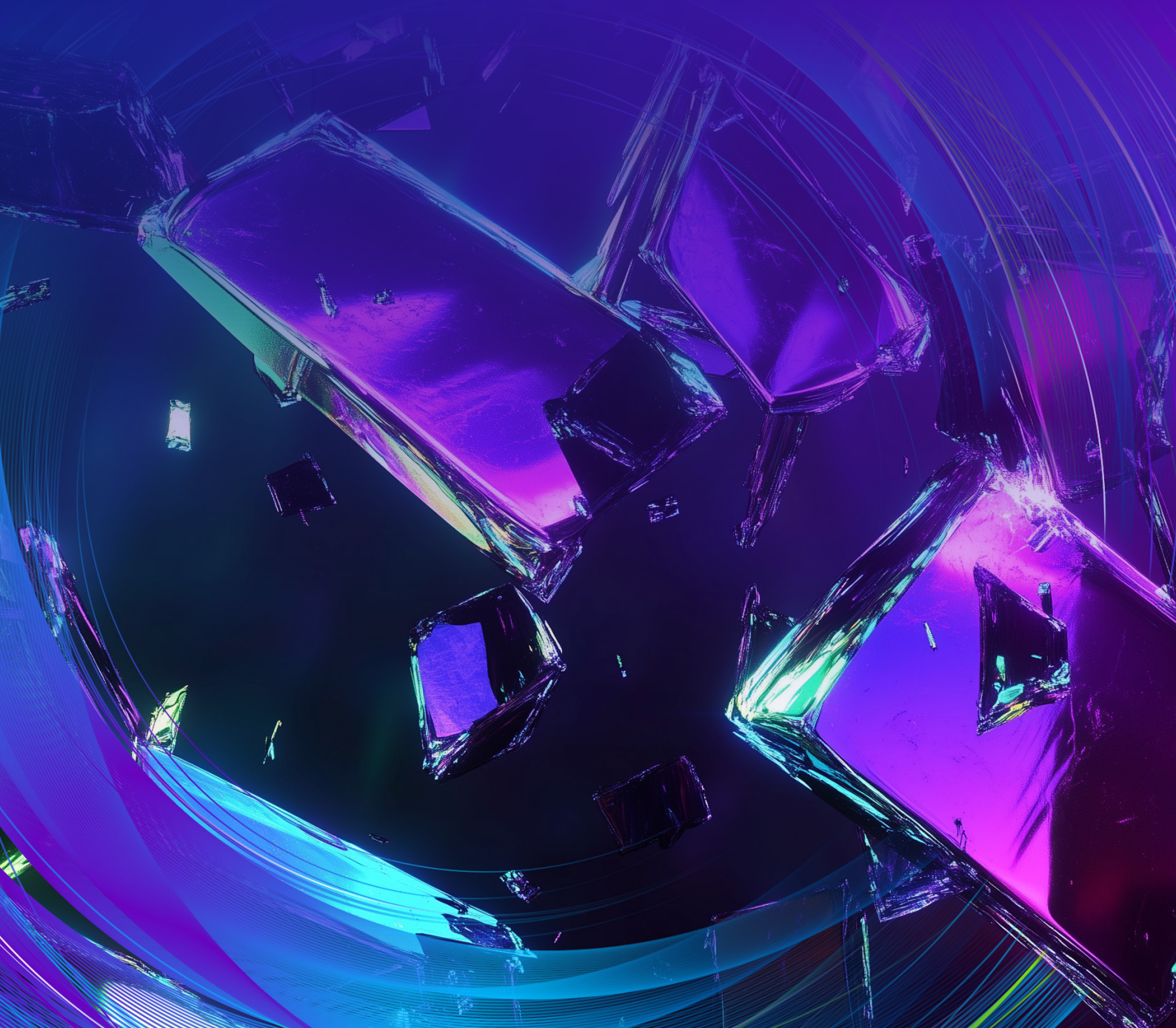
SAPIENS

Breaking the Workflow: Reimagining Insurance with Generative AI



Introduction

This whitepaper introduces a strategic automation framework for insurance, inspired by the five-level model of autonomous driving from the motor industry. With Generative AI (GenAI) accelerating capabilities far beyond traditional rule-based automation, insurers need a modern roadmap that allows them to assess where they are today, and where they need to go tomorrow. By adopting a level-based approach to automation, you can make smarter investment decisions, mitigate risk, and align cross-functional leadership on transformation priorities.

