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Tech Trends 2025

A perspective for the Insurance Sector

As outlined in our 2025 Tech Trends report, Generative AI (GenAI) continues to be the most prominent trend impacting organizations across sectors. In this report, we will share our observations, experiences, and predictions from the Insurance sector for the six technology trends presented in the 2025 report.
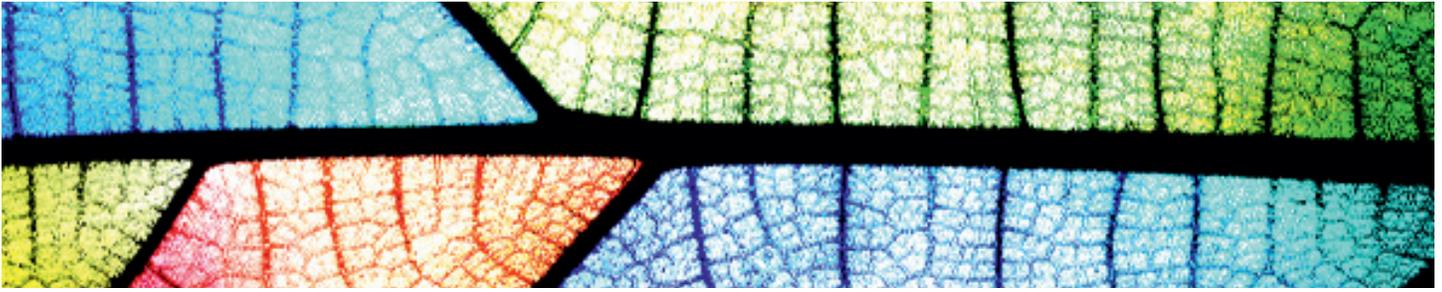
Interaction
Spatial Computing

Spatial computing is transforming the insurance industry in key strategic areas across the value chain. It is being leveraged to enhance risk assessments during underwriting, and claims processing through advanced technologies like aerial imagery, geographic information systems, and real-time data analytics. Insurers are utilizing high-resolution aerial images and geospatial data to assess property risks more accurately, enabling precise underwriting decisions and more efficient claims management which can reduce operational costs, enable more accurate assessments, and drive better financial performance for insurers. Farmers Insurance has been utilizing aerial imagery and drones to improve the efficiency and accuracy of property assessments particularly after events like natural disasters.[1]

As spatial computing continues its maturation journey, insurers are expected to further innovate in the near and midterm. With the scaled adoption of augmented reality (AR) and virtual reality technologies and devices on the horizon, insurers will be able to facilitate virtual property inspections, and underwriters can better assess risks without physical visits. Both use cases, and many others, can enable insurers to improve services while reducing costs. GenAI is enabling hyperpersonalized client experiences and spatial computing can further enhance it by redefining the way insurers engage with its customers. Farmers Insurance is using AR for its customer service to assist clients with visualizing insurance policies.[2] To understand their coverage, clients can use the AR app where they can see their home in a 3D model and see the different types of damages covered. Increased operational efficiencies, enhanced customer experience, and reduced costs enabled by spatial computing will likely make this a foundational technology that insurers invest in to remain competitive in an evolving market.

Information
Small Language Models (SLMs)

Within the insurance sector, there is additional emphasis being placed on optimizing AI models for existing use cases. SLMs are being used to improve accuracy and reliably of AI solutions for specific tasks across the insurance value chain. Unlike large language models, which are often not as precise or tuned to provide high accuracy results for specific use cases, SLMs may be better suited for the nuanced needs of the insurance specific use cases or operational processes.

