Generative AI Market Survey: Outlook, Use Cases and Risk Management

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European Insurance and
Occupational Pensions Authority

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

In recent years, and particularly with the rapid emergence of Generative AI (hereinafter Gen AI systems), Artificial Intelligence (hereinafter AI systems) has signalled a transformative shift for the insurance sector. This technology offers a wide range of opportunities for insurance undertakings to enhance internal efficiency, augment customer interactions, and improve the quality of services in z areas such as customer services or claims processing.

However, Gen AI systems also introduce new, specific challenges and risks, including the potential for "hallucinations," new cybersecurity vulnerabilities, or complex data privacy concerns. Given the technology's strategic importance and the rapid pace of developments in this area, monitoring Gen AI adoption, its applications, and its unique characteristics has become a priority for EIOPA.

Against this background, in 2025 EIOPA launched an EU market-wide survey aiming to better understand the dynamics, opportunities, and risks associated with Gen AI systems in the European insurance sector. The findings of this survey, based on responses from 347 insurance undertakings across 25 EU (and EEA) countries, are summarised in this report and are complemented with inputs from a 2025 Eurobarometer survey providing customer perspectives on trust in Gen AI systems. Some of the key findings are:

> ➢ Gen AI adoption is widespread and growing rapidly; 65% of insurance undertakings are already actively using Gen AI systems, but the majority of use cases are at a proof-of-concept stage, highlighting its growth potential.
> ➢ Efficiency is the main driver; insurers are primarily adopting Gen AI systems to enhance the efficiency of internal processes and reduce costs, followed by enhancing customer interactions and improving decision-making.
> ➢ Privacy, regulation, and talent are the key barriers; data privacy and security concerns, regulatory compliance (such as the GDPR), and a lack of skilled talent are the most significant reported challenges to implementation.
> ➢ Focus is primarily on back-office operations; 64% of the reported use cases are for internal back-office applications (e.g., productivity tools, coding assistants, agent support) compared to 36% for customer-facing applications.
> ➢ Use cases span across the value chain; the most active areas for Gen AI use are customer service, claims management, and sales and distribution. Fraud detection is the area with the highest planned future adoption.
> ➢ Human oversight remains dominant; current adoption is dominated by "Assisted" models requiring human oversight. A shift is expected towards "Semi-Autonomous" and "Agentic AI" systems in the medium term.
> ➢ "Hallucinations" are the top-cited risk; insurers identify inaccurate outputs as the main risk of Gen AI systems, followed by cybersecurity risks, data protection, and lack of explainability.

- ➢ Need to adapt existing governance and risk management frameworks; 49% of undertakings have developed a dedicated AI policy (a twofold increase from 2023), with Gen AI systems requiring a greater focus on the model inference stage (e.g. prompt engineering and outcomes monitoring).
- ➢ Reliance on third-party providers is high; the dominant strategy is purchasing off-the-shelf solutions or building on third-party models, making vendor risk management crucial. The majority of insurers view the AI Act's provisions about Gen AI systems as useful for ensuring provider reliability.

The current Gen AI landscape shows already a large penetration in the European insurance sector as well as great potential for future growth, with many insurance undertakings developing comprehensive AI polices and roadmaps to harness the productivity gains that may arise from Gen AI systems. However, insurers are also adopting a cautious approach by implementing a controlled scaling of Gen AI systems, focusing primarily on internal efficiency use cases and maintaining strong human oversight, in view of the novelty and challenges of this new technology.

The trend clearly points towards a rapid increase in adoption in future years and a shift from simple assisted tools to more sophisticated and autonomous systems. EIOPA will continue monitoring the specific risks and benefits for the market and customers in the years to come and use the findings of this report to inform its current and future work on this area.

2. METHODOLOGY

Article 8.1 (f) of the EIOPA Regulation[1] mandates EIOPA to "monitor and assess market developments in the area of its competence including where relevant, developments relating to trends in insurance, reinsurance and occupational pensions, in particular, to households and SMEs and in innovative financial services duly considering developments relating to environmental, social and governance related factors".

In this context, and in line with its Annual Work Programme[2], EIOPA conducted a Gen AI market survey between 8 May 2025 and 22 July 2025. The survey[3] contained 21 questions including numeric rankings, multiple-choice items, and open-ended questions, to provide a mixture of quantitative and qualitative input. Respondents were also asked to provide organisational details, including their Legal Entity Identifier (LEI), name, jurisdiction, and lines of business where they were active.

The objective of the survey was to gather empirical evidence on the state of play of Gen AI adoption in the European insurance sector. To this extent the survey collected information on strategic drivers, implementation challenges, development models, governance, and the regulatory landscape, among other topics.

The survey was published on EIOPA's website and was distributed to insurance undertakings via their respective National Competent Authorities. It covered both life and non-life (re)insurance lines of business, including both retail and corporate clients. Insurance intermediaries were excluded from the scope.

The analysis includes responses from 347[4] insurance undertakings across 25 EU (and EEA) Member States.[5] Undertakings were asked to complete the survey based on the status of their organisation as of Q2 2025 and, for some questions, foreseeable developments over a 3-year time horizon. NCAs were asked to share the survey with insurance undertakings representing at least 60% of the GWPs of their respective markets and our analysis of SII data suggests this target was mostly met; due to the different levels of concentration of different markets, the absolute number of undertakings

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[1] Regulation (EU) No 1094/2010

[2] Work program 2024-2026 - European Union (europa.eu)

[3] The survey is available in the following link: https://www.eiopa.europa.eu/eiopa-surveys-european-insurers-their-use-generative-ai-2025-05-15_en

[4] The 347 undertakings can be classified based on their response to the survey question on "Line of Business activity" as follows: 148 non-life insurers, 87 life insurers, and 112 active in both life and non-life insurance.

[5] For indicative purposes, there were 2319 solo insurance undertakings in EIOPA's Solvency II database in 2024. The Member States not covered by this survey are Cyprus, Estonia, Latvia, Norway, and Sweden, since some of these Member States had recently conducted or where planning to do a similar exercise in their respective jurisdictions.

needed to meet the sample target varies very significantly – a smaller number of undertakings does not imply a smaller market share covered.[6]

Figure 1- Participating countries and number of undertakings
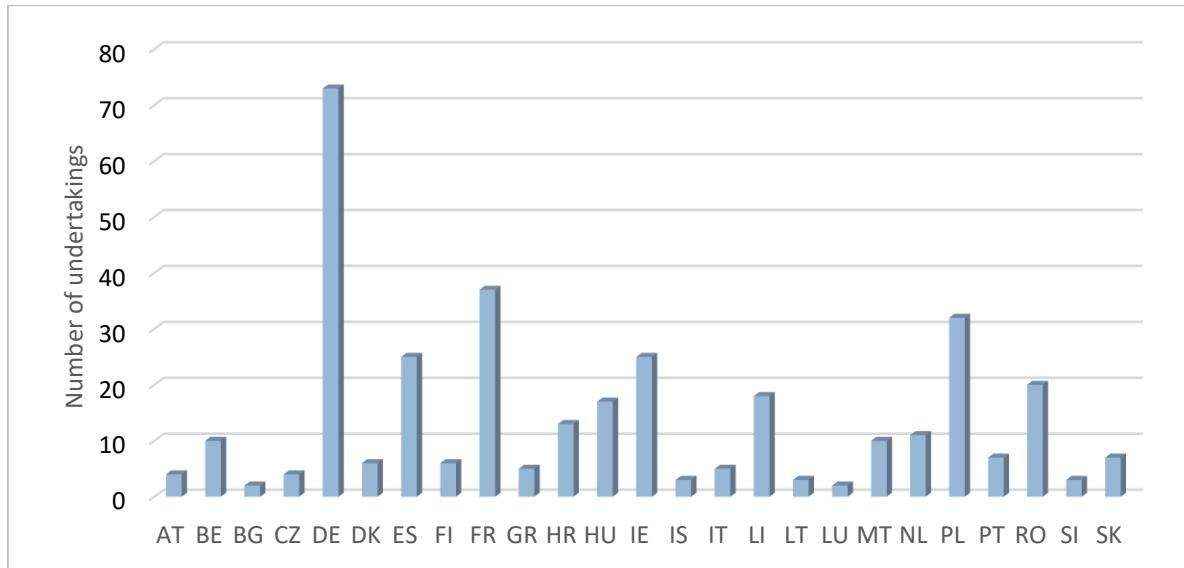
Source: EIOPA's Gen AI survey, July 2025

Overall, the input received can be considered representative of the current state of play of Gen AI adoption in the European insurance sector. Several respondents provided very comprehensive responses on all areas, while others focused on those areas on which they were more specialised or where more input on concrete plans and cases could be provided. The data gathered from the market survey was complemented with input from customers gathered via an EU-wide Eurobarometer survey conducted in May 2025.[7]

This report provides a general assessment of the state of play of Gen AI usage across the EU as well as its future outlook. It has been structured around the following focus areas: Gen AI adoption and

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[6] The survey's coverage is estimated to represent approximately 80% of the total Gross Written Premiums (GWP) for the 2024 EU market. However, this 80% figure is an approximation and should not be treated as an exact value, particularly for life insurance lines of business. The calculation is based on GWP data from the 2024 Solvency II Database, both life and non-life insurance undertakings. The calculation relied solely on this Solvency II data (excluding GWP reported directly by undertakings) and included only entities with matched LEIs. A total of 80 LEIs were excluded as they could not be matched within the Solvency II Database. Additional adjustments for LEI duplication or inconsistencies between solo and group reporting were not considered.

[7] The Eurobarometer survey was conducted via computer-assisted web interviewing (CAWI) between 14 and 22 May 2025 among 25,846 EU citizens aged 18 and over across the EU27, used Ipsos online panels and partner networks (with some respondents in Malta and Luxembourg were recruited via social media) and had sample sizes of about 500 persons in LU, CY, and MT, and about 1,000 in the other Member States. The survey included several questions about customer's approach to insurance and pension products and services, including one question about Generative AI.

implementation strategies, Gen AI use cases across the insurance value chain, and governance and risk management of Gen AI systems

3. GEN AI ADOPTION AND IMPLEMENTION STRATEGIES

3.1. Gen AI Adoption

Gen AI adoption across insurance undertakings has already started. It is not only considered as an emerging technology with great potential, but many insurers see it as a strategic asset that could influence the future of the sector and its competitive landscape.

Figure 2 below shows that its relevance is already established and is expected to grow in the coming years: almost 65% of insurance undertakings are already actively using Gen AI systems today, and a further 23% are planning to implement them within the next three years.[8]

Figure 2- Gen AI Adoption Status
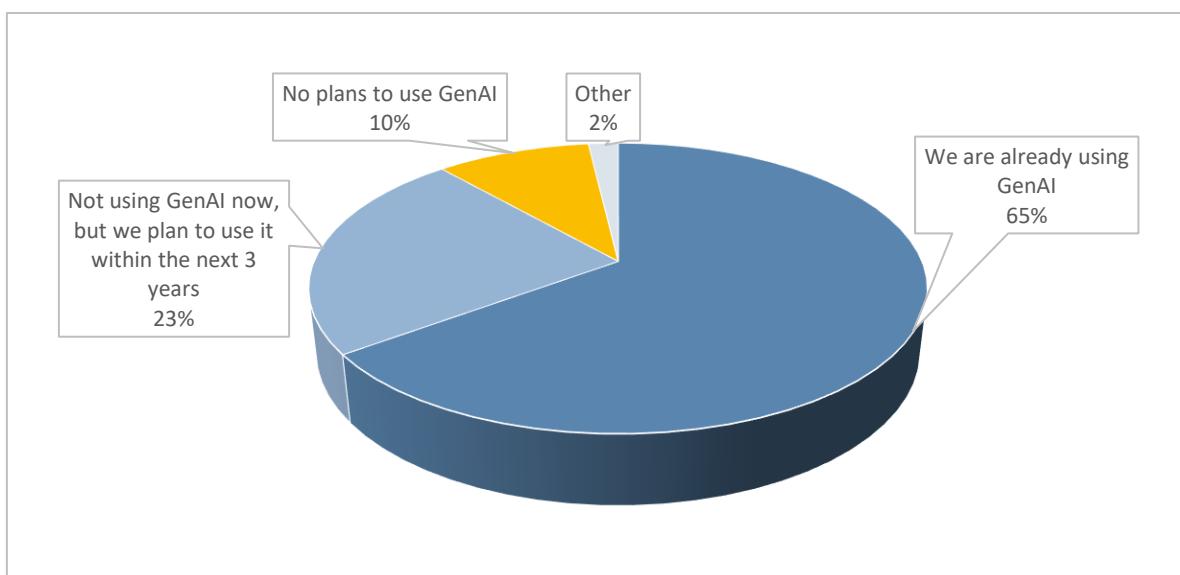
Source: EIOPA's Gen AI survey, July 2025

Although the graphic above indicates widespread adoption of Gen AI systems in the European insurance sector, it is important to note that Gen AI adoption is still in its early stages, since insurers have a diverse range of use cases in development, with varying degrees of maturity. Notably, the majority (64%) of reported use cases are currently in the proof of concept or experimentation stage,

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[8] The self-usage by staff of publicly available Generative AI systems was left out of scope of this exercise, except in specific questions about self-usage by staff. Self-usage by staff should be understood as uses of Generative AI systems that have not been purchased, developed, or authorized by the organisation.

while only 32% of the use cases have advanced to production. This suggests a move towards more structured growth in the coming years, driven by the implementation of the specific use cases as analysed further in section 4 of this report.

