



Faheem Ballim

Senior Consultant
Digital Consulting

Tel: +27 60 997 6473

Email: faheem.ballim@kpmg.co.za



Tasneem Essop

Consultant
Digital Consulting

Tel: + 27 64 758 2647

Email: tasneem.essop@kpmg.co.za



Shainal Chetty

Supervisor
Digital Consulting

Tel: +27 66 320 4810

Email: shainal.chetty@kpmg.co.za

The transformational impact of generative artificial intelligence on the insurance industry

The insurance industry has always been driven by the need to manage risk and predict the future. Over the years, technological advancements have played a crucial role in helping insurers achieve these goals. From the early days of data science to the rise of artificial intelligence (AI), the industry has continually evolved, adopting new tools and techniques to enhance operations and meet changing customer expectations. As we stand on the brink of another technological revolution, generative AI is emerging as a game-changer, poised to reshape the insurance landscape in profound ways.

The evolution of AI in insurance

The initial foray into AI by the insurance industry was marked by its application in predictive analytics, risk modelling and claims management. Insurers leveraged AI to make data-driven decisions, improve accuracy and streamline processes. These early successes demonstrated AI's potential to transform the industry, setting the stage for more advanced applications. However, the advent of generative AI represents a significant leap forward. Unlike its predecessors, generative AI does not just analyse data - it creates, simulates and innovates data, offering insurers a new dimension of possibilities.

This evolution of AI from a predictive tool to a creative force is not just a technological milestone; it is a strategic imperative. The KPMG 2023 Global Tech Report¹ underscores this shift, with 52% of insurance CEOs identifying AI, including generative AI, as the most critical technology to implement in order to achieve their organisation's strategic goals over the next three years. This growing recognition highlights a pivotal moment for the industry - one where embracing generative AI could define the future of insurance. Global executives have acknowledged this, with 58% anticipating returns on their investment within the next three to five years². Figure 1 illustrates the percentage of insurance sector leaders that are expecting a return on investment from generative AI implementations in the coming months and years.

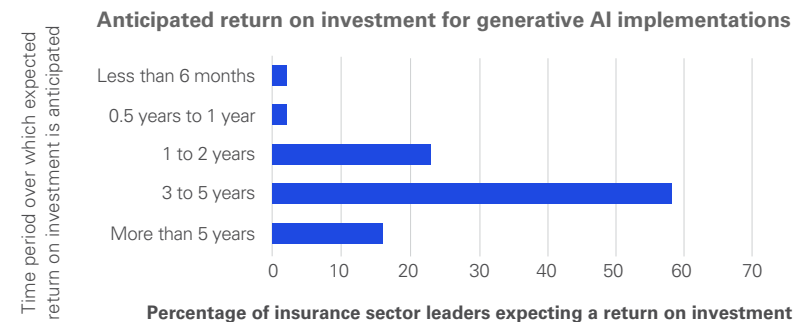


Figure 1: Percentage of insurance leaders anticipating a return on investment over the next five years

¹ KPMG, "KPMG global tech report 2023," KPMG, United States, 2023 (<https://assets.kpmg.com/content/dam/kpmg/xx/pdf/2023/09/kpmg-global-tech-report.pdf>).

² KPMG, "KPMG 2023 Insurance CEO Outlook," KPMG International, United States, 2023 (<https://assets.kpmg.com/content/dam/kpmg/xx/pdf/2023/12/insurance-ceo-outlook-report-v5.pdf>).

The rise of generative AI: beyond automation to innovation

As the insurance industry grapples with the challenges of modernisation, generative AI offers a pathway to not only streamline operations but also drive innovation. Traditional AI applications focused on automating routine tasks and optimising existing processes. While these efficiencies remain valuable, generative AI takes things further by enabling insurers to reimagine customer engagement, develop new product offerings and enhance decision-making processes. This shift from mere automation to innovation is where generative AI truly shines.

For example, AI-driven chatbots and virtual assistants are no longer just tools for handling customer queries; these are now sophisticated agents capable of understanding context, empathising with customers, and providing personalised solutions in real-time. These advancements illustrate how generative AI can elevate customer interactions from transactional to relational, creating deeper connections and enhancing brand loyalty.

