

whitepaper

Core Banking System Modernization:

Adapting to the Fintech Revolution



Executive Summary

Modernizing core banking systems is imperative for financial institutions to adapt and thrive in a rapidly evolving digital landscape. This transformation replaces legacy systems with agile, scalable, and customer-centric platforms. By leveraging advanced technologies such as cloud computing, AI-driven analytics, and API integrations, banks can enhance operational efficiency, improve customer experiences, and enable faster product innovations. This executive summary highlights the strategic importance of modernizing core banking systems to ensure competitiveness, compliance, and sustainable growth for financial institutions in today's dynamic market.

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Introduction

The significance of Core Banking System Modernization (CBSM) has become ever more pronounced with the fintech revolution. Fintech companies have emerged as disruptors, offering innovative and customer-centric financial products and services that challenge traditional banking models.

Traditional banks are under tremendous pressure to adapt and compete with Fintech firms in this evolving landscape. Modernization of core banking systems is vital in enabling banks to meet these challenges and take advantage of the fintech revolution.

The objectives of this white paper are to explore the drivers behind the modernization of the core banking system, discuss the challenges faced by traditional banks, and highlight the benefits and opportunities of embracing fintech.

The index also reveals driving elements for core modernization and key expected features from the modern core, along with popular modern core banking systems, their offerings, and business realization.



How global banking systems are adapting to a new reality

Digitization and open banking

Global banking systems are undergoing a significant transformation. Traditional banks have fully embraced digitalization, with online and mobile banking becoming the primary channels for customer interactions. Fintech partnerships and collaboration have become apparent as banks leverage innovative technologies to enhance their services and improve efficiency with excellent user experiences, which is also cost-effective.

Open banking practices are revolutionizing banking systems by demanding enhanced interoperability (financial data from banks and non-banking financial institutions) and data-sharing capabilities to facilitate seamless integration with third-party providers.

Fintech and techfin disruption

Non-traditional competitors are challenging incumbent institutions, encouraging customers with a better user experience at a lower cost. These new competitors are a mix of fintech start-ups and “techfin” companies (Apple and Google). This increased competition is narrowing the financial services margins, turning new revenue opportunities away from established institutions. For example, Meta Pay (Facebook’s payment banking platform) and Amazon now offer student loans.

ESG and moral banking

Banks are gradually integrating ESG factors into their decision-making processes and are considering social responsibility and good governance practices. Customers’ loyalties are towards moral banking, which has strategies and policies to address environmental and social responsibilities. Some banks offer unique products that can round off the fractional amount of transactions and deposit this to the customer account, which can be used for tree plantation in the customer’s name for a sustainable future.



Operational resilience

Operational resilience is having a significant impact on the global banking system. Banks are increasingly focusing on ensuring the uninterrupted functioning of critical operations and the ability to withstand and recover from disruptions. This includes enhancing technology infrastructure, cybersecurity measures, and business continuity plans to mitigate risks and maintain the stability and reliability of banking services, ultimately strengthening trust and confidence in the system. With the modern core and technology innovations, operational resilience is improved, which is more critical than financial resilience as it stabilizes financial growth.

Platformification of banking

The platformification of banking is disrupting the global banking systems by challenging traditional banking models. So far, banking operations and services are product-based, and so are the legacy core systems. Now, the industry is looking forward to the platformification of banking, which will be tailor-made to meet today's and tomorrow's business needs. For example, digital platforms like PayPal and Square have expanded beyond their original offerings, now providing banking services like payments, loans, and savings accounts with seamless user experience.

Transformed use of data and AI

Banks are leveraging data analytics and Artificial Intelligence (AI) algorithms to gain deep insights into customer behaviors, personalize services, and make data-driven decisions. This enables tailored financial products, streamlined operations, risk mitigation, and enhanced customer experiences, ultimately creating a more efficient, innovative, and customer-centric banking landscape. For instance, AI-powered chatbots can provide tailored recommendations based on individual spending habits and financial goals, improving customer experience.



