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Claims Processing Automation: Reducing Settlement Times With AI

JULY 2025



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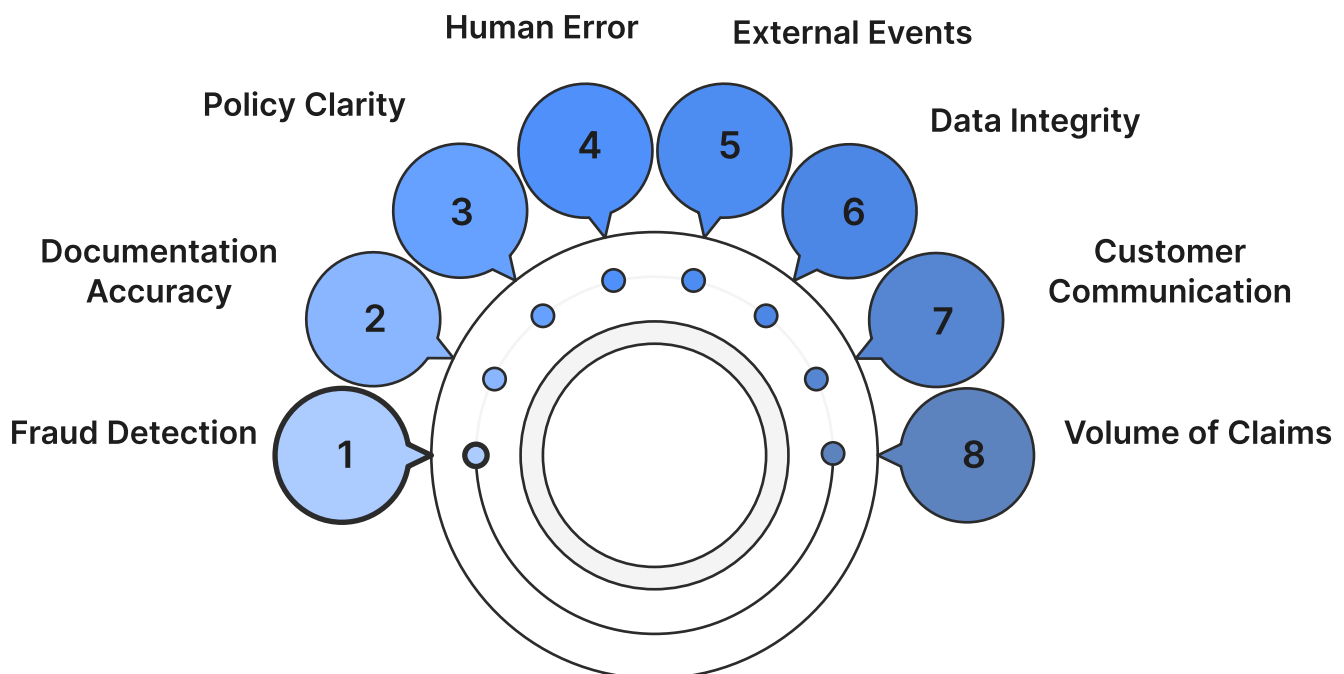


Introduction

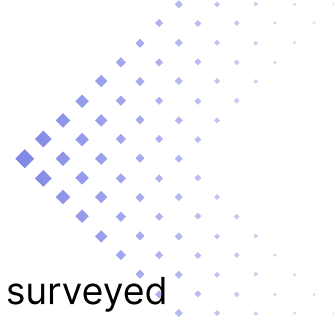
Claims settlement is a sensitive topic of the insurance value chain. It represents the conjuncture of insurance workflow that operates with sentimentality, empathy, practicality, legal clarity, and indisputable proof. Customers come to insurers during moments of distress such as accidents, illness, loss, or catastrophe. They expect resolution with speed, transparency, and fairness. However, reality can often diverge from this expectation.

At the centre of this reality is the claims settlement process, surrounded by multiple forces that shape its outcome.

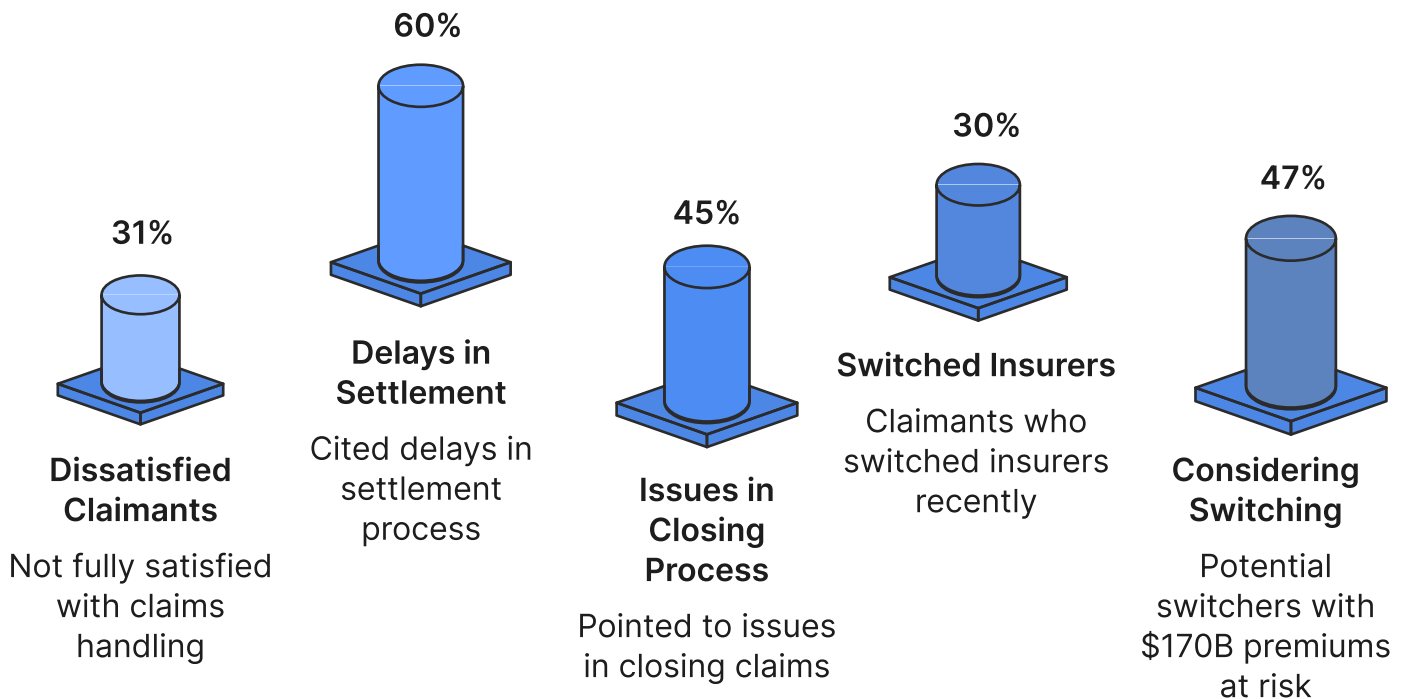
Factors Affecting the Claims Settlement Process



