



AUGMENTING HUMAN INTELLIGENCE WITH AI IN INSURANCE: AN SME-CENTRIC APPROACH

Abstract

AI adoption raises concerns over replacement or elimination of human resources from certain jobs. Insurers looking to embark on AI-led transformation journeys must first look inward to assess the true value of their most valuable human resource – the subject matter expert (SME). Much of the success of insurance operations and the business hinges on the knowledge, expertise, and skills of SMEs.

This paper examines the importance of SMEs in insurance and some of their key roles. It suggests an approach of augmenting SME knowledge with GenAI to maximize the efficacy of transformation while retaining seasoned domain experts.

INTRODUCTION

Insurance is a complex industry governed by a changing regulatory climate, evolving customer expectations, need for skilled talent for roles such as underwriting, actuarial science, etc. Historically, insurance has relied heavily on its human resources across operations spanning sales and customer support to underwriting and handling claims and payouts.

The advent of GenAI is disrupting traditional roles across all industries, freeing up talent from repetitive and time-consuming tasks. Many organizations are investing in reskilling and upskilling their workforce to keep pace with this disruption. However, the extent of disruption within insurance is likely to follow a different path due to the pivotal role played by its subject matter experts (SMEs). Thus, any AI-led transformation program is poised to support the role of the SME, rather than eliminate it.



THE IMPORTANCE OF SMEs IN INSURANCE

The insurance industry is a complex business domain with a vast range of interconnected processes.

Here, the expertise of SMEs is vital, particularly in areas that require nuanced judgment, legal interpretation, and a deep understanding of market risks. For instance, risk assessment and underwriting demand specialized expertise to evaluate risks, set premiums, and tailor coverage terms. Similarly, claims management requires a strong understanding of policy details, legal nuances, and specific circumstances. The onus is on SMEs to assess the validity of claims and negotiate settlements.

Developing insurance products that align with diverse market needs is a creative process that relies on expert risk modeling and market analysis along with the ability to understand evolving customer expectations. Actuarial science, which is integral to the insurance industry, involves experts using mathematical models to assess risk, thereby ensuring the financial stability of insurance companies. Forging loyal customer relationships calls for SMEs who can expertly guide users through policy selection, coverage options, and risk management. Finally, legal experts are needed to draft meticulous insurance contracts that comply with regulations, thereby safeguarding the interests of the business as well as policyholders.

Clearly, SMEs play a pivotal role in instituting and following practices that help insurance organizations stay relevant and effective in a landscape that is constantly evolving due to technological advancements, demographic shifts, and changing risk scenarios.

SME COLLABORATION IN INSURTECH

A strong understanding of insurance products along with sharp awareness of competition, market trends, customer needs, and the dynamic regulatory environment are necessary to develop products and design innovative solutions.

In this regard, SMEs lend their deep knowledge of domain-specific processes and their constituent steps to:

- Efficiently handle any deviations in processes
- Guide technology teams to implement IT solutions for insurance processes
- Regularly refine their processes to meet business needs, increase customer satisfaction, and improve process efficiency

InsurTech is an evolving landscape comprising new technologies such as AI, blockchain, and big data. InsurTech developers and engineers seek the guidance of SMEs in data analytics, behavioral economics, and specific risk domains to integrate these new technologies, design customized products, optimize processes, and implement new solutions.

KEY SME ROLES IN INSURANCE

Insurance has several processes, areas, and key roles. Its success hinges on the collective expertise and collaboration of diverse specialists.

One can look at this industry as a well-oiled machinery driven by experts playing pivotal roles throughout the value chain, right from actuaries quantifying risk to claims adjusters navigating complex situations. Each role is crucial to ensure financial stability and mitigate the impact of unforeseen events on individuals and businesses. Before assessing how AI can impact insurance SMEs, it is important to understand the key roles in insurance. These are described below:



Underwriters

Underwriters act as gatekeepers, evaluating policy applications and deciding whether to insure individuals or businesses. They assess risk and analyze individual risk profiles based on history, lifestyle, occupation, and other factors. They then decide on the type and amount of coverage to offer based on the assessed risk and company guidelines. Underwriters set policy conditions, establish deductibles, exclusions, and limitations to manage risk and minimize exposure. They also price the policy and adjust premiums based on the individual risk profile and chosen coverage.



