Understanding Scaled Implementation of Gen AI in Enterprise:
A T-O-E-Perspective

Lan Guan

Advisors: Mahima Hada and Nanda Kumar

About Her Dissertation

What drives large organizations to fully embrace and implement generative AI? What holds them back?

This is the central issue explored in Lan Guan's dissertation, where she investigates how enterprises decide to adopt generative AI (Gen AI) at scale. While business leaders are eager to harness the power of Gen AI, its novelty and complexity make wide-scale implementation a daunting challenge. Guan's research addresses a pressing need: understanding what technological, organizational, and environmental factors actually influence these high-stakes decisions.

To tackle this, Guan adapts the well-established Technology-Organization-Environment (T-O-E) framework, which is often used to study technology adoption. She applies it specifically to the emerging domain of Gen AI. Using a mixed-methods approach that combines both qualitative and quantitative research within real organizational settings, she identifies the factors that most strongly shape a company's intention to adopt Gen AI across its operations.

The study reveals five key factors that significantly impact enterprise decision-making: perceived risks, competence in technology, top management support, competitive (or mimetic) pressures, and concerns about deploying Gen AI in customer-facing applications. Interestingly, organizational "readiness," which is typically assumed to help adoption, had a *negative* effect in this context, suggesting that even prepared firms may hesitate due to the potentially disruptive nature of Gen AI. This unexpected finding underscores the unique challenges of adopting generative technologies, which can redefine workflows, raise ethical concerns, and introduce new vulnerabilities.

Guan's work offers timely insights for executives, tech strategists, and policymakers. It underscores that simply having the infrastructure in place is not enough. What matters more is how organizations perceive risk, how confident they are in their technological abilities, and whether leadership is visibly committed to change. The research also suggests that external pressures from competitors and market expectations can play a powerful role in accelerating adoption.

By extending the T-O-E model to focus exclusively on Gen AI, Guan provides a new lens for understanding how enterprises can navigate the rapidly evolving AI landscape. Her findings are particularly valuable for large organizations seeking to move beyond pilot projects and toward true, scaled transformation.