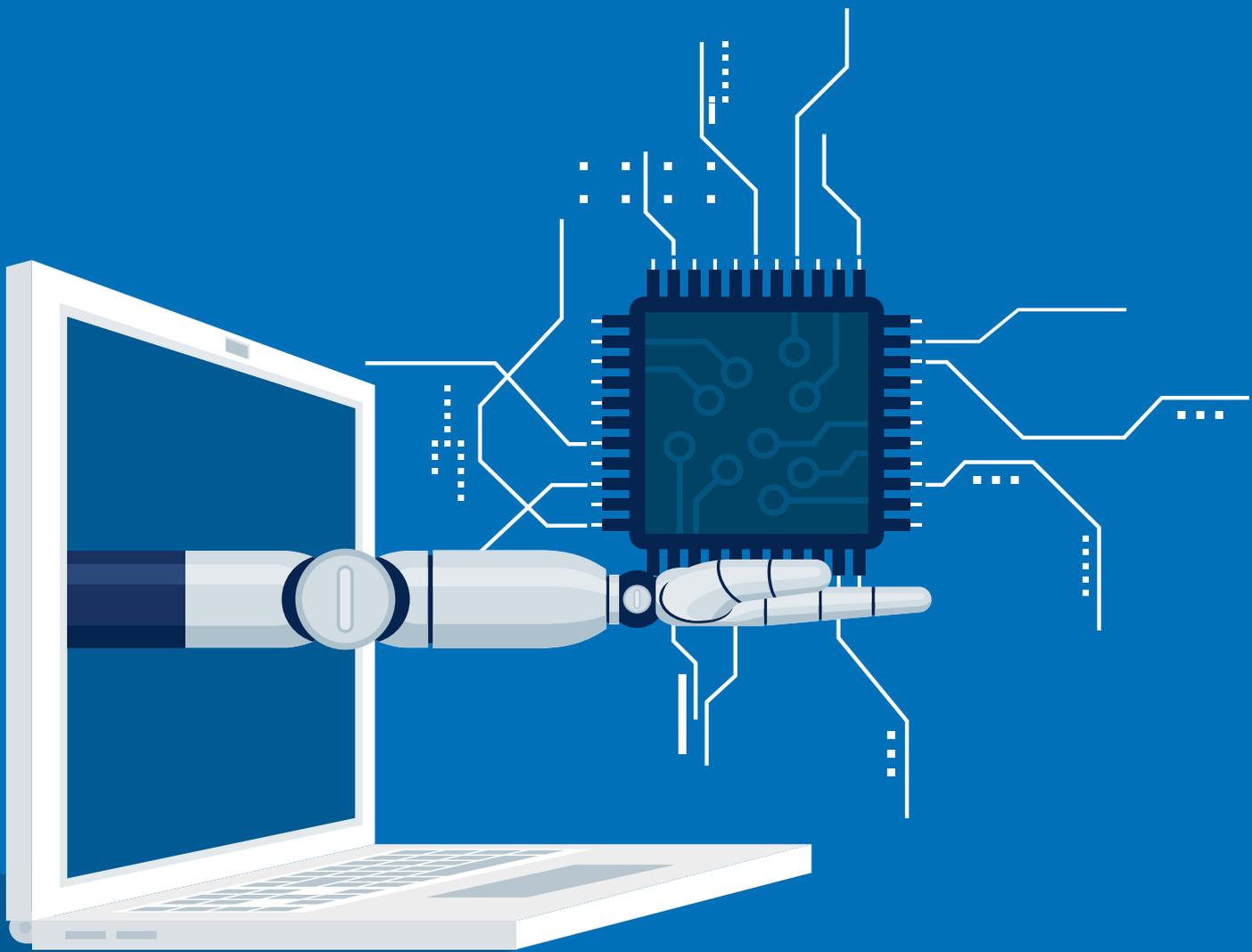


THE  
INVESTMENT  
ASSOCIATION

# ARTIFICIAL INTELLIGENCE: CURRENT AND FUTURE USAGE WITHIN INVESTMENT MANAGEMENT

Final Report from the Technology Working Group

October 2024



## ABOUT THE INVESTMENT ASSOCIATION (IA):

The Investment Association champions UK investment management, supporting British savers, investors and businesses. Our 250 members manage £9.1 trillion of assets and the investment management industry supports 126,400 jobs across the UK.

Our mission is to make investment better. Better for clients, so they achieve their financial goals. Better for companies, so they get the capital they need to grow. And better for the economy, so everyone prospers.

Our purpose is to ensure investment managers are in the best possible position to:

- Build people's resilience to financial adversity
- Help people achieve their financial aspirations
- Enable people to maintain a decent standard of living as they grow older
- Contribute to economic growth through the efficient allocation of capital.

The money our members manage is in a wide variety of investment vehicles including authorised investment funds, pension funds and stocks and shares ISAs.

The UK is the second largest investment management centre in the world, after the US and manages 37% of all assets managed in Europe.

# CONTENTS

<b>Forewords</b>	<b>4</b>
Foreword by Tulip Siddiq MP, Economic Secretary to the Treasury and City Minister	4
Foreword by Sarah Pritchard, Executive Director, Markets and International, Financial Conduct Authority	5
Foreword by Michelle Scrimgeour, Chair	6
<b>Executive Summary</b>	<b>7</b>
<b>1. Context and background</b>	<b>9</b>
The Technology Working Group	9
Investment Fund 3.0 – powering funds with AI & DLT	10
<b>2. AI in the investment management industry</b>	<b>12</b>
Current posture across the industry	13
AI use cases in investment management	17
<b>3. Key internal and external issues</b>	<b>20</b>
Internal factors: Implementation challenges	20
External factors: Enablers and Barriers	21
Summary of Recommendations	26
<b>Conclusion and Next Steps</b>	<b>28</b>
<b>With Thanks To</b>	<b>29</b>
Members of the Tech Working Group	29
Acknowledgements	29
<b>Appendix 1: Case studies of initial AI use within investment firms</b>	<b>30</b>
Five early-stage case studies	30
<b>Appendix 2: Internal AI Risk Management and other considerations</b>	<b>35</b>
1. Data and AI model risks	35
2. External risks	36
3. Internal risks	36
<b>Endnotes</b>	<b>37</b>

## FOREWORD BY TULIP SIDDIQ MP

ECONOMIC SECRETARY TO THE TREASURY  
AND CITY MINISTER



Once just a futuristic concept in popular culture, artificial intelligence (AI) is rapidly becoming infused in our everyday reality. Embracing this transformational technology will be crucial to the success of the financial services industry.

As home to one of the world's leading tech sectors, coupled with our esteemed legacy of pioneering new technologies, the UK's asset management sector is perfectly poised to harness the extraordinary potential of AI. Technology is at the heart of the Government's plan to kickstart an era of economic growth, transform how we deliver public services, and boost living standards for working people across the country. We are committed to building an AI sector that can scale and win globally, ensuring global AI companies want to call the UK home, and boosting the responsible adoption of AI across all parts of the economy.

In this report, the Technology Working Group explores the exciting ways that UK asset managers are already leveraging AI to drive efficiency, automate routine tasks to boost productivity, and improve the quality and range of products and service to customers.

By looking at current and future use cases of AI in finance, my hope is that this report will both inspire and guide asset managers – and others in finance – to capitalise on opportunities created by this technology. In today's dynamic, competitive marketplace, AI can be the key to unlocking enhanced decision making capabilities, optimised portfolio management and anticipating market trends, so that asset managers not only adapt, but thrive in an ever-changing digital financial landscape.

I'd like to thank the Investment Association, the Financial Conduct Authority, and the members of the Technology Working Group. The spirit of partnership demonstrated through this work is a testament to what can be achieved when the government, regulators and industry work together in pursuit of a common mission.

## FOREWORD BY SARAH PRITCHARD

EXECUTIVE DIRECTOR, MARKETS AND INTERNATIONAL,  
FINANCIAL CONDUCT AUTHORITY



Artificial intelligence (AI) has many potential benefits to financial services. As a pro-innovation regulator, we are committed to enabling a safe and responsible environment for the use of AI in financial services, in a way that drives beneficial innovation and supports growth and competitiveness.

This report seeks to examine the potential opportunities AI can bring specifically to the asset management sector for the first time.

In April 2024, we published an AI update<sup>1</sup> in response to the previous Government's AI Whitepaper, outlining our approach to AI. Our approach is principles based and outcomes focused, and rooted in the latest evidence and expertise. For several years, we have been gathering evidence on firm's current and future potential use of AI, and their potential opportunities and risks.

Our regulatory approach aligns with the UK's principles for AI regulation, emphasising safety, fairness, transparency and accountability.

This report outlines a range of established and emerging AI use cases, from automated risk management, AML monitoring and algorithmic trading to generative AI applications in client services and regulatory compliance. Importantly, the working group has carefully considered the risks and challenges associated with AI adoption, including internal cultural resistance, technical limitations and regulatory considerations. A continued focus on this will be important.

We actively work to understand AI deployment strategies and associated risks and opportunities within regulated firms. This report complements those ongoing efforts. We work closely with the Bank of England on an AI survey on the use of Machine Learning in UK financial services. As a member of the Digital Regulation Cooperation Forum (DRCF), we collaborate with other UK regulators including the ICO, the CMA and Ofcom on AI-related research and the cross-regulator AI and Digital Hub.

As we move forward, collaboration between industry, academia, policymakers and regulators remains crucial. We are committed to supporting firms in implementing AI solutions that enhance and strengthen the UK's asset management industry while addressing potential risks and harms. This report sets the stage for exploring potentially key use cases and paves the way for further beneficial innovation in financial services.

I look forward to continuing our engagement with the industry on beneficial technological innovation, ensuring that the UK remains at the forefront of safe and responsible AI adoption in investment management and financial services more broadly.

## FOREWORD BY MICHELLE SCRIMGEOUR

CHAIR, AND CHIEF EXECUTIVE OFFICER AT  
LEGAL & GENERAL INVESTMENT MANAGEMENT



It has been a great privilege to lead this Working Group's exploration of emerging technology, the integration of which will define the future of the asset management sector. This final report looks far into the future and starts to address the transformative potential of artificial intelligence (AI), which is developing and being adopted rapidly across industries of all types today, including in asset management. We also explore the multifaceted opportunities AI presents to individual firms and the industry as a whole.

At a firm level, the technology offers a range of possibilities; from driving operational efficiency and streamlining processes, to fostering innovative solutions and enhancing the level of service that asset managers provide to their clients and customers. On a broader scale, AI has the potential to elevate the UK investment sector's domestic and international competitiveness, thereby contributing significantly to economic growth.

The Asset Management industry's journey with AI began several years ago, with the implementation of analytical AI, renowned for its predictive capabilities and aptitude for data insights. This form of AI has been foundational in areas such as algorithmic trading and anti-money laundering monitoring. However, the landscape of AI is ever evolving, and the advent of generative AI has sparked unprecedented interest, expanding the horizons of what is achievable. Unlike its predecessors, generative AI can create new content upon command and interact with users in natural language, thanks to chatbot interfaces. This capability marks a paradigm shift, offering endless possibilities for innovation.

This report is the result of close collaboration both across the industry and with the UK authorities, reflecting a broad range of perspectives and expertise. It is this close collaboration that has allowed us to capture a diverse range of views on how AI will shape the future of our industry. I would like to thank everyone who contributed to this report – led by my LGIM colleagues – with special mention to EY and the Investment Association for their commitment and support. Their expertise and shared vision have been invaluable.

I hope this report serves as a valuable resource for our continued exploration and engagement with AI in asset management. When paired with the promise similarly shown with tokenisation, as outlined in the group's two previous reports, I believe technological innovation will redefine how we think about asset management over the next decade.

