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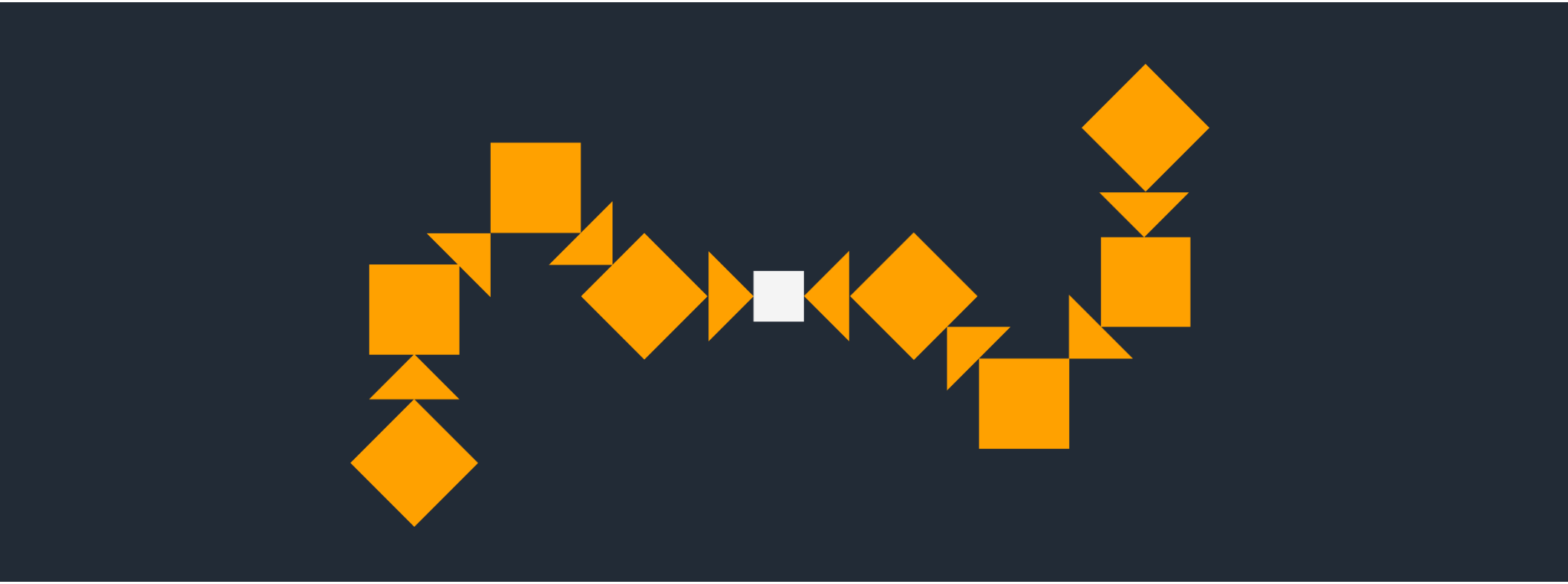
Barometer of generative AI adoption in the European insurance industry

Benjamin Aubignat
Niccolo Basetti
Alexandre Boumezoued
Adel Cherchali
Markus Hersche
Alan McDonagh
Patrick Meghen
Russell Osman
Job Prince
Jean Baptiste Sallmann
Davide Scandiuzzi
Jose Silveiro
Yohav Touitou
Raymond van Es
Ziyou Zhou



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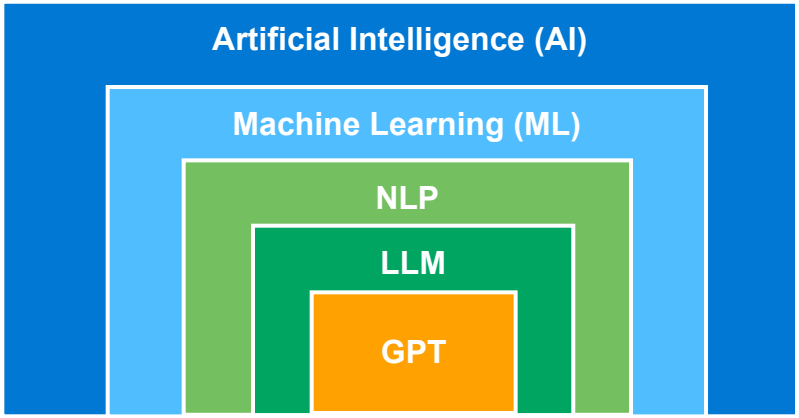
Executive summary

