, or experience performance degradation under unfamiliar or volatile market conditions, raising concerns about their reliability in dynamic environments.
- **Cybersecurity and Exposure to Cyber Attacks**: Increasing reliance on complex digital infrastructures and the management of large volumes of sensitive data expose AI systems to elevated cybersecurity risks, including data breaches, system compromise, and malicious misuse. These risks are heightened in the absence of comprehensive security measures across the entire technology stack.

With the recent evolution of AI, there has emerged a **new generation of risks**[55], related in particular to the spread of **generative models (GenAI)** and of **foundational models (LLMs)**:

- **Advanced cyber risks (***adversarial AI)*: Algorithms are increasingly vulnerable to *data poisoning*[56], *model evasion*[57], bouts of *jailbreaking*[58] and theft of sensitive data hrough manipulated inputs. These attacks exploit the complexity of models and the opacity of training data, potentially compromising integrity and performance;

53. Artificial Intelligence in Asset and Wealth Management, Consob (2022).
54. A phenomenon in which an AI model fits too closely to historical data, losing its ability to generalize to new or unforeseen situations.
55. Artificial Intelligence in Capital Markets: Use Cases, Risks, and Challenges, IOSCO (2025).
56. An attack technique in which manipulated data is inserted into the training set of an algorithm, altering its behavior or causing it to produce incorrect outputs.
57. A method used to bypass the functioning of an AI model by providing specially crafted inputs designed to produce misleading or unexpected outputs.
58. Malicious interaction with AI models (e.g., chatbots) aimed at bypassing security restrictions and forcing the system to provide prohibited or inappropriate responses.

- **Evolved fraud and deepfake**: The ability of Generative AI to produce highly realistic text, images, audio, and video significantly increases the risk of sophisticated fraud, social engineering scams, information manipulation, and violations of KYC (Know Your Customer) and AML (Anti-Money Laundering) procedures;
- **Imitative behaviors and systemic risk**: The widespread adoption of similar AI-driven strategies among market participants can lead to *herding behaviour*[59], which in turn amplifies market volatility and threatens financial stability, particularly under stressed conditions;
- **Collusive behavior and market manipulation**: The use of opaque AI models can unintentionally lead to coordinated behaviors aimed at profit maximization, increasing the risk of market distortions and collusive dynamics that are difficult to detect;
- **Non-deterministic behaviors**: Advanced AI systems, particularly those based on deep learning or generative architectures, may exhibit unpredictable or non-replicable outputs, complicating oversight and reducing auditability and model governance;
- **Lack of supervision and skills**: Many organizations struggle to maintain adequate oversight across the AI lifecycle, due in part to a shortage of skilled professionals and the difficulty of forming interdisciplinary teams combining technical, legal, ethical, and sustainability expertise. Additionally, increased reliance on AI may erode human decision-making capacity, further weakening oversight;
- **Automation**: As AI drives increased automation, ethical and operational challenges arise related to the replacement of human labor, accountability for automated decisions, and the diminished role of human judgment in critical processes;
- **Dependence on a limited number of technology providers**: Reliance on a small number of technology vendors for pre-trained models, APIs, and cloud infrastructure creates concentration risks across the AI value chain. This dependency may affect operational resilience, service continuity, and the ability to maintain control over the technologies being deployed.

The effective management of both established and emerging AI-related risks requires the integration of practices aligned with the principles of Responsible AI (see *Enablers – Responsible AI* chapter). Among the most commonly adopted risk oversight measures are the implementation of governance frameworks, the inclusion of ex ante risk assessments during the design and development phases, and the establishment of processes to ensure the traceability of models across their entire lifecycle.

Compliance with regulations

To ensure compliance with the obligations arising from the **UCITS** and **AIFMD Directives**, as well as the **EU AI Act**, **GDPR**, and **DORA Regulations**, management companies must adopt a proactive and integrated approach in line with the Regulatory Framework for the Responsible Adoption of AI Systems by Asset Managers outlined in Section 6 (see below). Key actions include:

- **Classifying AI systems by relative risk level**, based on the regulatory requirements applicable under the AI Act, GDPR, and sector-specific directives.
- **Ensuring explainability of outputs** for higher-risk systems, supported by appropriate monitoring, documentation of AI-assisted decision-making, and staff literacy initiatives.

59. Imitative behavior by multiple market participants who, by using similar models, end up making convergent decisions, thereby amplifying volatility and systemic risks.

- **Protecting personal data** by implementing techniques such as pseudonymization, encryption, or tokenization of sensitive information, in line with GDPR requirements.
- **Guaranteeing operational resilience,** in accordance with DORA, by preventing and responding to cyber threats through the deployment of advanced cybersecurity systems, robust ICT governance, and continuity planning.

5.3.6. Enablers – Responsible AI

The responsible adoption of AI should extend beyond risk management and regulatory compliance to be firmly anchored in **ethical principles** that **enhance stakeholder trust** and **support sustainable long-term growth**. This approach aligns with the 2019 Union Ethics Guidelines for Trustworthy AI, developed by the High-Level Expert Group on AI (HLEG) appointed by the European Commission.

For Asset Management companies, this represents a strategic **opportunity to differentiate** themselves not only through investment performance, but also by demonstrating leadership in the responsible use of AI. Achieving this requires concrete actions that combine **robust governance frameworks, skills development programs, and technological solutions** designed with transparency, accountability, and fairness in mind.

Governance tools

To ensure alignment with **ethical guidelines**, companies can adopt a set of **governance tools** designed to promote **transparency, accountability, and responsible AI use**. These tools may include:

- **Supervision and Responsibility:** Establishing dedicated roles or structures—such as a **Chief AI Officer** or an **AI Ethics Board**—to oversee the implementation of ethical, regulatory, and strategic guidelines. These figures are responsible for ensuring that AI systems are deployed in a **transparent, accountable, and responsible** manner across the organization.
- **Transparency and Explainability of Outputs:** Deploying **Explainable AI (XAI) tools** to enhance the interpretability of model outputs, taking into account the system's complexity and operating environment. These tools help ensure that AI decisions are **justifiable, verifiable**, and free from **unintended bias**, thereby strengthening user trust.
- **Risk Monitoring and Auditability:** Where possible, integrating **model auditing and review mechanisms** to verify that AI systems remain compliant with **regulatory standards, ESG principles**, and **industry best practices**. These mechanisms are essential for identifying and correcting **anomalies or discriminatory behaviors** in AI-driven decision-making.

However, the development and implementation of effective AI governance tools presents significant challenges. These stem not only from the technical complexity of integrating such tools into existing systems, but also from the operational impact—including the need to adapt business processes, manage diverse data sources, and coordinate across functional teams. Therefore, it is essential to approach AI governance with a systemic and multidisciplinary perspective, embedding considerations of scalability, compliance, and sustainability from the earliest design stages of AI solutions.

Skills development tools

The **promotion of responsible AI use** requires a combination of **cultural transformation** and **professional development**. For this reason, it is essential to **complement the training initiatives** described in Section 5.3.4, *"Adoption Strategies and Full Potential"*, with **dedicated learning paths** aimed at fostering **awareness and skills for ethical and responsible AI governance**. In addition to the tools already outlined, companies can **reinforce their efforts** by introducing **additional initiatives**, such as:

- **Change Management:** Programs designed for **raise awareness of the principles of responsible AI among corporate resources**, promoting understanding of related risks, management of bias, and transparency in automated decision-making processes;
- **Internal training programs and skills development**: Courses and workshops focused on the **ethical governance of AI**, relevant regulatory frameworks (such as the EU AI Act, GDPR, and DORA), and **best practices** to ensure that AI models are developed and used in a fair, reliable, and safe manner;
- **Introduction of new specialist profiles**: The increasing complexity of AI may require new professionals, including:
  - **Resilience Manager**, responsible for managing **AI-related risks** and ensuring the **operational robustness** of AI systems.
  - **Prompt Engineer**, expert in crafting optimized inputs for **generative AI models** to enhance output **reliability, consistency, and transparency**.
  - **AI Trainer**, focused on **instructing AI models** based on **ethical principles and organizational policies**, with the goal of minimizing **bias and systematic errors** in algorithmic behavior.