Moreover, a direct comparison of line of business-specific activity of the participating undertakings, as reflected in table 1, shows that Gen AI adoption is slightly more advanced in non-life insurance, where 65% of non-life insurance undertakings are already using Gen AI systems today, compared to 61% of life insurance undertakings.

Table 1 - Gen AI Usage by Line of Business [9]

Line of Business	We are already using Gen AI	Not yet using Gen AI but we expect to use it within the next 3 years	No plans to use Gen AI within the next 3 years	NA
Non-life insurance	65%	24%	10%	1%
Life insurance	61%	26%	12%	2%

Source: EIOPA's Gen AI survey, July 2025

It is important to highlight that currently most uses cases are not tied to a specific line of business. Instead, as shown in section 4 of the report, most use cases are transversal applications that can be implemented across both life and non-life insurance lines of business, such as in back-office operations and improving general efficiency. Without taking into account cross-cutting back-office applications, the current use of Generative AI systems in specific lines of business is reportedly greater on non-life insurance lines of business (46% of non-life insurers) than on life insurance lines (26% of life insurers).

3.2.   Main Drivers for Gen AI Adoption

When questioned about the main drivers for adopting Gen AI systems in their organisation, Figure 3 below shows that enhancing the efficiency of internal processes and cost reduction is the main driver for insurers implementing Gen AI systems, followed by enhancing customer experience, and, to a lesser extent, improving decision-making processes.

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[9] Table derived from Question 6: "Is your organization currently using, or does it expect to use within the next 3 years, Generative AI systems?" Analysis reflects Generative AI usage by reported line of business; at the beginning of the survey undertakings were asked to classify their line of business activity as "Life," "Non-Life," or "Both." For undertakings indicating "Both," responses were included in both the Life and Non-Life aggregates. Irish undertakings were excluded from this table due to the absence of line-of-business information.

Figure 3- Main Drivers for Gen AI Adoption
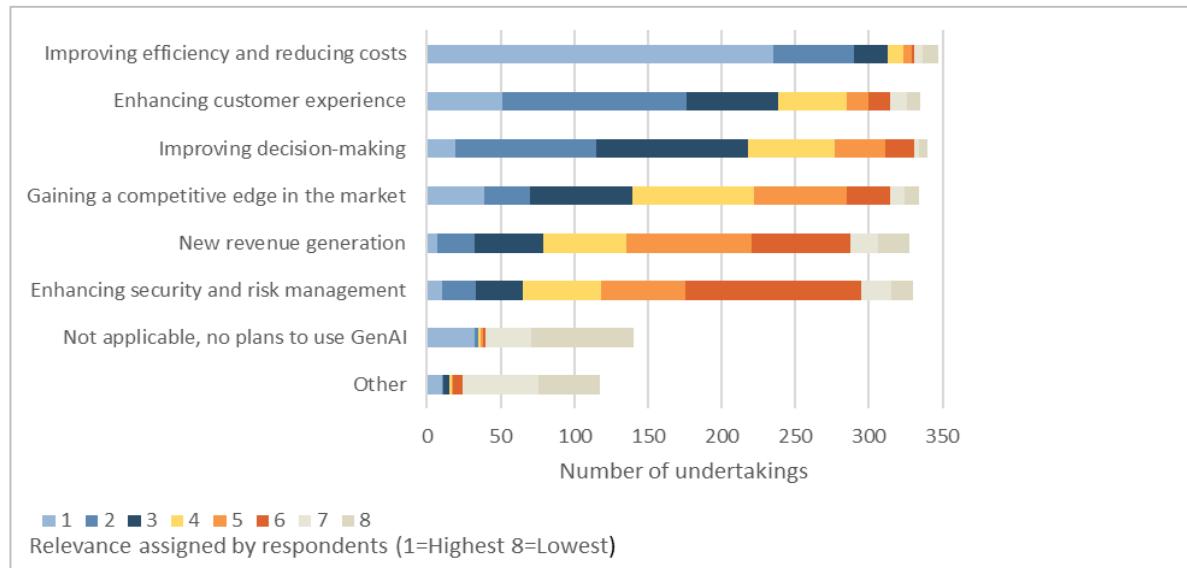
On the efficiency aspect, insurers are increasingly using Gen AI productivity tools such as coding assistants to develop software capable of automating repetitive tasks. Other reported use cases include the use Gen AI systems to support document drafting, document summarisation, note-taking, planning, and data analysis. These tools are also being leveraged in software development.

In terms of customer interactions, the main motivation reported by insurance undertakings is to enhance the service offer, for instance by improving claims handling journeys or by enabling faster and more direct processing of requests. A practical example is the deployment of chatbots and conversational assistants, which are being used to respond to simple queries or to support call centre agents. These solutions provide quick access to knowledge articles, suggest email responses, and increasingly act as real-time support tools for front-line employees.

Insurers are also exploring Gen AI systems to support decision-making and increase the quality of insurance products and services. For instance, some insurers report pilot initiatives aimed at providing support to underwriters and actuaries by automating the ingestion of information provided by new customers, assessing individual risks, and improving pricing and underwriting models. In claims, this includes optimising the claim-review process, supporting fraud detection, or automating data collection to provide better insights to loss adjusters.

At the same time, adoption patterns reveal a cautious and phased approach. As is further explained in section 5 of the report, several insurance undertakings highlight the existence of dedicated AI roadmaps, with concrete pilot projects extending to 2026 and beyond. Typically, they start with proofs of concept and, then move to controlled internal deployment, and finally advance to integration into more critical business processes. Human supervision remains a vital requirement

throughout these stages: decisions are not fully automated, and outputs of AI systems are consistently reviewed by humans, particularly in customer-facing situations or low-risk processes

BOX 1- EUROBAROMETER SURVEY: CUSTOMER TRUST OF AI-DRIVEN INSURANCE AND PENSION RECOMMENDATIONS

In EIOPA's 2025 Eurobarometer survey, customers were asked to what extent they would trust the recommendations of non-human AI agents when choosing insurance or personal pension products.

As it can be observed in the graphic below and considering that it is still relatively early in the development of this technology, most customers (59%) expressed reservations on the potential recommendations provided by AI Agents, compared to only 30% who would trust them.

Figure 4-Eurobarometer Survey
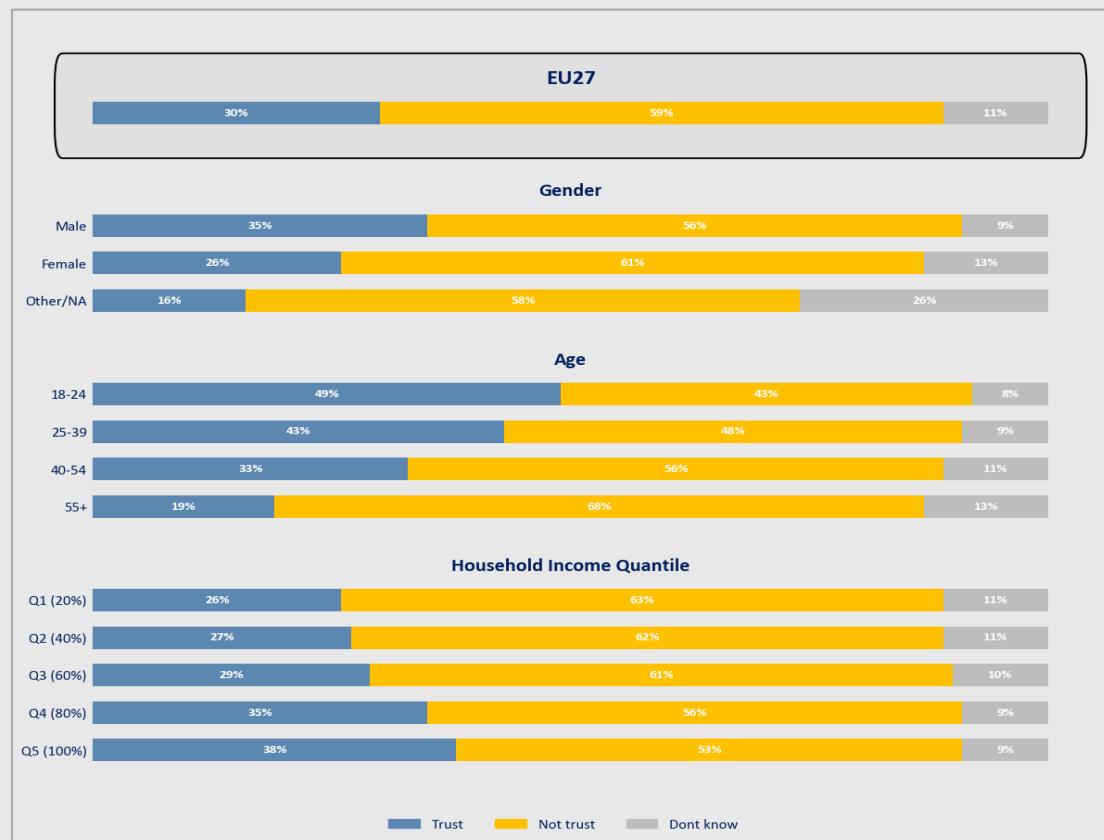
Source: EIOPA's Eurobarometer survey, May 2025

The sentiment towards AI agent recommendations varies significantly across key demographics such as age, gender, and household income. Age is the most significant factor; trust in AI recommendations declines sharply from 49% among the 18-24 age group to just 19% among

those 55 and over. A gender gap is also apparent, with men (35%) expressing more trust than women (26%). Furthermore, trust correlates positively with household income, rising from 26% in the lowest quintile to 38% in the highest.

3.3 Gen AI Implementation Challenges

As it is often the case with the adoption of new technologies and business models, the implementation of Gen AI systems faces a range of interconnected challenges. As Figure 5 indicates, data privacy and security concerns together with regulatory compliance issues and a lack of staff with the relevant skills are the most significant barriers for Gen AI implementation reported by respondents.

Data privacy and security concerns are indeed a primary factor reported by several undertakings as reducing the pace of Gen AI adoption. This encompasses a range of risks, such as the potential for data leakage of sensitive customer information, unauthorized access, or cyber-attacks. Closely related is the challenge of regulatory compliance. Several undertakings report that navigating the complex legal landscape is a significant challenge, including the need to adhere to existing data protection regulations as well as anticipating future requirements such as those included in the AI Act.