Generative AI is transforming the insurance industry by enhancing all aspects of the insurance value chain, from underwriting and customer service to actuarial and legal functions, among others. This paper explores the current landscape of generative AI adoption in the European insurance industry, illustrated with real case studies from the market. While many of them demonstrate successful implementations, showcasing the tangible benefits of AI-driven strategies, the insurance market undoubtedly faces challenges, including workforce training and regulatory compliance issues. Ultimately, this document can serve as a guide through areas where embracing generative AI is crucial for insurers seeking a competitive edge and improved efficiency.

Introduction to generative AI terminology

Artificial Intelligence includes various concepts like machine learning and Generative AI.[1] This paper focuses on the value insurers can create by leveraging generative AI models such as Large Language Models (LLM), and their counterparts for images. For simplicity, the term "Generative AI" will be used to refer to these models and capabilities throughout the paper.

- Generative AI refers broadly to models capable of creating new content, such as text and images, by learning from the data they are trained on. Currently, the state-of-the-art generative AI systems are typically based on deep learning approaches, including large language models (LLMs) like generative pre-trained transformers (GPT) and image-generation models.
- Natural language processing (NLP) refers to a broad field of techniques to understand, analyze, and interact with human languages. NLP models can require lower computational power and are usually task-specific. Application examples include sentiment analysis or text classification.
- LLMs are specific implementations within the field of NLP. These models are based on advanced neural network architectures like transformers, are trained on massive datasets, and can have billions of parameters. Foundational models, such as GPT, are general-purpose systems trained on broad data, whereas fine-tuned models are specialized adaptations of these base systems tailored for specific tasks or domains through additional training.
- Vision algorithms, as counterparts of language models for images, leverage deep-learning models like convolutional neural networks or stable diffusions. They aim to generate, as well as process and analyze, visual data to extract meaningful information and detect patterns.



1. https://www.milliman.com/en/insight/impact-of-ai-to-life-insurer-value

Global view of generative AI applications in the insurance industry

We have identified seven **areas of application** with different stages of maturity for Generative AI adoption in the insurance industry.

FIGURE 1: USE CASES AND BENEFITS OF GENERATIVE AI IN THE INSURANCE INDUSTRY

	USE CASES	BENEFITS
MARKETING & CUSTOMER SERVICE	▪ Customer assistance (e.g., Q&A, contract selection) ▪ Client-dedicated chatbots	▪ New marketing and communication channels
CLAIMS MANAGEMENT	▪ Support for customer claims handling ▪ Support for claims handlers and fraud investigators	▪ Improved claim assessment ▪ Fraud detection
POLICY ADMINISTRATION & CUSTOMER SATISFACTION	▪ Customer calls and feedback analysis	▪ Improved customer satisfaction
SALES & PRODUCT DEVELOPMENT	▪ Support for company sales ▪ Assistance in comparing competitors' policy conditions	▪ Easier product development
UNDERWRITING	▪ Analysis of documents and other unstructured data	▪ Improved risk analysis
ACTUARIAL & FINANCIAL FUNCTIONS	▪ Coding assistance ▪ Reporting automation	▪ Improved efficiency ▪ Enhanced compliance
LEGAL	▪ Analysis of legal documents ▪ Answers to customers' legal questions ▪ Support for researching insurance regulations	▪ Initial guidance on legal questions ▪ Improved customer service

Marketing, customer service, and claims management

The integration of **chatbots** to interact with customers and the **optimization of claims handling** using information retrieval and summarization techniques are widely adopted trends among European insurers.

MARKETING & CUSTOMER SERVICE

Chatbots are among the most used generative AI tools in the insurance sector. They provide customers with effective assistance through guided conversations, helping them with their insurance policies and offering them the most suitable contract.

One example is the Chatty chatbot developed by Generali. This solution provides customers with assistance in selecting insurance contracts, handling issues, and managing claims. It operates in multiple languages. It was created in collaboration with the startup Enterprise Bot and was awarded the ITC DIAmond Award.

NN uses an Azure OpenAI service to summarize customer conversations, which improves customer experience and process efficiency.

Other insurance companies, such as AXA with AXA Chat and MAPFRE with Ami, also use a chatbot solution for marketing purposes.

