AI: UNLEASHING ITS POTENTIAL IN THE FINANCE

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AI in the insurance sector: industry adoption and regulatory developments

Artificial Intelligence (AI) is expected to play a pivotal role in the digital transformation across all industries and society as a whole. In the insurance sector, AI combined with the internet of things is providing for a wide range of opportunities for future growth and development. As shown by EIOPA's thematic review on the use of Big Data Analytics in motor and health insurance, already in 2018, 31% of the participating European insurance firms were using AI across the insurance value chain, and another 24% were at a "proof of concept" stage. This trend was confirmed in the report on AI governance principles from EIOPA's Stakeholder Group on Digital Ethics in 2021. In a workshop on AI organised by EIOPA earlier this year, industry participants further emphasized the transformative role of AI and provided clear examples of AI applications in the insurance industry.

While AI is already being used throughout the insurance value chain, recent advancements, such as the rise of generative AI, have demonstrated that we are only seeing the beginning of AI's potential for the sector. The widespread adoption of generative AI by insurance companies is still in the early stages; however, insurers are actively exploring its potential uses, such as providing consumer advice, guiding policyholders through claims procedures, and enhancing pricing and underwriting processes.

In this context, the proposal of the European Commission for a Regulation on artificial intelligence (the AI Act) aims to lay down a uniform legal framework for the development and use of AI in conformity with European Union values. The proposal is currently being finalised by the EU co-legislators in trialogues.

The AI Act has specific implications for the insurance sector. Firstly, it is 'horizontal' and aims to cover all relevant sectors at once. Its cross-sectoral nature can raise challenges with integrating its provisions and their supervision into each sector, notably those that are highly regulated and supervised, such as the insurance sector. Secondly, the AI Act envisages harmonised standards being developed by the European Standardisation Organisations and the provision of guidance and compliance tools to aid providers and users in meeting the requirements. Thirdly, following a risk-based approach, the vast majority of the requirements of the AI Act apply to AI systems identified as high risk.

In light of the specificities of the insurance sector, the development of standards and guidance to facilitate the implementation of the AI Act will play a key role in ensuring a seamless application and preventing potential frictions with the insurance legislative and supervisory framework. While, based on the positions from the European Parliament and the Council, it seems likely that certain use cases in life and health insurance will be considered as high-risk, there are a wide range of other potential use cases where certain transparency obligations and voluntary codes of conduct would apply. In relation to the latter, additional efforts may be needed to ensure coherence between sectoral requirements and standards under the AI Act, while maintaining proportionality.

In addition, the AI Act is not fully exhaustive in relation to the regulation and supervision of AI and sectoral legislation addressing conduct and prudential objectives continues to apply also to AI when used in the insurance and occupational pensions sectors. Recognizing the potential significance of AI for the insurance sector, EIOPA stands ready to contribute to its regulation and supervision. This commitment includes participating in the governance framework that will be established at the EU level.

We are only seeing the beginning of AI's potential for the insurance and pensions sectors.

As we look ahead, it is evident from the emergence of generative AI that the field of AI is evolving rapidly. The AI Act recognises this and aims to be future proof, allowing for adaptation to upcoming developments. The specific measures intended to achieve this goal are yet to be determined, particularly concerning the governance system, where proper consultation of sectoral expertise is important. Furthermore, the need to adapt to market changes has already been shown, as the Council and the Parliament introduced requirements for generative/foundation models that were not initially anticipated in the original proposal by the Commission. The final extent and scope of the measures are not yet clear, but these will have real impacts on the insurance and pensions sectors.

In conclusion, while AI is already being incorporated into the insurance value chain, the rise of generative AI suggests that its full potential is yet to be realized. The AI Act aims to provide a framework that will help the development of AI in conformity with European Union values. The future impact of the AI Act in the insurance sector depends on the outcome of trialogues and will necessitate the development of guidance for its effective implementation.

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Regulating the use of AI, a challenge for financial supervisors

AI is a profoundly transformative technology

Artificial Intelligence (AI) is now the main driver of digital transformation in the financial sector. Two studies conducted four years apart by the ACPR among French banks and insurance companies have shown the speed of change at play: between 2018 and 2022, in many instances, operational solutions have replaced prototypes.

AI makes it possible to improve the "customer experience", through *chatbots*, recommendation or decision support systems, as well as better product customization. AI can also automate many internal processes, such as claims settlement for insurers, reducing costs and gradually freeing employees from low-value work. Finally, AI can reduce risks: financial risks, through improved modelling, operational and compliance risks (fraud detection, AML/CTF).