  These specialized roles, in addition to addressing emerging needs for expertise and accountability, can be effectively integrated into the Three Lines of Defense model[60] for enterprise risk management. In the first line, operational roles like Prompt Engineers and AI Trainers ensure the compliant design and implementation of AI systems. The second line includes figures such as the Resilience Manager, who oversees risk and ensures system robustness. The third line is represented by independent audit functions, responsible for verifying controls and ensuring transparency and accountability. This structure supports responsible innovation within a comprehensive governance and risk management framework.

Technological tools

The adoption of **ethical AI solutions** is also supported by the use of **specific technologies** that enhance **security, control, and transparency**. Key tools include:

- **Human supervision (human-in-the-loop):** Mechanisms that involve human oversight in AI-driven decision-making processes, particularly for critical outcomes, ensuring expert validation and reducing the risk of automated errors;
- **Self-correcting AI systems:** Algorithms capable of detecting anomalies in data or outputs and either self-adjusting or flagging issues before they result in negative impacts;
-

60. The Three Lines of Defence model is an international framework for risk management and internal controls.
    It establishes three distinct but complementary levels of responsibility:
    1. First Line: Operational functions, which directly manage risks within daily business processes;
    2. Second Line: Control functions (e.g., risk management, compliance), which define policies and monitor the effectiveness of the controls in place;
    3. Third Line: Internal audit, which provides an independent assessment of the entire risk management system.

- **Technology standards for safety and compliance:** The use of established security frameworks and protocols—such as **advanced encryption, data anonymization**, and other protective measures—to guarantee **data confidentiality, integrity**, and **regulatory compliance** throughout the AI lifecycle.

5.4. External ecosystem: governance and collaboration

The adoption of AI in Asset Management companies is supported by a rich and diverse external ecosystem, comprising technology providers, regulators, research centers, startups, industry associations, data providers, and institutional investors. Effective governance of relationships with these stakeholders is essential to ensure that AI solutions are innovative, secure, and compliant with regulatory requirements.

- **Technology Providers:** Partnerships with technology providers grant access to scalable infrastructure and advanced AI tools. For Asset Managers operating in highly regulated environments, it is critical to define clear agreements on key issues such as data ownership, security, and algorithm transparency;
- **Regulators:** Engagement with regulatory bodies—particularly those responsible for implementing frameworks such as the EU AI Act—is vital for anticipating compliance requirements and reducing legal risks. A collaborative approach fosters alignment with evolving standards and promotes proactive adaptation;
- **Data Providers:** Financial, market, and ESG data form the foundation of many AI applications. Partnerships with data providers require robust data governance frameworks to ensure quality, accuracy, integrity, and regulatory compliance, while minimizing the risks of bias and information gaps;
- **Startups and Research Centers:** Startups and scale-ups offer innovative AI solutions, such as predictive models and automated ESG analysis tools. Collaboration with universities and research institutions supports technology foresight and the development of specialized in-house talent;
- **Institutional Investors:** Institutional investors, particularly those with an ESG focus, are playing a growing role in shaping AI strategies by demanding greater transparency and advanced portfolio analytics. Integrating their feedback is essential to align AI development with market expectations and stakeholder values;
- **Industry Associations and Consortia:** Participation in industry initiatives and technology consortia facilitates the exchange of best practices, supports the development of shared standards, and helps reduce the cost and complexity of AI implementation through collective efforts.

In summary, governing the external AI ecosystem is a strategic priority for Asset Management companies. By maintaining continuous engagement and building strong, collaborative relationships with external stakeholders, companies can accelerate AI adoption while safeguarding security, sustainability, and long-term competitive advantage.

6. REGULATORY FRAMEWORK FOR THE RESPONSIBLE ADOPTION OF AI SYSTEMS IN ASSET MANAGEMENT

The use of AI systems by Asset Managers requires its framing within a multi-level regulatory framework that includes sectoral legislation (the UCITS Directive and the AIFMD Directive), specific discipline (the AI ACT) and cross-cutting discipline (the GDPR and DORA Regulations).

The **UCITS and AIFMD Directives** constitute the mainstay of European collective Asset Management regulation. Both are based on a principle of **technological neutrality**: do not prescribe or prohibit the use of specific technologies, but require that each tool, including the use of AI systems, is employed in a manner that conforms to the fundamental principles of operational soundness, effective risk management, and investor protection. Accordingly, the introduction of AI systems into both investment and support processes does not change regulatory obligations, but requires to adapt them proportionately to the characteristics and risks of the technology used.

The **EU AI Act** is grafted onto this sectoral framework, imposing an analysis *ex ante* on the use of AI systems based on the identification and classification of risk. In this sense, the logic of supervision proportionate to risk typical of the AI Act integrates consistently with the technological neutrality of the UCITS and AIFMD Directives, helping to strengthen the guarantees of reliability, security and transparency in the use of AI by Asset Managers. Precisely from the perspective of integrating with sectoral regulations, the AI Act already identifies specific provisions and exemptions for financial institutions, designed to take into account their peculiarities and the complex regulations to which they are already subject.

The **GDPR** and the **DORA** share with the AI Act the need to hold Asset Managers accountable from the design of AI systems, and to ensure monitoring, tracking and human control over automated processes, as well as business continuity and digital resilience.

To support Asset Managers in responsibly adopting AI systems, ensuring their compliance with the AI Act, sectoral legislation (UCITS and AIFMD), and cross-cutting discipline (GDPR and DORA), it is useful to define an **integrated framework of regulatory requirements**, providing recommendations that also consider the **Union ethics guidelines for trustworthy AI**.

6.1. General principles

Asset Managers are recommended to assess the risks associated with use cases of AI systems, taking governance and risk management measures that are appropriate and proportionate to the nature, complexity, and significance of each use case. This assessment should consider the potential impact of the use of AI on both the Asset Manager's organization and the protection of clients' interests.

Asset Managers evaluate whether to consider not only use cases where systems are developed or adopted by the Asset Manager, but also staff use of general-purpose AI technologies developed by third parties (e.g., LLM providers).

Asset Managers are recommended to:

1. Identify and classify the AI Systems and GPAI Models they provide or use, as set out in Section 6.2;

2. Determine which role in the value chain the Asset Managers play (i.e., providers or deployers) in relation to them, as outlined in Section 6.3;

3. Comply with the general obligations referred to in section 6.4.1, in cases where they provide or use AI systems or GPAI models other than high-risk AI systems;

4. Comply, in addition, with the specific obligations referred to in section 6.4.2, in cases where they provide or use high-risk AI systems.