While internal efficiencies such as faster solution development and reduced operational drag are real and valuable, this whitepaper focuses on the external impact of GenAI: how it improves speed, accuracy, and experience across underwriting, claims, servicing, and beyond. By mapping these capabilities through clearly defined levels of automation, we provide a practical lens for you to benchmark progress and plan your next move down the road.

Foreword by Graham Gordon
Director of Product Strategy & Product Marketing

Back in 2014, the idea of self-driving cars really took off. Terms like “autonomous,” “partial autonomous,” and “driverless” started popping up everywhere, but they often caused more confusion than clarity. To fix that, the Society of Automotive Engineers

(SAE), a nonprofit that sets technical standards across the mobility world, introduced a clear framework: five levels of driving automation, now known as **SAE J3016.** This system helped everyone - engineers, regulators, manufacturers, and the public - speak the same language about what these vehicles could and couldn’t do.

That same idea applies to **Generative AI (GenAI),** especially in fast-moving industries like **insurance**. As new technology outpaces regulation and shared understanding, we need a similar framework to make sense of it all. Whether it’s summarising data, drafting policies, automating underwriting, or improving customer engagement, a clear structure helps define what GenAI can actually do.

At Sapiens, we’re developing just that: a framework for GenAI in insurance. Inspired by the SAE model, it’s meant to cut through the noise, reduce confusion, guide responsible implementation and build trust among insurers, our clients, and their customers.

Why Insurance Needs a New Automation Model

Insurance has long experimented with automation primarily through rule-based engines and robotic process automation (RPA). But these efforts have largely been confined to task-level workflows rather than enhancing decision-making, operational intelligence, and genuine cognitive augmentation.

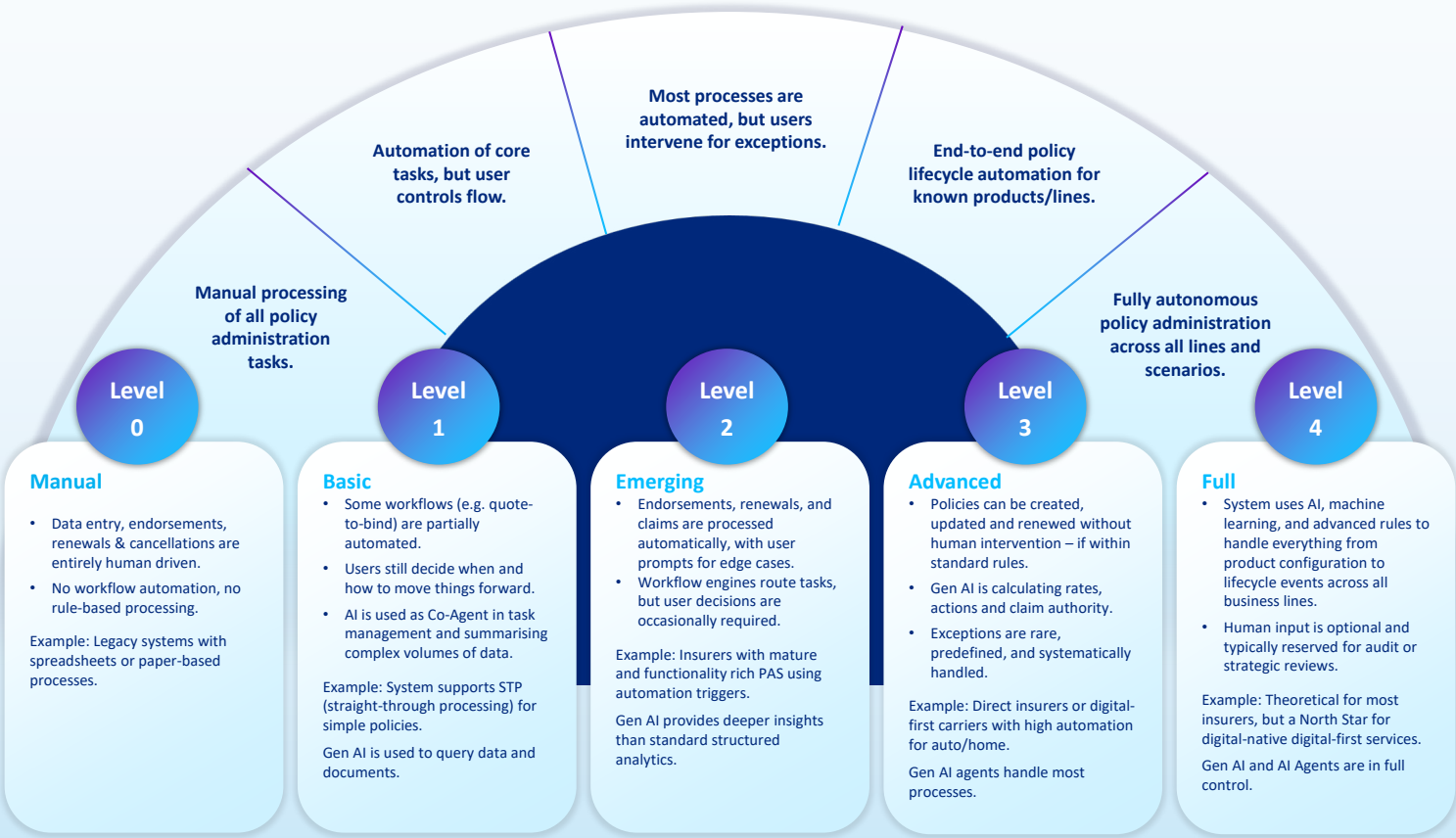
The realities of today's market, however, demand a far more sophisticated approach.

