



AI in insurance risk
management:

A game changer for actuaries

Unlock precision, foresight and
data-driven decision-making



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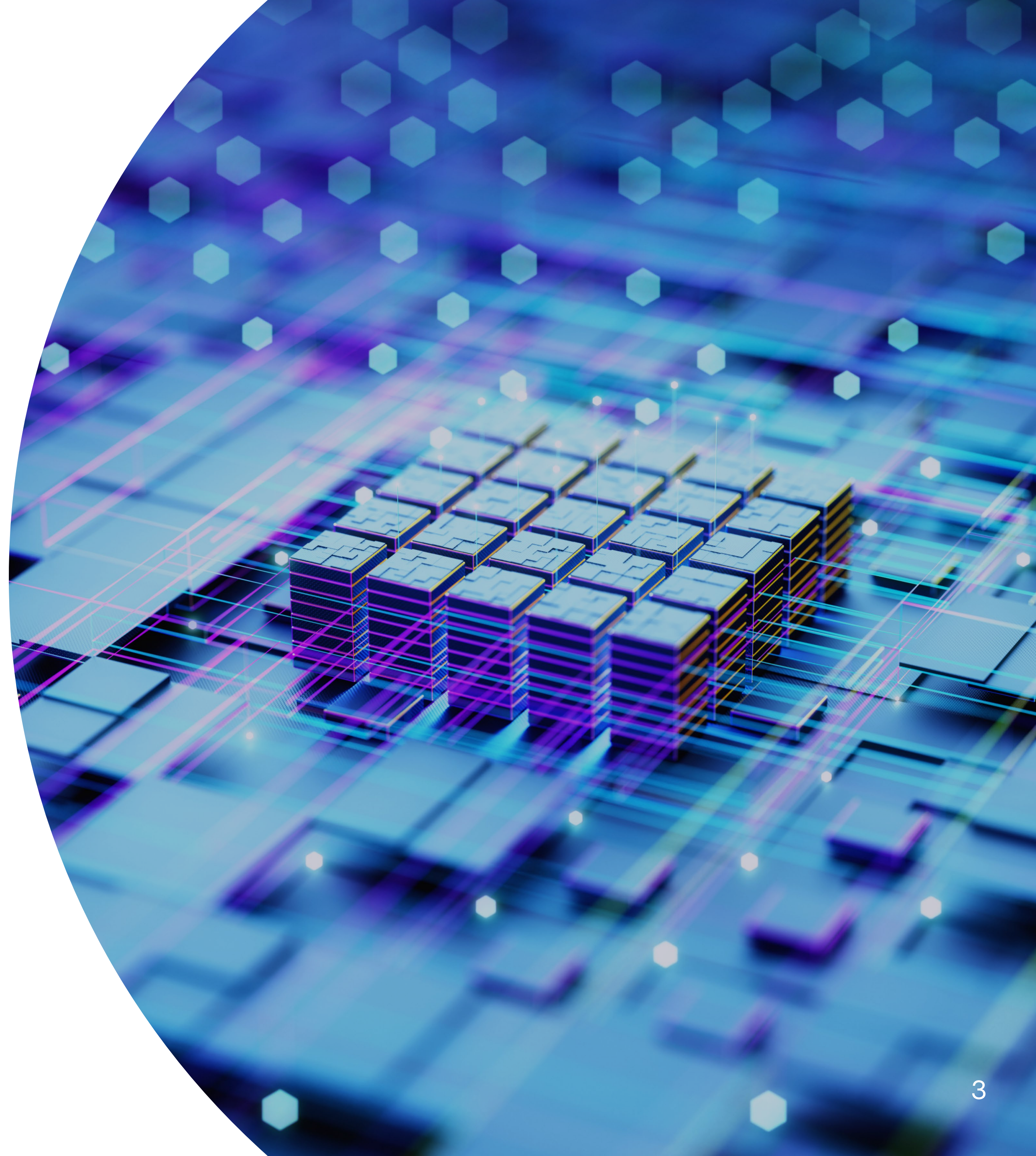
Introduction:

The AI revolution in insurance

Artificial intelligence (AI) is reshaping industries worldwide, and the insurance sector is no exception. For actuaries and risk professionals, this technological shift presents both new opportunities and complex challenges. AI enables insurers to analyze vast amounts of data more efficiently than ever before, identifying risk patterns and emerging trends that were once hidden.

