Generative AI – A Roundtable Peer Discussion

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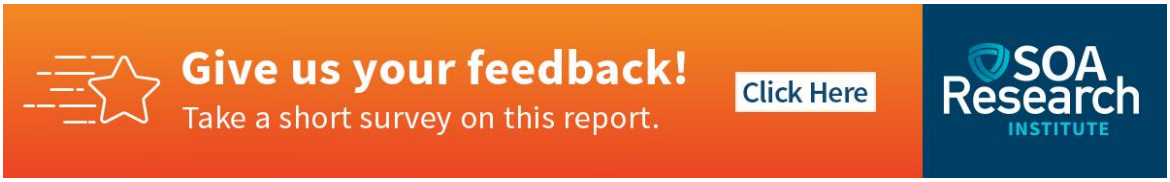

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In recent years, the insurance industry has been undergoing a significant transformation driven by advancements in technology. One of the most notable developments is the rise of generative AI (GenAI), which has the potential to revolutionize various aspects of the industry. Seventy percent of property and casualty insurers expect to deploy predictive AI models within two years[1]. The insurance industry is particularly well-suited to benefit from GenAI due to its reliance on data and the need for efficient processing and analysis. By leveraging GenAI, insurance companies can streamline their operations, reduce costs, and provide more personalized services to their customers.

Despite the promising potential of GenAI, there are also challenges and considerations that need to be addressed. Data privacy and security are paramount as insurance companies handle sensitive information. Ensuring compliance with regulations and maintaining ethical standards are crucial to building trust with customers and stakeholders. Furthermore, the integration of GenAI into existing systems requires careful planning and collaboration across different departments within an organization.

On March 21, 2025, the SOA Research Institute assembled an industry expert panel to discuss current issues in GenAI. The group was diverse in terms of employment. Of the 13 participants, four worked for insurance and reinsurance companies, three worked for technology vendors, and six worked for consulting companies.

This document summarizes the discussion that occurred during the two-hour meeting. To encourage candor during the discussion, this report does not attribute comments to individuals or companies.

[1] https://www.propertycasualty360.com/2024/11/12/the-insurance-industry-is-at-an-ai-adoption-crossroads/?utm_source=chatgpt.com

Executive Summary

In March 2025, the SOA Research Institute convened a panel of industry experts to discuss the advancements and implications of generative AI (GenAI) in the insurance industry. The roundtable brought together actuaries from various sectors, including life, health, and property/casualty, as well as consultants from diverse firms. The discussion aimed to explore the current uses, challenges, and future potential of GenAI.

During the roundtable, the panelists discussed and covered the following key topics with respect to AI:

- How GenAI is currently being used
- Using vendor tools or building tools in-house
- Privacy
- Compliance, governance and ethics
- Risk management
- Model validation
- Challenges
- The impact on actuaries

A number of companies are exploring ways to use AI to assist with modeling. The current trend is to use AI in pre- and post-model data processing. Some of the panelists also use AI to generate test cases and testing documentation for model validation, as well as testing policy and cash flow calculations.

Other key areas where GenAI is currently being utilized include coding assistance, digital assistants, digital coaches, data summarization, retrieval augmented generation (RAG)[2], and data analysis.

[2] Retrieval Augmented Generation (RAG) allows an AI to access a vast amount of external information or documents (through the retrieval model) and then use this data to generate more informed and accurate responses.

