

Digital Transformation in Retail Banking: Cloud-Native Architectures and AI-Driven Customer Experience Enhancement

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Abstract: Digital transformation within retail banking represents a fundamental paradigm shift from traditional operational models to technology-driven service delivery frameworks. Contemporary banking institutions navigate complex transitions involving artificial intelligence-powered customer onboarding systems, cloud-native core banking architectures, and real-time fraud detection mechanisms. The evolution from legacy monolithic systems to modular, scalable infrastructures enables enhanced operational efficiency, improved customer experiences, and robust security protocols. Implementation challenges encompass technical integration complexities, regulatory compliance across multiple jurisdictions, data protection requirements, and organizational change management initiatives. Machine learning algorithms revolutionize fraud detection capabilities through behavioral analytics and device fingerprinting technologies, while microservices architectures facilitate the rapid deployment of innovative financial products. Strategic considerations include cost-benefit evaluations of transformation investments, workforce adaptation requirements, and competitive positioning advantages. The integration of optical character recognition, facial recognition systems, and behavioral biometrics establishes sophisticated identity verification protocols that surpass traditional manual processes. Cloud-native platforms demonstrate superior scalability characteristics, enabling dynamic resource allocation and seamless integration with emerging financial technology ecosystems. Digital onboarding transformation eliminates procedural friction while maintaining comprehensive regulatory compliance and security standards.

Keywords: Digital Transformation, Cloud-native Banking, Artificial Intelligence, Fraud Detection, Microservices Architecture



