

45th India Fellowship Seminar

Date: 18th and 19th December 2025

AI on the Fast Lane

General Insurance Technical Case Study

Presented By Group 7:

1. Shreya Jhunhunwala
2. Twinkle Bajaj
3. Unnati Vora



Agenda



Case Study Overview



Agentic AI & Insurance



Impact on Core Actuarial Functions



Compliance to Regulatory Framework



Key Risks & Mitigation Controls



Data Privacy Concerns



Audit Mechanisms



Conclusion



Q&A

Case Study Overview

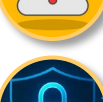
Background: A large Indian general insurer with a dominant portfolio in motor insurance plans to pilot an agentic AI system which is designed to autonomously perform three critical functions:

- Underwriting motor policies using real-time telematics data, customer social media behavior, and historical insurance data.
- Automating claims assessment and approvals, including image-based damage assessment and triggering repair network coordination.
- Fraud detection using behavioral trends, geolocation anomalies, and cross-referencing with third-party databases.

Considerations while evaluating the proposal for a Board-level strategic presentation:

1. Impact on pricing, claims reserving, portfolio monitoring and capital management.
2. Compliance to the extant regulatory framework
3. Risks the company might face and the measures it can take to mitigate them
4. Data privacy concerns with social media monitoring and behavioral surveillance
5. Audit mechanisms to ensure traceability and justification of decisions

Agenda

-  Case Study Overview
-  Agentic AI & Insurance
-  Impact on Core Actuarial Functions
-  Compliance to Regulatory Framework
-  Key Risks & Mitigation Controls
-  Data Privacy Concerns
-  Audit Mechanisms
-  Conclusion
-  Q&A

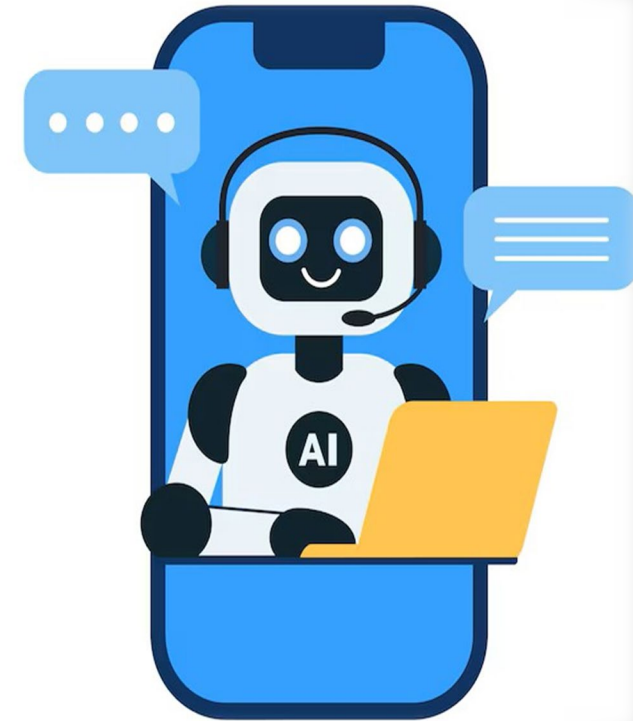
Agentic AI & Insurance

What is Agentic AI?

- Agentic AI refers to artificial intelligence systems that can act autonomously toward defined goals, rather than simply responding to inputs or making predictions.
- These systems can plan, decide, and take actions on their own, within defined boundaries.

How are Insurers using it?

- Allianz has launched its first agentic AI solution in Australia to automate food spoilage claims and drastically cut processing times from days to hours.
- Lemonade's AI continuously refines its risk assessment models to dynamically adjust pricing and detect fraud during the application process.



