Artificial Intelligence and the Insurance Industry: Regulatory and Market Perspectives

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Both the economy and society as a whole are caught up in a pervasive digital transformation, and in recent years significant advances in using new technologies have been made in the financial sector and within that sector, the insurance subsector. These advances are here to stay.

The major insurance and InsurTech companies have started using cloud computing, currently employed by virtually all insurers operating in Spain. The same applies to artificial intelligence (AI), which has not yet reached the same level of market share but which we venture to predict will soon be a normal cog in operating procedures throughout the industry. This prediction does not require any special powers of foresight. The most recent data are already indicative of widespread use of AI by insurance companies.

Insurers have a certain advantage over companies in other sectors when it comes to jumping on the AI bandwagon, inasmuch as it is often said that data are the raw material of the insurance industry. Companies have extensive experience in designing, calibrating, and validating mathematical models, and that experience is especially valuable in getting the most out of new data handling technologies. That is why the vast majority of insurance companies have already begun using AI projects and those that have not yet done so have them in the development or planning stages for early implementation. More and more companies already have an AI strategy in place. They have already allocated annual budgets and have created designated teams or departments.

EIOPA published on 30 April 2024 the results of a recent survey of insurers throughout the EU dealing with the level of implementation of AI in the insurance sector in its *Report on the digitalisation of the European insurance sector*. According to the survey results, 50% of companies are already using AI in the non-life insurance lines and 24% in the life insurance lines, with a further 30% and 39% of the companies surveyed expecting to use AI in the non-life and life lines of business, respectively.

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Different approaches towards implementing AI projects are present in the marketplace. Insurance companies have internally developed any number of projects, normally in connection with the insurers' core activities, e.g., underwriting and pricing. Insurance companies ordinarily farm out other projects like digital marketing and chatbots to technology service providers. Lastly, there are many other projects that take a mixed approach in which the company engages in development on its own with basic support by InsurTech enterprises or other specialised vendors, e.g., for claims processing and fraud prevention.

The hiring of data scientists, applications developers, database administrators, and other big data and AI specialists is becoming more and more commonplace in the industry. This raises a challenge that is shared with other sectors of the economy, namely, the scarcity of qualified talent in new, specialised areas like machine learning and cognitive perception.

AI has multiple applications in the insurance sector spanning the entire value chain. In their March 2023 Report on the digitalisation of the insurance industry, UNESPA, Spain's Insurers Association, and AEFI, Spanish FinTech and InsurTech Association, noted that AI is probably the most disruptive technology for internal operations in the insurance industry, opening up a whole range of new opportunities for both insurance companies and consumers.

At the present time AI is most widely used in customer service, fraud detection, and claims processing. However, it is also making inroads in such other areas as underwriting, pricing, and insurance product sales.

Natural language processing (NLP) methodology has been driving the use of chatbots and virtual assistants for customer service, and insurers are using it to help customers browse their websites and to help in answering frequently asked questions.

In the field of fraud detection, AI is enabling companies to exponentially improve their ability to detect anomalous circumstances for better investigation. For instance, AI is more readily able to detect cases where the documents or images used in processing a claim have been manipulated. AI is also good at evaluating behaviour patterns and raising red flags about suspicious cases. This enhanced ability to identify fraud means not only sizeable savings for insurance companies but also lower premiums for the vast majority of honest policyholders.

Image analysis by AI systems is used in claims handling and helps insurers to assess losses. Systems of this kind find widespread use in the automobile line but are also used for home and business premises insurance. Some insurers are also using AI to classify claims by type and complexity and to automate invoice and indemnity payment verification, especially for smaller payments. These solutions enable insurers to reduce their processing costs, and customers benefit from shorter response times for claims.

AI is also employed in product design and development, in which it is used to process large volumes of data to enable insurers to offer new products and services to meet the needs and demands of consumers. It uses customer historical data, customer satisfaction survey data, and data collected from personal devices, from vehicle devices, and from connected homes. Combining AI with the Internet of Things (IoT) thus makes it possible to provide loss prevention and risk mitigation services, for instance programmes aimed at improving driving behaviour and providing recommendations and advice for living healthier lifestyles.

Processing enormous volumes of data using increasingly sophisticated AI systems is beneficial for pricing and underwriting by enabling insurance companies to be more efficient when underwriting risks and setting rates that are more in line with the various risks and the characteristics of each insured individual. This way consumers with lower risk profiles can benefit from lower net premiums, and some higher risk consumers that may have had trouble buying insurance could also find it easier to get coverage (for instance, young drivers who install black box devices in their cars and consumers with certain medical conditions who wear connected wristbands and share their data with their insurance companies). Obviously, on the consumers' side, there is also a risk that some insurers may engage in "price optimisation" practices and use various non-risk factors to estimate consumer price elasticity or willingness to switch insurance provider.

Insurers can also calculate technical provisions more precisely by using AI systems to estimate losses, especially for lines of business that have high rates of claim, for which a sufficiently large range of data points is available to train AI systems.

In terms of distribution and sales, digital marketing techniques may help insurers make personalised offers to attract consumers and drive sales through their websites, applications, and other digital distribution channels. They can also make it simpler for consumers to buy insurance.

With this broad range of uses, it comes as no surprise that the sector is investing heavily in AI. At the same time, however, insurers are fully aware that using AI and process automation can entail operational risks, calling for robust governance and risk management mechanisms. Insurance companies have therefore welcomed AI enthusiastically but also cautiously.

As a result, AI systems are being set up subject to a certain degree of human oversight. For instance, in sales, AI may suggest offering customers certain products or covers, but the final decision is up to the insurance agent. Or in claims processing, AI may provide a preliminary estimate of the amount of a loss, but a loss adjuster may need to review the matter to corroborate or change that amount.

