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Agentic automation in insurance

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Foreword by Amit Roy

Insurance has long been regarded as a safety net – an assurance in times of uncertainty. Today, however, the industry itself stands at a pivotal moment of transformation. At the heart of this shift lies agentic process automation (APA) – a breakthrough approach that harnesses the power of large language models (LLMs) and intelligent agents to reimagine traditional insurance processes in a smarter, more responsive ecosystem.

From automating routine tasks and enhancing fraud detection to ensuring regulatory compliance and delivering hyper-personalised customer experiences, APA is redefining what is possible in this industry. This paper, accordingly, explores the strategic potential of APA in reshaping the insurance landscape. It also presents a comprehensive roadmap for insurers to embrace automation not just as a tool for efficiency, but also as a lever for innovation and resilience. Through real-world solution deployments – spanning claims processing, underwriting, customer service, policy and document management – it illustrates how agentic automation can reduce operational costs, improve accuracy and elevate service delivery across the insurance value chain.

I hope you will engage with the ideas presented here to stay ahead of the curve. Let us collaborate to co-create a future where technology and human skills work in harmony. Together, we can lead the insurance industry into a new era of agility, intelligence and customer-centricity.

Amit Roy
Partner and Leader –
Insurance and Allied
Businesses

Foreword by Mahesh Parab

The use of agentic process automation signals years of digital improvements and a vital change in how we serve customers and manage operations. Now, with LLMs and enterprise integration platforms, we can devise systems that operate with a profound comprehension of the situation, explain the reasons behind decisions and adapt to complex real-world scenarios.

Moving beyond rigid systems is truly transformational. It enables organisations to create natural, fluid interactions with customers. Conversational interactions and transparent, reasoned underwriting decisions establish this technology as a notable innovation as it works to fundamentally synthesise human judgement and expertise – given the complex multi-faceted human systems.

Automation in insurance faces a distinct challenge due to the industry's highly regulated processes. With the advent of agentic automation, technology has matured to become enterprise-ready, making it ideally suited to meet the evolving demands of insurance operations.

Compliance automation now enables precise and rapid claims assessment and risk evaluation, delivering the accuracy and speed that today's customers expect.

In the emerging era of insurance technology, such automation will amplify human potential rather than limit it, ushering in a future where customer service becomes truly personal, but delivered at an unprecedented scale.

Mahesh Parab
Partner – Agentic Automation

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01 Introduction

This paper explores how agentic process automation (APA) is significantly impacting the insurance industry. APA utilises large language models (LLMs) and intelligent agents to break down complex tasks into manageable actions, determine the skills required and plan their implementation. This approach ensures that automation is not only effective but also adaptable and sensitive to the context and needs of users.

Traditional AI in the insurance sector has been largely reactive – mainly used for fraud pattern detection, claims processing based on predetermined rules or product recommendations from existing catalogues. APA represents a quantum leap forward, offering systems that can independently reason and plan actions, learn from outcomes, and adapt their strategies in real-time.

A key focus of APA is the enhancement of customer interactions through empathy and personalisation, made possible by analysing sentiment and context. It also addresses the current challenges faced by the insurance sector – including manual processes, intense competition, data overload, regulatory demands and cost constraints. Agentic AI can help tackle these challenges by boosting efficiency and improving the customer experience.

Another crucial area of focus is insurance operations as APA enables the staff to make better decisions by automatically gathering and organising information from various sources. This reduces the time spent on paperwork and data collection, allowing employees to focus on more value-add tasks such as building relationships with clients and developing new insurance products. Companies using these systems often find they can respond faster to changes in the market and better serve their customers' evolving needs.

02

The APA landscape

APA leverages the power of LLMs via agents to break down goals into manageable actions (sub-tasks). It identifies the skills required to complete each action, and ensures tasks are carried out smoothly using identified skills. Importantly, it also reviews the actions taken and can fix any issues with minimal human intervention and deliver accurate responses to end users.