Empowering the future of banking: core digital themes

Modern core

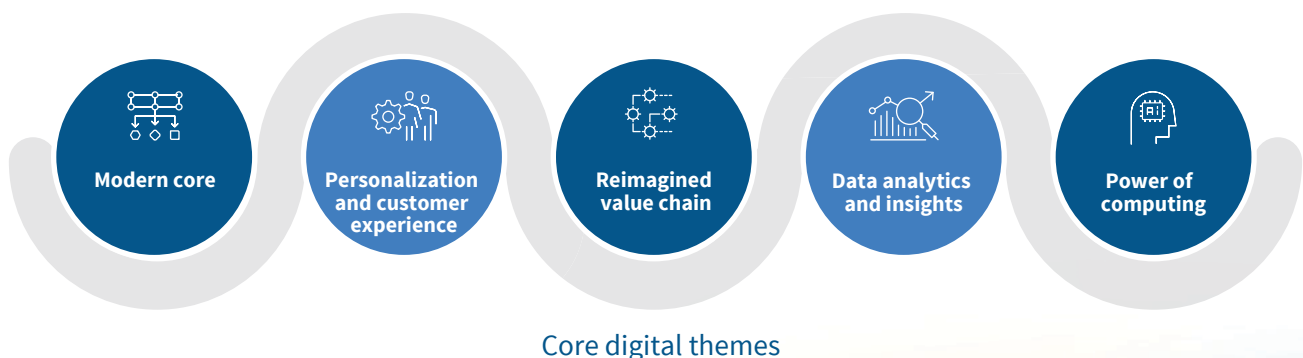
Banks are undergoing comprehensive digital transformations to enhance their operational efficiency, customer experience, and innovation capabilities. Modern core systems are thin, modular, composable, and resilient, which enables easy integration with external systems and quicker market launch of new product offerings.

Personalization and customer experience

Banks are striving to deliver highly personalized experiences to their customers. By leveraging data analytics, AI, and digital channels, banks can offer tailored product recommendations, personalized financial advice, and proactive alerts to meet individual customer needs and enhance their overall banking experience.

Reimagined value chain

To reimagine critical business value chains by leveraging emerging technology, banks are utilizing AI and ML technologies to improve customer service, enhance fraud detection and prevention, automate processes, and provide personalized recommendations. AI-powered chatbots and virtual assistants are becoming common in customer support, offering quick and customized assistance to customers. AI and ML technologies are being utilized by banks to improve customer service, enhance fraud detection and prevention, automate processes, and provide personalized recommendations. AI-powered chatbots and virtual assistants are becoming common in customer support, offering quick and personalized assistance to customers.



Data analytics and insights

Data analytics is helping banks gain valuable insights into customer behavior, preferences, and risk profiles. Advanced analytics techniques, such as predictive analytics and real-time data processing, drive personalized product recommendations, identification of cross-selling opportunities, effective management of risks, and fraud prevention activities.

For example, based on customers' transaction history and credit scoring, banks can campaign/offer specific services to the targeted customers. Some banks are even offering products like family banking by leveraging data analytics.

Harnessing the power of computing

Cloud computing is revolutionizing the core banking industry by providing scalable infrastructure, enabling rapid deployment of new banking services, and facilitating cost-effective operations. With this flexible and secure architecture, cloud computing allows banks to leverage advanced technologies, such as AI and big data analytics, to deliver personalized and innovative financial solutions to customers.