Why is this transformation so critical for you? The core of actuarial science and risk management lies in precision, foresight and data-driven decision-making. AI amplifies these capabilities, allowing for more accurate modeling, streamlined operations and enhanced strategic planning. From underwriting to claims processing, AI is not just an auxiliary tool; it's fast becoming a foundational element of modern insurance operations.

This e-book provides a comprehensive guide to understanding and leveraging AI in your field. We'll explore its most impactful applications, address the key challenges to adoption and offer a road map for getting started. By the end, you'll have a clear picture of how AI can become a true game changer for your role and your organization.



Chapter one:

AI applications in insurance risk management

How is AI currently being adopted to help manage insurance risk, and what are the most impactful applications? The technology is already streamlining core functions, bringing new levels of speed and accuracy to daily operations.

Here are some of the key areas where AI is making a significant difference:

- **Claims processing:** AI is helping automate document review and data entry, significantly reducing manual processes. This streamlines workflows, allowing your teams to focus on more complex and high-value tasks.
- **Underwriting:** Machine learning models are improving underwriting accuracy by analyzing immense historical datasets to identify patterns and refine risk assessments. This leads to more precise pricing and better portfolio management.
- **Fraud detection:** AI-powered systems can analyze patterns and anomalies in claims data in real time. They can flag inconsistencies between submitted documents and external data sources, helping you identify and prevent fraudulent activity more effectively.
- **Predictive analytics:** By using AI-driven predictive analytics, you can enhance your financial modeling. This allows for more dynamic risk profiling and proactive loss prevention strategies, moving from a reactive to a predictive stance.
- **Customer sentiment analysis:** Natural language processing (NLP) tools help insurers analyze customer communications across various channels. Understanding customer sentiment in real time can inform product development, improve service and build stronger relationships.

Chapter two: Challenges in AI adoption

While the benefits are clear, the path to AI adoption is not without hurdles. Insurers often face several significant challenges that can slow or complicate implementation. What are the biggest obstacles you might encounter?

- **Legacy systems and siloed data:** Many insurance companies operate on systems built decades ago. Legacy technology stacks can be brittle, difficult to change and unable to support modern AI capabilities. Furthermore, data is often stored in outdated formats and siloed across different departments, making it difficult to access and use. As data is the lifeblood of AI, this is a primary barrier.
- **The talent gap:** There is a well-known shortage of professionals with advanced AI skills. Successful companies are tackling this with a multi-pronged approach. They're investing in comprehensive upskilling programs for existing staff, actively recruiting new talent and partnering with technology firms that have experience deploying large-scale AI systems.
- **Regulatory concerns:** Many existing regulations predate the AI era, creating uncertainty around compliance. It's important for insurers to work closely with regulators as new rules are developed. The goal is to create a framework that allows AI to flourish while preserving essential consumer protections.

Overcoming these challenges requires a strategic approach focused on modernization, talent development and proactive regulatory engagement.



Chapter three:

Building customer trust in AI

For any AI-driven initiative to succeed, customer trust is crucial. Without it, policyholders may question the fairness and transparency of automated decisions, leading to disputes and reputational damage. How can you build and maintain that essential confidence?

There are three key strategies to foster trust in AI systems:

- 1. Deliver clear, tangible benefits:** Customers are more likely to embrace tools when they see a direct benefit. This could be faster claims processing, more efficient underwriting that leads to better pricing, or a simpler, all-digital submission process. When AI improves the customer experience, adoption follows.
- 2. Embrace transparency and explainability:** AI can sometimes feel like a "black box." It's vital to explain how AI tools are used to make decisions. Transparency about the data and logic involved helps demystify the process and reassures customers that decisions are fair and reasoned.
- 3. Reinforce the human in the loop:** It's important to communicate that while AI enhances accuracy and efficiency, final decisions are still made by people. This human oversight provides a critical check and balance, assuring customers that their unique circumstances are considered.

