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Advancing U.S. Competitiveness Through Governance Tools and Trustworthy Frameworks for Autonomous GenAI Agentic Systems

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Abstract: *This paper provides a comprehensive analysis of governance for agentic generative AI, examining tools, platforms, and methodologies for ensuring ethical, transparent, and accountable autonomous operations. We analyze specialized monitoring platforms, compliance automation tools, and risk assessment frameworks that enable measurable governance of autonomous operations across government and enterprise environments. We survey governance solutions including Credo AI's frameworks for multi-agent systems, IBM's compliance accelerators, and specialized observability platforms, while discussing their application to autonomous decision-making environments. This paper conducts a systematic analysis of emerging architectural frameworks designed to ensure the trustworthy operation of these autonomous systems. We examine layered governance stacks, hub-and-spoke fairness toolkits, and service-oriented observability platforms that collectively address critical requirements including real-time monitoring of sequential decision-making, dynamic risk assessment for emergent behaviors, and policy-to-code enforcement in regulated environments. Our evaluation reveals that effective agentic AI governance necessitates integrated systems capable of managing compositional risks across multiple abstraction levels—from individual action validation to system-wide safety guarantees. The analysis further demonstrates how specialized components for multi-agent coordination protocols, model trust scoring, and compliance automation form essential mechanisms for maintaining alignment between autonomous operations and human values.*

Keywords: Agentic AI, Generative AI Governance, Autonomous Systems, Multi-Agent Systems, AI Safety, Responsible AI, AI Compliance

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