In customer service, SLMs can provide highly relevant responses insurance-specific queries, such as policy details and claim statuses. This automation not only speeds up response times, but also allows human agents to focus on more complex issues, enhancing overall customer satisfaction. Similarly, in claims processing, SLMs can quickly extract and interpret data from documents, streamlining the claims life cycle, and reducing manual errors. By analyzing large datasets and parsing complex documents, these models provide underwriters with risk assessments and policy recommendations which can lead to more informed decision making and tailored insurance solutions. Marketing and sales teams can also benefit from SLMs by using them to personalize communication strategies.
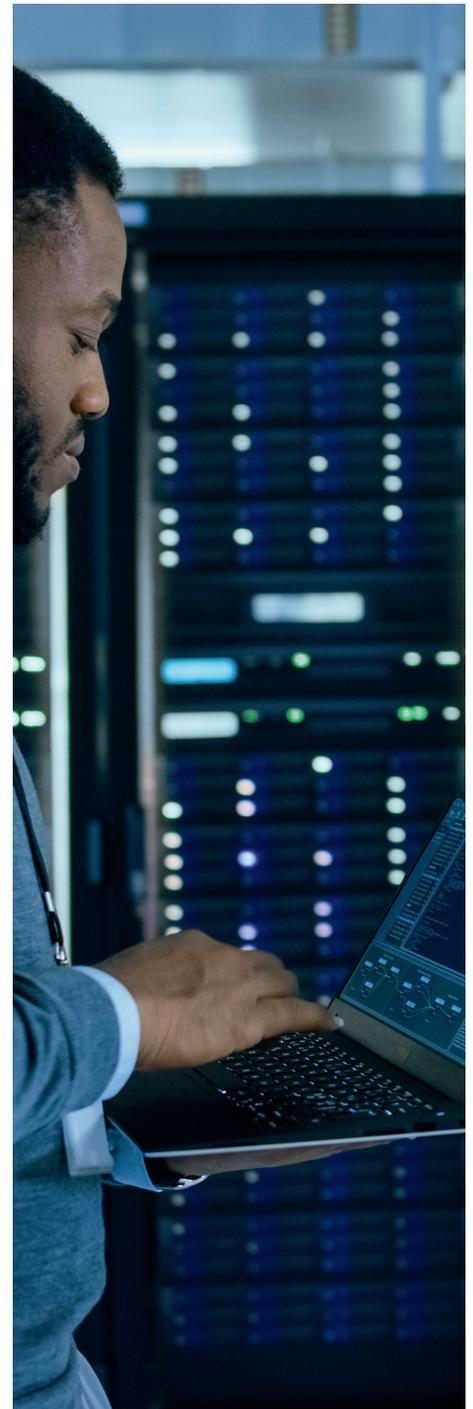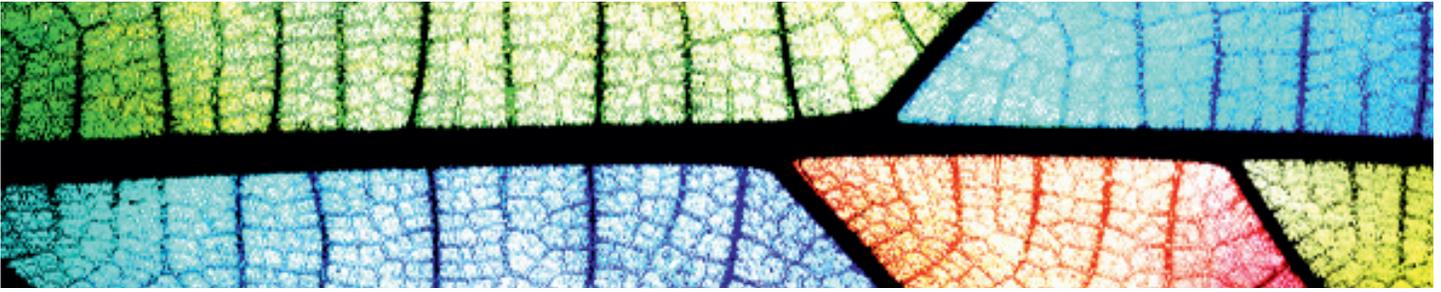
Progressive is using its chatbot, Flo, powered by a SLM to quickly answer customer inquiries about policies, claims, and billing.[3] This solution enhances customer satisfaction by providing accurate responses and reducing wait times for support.

An added benefit of smaller models is that they can be run on-device, making them a good fit for Edge AI solutions. Specifically in auto insurance, sensors in a car can assess the impact of an incident, summarize a standard claim request using an on-device SLM, and enable the customer to choose whether they want to pursue the claim or not. Moreover, SLMs are cost effective and require less computational power, making them an effective option for many insurance use cases.

In summary, small language models are not just a technological advancement but a strategic asset for the insurance industry. By optimizing existing processes and enhancing decision making, SLMs can position insurers to meet current demands and future challenges effectively.

Computation
Hardware for AI

The future of AI hardware is likely to involve hybrid architectures that combine the strengths of various processors, including GPUs, Tensor Processing Units (TPUs), and Hyperconverged Infrastructure (HCI). This approach can enable flexible and scalable solutions tailored to specific AI workloads, enhancing performance and efficiency.

AI has seen wide adoption in image and video processing, and execution of complicated simulations enabled by Graphics Processing Units (GPUs). TPUs, designed by Google, are used extensively in Google's cloud services for training and inference on deep learning models. They offer performance improvements over GPUs in certain AI workloads.

Preparing for an AI-enhanced future involves many information technology (IT) decisions, particularly designing AI-accelerated hardware clusters. HCI systems are a promising choice due to their density, scalability, and flexibility. While AI-optimized hardware is specialized, its design is similar to standard HCI hardware.