# EXECUTIVE SUMMARY

This report from the Technology Working Group (the Group) focuses on the current and future application of artificial intelligence (AI) technology in the UK asset management industry. It is the product of close collaboration between the industry, and the Financial Conduct Authority (FCA) and HM Treasury (HMT) (who are observers on the Group and supportive of this agenda).

For individual firms, AI presents an opportunity to drive operational efficiencies, develop innovative solutions and improve the service offering to customers. For the industry as a whole, AI represents a strategic opportunity to increase both the domestic and international competitiveness of the UK's investment sector and contribute to economic growth.

The industry's relationship with AI began several years ago with classical AI, which is characterised by its predictive power and ability to draw insights from data. Mature use cases utilising classical AI include algorithmic trading and supporting anti-money laundering monitoring. More recent leaps forward in generative AI have catapulted interest in the technology to the forefront and greatly expanded the canvas of possibilities. Generative AI is a step change because such models are capable of generating new content at the user's command and can be interacted with in natural language via a chatbot interface.

We explore some of the early stage use cases focusing on operational enhancement and look forward towards more fundamental transformation in the future that realise the genuine capabilities of AI. The opportunities for where it could take the industry are limited only by ambition and willing but are also not entirely clear. Combining different types of AI or pairing AI with other technologies such as distributed ledger technology (DLT), could unlock a set of further opportunities, as well as new risks.

**Section one** of this report outlines the background and aims of the Group, its work to date and the potential available to the funds industry through the combination of AI and DLT.

This report builds upon the earlier phases of the Group's work which focused on the application of distributed ledger technology (DLT) through investment fund tokenisation. For more details see the reports dated November 2023<sup>2</sup> and March 2024<sup>3</sup>.

**Section two** outlines the current posture of firms across the industry with respect to AI innovation, including both proven and developmental use cases utilising generative AI. Current, early stage use cases range from general purpose AI co-pilots, supporting suspicious transaction monitoring, analysis of Environmental, Social and Governance (ESG) elements, predictive modelling, code creation, and through to AI-powered investment intelligence.

**Section three** explores the key internal and external issues that will ultimately determine the industry's success in realising the technology's true potential. This includes the internal implementation challenges that firms will need to manage and overcome, and also examines the external factors which are enabling or otherwise hindering firms' innovation efforts at this time, such as:

Enabling factors	Balanced factors: currently neither strongly enabling or hindering innovation	Potential barriers to innovation: not currently hindering innovation but have the potential to do so in the future	Current barriers to innovation
Mature risk management and governance arrangements	Potential for new system-wide financial stability risks posed by widespread AI adoption	Public mistrust and accountability for AI technology, including in ESG considerations	Shortages of necessary skills and talent
The vibrant UK FinTech ecosystem	Regulatory approach to AI	Sustainability concerns around the high energy and resource demands of certain AI technologies	Misuse of AI by malicious actors
			Legal uncertainties

The report concludes with corresponding recommendations for policy makers and industry which, if implemented, would allow industry to move past early stage use cases towards a more significant transformation in a safe and responsible manner, boosting the growth of the UK economy and the industry:

Recommendation	Owner & Timescale
<p><b>Skills and talent:</b> The UK needs to invest in building a skilled and diverse AI workforce that can meet the current and future demand for AI expertise, and that can adapt to the changing needs and challenges of the AI landscape. The Group recommends that the UK government strengthens its commitments to promote the growth and strength of computer science, data science, software engineering and other related fields within our universities and colleges. There could also be better alignment between the content of courses and the needs of industry. Additionally, more can be done to build mutually beneficial connections and partnerships between UK post-16 education institutions and industry.</p>	<p>HM Government   1-2 years</p>
<p><b>Regulation:</b> Fundamentally, the Group desires regulatory clarity and consistency to enable developers and users of AI to plan and invest with confidence. In pursuit of this ambition, the Group emphasises the importance of the UK government's leadership in facilitating international regulatory coordination and alignment on AI, as well as supporting responsible international data flows. Domestically, the Group is supportive of the current direction of travel on AI regulation.</p>	<p>UK authorities   2-3 years</p>
<p><b>Malicious actors:</b> Potential misuse of AI technology by malicious actors is a serious threat to overall public trust in AI. The Group welcomes recent initiatives by domestic and international authorities to better understand and mitigate the risks that malicious actors could pose. The Group emphasises the importance of joint public and private sector action and appropriate policies to counter AI-enabled fraud, cybercrime and misinformation.</p>	<p>HM Government, Industry   1-2 years</p>
<p><b>New systemic risks:</b> The changing profile of systemic risk in the financial sector should not be a reason to hold back from innovating. Rather, the Group considers it an ongoing challenge to be managed alongside technology transformation. The Group supports the work of the Bank's Financial Policy Committee in highlighting potential systemic risks. In addition, the Group sees the incoming critical third parties regime as a positive development that will empower regulators to address potential systemic risks that may emerge.</p>	<p>FCA and Bank of England   1 year</p>
<p><b>AI risks and governance:</b> The industry should continue to work together to develop its collective understanding of AI risks and identify best practices in risk management, governance and ethics. The IA will continue the work of the Group to facilitate this and promote wider activity through its IA Talks AI podcast and other member communications. The IA will aim to produce more detailed industry guidance on AI risk and governance.</p>	<p>Investment Association and Firms   6-12 months</p>
<p><b>Legal uncertainties:</b> Legal uncertainties around AI are likely to persist for some time. In the meantime, industry-led benchmarking, best practice guidance, ethical frameworks and standards can bring confidence and reassurance to market participants. The Group therefore recommends that the industry steps up its efforts to collaborate on these issues. The IA will work with its members to identify and take forward beneficial initiatives.</p>	<p>Investment Association and Firms   1-2 years</p>
<p><b>UK FinTech ecosystem:</b> The IA will continue to build stronger connections between the investment management industry and FinTechs via IA Engine. It will work both domestically and with its Global Partners to ensure that firms have viable options for collaboration. Applications for FinTechs to be a part of the new cohort of the Innovator Programme are now open until 21 November 2024.</p>	<p>Investment Association and Firms   6-18 months</p>

**Appendices** to the report provide detail, firstly, on five case studies of specific use cases that have formed the early stages of Group members' AI deployment strategies, and secondly, on novel AI risks that firms will need to mitigate when increasing the usage of the technology within their operations, or how AI exacerbates existing risks being successfully managed.

# 1. CONTEXT AND BACKGROUND

This report is in three parts, plus a set of appendices:

- 1. Context and background** – explains the purpose of this report, the origins and prior work of the Technology Working Group and its vision for the future;
  - 2. AI in the investment management industry** – how AI is currently being deployed and developed in the industry at this early stage;
  - 3. Key internal and external issues** – identifies the factors that are enabling innovation as well as those which could potentially hinder the industry's efforts to ultimately realise the technology's true potential, along with recommended measures for policy makers and industry;
- **Appendices** – (i) further detail on applications within investment firms, through five cases studies of initial AI use provided by members of the Group; (ii) a description of risks presented by AI and methods to mitigate them effectively.

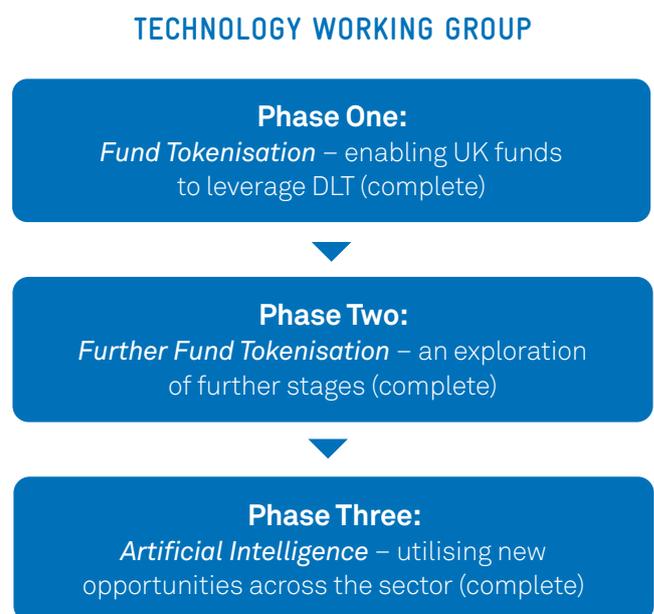
There is general acceptance that we are now in a period of accelerating, potentially unprecedented, general technological advance. Harnessing that decisively in the United Kingdom (UK) will contribute to two key objectives. First to enable better products, services and business growth, helping millions of domestic investors and the UK economy. Second, as the sector is so interconnected to the global economy, to drive international competitiveness as part of the wider UK financial services cluster.

As a result of that international outlook, firms have a choice of where to base and grow their business. The ability of investment managers to leverage artificial intelligence (AI) is becoming a key consideration for firms due to its recent emergence as a technology with significant potential in powering future growth. Recently, the International Monetary Fund (IMF) ranked the UK at 11th place in its global AI Preparedness Index (AIPI)<sup>4</sup>, which indicates that improvements could be made in the overall environment for AI in the UK. The AIPI assesses 174 countries, based on a rich set of macro-structural indicators that cover the countries' digital infrastructure, human capital and labour market policies, innovation and economic integration, and regulation and ethics. The UK's score is above average for advanced economies, yet should all parties progress the recommendations made in section three of this report, it could help to bolster growth and enhance the UK's position for future AIPI assessments, particularly in the eyes of investment management firms.

## THE TECHNOLOGY WORKING GROUP

In 2023, the Asset Management Taskforce (the Taskforce) – a forum set up under the previous government to convene senior leaders from industry, HM Treasury (HMT), the Financial Conduct Authority (FCA) and chaired by the then Economic Secretary to the Treasury – convened the industry-led Technology Working Group (the Group) to identify how the UK investment management industry could harness the potential of innovative new technologies. The Group was set up to articulate the benefits of increased innovation in technology for investors and industry, and to identify the main opportunities presented by technologies such as DLT and AI, areas where strategic technology shifts were creating new ambitious horizons for industry. The Group's membership was drawn from Taskforce members and wider non-asset management stakeholders, with the government and the regulator attending as observers. HMT and the FCA are supportive of the Group's agenda.

FIGURE 1: WORK SCHEDULE OF THE GROUP



As a ‘task-and-finish’ Group intended to run on a time-limited basis, it began by identifying a set of underpinning principles (the Principles) to ensure that the conclusions and proposals it produced were applicable to the whole investment management sector and provided tangible outcomes. The Principles were that the proposals of the Group should:

1. have a core relevance to the delivery of investment management services to both domestic and international investors;
2. offer opportunities to the widest possible range of firms across the sector, rather than focusing on any specific type of firm, product type, asset class, or customer group;
3. be accompanied by a roadmap for delivery, clearly identifying any policy or regulatory change necessary; and
4. seek to facilitate competitiveness and efficiency within the sector, recognising that some aspects of technological change will be proprietary and subject to competitive advantage for a firm or group of firms.