The following table summarizes the areas where the panelists noted AI is being used in their companies:

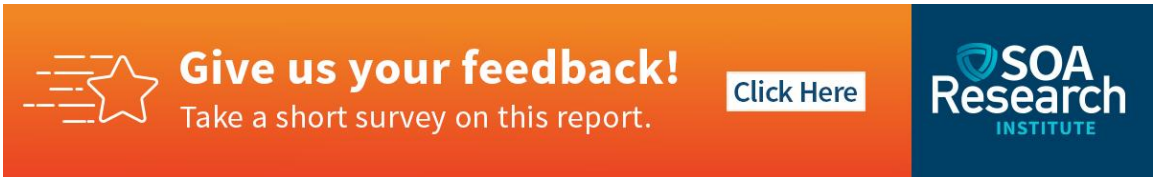
Table 1
AI USAGE

Category	Details	Uses
Coding Assistance	GenAI for coding assistance	GitHub Copilot, code generation, translating legacy code, automating documentation, python models, automation workflow
Digital Assistant	Integration with existing tools	Email, document creation, memo writing, note taking, meeting summarization, slide creation
Digital Coach	Role-specific internal AI assistants	Support specialized tasks, trained for specific purposes
Data Summarization and Categorization	Effective in summarizing and categorizing data	Claims data, submissions, claims notes, reinsurance treaties, medical underwriting files, calls and meetings
Retrieval Augmented Generation (RAG)	Access vast amount of external information	Enhance AI chat interfaces, integrate internal documents
Testing and Model Validation Assistance	Facilitate work with actuarial models	Generating test cases, testing documentation, policy and cash flow calculations, review and validation, risk prediction, data processing
Data Analysis	Accelerate data analysis and synthesis	Large amounts of data, early stages of development, proof-of-concept
Other Applications	Additional use cases	Translation, research source attribution, claims integration, internal productivity tools

The panelists shared their experiences and successes in these areas, highlighting the benefits and challenges they encountered. Some of the challenges faced by the panelists include employee readiness and training on the use of AI tools and the challenge of having access to clean and structured data to train LLMs while maintaining data security and privacy.

Some of the takeaways from the discussion include:

- GenAI is a great tool to help actuaries in some tasks, but the technology has not evolved enough to replicate the analysis, intent and decision-making that actuaries use in their work.
- Actuaries should be heavily involved in developing and shaping the risk management, privacy, compliance and governance policies for AI in insurance companies.
- Implementing the current AI tools can increase the productivity and efficiency of some of the actuary's work tasks.
- Learning and using AI tools will become necessary for actuaries in all areas and data engineering techniques will become more important.



Section 1 Presentations

The session began with two expert presentations designed to provide context for the subsequent discussion.

1.1 GENAI LANDSCAPE

The first presentation was delivered by two representatives from a large management consulting firm. Their talk covered the broad landscape of generative AI (GenAI), highlighting use cases across finance and actuarial domains and strategies for scaling AI impact across organizations.

1.2 AI REGULATIONS

The second presentation was given by a consultant from a boutique advisory firm specializing in AI implementation. The speaker focused on regulatory developments related to AI across North America, Europe, and Asia, emphasizing the importance of compliance and proactive governance.

Section 2 How is GenAI Currently Being Used?

The panel discussed the practical applications of GenAI currently being explored or implemented in their organizations.

2.1 CODING ASSISTANCE

Over half of the panelists indicated that GenAI is currently being used for coding assistance. This includes tools such as GitHub Copilot for generating code, translating legacy code to modern languages, and automating documentation.

Technologies that are targeting developers are becoming more prevalent and panelists stated that using AI for development has had great success. Other uses by developers that have been successful have included rapidly building python models and python code generation for automation workflow.

2.2 DIGITAL ASSISTANT

There is a proliferation of tools to integrate with existing tools for email, document creation, memo writing, note taking, meeting summarization and slide creation. Some examples include Microsoft CoPilot, Otter.ai, and GrammerlyGO. Panelists reported widespread use of these tools integrated into their daily routines and across their organizations.

2.3 DIGITAL COACH

Many organizations are developing role-specific internal AI assistants trained to support specialized tasks. These AI "coaches" can be trained for specific purposes and, thus, target specific roles within an organization. A few panelists stated that they have internal coaches that have been trained and are being used for specific roles within the company. One panelist noted that their company has created different personas around ChatGPT to help different users in the company. For example, they have a marketing persona and developer personas. The personas are fed with pre-prompts and tunings that tweak the way the AI models perform to match the persona.