6.2. Identification and classification of AI systems and GPAI models provided or deployed by Asset Managers

Asset Managers identify AI systems, assessing whether they fall within the definition of AI systems under Section 3(1) of the AI Act, by verifying that the following seven characterizing elements exist[61]:

1. A **machine-based system**
2. **Designed to operate with varying levels of autonomy**, with limited or no human intervention
3. **Capable of adapting** after deployment through learning or model updates
4. **Intended to achieve specific objectives**, whether explicit or implicit
5. Which **infers how to generate outputs** based on inputs received
6. Produces **outputs such as predictions, content, recommendations, or decisions**
7. The outputs **can influence physical or virtual enviroments**

Based on the European Commission's Guidelines on the Definition of AI System (Section 5.2) and in the absence of further clarification from the relevant institutions, the following can be considered excluded from the scope of the AI Act:

(i) Systems exclusively designed to implement traditional statistical or mathematical techniques (such as linear or logistic regression[62]) when not combined with learning-based methods or adaptive features;

(ii) Rule-based systems or basic data processing tools that perform operations in a fully predefined, deterministic and non-inferential manner;

(iii) Classical heuristic-based systems, which use expert knowledge or experience-based techniques to solve tasks through predefined rules rather than inference or learning;

(iv) Simple statistical tools that generate outputs based on fixed statistical formulas or direct input-output mappings, and do not include inferential or learning capacity.

Asset Managers **identify GPAI models** (i.e., so-called "general-purpose AI models") on the basis of Section 3(63) of the AI Act and Recital 97 as well as the guidance provided by the AI Office in official Q&A. Asset Managers identify GPAI models as AI models with a high degree of generality, capable of competently performing a wide range of distinct tasks, regardless of the manner in which they are placed on the market, and capable of integration into a variety of downstream systems or applications.

By way of example, models with at least one billion parameters and trained on large volumes of data using large-scale self-supervised learning should be considered as displaying significant generality and as being capable of competently performing a wide range of distinct tasks. In

61. To support the interpretation of this definition, on 6 February 2025, the European Commission issued Guidelines on the definition of AI systems, pursuant to Article 96(1)(f) of the AI Act.
62. It is unclear whether, according to paragraph 45 of the Guidelines on the definition of AI System pursuant to the AI Act, systems aimed at enhancing mathematical optimisation are excluded from the scope of application of the AI Act only where the automatic self-regulations are solely intended to improve computational performance, and not also to enable the intelligent adaptation of decision-making models.

addition, large generative AI models represent a typical case of a general-purpose AI model, as they enable flexible content generation in the form of text, audio, images, or video, and are thus able to readily respond to a broad range of different tasks. Models used exclusively for research, development or prototyping purposes, provided they have not yet been placed on the market, are excluded from the scope of application of this Regulation.

Asset Managers consider a **"general-purpose AI system"**, as defined in Article 3(66) and Recital 100 of the AI Act, to be an AI system that incorporates a general-purpose AI model and, due to this integration, has the capability to serve a variety of purposes, either for direct use or for integration into other AI systems.

Without prejudice to the prohibition of the **Prohibited AI practices** referred to in Article 5 of the AI Act, Asset Managers[63] **classify AI systems** based on the risk levels under the AI Act[64]:

(i) **High-risk AI systems:** AI systems that may have a significant impact on the health, safety, or fundamental rights of natural persons, identified on the basis of Article 6 and Annexes I and III of the Regulation.

By way of example, such systems include remote biometric identification systems, AI systems intended to be used for emotion recognition, as well as AI systems intended to be used for the recruitment or selection of natural persons in relation to job applications.

(ii) **Limited risk AI systems:** systems intended to interact with natural persons or to generate content, which may involve specific risks of deception or impersonation, and which are subject, in certain cases, to transparency obligations pursuant to Article 50 of the AI Act.

(iii) **Minimal risk AI systems:** systems that present minimal risk to individuals, and which are not subject to obligations under the AI Act except for the AI literacy requirements laid down in Article 4, which apply to all AI systems pursuant to the AI Act.

6.3. Identification of the "role" of Asset Managers

Asset Managers determine whether they act as "providers" and "deployers" of AI systems, providers of GPAI models, importers and distributors of high-risk AI systems (Sections 2 and 3 of the AI Act).

Asset Managers qualify as **providers of AI systems** where the following conditions are met:

(i) they developed and AI system or had an AI system developed;

(ii) they have placed the AI system on the market or put it into service under their own name or trademark, whether for a price or free of charge (Article 3(3)), where:

- "placing on the market" means the first making available of an AI system on the Union market (see Article 3(9)), that is, the supply of an AI system or a general-purpose AI model for distribution or use on the Union market in the course of a commercial activity, whether for a price or free of charge (see Article 3(10));

63. For example, AI systems that use subliminal or manipulative techniques, or that are intended to exploit vulnerabilities related to age, disability or specific social or economic situations; social scoring systems resulting in detrimental treatment; AI systems used to infer emotions in the context of the workplace and educational institutions; biometric categorisation systems intended to deduce certain sensitive characteristics.
64. Some systems may fall under more than one category. For example, emotion recognition systems or biometric categorisation systems could be classified as high-risk AI systems, but may also be subject to the transparency obligation laid down in Article 50(3) of the AI Act (case of a limited-risk system).

- "putting into service" refers to the supply of an AI system directly to the deployer for first use or for own use in the Union for the intended purpose (Article 3(11));

(iii) when the above activities are carried out in the Union, regardless of whether the Asset Manager is established or located in the Union or in a third country, or when it is located or established in a third country and the output produced by the AI system provided is used in the Union (Article 2(1)(a) and (c)).

By way of example, "Providers" of AI systems are Asset Managers who: develop trading algorithms for automated or high-frequency investment strategies (high-frequency trading) by providing them to other Asset Managers; develop robo-advisory tools that make use of AI engines to provide automated advice to other intermediaries; develop AI systems for assessing, in the case of loan originating funds, the creditworthiness of borrowers and use them internally or provide them to other Asset Managers.

Asset Managers qualify as **providers of GPAI models** where the following conditions are met:

(i) they developed a GPAI model or had a GPAI model developed;

(ii) they have placed it on the market, meaning they have supplied it for the first time on the Union market for distribution or use in the course of a commercial activity, whether for a price or free of charge (Article 3(3)); a GPAI model is also considered to be placed on the market when the relevant provider integrates it into its own AI system made available on the market or put into service (see Recital 97);

(iii) when the above activity is carried out in the Union, regardless of whether the Asset Manager is established or located in the Union or in a third country (Article 2(1)(a)).

By way of example, "Providers of a GPAI model" are Asset Managers who: develop an AI model for general purposes (for market analysis, investment strategy generation, automation of financial reports) and subsequently, decide to license the use of the model to other Asset Managers or third parties, or make it available on the European market, also for free, as an API service.

Asset Managers qualify as **deployers of AI systems** where they use an AI system under their authority (Article 3(4)), where "authority" refers to assuming responsibility over the decision to deploy the system and over the manner of its actual use (see paragraph 17 of the Commission Guidelines on prohibited AI practices under the AI Act). They also fall within the scope of application if they are located or established within the Union, or if they are located in a third country but the output produced by the AI system is used in the Union (Article 2(1)(b) and (c)).

By way of example, are "deployers" of AI systems are Asset Managers who: use AI algorithms to balance risk and return on investments; use AI systems to identify and mitigate financial risks, including market and credit risks; use machine learning tools to analyze customer data and offer customized products; use AI systems to monitor and ensure compliance with complex financial regulations; and use chatbots in interacting with customers, to improve service and reduce operational costs; use AI systems in internal operations (document management, coding); use AI system to verify identity documents for the purpose of AML regulations.

Asset Managers qualify as **importers or distributors** of AI systems where, respectively, they place on the market an AI system bearing the name or trademark of a natural or legal person established in a third country (Article 3(6)), or, without already qualifying as importers or providers, they make an AI system available on the Union market (Article 3(7)). In such cases, and only where the systems are classified as high-risk, Asset Managers will be subject to the corresponding obligations of verification, information, cooperation, registration and due diligence laid down in Articles 23 and 24 of the AI Act.