CLAIMS MANAGEMENT

Insurance companies use generative AI tools to help customers and/or claims handlers make claim reporting easier, to analyze claims-related documents more efficiently, to find similar claims to accelerate the claims-handling process, and to enhance fraud detection.

Irish Life has implemented the Claims AI Reasoning Assistant (CARA), a tool that enables the processing of medical claims efficiently by analyzing medical data. In 2024, CARA was rewarded by Qorus at the ninth annual AI Awards.

An example of fraud detection is Shift Claims Fraud Detection, used by companies in Europe, to analyze unstructured data, such as aerial imagery and geolocation, to identify potential fraud

Policy administration & customer satisfaction, sales & product development, and underwriting

Generative AI models are increasingly used to support sales, **analyze customer satisfaction**, and support underwriting.

POLICY ADMINISTRATION & CUSTOMER SATISFACTION

Refined analysis of consumers' conversations enables insurance companies to better understand consumers' expectations and thus improve their satisfaction. Additionally, feedback analysis tools help identify areas for improvement.

An example of customer satisfaction analysis is Vox.IA, developed by Covéa. This tool leverages an AI engine and a classification framework designed by internal industry experts. It analyzes feedback gathered from satisfaction surveys and classifies it by themes and tones, considering the specificity of each brand, business, and market. It was recognized at the Cas d'Or Banque & Assurance 2023 event and has processed nearly 500,000 reviews per year since launching in March 2023.

SALES & PRODUCT DEVELOPMENT

Several companies use generative AI tools to enhance sales processes, offer personalization, and make it easier to build products.

Immagina from Generali aims to offer its customers a customized, single insurance policy for life, non-life, and health insurance. To help salespeople quickly learn the details of a customized policy, an AI assistant tool is being implemented with Google Cloud and Vertex AI.

UNDERWRITING

The analysis and synthesis of documents are key features widely used in underwriting processes to enhance efficiency, reduce costs, and support decision-making.

SCOR has developed a medical underwriting assistance tool. This tool leverages generative AI to analyze and summarize medical reports, enhancing risk assessment and decision-making in the underwriting process for insurance and reinsurance companies.

Other companies have implemented generative AI underwriting assistants, such as Swiss Re with Life Guide Scout.

Actuarial & financial functions, and legal

Generative AI tools are being increasingly integrated into the **actuarial and financial functions** and the **legal function** across the European insurance industry.

ACTUARIAL AND FINANCIAL FUNCTIONS

Generative AI has an increasing potential in actuarial and finance applications. It can serve as an assistant for coding, related to the development and enhancement of actuarial and financial models and their controls.

Companies are also increasingly leveraging generative AI capabilities internally or through software solutions to automate the production of regulatory and financial reports.

LEGAL

Generative AI assistants focused on legal questions can help answer customers' queries, draft contractual notes, and monitor regulatory changes.

ADELIA is a chatbot developed by CFDP, trained and designed to answer customers' legal questions. It received an award from Les Trophées de l'Assurance.

Another example is Maxime, a virtual assistant developed by AXA, designed to answer customers' questions related to real estate law, as well as to generate legal documents.

Strategies to implement and scale generative AI: Organizational approach

Each company develops its own vision and strategy toward generative AI. Differences in approach tend to relate to (1) the organizational strategy for use case deployment and (2) the level of implementation.

(1) Two main types of organizational approaches can be identified: a top-down approach where the road map is owned by the AI/data lab, and a bottom-up approach based on local experiments by decentralized teams.

DATA LAB-DRIVEN APPROACH

The company's data lab generally owns the generative AI road map and is responsible for its deployment. Initially, the data lab may conduct a study across departments to identify potential use cases. Based on this analysis, it may select the most relevant use cases to integrate into the road map.

This approach, if successful, can lead to the integration of tools across the organization.

EXPERIMENTAL APPROACH

Each department has access to an ecosystem of tools and can develop its own generative AI solution.

The tool created can first be tested at the department level and, if proven effective, can be considered at a more centralized level for scaling across the organization**.**

(2) Three levels of implementation have been observed among insurance companies implementing generative AI.

