# Generative AI in the Actuarial Profession: Survey Insights from the IFoA GenAI Working Party

Transformation, Adoption, and the Road Ahead

BETTY ZHU, DANIEL CRAIG RAMSAY, AND DISHA DAGLI
MAY 22, 2025

Share



In 2025, generative artificial intelligence (GenAI) has moved beyond theoretical interest and into practical application within the actuarial profession. From enhancing data analysis and model development to accelerating report generation and stakeholder communication, GenAI is beginning to reshape actuarial workflows in meaningful ways. Yet despite the growing attention it commands, the profession remains in the early stages of integrating this technology at scale.

To better understand current engagement with GenAI among actuaries, the IFoA GenAI Working Party conducted a survey in early 2025, gathering input from professionals across various sectors and levels of seniority. The findings offer a timely snapshot of how the profession is responding to GenAI, not with wholesale adoption, but with measured exploration and pragmatic optimism. In this article, we examine the key themes that emerged from the survey, explore how GenAI is currently being used in actuarial work, and consider where the profession might be headed as this technology continues to evolve.

Thanks for reading IFoA GenAI Working Party!
Subscribe for free to receive new posts and
support my work.

# GenAI in the Workplace

1. **How would you rate your overall knowledge of GenAI?**
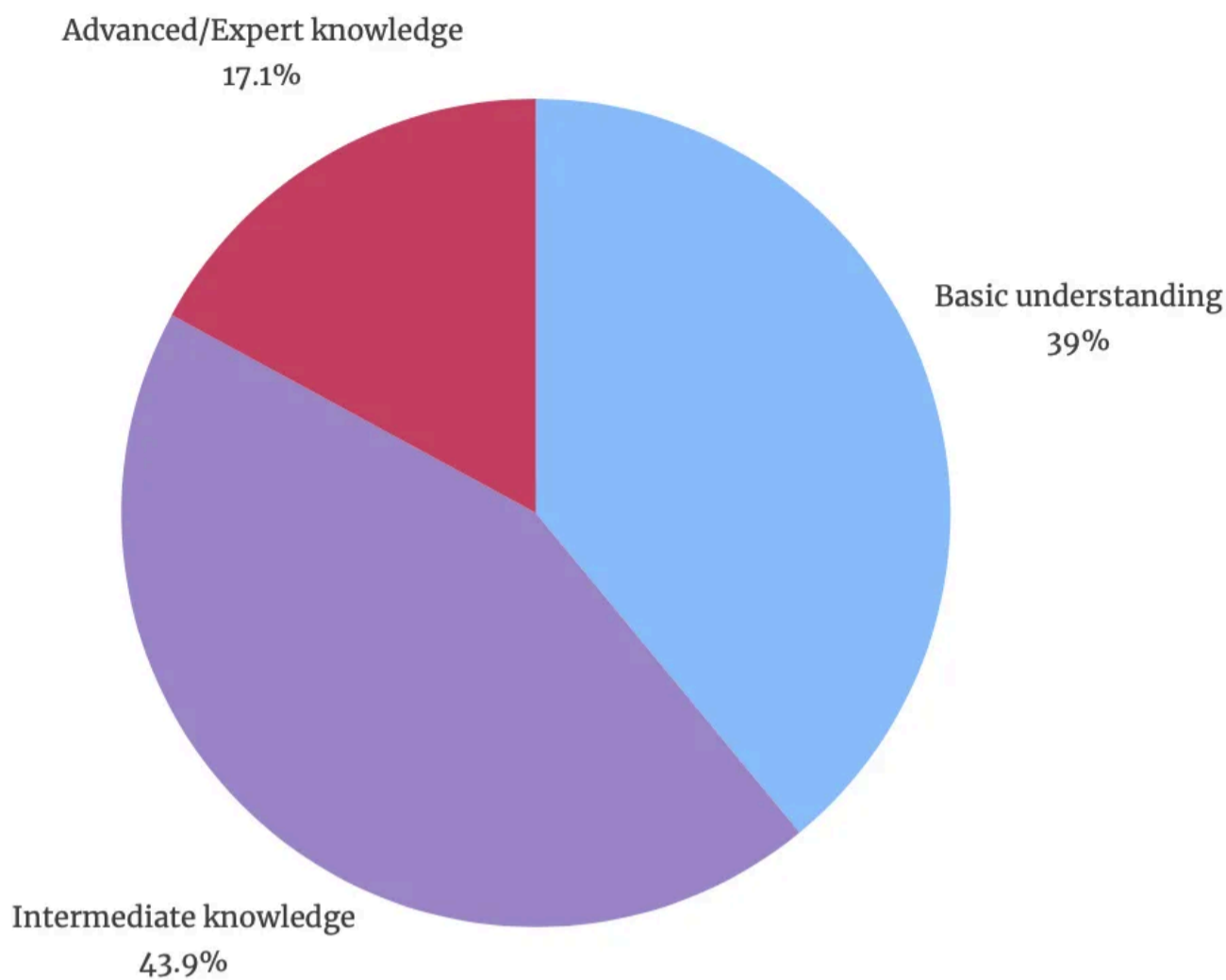


The majority of respondents came from general and life insurance backgrounds, primarily working in mid-to-large firms. Most reported having a basic to intermediate level of familiarity with GenAI tools. We acknowledge the potential for response bias, as individuals with existing interest or experience in GenAI may have been more likely to participate in the survey.

2. **Which GenAI applications do you utilise most frequently? Please rank only those tools in order of usage frequency.**
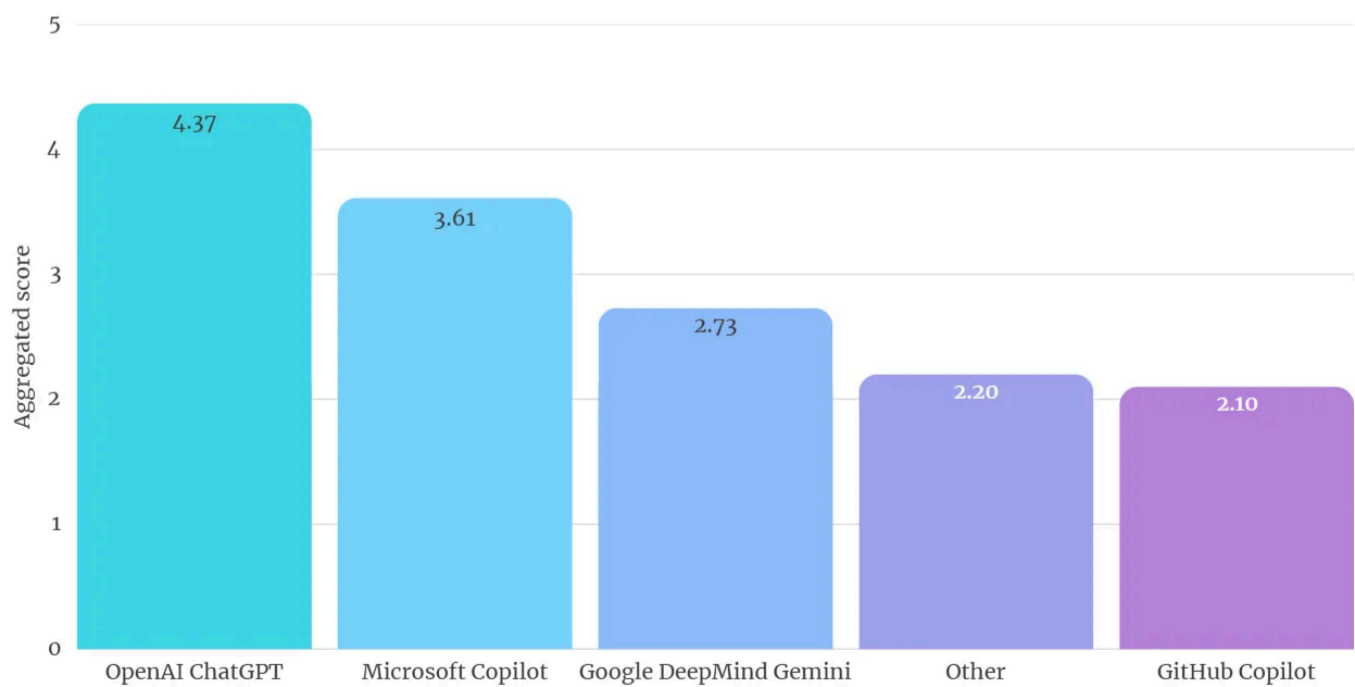