The triad of people, agents and bots

While conventional AI simply transfers repetitive tasks from humans to rule-based systems, the advent of LLMs and large multimodal models has brought in a new era of contextually aware intelligent AI agents. These advanced systems possess sophisticated natural language understanding capabilities that enable genuine human–AI collaboration rather than mere task delegation, thereby creating partnerships where AI agents operate as intelligent twins to human expertise.

People, agents and bots in the APA landscape

People

- Faster and more informed decisions by working alongside the agents
- Agents take on repetitive, mundane tasks to allow humans to focus on value-add activities
- Exception handling for the cases which cannot be resolved by agents
- Feedback to the outputs produced by the agents, enabling them to learn
- Carrying out a supervisory role, being decision makers and organisational leaders

Agents

- Independent workers powered by GenAI to reduce dependency of humans
- Goal-oriented behaviour and context-aware decision making
- Most suited for tasks which undergo frequent environment change requiring adaptability
- Ability to utilise the tools and skills at their disposal through context and action to accomplish the goal
- Agentic guardrails and orchestration to govern agents' autonomy and access to systems and environment

Automation /bots

- Pre-defined actions for rule-based and predictable processes
- Completing routine tasks with high reliability and efficiency
- Triggered by the agents for completion of individual actions
- Act as hands of the agent to interact with enterprise applications
- Plug-and-play capabilities to operate with multiple agents

Source: https://www.pwc.in/assets/pdfs/consulting/technology/emerging-technologies/intelligent-automation/powering-automation-with-agents.pdf

In this ecosystem, multi-agentic orchestration is key. Multi-agentic orchestration is the coordination and management of multiple AI agents working together to accomplish complex tasks or business processes. It involves multiple specialised agents that communicate with each other (e.g. one for document analysis, another for data validation). There exists a coordination layer that manages how agents communicate, share information and hand-off work to each other.

03 Next-generation insurance

As the insurance industry gears up to face modern challenges, companies are turning to technology to boost efficiency and improve customer experiences. APA is changing how things get done, offering more personalised services through digital assistants and predictive tools.