Each of these factors adds friction, slowing resolution time while increasing cost, and risking customer dissatisfaction.



A global report titled Why AI in Insurance Claims and Underwriting surveyed over 6,700 policyholders across 25 countries, and found the following:...



Insurers handle an array of claim types:

- Personal settlements (auto, health, life insurance)
- Corporate claims (commercial property, cyber risks, workers' compensation)
- Asset-related claims (machinery, logistics, aviation, marine)
- Healthcare reimbursements and hospital claims
- Pension-related disputes and retirement settlements

Each brings different data formats, evidentiary requirements, customer expectations, and regulatory scrutiny. These complexities, multiplied across geographies and channels, create delays, inflate costs, and erode customer trust.



Artificial intelligence (AI), process automation, and business intelligence tools offer a compelling path forward. When correctly deployed, these technologies improve claim speed, accuracy, compliance, and fraud detection, without sacrificing human oversight where empathy is needed.

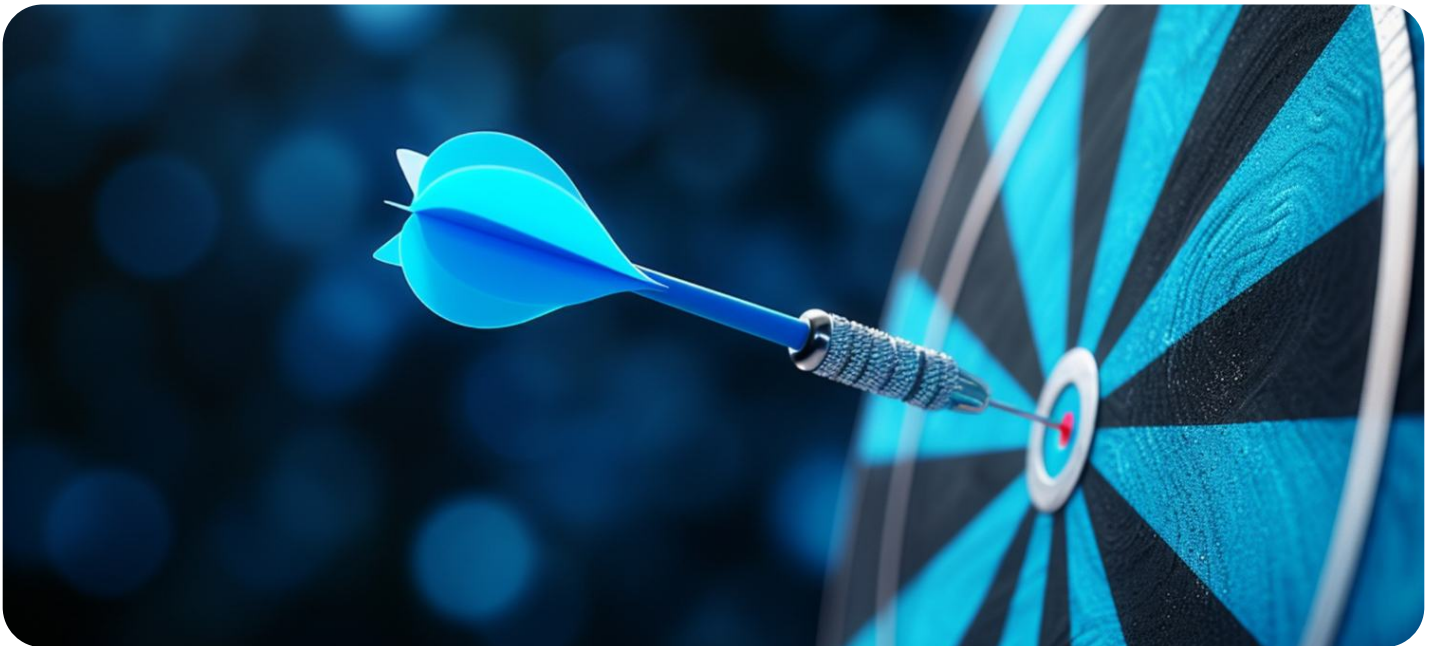
We will take a look at the ways in which AI can expedite claims settlement while being cognizant with the risks that this technology brings when it comes to a sensitive industry.