By way of example, "distributors" or "importers" of an AI system are Asset Managers who acquire from a U.S. company a Robo-Advisor or portfolio optimization model developed entirely in the U.S. and market or distribute it in the EU market, e.g., through their own advisory platform or as a B2B service for other Asset Managers or banks.

Asset managers can play more than one role simultaneously in relation to an AI system. For example, at present and in the absence of further clarification from the relevant institutions, Asset managers who develop AI systems, either through their own IT function or by using third-party providers and affixing their own name or trademark to them, for in-house deployment, are considered to qualify as both providers and deployers of AI systems at the same time (see paragraphs 13 and 19 of the Commission Guidelines on prohibited AI practices under the AI Act).

In the absence of different guidance from the AI Office and other relevant authorities: (i) Asset Managers developing AI systems, either through their own IT function or using third-party providers **without affixing their own name or trademark on them**, and using such AI systems **only internally**, do not qualify as AI system providers; (ii) in the case of **Asset Managers belonging to groups**, in which a company develops an AI system for deployment within the group, only that company qualifies as a provider of the AI system, while the other group companies that make use of it are considered to be deployers; (iii) the Asset Manager belonging to a group, who uses an AI system provided by a third party without making any modification to it and subsequently offers access it to the other group companies, remains a deployer of that AI system.

An Asset Manager who provides a tool, service, component or process that is used or integrated into a high-risk AI system is required to enter into written agreements with the provider of the high-risk AI system in accordance with Article 25(4) of the AI Act, without prejudice to the exceptions provided therein.

Any distributor, importer, deployer or other third party shall be considered a provider of a high-risk AI system, and therefore assumes all related obligations, in the cases set out in Article 25(1) of the AI Act, namely: (i) affixing their name or trademark to a high-risk AI system already placed on the market or put into service, without prejudice to different contractual arrangements; (ii) making a substantial modification to a high-risk AI system already placed on the market or put into service, in such a way that it remains a high-risk AI system (further guidance on the practical implementation of the provisions on substantial modification is expected from the Commission pursuant to Article 97 of the AI Act); (iii) modifying the intended purpose of an AI system not classified as high-risk, already placed on the market or put into service, in such a way that it becomes a high-risk AI system.

6.4. Obligations for Asset Manager deployers and AI system providers

6.4.1. "General" obligations for Asset Manager deployers and providers of AI systems

Asset Managers who provide or deploy **AI systems which are not among the prohibited AI practices and which do not qualify as high-risk systems under the AI Act**, comply with the existing regulations on Collective Asset Management as set out in the UCITS Directive and in the AIFMD, without the introduction of any new specific obligations. Exceptions to this are the disclosure requirements provided in Article 50 of the AI Act for limited-risk AI systems related to transparency to clients and the requirement in Article 4 of the AI Act to promote AI literacy and staff training. In addition, Asset Managers shall take into account the Union Ethics Guidelines for Trustworthy AI and consider the voluntarily implementation of the additional requirements outlined in Article 95 of the AI Act.

Governance and internal controls

Asset Managers who employ AI systems are recommended to ensure that the governance framework and internal control system, as required by the UCITS Directive and the AIFMD, are properly integrated to take into account the use of such systems. In particular, Asset Managers are recommended to ensure that:

- **members of the management and supervisory bodies are responsible**:

  (i) for the adoption and use of AI systems within the organisation, having adequate knowledge of how AI is employed and the potential associated risks;

  (ii) for the definition and internal communication of the strategic and operational approach adopted regarding AI;

  (iii) for the oversight and management of ICT and operational risks related to the use of AI;

- **internal control functions, particularly Compliance and Internal Audit**, verify that the use of AI systems complies with applicable legislation and regulations, as well as internal policies;

- **the Data Protection Officer (DPO)** monitors that the processing of personal data through AI systems is carried out in accordance with the applicable data protection legislation.

Asset Managers also assess the opportunity to appoint an **AI Officer**, tasked with providing oversight, advice and cross-functional support to the various business functions involved, or to establish an **AI Committee** composed of members with the required expertise, in order to ensure effective coordination and management of the risks and opportunities arising from the use of such systems.

Asset Managers are further recommended to ensure appropriate **monitoring** of the use of AI systems that have a significant impact on the organization and on client interests, ensuring that such activity is conducted directly or programmed (where automated) by natural persons with the necessary expertise, training and authority to intervene, where necessary, in relation to the outputs generated by the systems.

AI literacy

Asset Managers who use AI systems, pursuant to the AI Act, and the *"AI Literacy Q&A"* published by the AI Office in May 2025, promote an organizational culture that encourages learning and continuous adaptation in the field of AI. To this end, Asset Managers:

a) adopt, pursuant to Article 4 of the AI Act, measures to ensure a (sufficient) level of AI literacy of their staff as well as of any other person involved in the operation and use of AI systems on their behalf, taking into account their technical knowledge, experience, education and training, as well as that of the groups of persons on whom the AI systems are to be used. **By way of example**, Asset Managers may provide basic training courses for all employees and intermediate courses for employees who use or interact directly with AI systems; specific training courses for specialist roles such as Data Scientist, Smart Automation Expert; courses dedicated to members of the management body;

b) consider monitoring the literacy program through the use of KPIs in accordance with Article 95(2) of the AI Act. **By way of example**, Asset Managers may consider the number of employees participating in the training courses offered; the percentage of courses successfully completed by participants; the impact on skills; participant satisfaction, expressed through evaluations and feedback on the quality and usefulness of the courses; the percentage of participants who have experienced a role development after completing the training programmes;

c) consider collaboration with universities and institutions to develop skills on the topic of AI.

Risk management

Asset Managers who use AI systems are recommended to ensure that the risk management framework provided for under the UCITS Directive and the AIFMD is supplemented by specific measures aimed at addressing the risks associated with the use of such systems, also taking into account the Union's Ethical Guidelines for Trustworthy AI. In particular, Asset Managers are recommended to ensure that risk management provides for:

(i) the identification, assessment and mitigation of risks associated with AI-supported investment decision-making processes, including, by way of example, algorithmic bias risks, data security vulnerabilities and other risks potentially relevant for investors;

(ii) the adoption, applying the principle of proportionality, of appropriate testing, validation and monitoring systems, aimed at verifying the performance, reliability and impact of AI systems on the Asset Manager's organisation, investment processes and clients' interests;

(iii) the implementation of a clear and comprehensive documentation system, together with effective reporting and accountability mechanisms, in order to ensure transparency, traceability and oversight of AI-related risk management practices.

Asset Managers are recommended to adopt and maintain a data governance policy that:

(i) is proportionate to the potential impact arising from the specific AI use case on clients and the Asset Manager's organisation;

(ii) fully complies with applicable personal data protection legislation;

(iii) applies to the data used by AI systems, regardless of their origin, whether collected internally or acquired from third-party providers.

Asset Managers are recommended to adopt the necessary measures to ensure that the outputs produced by AI systems are understandable and explainable in a clear manner, taking into account the operational context, the purposes and the specific characteristics of the AI application used.

Conflicts of interest

Asset Managers who employ AI systems are recommended to ensure, in compliance with the provisions of the UCITS Directive and the AIFMD, the adoption of appropriate measures to identify, prevent and manage potential conflicts of interest related to the use of such systems, such as, for example, conflicts that may arise in connection with the automation of investment decision-making processes.

Outsourcing

In the case of acquiring AI solutions developed by third-party service providers for the management of critical and important operational functions, Asset Managers are recommended to ensure compliance with the provisions of the UCITS Directive and the AIFMD on the outsourcing of critical and important operational functions, in order to ensure an adequate level of due diligence in the selection process of such providers along the value chain and the implementation of appropriate controls.

