



SHIFT

Generative AI in insurance: A deep-dive into the technology and its impact

Introduction

The use of generative AI in insurance is a powerful tool for increasing the efficiency and accuracy of key functions, ultimately driving improvements in operations and the customer experience. Here, we highlight those use cases and examples, and explore the functionality driving these results.



Understanding the power of generative AI in insurance

The power of AI and generative AI in insurance is no longer up for debate. And as insurers seek to tap into this power, it's essential to understand the technology driving these results.

AI and generative AI

AI, the simulation of human intelligence processed by machines, is capable of performing tasks such as problem-solving, learning, and decision-making. It analyses datasets to extract insights, detect patterns, and make predictions quickly and accurately. With a standard machine learning approach, AI models are built to solve one particular type of problem at a time. For example, reviewing claims for common indicators of fraud.

Generative AI is a branch of AI that is capable of generating new and original information. Models are trained on vast generic datasets, and through the use of dedicated prompts, they can be leveraged to solve a wide variety of challenges. For example, summarising a complex insurance policy or summarising claims notes.

Generative AI and large language models (LLMs)

The power of generative AI is derived from large language models (LLMs). Thanks to extensive training on very wide datasets, LLMs have the ability to understand complex instructions in the form of natural language text, the so-called prompt. The model is then capable of generating an appropriate answer based on further textual or visual information given by the user (e.g. documents and/or images).

Generative AI in an insurance context

Because of its ability to process and synthesise vast amounts of structured and unstructured data, generative AI has made it possible to leverage that information at scale, with both speed and accuracy. For example, imagine a claims handler combing through documents in order to extract specific pieces of information related to the case. With generative AI, this same claims handler could ask for a targeted summary of all documents related to the case, and focus on the important decision of how to proceed with the claim.

“With a standard AI machine learning based approach, you have a problem that you want to solve... And when you have another problem to tackle, you repeat the process again. With Generative AI... models are fully capable of answering any kind of question that we ask them, or solving any kind of problem that we have.”

Eric Sibony, Shift's Chief Data Scientist and Chief Product Officer,
[Four Questions with Eric Sibony](#)

How generative AI works in common insurance use cases

During a recent webinar,¹ Shift's own experts delved into the practical applications of generative AI in insurance, highlighting its potential to streamline processes, enhance accuracy, and drive efficiency. Here, we examine three common use cases, and dig into the way generative AI works to drive those results.

Generative AI in claims automation

By leveraging generative AI for functions such as document classification, key information extraction, and claims situation assessment, insurers have been able to achieve impressive accuracy rates of 95-99%. This not only speeds up the claims process but can significantly increase the automation rate, allowing insurers to handle claims more quickly and accurately. At scale, this can have a major impact on efficiency and customer satisfaction.



CLAIMS AUTOMATION
95-99% accuracy



LIABILITY ASSESSMENT
30% increase in
subrogation rates



FRAUD DETECTION
93% accuracy

Example: Processing a travel claim with generative AI

- **Document classification:** Standard documents, such as policy contracts, medical reports, and travel invoices, are classified into dedicated categories.
- **Information extraction:** From the policy contract, it will extract names, coverage periods, as well as coverage and exclusion items. From the medical report, it will extract the patient name, the diagnosis, and the onset date in order to verify if the incident is within the coverage period.
- **Decision and summary:** A decision is predicted and summarised along with more detailed information, then passed on to a claims handler for next steps.

Real-world results

A US-based travel insurance company was manually handling around 400,000 claims per year, with each claim taking anywhere from about ten days to three weeks to process. By partnering with Shift, they were able to leverage generative AI in order to achieve 57% automation with 98% accuracy on pay decisions, as well as reduce processing time from three weeks to two minutes.²

¹Shift Technology, [Beyond the Hype: Real Examples Showing How GenAI is Already Benefiting Insurers](#)

²Shift Technology, [GenAI for Insurance in Action: From Zero to 50%+ Automation in Travel Insurance](#)

AI can achieve a
90%+
accuracy rate in
auto claims and
95%
in property
claims

Generative AI for liability assessment

Generative AI is also being used to automate liability assessments. By summarising loss situations and factoring in details from documents and applicable laws, AI can achieve a 90%+ accuracy rate in auto claims and 95% in property claims. This can result in a 30% increase in subrogation referrals acceptance, significantly enhancing the efficiency of liability determination processes.

Example: Identifying a recovery opportunity for an auto claim

- **Claim detail extraction and comparison:** Third party vehicle information associated with a given claim is extracted and compared against external data sources, such as ride share registration lists and complex legal criteria, which is used to identify potential opportunities.
- **Liability identification:** Once an opportunity is identified, generative AI models synthesise details of the incident, including what happened and who was involved, to assess parties at fault.
- **Alert scoring and generative AI summary:** With all of the criteria met, generative AI provides an automated, scored alert along with a concise summary of detection reasoning and relevant rules.

