

Bridging the Gap Between AI Insights and Sustainable Procurement Decisions: A Decision Intelligence Framework for Automotive Supply Chains

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Abstract

The rapid adoption of Artificial Intelligence (AI), Enterprise Resource Planning (ERP) systems, predictive analytics, and digital procurement platforms has transformed procurement functions across industries. Despite these technological advancements, organizations continue to struggle in translating AI-generated insights into sustainable procurement decisions that balance cost efficiency, resilience, and environmental and social objectives (Ivanov & Dolgui, 2020). Existing research has predominantly examined technology adoption and procurement automation, while providing limited understanding of how digital insights are transformed into sustainability-oriented procurement actions.

This study addresses this gap by proposing a Decision Intelligence Framework for sustainable procurement in automotive supply chains. Drawing upon the Resource-Based View (Barney, 1991), Dynamic Capabilities Theory (Teece, 2007), and contemporary decision-making literature (Kahneman, Sibony, & Sunstein, 2021), the research examines the organizational capabilities required to convert digital procurement intelligence into strategic procurement outcomes. A quantitative research design was employed using data collected from 170 procurement and supply chain professionals across automotive manufacturers, suppliers, logistics providers, and technology organizations.

The findings reveal that technology investments alone are insufficient to achieve sustainable procurement transformation. Instead, successful outcomes emerge through the interaction of analytics maturity, governance mechanisms, supplier collaboration, sustainability orientation, and organizational decision intelligence. The study contributes to both theory and practice by identifying Decision Intelligence as the critical organizational capability that bridges the gap between AI-generated insights and sustainable procurement decisions, thereby supporting the development of resilient and sustainability-oriented automotive supply chains.

Keywords

Decision intelligence, sustainable procurement, AI-enabled procurement, supply chain resilience, dynamic capabilities, ESG integration, automotive industry.