Rising costs and operational complexity continue to challenge the industry. Claims expenses increase year after year, driven by surging medical and repair bills, higher legal fees, and growing customer expectations for fast, seamless service. At the same time, legacy systems, fragmented data, and manual processes magnify inefficiencies, making it difficult to scale operations without adding significant cost and headcount.

Customer expectations have also reached new heights. Policyholders today want real-time, personalised experiences - whether it's receiving an instant quote, getting immediate updates on claim status, or accessing tailored policy advice. Any delay or inconsistency risks customer dissatisfaction, reputational damage, and the loss of business to more agile, digitally native competitors.

Meanwhile, regulatory scrutiny is intensifying. Insurers are under pressure to deliver greater transparency, fairness, and explainability in their underwriting and claims decisions. Manual compliance checks are slow and prone to error, while traditional, rules-based automation struggles to keep pace with shifting regulatory demands.

Adding to these pressures is a growing talent shortage. Experienced underwriters, claims adjusters, and actuaries are retiring or leaving the industry, taking years of institutional knowledge with them. Without intelligent tools to capture, preserve, and apply that expertise, insurers risk inconsistency and judgment gaps as less experienced hires step into critical roles.



The Five Levels of Insurance Automation

0

LEVEL 0: MANUAL

At this stage, all policy administration tasks are handled manually. Data entry, endorsements, renewals, and cancellations rely entirely on human effort, with no workflow automation or rule-based processing in place. This results in high operational costs, slow turnaround times, and little to no scalability, as each new task requires proportional staffing increases.

Example: Legacy systems reliant on spreadsheets or paper-based processes.

1

LEVEL 1: BASIC

This level introduces automation to core administrative tasks, though users still control the process flow. Certain workflows, like quote-to-bind, might be partially automated, while users decide when and how to advance activities. AI tools often assist by summarising large volumes of data or managing queues, but human decision-making remains central. The main value comes from time savings, reduced manual effort, and greater consistency in task handling.

Example: A mid-tier P&C carrier using GenAI to summarise chat transcripts achieved 20% faster claims triage. Many insurers at this level also support straight-through processing (STP) for simple personal lines policies, with GenAI querying data and documents to assist underwriters.

2

LEVEL 2: EMERGING

Most processes are automated at this level, with human intervention limited to handling exceptions. Endorsements, renewals, and claims can move through automated workflows, while users step in only for edge cases that fall outside predefined parameters. Workflow engines route tasks efficiently, and final decisions often require human validation, balancing speed and oversight. This setup boosts efficiency, accuracy, and reduces operational workloads.