Call center and back-office operations

Call center and back-office operations serve a large portion of the industry. The operations team ensures business as usual along with customer satisfaction. These teams directly impact the end customer experience, which is a key driver of an insurer's growth and success.



Actuaries

Actuaries are the architects of risk assessment and pricing. They leverage statistical modeling, data analysis, and financial expertise to ensure long-term financial stability. They estimate the probability and cost of risk such as fire, accidents, or illness, and calculate fair and profitable pricing for premiums based on the assessed risk. They also develop coverage terms, deductibles, and benefits that balance risk and customer needs. Finally, they also analyze claims data and industry trends, and accordingly adjust pricing and product offerings.



Claims adjusters

Claims adjusters are the investigators and negotiators when unexpected events occur. They gather evidence, interview witnesses, and assess the validity and extent of claimed losses. They determine liability and evaluate whether the event is covered by the policy and who is responsible for the loss. They negotiate settlements and try to reach fair and acceptable agreements with policyholders regarding compensation. They also manage fraud, and identify and investigate suspicious claims to protect the company from financial losses.

Apart from these, there are other vital roles in insurance performed by legal and compliance professionals, risk managers, data analysts, and marketing and sales professionals.

The executive leadership is another crucial resource that sets the strategic direction of the company, makes data-driven decisions, and ensures the overall success and sustainability of the organization.

HOW GENAI CAN TRANSFORM KEY INSURANCE SME ROLES

Let us take a look at how the adoption of GenAI influences and transforms the activities of SMEs engaged in key roles within an insurance organization:

1 Underwriters

Automated risk assessment

GenAI can streamline the risk assessment process by quickly analyzing vast amounts of data and providing underwriters with more accurate and real-time insights. This will facilitate faster data-driven decision-making.

■ A REAL-WORLD SCENARIO:

Mark, a risk management SME, receives a request to assess the risk profile of a new commercial property insurance policy. GenAI analyzes the building's location, construction materials, and historical weather data to predict the likelihood of storm damage. It also analyzes the company's safety protocols and risk management practices. Mark combines all of this information to formulate a comprehensive risk assessment report. He then works with the GenAI tool to propose targeted risk mitigation strategies like wind-resistant upgrades and flood mitigation measures. This not only optimizes the policy coverage but also enhances the client's overall risk resilience.

2 Claims adjusters

Enhanced claims processing

GenAI can expedite claims processing by automating routine tasks such as document verification and data analysis. This allows claims adjusters to focus more on complex cases, thereby improving efficiency and reducing the time required to settle claims.

■ A REAL-WORLD SCENARIO:

Sarah, a claims adjudication SME, receives a car accident claim. GenAI analyzes the police report and photos of the damage, automatically extracting key details and suggesting an initial settlement offer. Sarah works with the AI tool for further investigation. She uses image recognition to verify vehicle damage and analyzes social media data to confirm the claimant's whereabouts. Based on these findings, she collaborates with the AI to adjust the settlement offer and provide a fair and efficient resolution to the policyholder. Once the claim is processed, she generates a post-claim analysis report with AI assistance, identifying the cause of the accident and recommending personalized driving safety tips for the policyholder, potentially preventing future incidents.

3 Actuaries

Advanced data analytics and predictive modeling

GenAI can enhance actuaries' capabilities by providing advanced data analytics and predictive modelling tools. This enables more accurate risk assessment, pricing, and strategic planning, contributing to the overall financial health of the insurance firm.

■ A REAL-WORLD SCENARIO:

Miranda, an actuarial science SME, is tasked with revising the pricing model for homeowner's insurance. GenAI analyzes data on property values, weather patterns, and crime rates to identify key risk factors in different geographic regions. She collaborates with the AI tool to develop a revised pricing model that reflects these factors and offers personalized premiums based on individual property characteristics. Later, she uses AI-powered simulation tools to assess the impact of potential storms on the company's reserves and works with stakeholders to implement proactive risk mitigation measures.