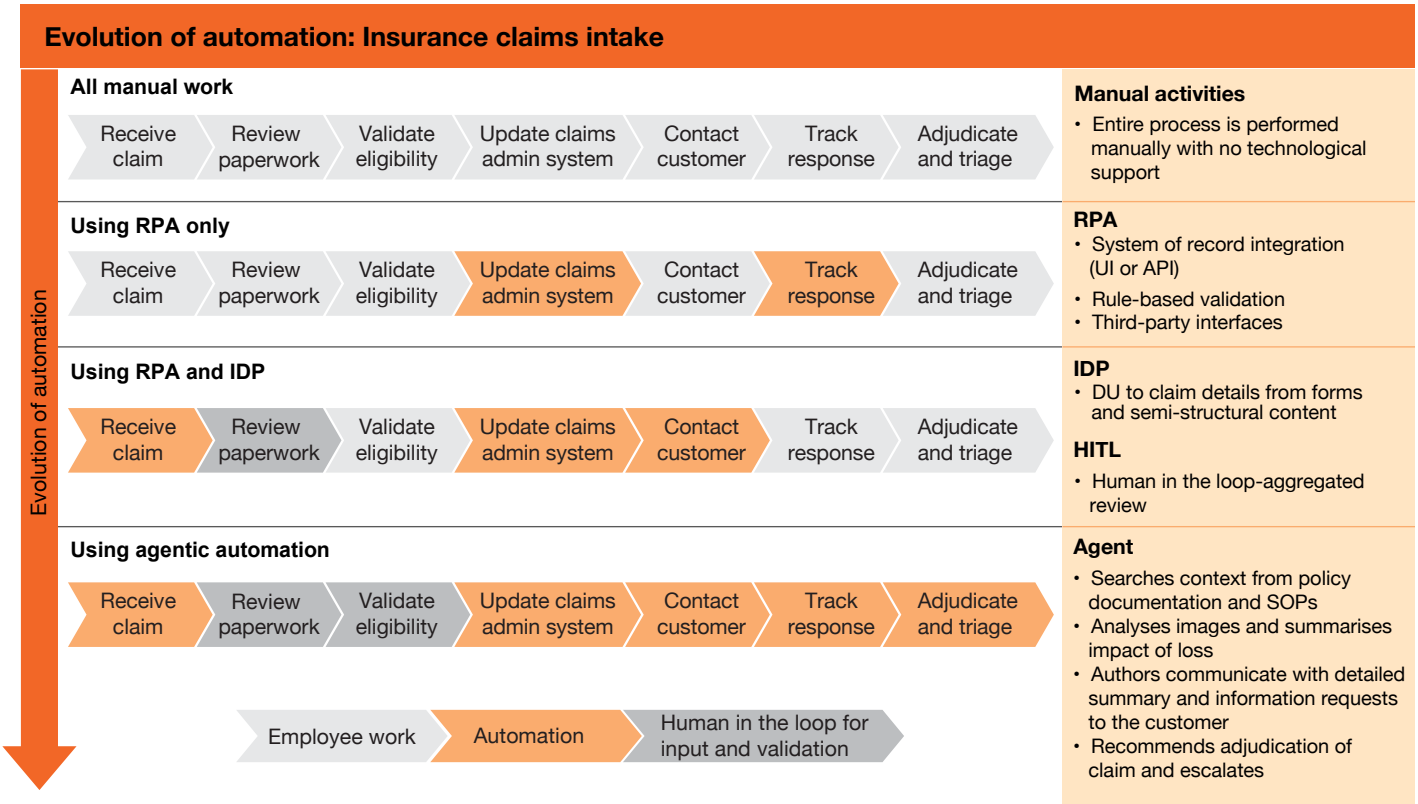
Agentic automation in insurance

Many insurance companies rely on manual processes for new business intake, claims processing, underwriting and customer service, which can be slow and inefficient. Due to increasing competition, there's a growing need to stand out by being more efficient and providing a better customer experience. Another major challenge is handling massive amounts of data coming in from both customers and policies, which can be overwhelming without the right tools.

Moreover, tightening regulations are raising the bar for accuracy and transparency in operations, thus intensifying the pressure on insurers. Additionally, insurers must contain costs while realising the need to invest in advanced technologies to remain competitive. Striking the right balance between compliance, innovation and efficiency is therefore critical as the industry transitions to the next chapter.

Reimagining claims intake

The insurance claims intake and processing methods can be reimagined, evolving from completely manual work to utilising robotic process automation (RPA) and intelligent document processing (IDP), to now using agentic automation to enhance efficiency and reduce human intervention.



Key focus areas: Customer experience and insurance operations

Insurance companies today are juggling demanding customers and systems that create unsatisfactory customer experiences along with slow, reactive processes. APA is changing this by creating smart, connected systems that can:

- anticipate what customers need
- handle compliance automatically, and
- deliver personalised service at scale.

The following areas highlight the challenges the industry is facing and explores how APA can drive operational improvements, boost efficiency and enhance overall customer satisfaction.

Industry challenges

1. Data silos and manual processing

Insurance companies operate with systems where customer data exists in isolated enterprise resource planning (ERP), customer relationship management (CRM) and operational silos. Manual policy intake processes create delays, errors and inconsistent customer experiences due to a lack of real-time data integration.

2. Static risk assessment and generic product offerings

Traditional underwriting relies on historical data and rule-based systems that cannot adapt to emerging risks or provide personalised pricing. Limited use of real-time data sources results in suboptimal risk assessment and competitive disadvantage.

3. Reactive compliance and manual risk management

Insurance companies face mounting regulatory complexity with manual compliance processes that are prone to errors and delays. Risk management is largely reactive, leading to increased fraud losses, regulatory fines and audit failures.

4. Disjointed customer experience and channel inconsistencies

Customers often face challenges when interacting with insurance providers across different touchpoints. These inconsistencies manifest as fragmented communications, varying service quality and discrepancies in information provided across channels such as phone, email, mobile apps and websites – leading to customer frustration and dissatisfaction.