OpenAI's ChatGPT appears to maintain the highest aggregated usage score (4.37) among actuaries, suggesting its predominance in the GenAI landscape. Microsoft Copilot appears to hold a strong secondary position (3.61), indicating substantial adoption despite being more recently introduced to the market. Google DeepMind

Gemini (2.73), GitHub Copilot (2.10), and other tools (2.20) seem to have achieved notable but comparatively lower usage levels. This distribution may reflect varying factors including user familiarity, enterprise governance constraints, and perceived utility within actuarial workflows. It is likely that the accessibility and earlier market entry of ChatGPT have contributed to its apparent lead, whilst organisational policies and integration capabilities might be influencing the adoption rates of enterprise-focused alternatives.

3. **Which GenAI applications are you permitted to use in your workplace?**
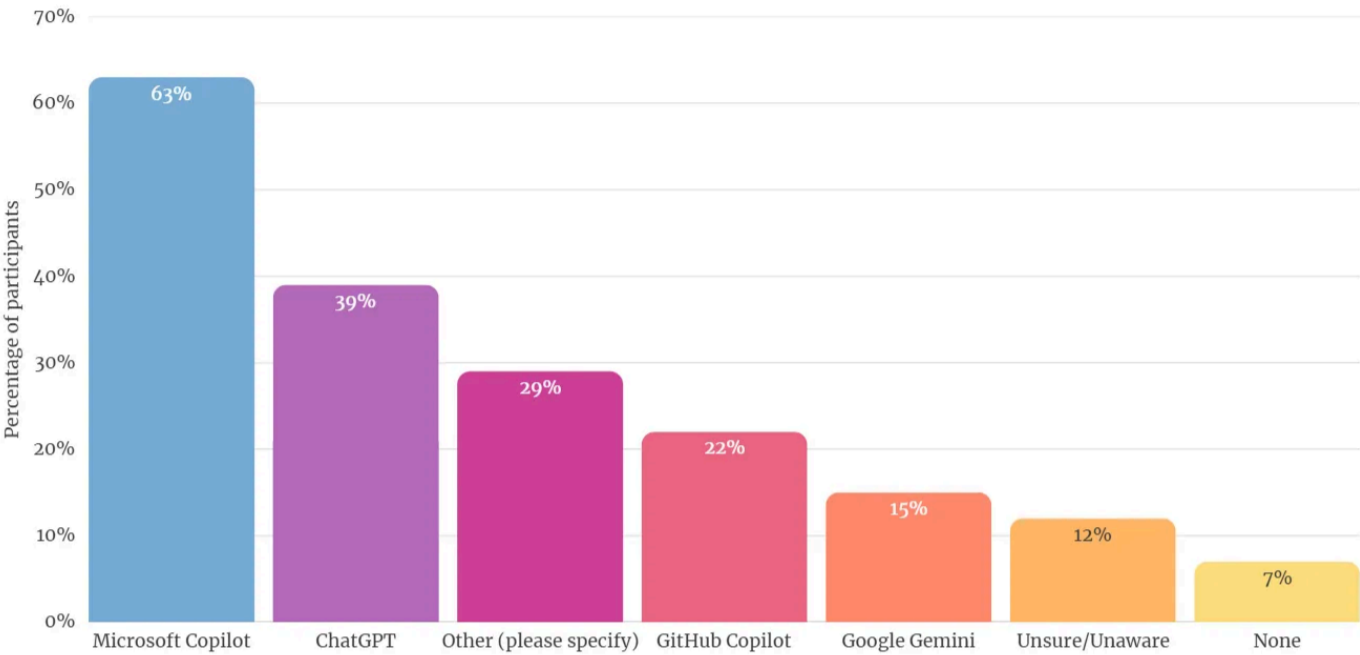


The survey indicates that Microsoft Copilot is the predominant GenAI solution permitted within actuarial workplaces, cited by 63% of participants, largely due to its integration with the Microsoft ecosystem. ChatGPT follows as the second most permitted tool at 39%, reflecting its widespread market recognition. A significant 20% of respondents reported either no permitted GenAI usage or a lack of awareness regarding available tools, highlighting considerable variability in implementation across the profession. Among those using "other" platforms, internally-deployed versions of ChatGPT were common, addressing data privacy and security. Claude also emerged as a notable alternative. This distribution underscores that organisational policies and existing infrastructure, alongside individual familiarity, significantly influence GenAI adoption within the actuarial field.