2.4 DATA SUMMARIZATION AND CATEGORIZATION

GenAI is proving particularly effective in summarizing and categorizing data. Many panelists stated that their company uses AI for data summarization in various areas. The use cases where the panelists outlined AI being used in their organization for data summarization include:

- Summarizing claims data and submissions,
- Categorizing and processing claims notes,
- Summarizing and classifying reinsurance treaties,
- Summarizing medical underwriting files, and
- Generating summaries of calls and meetings.

This summarization and categorization help reduce human error in existing manual processes.

2.5 RETRIEVAL AUGMENTED GENERATION (RAG)

Retrieval Augmented Generation (RAG) allows an AI to access a vast amount of external information or documents (through the retrieval model) and then use this data to generate more informed and accurate responses. Several panelists reported using RAG to enhance the capabilities of AI chat interfaces by integrating access to large repositories of internal documents. This improves accuracy and contextual relevance in responses.

2.6 TESTING AND MODEL VALIDATION ASSISTANCE

The panel agreed that AI has not progressed enough to independently build actuarial models. However, multiple panelists use AI to facilitate their work with actuarial models. Specifically, AI applications include:

- Generating test cases and testing documentation for model validation,
- Testing policy and cash flow calculations,
- Review and validation of traditional risk models,
- Risk prediction of traditional models, and
- Pre- and post-model data processing.

Many panelists shared that they have seen a lot of success when used in these areas.

2.7 DATA ANALYSIS

Several panelists stated that they are developing and using internal AI tools to accelerate data analysis and synthesis of large amounts of data in various areas. While most of these tools are still in early stages of development and proof-of-concept stages, initial feedback has been positive and seems promising.

2.8 OTHER APPLICATIONS

Additional use cases that panelists mentioned included translation, research source attribution, claims integration, and for internal productivity tools.

Section 3 Using Vendor Tools or Building In-house Tools

As with any technology, many companies must decide whether they will use vendor tools or build tailored solutions in-house. AI is no different. Panelists shared different approaches to AI tool development:

Table 2
APPROACHES TO AI TOOL DEVELOPMENT

Approach	Panelists
Use only vendor tools	4
Build tools in-house	4
Hybrid approach	5

This topic generated a lot of comments and discussion and revealed several insights:

- An In-house solution requires significant internal technical expertise and may not be cost-effective for all firms.
- The cost of building a solution in-house will come down as new development tools become available.
- Tool advancements are lowering development costs, however, finding people with expertise will still be difficult.
- Some companies regret investing heavily in internal solutions only to later find equivalent vendor offerings. A lot of time and effort could be saved by waiting for a vendor solution to be released.
- A balanced ecosystem accommodating both vendor and internal solutions is emerging.

Section 4 Privacy Issues

Insurance companies already deal with data privacy issues, but using client or company financial data in AI models have extra risks that need to be considered. The panel agreed that many companies initially blocked AI tool usage until formal policies were developed to regulate tool access and data handling. One panelist mentioned that they are focusing their current AI efforts on client-facing applications and waiting to expand that to actuarial uses until the data privacy policies are completely in place.

One panelist shared that their company handles a tremendous amount of client data that is confidential through Personally Identifiable Information (PII) and the Health Insurance Portability and Accountability Act (HIPAA). Their company invested in data security infrastructure from the beginning to ensure that all internal AI tools developed would be fully compliant with their privacy policies. The result is that they are comfortable using their AI tools knowing that they have the proper data security around their tools and the data they use.

Many companies blocked all use of any AI tools for a few months until new policies were developed that specifically stated what tools could and could not be used, as well as what data was allowed and which data was restricted. These AI policies, along with the data governance policies, give employees a full picture of how to use AI. At least one state's insurance commissioner has asked that companies disclose and explain the use of any artificial intelligence tools or applications in the analysis of data for the purpose of setting assumptions or modeling.