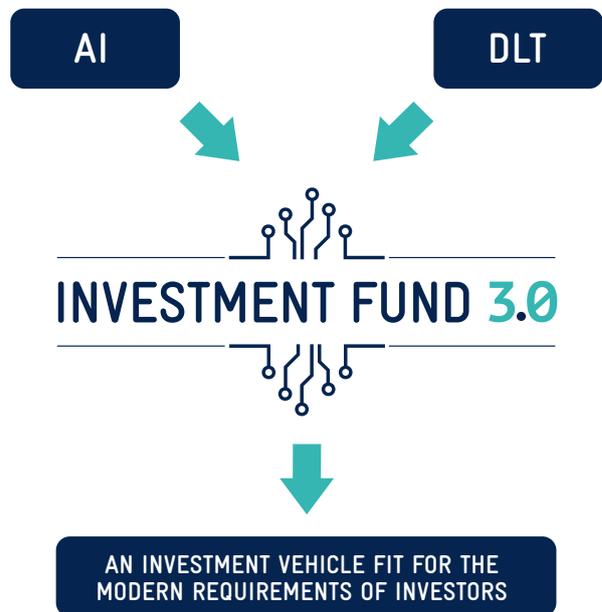
Drawing on these principles, the Group divided its priorities into three phases of work. Phases one and two focused on the application of DLT and associated concepts to the infrastructure of UK investment funds (fund tokenisation) and resulted in two reports, in November 2023 and March this year. An update on outstanding actions from these reports will be published soon.

This report is the product of phase three and focuses on the application of AI in investment management.

## INVESTMENT FUND 3.0 – POWERING FUNDS WITH AI & DLT

The Group’s work has focused on two of the most significant and implementation-ready technologies, DLT and AI, and it is clear that these present significant opportunities individually. Building upon the vision of earlier work, of a new breed of investment fund fit for the digital, or Web 3.0 age, the investment industry has the means to use both of these technologies to modernise its underlying infrastructure for the requirements of the modern-day investor. Investment Fund 3.0<sup>5</sup>, the IA’s concept of an investment delivery vehicle built upon the capabilities of AI and DLT could do much to engage more effectively with the target audience and provide significant growth opportunities for the industry and the UK in the future.

FIGURE 2: INVESTMENT FUND 3.0



By itself, AI utilises data to perform tasks that until recently were the preserve of humans, while DLT creates consensus over data among a group of participants to overcome a lack of trust. This shared interest and reliance upon data could provide an opportunity to work powerfully together in the future.

Early indications, according to academics, suggest that a major benefit in combining AI and DLT could be that they enhance each other's capabilities and address some of their limitations. AI could be integrated in DLT networks to provide automated governance, and privacy-preserving personalisation<sup>6</sup>. In reverse, DLT could be applied to AI to obtain decentralised computing for AI, secure data sharing and marketplaces, and enhanced transparency.

It may be that with so many AI agents and Large Language Models (LLMs) in existence, using a blockchain could potentially help establish precisely where the datapoint that helped make a decision originated from, and provide evidence – cryptographic proof – that it was untampered and reliable.

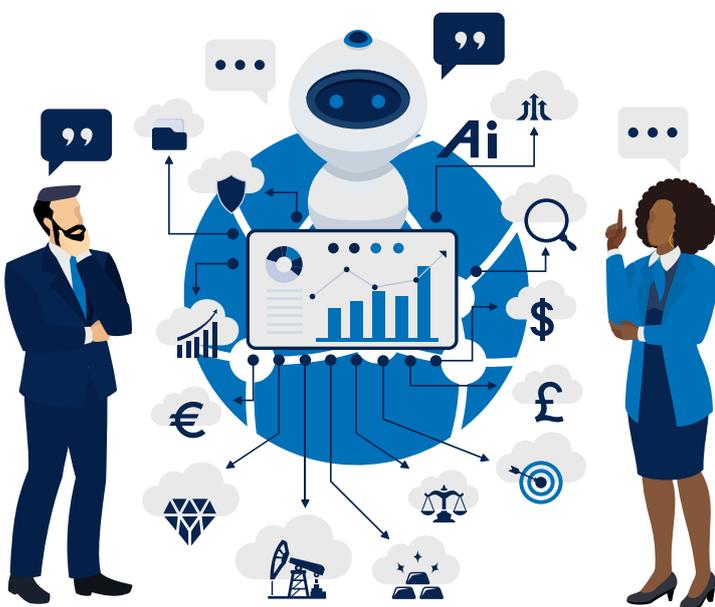
For investment managers, AI could help to analyse the data generated and stored on DLT networks and provide insights and recommendations for portfolio managers and investors. It could also improve the security and efficiency of DLT fund transactions, by supporting the detection and preventing of fraud or suspicious transaction monitoring, optimising smart contracts, and automating compliance and reporting.

Another future development could include the integration of AI into smart contracts, such as those that would pay fund distributions to investors, or execute a transaction based upon a pre-set condition (such as a price limit) being met, and could significantly expand the capabilities of smart contracts, allowing for more complex and sophisticated decision-making processes. AI-powered smart contracts could analyse vast amounts of data, learn from past transactions, and adapt to changing conditions autonomously. Taken to an extreme conclusion, this could pave the way for innovative new applications and services, such as intelligent, self-executing investment strategies.

Some academics go further than an assessment of the potential areas of overlap between the technologies to argue that AI actually requires blockchain for the most economically useful and valuable transactions. This argument rests on the premise that the LLMs that underpin generative AI are not safe to use in high-stakes transactions. But smart contracts, by taking outputs from AI and making them run in line with strict rules or conditions, could ensure that AI behaves in a predictable and repeatable manner and meets regulatory requirements. The AI may then be able to interact more safely in the real world, unlocking the vast economic opportunity of economically aligned and artificially intelligent agents<sup>7</sup>.

In this respect, when paired with reinforcement learning, an AI agent may be capable of true active investment management decision-making, utilising the power of the DLT to view and assess trends in capital market activity and determine appropriate actions to produce long-term results – within the investment mandate it has been given, and subject to the firm's arrangements for Senior Managers & Certification Regime accountability.

These long-term prospects do not reflect firms' current practices and the experience of implementing these technologies individually will provide an indication whether, and how they can be paired together in a controlled, safe and responsible manner in the future. New risks may present, such as in the form of fraud, scams and certain types of market abuse that would have to be carefully controlled via robust models and individual accountability within firms to ensure compliance with regulatory expectations.



## 2. AI IN THE INVESTMENT MANAGEMENT INDUSTRY

The Group is convinced that there is potential for significant transformation in the long-term but is focused most immediately on driving internal business productivity gains. This is consistent with estimates from the IMF (i.e. that around 60% of jobs may be impacted by AI<sup>8</sup>, with many benefiting from enhanced productivity) and the City of London Corporation<sup>9</sup> (i.e. of a productivity boost of 12% by 2025 and 50% by 2030). As a function at the heart of capital raising and with multiple points of interaction with other industries, the investment management sector has the potential to embed AI in nearly every one of its functions.

The industry is no stranger to AI technology and has been using it for many years in the form of classical AI, for example in algorithmic trading and in supporting anti-money laundering controls, to name a few mature use cases. In 2021, before the generative AI boom, the Investment Association's report<sup>10</sup> detailed examples

of how AI was already being deployed at that point in every stage of the investment management value chain.

For many years, the steady rise of AI has been fuelled by a coming together of more abundant data and ever greater computing power. More recent groundbreaking developments in generative AI have brought the technology to the forefront of the industry's attention and greatly expanded the number of possibilities. The primary focus of the Group was therefore on the opportunities for firms, the industry and investors presented by generative AI in particular. Looking to the future, novel approaches to combining different types of AI models (for example, solutions combining classical AI models and LLMs) will provide fertile ground for innovation, if they can be adopted in a safe and responsible way. Similarly, there will be significant opportunities to innovate at the intersection of AI with DLT and other technologies, as well as new risks.

### The UK Government's approach to AI

The UK government has asked tech entrepreneur Matt Clifford to deliver an AI Opportunities Action Plan<sup>11</sup>. The plan will set out a bold vision for how the UK can position itself at the forefront of AI developments and boost the responsible adoption of AI across all parts of the economy to drive growth and productivity, and progress towards the other government missions.

In July 2024, the King's Speech included an intention 'to establish the appropriate legislation to place requirements on those working to develop the most powerful artificial intelligence models'<sup>12</sup>.

The new government has launched a new Regulatory Innovation Office<sup>13</sup>, which is intended to help regulators update regulation, speed up approval timelines, and co-ordinate issues that span existing boundaries.

The National AI Strategy<sup>14</sup> was last updated in December 2022. It emphasises the UK's ambition to be a global leader in AI, leveraging its research prowess and a conducive regulatory and business environment. The strategy is supported by significant investment, including a nearly £1 billion AI Sector Deal aimed at bolstering the UK's position as a hub for AI technologies.

Through these initiatives, the UK government aims to harness the opportunities presented by AI, not only for economic benefits but also to ensure ethical and secure development and use of AI. The approach is designed to be dynamic, responding to the fast-evolving landscape of AI, and to support the UK's vision of becoming a science and technology superpower by 2030.

## CURRENT POSTURE ACROSS THE INDUSTRY

### How are firms across the industry currently looking to seize the opportunities presented by generative AI?

Firms have formed internal groups, such as innovation labs or cross-firm working groups, to foster collaboration and knowledge sharing among AI experts and business users. They have also been collecting potential use cases or 'wish lists' of areas where AI could add value or solve problems. Some of these use cases are being tested in the concept stage, either internally or with external partners, to validate their feasibility and impact.

The deployment of general-purpose AI co-pilots and internal chatbots is already well established at this stage within many firms.

### What are the common next steps for firms in the industry with regards to generative AI?

Many firms are working through their lists of potential use cases, identifying those that have the most value and feasibility and then advancing those to be piloted.

Firms are also looking to scale-up the existing concepts that have already shown promise in the testing stage by deploying them in production environments and making them available to a wider range of business users.

Scaling-up often necessitates making key decisions around whether the firm will invest in building AI capabilities itself, or alternatively if it will buy-in these new capabilities or partner with a technology provider. Some firms are also starting to form partnerships with educational institutions to work on joint projects<sup>15</sup>.

## The FCA's approach to AI

The FCA published, in April 2024<sup>16</sup>, a document that outlined its approach to AI in the UK financial services sector. The document emphasises its role in promoting safe and responsible AI usage in financial markets. The FCA is focused on how firms can adopt AI technology while ensuring regulatory expectations are met and assessing the impact of AI innovations on consumers and markets.

The update highlights the FCA's commitment to a principles-based, sector-led approach to AI. The FCA aims to balance the benefits and risks of AI, ensuring a proportionate and effective approach to safe and responsible AI usage in financial services.

Over the rest of the year and into 2025, the FCA plans to prioritise understanding current AI deployment strategies within regulated firms to ensure that any potential future regulatory interventions are not only effective but also proportionate and pro-innovation. The work of this Group and this report will help this work in addition to the FCA's third edition of the machine learning survey, published jointly with the Bank of England, and work through the Digital Regulation Cooperation Forum (DRCF).

The document is relevant to businesses operating in the financial services sector that use AI in their business models. The FCA's approach to AI is a vital component of effective competition and beneficial innovation within the UK's financial markets.

## Other sectors

In April 2024, UK sector regulators outlined<sup>17</sup> their strategic approaches to AI regulation, emphasising a principles-based framework for fostering innovation while mitigating risks associated with AI technologies. This initiative follows the previous UK government's 2023 AI Regulation White Paper, which advocated for a proportionate and innovation-friendly regulatory environment.

The Bank of England, Competition and Markets Authority (CMA), and other key regulators have responded to the previous government's call by updating their strategies to incorporate AI oversight within their respective domains. These updates reflect the regulators' commitment to transparency and their efforts to enhance their capabilities to support AI innovation across various sectors.

Another significant aspect of the regulatory approach is the allocation of £10 million by the previous government to jumpstart regulators' AI capabilities, alongside new guidance on implementing cross-sectoral AI principles. Additionally, proposals for a steering committee to oversee the development of the regulatory framework and funding for a cross-regulatory pilot advisory hub have been introduced. This hub, known as the DRCF AI and Digital Hub<sup>18</sup>, aims to assist AI innovators.