This whitepaper covers:

- The operational and technological challenges in modern claims processing
- Practical, in-depth applications of AI and automation to solve those challenges
- Risks and challenges of going AI-first with claims settlement



Common Challenges in Insurance Claims Management



1. Claims Complexity: Claims range from straightforward (fender-bender in a car accident) to highly complex (multi-party liability in a construction defect). High-value claims often involve legal interpretation of policy language, multiple stakeholders, and extended negotiation cycles. In corporate insurance, quantifying business interruption loss or cyberattack impact can take weeks or months. Manual investigation, paper-based documentation, and fragmented communication further slowdown the cycle.

2. Dependence on Legacy Systems: Many insurers still rely on legacy systems built decades ago. These systems lack real-time integration with modern analytics, IoT data, or third-party verification tools. Even adding automation layers becomes difficult due to system rigidity. Meanwhile, customer expectations are shaped by instant service apps in other industries, making delays in insurance feel even more painful.



3. Data Safety: The claims process involves highly sensitive personal and financial data: medical records, income statements, property ownership proofs, and more. Insurers must manage compliance under multiple jurisdictions (HIPAA, GDPR, CCPA, IRDAI). Insecure storage, unauthorized access, and poor audit trails expose companies to breaches and lawsuits.

4. Agility and Evolving Expectations: Today's policyholders expect 24/7 availability, mobile-first service, and real-time updates. They want to upload photos, submit claims via mobile, and get instant claim status updates. Traditional claims departments, often closed after business hours and requiring physical paperwork, fall short. The gap between digital-first expectation and the analog-era service widens dissatisfaction.

5. Combatting Fraud: Insurance fraud remains a persistent drain on industry profitability. In 2023:

- Organized automobile fraud schemes accounted for \$29 billion globally.
- 25% of flagged theft claims involved high-value fake losses.
- Over 5,000 insurance fraud cases were prosecuted in the US under anti-fraud laws.

Conventional rules-based fraud detection systems flag many legitimate claims as false positives, leading to delays and customer frustration. Sophisticated fraud rings often outpace traditional tools.

6. Inbound Claim Surges from Extreme Events: Natural disasters such as floods, hurricanes, wildfires create instant spikes in claims volume. Insurers must process thousands of claims in days while maintaining service quality. During such surges, insurers often bring in external adjusters, set up temporary claim centres, or outsource triage. These reactive responses are expensive and inconsistent.



AI to Supercharge Claims Settlement

AI is already being used extensively in the insurance sector. That being said, there is still scope for leveraging the modern technology for enhancing decision accuracy and gaining strategic edge.

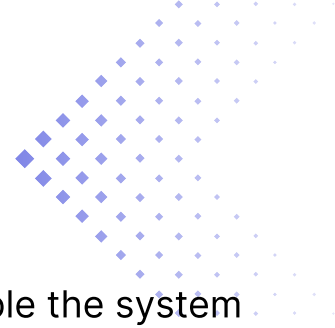
At a technical level, **AI integrates machine learning (ML), NLP, computer vision, and behavioural analytics to handle both structured and unstructured data that flows through every stage of a claim lifecycle.** On the non-technical front, AI helps insurers embed customer-centricity and speed into their service models without sacrificing diligence.

From Data to Decisions: The Technical Foundation

AI begins by capturing **First Notice of Loss (FNOL)** from customers through voice input, mobile forms, or chatbot interactions. NLP models interpret the narrative context, classify claim type and severity, and identify missing or suspicious elements. These systems are trained to detect inconsistencies across documents, helping verify legitimacy early in the process.

Computer vision capabilities allow insurers to analyse the submitted images and videos, such as a damaged vehicle or flooded property, and automatically assess the extent of loss. Deep learning models compare the images against vast libraries of known damage patterns to provide an estimated payout range. These models are continually retrained with fresh data, improving accuracy with each case.

In parallel, AI evaluates customer behaviour and metadata. Location data is matched with time-stamped event details, and behavioural analytics identify whether the user's interaction deviates from known norms. Device fingerprints, typing patterns, and voice tone analysis also play roles in detecting anomalies without invasive procedures.



When these insights are centralized in decision engines, they enable the system to classify a claim as **low-risk and trigger auto-approval, or escalate complex cases to experienced adjusters** with all relevant documentation pre-summarized. Human adjusters no longer waste time gathering evidence, they step in only when judgment and empathy are required.

Non-Technical Leverage: Experience, Speed, and Scale

AI augments claims adjustment process by eliminating repetitive tasks. Instead of manually verifying policy clauses or matching photos to repair costs, adjusters receive AI-generated insights that have already done 80% of the work. This enhances decision quality and consistency across adjusters and regions.

Crucially, AI delivers **scalability during crisis events**. After floods, wildfires, war-related damages or large-scale health emergencies, AI systems triage incoming cases, automate claim intake, and enable remote damage assessment. Insurers can settle thousands of low-risk claims in parallel, reducing processing time from weeks to hours.