4 Customer service representatives

AI-powered customer support

The application of GenAI in this particular role is significant because it directly impacts the customer as well as the company's business growth and proportionate revenue. GenAI can support customer service representatives (CSRs) by providing AI-driven tools to address routine inquiries. GenAI can also enable AI-powered document processing, AI models for fraud detection, automated process flows, reminders, and notification systems for efficient processing. Further, it supports analytics of back-office operations for issue resolution, thereby delivering a more seamless and efficient customer experience.

■ A REAL-WORLD SCENARIO:

John, a call center specialist, receives a call from a customer with a new policy enquiry. AI-enabled systems immediately show John the customer's call history, other products and subscriptions, and claim history. The GenAI tools also provide an analytics-based view with the a list of products that John can suggest to the customer.

The above list indicates only a few SME roles. In reality, insurance is a highly complex industry with a fast-changing regulatory landscape and evolving customer requirements. Hence, SME expertise across a variety of roles is crucial. Insurers depend heavily on their SMEs, who are indispensable to successful operations and sustained growth. Even as a majority of manual tasks are being automated through robotic process automation (RPA) and run by AI and ML models, these cannot replace SME knowledge, experience, and dynamic decision-making capabilities.

HOW TECHNOLOGY AND SMEs CAN INFLUENCE EACH OTHER

The level of technological adoption for SMEs in insurance has largely been focused on low-level automation and incremental productivity gains rather than full-fledged AI.

Some of the reasons why the insurance industry is unable to match the speed of technology evolution are:

Lack of standardized data

Absence of dedicated roles for AI on the board and among the C-suite

Need for a clear vision and long-term roadmap

Scarcity of talent

High implementation costs

Data privacy, compliance, and regulatory issues

Low risk appetite

While SMEs in insurance may not have been at the forefront of the AI revolution in the past, the new technologies they currently use are quite significant. It is worthwhile to recognize that even these seemingly humble advancements contribute significantly to the value that SMEs bring to the industry.

Even though senior leadership within insurance firms may be cautious about adopting new technologies, SMEs play a vital role in driving the change forward. They collaborate with technology experts to implement the latest AI/ML solutions. They can articulate the right requirements for their processes, temper the risk appetite, and coordinate with both operations and technology teams for continuous improvements.

The integration of human intelligence (from SMEs) with advanced technologies can enhance efficiency, upskill opportunities, and provide valuable insights, bringing about a real paradigm shift. As technologies evolve, the role of SMEs is likely to become even more vital, whereby AI-powered solutions will elevate their contributions towards the industry's future.

CHOOSING BETWEEN PURE AI OR AUGMENTED AI

GenAI models are built on the foundation of large language models (LLMs). Any AI or ML model requires a large set of training data based on which the algorithm learns and produces the output. However, it may not be prudent to rely purely on GenAI for the following reasons:

- GenAI leverages trained models that generate responses based on huge sets of data. If the training data is not sufficiently large, GenAI responses may not work as expected.
- Simply having a vast amount of data does not guarantee reliable model outcomes, particularly when dealing with new business scenarios. Considering how pervasive disruption is in today's dynamic business and technology worlds, new situations and scenarios are unavoidable.
- Insurance firms possess large amounts of non-standardized data, which cannot be used as-is by GenAI models.
- Customer satisfaction often depends on emotional connect and responsiveness, attributes that GenAI cannot provide.
- GenAI models need to be retrained with new sets of data every time new standards or policy products are introduced, mandating a degree of human intervention.

Thus, an approach that focuses on augmenting SME knowledge (or human intelligence) with AI is the best way to employ GenAI in the insurance domain for increased efficiency and sustained productivity.

THE WAY FORWARD: AUGMENTING HUMAN INTELLIGENCE WITH AI

GenAI has the potential to play a transformative role in assisting SMEs in the insurance industry.

When human intelligence is augmented with AI-driven insights, knowledge, analytics, and reports, it lends new efficiency to the work of SMEs. It can augment their skills through intelligent tools that have far-reaching impact. Some of the immediate benefits of this synergistic approach are:



Automation and analytics

By automating tasks and generating faster insights, GenAI frees up time for humans to analyze data, deliberate options, and amplify their potential. For example, GenAI and AI-based automation can speed up the entire underwriting process by 80% or more.