The Bank of England<sup>19</sup> considers that its approach to AI is broadly consistent with the previous government's five principles for AI regulation. These principles include ensuring safety, security, robustness, and adherence to ethical standards. The Bank's approach is geared towards maintaining the stability of the financial system while encouraging responsible AI adoption. Indeed, a speech on the risks of AI to financial market stability<sup>20</sup> outlined these points.

The CMA<sup>21,22</sup> and other regulators have echoed this sentiment, focusing on the balance between innovation and consumer protection. Their strategies involve close scrutiny of AI systems and processes to ensure compliance with regulatory expectations, particularly in terms of operational resilience, outsourcing, and critical third parties.

Overall, the UK's sector regulators are adopting a collaborative and adaptive approach, aiming to create a conducive environment for AI advancements while safeguarding public interests and maintaining market confidence. This reflects a broader trend towards agile, sector-specific regulatory measures tailored to the unique needs and risks of different economic segments.

## The EU AI Act

The European Union's AI Act<sup>23</sup> (EU Act) aims to ensure that AI systems are safe, respect fundamental rights, and foster investment and innovation. The Act classifies AI systems into different risk categories, from unacceptable to minimal risk, and imposes corresponding regulatory requirements.

Key Provisions:

- **Prohibited AI Practices:** Certain AI practices are banned, such as social scoring and manipulative AI that can cause significant harm.
- **High-Risk AI Systems:** The Act focuses on high-risk AI systems, which are subject to strict compliance obligations, including transparency, accountability, and human oversight.

- **General Purpose AI (GPAI):** Providers of GPAI models must comply with specific documentation, testing, and reporting requirements.

The EU Act came into force in August and its prohibitions on unacceptable risk AI will take effect after six months, while the governance rules and obligations for GPAI models become applicable after a year and the obligations for high-risk AI systems after two. The rules for AI systems embedded into regulated products will apply three years afterwards.

As most investment firms operate to some extent in the EU it will be a highly relevant consideration within firms' implementation plans.

Many firms are exploring the possibility of combining classical and generative AI, or using multiple or specialised LLMs, to enhance their capabilities and create more innovative solutions. These are more advanced and complex applications of generative AI, and require more research and development. Such concepts being explored include self-supervised federated AI, agentic architectures and compound AI (see boxes).

Some firms are also exploring how to make generative AI models behave in a deterministic fashion. However, a fundamental shift will be required for this to be possible. The later section on **implementation challenges** explains why the probabilistic nature of LLMs is less than ideal for certain applications within investment management.

A key reference point through all of this is thinking about how AI can bring about better outcomes for clients and consumers.

Finally, many firms are preparing to significantly ramp up their efforts around the education and training of staff to understand and use AI tools. This is in part motivated by a desire to quickly upskill existing staff, rather than resort to hiring new people with AI credentials. Firms are also keen to raise the baseline level of understanding around AI within their workforces to dispel myths, reduce unwarranted fear, highlight key risks, and begin to facilitate the cultural changes that are associated with new ways of working enabled by AI.

## Classical AI

Classical AI encompasses techniques and algorithms designed for analysing data, identifying patterns, and making predictions based on historical information. Classical AI focuses on data-driven insights and decision-making. It leverages statistical methods, machine learning models, and optimisation techniques to solve complex problems, support business intelligence, and enhance operational efficiency.

## Generative AI

Generative AI differs from classical AI in its ability to create new content, responses, or solutions rather than merely analysing existing data. It utilises advanced models such as neural networks to generate text, images, music, and even code that resembles human creativity. By learning from vast datasets, generative AI can produce novel outputs in various fields, from artistic endeavours to complex problem-solving, making it a powerful tool for innovation and automation.

## Self-Supervised Federated AI

Novel approaches like Self-Supervised Federated AI use a network of devices, each learning from its own data without sharing it. They then pool their insights to create a smarter AI, ensuring privacy while tapping into the collective wisdom of all connected devices.

## Agentic Architectures

Agentic AI architecture refers to a design framework for artificial intelligence systems that showcases autonomous decision-making capabilities and proactive behaviour in AI agents. This architecture enables AI agents to perform tasks, make decisions, and pursue goals without direct human intervention. Agentic AI systems are often characterised by their ability to learn from interactions with their environment, adapt to new situations, and exhibit goal-oriented behaviour.

This is particularly useful in scenarios where AI systems need to operate in dynamic and unpredictable environments, such as autonomous vehicles, personal assistants, and smart home devices. It allows for the creation of AI systems that are not only responsive to user commands but can also anticipate needs and act in the user's best interest based on learned preferences and behaviours.

Some key features and benefits of this framework include interactivity, where agents can interact with other AI agents or human users to enable collaborative problem-solving and decision making.

## Compound AI

Compound AI refers to an approach or system that integrates multiple artificial intelligence models, techniques, or components to solve complex problems or perform tasks more effectively than a single AI model might. It combines various types of AI (e.g., natural language processing, machine learning, computer vision, reinforcement learning) to create a more comprehensive solution.

Key Aspects of Compound AI:

- 1. Multi-Model Systems:** Compound AI often involves combining different AI models that specialise in various tasks. For example, one model might handle text analysis, while another processes visual data, and together they provide a more holistic solution.
- 2. Interdisciplinary AI:** It may combine different branches of AI, such as deep learning, symbolic reasoning, and traditional machine learning, to handle more sophisticated tasks that require both pattern recognition and logical reasoning.
- 3. Collaborative AI Components:** The system can include AI models that work in tandem, sharing insights or tasks to achieve a common goal. This can be compared to humans working in teams, where different members bring different skills to the table.



## AI USE CASES IN INVESTMENT MANAGEMENT

Current and short time horizon use cases		Potential future use cases
Established use cases (using analytical AI)	Generative AI enabled use cases	
Automated risk management processes: Data analysis, anomaly detection and detecting systemic risks	General purpose AI co-pilots and internal chatbots	AI investment decision making (see box for more discussion)
Support anti money laundering / supporting the monitoring of suspicious activities	Institutional knowledge bots that can, for example, answer questions about the firm's application and systems architecture	Using AI to generate training materials, including for financial literacy
Analysing and interpreting alternative data sources	Using LLMs to enhance operational efficiency	Further development and application of agentic AI
Generating trading intelligence	Sustainability information extraction	More advanced applications of compound AI
AI augmented relationship management	Streamlining and tailoring of ESG reporting through use of AI	Generative AI models that can produce deterministic outputs
Predictive modelling to identify clients more likely to make redemptions	AI generated sales leads	Support the development of comprehensive global databases on ESG factors such as climate and environment
Documents intelligence: AI powered information extraction from documents	Using AI to optimise trading strategy selection	
Communications mining: extracting insights and value from communications data	Using AI to support human client service agents	
Algorithmic trading: automated trading according to predefined rules and conditions	AI supported market opportunities research	
Personalised product and services recommendations	AI supported fund reconciliation, compliance and regulation processes	
Querying investee companies' climate pledges and ESG commitments	Code creation and natural language to code translation	
	Drafting, reviewing and summarising legal documents	
	Analysing job applications and CVs against suitability for the job role	
	AI assisted responses to client information requests	
	Reviewing firm policies for regulatory compliance	
	Applying the concept of 'compound AI' to enhance capabilities further	

## Investment Management by AI

Active investment management is a complex and multi-faceted process with numerous components to the decisions made with respect to investments and market timing. In the Group's view, fully automated AI investment decision making at this level is some time away, and would require close regulatory supervision.

In the meantime, AI is able to enhance many of these components, particularly at the analytical level, and there are opportunities for firms to make greater use of the expanding set of data sources that are now available, for example from satellites.

There is also an opportunity to do further work on analysing periods of historical market stress, which have unique features and are typically short-lived. It will be important for firms to obtain data of the necessary quality for such periods in order to train a model to sufficient depth in order to handle future scenarios effectively.

In the longer term, the deployment of reinforcement learning in AI models may offer compelling investment cases, as AI agents are trained to take actions in a dynamic environment in order to achieve cumulative reward. Several FinTech firms have viable products in some asset classes or are working towards fully automated AI investment management and it is expected that investment capabilities will continue to be enhanced as time goes on.

## How are firms assessing the impact of AI on investee companies?

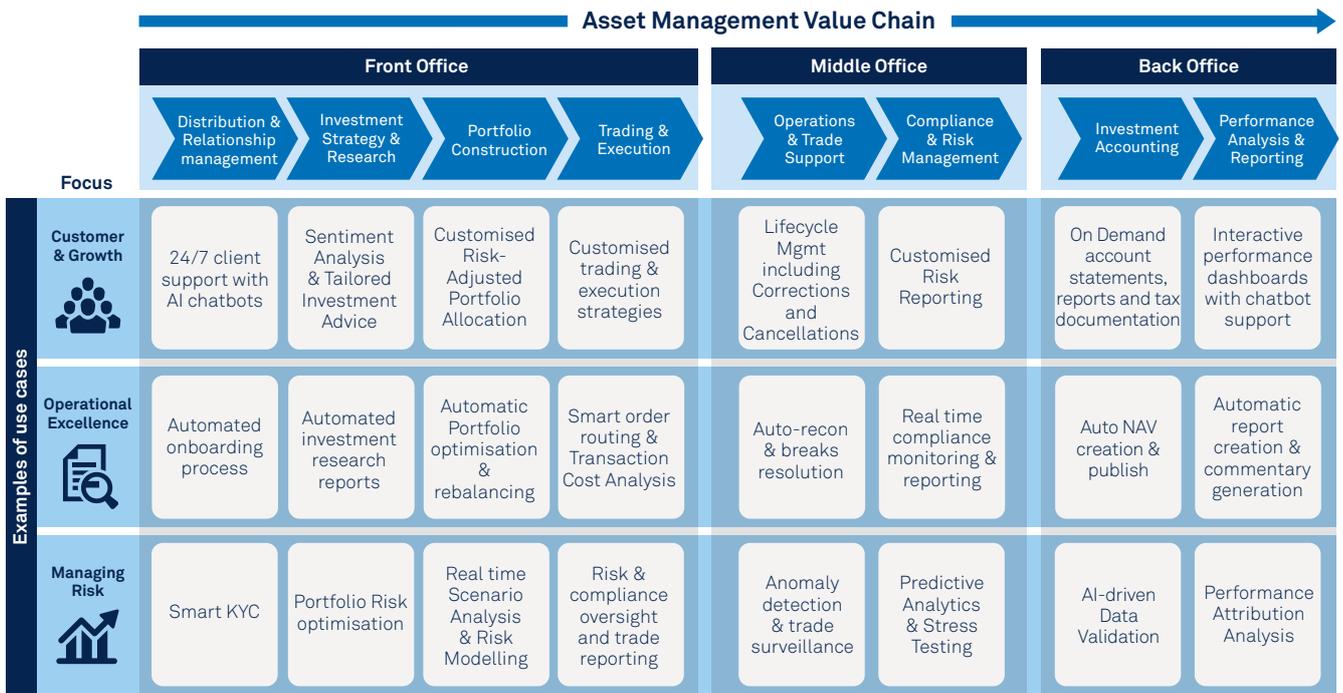
AI has and will continue to have an effect on companies in all sectors and the analysis of this shift is an important element of how investment management will be affected by AI. Firms are assessing the impact of AI on companies they invest in, and adjusting their investment strategies to ensure that they are exposed to sectors that will be most positively affected or who are best able to harness the potential of AI within their business lines. With nearly every type of business affected to some degree, there could be a significant shift of capital towards new or sectors enhanced by AI.

Firms are also keen to engage with company management and their boards to understand how they intend to adapt their businesses in the future, including in areas such as responsible and ethical deployment, supply chain changes and emerging risks<sup>24</sup>. Investor oversight of companies takes place through targeted engagement, tabling or voting on shareholder resolutions and making public statements to encourage change and to raise minimum standards.