Example: SME commercial underwriting operations using Gen AI for submission triage reduced quote turnaround time by 30%. Insurers operating with mature, functionally rich policy administration systems often use automation triggers and Gen AI insights that surpass conventional analytics. Platforms like Sapiens IDITSuite for Property & Casualty support this level of automation, combining end-to-end policy, billing, claims, and low-code configuration tools to help streamline operations and improve responsiveness.

"We're reimagining the small business insurance market by giving a single agent the power of ten – combining AI, real-time customer insights, and intelligent automation to transform how SME commercial insurance is sold and serviced. It's a capability designed to help insurers move faster, sell smarter, and serve better."

3

LEVEL 3: ADVANCED

At this stage, the entire policy lifecycle for specific products and lines - typically personal motor or homeowners - is automated from end to end, provided transactions remain within set business rules. Gen AI tools handle rate calculations, trigger policy actions, and manage claim authority limits. Exceptions are rare and systematically processed. The role of human staff evolves to focus on exception management, ethical oversight, and quality control.

Example: Direct insurers and digital-first carriers running high-volume auto or home policies with automated issuance, renewal, and audit trail management.

4

LEVEL 4: FULL

This is a fully autonomous environment where AI, machine learning, and advanced rules engines manage every aspect of policy administration, from product setup to claims handling across all business lines. Human input becomes optional, typically limited to audits, strategy, or governance. While this remains aspirational for most incumbent insurers, it represents a strategic target for digital-native providers.

Example: Digital-first insurers offering pet coverage or renters' insurance with zero human intervention, such as Lemonade, which has processed some renters' claims in under three seconds without human review.

Mapping Automation Across the Insurance Value Chain

Here we're showing how each level plays out across major insurance domains:

Claims (Level 1: FNOL bots -> Level 3: automated claims payment)

Underwriting (Level 2: policy triage -> Level 4: straight-through issuance)

Customer Service (Level 1: chat summarisation -> Level 4: AI concierge)

Fraud Detection (Level 2: Gen AI flagging -> Level 3: auto-freeze/deny)

Product Development (Level 1: summarising complaints -> Level 3: generating test products)

This heat map shows where most insurers sit today, not where the frontier or leaders may be. No domain has yet reached Level 3 or 4, these would involve end-to-end automation with minimal human intervention or fully autonomous decisioning.

Level 0 — No meaningful Gen AI adoption yet (manual or legacy automation only)

Level 1 — Basic automation or early Gen AI experiments (rules-based or PoCs)

Level 2 — Emerging Gen AI in live use for specific tasks (triage, summarization)

- **Claims** is leading the charge in this space, especially in the Property & Casualty space, with Level 2 automation in place already for low-complexity claims. At Sapiens, we're seeing strong demand for AI-driven claims triage and faster FNOL processing, particularly in personal lines.
- **Underwriting** is catching up via Gen AI summarisation and triage, but higher level 1 or 2 is still rare in commercial lines. We're working with insurers to pilot underwriting decision support tools that surface submission risks and recommend next actions.
- **Fraud Detection** benefits from Gen AI pattern recognition but remains mostly augmented at Level 1 due to risk. Sapiens is actively exploring how Gen AI can complement traditional fraud detection models without compromising governance.
- **Product Development and Actuarial** remain human-led but are seeing Gen AI pilots for ideation and scenario generation. We're seeing early interest from insurers in using AI to model product variants and pricing scenarios more efficiently.
- **Risk & Compliance** is starting to adopt Gen AI for regulatory change summarisation, policy gap detection. Sapiens is involved in initiatives to integrate AI-driven compliance alerts and reporting tools within core systems.
- **Distribution & Sales** may vary widely by channel (broker vs. direct), with Level 1 to 2 more common in embedded insurance models. We're seeing growing interest in automating quote, bind, and service processes for digital and bancassurance channels.
- **Policy Admin** sees Gen AI for form reading, data updates - potential for Level 2 automation in high-volume areas. Sapiens' clients are piloting these capabilities to reduce turnaround times and manual effort in mid-term adjustments.