4. **Are you aware of any initiatives your company has undertaken in the GenAI domain?**
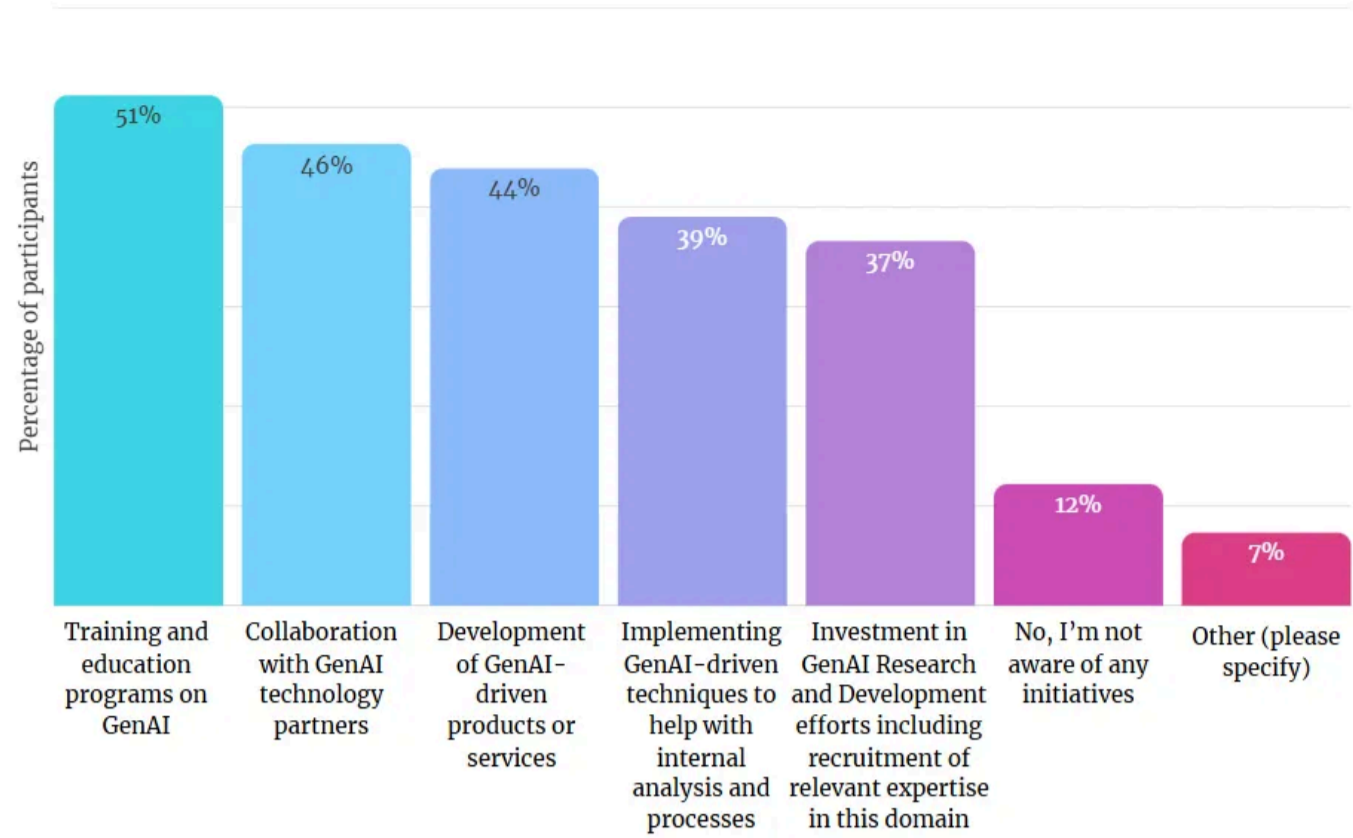
The survey data reveals several key themes in how actuarial organisations are engaging with GenAI. A primary focus is on human capital development, as evidenced by training and education programmes being the most cited initiative (51%). This underscores a clear commitment to equipping the existing workforce with the necessary skills to adapt to AI integration.
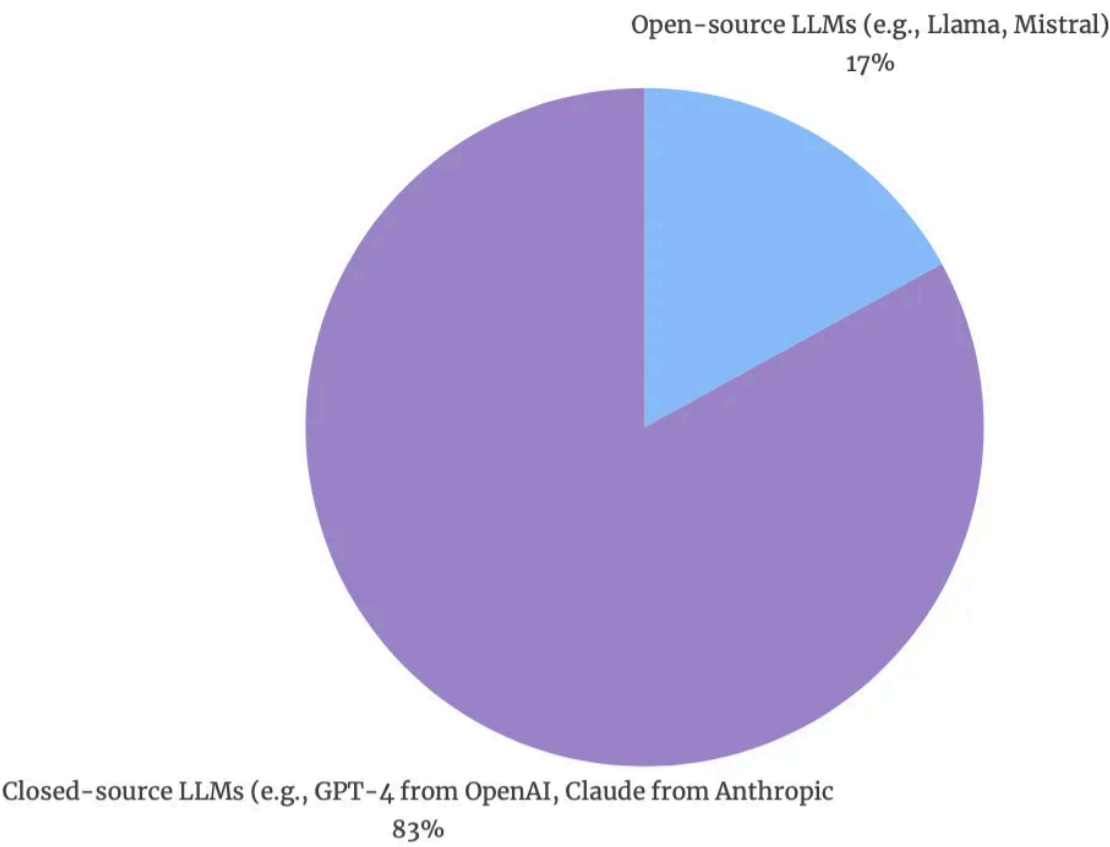
Another significant theme is the pursuit of external collaboration and innovation. Nearly half of respondents (46%) report engaging with GenAI technology partners, indicating a reliance on specialised expertise to accelerate development and implementation. Concurrently, a substantial proportion (44%) are concentrating on the development of GenAI-driven products or services, suggesting that firms perceive GenAI as a pathway to new market offerings rather than solely an internal efficiency tool.

Furthermore, organisations are balancing strategic growth with internal operational enhancement. Investment in GenAI research and development (37%) reflects a long-term commitment, while the implementation of GenAI techniques for internal analysis and processes (39%) indicates a concurrent drive for immediate workflow improvements. Despite these proactive measures, a notable portion of respondents (12%) remain unaware of any GenAI initiatives within their organisations, suggesting a varied landscape in the communication and widespread rollout of these strategies across the profession. The overall picture indicates a comprehensive approach to integrating GenAI, addressing both the strategic reorientation of business models and the practical upskilling of the workforce.

## How advanced users are applying GenAI tools and techniques

Among professionals reporting intermediate or advanced proficiency, here are their responses to the following questions:

5. **Which type of LLM do you primarily use for GenAI processes at work?**

Open-source LLMs (e.g., Llama, Mistral)
17%

Closed-source LLMs (e.g., GPT-4 from OpenAI, Claude from Anthropic
83%

Among these more experienced GenAI users who actively work on tasks incorporating GenAI at work, Closed-source LLMs like OpenAI's GPT dominate (83%), reflecting strong trust in major commercial models over emerging open-source alternatives (e.g., Llama). Some respondents indicate that they access GPT via Azure OpenAI for serious work due to scalability, enterprise integration, and cost-effectiveness, while others avoid closed-source models like OpenAI or Anthropic due to privacy and trust concerns, preferring to run open-weight models locally and avoid exposing sensitive data.