Canvas of opportunities: Indicative agentic applications in the insurance industry

Policy proposal intake: Imagine policy proposals flowing seamlessly through an intelligent orchestration layer that eliminates manual processing bottlenecks and fragmented data silos. Through APA, specialised AI agents can work in concert to instantly categorise applications, extract document data and cross-reference information across previously isolated systems. Rule execution can continuously occur, and cases can be routed automatically while data gets categorised consistently across touchpoints. This transforms days of manual processing into hours of automated excellence with near-instantaneous customer acknowledgment.

Indicative operating model: Policy proposal intake

Indicative customer personas

	Persona 1	Persona 2	Persona 3
Needs	Quick, paperless policy purchase, mobile-first experience	Vernacular language support, agent assistance	Premium products, personalised service, quick approvals
Pain points	Long processing times, multiple document submissions	Limited digital literacy, document complexity	Complex documentation, relationship manager availability
Preferred channel	Mobile app, WhatsApp, online portal	Agent visits, branch offices, voice calls	Relationship manager, video calls, premium portals

Channels

Whatsapp | Website | App | Branch | Partner

Communication and collaboration with customers, sales team and internal stakeholders

Request journey flow

Data intake	Document capture, classification and validation	Risk assessment and pricing	Pre-issuance alteration management	Underwriting review and decision	Policy drafting	Pre-issuance alteration management

Multi-agent orchestration

Operational activities

Document ingestion Multiple formats supported Immediate processing Creation of customer ID	Data extraction Document classification Multi-language support Confidence scoring and exception handling	Parameters for underwriting Calculation of risk premium	Interpret underwriting requirements Evaluate submitted documents Automate clearance Identify exceptions	Underwriting review by senior UW in case of complex scenarios Analysis and approval for above mentioned scenarios	Generate final binding quote and upload in quote management system Quality check on quote Discrepancies sent to UW Policy drafting	Mapping and matching of customer ID with policy holder details Barcode generation and policy tagging Policy copy and invoice sent to customer through omnichannel mode

Human in the loop

Operational governance

SLA management | Risk management | Audit and compliance | Change management

Technology integrations

Client database/ CRM | Policy administration system | Document management system | Business process management/workflow engine | Messaging gateway

API gateway/enterprise service bus | Data warehouse/business intelligence tool | Monitoring/ observability portal

This instance can be augmented into an end-to-end framework designed to streamline the policy proposal intake process. Multiple customer personas, each with specific needs and pain points, can be offered tailored solutions to enhance their individual experiences.

- Persona 1 seeks to purchase a paperless policy quickly and prefers a mobile-first experience to eliminate long processing time and multiple document submissions. In response, the digital agent can leverage mobile apps and online portals as preferred channels.
- Persona 2 requires vernacular language support and agent assistance due to limited digital literacy and complex documentation. Traditional channels such as agent visits, branch offices and voice calls are well suited to cater to this group.
- Persona 3 expects premium products, personalised service and quick approvals, addressing complex documentation needs through relationship managers, video calls and premium portals. In this instance, incorporating tools such as client databases, CRM systems, business process management/workflow engines, messaging gateways and payment gateways can ensure efficient and secure operations. This structured approach can optimise the policy proposal process and enable the company to deliver a personalised and responsive service that meets the diverse needs of its customer base.

The persona-based request journey flow spans several critical stages – from data intake, document capture and verification, to risk assessment, pricing, pre-issuance alterations, underwriting decisions, policy drafting, and finally, issuance, inception, and communication.