Required Enablers by Level

As insurers advance through the levels of automation, several critical enablers become essential to progress.

At Level 1 (Partial) and Level 2 (Conditional) automation, organisations need to establish a solid data foundation, ensuring that information is structured, clean, and readily accessible across systems and teams. This also requires a modern, cloud-based tech stack that prioritises interoperability and API-driven architecture, enabling seamless integration and data flow.

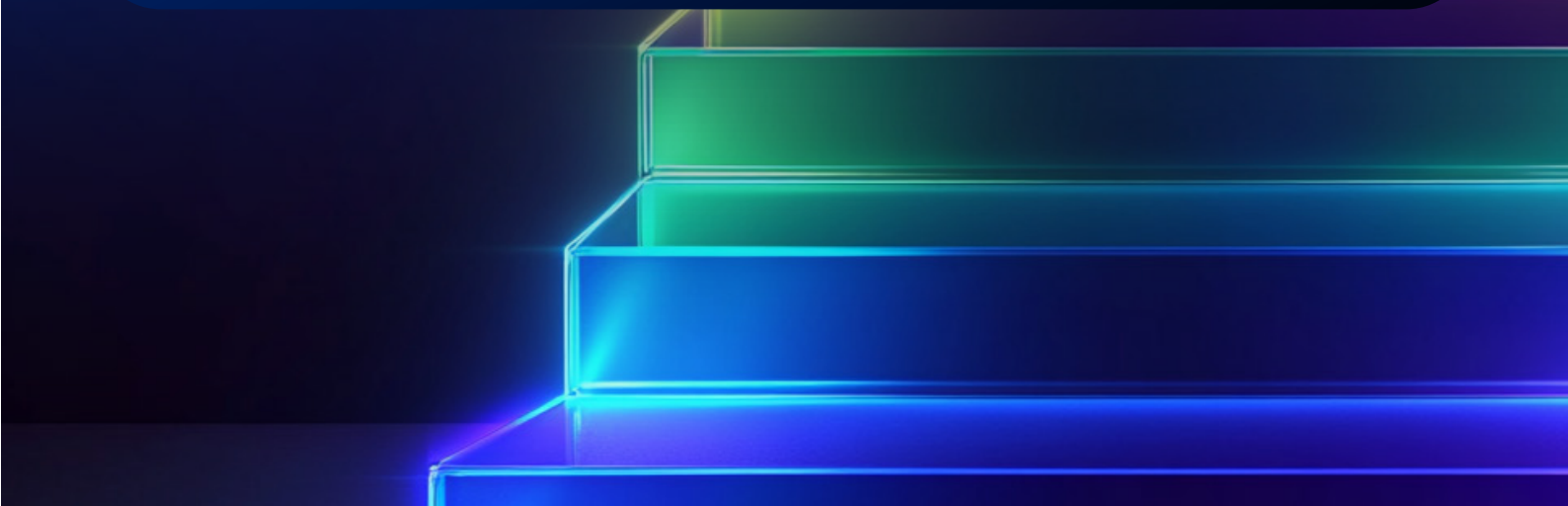
Leading solution providers in the insurance space are already enabling this by supporting unified data environments that streamline operations, strengthen internal collaboration, and deliver more consistent experiences across customer and agent touchpoints. At Sapiens, this is how we work with insurers every day - making sure they've got the right digital backbone in place to move forward with confidence.

As insurers move toward Level 3 (High) and Level 4 (Full) automation, getting ready for Gen AI becomes essential. That means having access to powerful large language models (LLMs), the ability to adapt them for specific insurance use cases and integrating them smoothly into day-to-day operations. This kind of readiness is already becoming reality. Insurers are moving forward, and through partnerships like our collaboration with Microsoft, Sapiens is helping bring Gen AI into real-world insurance environments.

Of course, technology alone isn't enough. Human skills continue to matter for example when it comes to things like shaping prompts, making ethical calls, and knowing when and how to guide AI decisions. That's why our approach at Sapiens is designed to be intuitive and accessible so that business users, not just technical specialists, can work with AI and accelerate decision-making across the board.

