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great by
deeds, not by
birth"
-Chanakya

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**Autonomous Intelligence in Public Procurement: A Multi-Agent Framework
for Anti-Corruption Governance and Dynamic Regulatory Compliance**

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Autonomous Intelligence in Public Procurement: A Multi-Agent Framework for Anti-Corruption Governance and Dynamic Regulatory Compliance

Abstract:

The digital transformation of public procurement is transitioning from traditional automation to autonomous orchestration, driven by the maturation of Generative Artificial Intelligence (GenAI) and Multi-Agent Systems (MAS). Government projects, characterized by stringent regulatory compliance, high fiscal accountability, endemic corruption risks, and volatile regulatory landscapes, face persistent challenges in contract leakage, manual oversight bottlenecks, favoritism in supplier selection, and reactive Supplier Relationship Management (SRM). This research proposes a novel framework—the Federated Agentic Governance Architecture (FAGA)—utilizing specialized AI agents designed to autonomously manage the end-to-end lifecycle of government contracts while embedding anti-corruption mechanisms and adaptive regulatory compliance.

The core theoretical contribution introduces the Institutional Friction Model (IFM), which conceptualizes corruption and inefficiency as friction points within procurement workflows that autonomous agents can identify, quantify, and mitigate. We further advance Regulatory Plasticity Theory (RPT), explaining how GenAI agents can dynamically adapt to changing legal frameworks without human intervention. The framework incorporates three specialized agents: The Contract Management Agent for real-time compliance monitoring, the Strategic SRM Agent for supplier intelligence and risk prediction, and the novel Integrity Guardian Agent specifically engineered to detect favoritism, collusion, and corrupt practices through behavioral pattern analysis and network anomaly detection.

Design-science simulation which we plan to develop across defense, healthcare infrastructure, and digital services sectors may demonstrate that the deployment of autonomous agents can reduce contract processing cycles time, improve supplier performance transparency, and detect corruption risks with accuracy. This research argues that GenAI-driven multi-agent systems represent the next frontier of “Smart Governance,” providing the scalability, precision, and strategic foresight necessary to manage the complexities of 21st-century public procurement while addressing its most entrenched governance challenges.

Keywords: Generative AI, Multi-Agent Systems, Public Procurement, Automated Contract Management, Supplier Relationship Management, Smart Governance, Anti-Corruption, Regulatory Compliance, Institutional Friction, Algorithmic Governance



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