6. **What are the other types of neural networks you have worked with for GenAI related tasks other than transformer-based LLMs?**
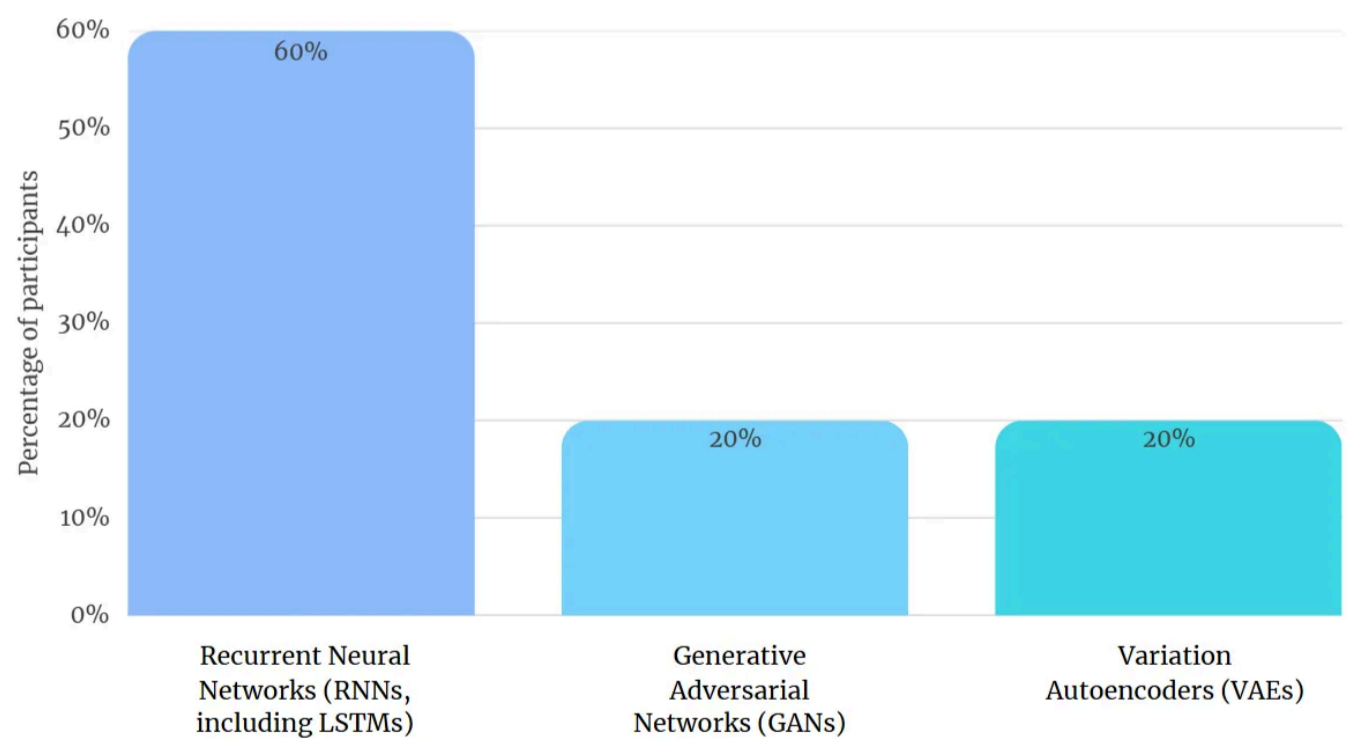
Although transformers dominate current applications, some of the alternative architectures which are foundational to early deep learning models - are still valued for specific use cases. For those who respond that they have used other frameworks, the majority of the respondents (60%) mention working with Recurrent Neural Networks (RNNs) and especially LSTMs for time series as a challenger model to existing business forecasting, as well as for sentiment analysis. A small number also used Variational Autoencoders (VAEs) as well as Generative Adversarial Networks (GANs) for creating synthetic data.

7. **What are the frameworks you use for developing GenAI models?**
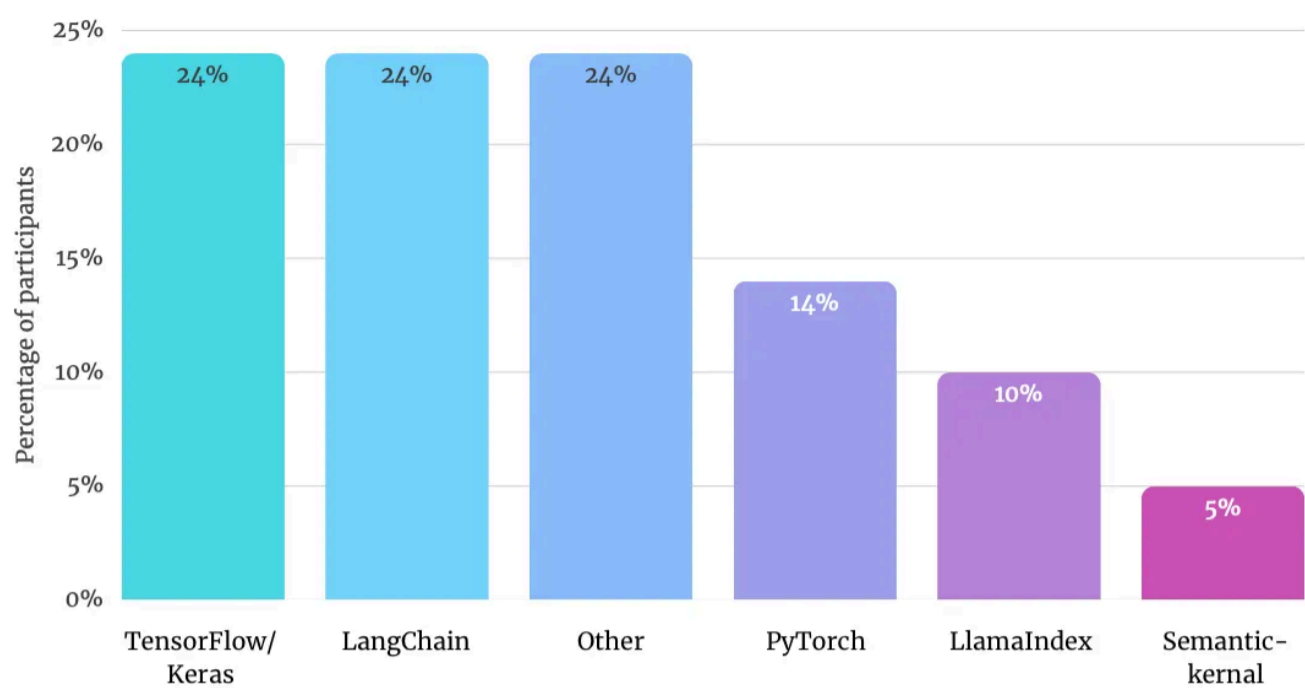


When it comes to frameworks, participants mainly relied on TensorFlow/Keras (24%), LangChain (24%) and PyTorch (14%) as their preferred tools for developing GenAI models.

Though PyTorch has gained popularity in other industries over the recent few years, but interestingly, based on the survey, PyTorch usage in actuarial related tasks was lower compared to TensorFlow/Keras, which may reflect the continued dominance of TensorFlow in educational resources and tutorials, particularly for deep learning and GenAI introductory content.

Some have experimented with LangChain, but noted challenges integrating it with Azure OpenAI. Several other respondents comment they work primarily with pretrained models from platforms like Hugging Face or GitHub, as well as Ollama for local deployment.