And as automation ramps up, governance becomes more than a "nice-to-have". Insurers need to make sure their AI tools are making decisions that are transparent, traceable, and defensible to give the confidence to meet regulatory demands and build trust with customers and regulators alike.

> "In the rush to adopt Gen AI, it's easy to focus on the technology itself but what really matters is how it's applied. At Sapiens, we believe that true automation progress happens when powerful tools are made usable across the business, not just in IT. That means integrating AI thoughtfully, making sure outputs are explainable and auditable, and giving teams the confidence to act on them. Our role is to help insurers scale responsibly combining innovation with trust, speed with governance, and automation with human insight."
>
> *— Graham Gordon, Director of Product Strategy, P&C EMEA*



Strategic and Operational Implications

As insurers move up the automation maturity model, they start to see some real operational benefits. By cutting out repetitive manual tasks, they can save on costs and redirect resources to more valuable activities. With Generative AI-driven workflows, both underwriting and claims processing get a major boost, making quote generation nearly instant and speeding up payouts, ultimately improving customer satisfaction and giving insurers a competitive edge. For example, automated underwriting and business case management can help streamline processes, making operations more efficient and less manual.

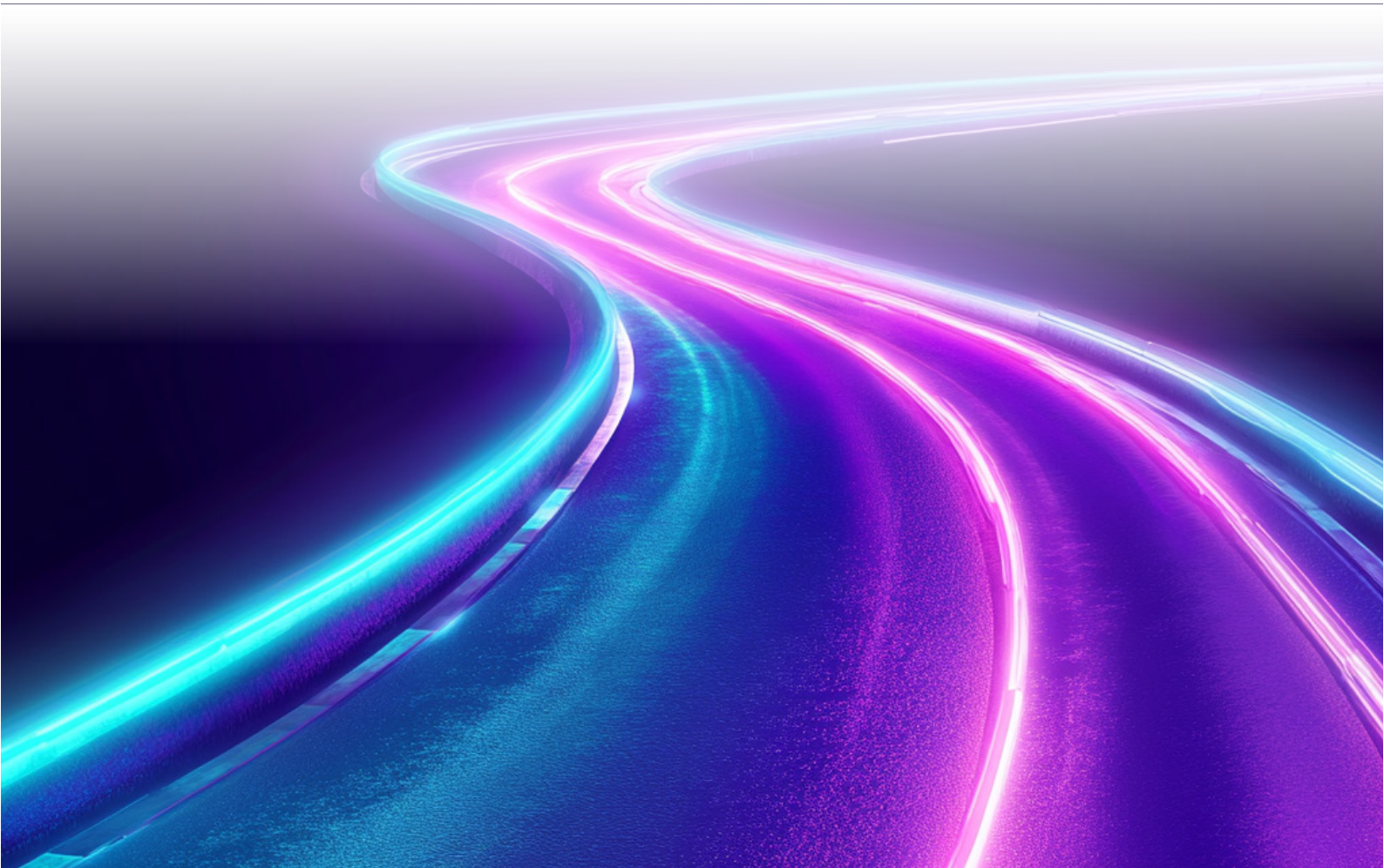
As these routine tasks become automated, the role of the workforce starts to shift. People move away from mostly operational tasks and take on more strategic, analytical, and oversight responsibilities. In these new roles, human expertise becomes key to guiding AI decisions and interpreting complex situations.