In the same way as risk management teams are overseeing the deployment of AI within their own firms, stewardship teams increasingly expect investee firms to be able to demonstrate their governance and oversight arrangements, an ethical use policy, and commitments to transparency on a proportional basis relating to the actual or potential exposure they have to AI.

The Group fully expects that the number of engagements by investment firms to company boards on their business assessment and deployment strategies will increase in the short to medium term as the impact of AI is felt across industries.

FIGURE 3: INVESTMENT MANAGEMENT VALUE CHAIN



To provide more detailed insight, Appendix 1 contains five case studies which outline some initial examples of AI use within investment firms supplied by the Group’s members.

### AI in the investment management value chain

The advent of deep learning has propelled AI capabilities to unprecedented heights, surpassing the efficiency of rule-based approaches enabled by machine learning. By harnessing deep learning algorithms and accessing a diverse set of data, investment managers gain the ability to tackle long-standing and seemingly insurmountable problems. Deep learning’s capacity for intricate pattern recognition and insightful analysis equips firms with the tools necessary to unlock novel insights and drive transformative outcomes across the entire asset management value chain.



# 3. KEY INTERNAL AND EXTERNAL ISSUES

This section explores the many considerations that firms are looking at when developing their AI deployment strategies, including both internal implementation challenges and external factors which are enabling – or hindering – firms' innovation efforts at this time. It then outlines some targeted recommendations for policy makers and the industry on how to address them.

## INTERNAL FACTORS: IMPLEMENTATION CHALLENGES

The Group identified the most common internal implementation challenges that firms are currently working on.

- **Internal cultural resistance:** Perhaps one of the largest challenges the Group identified is the resistance from internal stakeholders that can be encountered. Within an organisation, there will be those who approach AI with excitement and enthusiasm, but there may also be those who look upon it with apprehension, or are reluctant to change.

In response, firms are reviewing how they communicate with staff about AI. In particular, how the benefits and capabilities of AI are articulated and how successes are shared and celebrated internally. As mentioned earlier, many firms are preparing to significantly ramp up their efforts around the education and training of staff to understand and use AI tools. Fostering a high trust environment will support innovation and assist bringing staff along the journey.

Some firms are also taking steps to ensure senior leaders are setting an appropriate 'tone from the top' around AI adoption. Similarly, some firms have taken the step of giving their Chief Technology Officer a seat on the board, to give greater prominence to innovation and technology transformation within strategic conversations.

Firms should also ask themselves what impact their transformation programme is likely to have on their organisational culture.

- **Measuring value:** Firms are asking themselves how they can measure the success of their AI projects. This could be in terms of the productivity gains, the amount of time saved, the amount of additional work that can now be achieved with the same level of resource, cost savings, and so on. This is an important challenge to address, as ultimately firms will expect a positive return on investment for building AI capabilities, and to be able to demonstrate it in quantifiable terms.

In the shorter term, however, some firms have been keen to create spaces where staff can experiment with AI and test ideas, without necessarily requiring an immediate return on investment, as a way to encourage innovation and free thinking.

- **Managing AI risks:** As a regulated industry, investment management firms have mature risk management frameworks and take this responsibility very seriously. There are numerous risks associated with AI – both novel and those that exacerbate existing risks – which must be controlled as part of a responsible adoption process. These risks and mitigation solutions are detailed comprehensively in Appendix 2.

The probabilistic nature of LLMs presents a challenge for certain applications in investment management. By probabilistic, it is meant that the models, owing to how they work, produce outputs which are not always 100% correct. Instead, outputs have a probability of being correct. This variation is unwelcome in certain applications where traditionally deterministic systems have been used. It also poses a challenge for risk frameworks in how to control for this additional dimension.

Self-Supervised Federated AI models that can behave in a deterministic fashion, may offer solutions to this challenge in time. More immediately, firms are adapting control functions to build additional checks and assurance mechanisms over the outputs generated by probabilistic systems to control the risk.

The AI risks can, of course, be reduced to zero by simply not using it. However, firms are mindful that failing to adopt AI is itself a huge risk to future viability.

- **Technical limitations:** Firms are taking into account the technical limitations of AI models. This includes well known issues such as the propensity for LLMs to hallucinate, but also constraints on the amount of context that can be provided to models, and capacity limitations at the data centres where models are hosted.

Firms are also acknowledging the types of tasks that generative AI are not yet suited to, such as planning or reasoning.

- **Cost:** Firms note that the cost of running certain queries can be quite high, particularly in LLMs, with some firms already having put cost monitoring in place. While overall costs are not prohibitively high at this early stage, firms are aware that as AI usage becomes more widespread, requiring increased computing power, costs will increasingly become a key factor.

## EXTERNAL FACTORS: ENABLERS AND BARRIERS

The Group identified external factors that are currently enabling innovation as well as those which could potentially hinder the industry’s efforts to innovate using AI, along with considerations and recommendations for policy makers and industry.

Enabling factors	Balanced factors: currently neither strongly enabling or hindering innovation	Potential barriers to innovation: not currently hindering innovation but have the potential to do so in the future	Current barriers to innovation
Mature risk management and governance arrangements	Potential for new system-wide financial stability risks posed by widespread AI adoption	Public mistrust and accountability for AI technology, including in ESG considerations	Shortages of necessary skills and talent
The vibrant UK FinTech ecosystem	Regulatory approach to AI	Sustainability concerns around the high energy and resource demands of certain AI technologies	Misuse of AI by malicious actors
			Legal uncertainties

### Skills and Talent (Barrier)

Addressing the barriers first, in order to realise the potential for AI to raise productivity across the economy and drive growth, the UK needs to have the skills and talent that can design, develop, and deploy AI solutions.

In the Group’s collective experience, there is an insufficient supply of suitable AI skills, expertise and experience in the labour market at present. At the same time, the demand for such people has never been higher. This mismatch of supply and demand represents one of the key barriers to firms’ innovation efforts at this time.

One consequence of this situation is that firms are finding it difficult to retain talented staff in the face of fierce competition, including from other sectors. So-called ‘poaching’ of staff is commonplace, resulting in high levels of turnover in the teams that are driving innovation efforts.

Given the difficulties in sourcing and recruiting external talent, some firms have focussed on staff upskilling programmes. However, this approach does not safeguard against the risk of these employees being poached after significant investments have been made in their development.

On a more positive note, some firms believe the UK has a broader pool of skilled talent relative to other regions, partly due to its appeal to internationally mobile professionals.

Significant talent and expertise also exist within UK universities. The Group believes that more can be done to build mutually beneficial connections and partnerships between UK universities and industry. The Group also recommends that the UK government strengthens its commitments to promote the growth and strength of computer science, data science, software engineering and other related fields within our universities.

Individual universities could also reflect on how the content of their courses could be better aligned with the skills graduates will require in their future careers. For example, by ensuring courses also cover implementation of AI in the investment industry and emerging AI infrastructure.

## Investment20/20: Engaging a future technology talent pipeline

Investment20/20<sup>25</sup>, the talent solution from the IA, provides the investment management sector with emerging talent through an extensive educational outreach programme. Supported by over 60 investment firms, the programme delivers approximately 250 career activities annually across schools, colleges and universities. By spotlighting a range of career pathways, it brings to life the range of opportunities in technology. Here are two recent examples of how Investment20/20 engages with local communities and introduces students who had not previously considered a career in tech within the investment sector to the breadth of technology careers:

- Working with BTEC technology students at Westminster Kingsway College in Camden, Investment20/20 delivered three insightful sessions on technology roles, cybersecurity and fintech. Alongside the expert-led masterclasses, students enjoyed the invaluable opportunity to network with current and former Investment20/20 trainees and seasoned technology professionals. This experience provided them with a deeper understanding of career options and enabled them to forge meaningful connections with potential employers.
- An engaging on-campus insight event was hosted for technology students at City of Glasgow College, where students learnt about emerging technologies and future trends, data analytics, and the application of AI in finance and commerce. This event offered a comprehensive exploration of the industry and provided students with the opportunity to interact with leading technology professionals, enhancing their understanding of career pathways and establishing valuable connections employers eager to build their future talent pipeline.

Bringing together industry tech professionals and students, Investment20/20 offers tangible examples of technology roles and career paths, effectively bridging the gap between academic learning and real-world career opportunities.

## Malicious actors (Barrier)

The Group is concerned that the potential misuse of AI capabilities by malicious actors could erode public trust in AI and undermine beneficial applications of the technology.

To give one example, multiple industry projects (representing significant financial investments) which utilise voice recognition have been paused or cancelled owing to the problem of AI-enabled voice cloning and its use for impersonation.

Fraud is already a major issue for the industry, resulting in significant economic costs and personal harm to victims. The potential proliferation of AI-enabled fraud risks that the technology becomes synonymous with scams and is seen as untrustworthy in the eyes of consumers. This would seriously undermine firms' efforts to develop beneficial AI powered services, in particular where those services are consumer-facing. Cyber-attacks targeting vulnerabilities in AI models and their datasets could equally undermine consumer trust in AI powered services.

The Group emphasises the importance of joint public and private sector action and appropriate policies to tackle and frustrate the actions of malicious actors whose tactics may evolve to exploit AI capabilities. Effectively countering AI-enabled fraud and cyber-crime will be fundamental to protecting public trust in AI, supporting innovation efforts by well-intentioned organisations and maintaining the UK's position as a world leader in AI.

## Legal uncertainties (Barrier)

Many legal questions and issues remain to be resolved around firms' use of AI. For example, there are questions around the liability implications concerning outputs derived from LLMs, and uncertainties surrounding intellectual property and copyright.

The Group understands that it could take a considerable period of time for these issues to be fully resolved and/or tested in the courts. There are also limits to how far legal risks can be controlled through contracts. Together, this may be fuelling a degree of caution across the industry, or incentivising firms to only focus on those areas which are not open to legal risk.

A combination of industry-led benchmarking, best practice guidance, ethical frameworks and standards can bring confidence and reassurance to market participants. The Group therefore recommends that the industry steps up its efforts to collaborate on these issues.

### **Public trust in, and accountability for, AI (Potential barrier)**

Building public trust in AI technology is crucial to supporting AI innovation across the economy and realising the potential benefits on offer for business, consumers and society. More can be done to raise the level of awareness and understanding among consumers of the benefits of AI and what it means for peoples' everyday lives, which will foster greater confidence in using AI-enabled products and services. Particularly in areas where human judgement remains important, such as on ESG issues where greater transparency and accountability for the AI models and their deployment will be key.

### **Sustainability concerns (Potential barrier)**

The investment management industry is well aware that the current generation of LLMs require enormous amounts of computing power to train and run, with corresponding high energy consumption, carbon emissions and other resource usage.

As AI adoption scales up across the industry and the economy more widely, these sustainability challenges could grow and should be considered as part of wider adoption in the industry.

Every part of the AI supply chain is incentivised to drive efficiencies. Over time, it is hoped and expected that technology solutions can start to address AI's sustainability challenges. Many of these advances are already in development and the next generation of AI models will ideally utilise more efficient methods of data processing and storage. If this does not happen, however, it could represent a barrier to widespread AI adoption.

### **New systemic risks (balanced factor to be managed)**

Greater adoption of AI within financial services may potentially lead to new systemic risks to the financial system, or otherwise exacerbate existing systemic risks, such as concentrated reliance on a small number of large technology vendors, or the effect of AI agents exacerbating market risks especially during times of global financial stress<sup>26</sup>. Indeed, regulators are already alive to this possibility and are thinking about how to deal with this challenge.

The Group does not consider that the emergence of new systemic risks stemming from the widespread use of AI in the finance sector should be reason in itself to hold back from innovating. Rather, AI should be seen as having the potential to change and reshape the nature of systemic risk in the sector, which is a challenge to be managed alongside technological transformation.