Agenda

-  Case Study Overview
-  Agentic AI & Insurance
-  Impact on Core Actuarial Functions
-  Compliance to Regulatory Framework
-  Key Risks & Mitigation Controls
-  Data Privacy Concerns
-  Audit Mechanisms
-  Conclusion
-  Q&A

Impact on Actuarial Pricing

Autonomous underwriting by the Agentic AI will identify subtle risk patterns from additional data which may be difficult for humans

Risk Based Pricing

Driver and usage characteristics like driving habits, adherence to speed limits

Increased Pricing Accuracy

Reduced cross- subsidization by granular pricing

Personalised Premiums

Discounts based on driving score instead of NCB

Dynamic Pricing Model

AI based Underwriting enables quick responses to new features like ADAS

Integrated Pricing and Underwriting

Agentic AI unifies the intention and implementation of motor pricing

Impact on Actuarial Reserving

Improved Accuracy

- Initial claim estimate closer to the final amount
- Reduced risk of over or under reserving

Faster Claims Processing

- Shorter reporting and settlement lags
- Quicker adjustments to reserving assumptions

Enhanced Data-driven Insights

- Bottom-up approach to reserving can be taken
- Granular and more frequent reserving

Impact on Other Actuarial Functions

Portfolio Monitoring



- Continuous Risk Assessment
- Early warning signs
- Actionable insights
- Cross-referencing Third-party databases

Capital Management



- Frequent monitoring of Solvency and ALM position
- Improved Capital Allocation and Risk Management
- Optimized Reinsurance strategies
- Move towards Risk Based Capital

Agenda

-  Case Study Overview
-  Agentic AI & Insurance
-  Impact on Core Actuarial Functions
-  Compliance to Regulatory Framework
-  Key Risks & Mitigation Controls
-  Data Privacy Concerns
-  Audit Mechanisms
-  Conclusion
-  Q&A

Regulatory Compliance

Data Protection & Confidentiality

- Compliance with DPDP Act 2023: confidentiality, data minimisation, purpose limitation, consent
- CERT-In controls: logging, encryption, incident reporting, vendor risk checks

Product Governance (IRDAI)

- PMC approval required for any AI-driven product/pricing changes (Insurance Act, 1938)
- Sandbox rules apply for AI-led pilots

Policyholder Protection

- Protection of Policyholders' Interests Regulations (2017 / 2024): no unfair discrimination, equitable customer treatment
- APS 21: Data quality, fair premiums, policyholder-interest safeguards



Regulatory Compliance

As per IRDAI Master Circular on Corporate Governance (2024)

- AI fall under purview of under Audit Committee & RMC
- Internal Audit, Compliance & Actuarial must validate, challenge & monitor AI models
- Ensure ethical, transparent & fair UW/claims decisions

**Corporate
Governance & AI
Oversight**



IRDAI circulars (2022) allow telematics-based add-ons (PAYD, PHYD, Floater OD), enabling:

- Usage-/behaviour-based pricing
- Real-time model inputs
- Expansion of personalised and risk-based Motor OD products

**Telematics & AI
Underwriting
Enablement**



Agenda

-  Case Study Overview
-  Agentic AI & Insurance
-  Impact on Core Actuarial Functions
-  Compliance to Regulatory Framework
-  Key Risks & Mitigation Controls
-  Data Privacy Concerns
-  Audit Mechanisms
-  Conclusion
-  Q&A

Key Risks Involved

Model Risk and Concept Drift

Mispricing due to real world behavioral shift, image recognition error, proxy variables causing bias

Data Quality Risk

Telematics inconsistency, noisy data, incorrect third-party datasets

Operational Risk

Autonomous claim approval failing in edge cases, API/vendor outages

Regulatory & Legal Risk

DPDP consent & data-use breaches, IRDAI governance lapses, high scrutiny due to external data use

Ethical & Customer Trust risk

Perceived surveillance from telematics, Black-box decisions hurting transparency, Algorithmic bias concerns

Cybersecurity Risks

New attack surfaces from AI data pipelines

Mitigation & Controls

- Independent validation; regular drift monitoring; version control
- Avoid heavy reliance on proxy variables

Model Governance & Validation



- Clear auto-approval thresholds; escalations for exceptions and red flag cases

Human-in-Loop Control Design



- Explicit consent capture, data minimisation, compliant retention
- Encryption + strict access control

Data Governance & Privacy



- Bias testing; Use of explainability tools
- Review committees and PMC oversight