- **Companies with advanced capabilities**: They have access to multiple foundational LLM platforms (e.g., Microsoft OpenAI), supported by both internal teams and external service providers to fully leverage the capabilities of generative AI.
- **Companies with appropriate platforms but struggling to scale**: They have the necessary technology in place but face challenges in spreading the usage of generative AI across their operations. They encounter difficulties in performing specific tasks (e.g., information retrieval, processing complex data).
- **Companies using LLM with limited development capacity**: They use provider LLMs but lack the ability to build or develop additional functionalities around it. Some also restrict the native capabilities of the models and face delays in releasing new AI models, resulting in reduced capacity and a lag in technology adoption. Additionally, some companies are still grappling with fundamental issues like data management, data quality, and compliance. These challenges further complicate their efforts to effectively implement generative AI technologies.

Challenges: Technical and compliance

Implementing generative AI requires a substantial investment by insurers and several years to set up processes. Moreover, developing generative AI tools presents two types of challenges: technical and compliance.

TECHNICAL

- Lack of internal expertise hinders the identification of impactful business applications and the optimal use of generative AI's capabilities. It also leads to dependency on third parties regarding technology and infrastructure.
- Companies have limited data for adjusting and fine-tuning LLMs. Insufficient access to industry-specific datasets restricts the ability to customize and improve model performance effectively.
- Aligning with a company's existing systems often requires costly adjustments and is not always possible.
- Generative AI models can present operational risk and are subject to hallucinations. They also may present a security risk by being vulnerable to adversarial prompting, which can lead to the exposure of confidential information to a third party.

COMPLIANCE

- Complying with regulations like the European Artificial Intelligence Act (AI Act), the General Data Protection Regulation, and the Digital Operational Resilience Act around ethics and confidentiality poses significant challenges. The AI Act sets obligations for providers of general-purpose AI models, including generative AI models. For instance, it requires technical documentation of the model, systemic risk mitigation, and transparency toward users.
- Companies may face reputational risks regarding the use of generative AI. Concerns like the environmental impact of AI models are emerging, as well as related to their consequences on public perception and the company's credibility.

The role of internal expertise

1. **Internal expertise is positively correlated** with the level of integration of additional external capabilities on top of foundational models. Companies with internal AI resources are more likely to have strong partnerships with generative AI external providers. These companies are also well positioned to critically evaluate and challenge the solutions offered by external providers.
2. **Limited internal resources** generally lead to narrower generative AI adoption, mainly focused on assistance to daily tasks and not on the development of transformative business use cases. Companies with limited internal resources tend to have less knowledge about the application scope of generative AI. These companies focus on redesigning their production processes primarily in terms of automation.
3. **Internal expertise alone is not sufficient to overcome technical and regulatory tasks.** Some companies with strong internal expertise still face difficulties in robustly implementing complex tasks like information retrieval and expert-domain reasoning. Moreover, the LLM evaluation process itself remains technical and complex to implement. Additionally, internal expertise alone is not enough to overcome adoption obstacles related to regulatory compliance. For instance, the AI Act requires a risk-classified cartography AI system, a process that is inherently complex; leading companies have built dedicated compliance teams to address this.

Conclusion & recommendations

The integration of generative AI within the insurance industry presents a transformative opportunity, poised to redefine traditional processes and enhance customer engagement. However, successful implementation requires a strategic approach that balances innovation efforts with workforce training and awareness. Insurers are encouraged to invest in AI frameworks that prioritize high returns on investment and reasonable efforts to assess the frameworks' robustness and compliance with evolving regulations. Collaboration with technology partners and continuous workforce training are essential to harness AI's full potential. By adopting a proactive stance on AI integration, insurers can not only mitigate risks but also position themselves as leaders in a rapidly changing landscape, driving growth, improving efficiency, and delivering more personalized services to their clients.

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CONTACT

Benjamin Aubignat
benjamin.aubignat@milliman.com

Niccolo Basetti
niccolo.basetti@milliman.com

Alexandre Boumezoued
alexandre.boumezoued@milliman.com

Adel Cherchali
adel.cherchali@milliman.com

Markus Hersche
markus.hersche@milliman.com

Alan McDonagh
alan.mcdonagh@milliman.com

Patrick Meghen
patrick.meghen@milliman.com

Russell Osman
russell.osman@milliman.com

Job Prince
job.prince@milliman.com

Jean Baptiste Sallmann
jean-baptiste.sallman@milliman.com

Davide Scandiuzzi
davide.scandiuzzi@milliman.com

Jose Silveiro
jose.silveiro@milliman.com

Yohav Touitou
yohav.touitou@milliman.com

Raymond van Es
raymond.vanes@milliman.com

Ziyou Zhou
ziyou.zhou@milliman.com