These stages are seamlessly orchestrated through multi-agent collaboration, supported by operational capabilities such as:

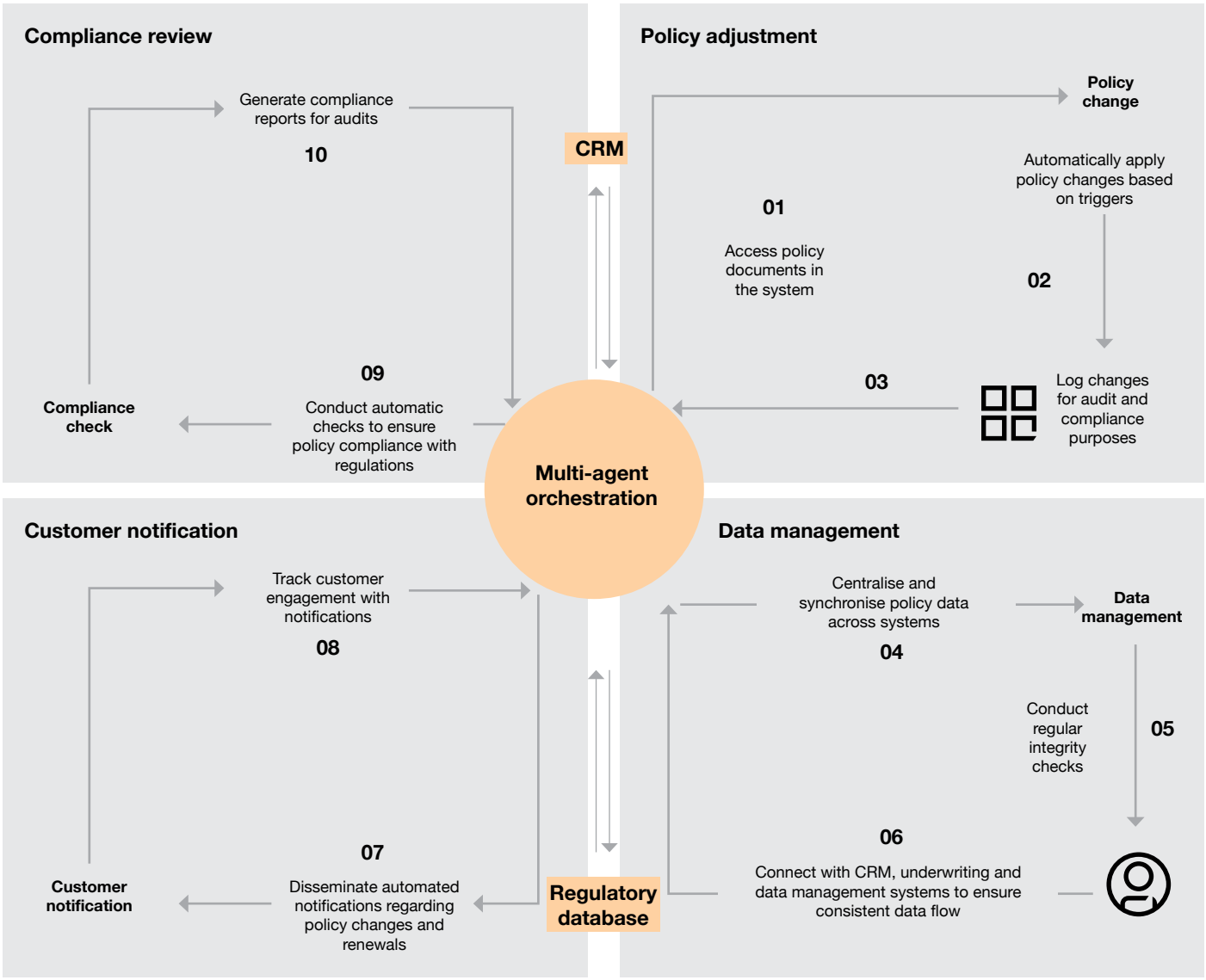
- document ingestion and multi-format support
- real-time processing and data extraction
- multi-language compatibility and exception handling.

Additionally, robust operational governance can be ensured through SLA management, risk and compliance oversight, audit trails and change management with technology integration playing a pivotal role – enabling scalable, intelligent automation across the entire insurance value chain.