Use cases of generative AI in the insurance industry

The impact of generative AI is already being observed across various functions within the insurance sector. Some of the most promising use cases include³:

- 1. Fraud detection:** advanced AI algorithms are enhancing fraud detection by analysing patterns in claims data, allowing insurers to proactively identify and prevent fraudulent activities before significant losses are incurred.
- 2. Customer personalisation:** generative AI is able to analyse vast amounts of customer data to tailor products and services, ensuring that offerings are precisely aligned with individual needs and preferences.

- 3. Efficient claims processing:** AI-driven automation is revolutionising claims processing by reducing handling times and improving accuracy, ultimately leading to a superior customer experience.

- 4. Legacy system modernisation:** by extracting valuable data from legacy systems and integrating it with modern AI solutions, insurers can extend the life of existing infrastructure while simultaneously reducing operational risks.

- 5. Conversational agents:** generative AI enables conversational agents to provide personalised, human-like interactions, further automating processes and improving customer satisfaction.

These use cases highlight the broad applicability of generative AI in insurance, demonstrating its potential to revolutionise core functions while driving strategic growth.

Deep dive: the power of retrieval-augmented generation

Retrieval-augmented generation (RAG) is a powerful AI technique that improves how AI generates answers by combining its ability to create text with the ability to augment relevant information from external sources. RAG helps AI provide more accurate and contextually relevant responses by fetching the contextual, specific data applicable to a scenario or process, before generating its answer, as outlined in Figure 2.

³ KPMG, "The impact of artificial intelligence on the insurance industry," KPMG, Amsterdam, 2024 (<https://kpmg.com/us/en/articles/2024/impact-artificial-intelligence-insurance-industry.html>).

What is RAG?

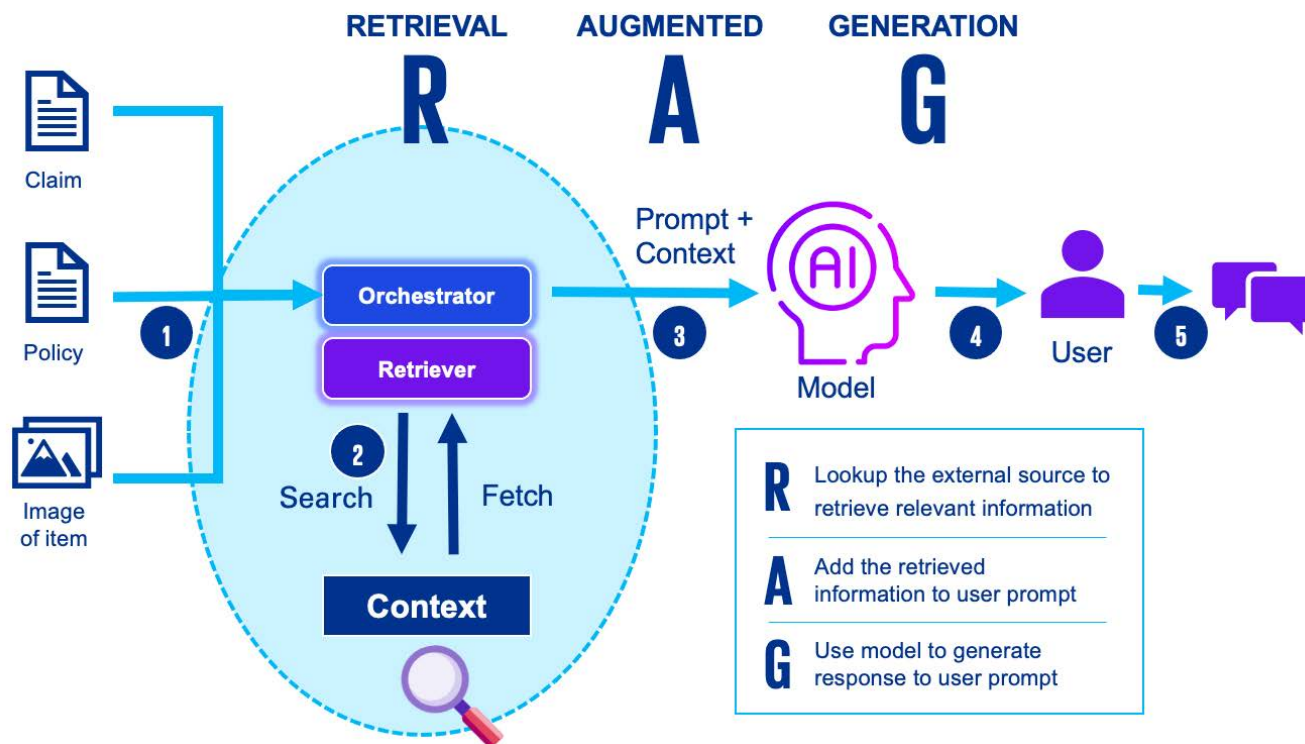


Figure 2: Illustration of the RAG process for a claim being analysed, following a query from the claimant