Figure 5-Main Gen AI Implementation Challenges
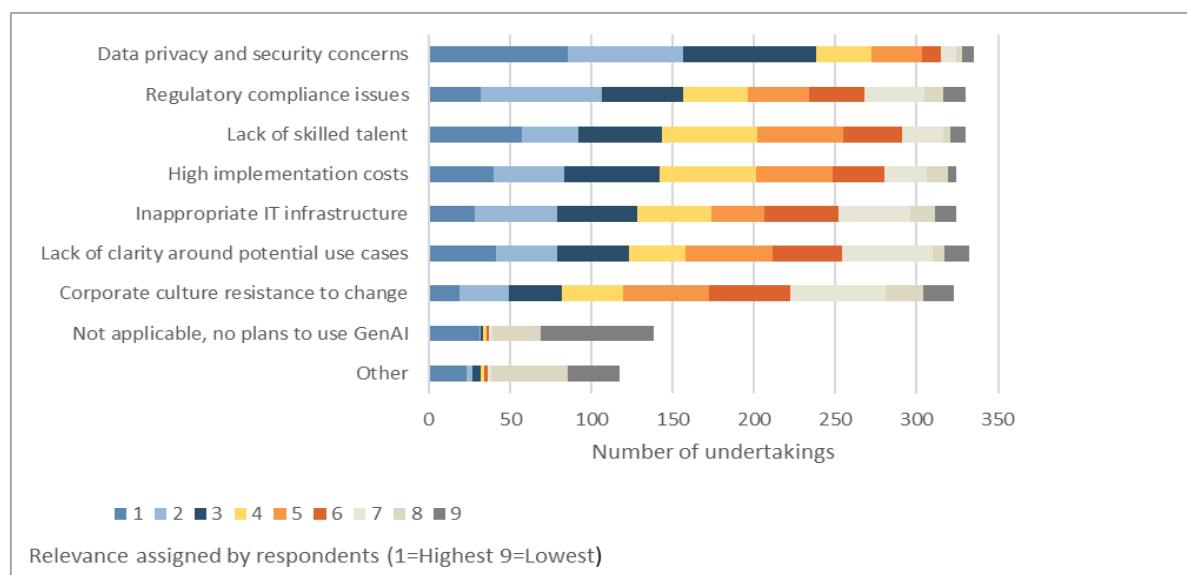
Source: EIOPA's Gen AI survey, July 2025

Beyond these legal and data hurdles, the human element is identified as another critical challenge. Several undertakings report a significant talent shortage, noting the difficulties in finding talented and skilled personnel and educating their own personnel. This shortage makes it difficult to build the in-house teams they consider to be needed to effectively implement and govern Gen AI systems.

Some insurers also report hurdles linked to the high implementation costs associated with Gen AI solutions, including the difficulty to estimate the final costs in token/usage-based payment methods offered by service providers. From a technical perspective, IT infrastructure limitations present another obstacle.

To a lesser extent, some undertaking also mentioned that internal cultural resistance to change was an important barrier. Successful adoption therefore would require not only a clear business case, but also significant change management focused on users to transform the potential of Gen AI systems into tangible business value.

3.4   Sourcing Strategy for Gen AI

Most insurance undertakings have adopted a hybrid approach when implementing Gen AI solutions i.e. they combine different implementation approaches based on their organisational needs, and in particular by assessing several key criteria such as the specific use case and its strategic importance, data sovereignty, time-to-market or costs.

Figure 6-Gen AI Development and Sourcing Strategy
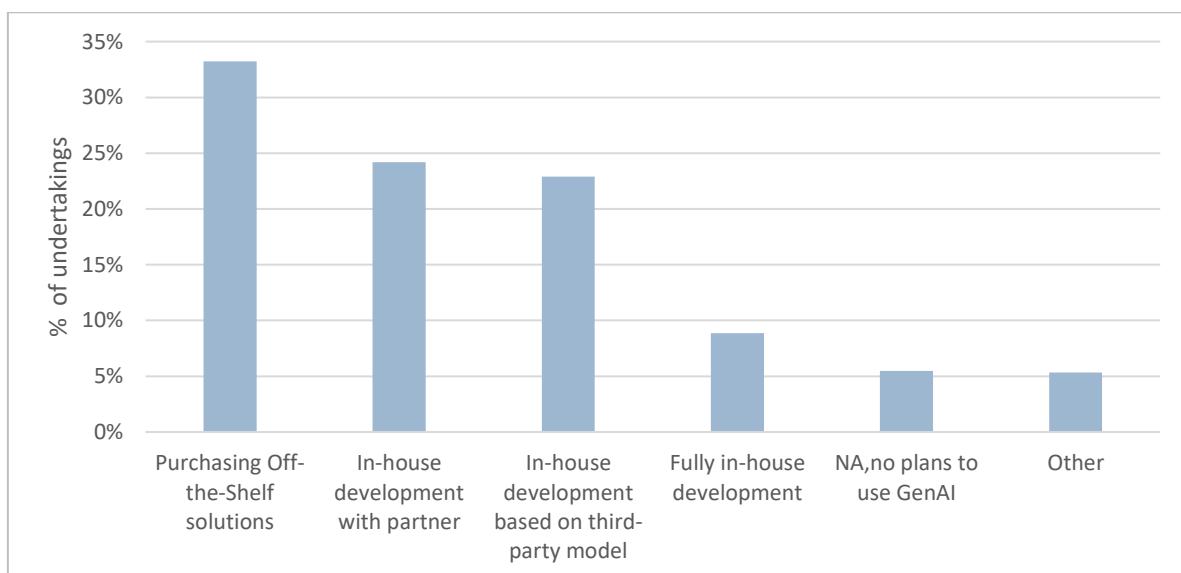
Source: EIOPA's Gen AI survey, July 2025

As shown in Figure 6, the dominant Gen AI development strategy is to leverage external technologies and partnerships to accelerate development and access advanced capabilities, with purchasing off-the-shelf solutions being the most popular approach. There is a strong consensus that developing models fully in-house is impractical due to prohibitive costs, the need for specialised talent, and significant infrastructural and regulatory hurdles. This contrasts with the results from the previous market monitoring related to AI, where a preference for in-house solutions was shown.[10]

Some insurers explained that they adopt a "make or buy" strategy, selecting models based on the specific use case. For general and non-strategic needs, such as boosting employee productivity, some insurers "buy" commercial off-the-shelf solutions. Conversely, for core business processes where a competitive advantage is sought, they tend to prefer "making" their own solutions. This "make" strategy, however, does not mean creating a foundational model from scratch. Rather, it involves building custom, "in-house" applications on top of existing third-party or open-source models. This approach allows insurers to maintain control and sovereignty over the final application and its data while still harnessing the power of market-leading technology.

3.5 Gen AI Data Sources used for Training

When implementing Gen AI systems, insurance undertakings must also choose a data strategy, which dictates how Gen AI systems access and process information. Similar to the previous point, there is not a unique approach and insurance undertakings will normally choose a "mix" of solutions based on their organisational needs, in particular regarding the use case for which the Gen AI system would be implemented.

By definition, Gen AI systems are pre-trained by third-party service providers on vast amounts of diverse data, such as text, images, or audio, which enables them to learn general patterns and relationships, and develop a broad capability for working with language, concepts, and structures, before being implemented into specific tasks. Insurance undertakings using "off-the-shelf" third-party Gen AI systems would exclusively rely on the external training data used by the third party. However, they may also further finetune these systems by retraining them with their own proprietary data, or with alternative methods such as Retrieval-Augmented Generation (RAG), which is the most common technique to date as reflected on Figure 7.

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[10] In EIOPA's 2024 Report on the digitalisation of the European Insurance sector, 66% of the reported AI use cases were developed in-house by insurance undertakings themselves, while the remaining 34% were reportedly outsourced from third-party service providers

Figure 7- Gen AI Primary Data Sources for Training
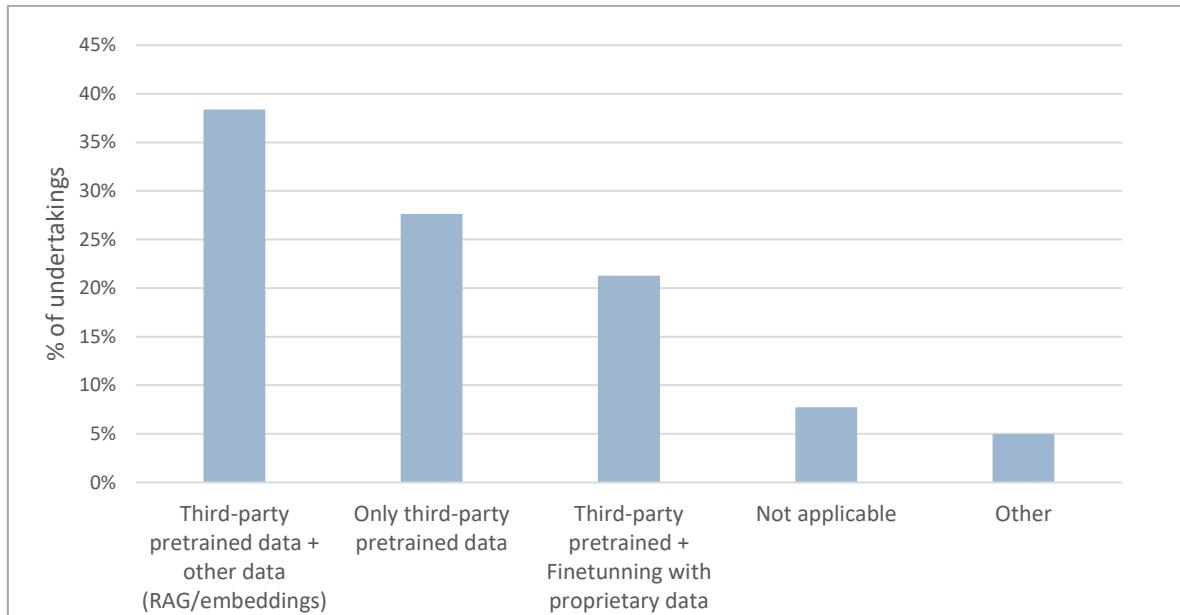
Source: EIOPA's Gen AI survey, July 2025

Insurance undertakings explained that using RAG allows the enrichment of models with proprietary or context-specific knowledge (underwriting guidelines, policy documents or third-party libraries), but without modifying the underlying model weights. This technique provides undertakings with greater control of the internal 'source of truth' of the Gen AI system and therefore promises to improve accuracy and reduce so-called hallucinations by grounding the model's responses in specific domain-knowledge sources. Another reported advantage of RAG is that it offers a more agile and practical balance between cost and performance, allowing them to leverage powerful Gen AI systems without incurring the significant complexity, resource expenditure, and regulatory demands associated with full retraining.

While less common and reportedly more costly, some insurance undertakings also fine-tune pre-trained models by retraining them with their own proprietary data. This reportedly allows undertakings to benefit from the capabilities of Gen AI systems while maintaining greater control over the data and underlying model weights and therefore ensuring greater alignment with internal policies. Reported examples where this approach was adopted include use cases like adapting a model to a particular corporate communication style for automated email responses or for specialized technical tasks like speech-to-text recognition.

Notwithstanding the above, several undertakings explained that they are still as the early stages of their Gen AI journey, and they were still evaluating possibilities therefore their current approach may change in the future. This highlights that the choice of data source is highly dependent on the specific use case, security posture, and an organization's maturity in its AI adoption.

4 GEN AI USE CASES ACROSS THE INSURANCE VALUE CHAIN

4.3 Customer Facing vs Back-Office Applications

Insurance undertakings were asked to provide examples of three primary customer-facing Gen AI use cases and three primary back-office use cases that they were currently developing or implementing. A total of 957 Gen AI use cases were reported, with 64% being implemented internally to enhance organisational processes, and the remaining 36% being labelled as customer-facing applications, highlighting a substantial emphasis on internal process improvement.