A Spotlight on Pension and Long-Term Claims

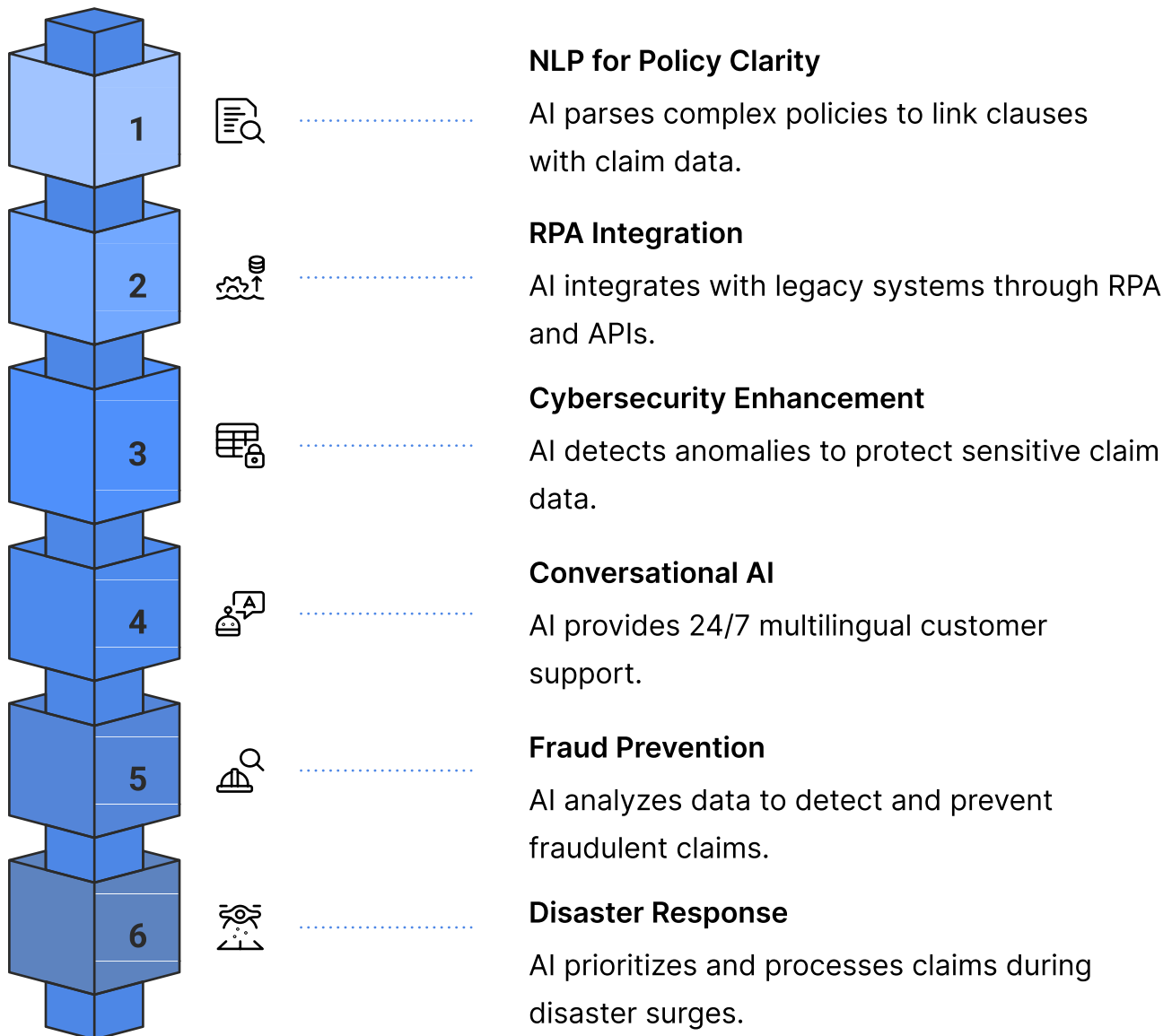
Pension claims typically involve **complex beneficiary data, multiple historical employment records, and lengthy approval cycles**. AI models can streamline these processes by reconciling employment data, flagging inconsistencies, and identifying eligibility without manual cross-checks. In defined benefit plans, AI can calculate payment adjustments in real time based on updated actuarial models and life expectancy data.

For disability or retirement-related insurance, AI analyses medical histories, legal documentation, and third-party data to verify conditions and process payouts. This reduces disputes and accelerates fund disbursement that are critical for financially vulnerable retirees.



How Practical AI Interventions Can Address These Challenges

By now, we all know that AI is neither a magical wand or a singular solution for any challenge. However, when applied correctly, AI tools offer precision and speed necessary to tackle different pain points in the claims value chain. From policy interpretation to fraud detection and disaster response, AI delivers measurable improvements in speed and accuracy.



Real World Scenarios Where AI is Already Delivering Results

Hippo: Real-Time Homeowners Insurance

U.S.-based Hippo Insurance uses AI and real-time data to reshape how property insurance operates. By integrating [smart home sensor data and predictive analytics](#), Hippo proactively mitigates risk such as water leakage or fire hazards before claims even occur. During a claim, AI models ingest policy details and smart sensor data to validate events in real time, allowing near-instant settlement in simple cases.

Allianz UK: Generative AI for Underwriter Support

Allianz developed BRIAN, an AI assistant that [digests underwriting guidelines and responds to adjuster questions](#). With nearly 3,000 real-world queries handled in its pilot phase, BRIAN drastically reduced the time required to reference and apply underwriting principles. While not directly a claims tool, BRIAN's impact is felt in post-underwriting claim validation, ensuring that decisions align with established policies and reducing internal decision time.

IBM watsonx for Insurance AI Models

IBM's current initiative involves building insurance-specific AI models using publicly available property data, which insurers can customize using proprietary datasets. These models are hosted in a secure, regulatory-compliant cloud environment designed to meet industry-specific needs. The outcome is faster, data-enriched risk assessments that improve decision-making without requiring raw data to be moved or exposed externally.

Slice: AI-First Insurance Infrastructure

Slice Labs provides digital insurance solutions tailored to the gig economy and homeshare platforms. Their automated claims engine combines NLP, ML, and computer vision to manage FNOL, classify claims, and initiate settlements, all within a single interface.