Machine and deep learning rely heavily on data. Data selection, collection, and preprocessing (like filtering, categorization, and feature extraction) are important for a model's accuracy. Consequently, data aggregation and storage are needed for AI applications and impact hardware design. For an insurer to build a fraud detection model, they need high-memory capacity to train the model of high complexity and fast storage to store and handle large datasets.

All these factors are increasing the power and cooling requirements of a data center which is leading to an increase in nuclear energy plants to run the GPUs in data centers.[4] Insurance companies should consider these requirements as they evolve in the AI journey.

AI-based code mining technology extracts business logic from legacy systems and provide visibility into underwriting rules.
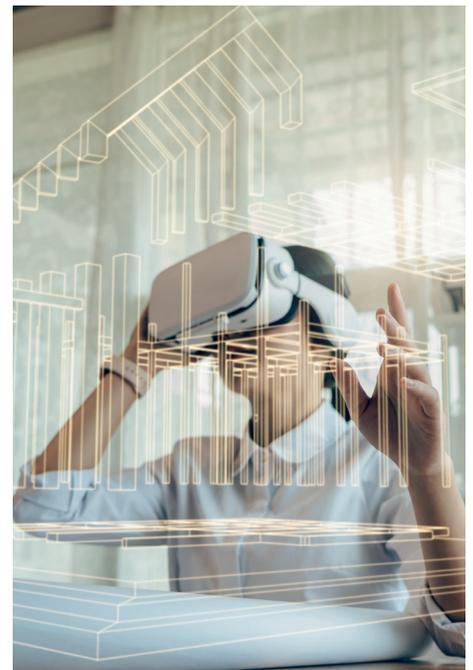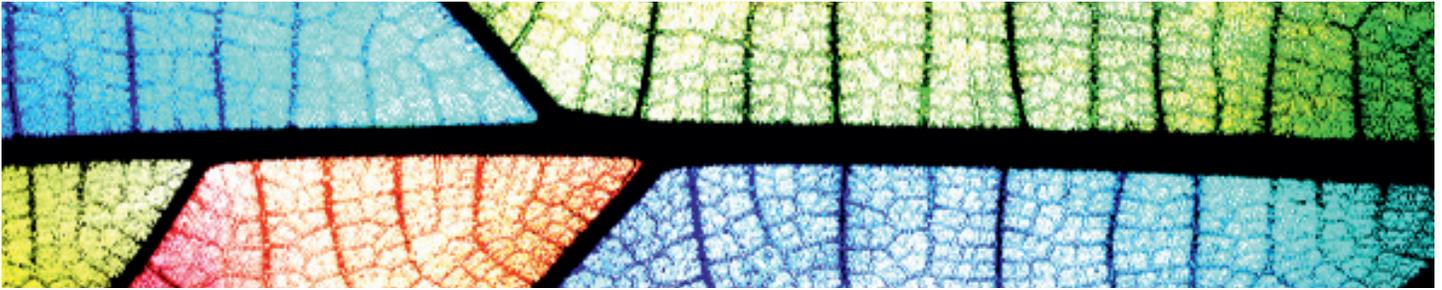
Business of Tech
Operating Model

The insurance sector is at the forefront of an IT transformation fueled by artificial intelligence (AI) and GenAI. IT modernization efforts today have a deep focus on leveraging AI tools and building AI technologies that optimize operations across underwriting, claims, and customer experience, unlocking new levels of efficiency and personalization. Many Software as a Service platforms that insurers use have already integrated GenAI into their solutions.

As insurers adopt AI at scale, the focus on IT modernization and cybersecurity has grown significantly.[5,6] Capabilities related to cloud migration, data transformation, and AI-powered infrastructure management have become strategic priorities to support increased computational demands and safeguard sensitive policyholder data. This has prompted some IT leaders to rethink their operating model and organization design. Some insurers are also investing in upskilling their workforce. They are developing AI- and machine learning-based training programs to prepare employees for the 'human-in-the-loop' operations. Through these modernization efforts in software engineering, data, cloud, and cybersecurity, insurers are enabling AI-driven claims processing, product personalization, and cyber risk modeling to create long-term enterprise value.

Majority leaders Deloitte surveyed (72%) said they expect GenAI to drive changes in their talent strategies sometime within the next two years. 91% of all organizations expect their productivity to increase due to GenAI. 47% reported that they are sufficiently educating their employees on the capabilities, benefits and value of GenAI. However, survey respondents also cited a lack of technical talent and skills as the biggest barriers to adoption.[7]

In another study conducted in the UK, 90% of surveyed insurers have begun to make changes to their IT operating model to include GenAI skills and are actively investing in the reshaping the talent pool.[8] Evolution of new roles focused on GenAI/AI are also being observed in the IT organization of insurance companies.