Figure 8 - Customer facing vs. back-office Gen AI use cases
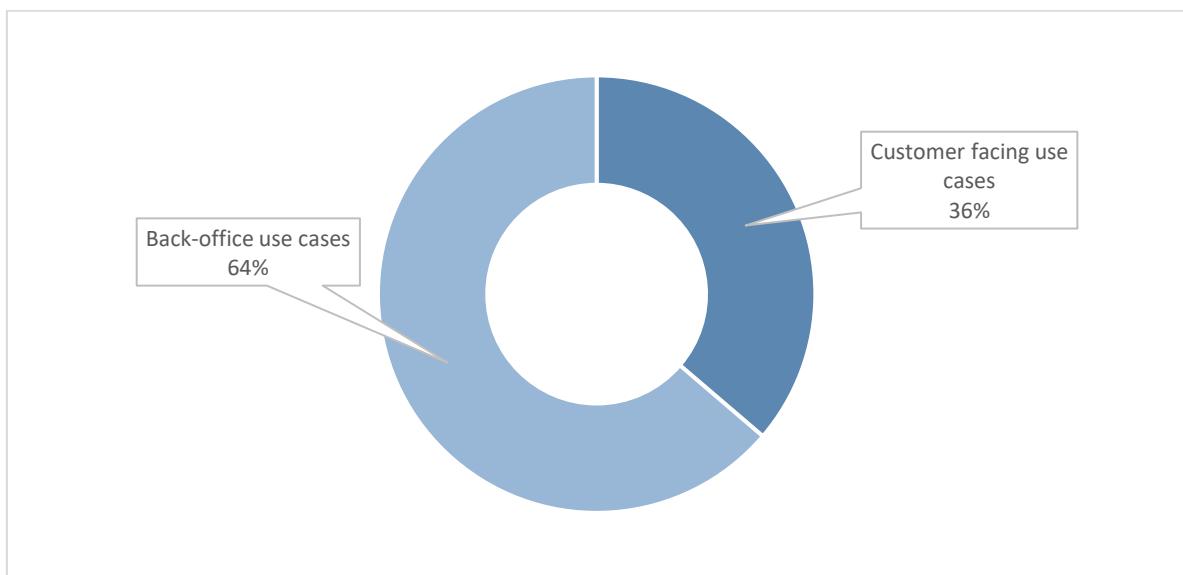
Source: EIOPA's Gen AI survey, July 2025

While the difference between customer-facing and back-office use cases is sometimes blurred (e.g. uses cases in the area of pricing and underwriting were reported under both categories), some examples of back-office operations include the automation of manual tasks such as automated invoice processing, document or voice recording insights extraction, contract analysis, or medical report summarization. Other examples of use cases aimed at enhancing employee productivity and efficiency include AI-powered writing assistants, research tools, coding and data analysis platforms.

As far as the customer facing applications are concerned, undertakings reported examples of Gen AI uses cases such as chatbots and virtual assistants providing faster and more accessible responses to customer inquiries. In the area of marketing, Gen AI tools are being developed to enhance

marketing efforts through AI-powered content generation (both text and images) for the insurer's website or social media. The optimisation of claims management processes, for instance to analyse and extract insights from the customer's first notification of loss (FNOL), was also often mentioned. In the area of underwriting, an insurer explained that they have developed an in-house LLM to help underwriters find the relevant information from their internal life and health insurance underwriting manual.

4.4   Gen AI Use Case Maturity

The fact that back-office applications are being prioritised is also reflected in the fact that the use cases reported in this area are more advanced from an implementation perspective. Indeed, the majority (64%) of the total number of reported applications were at early stages of development, particularly for customer-facing applications.

Figure 9 - Different stages of development
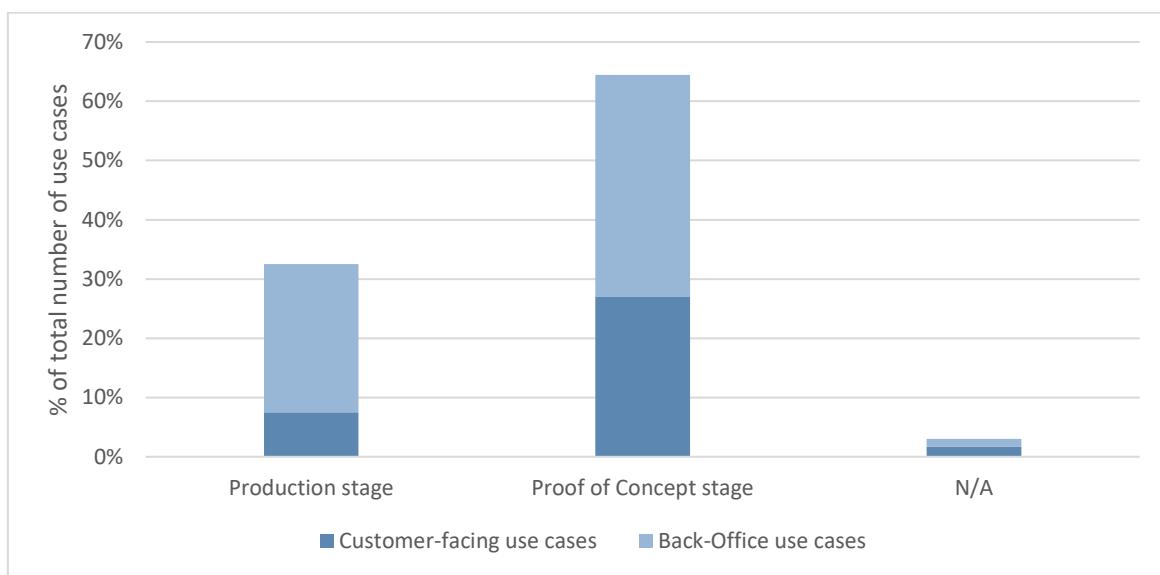
Source: EIOPA's Gen AI survey, July 2025

These results indicate that Gen AI adoption in the insurance sector is still at early stages and there is great potential for further development and growth in the short and medium term. It also shows that insurers are actively pursuing multiple use cases concurrently, with a portfolio of initiatives at various stages of maturity, rather than focusing on a single project.

4.5   Gen AI Use Cases Across the Insurance Value Chain

Gen AI systems are being actively implemented and explored across the entire insurance value chain. As shown in Figure 10, most undertakings report Gen AI usage in customer service, claims management and sales and distribution, where 40%, 32%, and 22% of undertakings, respectively, report already using Gen AI systems.

Looking ahead, the areas with the highest reported adoption in the next 3 years are fraud detection (64% of undertakings plan to use Gen AI systems), followed by claims management (59%) and sales and distribution (54%).

Figure 10- Gen AI Adoption Across the insurance Value Chain
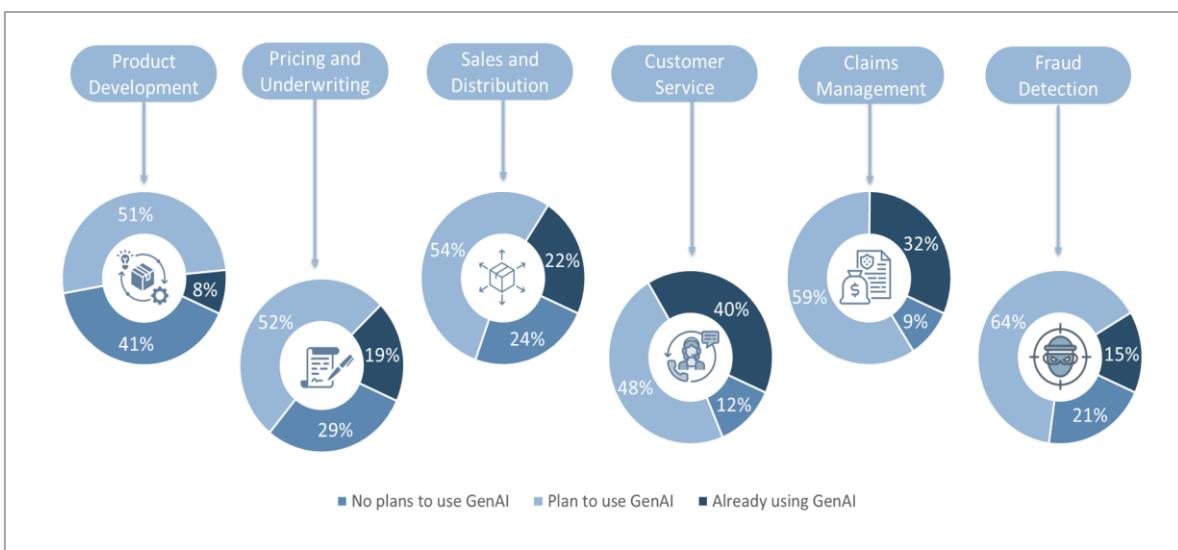
Source: EIOPA's Gen AI survey, July 2025

In customer service, applications typically address both external customer interactions and internal agent support. For direct customer engagement, some insurance undertakings are deploying Gen AI-powered chatbots and voicebots to manage simple inquiries and support claims received via the Internet or the phone, respectively. At a more internal level, the focus is on augmenting human agents (i.e. enhancing their capabilities) by providing them with AI-powered tools to quickly find information or summarise complex inquiries.

Insurance undertakings also reported the use of internal Gen AI chatbots as assist underwriters in finding relevant information in their internal underwriting guidelines. Other pricing and underwriting examples include providing insights to intermediaries about their sales performance, including insights extracted from call transcripts, quotes and possible products and services that could be offered to the customer. Another undertaking reported the use of Gen AI systems to extract

information from medical documents to fast-track the underwriting decision by the actuary/underwriter.

In claims management, some insurers report leveraging the technology primarily for processing automation and decision support. For example, one undertaking reported an application that involves the automated extraction of data from unstructured documents such as invoices and medical reports, which significantly reduces manual work. However, a recurring theme for such use cases is the "human-in-the-loop" approach, with many undertakings consistently stating that these systems are intended to support, not replace, human claims handlers. Another use case reported by some undertakings is the development of internal knowledge management systems, often using Retrieval-Augmented Generation (RAG), which allow employees to instantly search vast databases to answer customer questions accurately and in a timely manner.

Table 2- Examples of Generative AI Use Cases

Gen AI Use Case	Description
Chatbots / Voicebots	Systems that simulate human conversation (text or voice) to interact with users, providing 24/7 support, answering simple inquiries, or managing First Notice of Loss (FNOL).
Code Assistants	Assist developers by generating, testing, or documenting code, helping to accelerate software development cycles and improve code quality.
Text Summarization	Condense long-form text—like, complex customer inquiries, or contracts—or videos and audios – like call center conversations - into short actionable summaries for faster review.
Claims management	Identify and extract key data from unstructured documents, such as invoices or medical reports, to automate data entry, speed up processes and unlock insights.
Fraud detection	Analyse various input data, such as claims files, police reports, videos, or images, for irregularities and anomalies, and to predict the likelihood of fraud.
Underwriting Assistants	Augmenting data received from customer's applications with insights into underwriting guidelines and rules to enhance the work of actuaries / underwriters when conducting risk assessments.
Email query response	Classify, interpret, and respond to incoming emails. When a query cannot be resolved automatically, the system suggests responses using intelligent templates for an agent to validate.

Source: EIOPA's Gen AI survey, July 2025

4.6   Level of Automation

Gen AI applications can be clustered into different levels of automation, reflecting the extent to which human input and oversight are required. At the most basic level, "Assisted Gen AI systems" is a term commonly used to refer to systems that depend on human prompts or questions to produce content or analysis, serving primarily as a productivity support tool. The next level, "Semi-Autonomous Gen AI systems", involves systems capable of generating complete outputs, such as draft contracts or next-best-action recommendations, with a certain degree of automation, while still requiring human validation before implementation. Finally, "Autonomous Gen AI systems", or "Agentic AI systems", represents the most advanced level, where systems can independently make decisions and perform complex tasks with minimal or no human intervention.

Figure 11 shows that current adoption is dominated by semi-autonomous and assisted models, jointly representing 83% of the total use cases reported, where human input and control remain fundamental. This category, however, is expected to decline considerably within the next three years, when insurers expect the uptake of Agentic AI tools to increase considerably (they currently represent only 9% of the reported use cases).