Policy management

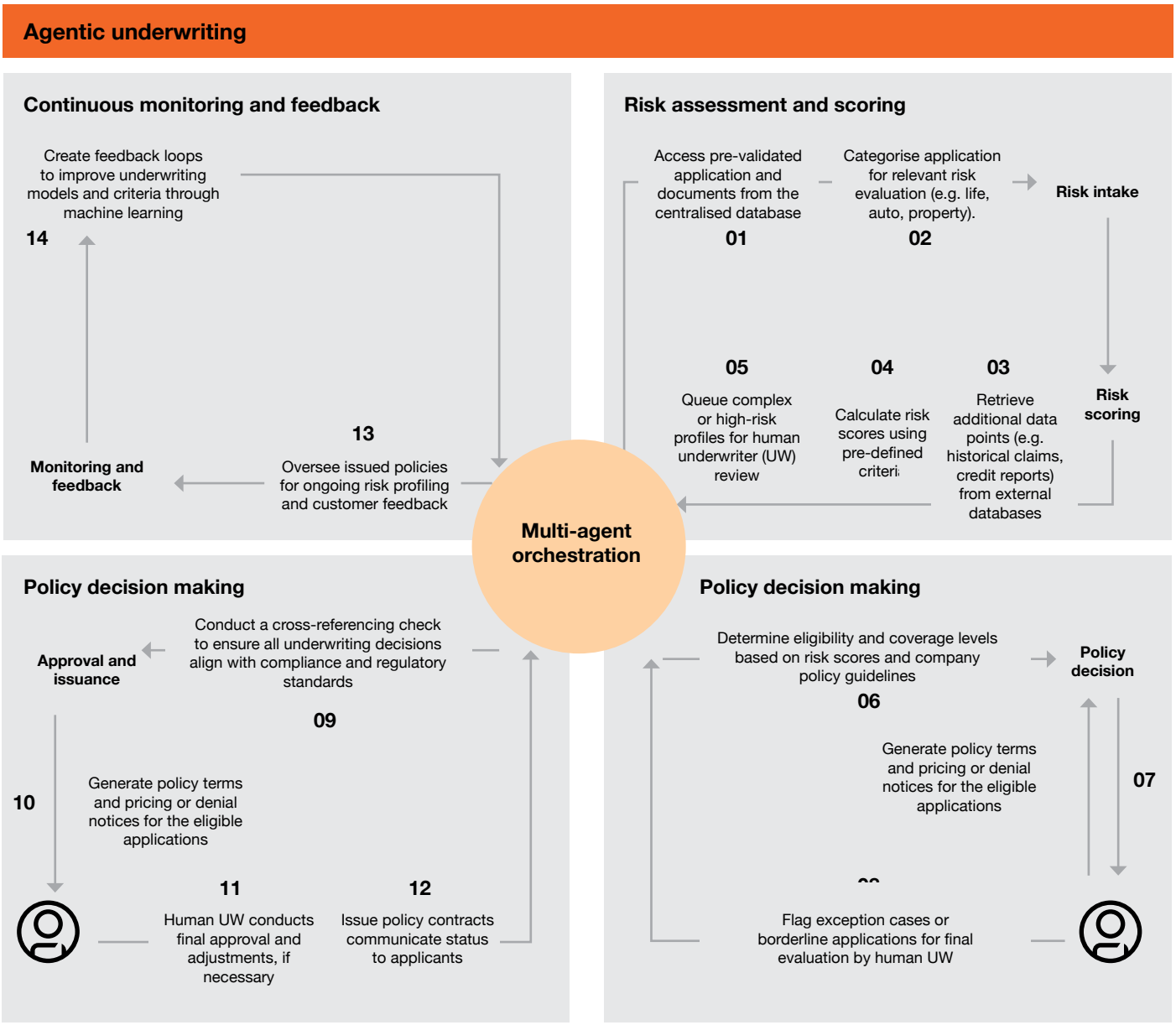
Agentic AI can help develop an ecosystem where intelligent agents act autonomously for compliance and policy lifecycle optimisation. Through APA, regulatory changes can be continuously monitored to identify coverage optimisation opportunities based on real-time risk factors. Agent-based data management can ensure data integrity and seamless flow. Consistent customer communication can be facilitated once the policy is updated. Such changes will help create policies that evolve dynamically to meet changing customer needs and regulatory landscapes with complete audit trails.