As we explore the numerous use cases for generative AI within the insurance industry, it becomes clear that RAG is a driver for ensuring contextual awareness for AI models embedded within insurance processes. While AI-driven automation and personalisation are already driving significant improvements, RAG takes these capabilities to the next level by enabling insurers to deliver smarter, more contextually relevant responses that directly address the complexities of modern claims processing.



Within the insurance industry, examples of business processes that have benefited from RAG enhanced generative AI include:

- 1. Claims processing:** RAG-enhanced AI can retrieve relevant policy details, previous claims history and regulatory information to generate accurate and context-aware responses. This helps in faster, more consistent claims adjudication, reducing errors and improving customer satisfaction. This use-case is explored in further detail below.
- 2. Customer service:** by accessing customer profiles, past interactions, personal preferences and product details, RAG can help AI generate highly relevant responses in real-time, improving the efficiency and personalisation of customer service.
- 3. Product recommendations:** RAG can analyse customer data and existing product offerings to suggest tailored insurance products. This personalised approach assists in cross-selling and upselling, improving customer satisfaction and retention.
- 4. Document automation:** RAG can automate the generation and customisation of insurance documents by pulling in the correct data, reducing manual efforts, and ensuring accuracy in policy documents, quotes and contracts.
- 5. Regulatory compliance:** insurance companies can use RAG to assist with compliance by retrieving the latest regulatory guidelines and integrating with AI-driven decision-making processes, reducing the risk of non-compliance.

In a competitive market, differentiation requires more than just leveraging advanced technology - it demands innovative solutions that can seamlessly integrate into existing processes, while delivering tangible business value. Our recent observations indicate that the combination of generative AI and RAG provides for one of the most impactful solutions for insurers. This powerful pairing enhances AI's natural language processing capabilities with the ability to draw upon proprietary data, allowing insurers to unlock new efficiencies and elevate the customer experience.

To help insurers fully understand and capitalise on this potential, KPMG developed a proof of concept (PoC) that demonstrates how the use of generative AI and RAG together can revolutionise the insurance claims process. This PoC is designed to streamline

operations, enhance decision-making and elevate customer satisfaction, providing a scalable solution that drives efficiency and innovation across the insurance value chain, and is able to improve process efficiency by 80% (results obtained through PoC testing).

With RAG, the AI system does not just process the claim - the retriever in the RAG system retrieves relevant information from the policyholder's records, external and regulatory guidelines, and generates a tailored response as depicted in Figure 3. This level of contextual understanding ensures that claims are handled more efficiently, with decisions that are both accurate and timely. By grounding AI outputs in contextual data (e.g. policy information, claim records, regulatory and compliance information), RAG enhances the reliability and effectiveness of AI-driven processes, setting a new standard for customer service in the insurance industry.

Retrieval

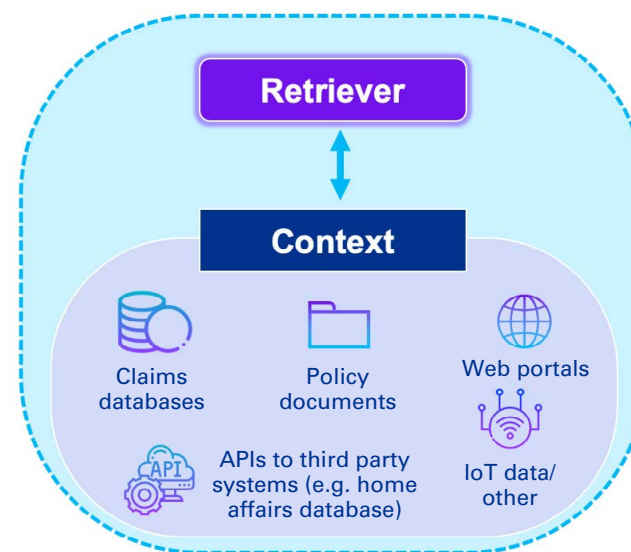


Figure 3: Illustration of the retriever in a RAG system, obtaining relevant context from connected data sources