8. **Which of the following approaches have you used in your projects?**
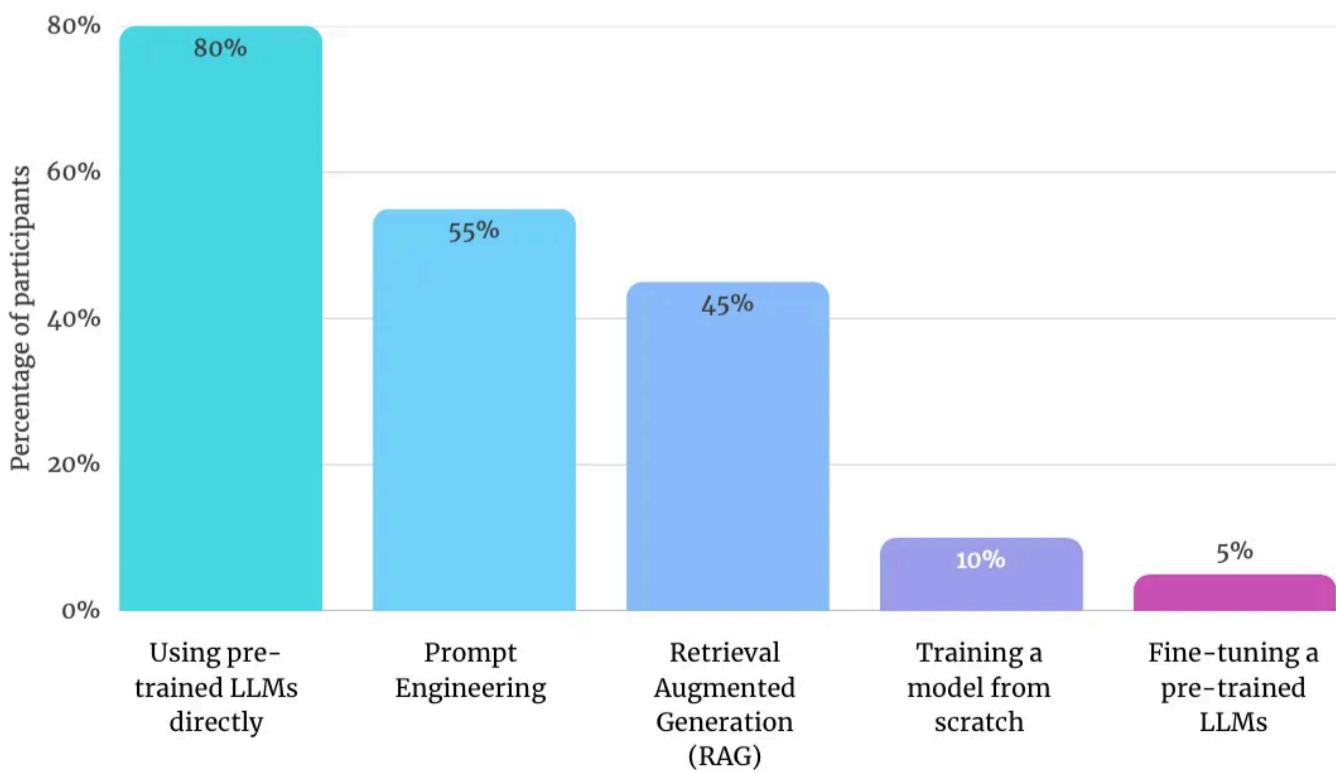


These results suggest that the most common way of incorporating LLMs into work tasks is by using pre-trained models without any customisation (80%) - for

instance, directly using tools like ChatGPT. This is consistent with expectations, as it requires minimal technical expertise giving it the lowest barrier to entry.

Prompt engineering is also widely practised (55%), indicating that many users prefer to refine outputs by carefully crafting instructions, rather than altering model weights. Retrieval-Augmented Generation (RAG) is employed by 24% of respondents, reflecting a growing interest in linking LLMs to external sources of information.
More advanced or resource-intensive activities -such as training models from scratch (5%) or fine-tuning existing models (3%) - are far less common, likely due to the considerable complexity and cost involved. We expect the value of training models from the ground up to continue diminishing as frontier models advance and become increasingly accessible through APIs or open-weight releases. As a result, most organisations are likely to focus on leveraging existing models, refining prompt engineering, and developing lightweight adapters or RAG-based systems tailored to specific domain needs.

## What's Next: Aspirations and Insights from the Profession

Beyond understanding how generative AI is currently being used, we also explored professionals' expectations for its future impact and the areas where they are most eager to deepen their knowledge.

9. **To what extent do you anticipate generative AI will alter the role of actuaries over the next five to ten years?**
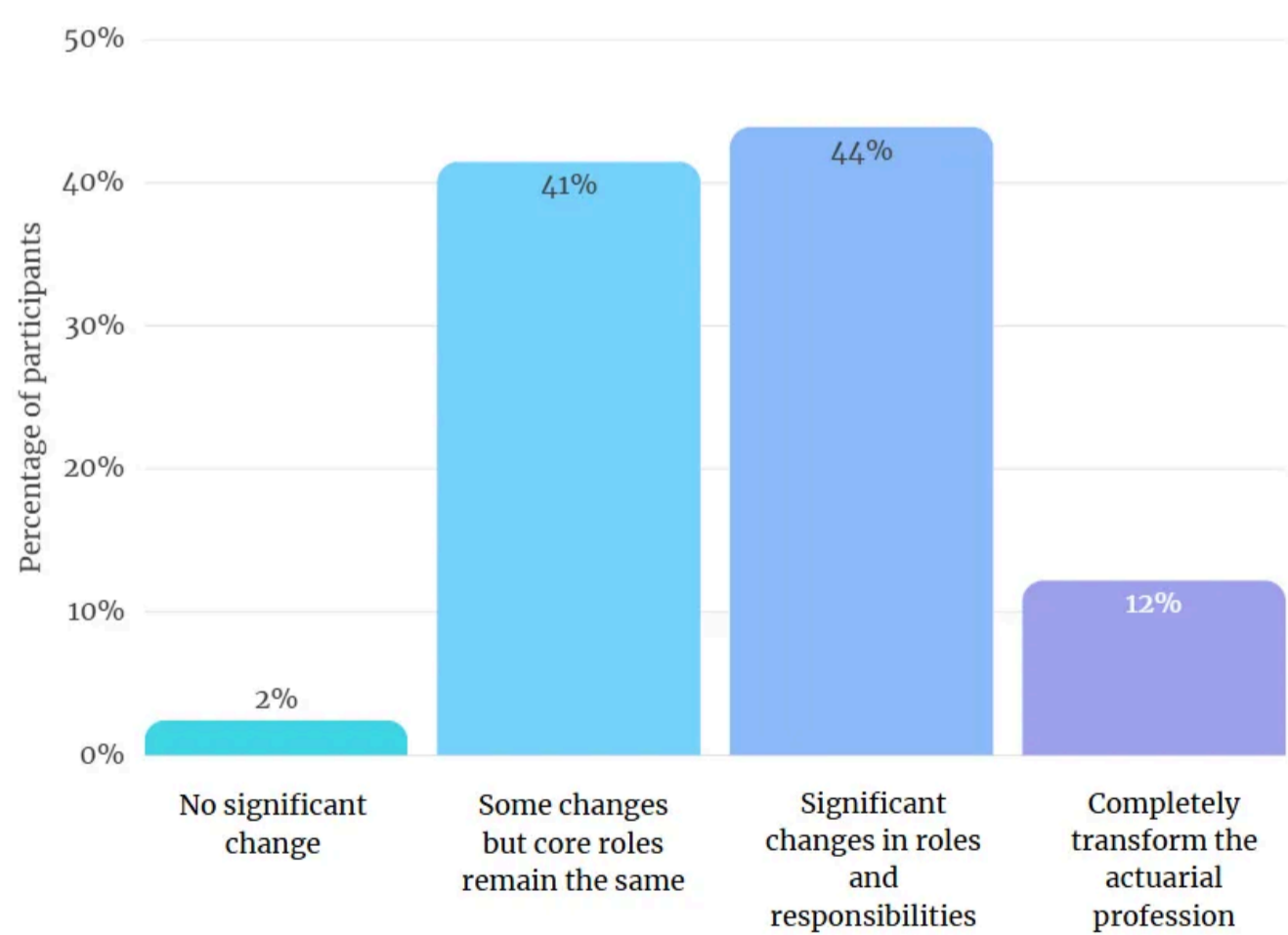


The survey results indicate a strong consensus regarding the transformative potential of generative AI on actuarial roles within the next five to ten years. A substantial majority of participants foresee significant shifts, with 44% expecting major transformations in roles and responsibilities, leading to new working paradigms and potential redefinition of traditional actuarial functions. Another significant proportion, 41% of respondents, anticipate some changes but believe

that core actuarial duties will largely remain intact. Conversely, only a small minority (2%) expect no significant change, while 12% predict a complete transformation of the profession. This collective outlook underscores a widespread acknowledgement within the actuarial community that GenAI will reshape, rather than merely augment, professional practices.