The Group supports the work of the Bank's Financial Policy Committee in highlighting potential systemic risks. The Group also welcomes the incoming regulatory regime to manage the resilience of critical third parties (CTPs) to the UK finance sector<sup>27</sup>. The regime will empower regulators to manage designated CTPs whose AI services pose systemic risks to the sector.

### **Regulation (balanced factor to be managed)**

The Group has not flagged regulation as a serious barrier to innovation at this stage, however the prospect of potential future regulatory interventions may be fuelling a degree of caution among firms.

Investment management is an international industry. Consequently, the Group has highlighted that most UK-based firms will realistically need to comply with the EU AI Act owing to their distribution strategies, fund domiciles or physical office presence. To enable the UK investment management industry to thrive in a global market, there needs to be international regulatory alignment where practical, while putting in place the necessary adjustments to support domestic and international competitiveness.

As global businesses, investment management firms are dependent on ready access to and free flow of data across jurisdictions. However, a proliferation of data regulations globally has increased the complexity of data sharing across borders. The Group therefore underlines the importance of ongoing multilateral efforts to safeguard responsible international data flows.

On domestic AI regulation, the Group is supportive of the current direction of travel, including plans to introduce legislation for frontier models.

As a principle, the Group favours leveraging existing rules as far as possible, and where necessary, bolstering them through the provision of timely sector-level regulatory guidance to bring clarity to market participants on how those existing rules apply with respect to AI.

It is essential to steer clear of legislating and regulating in ways that may quickly become redundant, fall behind technological advancements, or hinder innovative progress.

The Group also supports closer cooperation and coordination between different UK regulators, including initiatives such as the DRCF.

### **Mature risk management & governance arrangements (Enabler)**

As a regulated industry, investment management firms have mature risk management frameworks and governance arrangements, as well as a culture of thinking about risks up front. The industry also has a long history of dealing with principles-based regulation.

The Group considers that these factors put the investment management industry in a strong position to innovate responsibly with AI. While firms are motivated to capture the benefits of AI, culturally they will be careful not to do so at the expense of creating undesirable outcomes or causing harm to consumers, clients or the market.

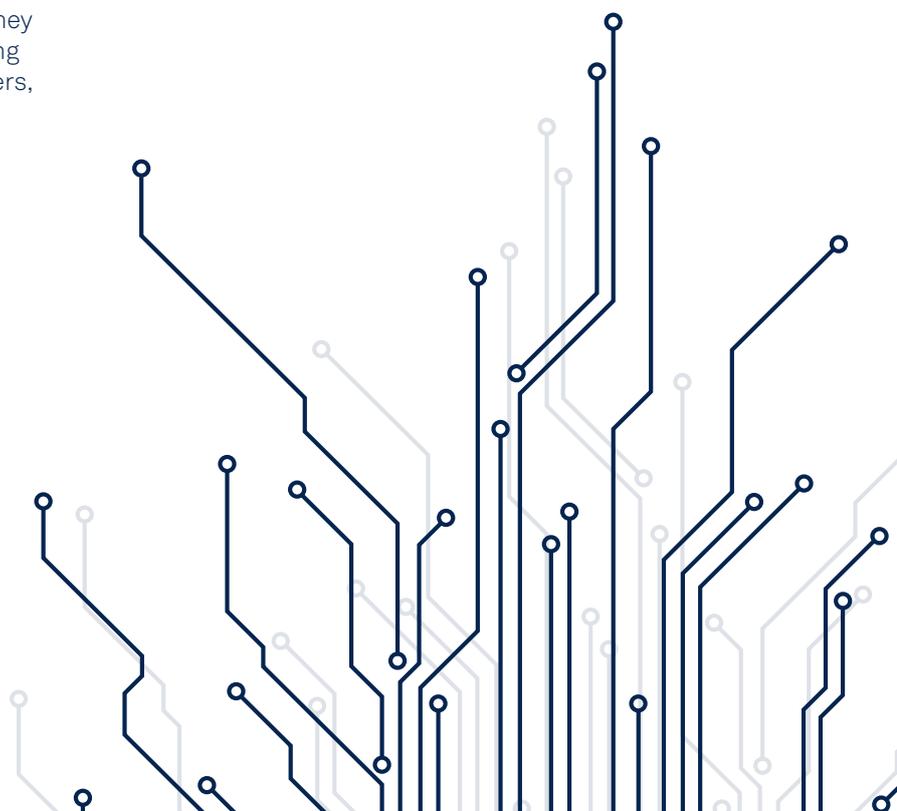
### **The UK FinTech ecosystem (Enabler)**

The UK is a world leader in financial technology (FinTech). The UK's FinTech sector accounts for more deals and capital invested than the next nine top European countries combined and ranks second globally only behind the USA<sup>28</sup>. The UK has access to world-class talent and a progressive approach to regulation that encourages FinTech innovation.

FinTech firms are known for their agility, advanced technology, and creativity. By forming partnerships with FinTechs, investment management firms can gain access to innovative solutions, specialised knowledge, and valuable insights into the market. These collaborations can also support a firm's innovation strategy and improve its position in the competitive landscape.

Often, partnering with FinTechs is a more efficient and economical choice compared to independently building capabilities and solutions internally.

The IA will continue to foster connections between the investment management industry and FinTechs via its FinTech hub and accelerator, IA Engine<sup>29</sup>. There are multiple examples of FinTech firms with AI capabilities that are active within the buy-side ecosystem; these are showcased in the IA Engine solution directory<sup>30</sup> with a number having successfully progressed through the Engine Innovator Programme.



## International FinTech collaboration

FinTech initiatives are now central to international competitiveness and collaboration. Whilst the UK has a strong reputation for innovation, other incentives across the globe are attracting technology solution providers to less established regions. Examples include Saudi Arabia, where FinTech Saudi are working towards a goal of having more than 500 FinTechs operating in the region by 2030. Singapore is spearheading, via the Monetary Authority of Singapore, the Project Guardian initiative; a collaboration with policy makers and the financial industry (FCA, the Financial Services Agency of Japan and the Swiss Financial Market Supervisory Authority) to explore feasibility of applications in asset tokenisation and DeFi.

The UK must work hard to maintain its position as a leader in FinTech. International relationships are key to building deeper ecosystems and opportunities whilst retaining a regulatory and business environment that encourages innovation and adoption.

IA Engine has formal links with fourteen international hubs in its Global Partners programme<sup>31</sup>:



## SUMMARY OF RECOMMENDATIONS

### 1. Skills and talent:

The UK needs to invest in building a skilled and diverse AI workforce that can meet the current and future demand for AI expertise, and that can adapt to the changing needs and challenges of the AI landscape. The Group recommends that the UK government strengthens its commitments to promote the growth and strength of computer science, data science, software engineering and other related fields within our universities and colleges. There could also be better alignment between the content of courses and the needs of industry. Additionally, more can be done to build mutually beneficial connections and partnerships between UK post-16 education institutions and industry.

**HM Government | 1-2 years**

### 2. Regulation:

Fundamentally, the Group desires regulatory clarity and consistency to enable developers and users of AI to plan and invest with confidence. In pursuit of this ambition, the Group emphasises the importance of the UK government's leadership in facilitating international regulatory coordination and alignment on AI, as well as supporting responsible international data flows. Domestically, the Group is supportive of the current direction of travel on AI regulation.

**UK authorities | 2-3 years**

### 3. Malicious actors:

Potential misuse of AI technology by malicious actors is a serious threat to overall public trust in AI. The Group welcomes recent initiatives by domestic and international authorities to better understand and mitigate the risks that malicious actors could pose. The Group emphasises the importance of joint public and private sector action and appropriate policies to counter AI-enabled fraud, cybercrime and misinformation.

**HM Government, Industry | 1-2 years**

### 4. New systemic risks:

The changing profile of systemic risk in the financial sector should not be a reason to hold back from innovating. Rather, the Group considers it an ongoing challenge to be managed alongside technology transformation. The Group supports the work of the Bank's Financial Policy Committee in highlighting potential systemic risks. In addition, the Group sees the incoming critical third parties regime as a positive development that will empower regulators to address potential systemic risks that may emerge.

**HMT, FCA and Bank of England | 1 year**



### 5. AI risks and governance:

The industry should continue to work together to develop its collective understanding of AI risks and identify best practices in risk management, governance and ethics, while taking into account regulatory expectations. The IA will continue the work of the Group to facilitate this and promote wider activity through its IA Talks AI podcast<sup>32</sup> and other member communications. The IA will aim to produce more detailed industry guidance on AI risk and governance.

**Investment Association and Firms | 6-12 months**

### 7. UK FinTech ecosystem:

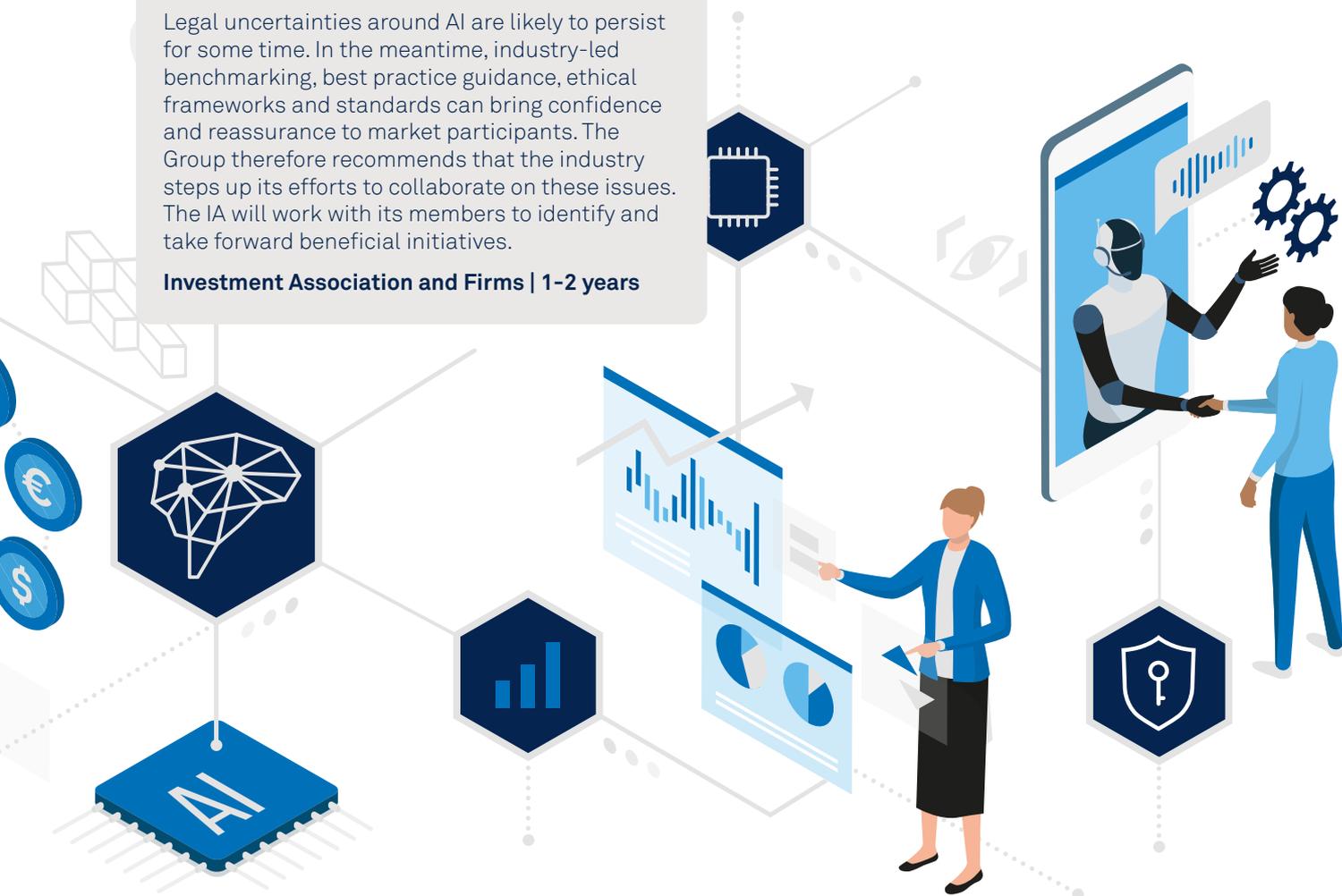
The IA will continue to build stronger connections between the investment management industry and FinTechs via IA Engine. It will work both domestically and with its Global Partners to ensure that firms have viable options for collaboration. Applications for FinTechs to be a part of the new cohort of the Innovator Programme are now open until 21 November 2024<sup>33</sup>.