The arrival of large language models (LLMs), with the prospects they open up - particularly in terms of summarising, extracting and classifying information, or generating text or computer code - should further increase the pace of AI adoption.

This rapid development in AI is primarily due to technological advances, made possible by greater availability and diversity of data and more powerful IT equipment. However, new expectations from customers are clearly a second driver of this transformation: they demand easy-to-access digital tools and seamless user experience; immediate answers or help, and at the same time autonomy in day-to-day management (self care).

AI development, however, is not without risks. Besides cyber-security issues, the risk of error, inappropriate or unfair treatment, may be exacerbated when an algorithm operates without human control. It is therefore important to ensure that these risks are properly managed.

The upcoming AI Act provides a sound foundation for AI regulation

The draft European AI Act, currently under discussion, addresses crucial questions about the safety, health and fundamental rights of citizens. In doing so, it aims to provide legal certainty for operators and increase consumer confidence, while creating a level playing field for EU and third country players.

To achieve this, the Act is likely to impose a number of obligations on "high risk" systems: high quality training, validation and test data; appropriate degree of transparency and interpretability of the systems; mechanisms to ensure traceability and auditability of AI systems; rules on cyber-security etc. So-called 'foundation models' should be subject to similar requirements. Finally, transparency would be required from all generative AI systems.

Some of the systems used by banks and insurers are expected to be in the scope of "high risk" AI. More broadly, the principles of the AI Act can be expected to gradually infuse all AI systems implemented by the financial sector, either as a voluntary quality standard or through guidance provided by the European Supervisory Authorities (EBA and EIOPA in particular). An important challenge in this regard will be to adequately articulate the new horizontal AI regulation and the specific rules of the financial sector.

The generalisation of AI, and its supervision, will require a deeper understanding of human-machine interactions

Good regulation is nothing without effective supervisory bodies to enforce it. Preparing financial supervisors to audit AI systems is a challenge, requiring in particular a good command of technology. In addition to adequate human resources, conducting experimentations, possibly in collaboration with the market, may help.

Mastering AI requires in particular that we strengthen our understanding of the complex interactions between machines and humans, whether the latter are in the position of customer, internal controller or external auditor. For example, as part of a research project, the ACPR recently tested how customers perceive the explanations justifying the advice given by a life insurance robo-advisor. To do this, a simplified robo-advisor was developed, or more precisely two versions of it: one giving advice tailored to customers' profiles, the other providing wrong advice. The authors then conducted a quantitative experiment with 256 participants, most of them financial novices, recruited via a collaborative platform.

The results were counterintuitive: explanations did not significantly improve users' understanding of the proposal or their ability to follow the advice given, depending on whether it was correct or not. In addition, the explanations provided in the form of a conversation wrongly increased users' confidence in incorrect proposals made by the robo-advisor.

AI requires that we strengthen our understanding of the interactions between machines and humans.

This example is a first illustration of the challenge ahead: by profoundly transforming processes in the financial sector, AI will require regulators and supervisors to rethink their practice, taking into account the changes that algorithms will induce in human behaviour. The learning curve promises to be long but exciting.

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Generative AI regulation, an essential shield against risks

In recent months, we have witnessed the disruptive emergence of certain types of generative AI, as well as various use cases in different contexts. The development of these tools has also generated a race among large technology companies to deploy generative AI systems and has raised a lot of interest among users. This competition has also led to relevant differences between the current models, such as the ability or not to access queries on the internet, the type of access to the models (private and exclusive, open source or hybrid); and the accuracy, complexity and quality of the answers produced.

While there are many advantages to incorporating generative AI into a company's operations, it is also important for organizations to be aware of the associated risks, such as those related to privacy and data protection. Therefore, in order to safeguard sensitive or confidential data, some European data protection agencies have even limited or temporarily banned its use. Another relevant point is the intellectual property of the content generated with these tools. To date, companies in the sector tend to cede authorship of the content generated to users, which avoids the loss of intellectual property. However, the debate about the intellectual property of the training data is still open.

Furthermore, there are other risks, such as hallucination, where AI generates incorrect or biased information framed in a coherent and well-written text. Overreliance on these technologies, which requires human supervision in certain cases. The lack of transparency and traceability to the sources of the information, and the possible lack of ethics and impartiality in decision-making processes based on the content generated, are also factors to consider. And, among others, the privacy of training information and that which is shared at the time of consultation.

