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Applications of GenAI-based multi-agent systems to overcome key challenges in commercial insurance

The commercial lines insurance industry is facing a period of rapid transformation. Market conditions are shifting, regulatory landscapes are evolving, and competitive pressures are mounting. Traditional underwriting and distribution models, built on manual processes and legacy technology, are no longer sustainable. Rising operational costs, increasing underwriting complexity, and the need for faster, more accurate decision-making are forcing insurers to rethink their approach. To help address these challenges, 82% of carriers are planning agentic artificial intelligence (AI) adoption within three years.[1]

Economic pressures are at the forefront of this shift. The slowing of rate increases in commercial lines has made profitability harder to sustain, pushing insurers to find efficiencies elsewhere. At the same time, the cost of underwriting talent continues to rise, and the available talent pool is shrinking. This combination of factors is making it increasingly difficult for carriers to maintain underwriting capacity without leveraging technology to augment human expertise. Meanwhile, risk landscapes are evolving at an unprecedented pace. Social inflation and new categories of emerging risks make traditional underwriting models—heavily reliant on historical data—less reliable. In this environment, insurers should consider moving beyond legacy approaches and embrace AI-driven predictive analytics to improve accuracy and resilience.

While AI holds great promise for revolutionizing commercial insurance, a significant gap remains between expectations and actual value realization. According to industry research,[2] there is a staggering $600 billion gap between projected revenue growth from AI and actual realized revenue. Furthermore, 30% of Generative AI (GenAI) proofs of concept never make it to production,[3] largely due to a lack of enterprise-wide transformation. Even enthusiasm at the executive level is waning, with C-suite-level interest in GenAI dropping 15% in recent months,[4] reflecting a shift from hype to pragmatism. However, despite these setbacks, 91% of organizations still expect productivity gains from GenAI, and 74% report that AI initiatives are meeting or exceeding ROI expectations, signaling that, with the right implementation strategy, AI remains a powerful enabler of business transformation.

Data fragmentation is another persistent challenge. Many underwriters and claims adjusters today navigate through as many as 15 disconnected systems to gather information, assess risk, and price policies. The inefficiencies of this process not only slow down decision-making but also lead to inconsistencies and errors that have an impact on profitability. At the same time, regulatory complexity continues to increase. Compliance requirements are more stringent than ever, demanding better data governance, auditability, and policy alignment. Insurers must ensure that their systems can provide transparency and reliability while remaining flexible enough to adapt to shifting regulations.

In response to these challenges, a new model for insurance operations is emerging—one powered by agentic AI, supported by DataOps, and enhanced by GenAI. Deloitte's AI-driven transformation framework is designed to eliminate inefficiencies; automate key processes; and provide underwriters, claims adjusters, agents, and decision-makers with the real-time intelligence needed to operate more effectively. Given the highly complex insurance value chain, this paper will focus only on the sales, distribution, and underwriting transformation that has been enabled by AI. In subsequent papers, we will also address the AI-enabled transformations happening in claims adjudication, investment management, actuarial and finance, HR, legal, and marketing.

But what is agentic AI?[5] Let's do a quick recap before we answer that. Artificial intelligence is the broad concept of machines being able to carry out tasks in a way that we would consider "smart." Machine learning (ML) is a subset of AI, in which machines learn from data to improve their performance on tasks without being explicitly programmed. GenAI focuses on creating new content, such as text, images, or music, using learned patterns.

AI agents are autonomous systems designed to analyze data, identify patterns, and execute tasks with minimal or no human intervention. Unlike traditional AI models, which primarily generate responses or perform specific computations based on loosely defined, unstructured inputs, AI agents can operate independently within a set environment, making decisions, learning from interactions, and adapting their actions over time. These agents can be rule-based, reactive, or even proactive, meaning they can anticipate future needs and act accordingly. They differ significantly from AI assistants, which are typically user-facing applications designed to assist with specific tasks like answering questions, scheduling meetings, or retrieving information. While AI assistants focus on interacting with users to provide responses, AI agents go further by actively engaging in problem-solving, decision-making, and automating complex workflows without requiring user input. Generally speaking, agentic AI systems combine three core capabilities:

- **Autonomous workflow chaining** that breaks down complex tasks like underwriting into sequenced subtasks;

- **Multi-agent collaboration** between specialized modules for risk assessment, compliance checks, and customer interaction; and

- **Contextual memory** maintaining persistent policyholder profiles across touchpoints using vector databases.

This architecture enables end-to-end processing of commercial policies with little or even no human intervention.

In financial services processes—commercial insurance ones in particular—multi-agent systems offer a compelling advantage over single AI agents. Rather than relying on a single generalist AI that may lack deep specialization, multiple AI agents can work in tandem, each focusing on distinct aspects of the insurance workflow. For instance, one agent can assess applicant risk profiles by analyzing operations and exposures, while another specializes in regulatory compliance, ensuring policies adhere to coverage and rating standards. This division of labor not only can increase efficiency, but also can reduce bottlenecks and enhance accuracy. However, not every task can be parallelized, thus designing the proper orchestration across the entire underwriting process is key to successful execution and ROI. Furthermore, from a risk management perspective, multi-agent systems provide resilience— if one agent encounters an issue, others can continue their tasks, preventing workflow disruptions that might occur with a singular AI handling everything.

In addition to improved efficiency and accuracy, multi-agent systems offer greater flexibility and transparency in insurance applications. By enabling specialized agents to collaborate dynamically, insurers can adapt to evolving market conditions, regulatory updates, and unique policyholder needs faster than humans. The modular nature of these systems allows insurers to scale operations more effectively, handling higher volumes of policy applications and claims without sacrificing performance. Furthermore, the ability to independently monitor and adjust each agent fosters accountability, ensuring that errors or biases in underwriting decisions can be traced and corrected more efficiently than with a monolithic AI. Ultimately, the distributed intelligence of multi-agent systems not only can streamline the insurance process but also can enhance decision-making, making them a superior choice over single-agent AI models.

