

# AI in Insurance - Transforming Every Function

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## A Moment of Reckoning

Artificial Intelligence (“AI”) is no longer an emerging tool, it is a transformative force reshaping the insurance industry. In the UK, insurers are moving beyond experimentation, embedding AI into core functions such as underwriting, claims processing, customer service, and complaint resolution. These advancements are unlocking significant gains in efficiency, accuracy, and customer satisfaction.

However, this promise is accompanied by responsibility and a chorus of regulatory caution. The Financial Conduct Authority (“FCA”), Prudential Regulation Authority (“PRA”), and the UK government, alongside global regulators such as the European Union (“EU”) Commission and U.S. Federal Trade Commission (“FTC”), have highlighted critical risks such as algorithmic bias, opacity in decision-making, and consumer protection vulnerabilities in the unregulated use of AI.

This white paper explores how UK insurers are innovating with AI while navigating an evolving regulatory landscape whilst calling for a balanced, forward-looking approach that combines innovation with accountability.

## AI in Insurance: Transforming every Function

Insurance has struggled with effective utilisation of data and AI provides an opportunity to overcome this impediment. By offering an unprecedented opportunity to manage operational costs and improve customer outcomes. The insurance value chain is being redefined by AI, from underwriting risk to settling claims and managing customer relationships, AI is becoming integral to how insurers operate and compete.

## Smarter and Faster Underwriting

AI is rapidly shifting the paradigm from traditional, rule-based pricing models to dynamic, behaviour-driven systems. Firms like Aviva have adopted machine learning tools that allow for more nuanced pricing decisions in their Global Corporate and Speciality (“GCS”) business effectively cutting down the new policy generation time resulting in quicker and more accurate pricing and underwriting decisions. Similarly, Admiral has integrated telematics developed by Cambridge Mobile Telematics (“CMT”) into its underwriting processes, using AI to tailor policies to individual driving behaviors. Commercial insurers like QBE and Beazley are utilizing Cytora’s platform to digitally process risks, maximising automation level and deliver enhanced control over risk selection, while Zurich UK has embraced AI Data Cloud to streamline data ingestion (including using UK government LiDAR<sup>1</sup> data covering 300 billion data points) into usable form to deliver more transparent policy pricing and meaningful underwriting insights. Hiscox, has collaborated with Google Cloud to create an AI enhanced lead underwriting model in the London Market.

These innovations signal a broader shift that underwriting is no longer just about static actuarial tables, it is about real-time, data-driven precision.

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<sup>1</sup> Light Detection and Ranging



## AI and Claims

The claims function is also undergoing the AI revolution. Through automation, firms can triage and settle claims faster, cut manual handling, and reduce leakage by analysing vast datasets both structured and unstructured. AI's ability to rapidly learn from past catastrophe trends becomes a critical differentiator in settling claims especially in climate related loss.

Lemonade, a digital insurance company powered by AI, has developed systems that process straightforward claims in mere seconds using natural language processing and decision trees. Aviva's partnership with Tractable enables rapid and accurate vehicle damage assessments through AI-powered image analysis, enhancing speed and efficiency in motor claims. AXA UK has introduced AI-enabled platforms for loss notification for home and car insurance, while Zurich UK has shortened their property claims resolution times through Automated Policy Checking system that uses AI capabilities to review policies and improves the transparency in decision making to customers by including decisions from Ombudsman's database to compare similar historic cases in claims settlement recommendation.

AI can now model event trajectories, anticipate damage patterns, and produce early settlement proposals. For the customer, this means faster recovery. For the insurer, this means lower indemnity costs and stronger Net Promoter Scores. But these benefits will only materialise if AI is embedded responsibly with clear documentation, human validation, and ethical considerations front and centre.

## Proactive and Personalise Customer Engagement with AI

AI is gaining traction in customer experience management and complaints handling. Insurers like Zurich UK are implementing AI to monitor service quality and detect emerging customer trends. A number of insurers are embedding sentiment analysis to understand customer emotions and expectations, enabling proactive improvements in customer service. Additionally, chatbot technologies are being deployed to assist in triaging customer issues, ensuring that complex cases are escalated while routine queries are handled efficiently.

This fusion of automation and human touch is critical to build customer trust while AI boosts efficiency in line with the FCA's approach of taking an evidence-based view that balances both the benefits and risks of AI to ensure a proportionate and effective approach to the use of AI in financial services. Reflecting the UK government's National AI Strategy to regulate AI effectively and support innovation balancing the risks against opportunities and benefits AI can generate encourages further innovation in deploying AI across the product lifecycle in insurance.