- The [Slice Mind AI Suite](#) enables behavioural fraud detection, cyber risk modelling, and geolocation-based risk scoring.
- Their [SME Quoting Engine](#) allows brokers to bind policies across 65+ small business categories in under five minutes, showcasing AI's ability to compress underwriting and claims workflows simultaneously.
- By using [aerial imagery](#), Slice assesses property conditions like roof quality or vegetation proximity, both key indicators in property risk evaluation and claim eligibility.
- The [use of AI to prefill application fields](#) (e.g., roof type, number of windows) accelerates intake and reduces friction for both brokers and customers.

MetLife + Sprout.ai – Global AI Claims Automation

In 2025, MetLife partnered with Sprout.ai to bring automation to claims processing across multiple markets. Sprout's AI integrates directly into MetLife's claims platform to deliver instant data extraction, context analysis, and automated claims decisions. Crucially, the system is designed to complement human decision-makers, amplifying empathy and expertise rather than replacing it.

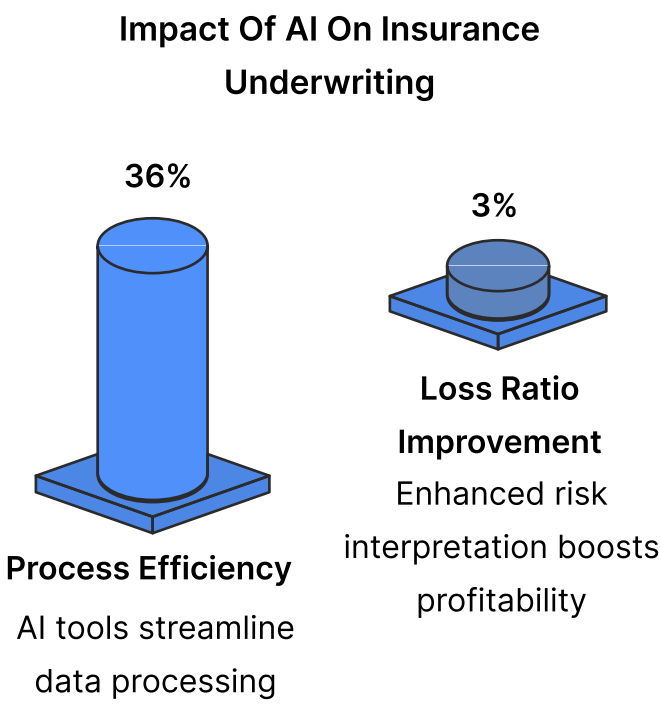
This collaboration has demonstrated that AI can handle routine claims autonomously while routing complex, sensitive cases to human adjusters with enriched context, striking a balance between speed and fairness.

Industry-Wide Transformation: Evidence from the Field

A 2024 global survey by BCG titled Build for the Future mapped the impact of AI across multiple insurance functions, offering quantifiable evidence of transformation.

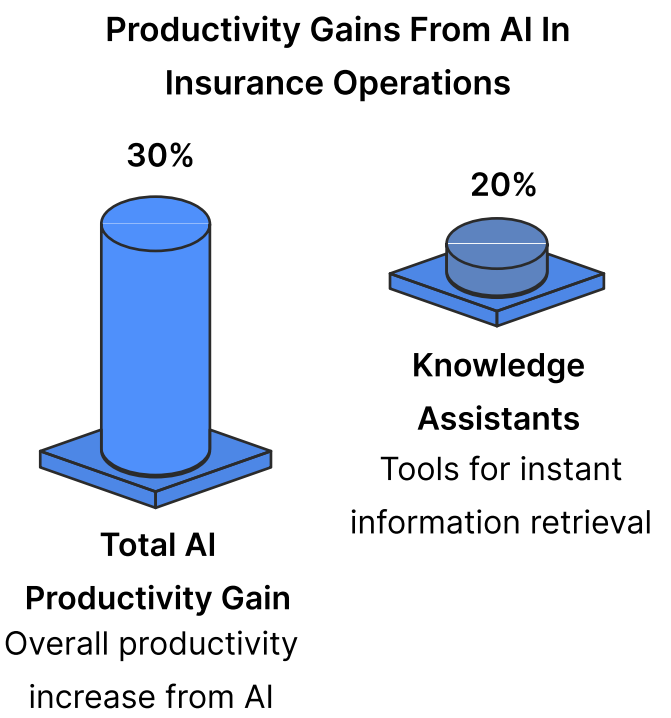
Underwriting Efficiency Gains

In commercial P&C insurance across the U.S. and U.K., BCG’s AI implementations improved process efficiency by up to 36%. These gains were achieved by equipping underwriters with AI tools that processed unstructured data.



Operational Productivity in Service

In a study covering over 20,000 insurance operations employees, insurers using AI reported 30% gains in productivity. Importantly, knowledge assistants (tools that help staff instantly retrieve underwriting rules, policy terms, and claim precedents) delivered nearly two-thirds of those gains alone.



Claims Transformation: Two Tracks of Progress

BCG identifies two core ways AI is reshaping claims:

1. Enhancing Complex Claims Handling

Tools that automate FNOL intake, document scanning, triage, and even medical coding enable human adjusters to focus on resolving disputes, negotiating settlements, or managing large-loss scenarios. Across insurers studied, AI delivered:

- Up to 20% reduction in operating costs
- 50% faster processing time for multi-step claims

2. End-to-End Automation for Simple Claims

For low-risk, well-documented claims, like auto windshield replacement or health reimbursements, AI delivers real-time decisions and payouts. This redesign of the entire claims journey, from intake to settlement, has enabled:

- Real-time resolution for up to 70% of simple claims
- Operational cost reduction by 30–50%
- Marked improvements in customer satisfaction

The findings from BCG's 2024 survey underline the measurable gains AI is already delivering across insurance operations.