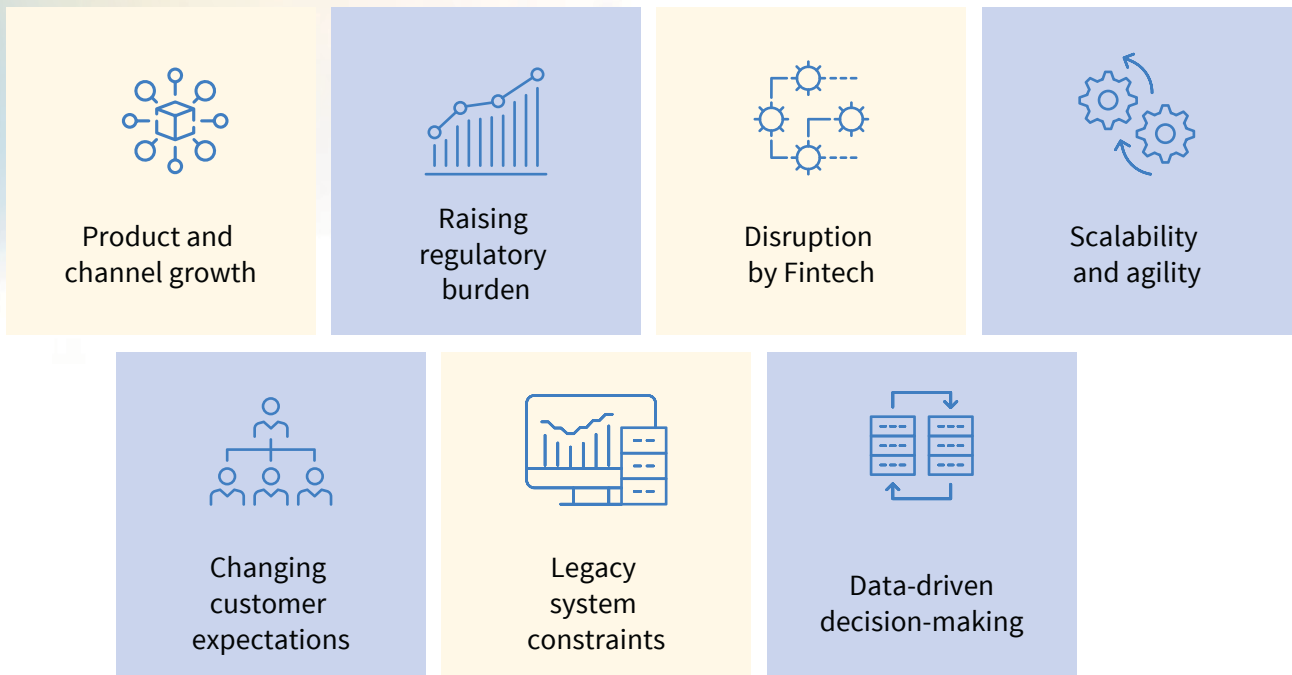
Factors influencing core modernization

Product and channel growth

Product and channel growth are driving the evolution of modern core banking systems by demanding flexible infrastructure that can support a wide range of products and services across multiple channels. These include online banking, mobile applications, and other digital platforms, enabling banks to effectively meet the changing needs and performances of their customers.

To cater to the ever-growing customer needs, the number of products and channel offerings is increasing exponentially, which amplifies the complexities, and handling the same with legacy systems has become cumbersome.