Documentation and records

Asset Managers who employ AI systems are recommended to ensure, in compliance with the provisions on record-keeping and documentation retention set out in the UCITS Directive and the AIFMD, the maintenance of adequate documentation relating to the use of AI in collective asset management activities. In application of the principle of proportionality, such documentation should include, at a minimum:

(i) the list of AI system use cases, indicating the purposes pursued and the decision-making processes involved;

(ii) the description of the sources of data used, the algorithms employed, the configuration parameters and any changes made over time;

(iii) information regarding the data used for model training and testing, the modelling methodologies adopted and the validation criteria applied, in order to ensure traceability and reproducibility;

(iv) evidence of any complaints received from clients or potential clients related to the use of AI systems, together with the measures taken in response to such complaints.

Transparency

Asset Managers who employ AI systems are recommended to ensure compliance with the information transparency obligations towards clients set out in the UCITS Directive and the AIFMD Directive, by providing clear, accurate and not misleading information on how AI systems are used in decision-making processes related to the provision of collective portfolio management services. In particular, Asset Managers are recommended to adopt measures to prevent misleading or non-transparent communication practices, such as "AI washing".

For the above purposes, Asset Managers are recommended to include, in the offering documentation of UCITS, adequate and understandable information enabling investors to make informed decisions, specifying the use of AI systems for the purpose of pursuing the investment objectives and strategies of the UCITS.

Asset Managers who directly market UCIs by employing AI systems under the AI Act shall ensure compliance with Article 50 of the AI Act in the cases provided therein of limited risk systems. In particular[65]:

(i) Asset Managers who are **providers of AI systems intended to interact directly with natural persons** shall ensure that the individuals concerned are informed that they are interacting with an AI system, unless this is obvious from the perspective of a reasonably well-informed, observant and circumspect natural person, taking into account the circumstances and the context of use (cf. Article 50(1), AI Act);

(ii) Asset Managers who are **deployers of emotion recognition systems or biometric categorisation systems** shall inform the natural persons exposed to them about the functioning of the system (cf. Article 50(3), AI Act);

(iii) Asset Managers who are **deployers of AI systems that generate or manipulate image, audio or video content constituting a "deep fake"** shall disclose that the content has been artificially generated or manipulated (cf. Article 50(4), AI Act);

65. Practical guidance on the implementation of the transparency obligations laid down in Article 50 of the AI Act is expected to be provided in the Guidelines of the Commission pursuant to Article 97 of the AI Act.

(iv) Asset Managers who are **deployers of AI systems that generate or manipulate text published with the purpose of informing the public on matters of public interest** are required to disclose that the text has been artificially generated or manipulated, unless the AI-generated content has been subject to human review (cf. Article 50(4), AI Act). Examples of public interest include health and safety and the protection of fundamental rights, including democracy, the rule of law and the protection of the environment (*cfr*. Recital 8).

Asset Managers shall ensure compliance with the following additional transparency obligations set out in the AI Act, with regard to AI systems and models for general-purpose AI (GPAI):

(i) Asset Managers who are **providers of AI systems, including general-purpose AI systems, that generate content, including text**, shall ensure that the outputs of the AI system are marked in a machine-readable format and detectable as artificially generated or manipulated. Asset Managers as providers shall ensure that their technical solutions are effective, interoperable, robust and reliable to the extent technically feasible, taking into account the specificities and limitations of the various types of content, the costs of implementation and the generally acknowledged state of the art, as may be reflected in relevant technical standards. This obligation shall not apply where AI systems perform an assistive function for standard editing or do not substantially alter the input data provided by the deployer or the semantics thereof, or where authorised by law to detect, prevent, investigate or prosecute criminal offences (cf. Article 50(2), AI Act);

(ii) Asset Managers who are **providers of general-purpose AI models**: shall draw up and keep up to date the technical documentation of the model (Article 53(1)(a), AI Act), except for GPAI models released under a free and open-source licence and not systemic in nature; shall prepare, maintain and make available information and documentation to providers of AI systems intending to integrate the GPAI model into their AI systems, except for GPAI models released under a free and open-source licence and not systemic in nature (Article 53(1)(b), AI Act); shall implement a policy to comply with Union copyright and related rights law (Article 53(1)(c), AI Act); shall prepare and make publicly available a sufficiently detailed summary of the content used to train the GPAI model (Article 53(1)(d), AI Act); shall cooperate, as necessary, with the Commission and the national competent authorities (Article 53(3), AI Act); if established in third countries, shall appoint an authorised representative in the Union (Article 54(1), AI Act); where GPAI models are deemed to present "systemic risk" under Article 51(1) of the AI Act, Asset Managers as providers shall assess and mitigate such systemic risks, in particular by conducting model evaluations, monitoring, documenting and reporting serious incidents, and ensuring adequate cybersecurity for the model and its physical infrastructure (Articles 55 and 52, AI Act). These obligations will be further specified in the "Code of Practice on General-Purpose AI", currently under development by the AI Office (the third draft was published in March 2025).

At present and in the absence of further clarifications from the relevant Institutions, it is understood that Asset Managers who are **providers of a GPAI model integrated into their own AI system** are subject to the obligations applicable to AI models in addition to those for AI systems, unless the conditions set out in Recital 97 apply, namely:

(i) the model is used for purely internal processes that are not essential to provide a product or service to third parties;

(ii) the rights of natural persons are not affected;

(iii) the model is not considered a systemic risk GPAI model.

At present, based on Recital 109 of the AI Act and the draft Guidelines published for consultation by the AI Office, Asset Managers who intervene on a pre-existing general-purpose AI (GPAI) model by modifying or fine-tuning it significantly are required to comply with the obligations applicable to providers of GPAI models, **limited to the modifications or fine-tuning performed**. However, only those modifications that have a significant bearing on the rationales underlying the obligations for providers of GPAI models should lead to the Asset Manager (as a downstream modifier) being considered the provider of the modified model for the purposes of the relevant obligations. In such cases, for instance, Asset Managers will be required to complement the existing technical documentation with detailed information on the modifications made, including the new sources of training data used.

In the absence of further guidance from the AI Office and other competent authorities, Asset Managers who intervene on an existing generative AI model, modifying or refining it to the extent that they qualify as providers of a new model, shall comply with the obligations for GPAI model providers, limited to the modifications or refinements made. In particular, Asset Managers must integrate the existing technical documentation with detailed information on the changes made, including, by way of example, the new data sources used to train the model, in line with Recital 109 of the AI Act

Data Protection

Asset Managers who employ AI systems shall ensure compliance with Regulation (EU) 2016/679 (GDPR), also taking into account Opinion 28/2024 of the EDPB of 17 December 2024 and the EDPS Guidelines of 3 June 2024. To this end, it is recommended to:

(i) assess whether AI systems process personal data, analysing all stages of the system's lifecycle (training, input/output, inferences) and requiring appropriate assurances from providers on the use of anonymised or synthetic datasets;

(ii) where the processing of personal data may pose high risks to the rights and freedoms of data subjects, Asset Managers shall carry out a Data Protection Impact Assessment (DPIA) before the system goes into production (Article 35 GDPR), involving the Data Protection Officer (DPO) from the early stages of development or adoption of AI;

(iii) ensure an adequate legal basis for each processing activity, carefully documenting the selection between the legal bases provided under the GDPR (e.g., valid consent, legal obligation, legitimate interest) and refraining from considering the mere public availability of data as the sole justification for processing;

(iv) apply the principles of privacy by design and by default, limiting the collection and processing of personal data to what is strictly necessary for the purposes pursued and implementing techniques such as anonymisation, pseudonymisation and data minimisation (Articles 25 and 5(1)(c) GDPR);