Figure 11- Reported Generative AI Use Cases by Automation Level
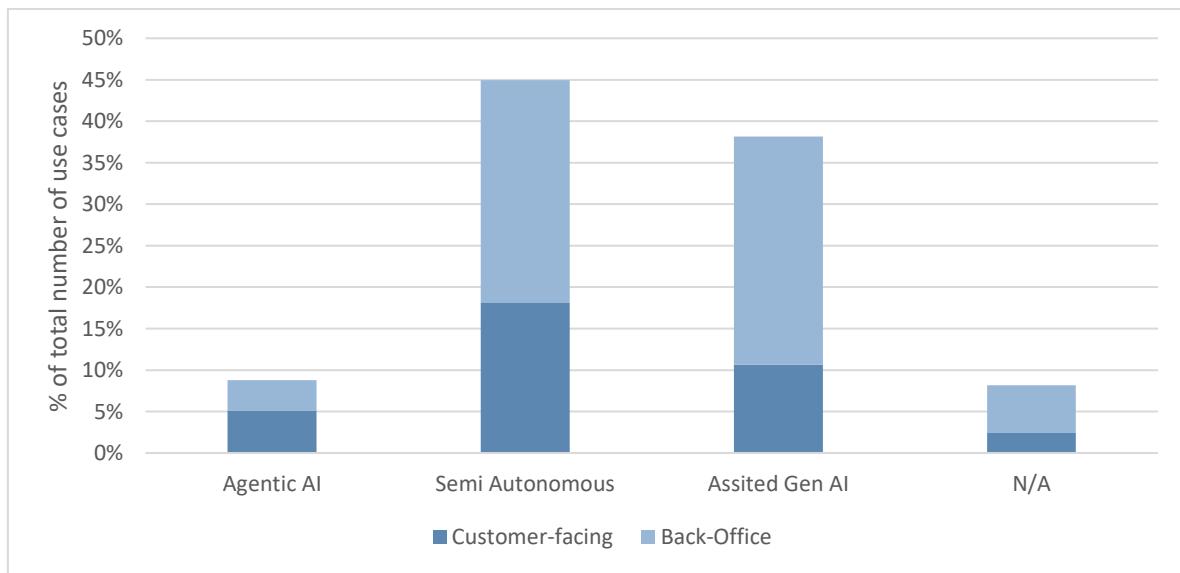
Source: EIOPA's Gen AI survey, July 2025

The current reliance on assisted systems reflects a deliberate strategy to ensure that human expertise and judgment remain at the core of all decision-making processes. Many undertakings describe this as an essential safeguard for maintaining accuracy, accountability, and control, particularly in sensitive or high-impact use cases.

The dominant view is that, at the current state of development, Gen AI systems should function primarily as a tool that augments rather than replaces human decision-making, reinforcing the human-in-the-loop model as a foundational principle. However, the reported gradual progression from assisted to semi-autonomous and Agentic AI applications, suggests that insurers expect a more sophisticated and integrated use of Gen AI tools while maintaining significant human oversight during the transition to more autonomous models.

BOX 2 - AGENTIC AI IN INSURANCE

Agentic AI is commonly defined as an AI system capable of autonomous decision-making and performing tasks with minimal or no human intervention. Similar to other sectors of the economy, Agentic AI adoption has already started in insurance, and some insurers expect it to have a profound and transformative impact on the insurance sector that could reshape business functions and redefine customer interactions.

More specifically, out of the 957 Gen AI use cases reported, 84 were labelled as Agentic AI use cases in different stages of development / maturity. Interestingly, contrary to the broader use of Gen AI systems, insurers anticipate Agentic AI to have a greater impact on customer-facing applications (49 use cases) compared to back-office applications (35 use cases), namely due to a large number of voicebots and chatbots projects reported.

Table 2 - Agentic AI use cases – state of play

Application Area	Number of Use Cases	Stage of Development	Examples of Agentic AI Use Cases
Customer-Facing	49	Mostly proof of concept	Chatbots, voicebots, personalised advertising banners, call summarisation, automated processing and settlement of low-value claims.
Back-Office	35	Various stages	Invoice assessment systems, automated email response, structured data generation from contracts, intent recognition in customer queries, claims modelling for tariffing parameters, customer service audits.

Source: EIOPA's Gen AI survey, July 2025

The majority of Agentic AI use cases are in early stages of development, especially concerning customer facing applications. However, examples of Agentic AI use cases already in production were also reported; for example, an insurer explained how they use a Gen AI-powered chatbot to provide customers with information on claims compensations. Another one is automating the appearance of personalised advertising banners in the online portal based on Gen AI insights tailored to the customers profile and behaviour. Furthermore, the use of Gen AI systems to summarise calls with customers, condensing key points into a conversation history, was also reported.

In the back office, reported Gen AI use cases include invoice assessment systems to evaluate the usability of invoice images provided by the customer. Another insurer explained how they aim to use Agentic AI to automate the response to over 350.000 customer emails. Another example included the use of Agentic AI to generate structured data from insurance contracts and automatically upload it into the Customer Relationship Management (CRM) system of the organisation. Another insurer explained how they were using Agentic AI to fix errors in customer's application submissions, and another was planning to use Agentic AI to audit customer service calls to check for inconsistencies and enhance quality.

Looking ahead, while as mentioned above some respondents have already started to use Agentic AI, this is not the case for most of the respondents, who only expect the penetration of Agentic AI to become mainstream in the sector within a medium-term timeframe of 3 to 5 years. Some insurers expect Agentic AI to be predominantly used in core areas of the value chain such as claims management, underwriting, and customer service, while also expecting significant potential in fraud detection and the automation of back-office operations.

The primary Agentic AI benefits expected for customers include enhanced and more personalized customer experiences, faster service, and the potential for new, more dynamic insurance products. Benefits expected for insurance undertakings are improved efficiency, reduced operational costs, and significant productivity gains. But the implementation of Agentic AI is also expected to face significant challenges; reported concerns include regulation and the need for explainability, traceability, and non-discrimination. Ensuring trust and reliability is another major hurdle reported, with many insurers emphasising that fully autonomous systems in core areas without human oversight pose significant risks.

5 GOVERNANCE AND RISK MANAGEMENT OF GEN AI SYSTEMS

5.3 Gen AI Risks

Gen AI systems raise a number of risks and challenges from a governance and risk management perspective, due to their limited explainability, limited overview of the training data as well as their capacity to generate content autonomously and behave less predictably / in a non-deterministic manner. Figure 12 below shows that so-called hallucinations[11] are indeed considered as the main risks arising from the use Gen AI systems, followed by cybersecurity risks, data protection and explainability issues. Hallucinations are a new risk intrinsic to Gen AI systems, which were not relevant for supervised machine learning systems surveyed by EIOPA in the past.[12]

Figure 12-Main Gen AI Risks

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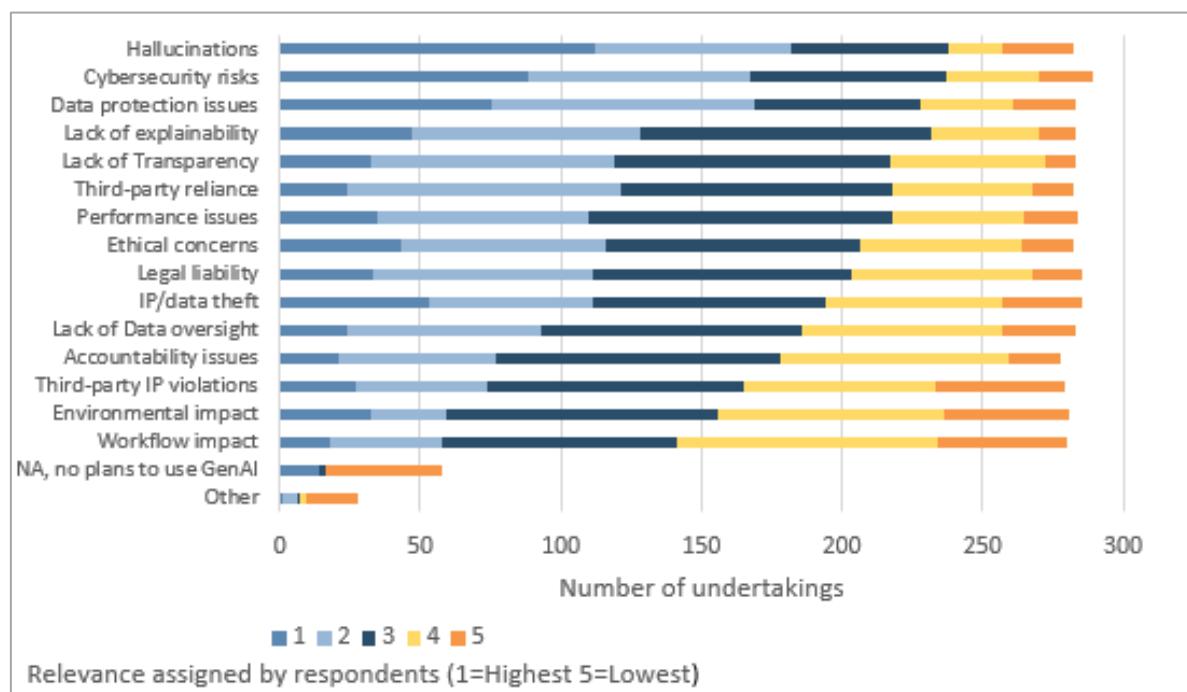
[11] Hallucinations are commonly understood as instances where an AI confidently produces false, misleading, or nonsensical information that appears plausible but is not grounded in reality or its training data.

[12] See EIOPA's 2019 thematic review on Big Data Analytics in motor and health insurance (link) and the 2025 Report on the digitalisation of the insurance sector (link)

Source: EIOPA's Gen AI survey, July 2025

Hallucinations and unexpected behaviours are seen as major limits to higher automation levels for certain tasks using Gen AI systems, since users regularly need to critically assess and verify the system's outputs. Undertakings reported difficulties in testing and ensuring intended usages in a robust way due to the high variability of the outputs. This creates difficulties in ensuring that the model performance meets the expectations in terms of accuracy, consistency, or robustness, this being particularly relevant in customer-facing applications.

The use of Gen AI systems also reportedly increases the exposure of undertakings to cyber threats such as prompt injection, adversarial inputs or jailbreaks (see section 5.3 below). To address this situation, undertakings are adopting a number of measures to safeguard their systems against cyber-attacks and other IT vulnerabilities that could jeopardize the integrity of the organization.

Linked to this last point, some undertakings expressed concerns regarding their over-reliance on third-party service providers (often Gen AI tools are offered by the same entities that provide cloud computing services), who may also suffer cyberattacks and create value chain vulnerability issues that could impact insurers' operations. Undertakings explained that third-party vendor management and correctly defining mutual responsibilities in contract negotiations will become increasingly important going forward.

Undertakings also noted that Gen AI systems are often trained on vast amounts of unstructured and external data, which increases the risks of data quality, legality and provenance. These datasets are often of personal data obtained from the Internet, which could potentially lead to unfair and biased outcomes, also taking into consideration the sensitivity of certain insurance-related data (e.g. health data). In this context, undertakings highlighted the important of complying with data protection requirements such as data minimization, lawful basis for processing, and cross-border data transfers.

Other issues reported by undertakings included the need to establish accountability frameworks, particularly for (semi) automated decision-making processes. Fraudsters could also potentially exploit Gen AI systems to commit scams (e.g. by creating convincing deepfakes or falsified documents). The need to build awareness amongst users and establish additional controls to mitigate intellectual property issues, or the risk of unintentional leakage of proprietary sensitive data were also highlighted.

Finally, several undertakings referred to the high costs associated with the use of Gen AI tools, for instance when they underperform initial expectations in real-life use cases and require significant effort and resources to correct them. The high and unpredictable costs of running Gen AI solutions was also mentioned, for instance when an LLM-based solution offered by cloud service providers generates costs based on the actual volume of input and output tokens.

5.4   Gen AI Policy Landscape

Undertakings are developing different governance and risk management measures to address the risks and challenges posed by Gen AI systems. In view of their novelty, undertakings explained that it is also not possible to know all of their potential shortcomings, and therefore they are implementing a controlled scaling of Gen AI systems in their organizations; they follow a step-by-step approach, for instance by avoiding customer-facing applications at early stages of adoption, or requiring always human validation of the outputs (the so-called "human-in-the-loop") instead of fully autonomous Gen AI systems.

From an organisational perspective, several undertakings have created multidisciplinary AI risk governance committees or working groups. Cross-functional collaboration is seen as key to support the responsible implementation of Gen AI systems, even more than for traditional AI systems which often rely on narrow, case-specific controls. Building awareness and knowledge amongst users of Gen AI tools (e.g. via relevant trainings or internal policies) is also seen of strategic importance.

