

Balancing the Real with the Artificial: AI Integration in Complex, Compliant Environments

Extended Abstract

EMS 2026: Bright Ideas, Lasting Impact

Problem Addressed, Aims, and Research Questions

Organizations across industries are investing heavily in generative AI, yet the vast majority of pilot projects never reach sustained, enterprise-wide use. The MIT Project NANDA report identifies this pattern as the *GenAI Divide*: a widening gap between companies that experiment with AI tools and those that successfully embed them into core operations (Challapally et al., 2025). Market-level surveys reveal that while individual productivity tools such as ChatGPT and Copilot see rapid informal adoption, broader integration efforts stall due to workflow friction, poor contextual fit, and misalignment with existing governance structures. Meanwhile, a parallel *Shadow AI* economy flourishes as employees adopt unsanctioned tools to fill the gaps left by stalled official programs.

These cross-sectional reports provide a valuable landscape view, but they cannot explain *how* integration unfolds within a specific organization or reveal the mechanisms by which control structures, governance practices, and daily work routines accelerate or impede the transition from pilot to production. This gap is especially acute in legacy, high-compliance organizations, where inherited systems, regulatory obligations, and deeply rooted processes make it impossible to design AI-native workflows from scratch.

This study aims to develop a grounded, process-oriented theory of AI integration by examining how one such organization builds and adapts its managerial control structures around AI. Two research questions guide the inquiry:

RQ1. How do AI integration efforts evolve from pilot to sustained use?

RQ2. Through what processes do governance practices and policy adoption emerge in daily work, and how do these practices influence adoption, scale, and control failures over time?

Justification and Importance

This research addresses a recognized gap in the engaged management scholarship literature. While existing studies catalog success factors for AI adoption and offer high-level design principles (Yu et al., 2022; Herrmann & Pfeiffer, 2023), few provide longitudinal, within-firm accounts of how control structures, governance routines, and everyday work practices change as organizations move from experimentation to sustained AI use. For scholars-practitioners, this gap limits the ability to translate research into actionable guidance. For executives in regulated industries, the absence of process-level insight leaves them without a practical roadmap for navigating the tension between innovation pressure and compliance obligations. This study is designed to bridge that gap by producing both a transferable theory and concrete tools, including an integration framework, a governance playbook, and a decision-support model, that leaders can adapt to their own contexts.

Theoretical Basis

The study is grounded in *sociotechnical systems theory*, which views organizations as interdependent social and technical subsystems and emphasizes joint optimization, semi-

autonomous team design, and boundary management (Cooper & Foster, 1971; Fox, 1995; van Eijnatten, 1990). This foundation is extended by recent sociotechnical research on AI, including frameworks for sociotechnical envelopment (Asatiani et al., 2021), organization-in-the-loop practices (Herrmann & Pfeiffer, 2023), and value-sensitive design of AI-enabled systems (Kudina & van de Poel, 2024). The study also draws on Simons's (1995) levers of control, the Cynefin complexity framework (Snowden & Boone, 2007), and systems analysis methodology (Gibson et al., 2007; Meadows, 2008; Sterman, 2000) to frame AI integration as a dynamic, feedback-rich design challenge rather than a linear implementation project. These theories serve as sensitizing lenses that direct attention to governance, roles, feedback loops, and learning practices without predetermining what the data must show.

Research Design

The study employs *insider action research* within a legacy, high-compliance organization (Axiologic Solutions) where the researcher holds an ownership role. Action research is well-suited to studying unfolding change, as it structures inquiry around iterative plan-act-observe-reflect cycles that generate both organizational improvement and transferable knowledge (Coghlan & Brannick, 2005; Reason & Bradbury, 2008; Eden & Huxham, 1996). The design follows a multi-cycle model in which early diagnostic cycles inform later co-creation and validation phases, building toward implementable governance artifacts (Salvatore, 2024). Constructivist grounded theory (Charmaz, 2014) guides data analysis through constant comparison, open and focused coding, and memoing to construct categories directly from participant experience.

Systems analysis provides a complementary scaffold: each integration episode is documented through objectives trees, performance metrics (with baselines and targets),

assumptions logs, and learning briefs that trace decisions from goals through actions to outcomes. These artifacts serve as shared workspaces for technical, operational, and governance teams and provide a traceable evidence trail for theory building.

Insider positioning enables access to routine meetings, internal artifacts, and day-to-day decision-making work that external researchers rarely observe. The study address's role duality and power dynamics through voluntary participation protocols, neutral scheduling, anonymized transcripts, reflexive journaling, and participant validation of emergent themes (Coghlan, 2007; Holian & Coghlan, 2013; Kenefick & Kirrane, 2022).

Data Sample and Preliminary Results

The unit of analysis is the *AI integration episode*, defined as a bounded effort to embed AI into organizational operations. Initial episodes are situated within business development and internal governance workflows. Within-site sampling draws from executives, process owners, and staff spanning technical, platform, risk, and guardrail roles to avoid perspective bias. Data sources include semi-structured interviews, internal documents (system logs, audit reports, meeting minutes, support tickets), and researcher observations, supplemented by four core indices tracked across episodes: adoption rate, productivity, governance maturity (benchmarked against NIST AI RMF and ISO/IEC 42001), and trust (measured via psychological safety surveys and behavioral indicators).

As this is a work-in-progress study, formal data collection has not yet begun. However, the conceptual framework, research design, and initial diagnostic observations are complete. Early fieldwork is anticipated to commence in mid-2026, with initial cycle findings expected by late 2026.

Relevance and Practical Importance

This study offers three contributions aligned with engaged management scholarship. Conceptually, it treats AI integration as a systems engineering challenge at the organizational level, modeling how data, workflows, governance routines, and human roles connect and evolve through feedback loops, rather than treating AI tools as isolated artifacts. Practically, the research produces actionable deliverables: an integration framework that maps control-structure evolution; a governance playbook with role descriptions, checklists, and meeting rhythms; and a decision-support model that provides leaders with a consolidated view of goals, metrics, and decision points. Methodologically, the study demonstrates how insider action research and systems analysis can be combined to generate rigorous, transferable theory from practice in high-compliance settings.

For the EMS community specifically, this work responds to the conference theme of “Bright Ideas, Lasting Impact” by examining the conditions under which governance becomes a catalyst for innovation rather than a barrier, offering insights directly relevant to scholar-practitioners navigating AI adoption in their own organizations.

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