**Investment Association and Firms | 6-18 months**

### 6. Legal uncertainties:

Legal uncertainties around AI are likely to persist for some time. In the meantime, industry-led benchmarking, best practice guidance, ethical frameworks and standards can bring confidence and reassurance to market participants. The Group therefore recommends that the industry steps up its efforts to collaborate on these issues. The IA will work with its members to identify and take forward beneficial initiatives.

**Investment Association and Firms | 1-2 years**



# CONCLUSION AND NEXT STEPS

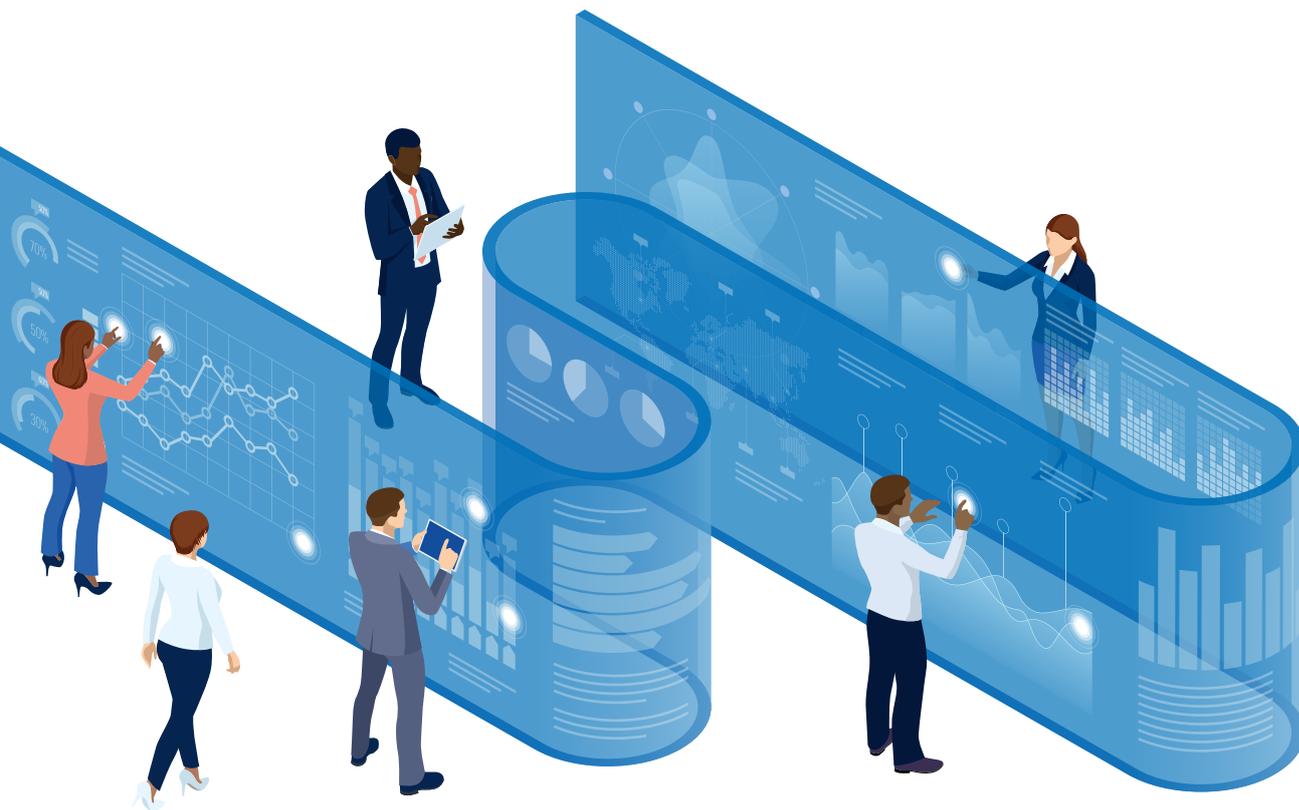
Over the course of 2023-24 the Group has clearly set out how the UK funds industry can best harness the potential of the emerging technologies of DLT and AI.

The collaborative effort with the UK authorities and a wide range of market participants has demonstrated investment fund innovation by creating the environment for frank and forward-thinking discussion, and demonstrating appetite within the industry for change. The outputs, from blueprints to recommendations already implemented, have been well received and galvanised industry progress.

The IA will keep working with its membership to support firms in these next steps. Its IF3 Lab has been a popular successor vehicle for the tokenisation work and the IA intends to incorporate members interested in AI in the same way. Over time, Investment Fund 3.0, an investment fund powered by tokenisation and AI, will facilitate the convergence of the two technologies into a highly efficient vehicle fit for the investor of the future.

The IA will continue to liaise with other key stakeholders to ensure the implementation of all of the recommendations and to monitor progress with the government and FCA. Updates on the outstanding actions from all phases will be published.

Although the Group's formal work ends here, this should be seen as just the beginning and through the successor workstreams the investment industry will continue to work collaboratively and with government and regulators to further its innovation journey for the benefit of investors and the UK.



# WITH THANKS TO

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Some personnel changed for Phase Three due to the different subject matter.

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Financial Conduct Authority

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# APPENDIX 1:

## CASE STUDIES OF INITIAL AI USE WITHIN INVESTMENT FIRMS

### FIVE EARLY-STAGE CASE STUDIES

Members of the Group shared case studies of specific use cases that formed early stages of their AI deployment strategies. These focus mainly on incremental operational enhancements and reflect the relative infancy of the technology and industry's experience to date. Unlocking some of the barriers identified in the report will help the industry to develop use cases in more transformational areas.

#### CASE STUDY 1: GENERAL PURPOSE CO-PILOT

<b>Process:</b>	General / all business units
<b>Business problem / pain points:</b>	<ul style="list-style-type: none"> <li>• Processing time required to handle document queries.</li> <li>• Bespoke needs handled by humans.</li> <li>• Productivity / efficiency of small teams.</li> <li>• Content creation / personalisation.</li> </ul>
<b>Solution:</b>	<ul style="list-style-type: none"> <li>• An AI co-pilot deployed to help internal users with multiple forms of conversational intelligence.</li> <li>• Solution helps people do document Q&amp;A, extract information, create content and work within groups/ teams on specific sets of inputs.</li> <li>• Users need to acknowledge usage guidelines before accessing outputs.</li> <li>• Human in the loop enforced.</li> </ul>
<b>Key benefits</b>	
<ul style="list-style-type: none"> <li>• <b>Human Centred:</b> Is a co-pilot/assistant to the human. Helps them complete their jobs better.</li> <li>• <b>High Productivity:</b> Productivity gains across teams ranging from 10-20% of their working hours.</li> <li>• <b>Extensible:</b> Multi-purpose utility. Different departments use it for their specific needs. Security model ensures confidentiality for each user/department; Could be extended to use multiple models.</li> <li>• <b>Deployment:</b> Deployed as a user interface and as an API layer.</li> </ul>	
<b>Barriers to adoption and implementation considerations</b>	
<ul style="list-style-type: none"> <li>• <b>LLM related challenges:</b> Explainability, hallucinations and probabilistic nature of outcomes are different to what users expect.</li> <li>• <b>Risk management:</b> Internal risk controls worried about the nature in which such a tool would be used. Focus on training people before providing access. Periodic recertification. Creation of communities of support.</li> <li>• <b>Testing Scenarios:</b> Testing Gen AI is an evolving area. Needed to establish a foundational approach towards this.</li> <li>• <b>Technical scale issues:</b> Access to closed source LLMs partially constrained by Cloud Service Providers (CSPs) in the UK and EU.</li> </ul>	
<b>Next steps and introduction</b>	
<ul style="list-style-type: none"> <li>• <b>Scale:</b> Address some of the scaling issues through use of multiple accounts.</li> <li>• <b>Custom use case identification:</b> Determine the correct pathway for use case identification and the associated business case for it through these early experiments.</li> </ul>	

## CASE STUDY 2: AI ENHANCED ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) REPORTING

**Process:** ESG scoring and Reporting

**Business problem / pain points:**

- Data Overload: Volume of ESG-related data, is unstructured & scattered across various sources, difficult to capture, process, & analyse.
- Data Quality and Consistency: varying standards and methodologies used by different entities, particularly in global supply chains.
- Complexity in reporting requires integrating data from diverse domains (environmental impact, social responsibility, & corporate governance), each with its unique metrics and indicators.
- Regulatory Compliance: Increasing regulatory pressure to provide transparent and accurate ESG reporting.
- Resource Intensity: Manual reporting is time-consuming, costly, and prone to human error.

**Solution:**

- AI to create a ESG reporting platform that streamlines the process, enhances data quality, and ensures compliance with regulatory standards.
- AI-Driven Data Aggregation: Natural Language Processing (NLP) & Machine Learning (ML) to gather and synthesise ESG-related data from various sources including financial reports, news articles, and social media.
- Predictive Analytics for ESG Performance: AI models to predict future ESG performance based on historical data, industry trends, and real-time global events.
- Automated ESG Scoring: AI-powered scoring system to assess and rate companies on their ESG performance, thus aiding investment decisions.
- Customisable Reporting Tools: Providing dynamic dashboards and reporting tools that allow stakeholders to create bespoke reports that align with their ESG criteria.

**Key benefits**

- Enhanced Decision-Making: AI-powered insights and predictive models enable better investment decisions based on reliable and up-to-date ESG data.
- Improved Data Quality: AI ensures the accuracy, consistency, and reliability of ESG data by minimising human error and bias.
- Regulatory Compliance: The platform will be designed to adapt to changing regulatory requirements, ensuring compliance and reducing the risk of penalties.
- Operational Efficiency: Automating ESG data collection and reporting processes saves time and reduces costs.
- Competitive Advantage: Offering advanced ESG reporting capabilities can attract environmentally and socially conscious investors and clients.

**Barriers to adoption and implementation considerations**

- Integration with Existing Systems: Ensuring the AI platform is compatible with current IT infrastructure.
- Data Privacy and Security: Addressing concerns about data security, especially when handling sensitive information.
- AI Transparency and Explainability: Ensuring the AI's decision-making processes are transparent and understandable to users.
- Upfront Costs: The initial investment in AI technology and finetuning models on firms' proprietary data might be expensive.
- Talent Acquisition: Securing professionals with the necessary AI and ESG expertise.

**Next steps and introduction**

- Still in ideation state: Start with a small-scale implementation to test the AI tools and gather initial feedback.

## CASE STUDY 3: SALES AND CLIENT ASSURANCE

**Process:** Responding to Requests for Proposals (RFPs) and Requests for Information (RFIs) as part of new business acquisition, and Reverse Due Diligence Questionnaire (DDQ) response as part of client assurance/retention.