Almost half of the insurance undertakings (49%) that participated in the survey stated that they have developed a dedicated AI policy to guide the use of Gen AI systems within their organisation; this constitutes a twofold increase compared to the data collected by EIOPA in a similar survey in 2023, where only 25% of the participants had in place an AI policy.

Certainly, as the use and materiality of AI systems increases within an organisation, adopting a comprehensive AI policy becomes increasingly important; 69% of the insurers that are using Gen AI systems already have a policy in place, and a further 16% expect to develop one within the next three years, as it can be seen in Figure 13 below.

Figure 13- Gen AI adoption and Gen AI policy
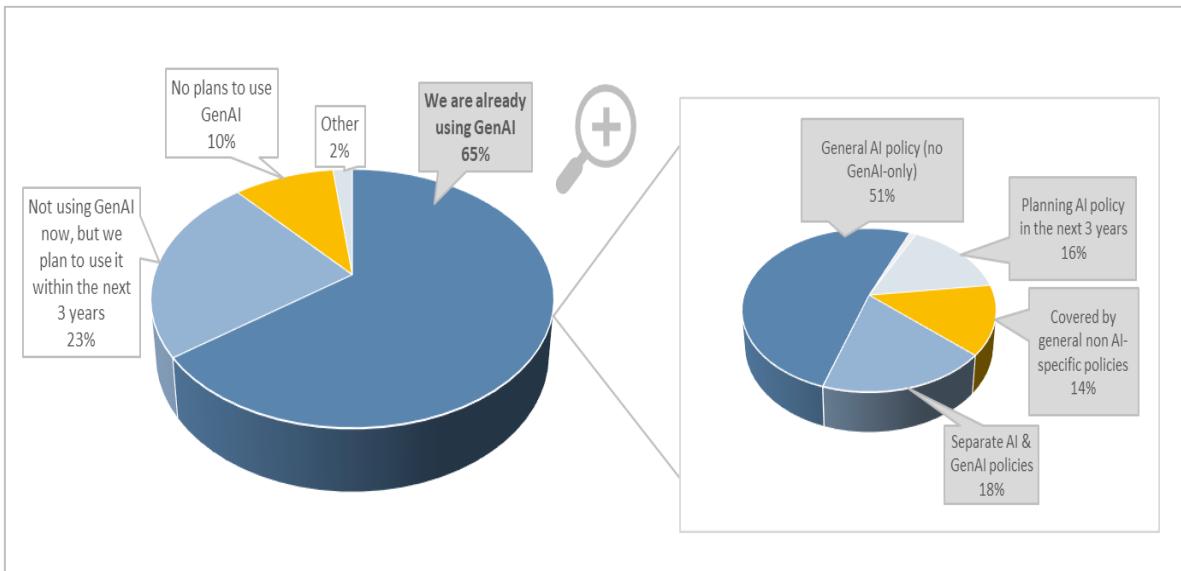
Source: EIOPA's Gen AI survey, July 2025

Most of the undertakings that are already using Gen AI systems have an overarching AI policy (51%) covering all types of AI systems, and only 18% have a specific one for Gen AI systems. For some insurance undertakings this is done at group-level and then implemented locally. An additional 16% of the participants expected to have developed an AI policy in 3 years' time. Moreover, 14% of the participants already using Gen AI systems explained that the use of AI is governed by non-AI specific policies, such as their IT, data or cyber security strategies.

Several respondents indicated that their existing AI policies, which were recently developed, already incorporate provisions related to Gen AI systems. Alternatively, some respondents have supplemented their original AI policies with additional guidelines, driven by factors such as the growing adoption of Gen AI systems, the emergence of new risks and challenges, and the need to adhere to evolving regulatory requirements.

AI and Gen AI policies typically cover key aspects such as data ethics, fairness, security, and scalability, and are designed to ensure responsible adoption of AI systems, including Gen AI systems. Other common features of these policies include the definition of permitted use cases, use cases risk classifications and scoring, approval workflows, outsourcing procedures and model lifecycle documentation requirements.

AI policies would also establish different organizational structures and arrangements, for instance by clearly delineating roles and responsibilities or creating multidisciplinary AI Committees, task forces, and processes. They typically provide employees with clear instructions on how to use and handle AI systems including by clarifying escalation procedures and incident reporting frameworks.

Training programs on responsible AI use would also be commonly included in these policies. The creation of AI registers of use cases was also reported.

5.5   Risk Management Approaches

Insurance undertakings have extensive experience in using mathematical models which they can leverage when using AI systems. However, the participants in EIOPA's survey noted that a large body of governance and risk management techniques related to the model training stage used for "traditional AI systems" such as supervised machine approaches cannot be used for Gen AI systems due to their intrinsic characteristics. Consequently, for Gen AI systems greater focus needs to be placed on the model inference stage (e.g. prompt engineering and evaluation of outcomes).

More specifically, undertakings outlined the different measures they are implementing around the following AI governance principles:

- **Proportionality**

Similar to traditional AI systems, insurance undertakings emphasise the importance of following a risk-based and proportionate approach when addressing the risks arising from Gen AI systems. Different use cases require different measures, as opposed to a one-size-fits-all approach. Indeed, a risk based, and proportionate approach allows them to prioritize risk management efforts, applying stricter controls to high-impact Gen AI use cases, and allocating lower resources for low-impact ones.

Some undertakings that have not developed a specific policy for Gen AI systems explained that, similar to other AI systems, Gen AI systems would undergo a risk assessment process, which would capture their unique characteristics and, accordingly, they would develop risk-based and proportionate governance and risks management measures adapted to the use cases where they are used.

Undertakings acknowledged that Gen AI systems can be used in a wider range of uses (tasks), and therefore they require impact-based assessments / risk scoring across functions, which should have more "adaptive" and "dynamic" governance frameworks.

- **Transparency and explainability**

Undertakings highlighted that Gen AI systems are more complex and less explainable compared to traditional AI systems; traditional AI systems reportedly allow clearer traceability of how the system reached a certain output, also noting that Gen AI systems cannot be (easily) retrained and that service providers would commonly provide limited information about the Gen AI system's design including the data with which they have been (pre)trained.

To address this situation, some undertakings explained that for Gen AI systems they rely more on system transparency rather than on system explainability, i.e. they put greater emphasis on being transparent about the processes followed, including by enhancing documentation and record keeping practices (e.g. logging prompts and outputs).

They also emphasised the need to ensure that individuals interacting with Gen AI systems are clearly informed from the first interaction (e.g. via disclaimers) that they are engaging with an AI tool.

- **Fairness and ethics**

A concern highlighted by several respondents is the risk of discrimination; Gen AI systems are commonly trained on human data, often obtained from Internet sources which could be biased and therefore result in unfair outcomes that perpetuate biases. Detecting bias in Gen AI systems is challenging, among other things due to the vast amounts of training data used from external data as well as due to the system's complexity.

Some undertakings explained that when using Gen AI systems they use the same approach as for supervised machine learning; they rely on existing privacy and data protection safeguards, in compliance with the requirements of the General Data Protection Regulation (GDPR) or other regulations, such as the Fundamental Rights Impact Assessment required for high-risk AI use cases in the AI Act.

Undertakings explained that some standard bias-prevention measures (e.g. mitigating bias in the training data) may not be sufficient with Gen AI systems, and, following a risk-based and proportionate approach, they implement complementary measures such as output audits, guardrails, fairness checks or human oversight to ensure that outputs of Gen AI systems are fair and unbiased. Organisational arrangements such as the establishment of ethics Boards or Committees to review higher risk use cases were also reported.

Table 3 - Summary of insurer's key governance and risk management approaches

Governance Principle	"Traditional" AI systems (e.g. supervised machine learning)	Gen AI systems
Risk management approach	Applied predominantly internally throughout the entire AI system's lifecycle.	Greater focus on the model inference stage (outcomes) and closer collaboration with third-party service providers needed.
Proportionality	Risk-based and proportionate approach, stricter controls for high-impact use cases.	Same approach, but with greater emphasis on adaptive and dynamic governance frameworks due to wider range of uses.

Transparency and Explainability	Greater traceability and explainability of system outputs, easier retraining.	Less explainable, greater emphasis on system transparency, documentation, and record-keeping.
Fairness and Ethics	Bias-prevention measures applied to training datasets and output monitoring.	Greater emphasis on output audits, guardrails, and human oversight due to limited overview of training data.
Data Management	Trained on internally curated, labelled and structured datasets, comprehensive overview of data.	Pre-trained on vast amounts of unstructured data from external sources, limited overview of data, need for data accuracy, provenance, and lineage.
Human Oversight	Important for material use cases and customer-facing applications.	Usually applied "by design" at prompt design and output validation stages.
Documentation and Record Keeping	Thorough documentation of AI system lifecycle.	Greater emphasis on prompt-engineering documentation and logging of human interventions.
Accuracy, Robustness, and Cybersecurity	Evaluated through benchmarks and performance metrics.	Multi-faceted approach to address challenges such as hallucinations and dynamic content generation.

Source: EIOPA's Gen AI survey, July 2025

- **Data management**

Undertakings explained that while traditional AI systems are commonly trained on internal and structured datasets, Gen AI systems are pre-trained on vast amounts of unstructured data from external sources. Moreover, insurance undertakings commonly don't have a comprehensive overview of the data used by service providers to pre-train the model.

Undertakings highlighted the importance of ensuring data accuracy, data provenance and data lineage to prevent bias as well as possible intellectual property infringements - it is understood that this would be done by the service providers at the model training phase, and then by the insurance undertakings in case of further training the model with additional data (e.g. with its own proprietary data or with fine-tunning / RAG techniques).

Another risk highlighted was that Gen AI systems could potentially leak sensitive information absorbed during the training phase and then appear in unexpected ways in the outputs of the Gen AI system. To mitigate this, reported techniques included strict model testing ("sandboxing") procedures before it is put into production when fine-tuning techniques with undertaking's proprietary data are used. Others also referred to the use of data anonymization and minimization techniques, as well as encryption of prompts and outputs involving sensitive data.

- **Human oversight**

Human oversight is considered crucial for both traditional AI systems and Gen AI systems. For Gen AI systems, human oversight is often applied "by design" both at the prompt design stage as well as at the output validation stage, in particular for critical areas or customer-facing applications. Indeed, undertakings stressed the importance of human oversight to regularly review the outputs of Gen AI systems and monitor system performance, especially for AI-recommended actions affecting customer's policies or claims, due to the unpredictability of the results of Gen AI systems.

Also emphasised was the need for built-in operational limitations / guardrails for some Gen AI systems (e.g. prompt / output controls), clear delimitation of responsibilities of human operators, and proper training and guidance for those using and overseeing Gen AI systems, considering the non-technical background of some users of these tools. Defining clear procedures for human review, approval or escalation were also seen as key by several respondents. The involvement of relevant key functions (data protection officer, chief risk officer etc.) was also mentioned concerning escalation mechanisms for unresolved issues.

Moreover, in automation Gen AI use cases, an undertaking explained how they also roll them out in a phased approach, by first performing shadow tests, then moving to a situation with a human in the loop providing feedback on the system's performance, and finally automation.

- **Documentation and record keeping**

Similar to traditional AI systems, documentation and record-keeping is also seen by undertakings as a key governance measure for Gen AI systems. Undertakings commonly maintain an inventory / register of Gen AI uses cases and perform thorough documentation practices, including use case descriptions, lifecycle processes, audit trails, security mechanisms, technical specifications, and user instructions to ensure accountability.

As a novelty specific to Gen AI systems, undertakings highlighted the importance of prompt-engineering documentation; documenting the "prompts" introduced when using Gen AI systems and/or creating logs for any human intervention. Other areas typically documented include risk assessments, version models and data used. They also require third-party service providers to supply documentation on model provenance, limitations and update cycles.

- **Accuracy, robustness, and cybersecurity**

Traditional AI systems have typically been evaluated for accuracy through the use of benchmarks / metrics which provide a standardized measure of model performance. However, Gen AI systems have a wider range of uses and provide non-deterministic outputs,[13] including so-called

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[13] The outputs of a Gen AI system can vary even when the same inputs and same conditions are used.

hallucinations, which can compromise model performance (accuracy). Monitoring the accuracy of outputs such as Gen AI generated text is reportedly more complex than for numeric outputs.