Agentic policy management



Underwriting

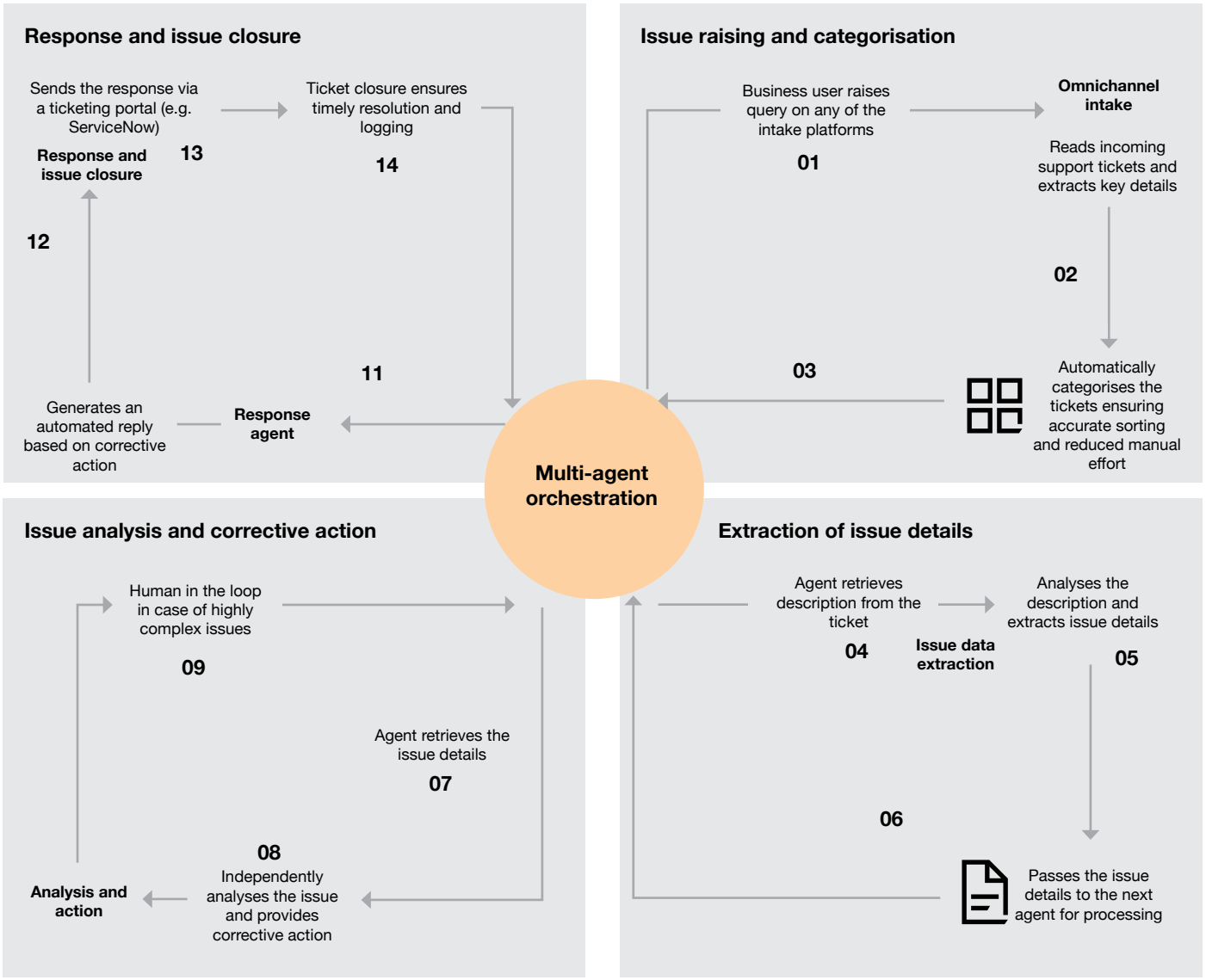
AI agents can transform risk assessment from reactive, rules-based processes into predictive, adaptive intelligence networks. Through APA, a specialist AI agent can instantly analyse vast multi-source datasets, while risk scoring is performed continuously based on existing risk models. Agentic monitoring can create improvement loops while policy decision and approval agents streamline the entire underwriting process. These measures can transform underwriting into a strategic differentiator that enables personalised pricing and real-time risk identification.



