

AI-Driven Personalization in E-Commerce: Balancing Marketing Personalization with Operational Scalability

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Abstract: *Makes a meaningful contribution towards strengthening customer-centric services in the digital age. In the current digital age, e-commerce has completely transformed the definition of consumer behavior and business strategies. At the center of this transformation is the concept of Artificial Intelligence (AI)-based personalization, which provides consumers with customized experiences based on their behavior, preferences, and purchase history. This paper analyzes the complexities and possibilities of balancing AI-based marketing personalization and operational scalability in e-commerce. AI is being used in applications such as deep analysis of consumer data, product recommendation systems, dynamic pricing, personalized email marketing, and chatbots. Although these technologies increase customer satisfaction and brand loyalty, they also put a lot of pressure on operational systems. As the demand for personalized experiences grows, it becomes imperative to make supply chain, logistics, inventory management, and IT infrastructure equally flexible and scalable. In this research, we analysed various case studies, statistics and industry reports to understand how successful e-commerce companies use AI technologies to not only target customers but also maintain their operational capabilities. The research concluded that a sustainable and strategic balance between marketing personalisation and operational scalability is essential to ensure long-term growth, profitability and competitive advantage. This study may prove useful for policymakers, managers and technology experts who are considering incorporating AI into their e-commerce strategies..*

Keywords: digital age