To address these challenges, undertakings use a multi-faceted approach, such as output guardrails to prevent inappropriate, biased, or false information. They also assess output variability and consistency of the system behaviour over time and create alerts for risky prompts or output anomalies. For example, an undertaking explained that by re-running queries multiple times with small changes they can check whether the system's answers remain consistent.

Gen AI systems are also reportedly more susceptible to cyber threats such as prompt injection, adversarial inputs or jailbreaks compared to traditional AI systems. To address this situation, undertakings implement different measures such as stricter access controls or prompt encryption to prevent leakage. Additionally, red team prompts / adversarial testing[14] can also be used to test the system's defences against potential cyber-attacks.

5.6 Third-Party Risk Management

The increasing adoption of Gen AI systems by insurance undertakings has introduced a new layer of complexity in managing third-party risks. As insurers increasingly outsource Gen AI solutions from third party service providers, they are also exposed to a range of potential risks, including supply chain disruptions, concentration risks, cybersecurity threats, or data leakage.

Effective management of third-party risks from Gen AI providers is seen as crucial to ensuring the security, integrity and reliability of business operations. For this reason undertakings explained that they are closely working with third-party service providers and enforce comprehensive licensing / outsourcing reviews.

Undertakings are commonly the "users" of Gen AI systems rather than the "developers". Consequently, instead of focusing on model training their risk management approaches focus on managing the uses of Gen AI systems in their context, although additional governance measures would typically need to be implemented on top of those applied by service providers.

Insurers were asked what specific governance and risk management measures do they have in place to address the reliance on third-party service providers of Generative AI systems; as shown in Figure 14, to date, insurers predominantly rely on contractual clauses and service level agreements, followed by rigorous testing (before and after deployment) and audits. Several insurers also have in

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place contingency plans or outsource Gen AI solutions from a variety of providers to prevent concentrations risks.

Figure 14-Managing Gen AI Third Party Provider Risks
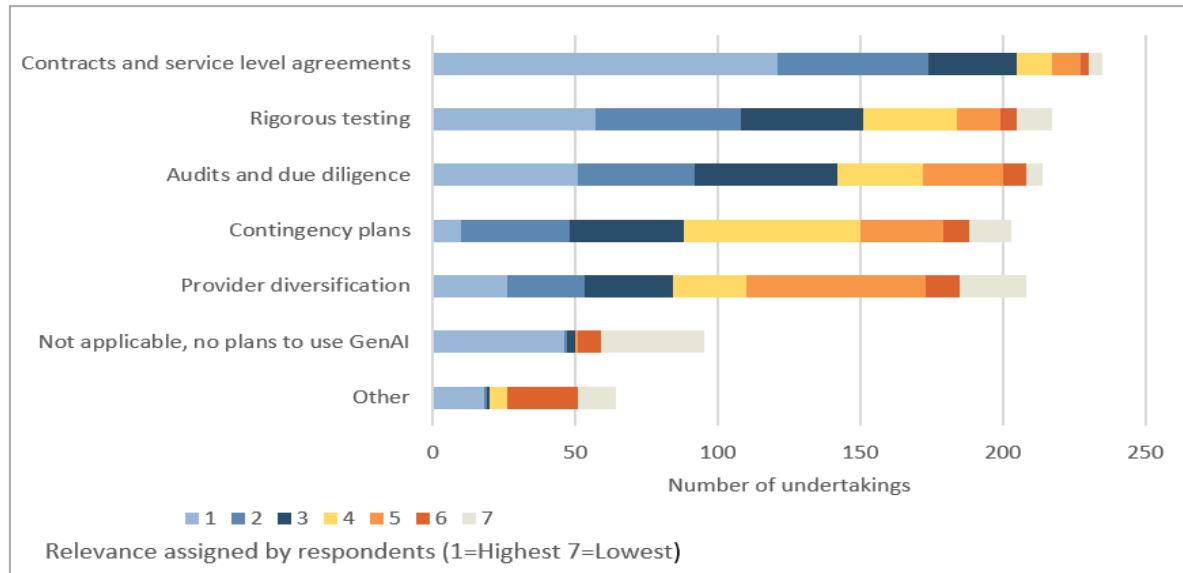
Source: EIOPA's Gen AI survey, July 2025

Respondents to the survey explained that in the pre-contracting phase they would assess all relevant audit documentation, third-party certification (e.g. C5 security certification in Germany)[15] and identify potential risks. They would eventually include the relevant clauses in contractual and service level agreements (SLAs), which are followed by pilot-test periods before roll-out. Subsequently undertakings would regularly assess model outcomes and the fulfilment of the contractual obligations by the provider.

Insurers highlighted that the recently approved Digital Operational Resilience Act (DORA) already includes detailed provisions for ICT risk management, including regarding contractual agreements. Some insurers explained that far-reaching audits of ICT services must take place anyway, since some consider Gen AI systems as a type of software, applying software evaluation and coding standards to the Gen AI tools that they outsource from third parties. In contrast, others mentioned that specific requirements related to the use of third-party AI systems are beginning to be incorporated into vendor management policies.

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[15] Some German insurance undertakings referred to the C5 security standard, or Cloud Computing Compliance Criteria Catalogue, developed by the Federal Office for Information Security (BSI), which sets requirements for cloud service providers (CSPs) to ensure the security of their services.

More specifically, in terms of content of the contractual clauses, insurers explained that they would outline the rights and obligations of the different parties, including concerning data ownership, data protection, model transparency, location of data processing operations, and traceability obligations. Provisions concerning usage boundaries, data security, model performance, model drift, bias controls, contingency and business continuity plans as well as regulatory compliance were also reported.

Moreover, some insurers considered that their use of Gen AI systems is still not material enough for them to be in a position of overreliance on third party service providers or to trigger the need to develop comprehensive fallback plans. In contrast, others actively mitigate such risks by developing flexible middleware architecture allowing connection to different providers, or by developing fallback strategies for potential disruptions (e.g. including manual input scenarios). The diversification of Gen AI systems from multiple providers, including by leveraging on open-source models and in-house capabilities was also reported.

Interestingly, some insurers explained that they aim to use the smallest Gen AI systems possible, which they can host on-premises, to avoid being reliant on the continuity of service providers. However, they also recognised the limitations of this approach since certain use cases require larger Gen AI systems, which need to be hosted in the cloud.

5.7 AI Act and Gen AI Systems

The recently approved Artificial Intelligence Act (AI Act) in the European Union introduces a set of requirements for the development and deployment Gen AI systems (referred as General-Purpose AI (GPAI) in the AI Act).[16] Acknowledging the pivotal role of Gen AI systems on numerous downstream AI applications, the AI Act has adopted a "shared responsibility" approach, recognising rights and obligations to different stakeholders in the Gen AI value chain (e.g. providers, deployers, importers etc.)

More specifically, the AI Act places a number of transparency, documentation, and risk management obligations on the providers (e.g. third-party service providers such as Big Techs) of Gen AI systems. These obligations include disclosing information to downstream users about the capabilities, limitations, and intended uses of the systems, complementing and supporting the governance and risk management measures that insurance undertakings are developing themselves.

The majority of the insurance undertakings that participated in the survey consider useful or very useful the provisions of the AI Act concerning Gen AI systems, since they reportedly provide them

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[16] The AI Act differences between GPAI models and GPAI systems, but the definition of Gen AI systems used for the purpose of this study captures both categories without differentiating between them.

with reassurances about the reliability, accuracy and security of the of the Gen AI systems that they purchase from third party service providers (often Big Techs).

Figure 15-Percived usefulness of the Gen AI provisions in the AI Act
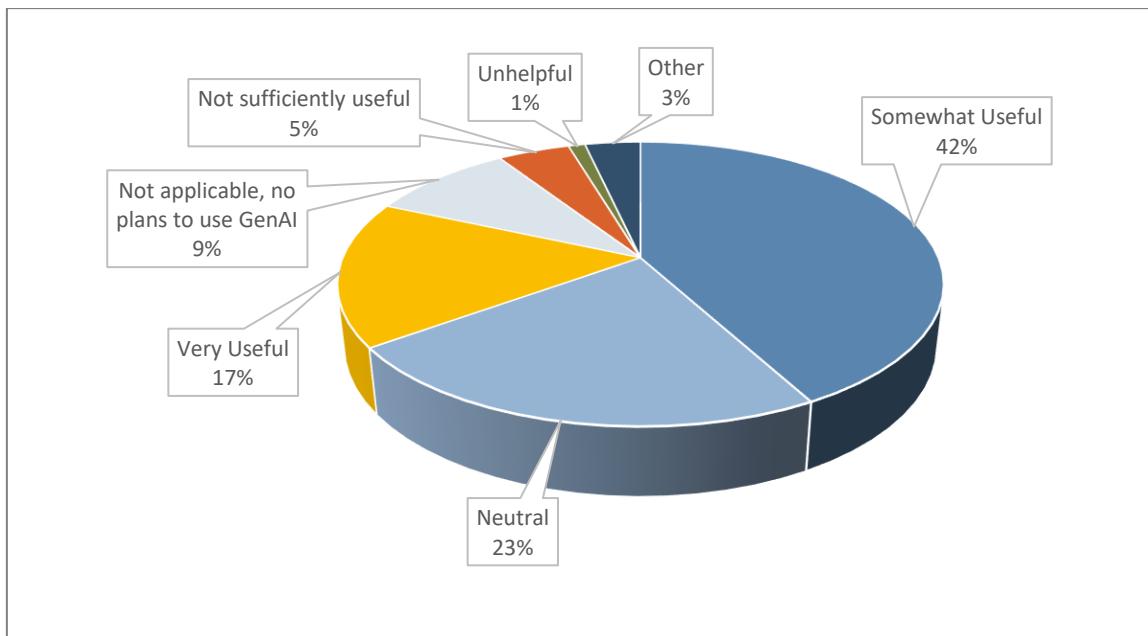
Source: EIOPA's Gen AI survey, July 2025

Several undertakings consider that the AI Act will contribute to strengthen trust in the ethical and safe design of Gen AI systems. It will also reportedly help insurers reduce their exposure to potential operational and reputational risks and overall make insurance undertakings more confident when service providers claim to comply with the AI Act.

Another group of undertakings were more cautious, arguing that the provisions of the AI Act do not yet apply and that implementing regulations / guidelines have not been finalised yet. Some were also somewhat sceptical about the degree of transparency and assurance on the provider's responsible practices since regulation may not be able to fully address key issues that arise from the technology itself (e.g. unpredictability, lack of explainability etc.), and therefore they would not be able to solely rely on assurance and transparency under the AI Act.

Moreover, some undertakings noted some uncertainties regarding the definition of deployers and providers; while the majority of insurance undertakings seem to expect to fall under the category of "deployer" (i.e. user) under the AI Act, some also noted that certain uncertainties, for instance if insurers would be considered as "developers" if third-party AI systems are subsequently developed internally via RAG, fine-tuning, post-training (see section 3.4 above).

Finally, while some insurance undertakings considered that too strict requirements could slow down innovation or limit the flexibility to use new AI tools effectively, another undertaking considered that they focus excessively on the providers and not enough on the deployers / users, which are the ones that ultimately create the prompts and develop prompt engineering techniques and therefore are the ones that need to ensure the proper use of Gen AI systems.

5.8 Self-Usage by Staff

Gen AI tools have significantly impacted the way individuals and organisations approach various tasks; insurers' staff can now often freely access and utilize publicly available Gen AI tools to enhance their work. However, as explained further above Gen AI systems also entail some risks and therefore insurance undertakings are developing guidelines and codes of conduct to which their employees need to adhere when using such tools.

As can be observed in the graphic below, around half of the insurance undertakings that participated in EIOPA's survey have already adopted a proactive approach by developing internal guidance concerning the self-usage of Gen AI tools by their staff,[17] and 29% more expect to develop them withing the next 3 years.