10. **Which topics would you like to learn more about or see more publications on using GenAI?**
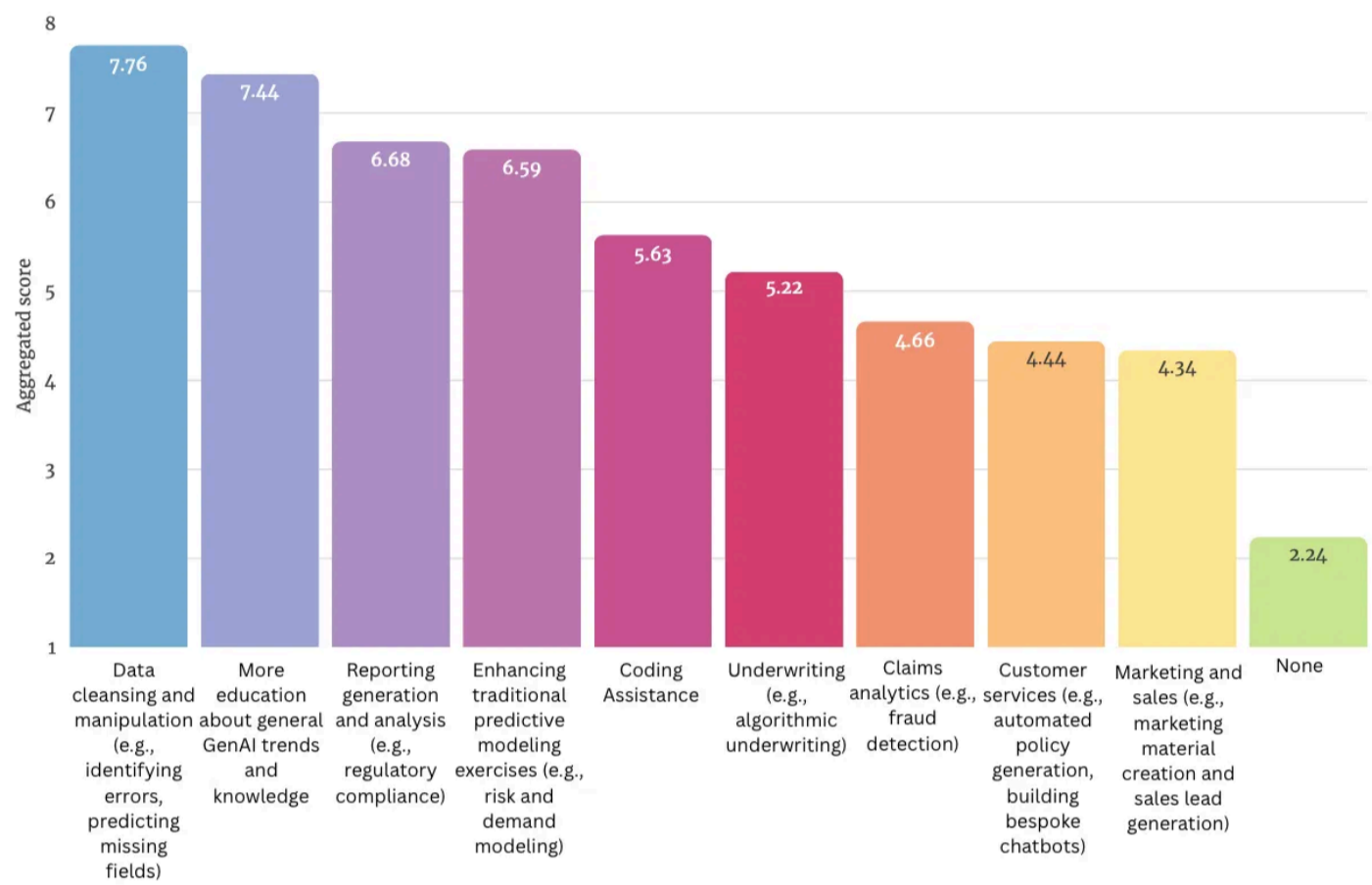


On top of receiving more education about general GenAI trends and knowledge (7.44), Actuaries are very keen to learn how GenAI can directly improve traditional actuarial tasks - especially data preparation (7.76), predictive modelling (6.59), and reporting automation (6.68). Coding assistance (5.63) also stands out, showing that technical fluency is becoming a must-have skill even outside of core data science roles.

Among those who gave additional comments, some common themes emerged: trust and reliability of GenAI; the need for professional guidance on ethical use; and the blending of actuarial and data science skills. Many also raised that they would like to see more communication on the risks and limitations of these new technologies, with some actuaries remaining sceptical about GenAI's current reliability.

## Closing Remarks

The actuarial profession is at a pivotal moment. As highlighted by this survey, GenAI is no longer a future-facing concept - it is already beginning to influence core workflows, decision-making processes, and skill requirements within actuarial practice. While adoption is still measured and uneven across organisations, there is a clear and growing awareness of GenAI's potential to drive both incremental improvements and transformative change.

Key themes emerged from the results of this survey: the widespread use of pre-trained models like ChatGPT; the growing interest in prompt engineering and RAG; the

cautious approach to fine-tuning and model training due to cost and complexity; and the strategic investment by organisations in skills development, tooling, and partnerships. Respondents also signalled a strong appetite for further education, particularly in applying GenAI to core actuarial tasks such as data preparation, predictive modelling, and reporting automation.

Perhaps most telling is the collective anticipation that the role of actuaries will evolve significantly over the coming decade. This evolution will not just be about adopting new tools - it will be about redefining how actuarial value is delivered in an AI-augmented world. In this new reality, the identity of actuaries will need to broaden, blending traditional analytical rigour with data science fluency and technical adaptability.