Ethical AI & Bias Mitigation



- Input pipeline checks; strong vendor SLAs
- Real-time monitoring & alerts

Operational Controls



- Regular independent audits

Auditability



- API/endpoint hardening; vulnerability tests
- CERT-In aligned incident response

Cybersecurity



Agenda

-  Case Study Overview
-  Agentic AI & Insurance
-  Impact on Core Actuarial Functions
-  Compliance to Regulatory Framework
-  Key Risks & Mitigation Controls
-  Data Privacy Concerns
-  Audit Mechanisms
-  Conclusion
-  Q&A

Data Privacy Concerns



Extensive Data Collection & Surveillance

Agentic AI collects detailed personal and behavioral data, raising concerns about pervasive surveillance and privacy erosion



Lack of Transparency & Consent

Policyholders often lack clear information and meaningful control over how their data is used in AI decisions



Potential for Bias & Discrimination

Biased data or models can lead to unfair premium pricing or claim denials based on social media behavior

Data Privacy Concerns



Data Security Risks

Large volumes of sensitive data increase vulnerability to breaches and cyberattacks



Regulatory Challenges & Compliance

Strict consent, confidentiality, and data security requirements under India's DPDP Act and IRDAI guidelines must be met



Ethical Implications

Ensuring fairness and accountability is critical to prevent misuse and protect vulnerable groups

Agenda

-  Case Study Overview
-  Agentic AI & Insurance
-  Impact on Core Actuarial Functions
-  Compliance to Regulatory Framework
-  Key Risks & Mitigation Controls
-  Data Privacy Concerns
-  Audit Mechanisms
-  Conclusion
-  Q&A

Audit Mechanisms



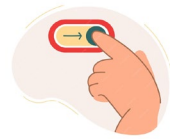
Data Quality & Bias Monitoring

Regularly check training data for bias and explain its impact on AI decisions to ensure fairness and accuracy



Continuous Deviation Monitoring

Track and investigate unusual u/w and claims patterns through ongoing oversight and spot checks



Thresholds & Manual Overrides

Set limits requiring human review, log all manual interventions with rationale, and maintain clear escalation protocols



Data Comparison & Validation

Compare AI model data with actual client data to validate assumptions and maintain model relevance



Actuarial Technique Audits

Periodically review AI-embedded actuarial methods for compliance and continuous improvements

Audit Mechanisms



Explainability & Interpretability

Use Explainable AI tools to provide transparent, human-understandable decision rationales



Comprehensive Logging & Immutable Audit Trails

Maintain secure, tamper-proof logs of AI inputs, outputs, model versions, and human actions



Regulatory Compliance & Reporting

Automate compliance reporting aligned with IRDAI and data protection laws to support governance



Internal & External Audits

Engage external auditors periodically to validate audit framework robustness and objectivity

Agenda

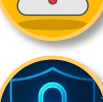
-  Case Study Overview
-  Agentic AI & Insurance
-  Impact on Core Actuarial Functions
-  Compliance to Regulatory Framework
-  Key Risks & Mitigation Controls
-  Data Privacy Concerns
-  Audit Mechanisms
-  Conclusion
-  Q&A

Conclusion

- ➔ Consider leveraging agentic AI to enhance underwriting, claims, and fraud detection through real-time, data-driven insights
- ➔ Engage proactively with IRDAI's regulatory sandbox and evolving data privacy frameworks to ensure compliance and build customer trust
- ➔ Establish robust governance frameworks and maintain human oversight to effectively manage ethical, operational, and technological risks
- ➔ Explore AI-driven insights to develop personalized products, accelerate claims processing, and strengthen fraud detection capabilities
- ➔ Strategically invest in talent and technology despite high pilot costs to gain competitive advantage and long-term value

Together, we are driving a smarter, more agile, and responsible insurance future

Agenda

-  Case Study Overview
-  Agentic AI & Insurance
-  Impact on Core Actuarial Functions
-  Compliance to Regulatory Framework
-  Key Risks & Mitigation Controls
-  Data Privacy Concerns
-  Audit Mechanisms
-  Conclusion
-  Q&A

Any Questions?



THANK YOU!