The type of algorithm employed is also evidence of that caution. For now, what is mainly being used are simpler algorithms like decision trees, which are easy to understand, explain, and oversee. Usually, however, the more complex an algorithm, the more accurate it is, so as insurance companies gain more experience in using AI, more and more sophisticated algorithms, like neural networks or deep learning, can be expected to come into use.

Insurers are also aware of the risks to consumers and the need to foster trust in the industry's commitment to using AI ethically to ensure against potential misuse and prevent customers from being mistreated. Those concerns led the insurance industry in Spain to issue UNESPA's principles for ethical use of AI in the insurance sector back

in 2020. That publication set out the principles of fair treatment, proportionality, proactive accountability, security, transparency, training, assessment, and review. The following commitments are being promoted based on those principles:

- To avoid using AI-based applications that could cause certain people or groups to be discriminated against; to allow differential treatment only when it is in accordance with insurance practice and applicable legislation; and to set up review procedures to detect and minimise unconscious biases.

- To conduct impact assessments to ascertain suitable governance mechanisms for each type of AI used.

- To set up internal control procedures and include controls on AI use in the companies' risk management systems.

- To ensure that the AI-based applications insurance companies use are suitably robust throughout their service lives and that they provide maximum safeguards for the data they handle while in use. Insurance providers' hardware and software security policies are to encompass checking routines and vulnerability testing, and companies must take appropriate technical and organisational measures to ensure a level of security appropriate to the risk AI use poses to data subjects' rights and freedoms.

- To provide information on their use of AI on their websites, via their usual reporting channels, and in their written policies.

- To ensure that employees in charge of AI-based applications are equipped with knowledge sufficient for, specific to, and commensurate with their duties and responsibilities, including special training in the limitations of AI systems.

- To run regular self-assessments to check on the reliability of the AI solutions deployed.

These UNESPA principles are based on the guidelines issued by international organisations and institutions, namely, the European Commission's High-level expert group on artificial intelligence, the OECD's 2019 AI principles, and in particular the report released in 2021 by EIOPA's Consultative Expert Group on Digital Ethics in Insurance, *Artificial intelligence governance principles: towards ethical and trustworthy AI in the European insurance sector*.

The work by the EU experts recently came to fruition in December 2023, when agreement was reached on adopting the EU AI Act. This ground-breaking legislation, the first of its kind worldwide, is aimed at ensuring that AI systems used in the EU market are safe and consistent with fundamental rights and Union values. This horizontal legislation is intended to protect both citizens and enterprises, and it therefore envisages restricting AI use and lays down special requirements for cases where use is considered to pose high risks.

In the insurance field, an example of high-risk AI use is for risk assessment and pricing in relation to natural persons with respect to life and health insurance; Even agreeing that life and health insurance may entail higher risks because of the sensitive data they entail, the Act does not seem to have chosen the most appropriate wording. The reference is too broad and too vague. A better wording would have been the one put forward as the legislation was working its way through the European Parliament, which proposed including systems to be used for "decision-making or materially influencing decisions on the eligibility" of natural persons for life and health insurance on the list of high-risk systems. That wording would have been more specific and more consistent with the inclusion of systems used in profiling creditworthiness on the list of high-risk financial services systems and with lawmakers' ultimate concern of preventing financial exclusion.

A number of voices criticising including these uses of AI on the list of high-risk systems have been raised, EIOPA being one. In a letter addressed to the co-legislators (the Commission, the Council, and the European Parliament) in July 2022, EIOPA defended not classifying AI use by the insurance sector as high risk, because no comprehensive impact assessment had been carried out. In the supervisory authority's view, the Act should address the significance of AI use in the financial sector and more particularly the insurance sector, but implementation and specifics should be materialised in sector-specific legislation based on current governance, risk management, market conduct, and product oversight systems.

One of EIOPA's specific tasks in support of implementing the AI Act in the insurance sector in its 2024 work programme is delivering guidance to provide clarity to the market about the supervisory expectations and to address the benefits and risks arising from the use of AI in insurance, including potential unfair treatment of consumers or discriminatory practices.

Besides EU legislation, in Spain mention can be made of the Spanish Royal Decree 817/2023, of 8 November, on establishing a secure environment for testing compliance with the proposed harmonised EU AI Act. The purpose of that Act is to set up a controlled testing framework, or sandbox, with the involvement of a series of insurers chosen by means of a public selection procedure to test certain selected AI systems that could pose a risk to people's health, safety, and fundamental rights. The sandbox would provide an opportunity for insurance companies and the technology vendors supplying them with services to test their projects for using AI in insurance. The Act envisages taking part both in the AI sandbox and in another controlled testing framework being set up by another authority, namely, the controlled financial services regulator's sandbox being implemented by Spain's *Dirección General de Seguros y Fondos de Pensiones* (DGSFP) [General Directorate of Insurance and Pension Funds] and the other financial supervisors.

In the supervisory context, one of the DGSFP's main focuses for defining its strategic supervisory priorities for 2023-2025 is digital transformation of the insurance and pension fund sector and implementing and using AI in the different processes and in decision-making. Given the unstoppable trend towards AI, the supervisor has emphasised the need to assess the areas in which it is used, its degree of influence in decision-making, the factors taken into account, especially regarding sustainability, and how all that affects the quality of the services provided in order to ensure that AI adds value not just for industry companies but also for the insured and pension plan members.

In short, AI will unquestionably be called upon to play a decisive role in the digital transformation of the insurance sector, whose future will depend both on technical advances and on regulatory actions and steps taken by supervisors. At any rate, the industry's commitment to ethical use of AI and in particular its long experience in complying with the high standards of governance and risk management under Solvency II mean that insurance companies are well positioned to be able to comply with the new legal requirements concerning AI.