Using private information to train models is another concern that many companies have. Many consulting companies and Insurtech software handle a lot of data where they have always had permission to train their models on anonymous data. A growing awareness of data value is leading to stricter restrictions, even among organizations that previously allowed broad data use. Many current processes already transform their client data so that the data received by the actuaries has sensitive information masked. This process would not change for AI models. One panelist indicated that their company does not allow the use of client and company data to train an LLM, but use it as a basis for consulting. However, the risks of doing that are not fully understood yet.

One way to reduce the risk of using private data is to generate synthetic data that has the same characteristics of actual data without having private information. Most panelists are not using synthetic data except in just a few cases.

Section 5 Compliance, Governance and Ethics

Given the increasing reliance on AI for decision-making in insurance and finance, the issue of compliance and governance is essential for companies to focus on. What role should the actuaries play in ensuring this regulatory compliance, governance and ethics and how can we balance AI's efficiency with the need for transparency and fairness in our actuarial models?

The panel pointed out that data scientists and IT professionals are usually part of the compliance and governance conversations, but neither group has a professional code of conduct. Actuaries can leverage the fact that the profession has a code of conduct that acts like a bridge between the IT professional, data scientist and the business to be an integral part of the compliance, governance and ethics conversations. Through the roles of Chief Risk Officer and Chief Actuary, actuaries should be part of the AI data governance conversation and be actively engaged in AI data governance. A concern was raised that, with the explosion of tools, a very, very specialized role with specialized technical knowledge has been created. During this initial growth period of AI tools, AI thought leadership may shift to IT professionals, given their current dominance in AI tool development.

The panel commented that actuaries can keep playing the role that they currently play, which is treating the AI like another, newer employee. Many actuaries already have oversight as part of their role so they can approach AI with the same lens as they do now.

The panel also raised philosophical questions: At what point are the ethics and problem-solving capabilities of actuaries going to be replicated by an LLM? Can we trust an LLM to act like an actuary? Do we have enough data to train an LLM to act like an actuary?

Section 6 Risk Management

A key challenge that the panel discussed was figuring out how the new AI models fit into the existing risk management frameworks. Some of the technology is seen as tools and some as models. Each viewpoint has different risk management considerations. Traditional actuarial testing methodologies that actuaries are familiar with do not directly apply to AI models. New techniques for testing, stress testing, benchmarking, and calibrating these models are needed.

Section 7 Model Validation

The panel discussed validating LLM models. Some of the current model validation and fairness measures treat the model as a black box. These measures would also apply to LLMs. The challenge is understanding how to tweak the model to meet the fairness objectives. Another challenge is that the actuary will never really understand the entire LLM model, so they will have to treat the model as a black box. Actuaries will need new tools and frameworks to interpret and assess these models, especially given their complexity and lack of transparency.

Section 8 Challenges and Questions

8.1 CHALLENGES

The panel shared many of the current challenges in implementing AI tools and LLM models. One challenge is employee readiness and training since many employees are not currently trained in using the AI tools. Another challenge revolves around the data needed to train LLMs. It is difficult to have access to clean and structured data to train LLMs while maintaining data security and privacy. Trying to access company documents that are organized in different paths and directory structures across the organization is difficult.

8.2 DIGITAL ASSISTANT

The following are some of the questions that the panel asked that only time will be able to provide answers to:

- What unique specializations should actuaries develop to remain relevant?
- How has AI really impacted the actual development of actuarial models?
- As AI evolves, what's the role of the actuary, what's the role of the data scientist, and how do they fit together?
- Where and when will AI capabilities plateau?

Section 9 The Impact on Actuaries

9.1 ACTUARIAL SKILLS

The panel discussed the skills that actuaries should develop to remain competitive. The panel felt that actuaries could have more of a role in analyzing the risks in AI and that data engineering techniques will become important. Actuaries can play the role of being the bridge between IT, Risk and Operations, ensuring the integrity of the process and results, thus contributing to the ethics and professionalism of using AI. Actuaries have an inherent knowledge of data analytics and data analysts have the inherent techniques, so it would be beneficial to purposefully cross pollinate these two groups. Interpretation and governance will increasingly define the actuary's role, more than technical model development.