However, various governments and supranational institutions have initiated legislative projects to mitigate the risks of AI. At the European level, work has been done to develop a regulation to ensure the ethical and responsible use of AI, as well as the management of those that may affect people's health, safety, or fundamental rights. This European AI regulation (AI Act) is a law proposed by the European Commission (April 2021) to regulate artificial intelligence within the EU. It is based on the classification of AI systems into four categories, depending on the level of risk, and on the definition of a series of requirements for those with the highest risk.

GenAI tools have a differential value in multiple contexts but must be used with caution due to the associated risks.

At the end of 2022, the European Council published a new version of the text with some significant changes, such as the definition of an AI system, the definition of biometrics or the systems that would fall under the high-risk category, among others. In the latest version, in June 2023, the European Parliament published its revision of the text, now including novel concepts such as the definition of foundational models or generative AI, which did not appear in previous versions. Following this revision, the trilogues discussions between the Commission, the Council and the Parliament have begun, and the final text is expected to be published by the end of this year.

Financial institutions will also be at the heart of the matter and will play a very relevant role in the next few years. Some of the High-Risk Artificial Intelligence Systems listed in the AI Act will belong to Banking (e.g., access to credit) and Insurance (e.g., access to health and life insurance) sectors, and although relevant organizations such as the European Banking Federation (EBF) and the European Insurance and Occupational Pensions Authority (EIOPA) have positioned themselves against their systems being included as High-Risk in the AI Act, the European Council and European Parliament seem to have their eyes set on these AI systems having to comply with additional specific requirements such as risk management, data governance, cybersecurity, and accuracy for the foreseeable future.

In the Spanish context, the AI Regulatory Sandbox has been launched, a pilot project that aims to create a safe and controlled environment for companies to test the new European AI regulation. The pilot is open to companies of all sizes and sectors, and offers several advantages, such as access to technical advice and the opportunity to collaborate with other companies and government agencies.

To sum up, these generative AI tools have a differential value in multiple contexts but must be used with caution due to the associated risks. Various international bodies, led by the European Commission, are developing regulations and standards to ensure the ethical and responsible use of these tools, a vital effort to achieve an efficient and beneficial transformation for companies and the economy in general. In this race, the European Union plays a key role, due to the size of its market and its weight in economic matters, so capitalizing on this opportunity and repeating the success achieved with the General Data Protection Regulation (GDPR) is essential to consolidate the EU's position as an innovation hub compared to its main competitors.

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Open AI in FSI - Balancing risk vs impact & holistic transformational leadership

For several years, it has been a balancing act for banks to create customer value and relevant customer offerings, based on their customer data without violating their customer's trust. The last years technology development and new customer patterns with increased digitalization and usage of AI & Machine Learning and IoT have amplified the amount of data available and thereby also the importance of having a data strategy that clearly defines not only the implementation of regulatory requirements like GDPR but also processes and directives that covers the ethical and business dimensions of how banks and their employees can and should use data.

With the launch of ChatGPT and Generative AI, new use cases have emerged that will increase employee productivity and collaboration and enable enhanced customer service and advisory, improve fraud detection and give organizations and customers real time access to both structured and unstructured data.

With the potential of AI unlocking $1trillion in incremental value annually in financial services and where we already now see concrete results in for example 45% faster processing of trade executions and 90% less time spent on onboarding technology and eliminating cybersecurity gaps, there is no surprise that banks show a sincere interest in investing and fully understanding and starting to utilize Generative AI within their organizations.

The clear increase in interest in investing in data, cloud and AI to elevate customer and employee experiences goes across the entire organization, from IT to the board, in financial services. However, although there is a strong sense of urgency from banks to utilize the AI potential, we also hear the importance of managing impact versus risk when utilizing AI. In this context the access and handling of large amounts of data is the main concern in addition to preparing and transforming the organization to fully utilize and responsibly manage the new technology and data models.

Despite the strong AI focus from a vast amount of financial institutions the road to fully leveraging AI will take time and require transformation in multiple areas such as; applying advanced analytics and machine learning models for AI-powered decision making on all levels in the organization and creating a platform based operating model that takes into consideration employees, customers, stakeholders, organizational design, processes and procedures and synchronizes that into all layers of the AI stack. The initial and biggest investment will however be in modernizing the core legacy technology to the scalability and flexibility needed to support the computing requirements, data processing and real-time analyses of data in a scalable way.

Becomming an AI-first bank requires balancing risk vs impact & holistic transformational leadership.

The most challenging area for banks might be the talent strategy and the required upskilling to create autonomous business and tech teams that can efficiently manage the new technology and embrace a new way of working. If successful the result will be real time engagement and interaction between employees, customers and partners that will democratize the availability and utilization of data and services in a new way.