(v) ensure transparency and proper information to data subjects, providing clear and updated notices about the use of AI systems. Such notices shall specify the purposes of the processing, the logic behind the operation of the systems, the data subject's rights and explicitly state when interaction occurs without human involvement (Articles 13 and 14 GDPR);

(vi) ensure the proper management of automated decision-making: Asset Managers shall avoid decisions based solely on automated processing, including profiling, which produce legal effects or similarly significant effects on individuals, unless the conditions laid down in the GDPR are met. They must also ensure that data subjects can obtain human intervention, express their point of view and contest the automated decision (Article 22 GDPR);

(vii) mitigate the risk of bias and discrimination, by regularly monitoring and validating the datasets used for training and evaluating the models (Article 5(1)(d) GDPR). Measures taken to prevent and correct potential bias, especially in sensitive areas such as access to financial services, shall be documented;

(viii) ensure the effectiveness of data subject rights, implementing procedures that facilitate the exercise of rights of access, rectification, erasure, objection and restriction of processing (Articles 15, 16 and 17 GDPR). It is essential to maintain the traceability of data and processing activities to ensure transparency and accountability;

(ix) adopt appropriate security measures (Article 32 GDPR), integrating specific safeguards for the protection of AI systems and conducting regular security tests to promptly detect and correct vulnerabilities;

(x) formalise clear agreements with providers. These agreements shall contractually define the roles and responsibilities (e.g., controller, processor, joint controller) and require providers to adopt security and privacy standards equivalent to those required of the data controller.

Operational resilience

Asset Managers who employ AI systems shall ensure compliance with the DORA Regulation. To this end, it is recommended to:

(i) identify and manage ICT risks related to the use of AI, by mapping the systems employed and the functions supported, and identifying specific risks such as algorithmic errors, bias or vulnerabilities to cyber threats (Article 10). The identified risks must be integrated into the existing ICT risk management framework, in line with the organisation's overall risk management strategy;

(ii) include AI systems within the digital operational resilience framework, ensuring they are covered by adequate business continuity plans and response and recovery plans (Article 11), also in order to assess their resilience against specific attacks such as model inversion attempts, manipulation of training datasets, or compromise of prompts and interface APIs;

(iii) conduct specific operational resilience testing of AI systems, integrating them into the testing programmes required under DORA (Article 24 et seq.);

(iv) properly manage cybersecurity risks arising from third-party providers of AI systems, identifying cases where such systems support critical or important functions. To this end, it is recommended to carry out pre-contractual due diligence; establish continuous monitoring of performance and risks; include specific contractual clauses on security, audit and data access; and plan for exit strategies and replacement plans for strategic providers (Article 28 et seq.);

(v) set up a system to promptly detect and report major ICT incidents involving AI systems to the competent authorities (Article 17 et seq.);

(vi) ensure the security of AI systems used, by defining and implementing policies, procedures, protocols and tools to guarantee their resilience, continuity and availability, as well as to maintain high standards of availability, authenticity, integrity and confidentiality of data in storage, in use or in transit (Article 9). This includes data encryption, privileged access controls, continuous system monitoring and log analysis using anomaly detection tools specifically calibrated to AI-related risks.

Other "voluntary" requirements

Asset Managers shall consider voluntarily adopting the additional requirements of Section 95(2) of the AI Act, applicable to all AI systems used. In particular, Asset Managers shall consider:

(i) the assessment and mitigation of the environmental impact of AI systems, also through the adoption of technical solutions that ensure an efficient use of energy resources and sustainable programming during the design, training and use phases of AI (Article 95(2)(b), AI Act);

(ii) the promotion of inclusive and diverse design of AI systems, encouraging the active participation of heterogeneous development groups and stakeholders in the related decision-making processes (Article 95(2)(d), AI Act);

(iii) the assessment and prevention of potential negative impacts of AI systems on vulnerable individuals or groups, also taking into account accessibility for persons with disabilities and gender equality (Article 95(2)(e), AI Act).

6.4.2. "Specific" obligations for Asset Managers who are providers and deployers of high-risk AI systems

In addition to what is set out in paragraph 6.4.1, **Asset Managers who are providers and deployers of high-risk AI systems within the meaning of the AI Act** shall ensure compliance with the requirements laid down for such systems primarily in Chapter III, Sections 2, 3 and 5 of the AI Act, with the exception of the derogations provided for in Articles 17(4); 18(3); 19(2) and 26(5) and (6).

In particular, **Asset Managers as "providers"** of high-risk AI systems:

a) shall ensure that their high-risk AI systems comply with the requirements regarding: compliance with the requirements (Article 8); risk management system (Article 9); data and data governance (Article 10); technical documentation (Article 11); record-keeping (Article 12); transparency and provision of information to deployers (Article 13); human oversight (Article 14); accuracy, robustness and cybersecurity (Article 15);

b) shall have a quality management system in accordance with Article 17(1), points (g), (h) and (i);

c) **shall retain the documentation referred to in Article 18 of the AI Act as part of the documentation retained pursuant to the UCITS and AIFMD directives**;

d) **shall retain, when under their control, the logs automatically generated by their high-risk AI systems referred to in Article 19 of the AI Act, as part of the documentation retained pursuant to the UCITS and AIFMD directives**;

e) shall ensure that the high-risk AI system undergoes the relevant conformity assessment procedure referred to in Article 43 of the AI Act before being placed on the market or put into service;

f) shall draw up an EU declaration of conformity pursuant to Article 47 of the AI Act;

g) shall affix the CE marking to the high-risk AI system or, where this is not possible, to its packaging or accompanying documents to indicate compliance with the AI Act, in accordance with Article 48;

h) shall comply with the registration obligations under Article 49(1) of the AI Act;

i) shall take the necessary corrective measures and provide the required information in accordance with Article 20 of the AI Act;

j) shall, upon reasoned request by a national competent authority, demonstrate the compliance of the high-risk AI system;

k) if established in third countries, shall appoint an authorised representative in the Union;

l) shall ensure that the high-risk AI system complies with accessibility requirements pursuant to Directives (EU) 2016/2102 and (EU) 2019/882;

m) where a third party provides the Asset Manager with tools, services, components or processes that are used or integrated into the high-risk AI system supplied by the Asset Manager (subject to the exceptions laid down in Article 25(4) of the AI Act), the Asset Manager shall specify, by written agreement with the third party: the information, capabilities, technical access and any other form of assistance required, based on the generally acknowledged state of the art, to enable full compliance with the obligations under the AI Act. This obligation to conclude such agreements also applies to the third-party supplier of the components;

n) shall establish and document a post-market monitoring system proportionate to the nature of the AI technologies and the risks of the high-risk AI system (Article 72 AI Act), except for systems listed in Annex III, point 5;

o) shall report serious incidents to the market surveillance authorities of the Member States in which such incidents occurred; in the absence of further guidance from the relevant Institutions, **where the incident has already been notified under the DORA Regulation, the notification shall be required only for serious incidents that directly or indirectly result in a breach of Union law obligations intended to protect fundamental rights** (Article 73(9), AI Act).