Building on these efficiencies, automation and business intelligence (BI) reporting are becoming critical layers in the AI transformation stack. Automation streamlines repetitive, rules-based tasks, like FNOL intake, document validation, or status updates, while BI tools turn complex claims data into actionable insights.

By pairing AI with BI, insurers move from reactive operations to predictive and pre-emptive strategy, identifying claim spikes before they occur, rerouting staff in advance, and adjusting policies dynamically based on real-world data.

Claims Process: Legacy Vs. AI

Functional Area	Legacy System	AI-Enabled System
 Claim Intake (FNOL)	Manual forms, static templates	NLP-enabled voice/chat capture, auto-tagging
 Document Verification	Manual review, high error rates	OCR + ML to validate and extract instantly
 Damage Assessment	On-site visits, paper reports	Computer vision from photos or drone footage
 Fraud Detection	Rule-based red flags, high false positives	Behavioural ML, voice stress analysis, geotagging
 Triage & Routing	Uniform routing, overload in busy teams	AI-based case complexity scoring and smart routing
 Settlement Decisioning	Adjuster-only judgment	Decision engines with ML confidence scoring
 Payout Initiation	Manual fund disbursement	Automated bank verification and transfer
 Customer Communication	Delayed, often inconsistent	Real-time updates via email/SMS/portal
 Analytics & Oversight	Monthly static reports	Live BI dashboards fed by AI insights

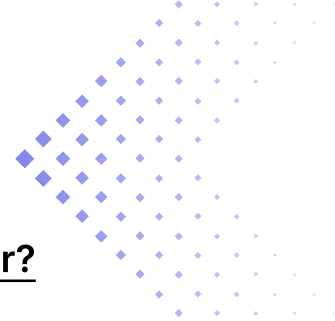
Risks, Challenges, and Security Concerns in AI-Driven Insurance Claims Settlement

While The Insurance Industry Is Steadily Recognizing The Value Of AI For Improving Claims Settlement, Underwriting, And Customer Engagement, The Road To Enterprise-Wide AI Adoption Is Neither Linear Nor Frictionless.

Implementing AI Into Legacy-Driven Systems Comes With A Complex Web Of Internal Resistance, Integration Barriers, Governance Risks, And Cybersecurity Concerns. For Insurers, Especially Mid-Sized And Smaller Firms, The Path Forward Must Be Marked By Pragmatism, Foresight, And A Willingness To Confront These Challenges Proactively.

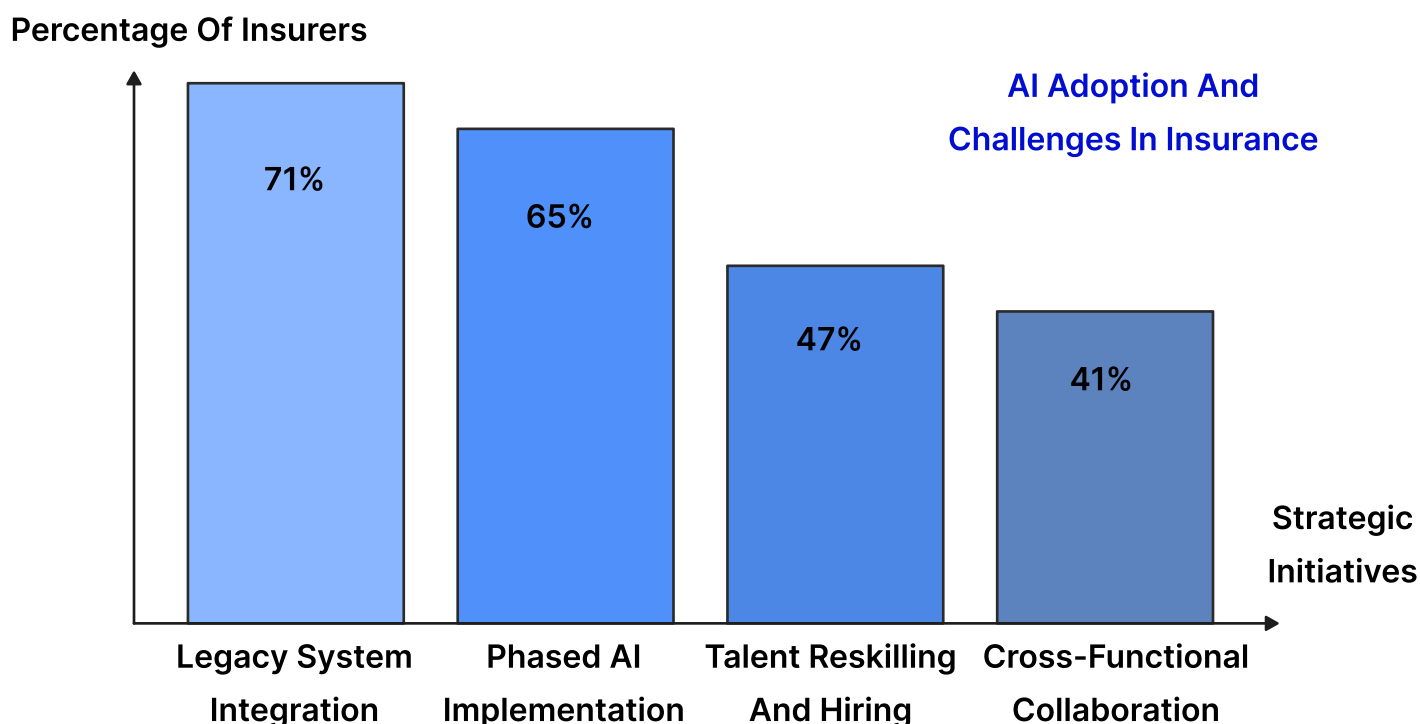
Implementation Barriers: Legacy Systems, Resistance, And Investment Concerns





Wipro's report AI in Insurance: Overhyped Trend or Game Changer?