Figure 16-Specific policy governing the self-usage by staff of Gen AI tools
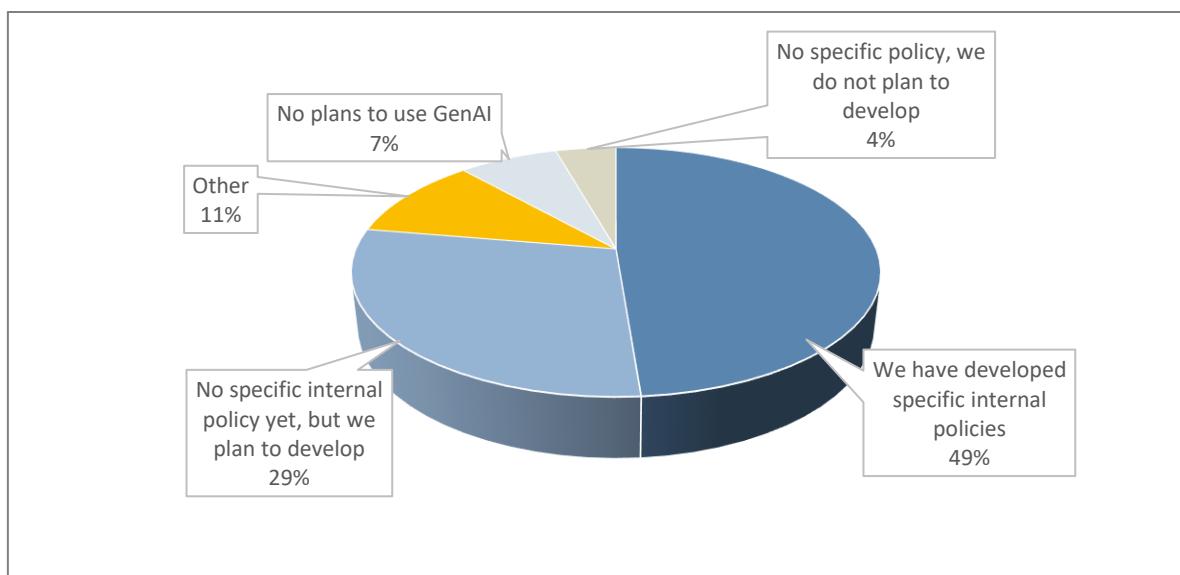
Source: EIOPA's Gen AI survey, July 2025

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[17] Self-usage was defined in the survey as those uses of Gen AI systems that have not been purchased, developed, or authorized by the organisation.

These internal policies or guidelines typically outline permitted use cases, governance procedures, and risk assessment frameworks. For example, they would emphasise the importance of responsible and ethical use, discourage the use of customer data or commercially sensitive information in public Gen AI tools, and ensure compliance with regulatory requirements (e.g. GDPR or AI Act).

Some insurers concerned with potential data leakage and other security risks have established strict rules and standards for the self-use of Gen AI systems, including restrictions on the use of public tools and only allowing the use of internally authorized and approved tools (e.g. those where the data is locally stored and not in the cloud).

In contrast, other insurers have adopted a more permissive approach, allowing staff to use Gen AI tools while providing guidance on best practices, usage boundaries (e.g., no confidential data in external systems), frequently-asked-questions (FAQs) and training programs, which are often mandatory.

5.9   Gen AI Carbon Footprint

The environmental implications and carbon footprint associated with Gen AI systems currently represent a low-priority concern for most insurance undertakings. This situation is primarily explained by the early stage of adoption of Gen AI technologies across the sector.

Many undertakings reported that their current use of such systems remains experimental or limited to proof-of-concept initiatives, leading to the perception that their overall contribution to corporate greenhouse gas emissions is negligible at this stage. Another group of insurers has simply not yet integrated this specific risk into their operational assessments, postponing a detailed analysis until adoption becomes more widespread.

Figure 17-Most mentioned terms in the survey's question about the Environmental Impact of Gen AI systems

Source: EIOPA's Gen AI survey, July 2025

When the topic of AI and sustainability is addressed, it is typically approached from a high-level or strategic perspective rather than through concrete technical actions. Most insurers integrate the environmental impact of AI within their broader corporate ESG frameworks or existing sustainability reporting structures. Several undertakings also follow the policies and principles set by their parent undertaking, which often define the overarching sustainability standards. A few respondents noted that AI can play a dual role, representing not only a source of risk but also a potential enabler of sustainability, for example by supporting resource optimization or predictive consumption analysis.

Some insurers have moved beyond strategy into implementation, introducing specific measures to mitigate AI's environmental footprint. Common actions include selecting cloud providers that demonstrate commitments to renewable energy and carbon neutrality, or applying efficiency principles at the application level, for instance using smaller models, optimizing prompts to reduce computational load. Others are taking a more human-centred approach, raising staff awareness and providing training on the responsible use of these technologies.

Despite these steps, the sector continues to face structural challenges. A major barrier cited by almost all respondents is the lack of transparency from third-party providers. Most Insurers report difficulty obtaining reliable data on the energy consumption or emissions associated with cloud services and foundational models. Internally, many also acknowledge the absence of clear methodologies for measuring AI's carbon footprint, as well as the inherent trade-off between pursuing more powerful, high-performance models and achieving greater energy efficiency.

6 CONCLUSIONS AND NEXT STEPS

The emergence of Gen AI systems represents a significant strategic development for the European insurance sector, moving rapidly from experimentation to active implementation. To leverage the opportunities of this technology, 65% of insurance undertakings are already using Gen AI systems, primarily to enhance internal process efficiency, reduce costs, and, to a lesser extent, improve customer interactions.

However, adoption remains in its early stages, with the majority of use cases (64%) still in a proof-of-concept phase. The current landscape is dominated by a "buy" or "make-on-top" sourcing strategy, where insurers build applications on top of third-party foundation models. This approach, which often relies on Retrieval-Augmented Generation (RAG) to connect models to proprietary data, highlights a significant dependency on external providers.

At present, Gen AI applications are predominantly focused on internal back-office operations (64% of all use cases) and are more mature than customer-facing systems. Across the value chain, customer service and claims management are the most active areas for implementation. The human oversight principle is a foundational element of current strategies, with most use cases being labelled as "Assisted Gen AI systems," although insurers expect a strong shift toward more autonomous Gen AI systems in the short / medium term.

The unique characteristics of Gen AI systems introduce new and significant risks, with "hallucinations" (inaccurate outputs) being the top-cited concern, followed by cybersecurity vulnerabilities and data protection issues. In response, governance and risk management frameworks are evolving quickly; nearly half of all insurers (49%) now have a dedicated AI policy, a twofold increase from 2023. Given the "black box" nature of pre-trained models, governance is shifting away from traditional model training validation and toward robust output validation, testing, and strong human oversight.

To manage the high dependency on third-party providers, insurers are relying on traditional measures to mitigate third-party risks such as contractual clauses, audits, and testing. These measures are complemented by the upcoming AI Act, which is viewed by most as a useful framework for enhancing provider reliability, although some uncertainties about how it will be implemented in practice still remain open. Finally, the environmental impact of Gen AI systems is not yet a priority for most undertakings.

Considering the above market developments and the specific benefits and risks arising from Gen AI systems, EIOPA's next steps will follow its Digital Strategy, which sets out the key objectives of EIOPA's work in this area.

In particular, EIOPA will assess the impact of the AI Act in the insurance sector, including the new provisions for General-Purpose AI (GPAI) systems and the specific transparency and risk-management obligations for providers and deployers. EIOPA will also leverage on its recently published Opinion on AI governance and risks management to continue to engage with its Members on this area with a focus on supervision, including by addressing Gen AI-specific opportunities and risks.

At an international level, EIOPA has actively contributed to the recent AI Application Paper of the International Association of Insurance Supervisors (IAIS), which aims to promote global convergence on the application of the Insurance Core Principles in the context of AI. Following its publication, the Global Insurance Market Report (GIMAR) has started to monitor AI-related developments, and the Fintech Forum of the IAIS is also working on additional supervisory materials for its Members.

EIOPA will also continue to promote a digital culture among supervisors, notably by supporting training on new technologies like Gen AI systems within the Supervisory Digital Finance Academy (SDFA), which has a specific module on AI. Also in collaboration with the other European Supervisory Authorities (ESAs), EIOPA will also continue to work closely with innovative stakeholder in the European Forum of Innovation Facilitators (EFIF).

EIOPA is closely working with the other ESAs on the implementation of the Digital Operational Resilience Act (DORA). The findings of this survey on the high dependency on a reduced number of third-party Gen AI providers will also support the ESAs' work on the Oversight Framework for critical ICT third-party service providers (CTPPs).

Furthermore, EIOPA will also continue to work on issues related to data use and data ethics in the context of new regulations, including by actively contributing to the discussion of the European Commission proposal for a Regulation on a Framework for Financial Data Access (FIDA) from an insurance and pensions perspective.

The financial inclusion of vulnerable customers, customer protection, and the ethical use of data will remain key priorities for EIOPA in 2026 and beyond. To this extent EIOPA has created a Consultative Expert Group on Data Use which is expected to develop a report by Q2 2026. In parallel EIOPA is also working on a thematic review on fair treatment of consumers with chronic diseases.

Finally, regarding the use of digital technologies for supervisory purposes, EIOPA will continue to support the development of SupTech projects internally and in collaboration with NCAs, including exploring the potential of Gen AI systems to enhance supervisory efficiency.

ANNEX 1-DEFINITIONS

Agentic AI systems	An AI system capable of autonomous decision-making and performing tasks with minimal or no human intervention. At this most advanced level, systems can independently make decisions and perform complex tasks.
Artificial Intelligence systems	'AI system' means a machine-based system that is designed to operate with varying levels of autonomy and that may exhibit adaptiveness after deployment, and that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments[18]
Assisted Gen AI systems	A level of automation where Gen AI systems depend on human prompts or questions to produce content or analysis, serving primarily as a productivity support tool. This approach is dominated by the "human-in-the-loop" principle.
BigTech firms	Large technology companies, often with extensive customer networks and core businesses in areas like internet search, cloud computing, or software, which are the primary providers of third-party Gen AI models.
Cloud Computing	A platform for enabling on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services).
Fine-Tuning	A data strategy that involves actively re-training a pre-trained model with a specific set of an undertaking's own data to adapt its core parameters for specialised tasks, such as adapting to a particular corporate communication style.
Generative AI systems	Means an AI model, including where such an AI model is trained with a large amount of data using self-supervision at scale, that displays significant generality and is capable of competently performing a wide range of distinct tasks regardless

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[18] This definition is based on the definition of the AI Act. Please note that the European Commission's AI Office has published guidelines on the definition of AI systems: The Commission publishes guidelines on AI system definition to facilitate the first AI Act's rules application | Shaping Europe's digital future

	of the way the model is placed on the market and that can be integrated into a variety of downstream systems or applications.[19]
Hallucinations	Instances where an AI confidently produces false, misleading, or nonsensical information that appears plausible but is not grounded in reality or its training data.
Prompt	The text-based input (such as a question or instruction) provided by a human user to a Gen AI system to elicit a response.
Prompt engineering	Prompt engineering is the process of designing and refining instructions (prompts) to guide a generative AI model in producing the desired output.
Prompt Injection	A cybersecurity attack where a user provides a malicious prompt designed to bypass a model's guardrails or trick it into performing an unintended action, such as revealing sensitive information.
Retrieval-Augmented Generation (RAG)	A technical approach that connects a pre-trained model to an external knowledge database (e.g. database of documents or knowledge sources). The system 'retrieves' relevant, verifiable information and 'augments' the user's prompt with this context, allowing the model to generate more accurate answers without being retrained.
Semi-Autonomous Gen AI systems	A level of automation where systems are capable of generating complete outputs, such as draft contracts or next-best-action recommendations, with a certain degree of automation, while still requiring human validation before implementation.

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[19] This is the broad definition used by EIOPA in the market survey; while it is acknowledged that the definition of General Purpose AI models is not exactly the same as Generative AI, in this survey they have been used indistinctly and therefore this definition captures different types on Generative AI systems and applications with different levels of automation and integration, such as the so-called large language models (LLMs), or Generative AI assistants (Augmented AI) or Generative AI Agents (Agentic AI).

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