

ARCHITECTING AI-DRIVEN TRANSACTIONAL SYSTEMS: A CASE STUDY OF SAP AI COPILOT

**Ravi Laudya¹, Sandhyarani Ganipaneni², Om Goel³, Rajas Paresh Kshirsagar⁴, Prof. (Dr) Punit Goel⁵ &
Prof.(Dr.) Arpit Jain⁶**

¹Indian Institute of Science, Bangalore, India

²Scholar, Jawaharlal Nehru Technological University, Hyderabad, Telangana, India

³ABES Engineering College Ghaziabad, India

⁴N.Y. University, Malad (W), Mumbai - 400064, Maharashtra, India

⁵Maharaja Agrasen Himalayan Garhwal University, Uttarakhand, India

⁶KL University, Vijaywada, Andhra Pradesh, India

ABSTRACT

This case study explores the architecture and implementation of AI-driven transactional systems using SAP AI CoPilot, focusing on its transformative impact on business operations. With the rapid adoption of artificial intelligence (AI) in enterprise landscapes, transactional systems are evolving to provide real-time insights, predictive capabilities, and enhanced decision-making. SAP AI CoPilot serves as a conversational AI platform integrated with core SAP modules, enabling seamless interactions between users and enterprise systems. This study delves into the architecture underpinning these AI-driven systems, addressing key components such as microservices, data pipelines, and API integrations.

The case study emphasizes the role of AI-powered automation in streamlining transactional processes such as order management, procurement, and financial reconciliation. By leveraging natural language processing (NLP) and machine learning (ML) models, SAP AI CoPilot enhances user experience by automating routine tasks and providing context-aware recommendations. The integration with existing ERP frameworks ensures data consistency and operational continuity across modules.

Moreover, this study highlights the architectural challenges associated with building scalable and secure transactional systems, including latency optimization, real-time data synchronization, and compliance with regulatory frameworks. It also discusses best practices for implementing AI-driven solutions, focusing on system reliability, data privacy, and governance.

Through a detailed examination of SAP AI CoPilot's architecture and capabilities, this case study provides actionable insights into how enterprises can leverage AI to drive operational efficiency and foster innovation. The findings underscore the potential of AI-driven transactional systems to redefine business processes and create sustainable competitive advantages.

KEYWORDS: *AI-Driven Transactional Systems, SAP AI CoPilot, Natural Language Processing (NLP), Machine Learning (ML), Enterprise Resource Planning (ERP), Microservices Architecture, Data Pipelines, Automation, Real-Time Insights, operational efficiency, AI-Powered Decision-Making, System Scalability, Data Governance, Digital Transformation.*

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