9.2 ACTUARIAL CREDENTIALS

The panel also addressed whether AI and data science should be formally incorporated into actuarial credentialing. Although actuaries are going to need to know how to use AI tools, like currently needing to know Excel is important, it does not need to be part of the SOA curriculum. Tool education is not the profession's responsibility, however, having some AI topics in the curriculum would be beneficial. Suggestions included an AI Fellowship track or SOA-supported access to tools for members who may not have access to them in their workplace to help accelerate the knowledge of the tools.

The panel also stated that, as a profession and community, peer-to-peer education through volunteering in different SOA sections and communities remains valuable.

9.3 IMPACT ON ACTUARIAL ROLES

The panel addressed what they felt would be the long-term impact of the proliferation of the use of AI on actuarial roles in the industry. Insurance companies and actuaries have historically been the biggest users of the computer's computational abilities to get more refined in their calculations. These tools will continue to create more precision, allowing actuaries to better understand risk. These models will never replace intent, which is something that actuaries provide as humans in the loop. Actuaries provide perspective and intention for the models to execute on.

Some of the panel felt that this won't be any different than previous technology. Actuaries have seen technology change throughout their careers and the profession has always risen to the challenge and figured out how to use these tools to improve their work, efficiency and effectiveness. Actuaries have always been the humans in the loop in the insurance industry and AI will not change that.

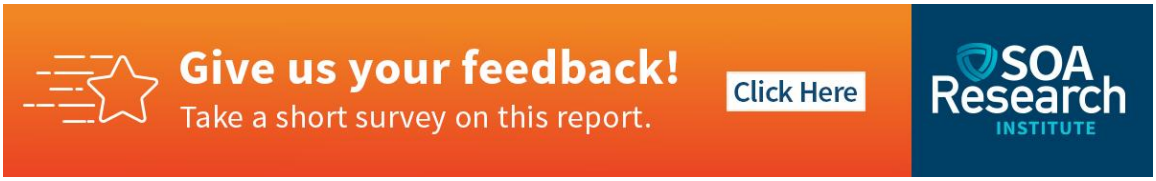
The panel asked where the technology is going to plateau. The key concern is how far AI will evolve and whether it could eventually replicate core actuarial judgment.

Section 10 Expert Panel Discussion Questions

Part of the discussion was getting feedback directly from the panelists on what is happening within their own organizations. The following are questions asked directly to the panel to stimulate the conversation.

Table 3
QUESTIONS

Topic	Question
Deployment and Practical Applications	Where are you currently first looking to deploy large language models (LLMs) to production, and what practical applications have you found most effective?
Use Cases and Success Stories	What use cases are seeing traction with respect to productivity gains caused by the use of AI, and what have been your biggest successes in the last 18 months using AI to support modeling?
Vendor Platforms vs. Self-built Tools	Have you moved away from vendor platforms to self-built tools supported by AI code generators, and what has been your experience? What challenges did you face using the self-build approach or with a vendor?
Ethical and Governance Considerations	Given the increasing reliance on AI for decision-making in insurance and finance, what role should actuaries play in ensuring regulatory compliance and governance, and how can we balance AI's efficiency with the need for transparency and fairness in actuarial models?
Privacy and Data Security	How are you dealing with privacy issues surrounding the data you work with, specifically ensuring that Personally Identifiable Information (PII) or company financial data is securely handled when using AI?
Skill Development and Credentialing	As AI becomes more integrated into actuarial workflows, what skills should actuaries develop to remain competitive, and should the actuarial profession consider expanding credentialing requirements to include AI and data science competencies?
Adoption and Impact on Actuarial Roles	In a future where AI becomes the norm, how do you see the role of actuary evolving? How do you see AI transforming actuarial work and actuaries playing the role of "human in the loop?"



Section 11 Acknowledgments

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