

THE INFLUENCE OF AI-DRIVEN GOVERNANCE MODELS FOR REGULATORY COMPLIANCE IN DIGITAL ENTERPRISES

Abstract

The rapid growth of digital business environments along with increasing regulatory scrutiny in sectors such as finance, healthcare and cloud services has led many enterprises to adopt artificial intelligence as a practical way to strengthen governance and compliance. Traditional compliance methods, which often depend on periodic sample-based audits and manual control testing are no longer sufficient to keep up with the speed and complexity of today regulatory demands. As a result, AI technologies such as machine learning, predictive analytics and automation are increasingly being incorporated into governance frameworks to help address these limitations. This ongoing study examines how AI-driven governance models affect regulatory compliance effectiveness in digital enterprises. It focuses on governance mechanisms such as automated control testing, risk scoring and continuous monitoring. It evaluates how these mechanisms influence compliance performance within established frameworks, including ISO/IEC 42001 and NIST AI RMF. The study uses a mixed-methods design, combining a systematic literature review with multiple case studies and expert interviews from the finance, healthcare and cloud services sectors. Data collection, coding and cross-source triangulation are still in progress and will continue to be refined as the study develops. Preliminary findings suggest that AI-driven governance, when aligned with established IT governance frameworks such as COBIT and ISO/IEC 27001, can improve transparency, auditability, real-time monitoring, risk mitigation and responsiveness to regulatory changes. At the same time, this approach also raises ethical and operational concerns, including algorithmic bias, accountability gaps and explainability issues. These early findings will be further examined and validated through the ongoing case studies and expert interviews. The expected contribution of this work is to strengthen the theoretical understanding of AI governance in compliance contexts and to provide practical guidance for digital enterprises and policymakers seeking resilient and adaptive compliance systems in a dynamic regulatory environment.