Additionally, creating feedback loops through surveys and other channels allows you to collect customer input on your AI tools. Using this feedback as a flywheel to continuously improve your products will further solidify trust and accelerate adoption.

Chapter four: The future of AI in insurance

How do we see AI shaping the future of insurance risk management? The evolution is already underway, with advancements poised to deliver even greater efficiency and insight in the short and medium term.

In the short term: The rise of AI assistants

We are already seeing widespread deployment of AI assistants in two key domains:

- **Customer-facing assistants:** Chatbots and virtual agents are helping customers with everything from answering policy questions to submitting claims.
- **Back-office assistants:** These assistants support employees in the underwriting and claims adjudication processes, helping them analyze information and make faster, more informed decisions. In both cases, a human remains in the loop to provide final judgment.

In the medium term: The emergence of agentic AI

Looking ahead, the next wave will be agentic AI systems. Unlike current AI which focuses on narrow tasks, agentic AI is designed to pursue broader goals. For insurers, this means these systems could automate complex, multi-step workflows in the back office, such as the entire claims validation and initial assessment process. This will unlock a new era of productivity and efficiency, freeing up your expert teams to focus on the most strategic and complex challenges.

These advancements will allow you to move beyond simple automation and toward truly intelligent risk management.

Chapter five: Getting started with AI

For insurance companies just beginning their AI journey, a thoughtful and strategic approach is essential. What advice can we offer to ensure a successful start? Here are four key steps to guide your implementation.

- 1. Start with a clear strategy:** Before you invest in any technology, define the specific business problems you want AI to help solve. Are you aiming to improve underwriting efficiency, reduce fraud rates or speed up claims resolution? Aligning your AI objectives with clear business goals will focus your efforts and demonstrate value quickly. One effective method is mapping your customer journey to identify interaction points where AI can create a better experience.
- 2. Modernize your tech and data architecture:** A modern technology stack is a prerequisite for innovation. If your current systems are old and inflexible, consider modernizing to newer technologies that are easier to scale and adapt. At the same time, establish a modern data platform to unlock your siloed, legacy datasets. A unified data architecture is fundamental to powering effective AI systems.
- 3. Learn, iterate and scale:** Don't try to solve every problem at once. Start small with proven use cases, such as AI-powered customer service agents or business intelligence tools. Pick a single, non-customer-facing area like underwriting to pilot a new model. This approach allows you to build momentum, gain experience and prove the benefits before committing to larger investments.
- 4. Transform your culture:** Technology is only part of the equation. Success with AI requires a cultural shift. Invest in upskilling your people and fostering an "AI-first" mindset. This means encouraging teams to constantly ask, "Can we do this better with AI?" When your entire organization is thinking about how AI can assist in their daily work, you unlock its full potential.

Conclusion: Embracing the AI-driven future

The integration of AI is fundamentally changing the landscape of insurance risk management. For actuaries and risk professionals, this is not a distant trend but an immediate reality. AI provides the tools to enhance precision, improve efficiency and gain deeper insights from data than ever before.

From streamlining claims and underwriting to detecting fraud and predicting future risks, the applications are vast and powerful. While challenges like legacy systems, talent gaps and regulatory hurdles exist, they are surmountable with a clear strategy and a commitment to modernization.

By starting with defined objectives, investing in data and technology, and fostering an AI-first culture, your organization can harness the transformative power of this technology. The future of insurance belongs to those who embrace AI not as a replacement for human expertise, but as a powerful partner in building a more resilient, efficient and customer-centric business.



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Money at work

Unlock a cohesive financial ecosystem and insights for strategic decisions to expand operations while optimizing performance.

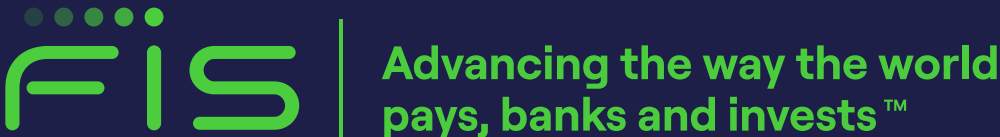
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