Data-driven decision-making

The insights and predictions generated by GenAI enable informed decisions and process changes that benefit the business. Human expertise ensures that the final choices are grounded in understanding, context, and ethical considerations.



Speedy responsiveness to customers

GenAI helps SMEs respond faster and decide quicker, enabling swift adaptation to change. For instance, an AI-based chatbot can auto-respond to customer queries and recommend best-fit solutions, allowing SMEs to quickly convert prospects to sales and resolve customer issues with greater satisfaction.



Improved productivity

Domain experts like insurance SMEs have specialized skillsets that can be amplified with the right tools. For instance, implementing a document extraction GenAI solution saves time that would otherwise be spent on reading lengthy documents, allowing the SME to capture the most relevant information within a shorter time. Another example is of a GenAI-based chatbot that can read through a policy document or a legal document and reply to queries much faster and more efficiently.



Sustained growth through continuous improvement

Both productivity gains and informed decision-making lead to better outcomes. This success generates more data, which GenAI can analyze to further refine its processes and optimize performance, creating a virtuous cycle of continuous improvement. In the long run, this will help insurers adapt to new trends and drive business growth.

THE EVOLUTION OF GENAI MODELS IN INSURANCE

The evolution of domain-specific LLMs has the potential to significantly simplify the complexities in all industries including insurance.

Large language models, as the name suggests, are trained on heavy and large-scale datasets that are sufficiently huge for the model to work correctly and efficiently. However, for the insurance industry, the probability of having a large-scale and huge varying sets of training data may be a challenge due to lack of standardized datasets apart from concerns surrounding data privacy, regulations, and compliance.

Nevertheless, it is worthwhile to consider the potential methods, benefits, and future of process-specific LLMs that drive GenAI in the insurance industry. These are described below:



Claims LLM

This LLM will be geared towards the claims management process. It would be able to analyze complex claims documents, witness statements, and evidence to automatically assess fault, determine coverage, and suggest fair settlement offers. Such an LLM could drastically reduce processing time, minimize human error, and improve customer satisfaction.



Fraud detection and prevention

As a claims LLM identifies inconsistencies, suggestive of fraudulent activity, it can proactively flag suspicious claims for further investigation. This could enable significant financial savings from reduced fraud losses and enhanced industry integrity.



Personalized customer support

An LLM-powered chatbot could handle routine claim inquiries, provide personalized updates on claim status, and offer self-service options for common tasks. This would free up human adjusters for complex cases and enhance the overall customer experience.



Underwriting LLM

This model can transform underwriting by analyzing vast amounts of applicant data including financial records, property details, and lifestyle factors to generate accurate risk profiles and suggest optimal policy pricing. It could ensure profitability, optimize risk selection, and offer personalized coverage options. Further, it could stay abreast of market insights and trends around competitor offerings and regulatory changes, providing underwriters with real-time data for risk assessment and product development. This could foster agility and responsiveness in a dynamic market.



Commercial LLM

This LLM will be able to understand complex risks and intricate risk profiles. It can analyze industry data, regulations, and market trends to tailor coverage for specific needs, ensuring comprehensive protection against diverse risks. It can analyze historical data, identify potential hazards, and streamline policy administration to prevent loss and manage risk. Going forward, it would be able to automatically manage commercial policy renewals, endorsements, and claims reporting.

It would be impossible to build these types of insurance-specific LLMs without the guidance of the SMEs, who are critical for the entire journey. Thus, any program to adopt GenAI in insurance should focus on augmenting human intelligence with AI.

CONCLUSION

AI can help organizations deliver effective solutions to customer issues faster than ever before, thereby saving cost and enhancing the customer experience.

However, in the insurance domain, it is the SMEs who will drive the efficacy of AI-led transformation. The knowledge, expertise, evolving demands of the industry, changing nature of data, and several other reasons make domain expertise indispensable for successful operations in the insurance industry. Thus, AI can be leveraged as an enabler, steered primarily by the domain and industry SMEs who are the driving force behind smooth business operations and profitable business growth.

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