

AI Governance in Behaviour-Based Insurance: A Privacy Perspective

Anastasia Bruce | MSc Digital Transformation, University of Hull

Abstract

Behaviour-based insurance uses real-time data, particularly driving habits gathered through telematics and mobile applications, to personalise premiums. This shift from broad demographic pricing to granular, continuous monitoring introduces significant privacy and governance challenges. This research examines those privacy implications and explores how insurers can implement governance mechanisms that support responsible data use.

Research Questions

1. What are the main privacy challenges in behaviour-based insurance data collection?
2. How do current risk management frameworks address these challenges?
3. How can AI governance strategies enhance privacy protection in this context?

Approach

The study used a qualitative, document-based methodology. It drew on academic literature, regulatory documents such as GDPR and NAIC guidance, and industry reports from organisations including Swiss Re and McKinsey. Sources were identified through a systematic search process, ranked for relevance, and analysed thematically to surface recurring patterns across the literature.

Key Findings

The research identified six central themes. Continuous monitoring can undermine policyholder autonomy even as it enables personalisation. Privacy risks extend beyond data security into decisional autonomy, particularly through subtle algorithmic influence known as hypernudging. Algorithmic personalisation can also reinforce fairness and discrimination concerns, especially for individuals with limited flexibility to adjust their behaviour. AI models often function as opaque systems, creating a persistent tension between predictive accuracy and explainability. Traditional risk management frameworks were found to be poorly matched to the scale and speed of behaviour-based data flows. Finally, governance solutions such as oversight committees, algorithmic registries, and hybrid human and AI decision models show promise but remain inconsistently implemented across the industry.

Contribution

This research proposes that privacy protection in AI-enabled insurance requires governance built into system design from the outset, rather than addressed after deployment. It offers practical

recommendations for insurers, regulators, researchers, and civil society, and lays the analytical foundation for the doctoral research that follows.