## Navigating the Regulatory Landscape in the UK, US and EU

As the insurance industry embraces AI, regulators in the UK and beyond are actively shaping the boundaries of acceptable and ethical use.

### UK's Multi-Regulatory Approach

The FCA has issued multiple warnings and discussion papers focusing on the importance of transparency and fairness in algorithmic decision making, particularly in complaints, claims and pricing. The PRA emphasises the need for insurers to maintain explainability in AI models that affect their financial resilience and solvency assessments. Meanwhile, the Information Commissioner's Office ("ICO") upholds data protection standards under GDPR, particularly concerning automated decision-making and the rights of individuals to understand and contest those decisions. The UK Government's AI White Paper, released in 2023, outlines regulatory coordination to support businesses to invest confidently in AI, showcasing the complexity and sector specific risks of AI.



## EU AI Act

The EU's AI Act introduces a risk-based classification system for AI applications. Insurance related AI systems in underwriting health and life insurance fall under the "high-risk" category, subjecting them to stringent oversight. This could result in UK underwriting EU risks will have to meet the EU standards around transparency of algorithms, risk management and human oversight.

## The US Approach

In the United States, the FTC has released guidance urging firms to avoid deploying opaque, "black box" technology that may lead to unfair or discriminatory outcomes. The US approach underscores growing global alignment on AI ethics even across differing legal frameworks.

While the regulatory strategies on AI differ across the jurisdictions, key principles such as AI transparency and auditability, the prevention of discrimination and bias, the use of explainable AI models, and the establishment of robust governance and human oversight mechanisms are etched across all of them.

## Balancing responsibility with innovation

The UK insurance sector is at a pivotal moment. The opportunity to lead globally in AI-driven insurance is real but so is the risk of losing public trust and customer harm through misuse or overreach.

To navigate this balance, insurers should embed customer focussed culture and governance into their AI strategies. This includes forming internal AI ethics boards, conducting regular impact assessments, and participating in regulatory sandboxes like those offered by the FCA. Firms should also build transparency into customer-facing applications, ensuring people understand and can challenge AI-generated decisions.

Trust and innovation are not mutually exclusive. In fact, they are interdependent.

## AI for a Smarter and Ethical Future

AI, particularly Gen AI, is poised to fundamentally reshape the UK insurance operating model. With AI unlocking a smarter, more responsive future for UK insurance but success hinges on doing it right. From personalised premiums to one-click claims, the benefits are substantial. Yet this future must be built on a foundation of ethical design, clear accountability, and public trust.

Insurers that embrace both innovation and responsibility will not just keep pace with change, they will lead it.

## Navigating AI-Driven Regulatory Challenges with Confidence

As financial services firms increasingly adopt AI and machine learning to drive innovation and operational efficiency, the regulatory environment is evolving in parallel shaping expectations to ensure these technologies are developed and deployed responsibly.

As an FCA Skilled Person, Pathlight Associates brings a unique understanding of both regulatory expectations and current market practices. We work with firms to implement proportionate and effective AI governance frameworks that reflect best practice, regulatory intent, and emerging supervisory priorities.

A central theme of this evolving landscape is the FCA's AI Strategy, which underscores the importance of safe, responsible, and innovative use of AI in financial services. At the heart of this strategy lies a clear regulatory expectation, AI must be deployed with appropriate oversight, explainability, and accountability, particularly where it affects consumer outcomes.



This aligns closely with the FCA's Consumer Duty, which sets a higher standard of care for customers requiring firms to ensure fair value, avoid foreseeable harm, and support informed decision making. For firms using AI in pricing, underwriting, claims, marketing, or customer interaction, these obligations demand that models are transparent, regularly tested, and designed to mitigate risks such as bias and unintended harm.

Pathlight supports firms in operationalising these joint expectations by helping design AI systems and governance structures that uphold the Consumer Duty while aligning with the FCA's vision for safe and ethical AI use. Our services include:

- Bias and fairness assessments
- Outcome testing and explainability reviews
- Governance and accountability mapping
- Third-party AI risk assessments
- Assessment of internal risk management frameworks

Whether developing AI models in-house or integrating third-party solutions, Pathlight Associates provides the clarity and confidence firms need to adopt AI effectively and responsibly balancing innovation with trust, regulatory compliance, and long-term value creation.

Our advisory services can draw on our wide experience of delivering Skilled Person reports for the UK regulators, giving us insights into the current concerns and interpretations of supervisory teams.