Historically financial institutions have continuously adapted to new technology with an ambition to offer speed, agility and flexibility to their customers. The challenge has always been combining the ever increasing regulatory and compliance requirement and manage scale, risks, security standards and regulatory framework with the need for innovation and transformation to stay competitive and remain a trusted partner.

In a very short timeframe, OpenAI launched ChatGPT only a few months ago, we have seen pockets of AI driven FinTech innovations and a strong willingness to utilize the new technology, however the use cases are still narrow and to a high degree stand alone. To succeed in scaling AI across the organization and execute on a shift that will transform every function and interface in the organization a clear AI strategy and holistic transformation strategy is required.

The Data Act and the European strategy will be an important tool for financial institutions to support the required strategy, leadership and execution to increase the uptake of AI in Financial services. The leadership in the next wave of AI driven innovation requires ability to handle complex and uncharted territories and a willingness to drive transformation across entire value chains, operating models, and management levels in financial institutions in an ethical, unified and responsible way.

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How to promote responsible innovation in AI

Recent advances in generative AI have thrust the technology to centre-stage of public debate, capturing the imagination of millions with its application to everyday life. The explosion in demand for language models like ChatGPT reflect a milestone in its evolution, with the technology now more widely accessible. This level of interest has prompted excitement and concern in equal measure as stakeholders race to understand both the long-term risks as well as AI's significant potential.

While it's easy to get carried away by extreme scenarios, it's important to remember that we are more than 50 years into the evolution of AI. The technology is already widely adopted across the industry, powering and protecting many of the important systems and processes we use daily. However, thanks to the recent advancement of machine learning (ML) technologies, and an increased understanding of what it can accomplish, the focus on generative AI is finally taking shape. The use of AI & ML is moving beyond exclusive use by data scientists, which will further accelerate its evolution.

AI has now reached a tipping point, and this period of heightened global focus gives us an opportunity to establish an appropriate and coordinated regulatory response. One that brings together the best of the private and public sectors, ensuring adequate protections are in place whilst not constraining positive innovation.

Use of AI in capital markets

As both a market operator and provider of mission-critical technology to infrastructures globally, Nasdaq has been operating at the forefront of innovation for decades. We recognized the power of technology and data early in our journey and have long been exploring how AI can be used to improve our internal productivity and quality of our markets – enhancing fairness, resilience, and performance.

One example is the implementation of a dynamic order type in the US that incorporates AI to match investors with longer-term investment horizons. It improves fill rates by responding to market conditions on a real-time basis. We are currently seeking regulatory approval for the introduction of this initiative to improve market efficiency and user experience.

But perhaps the most compelling example is within our anti-financial crime business, which provides software to financial institutions globally to help them detect, deter and stop financial crime, and used effectively across our European exchanges.

The approach to regulation should be proportionate to the risk posed by a particular AI system.

Financial crime is a multi-billion global industry; one that exists beyond single banks, borders, and regulatory regimes. Furthermore, this criminal trade is investing in new technology, including AI, in the same way as any global industry; therefore we must ensure we respond appropriately. For instance, wrongdoing thrives in the absence of coordinated data sharing, preventing advanced technology from identifying patterns of behaviour across the banking ecosystem.

In our own business, we have been able to establish data lakes that bring together anonymised transaction data from more than 2,400 banks which, together with the power of AI, is able to identify suspicious activity across multiple institutions.

Across the company we will always seek areas where aspects of AI technology can enhance the customer experience and increase productivity in a responsible way. To ensure we adopt the technology appropriately, Nasdaq has created a set of AI ethical principles built around transparency, fairness, accountability, and reliability, which we apply when developing products and services. As part of that approach, we operate a risk-based internal governance framework which includes oversight by an internal AI Governance Committee.

Our insight and expertise in this technology is anchored through decades of investment and experience.

An appropriate regulatory response

With the technology now available at a far broader scale, balanced regulation is important to ensure adequate safeguards are in place. Collectively, we have the opportunity to establish an overarching framework that guides organizations across all industries. However, we must be alive to the risk of stifling the level of innovation necessary to develop advanced and sophisticated approaches to market manipulation and money laundering.

The approach to regulation should be proportionate to the risk posed by a particular AI system and not overburden efforts to modernize our capital markets, including leveraging the latest capabilities in cloud, AI and ML. Where possible we should draw on existing legal frameworks to avoid overlap and incorporate clear definitions and case study examples. And we must protect against models that inadvertently discriminate against protected characteristics.

Ultimately steps taken to enhance fairness and resilience of our markets, whilst encouraging innovation to support a more efficient flows of capital through the system, will generate tangible benefits for economies and communities across the world.