Real-world results

Recently, we assisted a leading US P&C insurer by identifying a subrogation opportunity in New York, a state where recovering on personal injury protection (PIP) claims is notably challenging due to stringent legal criteria. These criteria include the requirement for one of the involved vehicles to be a commercial livery vehicle or exceed 6,500 lbs. in weight, which is difficult to verify at scale. By leveraging generative AI, we efficiently analysed third-party vehicle data against external sources, identifying the vehicle as a registered ride-share, thus meeting the subrogation criteria. The AI models further confirmed the ride-share vehicle's fault in the accident, enabling a swift and accurate alert to the insurer.³

³ Shift Technology, [GenAI for Insurance in Action: Enhance PIP Recovery Opportunities](#)

Generative AI for fraud detection

In the realm of fraud detection, generative AI excels at identifying inconsistencies between documents and actual loss details. With a 93% accuracy rate in detecting inconsistencies, generative AI helps insurers accurately uncover suspicious claims.

Example: Detecting storm damage vs age-related causes

In photos submitted as part of a storm damage claim, generative AI can detect whether or not the damage is in fact storm related, or just a result of normal wear and tear.

Similarly, we can use the application of the same technology to distinguish between water damage and mold.



Damage due to a storm/strong winds
COVERED



Rust damage - Aging
NOT COVERED



Wear and tear - Aging
NOT COVERED



Water damage
COVERED



Mold
NOT COVERED

⁴Shift Technology, [Beyond the Hype: Real Examples Showing How GenAI is Already Benefiting Insurers](#)

Assessing generative AI solutions for insurance applications

As the value of generative AI in insurance has become widely accepted, insurers face an unprecedented amount of information. And to meet the growing interest and demand, these solutions have become more and more prevalent. But not all generative AI is created equally, particularly when it comes to the insurance market.

Potential pitfalls of generative AI solutions in the insurance industry

Spot solutions can contribute to technical debt

While technical debt comes from a variety of practices, implementing the wrong generative AI solution can have a significant impact. Many of the available solutions prioritise rapid deployment over long-term benefits, or provide a one-off solution to a broader opportunity, which are both factors that can contribute to technical debt. This often results in a vicious cycle,⁵ in which complexity builds, and the costs continue to grow. Additionally, there's a significant opportunity cost to bypassing solutions that bring the full value of generative AI to insurance.

Generic models have limitations

LLMs have proven extremely effective at extracting information and categorising generic documents; however, they do not often display high performance in insurance-specific use cases. These documents contain information often critical to contextualisation and accuracy, and are essential to the performance of any generative AI solution. Best-in-class, insurance-grade solutions are built and trained specifically on these types of industry-specific documents.



⁵ McKinsey, [Breaking technical debt's vicious cycle to modernize your business](#)

What to look for in a generative AI partner

Deep insurance expertise and industry context

Insurers should prioritise generative AI partners that understand the complexity and nuance of insurance operations, regulatory compliance, and data privacy. Unlike general-purpose AI providers, a partner with deep insurance expertise can build solutions that align with real-world claims, underwriting, and fraud scenarios. Industry-specific knowledge is essential for grounding generative AI in accurate, compliant outputs. This focus enables insurers to deploy AI that enhances trust, reduces operational risk, and adds measurable value.

Responsible AI practices with human oversight

Generative AI must be deployed with strong ethical guardrails and governance. Insurers should seek partners who are committed to responsible AI development—including transparency, data privacy, and the ability to explain model behavior. Importantly,

partners should design AI that augments—not replaces—human expertise. “Human in the loop” workflows ensure outputs are validated and used appropriately, especially in high-stakes domains like claims adjudication or customer communications. This responsible approach mitigates risk and builds confidence in AI adoption across the enterprise.

Enterprise-grade security and integration capabilities

Generative AI solutions must be built for scale, security, and enterprise integration. Insurers operate in a highly regulated environment, and any AI partner must be able to meet stringent standards for data handling, cybersecurity, and compliance. Successful partnerships also depend on the ability to integrate AI into core systems and workflows—delivering value without disrupting existing infrastructure. A capable partner will offer scalable APIs, customisable interfaces, and secure data pipelines that support real-time decision-making across the insurance value chain.

SHIFT

About Shift Technology

Shift Technology is the trusted AI partner to the world's leading insurers. Our innovative and explainable AI solutions help insurers reduce fraud and risk, streamline claims processes, and improve customer experiences. Shift delivers measurable business impact and lasting ROI by combining deep insurance expertise with cutting-edge technology.

Learn more at www.shift-technology.com/en-gb