Customer support

Agentic AI presents the possibility to enhance customer support by delivering personalised, contextual assistance across every touchpoint. Through APA, agents can instantly understand inquiries with human-like comprehension while extraction of customer issues can provide complete customer context before conversations are used to generate a tailored solution. This creates support experiences where issues are resolved before customers realise they exist, turning interactions into relationship-building opportunities.

Agentic customer support workflow



These instances offer a bird's-eye view into the exciting possibilities and opportunities that APA can bring to enhance customer experience and significantly improve operational efficiency. By seamlessly integrating advanced AI-driven processes, APA can revolutionise how insurers interact with customers, providing personalised and responsive services that meet modern expectations. Furthermore, APA's ability to streamline complex workflows and automate decision-making processes presents immense potential for cost savings and productivity gains.

04 The road ahead

Looking ahead, the insurance industry stands on the brink of transformative change, powered by APA. The integration of diverse models and technologies is becoming increasingly seamless, enabling more fluid and intelligent operations. Core functions like underwriting and claims processing are set to benefit significantly, with APA enhancing both accuracy and speed. Collaboration will be key as insurers partner more closely with customers, ecosystem players and platform providers in order to build robust, interconnected systems.

But this shift goes beyond operational efficiency – it signals a fundamental rethinking of how insurance processes are approached and executed in a digital-first world. By embracing APA, insurers won't just solve today's challenges – they'll redefine what it means to deliver insurance in a fast-moving, tech-driven future. The winners will be those who act boldly, automate intelligently and lead with purpose.

How PwC can help

The insurance industry is experiencing significant technological changes as AI becomes central to modern insurance operations and seamless customer experience. This is our core knowledge area, backed by deep experience. We provide functional and technological solutions that can accelerate your organisation's digital progress across all areas of insurance. The strong agentic systems that we build work across different insurance products.

By leveraging agentic automation, we can create measurable business value. Our mission focuses on changing customer experiences while boosting efficiency from the initial quote to the final resolution of claims.

Our team of experts drives quick but sustainable innovation through compliant, modern solutions tailored for the insurance industry. We aim to shorten the time it takes to go from application to policy issuance while crafting seamless digital experiences that today's consumers expect and deserve. By combining deep domain expertise with cutting-edge automation, we help insurers to stay ahead of the curve.

The result: Smarter operations, stronger compliance and customer journeys that truly stand out.

Notes

About PwC

We help you build trust so you can boldly reinvent

At PwC, we help clients build trust and reinvent so they can turn complexity into competitive advantage. We're a tech-forward, people-empowered network with more than 370,000 people in 149 countries. Across assurance, tax and legal, deals and consulting we help build, accelerate and sustain momentum. Find out more at www.pwc.com.

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Contact us

Amit Roy

Partner and Leader – Insurance and Allied Businesses
PwC India
roy.amit@pwc.com

Sumit Srivastav

Partner and Leader – Agentic Automation
PwC India
sumit.srivastav@pwc.com

Mahesh Parab

Partner – Agentic Automation
PwC India
mahesh.parab@pwc.com

Contributors

Nikhil Nagda

Jasnain Singh

Gaurav Kambli

Pushkar Mahale

Gitika Karagwal

Editorial

Vishnupriya Sengupta

Rashi Gupta

Design

Shipra Gupta

pwc.in

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