Here is how KPMG's generative AI and RAG-enabled claims PoC can transform the insurance claims process as depicted in Figure 2:

1. Claim submission: the policyholder initiates a claim through a user-friendly digital portal, designed with intuitive workflows to ensure all necessary documentation, such as invoices and images, is accurately captured. This streamlined interface reflects the insurer's commitment to enhancing customer experience, while gathering comprehensive data from the outset.

2. AI-driven analysis: upon submission, the AI system, equipped with advanced vision and natural language processing capabilities, analyses the provided documents as part of the claimant's prompt. Additional information is grounded into the generative AI solution as part of a system message which provides specific instructions for the AI analysis.

3. Contextual data retrieval: the generative AI solution, combined with RAG, retrieves pertinent information from the policyholder's insurance policy and cross-references it with external databases, including regulatory updates and industry benchmarks. The dual-layer analysis ensures a holistic and contextually rich understanding of each claim. This comprehensive data retrieval creates a robust foundation for the AI to assess the claim, significantly reducing the likelihood of errors or omissions and providing more accurate, contextually informed decisions.

4. AI-generated response: after processing the retrieved data, the generative AI solution uses RAG to generate a tailored response to the claimant that outlines the claim status, potential payout and any further actions required. Grounded in real-time using contextually relevant information, this response aligns precisely with the policyholder's coverage and regulatory requirements.

5. Human oversight and final decision: to ensure the highest standards of accuracy and fairness are maintained and monitored, a human claims reviewer examines the AI-generated response. This step integrates human expertise with AI efficiency, blending the speed of automation with the nuanced judgment required for complex cases, thus maintaining compliance with company policies and regulatory standards.

6. Claim resolution and communication: once verified, the policyholder receives a clear, prompt decision on their claim. Integrating generative AI and RAG into the claims process ensures that responses are not only timely but also precise, leading to a smoother, more transparent experience for customers and a more efficient operation for insurers.

Navigating the future: opportunities and challenges

As insurers integrate generative AI into business operations, vast potential for innovation, efficiency and customer satisfaction is unlocked. Yet, this evolution also brings new challenges to the forefront. Ethical considerations, regulatory compliance, and the seamless integration of AI with existing systems are critical factors that must be carefully managed. Moreover, the importance of data quality cannot be overstated - clean and well-organised data is the foundation for AI to deliver accurate, transparent and fair decision-making. Ensuring this level of data integrity is essential for building trust and maintaining compliance with evolving regulations in the insurance sector. Moreover, the success of AI initiatives will hinge on how well an organisation can manage change. Insurers must foster a culture of innovation, empower their workforce with the necessary skills, and implement data governance frameworks that support AI-driven transformation. By doing so, the industry can fully harness the power of generative AI to drive growth, enhance customer experiences and remain competitive in an increasingly dynamic market.

To effectively navigate this transformative journey, insurers should consider adopting a strategic approach that balances ambition with practicality. Set out below is our view of best industry practices and actionable steps:

- **Sprint to save faster:** start by building internal and external confidence in AI. Identify a process ripe for AI-driven change and leverage technology alliances to quickly create a working example. Establish key performance indicators (KPIs) for savings, revenue and customer experience to measure success.

- **Upgrade to accelerate delivery:** if your transformation plan is more than three years old, it is time for a refresh. Review current plans to identify where AI can add the most value, while also reducing the risk of failure. Adjust your strategy to find additional cost efficiencies and accelerate delivery.
- **Re-imagine achieving value faster:** rethink your organisation for a future where AI reduces costs and delivers value. Be prepared to disrupt traditional structures in pursuit of savings and new revenue sources. With the guidance of experienced professionals and pre-built tools, create a step-by-step plan to accelerate time-to-value.

Conclusion

Generative AI is not just another technological advancement, it is a catalyst for transformation within the insurance industry. By integrating advanced AI techniques like RAG, insurers can unlock new efficiencies, deliver highly personalised services, and lead the way in shaping the future of insurance. The journey toward AI-driven innovation is just beginning, and those who embrace it today will be the leaders of tomorrow.