Going forward, success in the profession will depend on staying informed, embracing interdisciplinary collaboration, and developing a mindset that welcomes innovation without sacrificing prudence. This survey underscores a clear message: actuaries are not just observers of AI transformation – they are participants, and in many cases, leaders in shaping its responsible integration into financial decision-making. The road ahead will likely require curiosity and vigilance, as well as a shared commitment to both innovation and professional integrity. By navigating this evolving landscape with open-minded rigour, actuaries can ensure their continued relevance and uphold their critical role as trusted advisors in an increasingly complex world.
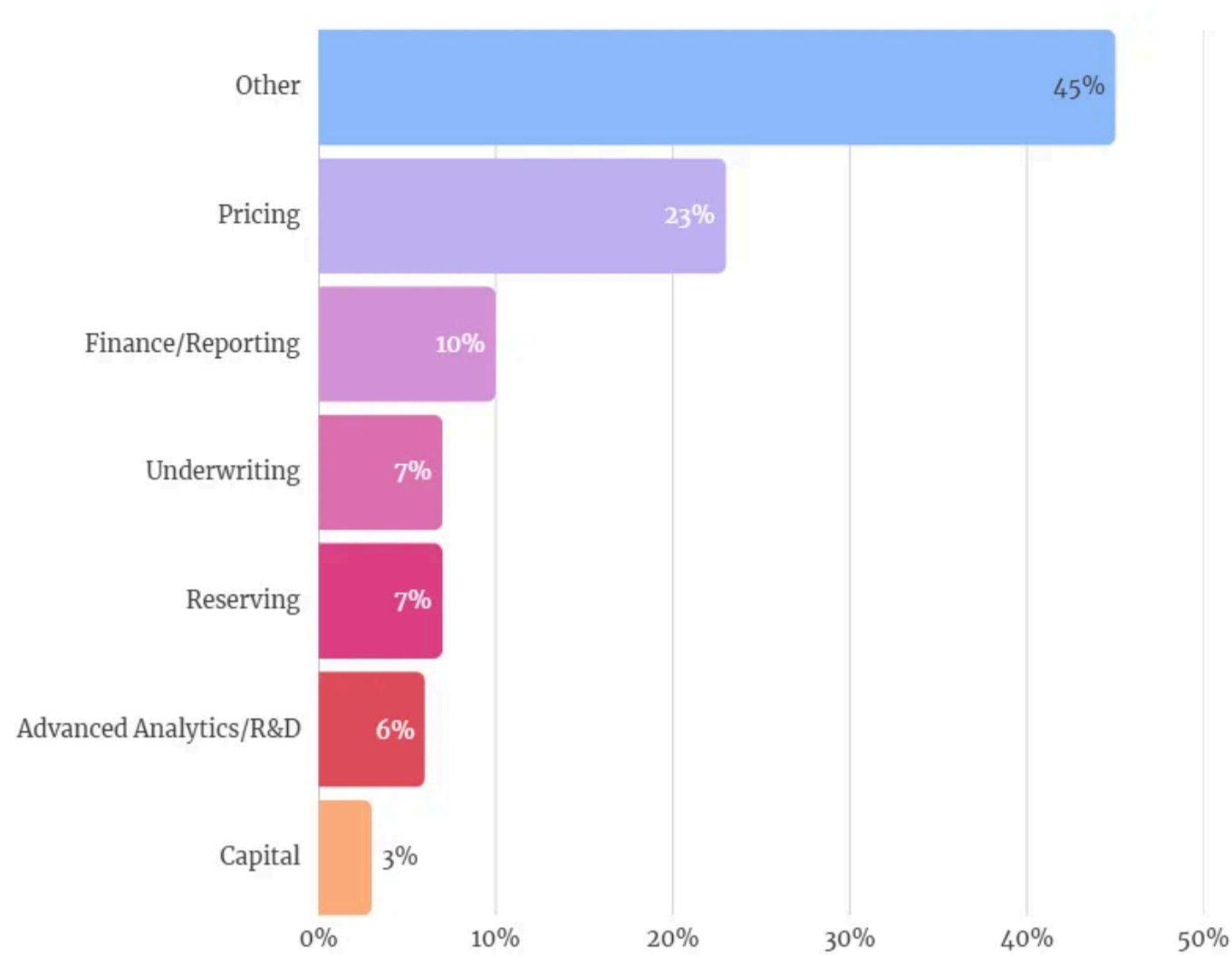
# Appendix

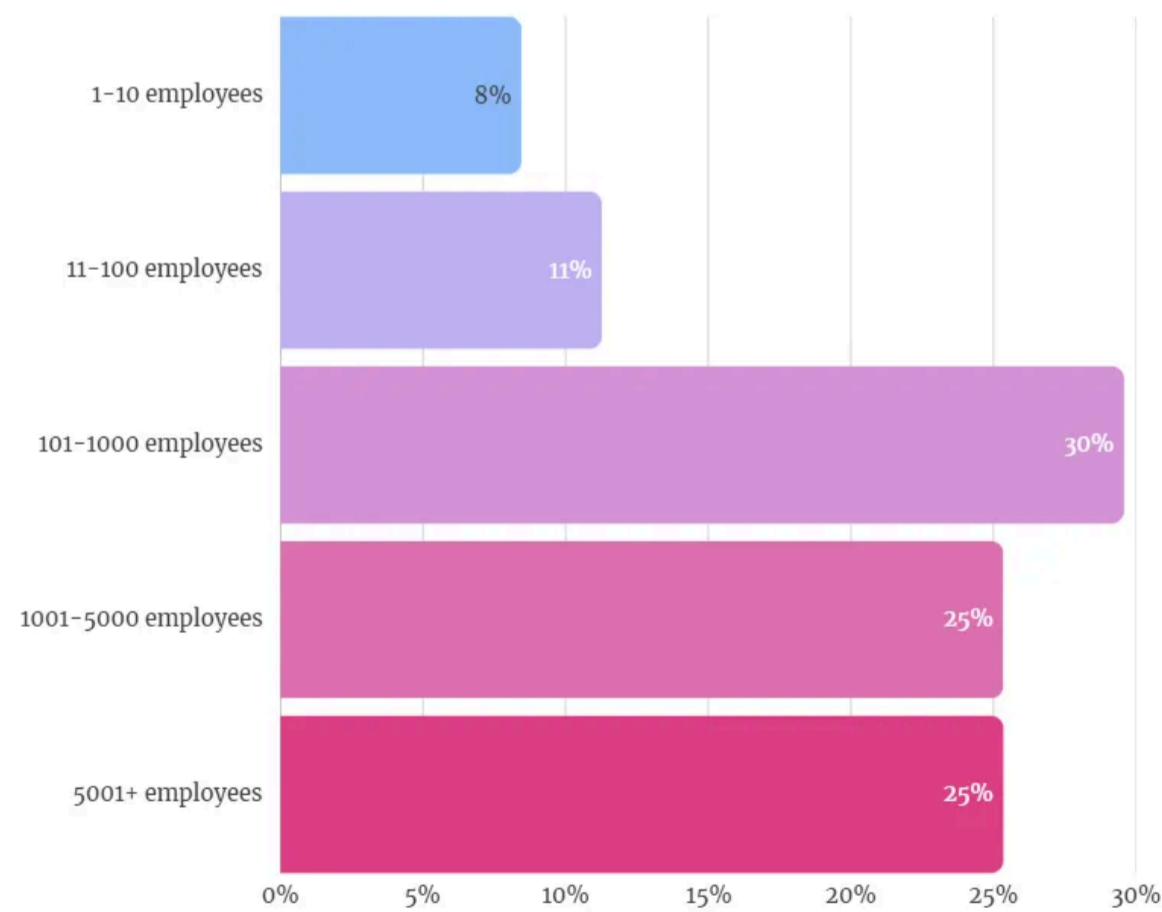In the graphs below we provide some demographic information on the survey participants.