According To The Report, Nearly All U.S. Insurers (92%) Believe AI Is Critical For Maintaining A Competitive Edge In Delivering Personalized, Responsive Customer Experiences. However, There's A Distinct Bifurcation In Adoption Maturity.



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As firms that drive enterprise-wide AI adoption start to reap the flywheel effects, those slower to adapt will risk being left behind. Investing in a strong data, governance and technical foundation, and aligning AI initiatives to shared business objectives will be critical to success. For firms starting on the journey, prioritizing quick wins and investing in building the foundation necessary for scale will be the key.

— Ritesh Talapatra, Vice President and Sector Head for Capital Markets and Insurance, Wipro Limited

AI Governance And Reputational Risk

As AI models increasingly participate in decision-making, from eligibility assessments to fraud detection, ensuring responsible AI practices is paramount. A major concern for insurers is the lack of governance frameworks. The Wipro study highlights that 21% of all firms and 44% of small insurers have no formal AI usage policies, leaving them exposed to emerging compliance risks.

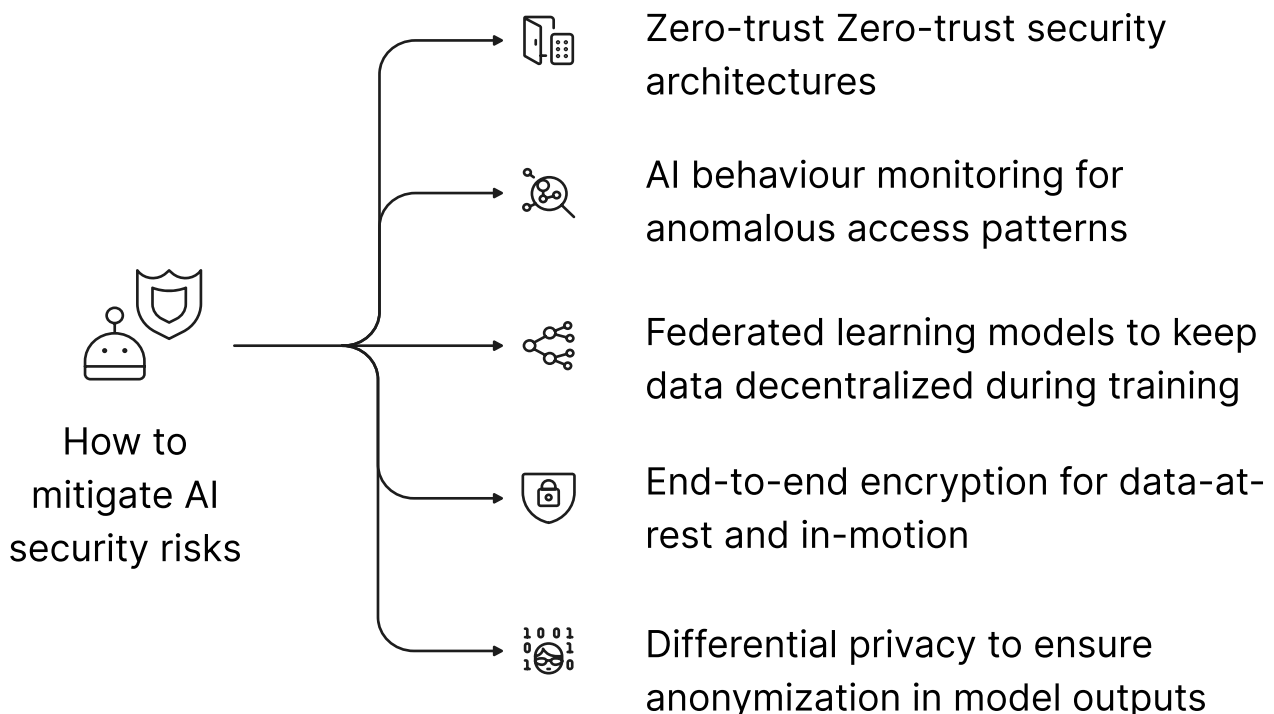
This vacuum of regulation heightens the likelihood of algorithmic bias, where models might systematically disadvantage certain groups due to skewed training data or flawed design. Not only can this invite regulatory penalties, but it can also lead to severe reputational fallout in an industry built on trust.

Building ethical AI governance includes:

- Bias testing across protected attributes (age, gender, race, income)
- Transparent model explainability protocols
- Audit trails for all AI-generated recommendations or decisions
- Alignment with evolving regulatory standards like GDPR, NAIC guidelines, and other national AI codes of practice

Cybersecurity And Data Protection Risks

- Model Inversion Attacks: Where hackers infer sensitive data used to train models.
- Adversarial Attacks: Where malicious inputs cause AI models to misclassify data.
- Data Exfiltration: Poorly protected APIs can leak customer data during model inference.
- Ransomware Threats: AI-generated data lakes become high-value targets. ...