Cyber and Trust
Cybersecurity and Trust

As more insurance companies adopt AI and strive for cyber innovation, leaders are considering decisions about how to develop safeguards to manage AI risks and articulate trust across internal and external stakeholders. While AI can deliver benefits to companies that successfully leverage its power, if implemented without such safeguards, it can also damage an insurer's reputation and future performance.

Consumers across the insurance industry conduct cyber transactions with organizations hundreds or thousands of times a day through Web-based interactions, digital insurance policy purchases, and online insurance claims submissions. These interactions generate significant volumes of customer data that can be used by AI models to enhance customer experience and optimizing product offerings.

Marketing and sales teams can also benefit from SLMs by using them to personalize communication strategies.

Customers should be able to trust that the data they share with insurers will be used ethically and without bias. By focusing on implications of AI bias and incorporating the principles of AI ethics, insurers can protect customer data, build brand equity, and instill customer trust, while delivering value-added services and improving financial performance. At the forefront of the insurance industry's technological evolution, the Ethical AI in Insurance Consortium stands as an example of responsible and ethical adoption of AI.[9]
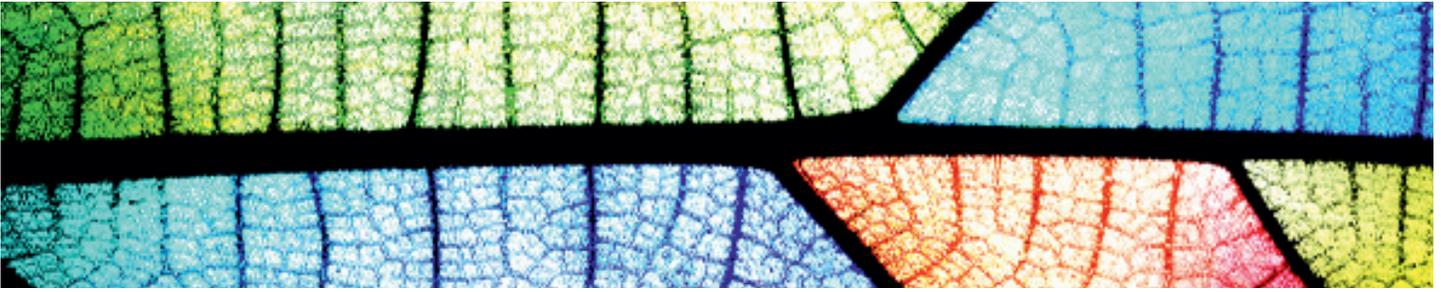
An important step for insurers in managing emerging AI and cybersecurity risks—and capitalizing on the returns associated with AI—is implementing a framework that achieves effective AI and cybersecurity governance.

State departments of insurance and regulatory support organizations such as the National Association of Insurance Commissioners and National institute of Standards and Technology have articulated the need for AI systems to ensure equality, transparency, and trust in these automated systems.[10] Emerging regulations are requiring insurers to assess and address algorithmic biases and provide transparency on how the AI models make decisions.

Together, governance and compliance are how insurance companies and their stakeholders can help ensure AI deployments are secure, ethical, and can be trusted.

Core Modernization
Core Systems

AI-powered applications and processes is a key focus for nearly all insurance companies.[11] Today carriers' ecosystems are made of large portfolios of modern and legacy systems that have been integrated over time into a complex architecture that is difficult to manage.

Carriers are adopting new products based entirely on AI-powered ecosystem across the insurance value chain and integrating to legacy environments only where necessary. New AI-assisted core systems modernization techniques could reduce the IT labor needed for transformation. AI-based code mining technology extracts business logic from legacy systems and provide visibility into underwriting rules. This can enable faster creation of business requirements and the ability to rewrite proprietary applications to run on modern platforms which decreases the application total cost of ownership/operate costs. AI-based tools have simplified the extraction of business logic from mainframe-based policy admin systems which have rules written in legacy languages like COBOL and FORTRAN.

GenAI has streamlined Lemonade's claims processing workflow. It enables the company to handle claims more efficiently and deliver faster payouts to policyholders. Lemonade's annual report highlights a 25% improvement in claims processing speed since it implemented AI.[12] This in turn has resulted in higher customer satisfaction and retention rates.

Similarly, Agula Insurance created an AI-driven car damage recognition solution to streamline its reimbursement process. The process previously involved numerous manual steps. With the assistance of AI solutions, processing time has been drastically reduced from four business days to less than two hours.[13] Further, Agula Insurance is optimizing client care and service delivery with unprecedented efficiency.

Conclusion

AI solutions are transforming the insurance sector—enabling carriers to optimize product pricing, provide more tailored solutions, enhance customer experience, and improve the efficiency of operations. The insurance providers who can harness the benefits of AI, while appropriately governing and ensuring ethical use of AI, stand to emerge as market leaders.

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