Of course, scaling Generative AI isn't without its challenges. AI models can sometimes produce unexpected results - also known as "hallucinations" - or make biased decisions, which could open insurers up to liability or regulatory scrutiny. To keep things ethical and transparent, companies need to set up solid frameworks for explainability, continuous monitoring, and bias mitigation. This ensures that every AI-powered decision is clear, fair, and traceable. For example, by integrating AI across the platform, we can help insurers build in the transparency and oversight needed for automated decision-making, making sure everything stays clear and accountable.

Balancing the incredible speed and efficiency of automation with the need to manage risks will be key to unlocking the full potential of Generative AI in the insurance space.

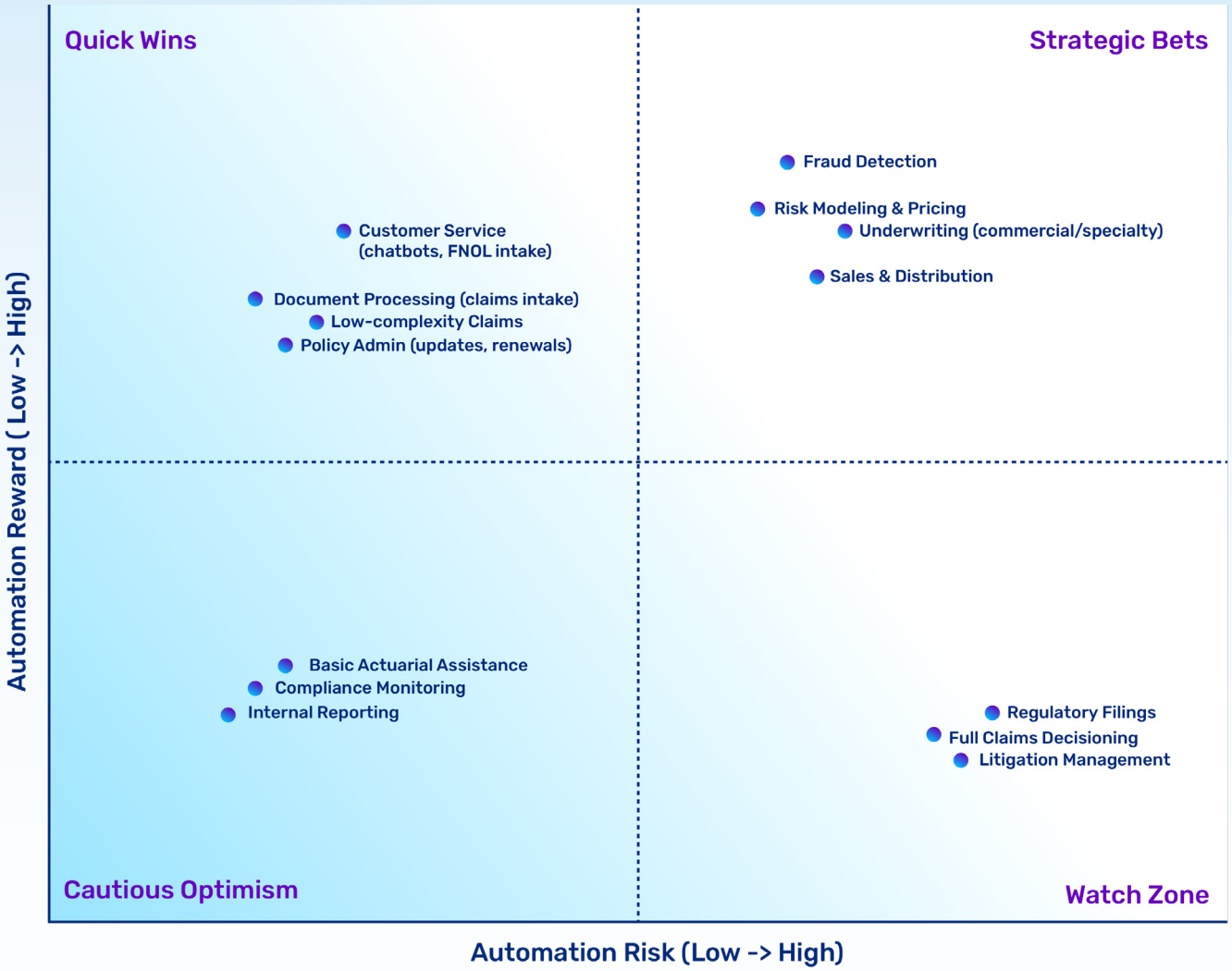
Navigating the Journey: Assessing Readiness & Building a Roadmap