Organizational Change Resistance

Transformational AI deployments also confront people-related friction. Insurance is a conservative sector by nature, with process-heavy operations, siloed departments, and historically manual workflows. As AI alters job roles—automating FNOL, triaging claims, flagging fraud—the workforce may resist these changes due to:

- Fear of job loss
- Lack of training or understanding of AI workflows
- Misalignment between leadership and operational teams

To mitigate this, companies are deploying change management programs that focus on:

- Stakeholder buy-in from early stages
- Role redefinition, where AI augments rather than replaces human judgment
- Continuous feedback loops from claims handlers and underwriters
- Incentivizing innovation via AI success metrics in KPIs



The Cost Of Implementation

For smaller insurers, the upfront cost of AI adoption is a major deterrent. While SaaS-based AI tools reduce CapEx in theory, integrating them into fragmented systems with non-standardized data formats still requires substantial investment in:

- Data engineering
- Cloud migration
- Vendor orchestration
- Workflow automation
- Staff Upskilling

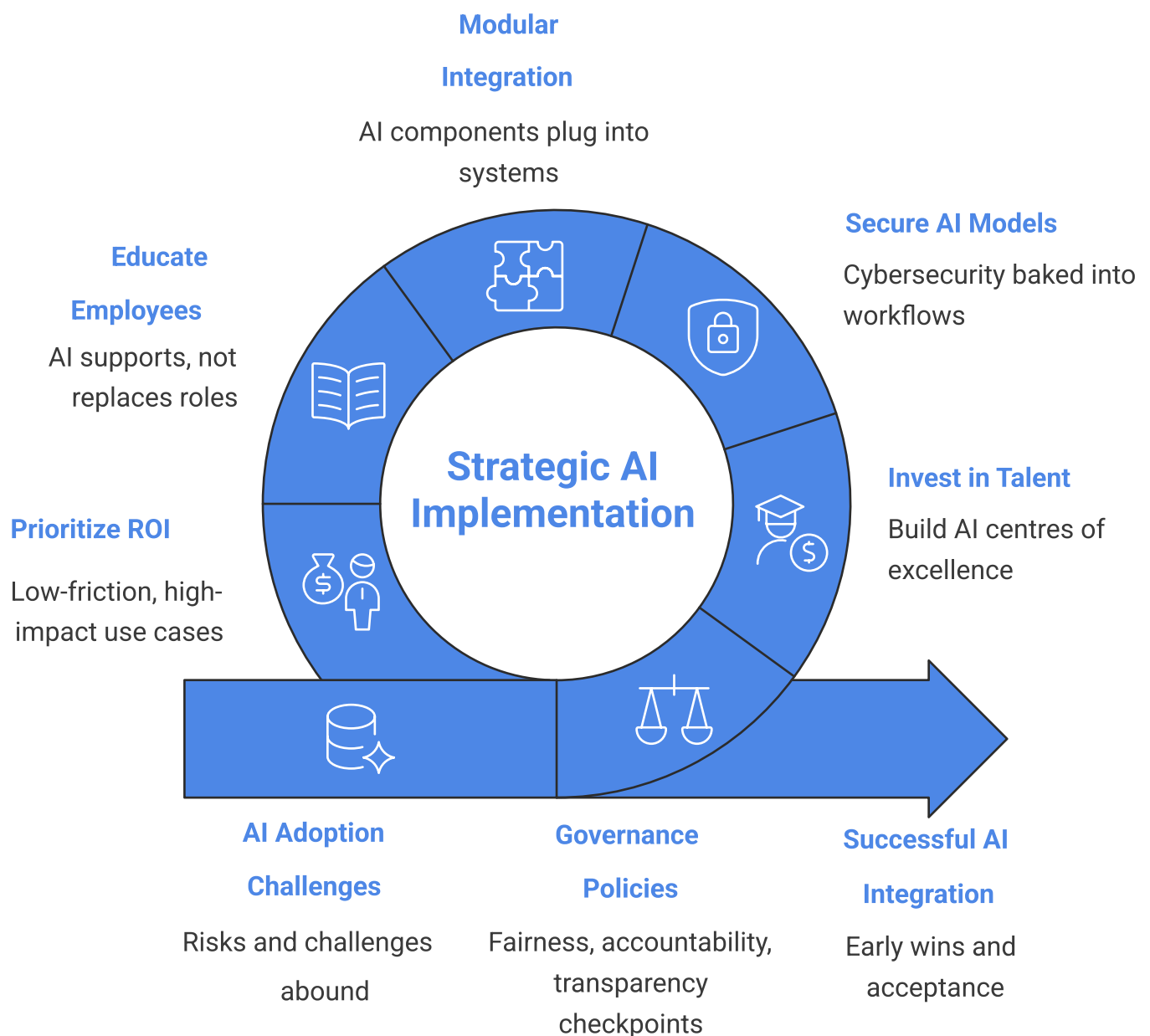
These costs are magnified if firms attempt big-bang transformation rather than modular rollouts. As such, phased adoption, ROI-based prioritization, and quick-win identification are recommended strategies for fiscally constrained insurers.



Addressing the Challenges Holistically

Despite These Hurdles, The Path To Effective AI Adoption Is Not Unattainable. Leading Firms Are Addressing These Challenges Through Governance-Led, Phased AI Programs That Are Tightly Aligned With Business Objectives.

Pragmatic AI Adoption in Insurance





Conclusion

By approaching AI transformation with realism, strategy, and ethical foresight, insurers can future-proof their claims management capabilities while building deeper trust with their policyholders. The goal is to embed AI into the core fabric of insurance operations with intent and transparency.

AI is accelerating decision timelines, eliminating manual redundancies, and enabling more consistent, auditable outcomes. Its ability to structure unstructured data and detect anomalies allows insurers to deliver both operational efficiency and improved claimant experiences. But realizing these benefits calls for a deliberate approach to system integration, risk governance, and organizational alignment. This is where strategic guidance from experienced AI consultants can help firms implement solutions that are technically sound and contextually viable while being business-aligned.

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