In addition to what is set out in paragraph 6.4.1, **Asset Managers as "deployers"** of high-risk AI systems within the meaning of the AI Act:

a) shall take appropriate technical and organisational measures to ensure that high-risk AI systems are used in accordance with the instructions for use (Article 26(1));

b) shall assign human oversight to natural persons with the necessary competence, training and authority (Article 26(2));

c) shall ensure, where under their control, that input data is relevant and sufficiently representative in view of the system's intended purpose (Article 26(4));

d) shall monitor the functioning of the high-risk AI system through devices, processes and internal governance mechanisms as provided for under the UCITS and AIFMD rules, and shall inform the provider if necessary (Article 26(5));

e) shall retain logs automatically generated by the high-risk AI system, to the extent under their control, as part of the documentation retained under the UCITS and AIFMD rules (Article 26(6));

f) if acting as employers, shall, before putting into service or using a high-risk AI system in the workplace, inform worker representatives and affected workers that they will be subject to the use of the high-risk AI system (Article 26(7));

g) shall use the information provided pursuant to Article 13 (information for use made available by the provider) to comply with their obligation to carry out a data protection impact assessment under **Article 35 of the GDPR** (Article 26(9));

h) where making or assisting in decisions affecting natural persons, shall inform the latter that they are subject to the use of a high-risk AI system (Article 26(11));

i) shall cooperate with the relevant competent authorities with regard to any action taken by such authorities in relation to the high-risk AI system for the purposes of implementing the AI Act (Article 26(12));

j) only in the specific cases identified in Article 27(1) of the AI Act, shall carry out an impact assessment of the AI system on fundamental rights;

k) where they make a decision based on the output of the system affecting any data subject, which produces legal effects or significantly affects that person in a way they deem to have a negative impact on their health, safety or fundamental rights, shall provide clear and meaningful explanations of the role of the AI system in the decision-making procedure and of the main elements of the decision taken, in accordance with Article 86 of the AI Act, subject to the exceptions provided therein;

l) shall comply with the obligations for providers under Article 16 in the cases referred to in Article 25 of the AI Act.

Decision-making flow for the responsible adoption of AI systems by the Asset Manager

1. Are there AI systems or GPAI models in the Asset Manager's organization?
2. What risk category under the AI Act do they fall into? (more than one is also possible[1])
3. Verify that the prohibited AI practised listed in Article 5 of the AI Act are not being carried out
4. What role of the value chain (i.e. provider/deployer) does the Asset Manager play in relation to them? (also more than one simultaneously[2])
5. Check for the existence of the scenarious under Article 25(1) of the AI Act in which the Asset Manager is considered a provider of a high-risk IA system
6. Verify whether the Asset Manager provides «components» of high-risk AI systems persuant with Article 25(4) of the AI Act and apply the resulting obligation to specify information throught written agreements
7. Check of the applicable obligations under the AI Act (obligations accumulate in case of overlap, except where exceptions apply):

		AI system provider	AI system deployer	Importer	Distributor	GPAI Model Provider
AI systems	Minimal Risk Systems	• Literacy requirements	• Literacy requirements			
	Limited Risk Systems	• Literacy requirements • Transparency obligations for providers of low-risk AI systems (Art. 50)	• Literacy requirements • Transparency obligations for deployers of low-risk AI systems (Art. 50)			
	High-Risk Systems	• Literacy requirements • Transparency obligations for providers of high-risk AI systems (par. 6.4.2 of the Regulatory framework)	• Literacy requirements • Transparency obligations for deployers of high-risk AI systems (par. 6.4.2 of the Regulatory framework)	• Obligations provided under art.23	• Obligations provided under art.24	
GPAI Templates						• Obligations referred to in art. 53-54-55 (added to those for AI systems in which they are integrated)

8. Apply the general obligations set out in section 6.4.1, in cases where AI systems or models other than high-risk AI systems are provided or deployed
9. In addition to the above, apply the specific obligations set out in section 6.4.2 in cases where high-risk AI systems are provided or used

[1]For example, Asset Managers using an emotion recognition system could be subject both to the obligations applicable to deployers of high-risk AI systems and to the transparency obligation set out in Article 50(3) of the AI Act.

[2]For example, an Asset Manager who provides its own AI system to third parties while also using it internally could be considered both a provider and a deployer of an AI sistem at the same time

7. CONCLUSIONS

The adoption of Artificial Intelligence (AI) in Asset Management companies is steadily increasing. However, the perceived maturity level of available solutions in the market remains limited. The main barriers to achieving full maturity include a shortage of specialized skills, privacy concerns, and challenges related to the transparency and explainability of AI outputs.

An analysis of the development stage of key use cases among the surveyed companies reveals that **investment process and data management and analysis** are the most advanced areas, with several applications already operational. In contrast, **functions such as target market identification, risk management, and compliance** still offer significant room for growth. A **technology gap** is also evident between Italian and international players, with the latter being more advanced in implementing AI initiatives. This is largely due to **greater investment in skills** and the presence of a **more mature technological ecosystem** abroad compared to the domestic landscape.

The most evident benefits of AI in the industry include **enhanced operational efficiency, higher-quality data analysis**, and **more effective personalization of investment strategies**, reaffirming the technology's strong growth potential. However, significant obstacles remain, such as **lack of internal expertise, regulatory complexity**, and **high implementation costs**, especially in the absence of mature, off-the-shelf solutions. To address these challenges, many companies have already launched **AI literacy initiatives**, including **training programs, targeted workshops**, and the introduction of key roles such as **AI Champions**, aimed at fostering internal capabilities.

From a governance perspective, the primary focus is currently on **data management**, with many firms having implemented policies to ensure **transparency and regulatory compliance**. However, **algorithm governance** remains an evolving domain, requiring further development and structure.

The introduction of the **EU AI Act** will impose new regulatory requirements that will significantly impact the development and deployment of AI solutions. Asset management companies, which are already working to align with the new provisions, will need to implement **robust governance frameworks** to ensure compliance, with a particular emphasis on **transparency, data protection**, and **monitoring** in automated decision-making processes. While posing new challenges, the regulatory framework also represents an opportunity to **strengthen investor trust** and **differentiate in the market** by embracing **Responsible AI practices**.

In conclusion, the Asset Management sector is in a **transitional phase** toward broader AI adoption, marked by innovative initiatives and growing regulatory awareness. For implementation to be effective and sustainable, it will be essential to develop a **clear strategic vision** for AI, define **priority areas and use cases**, and adopt a **coherent operating model**. This should be supported by **investments in internal expertise** and **modern technology infrastructures**. Additionally, targeted strategies will be critical to **enable full AI adoption**, unlock its potential, and ensure **compliance, ethical alignment, and responsible use** of the technology.

Bibliography

AFG, *"Principes et bonnes pratiques pour une utilisation responsable de l'IA par les sociétés de gestion"* (January 2025)

AGID and Department for Digital Transformation, *"Italian Strategy for Artificial Intelligence 2024-2026"*

AGID, *"Draft guidelines for AI adoption in public administration"* (February 2025)

AI HLEG, *"Ethical Guidelines for Reliable AI"* (2019)

AI Office, *"General-Purpose AI Models in the AI Act - Questions & Answers"* (2024, updated through March 10, 2025)

AI Office, *"AI Literacy, "Questions & Answers"* (May 2025)

AI Office, *"Targeted consultation in preparation of the COMMISSION GUIDELINES TO CLARIFY THE SCOPE OF THE OBLIGATIONS OF PROVIDERS OF GENERAL-PURPOSE AI MODELS IN THE AI ACT"* (April 2025)

ALFI, *"Capital Markets Union & AI"* (2024)

Almazrouei, E., et al, *"The Falcon Series of Open Language Models"*, arXiv:2311.16867 (2023)

Anthropic, *"Introducing Claude"*, Anthropic Blog (2023)

Hearing of Assogestioni Legal and Regulatory Affairs Director Roberta D'Apice at CNEL, Commission I – Economic Policies and Productive Activities, *"On Industrial Policies for Artificial Intelligence"* (May 24, 2024)

Bank of Italy, *"Machine learning models for analyzing portfolio reallocations of equity mutual funds"*, QEF No. 913 (March 2025)