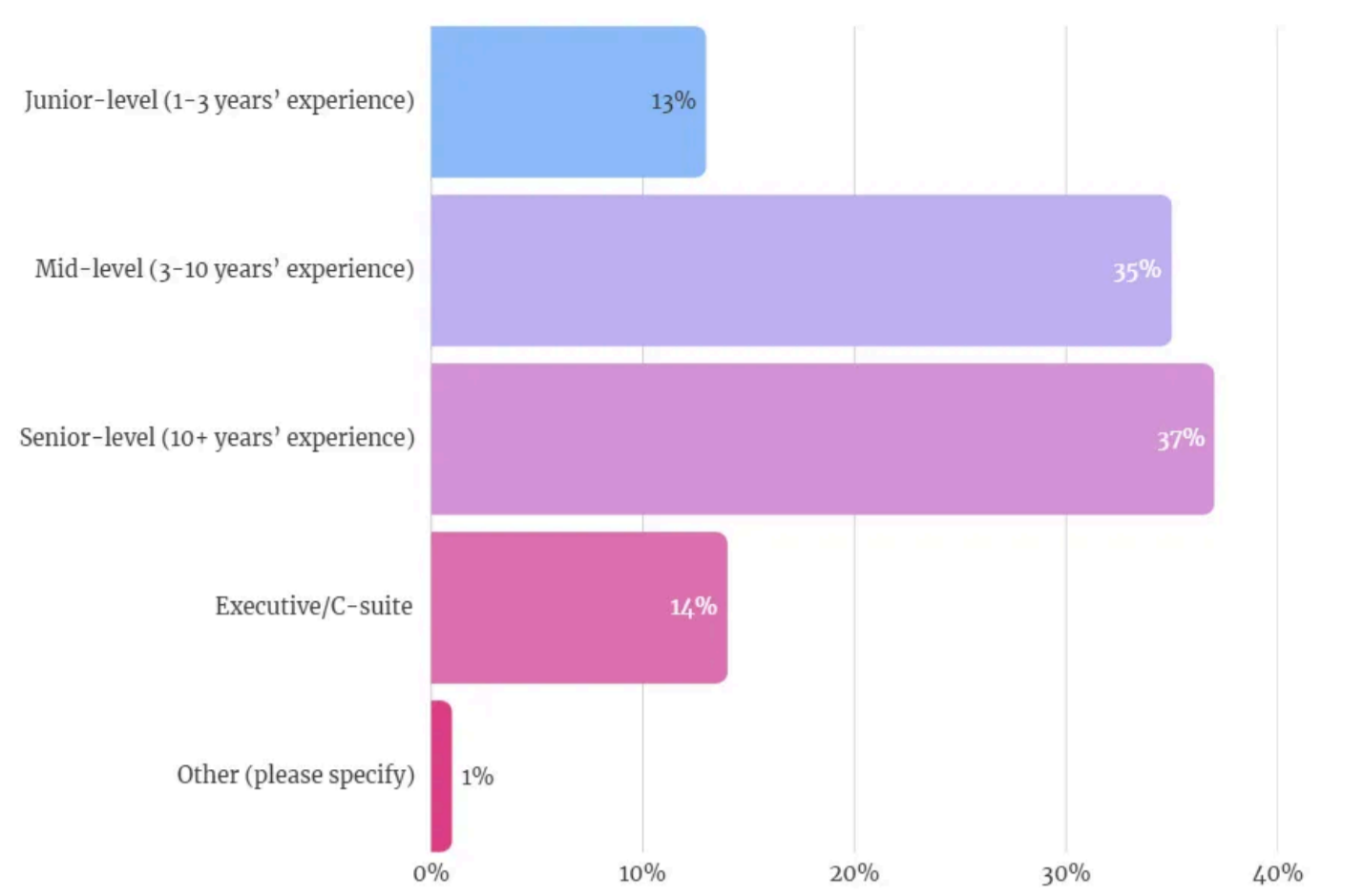### Which field are you currently working in?
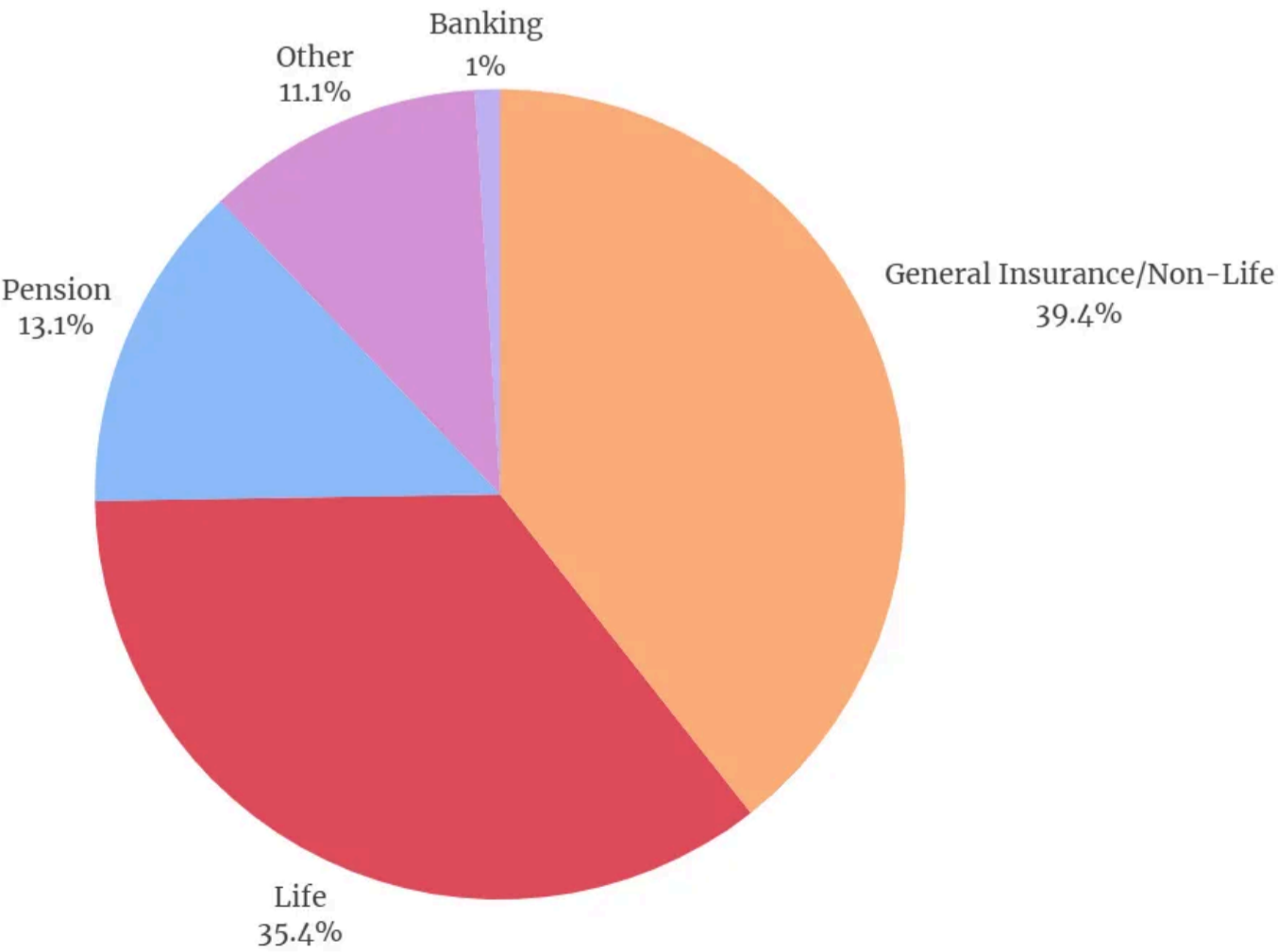
## *What is your current job responsibility?*



## *What is your firm's size?*



## *What is your level of seniority in your current role?*

Thanks for reading IFoA GenAI Working Party!
Subscribe for free to receive new posts and
support my work.

## Discussion about this post

Comments    Restacks

Write a comment...

---