In our experience with customers, mapping out automation opportunities has proven to be a valuable tool for driving clarity and alignment. Using a visual framework can make it easier break down the automation journey into manageable phases, making it easier to set realistic expectations and track progress. This can help prioritise initiatives, identify quick wins early on, and understand the necessary steps for more complex transformations.



Risk vs. Reward Grid: Mapping Automation Opportunities

In this grid, the vertical axis represents the potential reward of automating a task: the higher up you go, the greater the benefit. The horizontal axis indicates the level of risk involved in automation, with tasks further to the right carrying higher risk.



Top Left "Quick Wins"

- High reward, low risk.
- These are the no-brainer tasks which are easy to automate and worth doing because they bring a lot of benefit.

Top Right: "Strategic Bets"

- High reward, high risk.
- These could bring big benefits, but they're more complicated or riskier to automate. They might take more planning or advanced tools.

Bottom Left: "Cautious Optimism"

- Low reward, low risk.
- These are safe to automate, but they won't give you a huge payoff. Still, they might be worth doing to free up time or clean up boring tasks.

Bottom Right: "Watch Zone"

- Low reward, high risk.
- These are the ones to be careful about. They're tricky to automate and don't give you much in return. Probably not worth focusing on right now.

Conclusion

AI-driven automation in the insurance industry is not a simple switch to flip, it's a journey of maturity that unfolds over time. Integrating artificial intelligence is a process, one that involves thoughtful evaluation, alignment with strategic goals, and deliberate action. Now is the time to assess your current state and understand where you stand on this journey. Start with clear, actionable objectives and take the steps necessary to drive forward with purpose.

The key to success lies in structured, staged progress - there's no need to wait for full maturity to begin. Create a roadmap and start moving deliberately towards the future. The insurers who understand and embrace the various levels of automation will be the ones who lead and shape the future of the industry.

About Sapiens

Sapiens International Corporation (NASDAQ and TASE: SPNS) is a global leader in intelligent insurance SaaS-based software solutions. With Sapiens' robust platform, customer-driven partnerships, and rich ecosystem, insurers are empowered to future-proof their organizations with operational excellence in a rapidly changing marketplace. Our SaaS-based solutions help insurers harness the power of AI and advanced automation to support core solutions for property and casualty, workers' compensation, and life insurance, including reinsurance, financial & compliance, data & analytics, digital, and decision management.

Sapiens boasts a longtime global presence, serving over 600 customers in more than 30 countries with its innovative SaaS offerings. Recognized by industry experts and selected for the Microsoft Top 100 Partner program, Sapiens is committed to partnering with our customers for their entire transformation journey and is continuously innovating to ensure their success.

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