**Business problem / pain points:**

- Many differing response formats required, including some online form responses.
- Strict deadlines.
- Managing peaks and troughs in demand.
- Ensuring consistency.
- Multiple teams involved in each response.

**Solution:**

- A GenAI solution that reads RFP/RFI/Reverse DDQ requirements and creates a good first draft response from a knowledge database in the required format.
- Feedback loops to update the knowledge database to keep it up to date.

### Key benefits

- Do more, at scale, without resource increases.
- Get to the good first draft stage rapidly.
- Consistency of language and tone.
- Focus staff time on value-adding activities such as detailed review and finessing.

### Barriers to adoption and implementation considerations

- The current knowledge database needs to be updated to enable the AI to consume it and learn from it. The proposed solution includes using an AI tool to ingest recent RFP responses, learn from them, flag inconsistencies, and amend and add to the knowledge database.
- Delivery teams need to ensure that responses are in firm's tone of voice.
- If all our competitors do the same (and we believe many are), how do we make our RPF/RFI responses stand out from the crowd – how do we ensure we retain our USPs in our responses? This goes to the heart of our offering to clients; RFP responses should not become a commodity item.

### Next steps and introduction

- Initial clean-up and supplementing of our existing knowledge database.

## CASE STUDY 4: REGULATORY COMPLIANCE

**Process:** Reviewing hundreds of long documents against upcoming requirements to confirm compliance, or identify updates required.

**Business problem / pain points:**

- Issue of scale with so many documents to review.
- Ensuring consistency of interpretation and application of the regulations across multiple people and teams.
- Hard regulatory deadline.

**Solution:**

- An AI solution that can interpret the regulations, ingest the documents for review and either confirm compliance or identify changes required.

### Key benefits

- Do more, at scale, without resource increases.
- Consistency of regulation interpretation.
- Focus staff time on value-adding activities such as crafting the updates required.
- A reusable capability for other regulations.

### Barriers to adoption and implementation considerations

- With a fixed deadline, can we afford to put all our efforts into an AI solution, which may not work or be ready on time?
- Developing the user interface may be more challenging than the AI element of the solution.
- Will using an AI have the traceability and explainability if these need to be evidenced?

### Next steps and introduction

- In-house prompt engineers have proven the concept across a single document at a time.
- Make a decision on which third party provider to partner with to build the capability.

## CASE STUDY 5: RESPONDING TO CLIENT SERVICE MESSAGES

**Process:** Responding to client service messages.

**Business problem / pain points:**

- Process is manual and requires skilled agents to process.
- Many of the queries are simple and transactional in nature.
- Providing a good quality personalised response is time consuming.
- Training agents with the required experience takes time.

**Solution:**

- Using off-the-shelf GenAI capability in our existing customer relationship management (CRM) platform to produce first draft email replies to client questions using data from our knowledgebase and public website.
- The aim is not to replace the client service agents, but to provide a tool to help improve their efficiency.
- The tool helps client service agents provide complete responses to simple questions, and helps produce a framework response to more complex queries, allowing them to focus more time on value-adding client interactions.

### Key benefits

- Reduces the time taken for client service agents to compose replies to simple client questions.
- Can provide more concise, better worded and more personable responses to clients than some human agents.
- Allows each client question to have a more personalised response than using templated message replies.
- Capability can be expanded to other client communication channels in the future, for example website chat.
- The functionality is included in the cost of the existing CRM capability.

### Barriers to adoption and implementation considerations

- Users need to be trained on how to produce good quality prompts to make the most of the capability.
- Knowledge sources need to be up-to-date, have complete coverage of all question types, and be free from duplicates to produce the best results.
- Quality Assurance review processes need to be robust to ensure agents are using the tool appropriately, and are providing a suitable level of review.
- Guardrails around business process to be added, to prevent its use in situations which may be inappropriate, for example with vulnerable clients.

### Next steps and introduction

- Pilot group testing to validate:
  - the business benefit across different teams/ client types.
  - Any gaps in the knowledgebase which will need to be resolved.
  - All training, quality assurance and operational processes which need updating.
- Business approval to proceed based on quality of output and acceptance of any potential risks, including hallucination, potential bias and risk of toxic content.
- IT approval to proceed including review of GDPR Impact, Data Privacy, Third Party Impact Assessment and Security Architecture Review.

# APPENDIX 2:

## INTERNAL AI RISK MANAGEMENT AND OTHER CONSIDERATIONS

Embedding AI within a firm's operations requires an understanding of the potential risks that could present themselves. These will depend on the extent and the manner of the implementation and the scope for broadening this over time but will in most cases be extensions of existing risks already being managed within the firm. The table below outlines the areas of consideration for firms in this respect, alongside the potential considerations and mitigants that can be put in place to control and manage the risks. These have been grouped into three areas: risks arising from the data and AI model itself; risks arising from external factors; and issues arising from inside the firm.

### 1. DATA AND AI MODEL RISKS

Item	Description	Potential mitigants
Inaccurate or insufficient data quality	Risk that AI systems rely on outdated or misleading data, leading to inaccurate outputs.	<ul style="list-style-type: none"> <li>• <b>Creating controls and safeguards:</b> Organisations should actively identify and manage AI risks by integrating business-minded legal and risk management teams early in the AI development process. This approach ensures models conform to social norms and legal requirements while delivering maximum business value.</li> <li>• <b>Transparent and explainable AI:</b> Developing AI systems that are appropriately transparent and explainable can mitigate risks associated with black-box models. This transparency allows for better understanding and trust in AI decisions, making it easier to identify and rectify potential issues. An explainable model ensures better review mechanisms which can help ensure human oversight and verification.</li> <li>• <b>Scope control:</b> Understand and appropriately restrict the dataset on which the AI model is functioning. A model that utilises data from the internet is likely to be more creative and generalist than one with the scope to refer to a carefully crafted set of internal documents.</li> <li>• <b>Data Verification Procedures:</b> Establishing robust data verification procedures is crucial. This includes data quality checks, validation techniques, and data cleaning methods to maintain consistency throughout the AI development process. This may include regularly updating and validating the data used by the AI system to ensure its accuracy and relevance as well as using multiple sources of data to cross-validate and corroborate information.</li> <li>• <b>Third party checks:</b> To ensure a more rounded mitigation process and checks, it is critical to conduct thorough due diligence on third-party AI providers' compliance and also enter into legal arrangements to clearly outline obligations and to ensure accountability.</li> <li>• <b>Thorough review and collaboration:</b> In addition to implementing the right controls, it is important that firms regularly review and audit that their AI models are operating as intended. Further, in carrying out these checks, it is essential that firms collaborate with industry peers as well as regulators to develop and promote best practices for managing risks including but not limited to AI explainability and transparency.</li> <li>• <b>Clear Disclosure Guidelines:</b> Firms should exercise caution in using AI and particularly from a legal and transparency perspective, be careful to ensure disclosure of the use of AI within offering documents, fund prospectuses, website disclaimers to ensure consumers are informed of the uses and extent of AI involvement in data processing.</li> </ul>
Hallucination	Risk of LLMs producing plausible sounding but incorrect outputs.	
Probabilistic nature of AI models	LLM outputs are probabilistic in nature rather than deterministic.	
AI model drift	Risk that models may become less accurate over time.	
Privacy violations	Risk that external AI models may collect and misuse proprietary or personal data.	
Lack of appropriate explainability	Risk that AI models are complex and that the firm is then unable to demonstrate how decisions are made.	
Bias	Risks that AI models amplify any bias in the data and discriminate towards or away from a particular group of people or a specific outcome.	
Disclosure of use	Risk that consumers are not informed that AI has been used in processing their data / providing an output to them	

## 2. EXTERNAL RISKS

Item	Description	Potential mitigants
Data loss	Risk that data breaches or unauthorised access can result in proprietary data loss.	<ul style="list-style-type: none"> <li>• <b>Effective regulatory framework:</b> As countries implement AI regulation, firms - particularly those that operate across jurisdictions - will need a good strategy to ensure coordination and compliance. Firms should rely on proportionality to approach the level of risk posed by various AI technologies, particularly in cases where AI autonomously drives decisions.</li> <li>• <b>Assessing cybersecurity risks:</b> With AI models being reliant on network infrastructure, and with vast datasets, firms should seek to assess and manage cybersecurity risks effectively by identifying potential vulnerabilities in systems and data. This includes harnessing an effective cyber threat intelligence strategy to identify and analyse cyber threats before they impact the firm.</li> <li>• <b>Comprehensive risk register:</b> Implementing an effective incident and error management process. This may include escalating incidents to line management and the Risk and Compliance functions, logging and recording errors as per policy and conducting root cause analysis.</li> <li>• <b>External threat-aware personnel:</b> Firms should ensure sufficient and skilled personnel to undertake activities related to cybersecurity and external threats such as phishing and deep fakes, maintaining efficient and well-controlled processes, resilient systems and controls, and oversight of third-party relationships.</li> <li>• <b>Third party oversight:</b> Monitoring of supplier usage of AI and mapping this to the provision of services to the firm and consumers, understanding where functions may need to be substituted in the event of a failure or incident.</li> </ul>
Cyber threats	Risk that AI is used to develop sophisticated cyberattacks on firms.	
External fraud	Risk that vulnerabilities in AI systems can be exploited by bad actors for malicious intent.	
Lack of effective third party / supplier management	Risk that third parties utilise AI models that acts on a firm's behalf without sufficient oversight / permission; Risk that third parties' reliance on AI impact service quality, reliability or resilience.	
Legal risks / liability implications	Risk that unchecked AI presents unexpected or novel opportunities for litigation.	

## 3. INTERNAL RISKS

Skills gap	Risk that insufficient staff expertise and/or training can lead to lack of understanding or failure to realise the upsides of AI.	<ul style="list-style-type: none"> <li>• <b>Implement robust governance frameworks for use of AI including data handling:</b> Firms must endeavour to set out clear internal governance frameworks that provide clear risk appetites and tolerances for fraud, both internal and external. Such frameworks should also clearly consider and set out legal risks and liability implications, which includes the loss of data due to misuse of personal data. This will also help promote and streamline transparency and accountability across workstreams in an organisation.</li> <li>• <b>Investing in Employee Training:</b> As AI continues to develop, it is important for firms to not just ensure employees are trained to use the technology for productivity gains but also train to recognise the gaps in the technology and what risk mitigation mechanisms must be exercised when using the technology.</li> <li>• <b>Test business uses of AI safely:</b> Testing provides an opportunity to experiment in a controlled environment and to learn and develop further tests. Ultimately it allows for learnings to be shared more widely within firms as well as encouraging new ideas to come forward.</li> <li>• <b>Innovative education and engagement initiatives:</b> Investing in educating colleagues and ensuring engagement with senior management with initiatives in AI. Engaging in educational initiatives, such as all-staff meetings or webinars to showcase the firm's work and expertise. This can help in building a positive reputation and mitigating the risk of reputational damage due to sub-optimal outcomes.</li> <li>• <b>Continuous Monitoring:</b> Risk mitigation is an iterative process particularly when using AI which is evolving at an accelerated rate. Internal use case test teams should maintain a register of where AI is utilised, provide progress updates and guidance on use, including information on productivity and AI training sessions, data visualisation tools, and upcoming training that accounts for evolving developments.</li> </ul>
Reputational loss	Risk that sub-optimal outcomes for customers or other external impacts result in reputational damage for the firm.	
GDPR / Personal Information loss	Risk that personal individual identifiable information is lost during HR or customer data processing.	
Loss of control on usage of AI within the firm	Risk that understanding of where and how AI is used is lost as more use cases are deployed and/or roll-out becomes uncontrolled.	

# ENDNOTES

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