Banco de España, *"Artificial intelligence in financial services"* (2019)

Bartram, Söhnke, Jürgen Branke, and Mehrshad Motahari, *"Artificial Intelligence in Asset Management"*, CFA (2020)

BIS, *"Intelligent financial system: how AI is transforming finance"*, Working Papers No. 1994 (June 2024)

Bloomberg, *"Generative AI to Become a $1.3 Trillion Market by 2032, Research Finds"* (2023)

Brown, T., et al., *"Language Models are Few-Shot Learners"*, Proceedings of NeurIPS 34 (2020)

Buczynski, Wojtek, et al, *"Future themes in regulating artificial intelligence in investment management"*, Computer Law & Security Review, vol. 56, 106111 (2025)

CB Insights, *"State of AI 2022 Report"* (2022)

CFA, *"Ethics and Artificial Intelligence in Investment Management: A Framework for Professionals"* (2022)

CFA, Daniel Schnurr, *"Effective implementation of requirements for high-risk AI systems under the AI Act: transparency and appropriate accuracy"* (February 2025)

CFA, Pierre Larouche, *"Legal Framework for an effective implementation of the AI Act"* (February 2025)

CNEL, *"Industrial Policies for Artificial Intelligence. An Analysis of the Banking and Insurance Sectors"* (October 2024)

COMMITTEE ON ECONOMIC AND MONETARY AFFAIRS, *"Draft Report on impact of artificial intelligence on the financial sector"* (2025/2056(INI))

CSSF, *"Thematic review on the use of Artificial Intelligence in the Luxembourg financial sector"* (May 2025)

European Commission, *"Guidelines on the definition of an artificial intelligence system established by Regulation (EU) 2024/1689"* and *"Guidelines on prohibited artificial intelligence practices established by Regulation (EU) 2024/1689 (AI Act)"*, under formal adoption

Deloitte Insights, *"State of AI in the Enterprise, 4th Edition"* (2021)

Devlin, J., et al, *"BERT: Pre-training of Deep Bidirectional Transformers for Language Understanding"*, NAACL-HLT (2019)

DigiChina, Stanford University, *"New Generation Artificial Intelligence Development Plan"* (2017)

Dutch Government, *"Dutch Digitalisation Strategy"* (2023)

EC, *"AI Continent Action Plan"*, Communiqué of April 9, 2024

EC, *"Artificial Intelligence - Questions and Answers"* (August 2024)

EC, *"Harmonized Standards for the European AI Act"*, JRC 139430 (October 2024)

EC, *"Targeted Consultation on Artificial Intelligence in The Financial Sector"* (June 2024)

EC, *"Third Draft General-Purpose AI Code of Practice"* (March 2025)

ECB, *"The rise of artificial intelligence: benefits and risks for financial stability"* (2024)

EDPB, *"Opinion 28/2024 on certain data protection aspects related to the processing of personal data in the context of AI models"* (December 17, 2024)

EDPS, *"Generative AI and the EUDPR. First EDPS Orientations for ensuring data protection compliance when using Generative AI systems"* (June 3, 2024)

EIOPA, *"Opinion on Artificial Intelligence Governance and Risk Management"*, Consultation Document (2025)

EP Study, *"Biometric Recognition and Behavioural Detection"* (2021)

EPRS, *"Artificial Intelligence Act"*, Briefing (September 2024)

ESMA, *"Artificial intelligence in EU investment funds: adoption, strategies and portfolio exposures"* (February 2025)

ESMA, *"Public Statement on the use of Artificial Intelligence (AI) in the provision of retail investment services"* (2024)

EU AI Office, *"Living Repository of AI Literacy Practices"* (January 2024)

Federal Housing Finance Agency, *"Artificial Intelligence/Machine Learning Risk Management"*, AB 2022-02 (February 2022)

Financial Stability Board (FSB), *"Artificial intelligence and machine learning in financial services: market developments and financial stability implications"* (2017)

Financial Stability Board (FSB), *"The Financial Stability Implications of Artificial Intelligence"* (2024)

FSI, *"Humans keeping AI in check - emerging regulatory expectations in the financial sector"* (2021)

Goodfellow, I., Y. Bengio, & A. Courville, *"Deep Learning"*, MIT Press (2016)

UK government, *"AI Sector Deal"* (2023)

G7, *"International Code of Conduct on AI and International Guiding Principles on AI"* (October 2023)

GPT-4 Technical Report, OpenAI (2023)

Hong Kong Monetary Authority, *"Consumer Protection in respect of Use of Generative Artificial Intelligence"* (2024)

IOSCO, *"Artificial Intelligence in Capital Markets: Use Cases, Risks, and Challenges"*, Consultation Report (March 2025)

IOSCO, *"The use of artificial intelligence and machine learning by market intermediaries and Asset Managers"* (2021)

Kris Shrishak, *"AI-Complex Algorithms and effective Data Protection Supervision - Bias evaluation"*, EDPB Support Pool of Experts Program (January 2025)

Kris Shrishak, *"AI-Complex Algorithms and effective Data Protection Supervision - Effective implementation of data subjects' rights"*, EDPB Support Pool of Experts Program (January 2025)

Linciano, N., et al, *"Artificial intelligence in asset and wealth management"*, Quaderni FinTech No. 9, CONSOB, Rome (June 9, 2022)

Luk, Martin, *"Generative AI: Overview, Economic Impact, and Applications in Asset Management"* (2023)

MAS (Monetary Authority of Singapore), *"Artificial Intelligence model risk management - observations from a thematic review"* (December 2024)

MAS, *"Data governance & management practices - observations and supervisory expectations from thematic inspections"* (May 2024)

NVIDIA Research and Development, *"GPU Technology Trends and AI Scalability: Performance Advancements in the Last Decade"* (2025)

OECD, *"Artificial Intelligence, Machine Learning and Big Data in Finance: Opportunities, Challenges and Implications for Policy Makers"* (2021)

OECD, *"Generative Artificial Intelligence in Finance"*, Artificial Intelligence Papers No. 9 (December 2023)

OECD, *"Regulatory Approaches to Artificial Intelligence in Finance"*, Artificial Intelligence Papers No. 24 (September 2024)

OECD, *"OECD Framework for the Classification of AI Systems"*, Digital Economy Paper No. 323 (February 2022)

Reuters, *"Tiger Brokers adopts DeepSeek model as Chinese brokerages, funds rush to embrace AI"* (2025)

Scao, T.L., et al, *"BLOOM: A 176B-Parameter Open-Access Multilingual Language Model"*, arXiv:2211.05100 (2022)

The IA, *"Artificial Intelligence: Current and Future Usage within Investment Management. Final Report from the Technology Working Group"* (October 2024)

WIPO, *"WIPO Technology Trends 2019 - Artificial Intelligence"* (2019)

World Economic Forum, *"Companion to the Model AI Governance Framework - Implementation and Self-Assessment Guide for Organizations"* (January 2020)

WP29, *"Guidance on automated decision-making relating to natural persons and profiling for the purposes of Regulation 2016/679"* (February 2018)

Who is Assogestioni

Assogestioni is the representative association of the Italian investment management industry. It represents most of the Italian and foreign investment management companies operating in Italy, as well as banks and insurance companies involved in investment management, including pension schemes.The Association's main purpose is to foster the investment management industry in Italy through the establishment of a regulatory and market environment in Italy which is conducive to growth. To achieve these goals, Assogestioni offers to its members advice and technical support on legal, fiscal and operational matters. It also encourages its members, financial and public institutions to debate on themes involving savings, investments, sound corporate governance and regulatory and operational improvements.

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