One of the most significant breakthroughs comes in the form of submission intake automation. Traditionally, applications arrive in a variety of formats—PDFs, emails, and proprietary agency portals—forcing underwriters to manually reenter data into core systems. This process tends to be slow, error-prone, and labor-intensive. With AI-driven solutions, this bottleneck can be eliminated. The Submission Interpreter Agent, powered by GenAI, is designed to standardize and normalize data from multiple sources, internal and external, ensuring that underwriters receive clean, structured information without manual intervention. At the same time, the Optimal Coverage Recommendation Agent works in the background, automatically identifying missing or incomplete information and reaching out to agents or applicants to resolve gaps in exposure information before the underwriting process begins. This effective orchestration of AI-driven processes can accelerate submission intake, reduce errors, and enable human underwriters to focus on strategic risk assessment rather than administrative tasks.

Beyond submission intake, the underwriting process itself has long been hindered by fragmented workflows. Underwriters must switch between multiple systems, reconciling disparate data points and manually assessing risk. This approach is inefficient and limits the ability to make informed decisions based on comprehensive, real-time data. Deloitte's Underwriting Workbench solutions (e.g., FSConnect™ built with Salesforce or other custom-built platforms) address this by integrating internal and external data sources—policy history, loss data, financials, and third-party risk insights—into a single interface.

However, it doesn't end there. Inefficiencies in the underwriting process are often exacerbated by poor communication between key stakeholders. Submission-to-bind cycles are often delayed due to misalignment between agents and underwriters, inconsistent data formatting, and a lack of real-time status updates. Operating separately or within the Underwriting Workbench, three task-specific AI agents noted below were developed to address these inefficiencies.

AI agent	What it does
The Capacity Optimizer	It takes the capabilities of the Underwriting Workbench further by automatically verifying eligibility, analyzing the carrier's underwriting appetite, and flagging submissions that align with strategic priorities rolled up across the insurance carrier.
The Submission Tracker	This agent functions as a real-time monitoring system, keeping all parties updated on submission progress and alerting them when additional documentation or clarifications are required.
The Eligibility Criteria Interpreter	This agent dynamically refines underwriting guidelines using GenAI, helping to ensure that agents and underwriters remain aligned on evolving risk parameters.

These AI-driven enhancements not only accelerate decision-making but also improve risk selection, reducing the likelihood of adverse selection and increasing underwriting profitability.

Another area ripe for transformation is brokerage and agency portfolio management. Many insurers lack a structured approach to onboarding, evaluating, and managing their distribution partners, which often leads to inefficiencies in resource allocation. Without clear performance monitoring, subpar insurance agents and brokers remain in the network, while high-performing ones may not receive the support needed to maximize their impact. Deloitte has developed three agentic AI solutions to help carriers enhance their portfolio of sales and distribution partners:

- **The Agency Portfolio Management module** introduces a data-driven framework to enhance insurance agent relationships. It acts as a one-stop shop for distribution partner management, including CRM, licensing and compliance management, and commission management.

- **The New Agency Setup module** is designed to streamline data collection, reducing friction in the onboarding process. Performance analytics powered by AI continuously monitor agent activity, tracking quoting behavior, conversion rates, and overall book performance.

- **The Agent Compliance Assist module** is designed to automate onboarding and compliance tracking, ensuring that new insurance agencies and brokerages are vetted efficiently.

These three modules together can enable insurers to proactively manage their distribution network, reallocating resources toward the most effective agents and maximizing overall profitability.

Beyond the operational improvements offered by AI agents, the strategic impact of AI in insurance extends far beyond automation. With AI-powered analytics, insurers can enhance their risk modeling capabilities, improving their ability to price emerging risks more accurately. Automated data validation and governance frameworks ensure that underwriting and policy management processes remain compliant with evolving regulations. AI-driven underwriting allows for near-instant decision-making on lower-risk policies, increasing straight-through processing (STP) rates and reducing operational bottlenecks.

As insurers navigate this rapidly evolving landscape, the adoption of agentic AI, DataOps, and GenAI will likely define the industry's next phase of growth. Those who embrace AI-driven underwriting and distribution are positioned to gain a competitive edge and future-proof their operations against shifting market dynamics. By leveraging AI to streamline processes, enhance decision-making, and create more agile operations, insurers can drive efficiency, improve customer experiences, and ensure sustained profitability in an increasingly complex market.

Deloitte is at the forefront of this transformation, combining deep insurance experience with cutting-edge AI solutions to help carriers modernize their operations. The future of commercial lines insurance is AI-driven, and we invite you to collaborate with us to accelerate your transformation journey. Let's build the intelligent insurance enterprise of the future—one that is more agile, data-driven, and resilient.

Endnotes

1. Multimodal, "Meet agentic AI: The vanguard of modern enterprise," November 11, 2024.

2. David Cahn, "AI's $600B question," Sequoia, June 20, 2024.

3. Gartner, "Gartner predicts 30% of Generative AI projects will be abandoned after proof of concept by end of 2025," press release, July 29, 2024.

4. Jim Rowan et al., *Deloitte's State of Generative AI in the Enterprise: Q4 2024*, Deloitte, January 2025.

5. Bojan Ciric and Prakul Sharma, "Generative AI meets the virtual world: A model for human-AI collaboration," Deloitte Insights, February 10, 2025.

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