Factors influencing core modernization

Raising regulatory burden

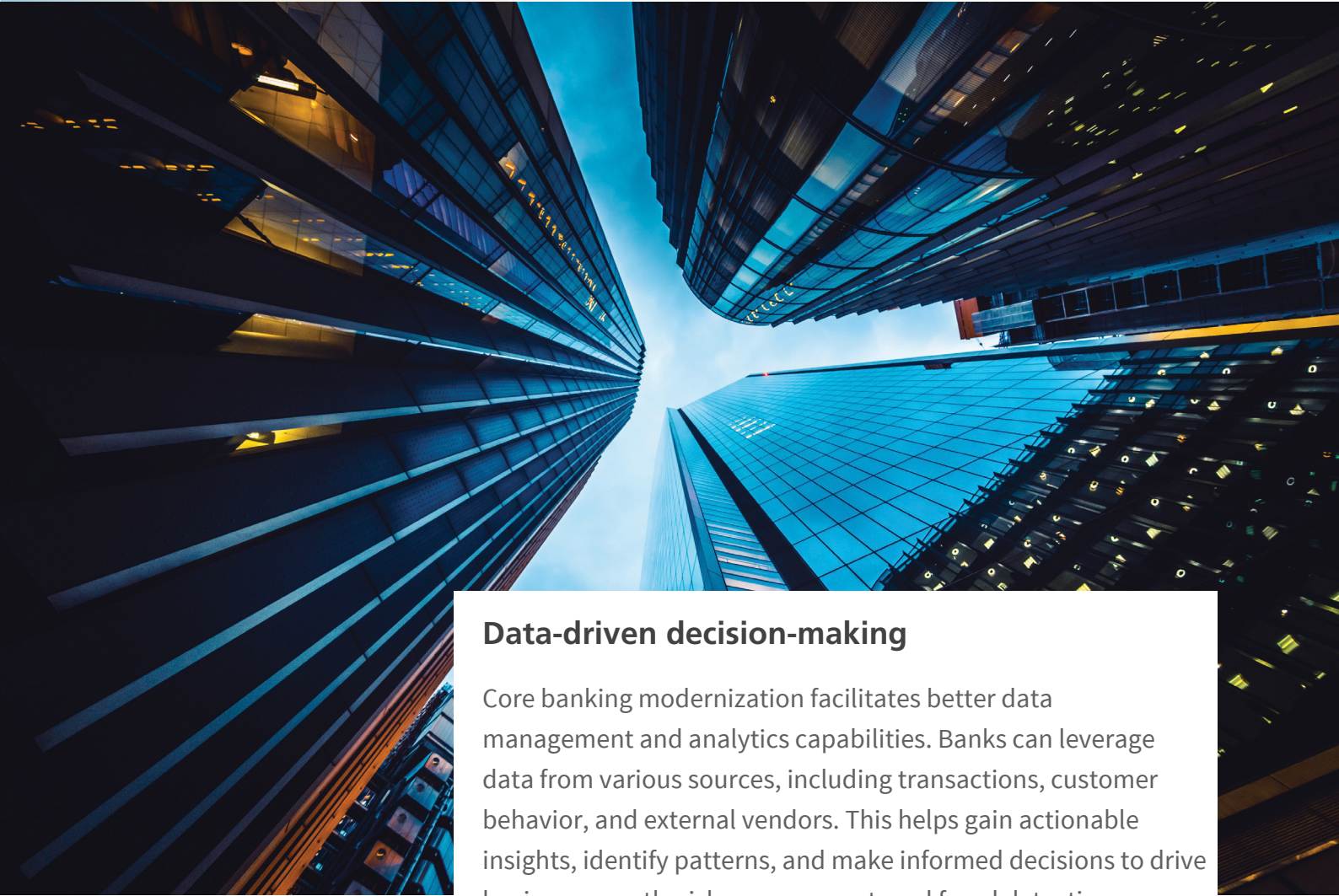
The regulatory landscape for banking institutions continues to evolve, with new compliance requirements and reporting standards being introduced. Core banking modernization helps banks adapt to regulatory changes more efficiently, ensuring compliance with Anti-Money Laundering (AML), Know Your Customer (KYC), data privacy, and other regulations.

Legacy system constraints

Many banks still operate on outdated legacy core banking systems that are inflexible, costly to maintain, and lack interoperability. A modernized core banking system, built on new technologies, enables flexible real-time processes and simplifies API for integration with third-party applications. It also helps address the limitations of legacy systems and enables banks to streamline operations, reduce costs, and improve integration with other systems and channels.

Disruption by Fintech

Fintech start-ups, challenger banks, and non-banking players are disrupting the traditional banking landscape. To stay competitive, banks must modernize their core banking systems to offer innovative products, services, and customer experiences that differentiate them in the market. Some of the key FinTechs in the banking and payment space are Thought Machine, Mambu, Episode 6 (EP6), Backbase, and iExceed.



Data-driven decision-making

Core banking modernization facilitates better data management and analytics capabilities. Banks can leverage data from various sources, including transactions, customer behavior, and external vendors. This helps gain actionable insights, identify patterns, and make informed decisions to drive business growth, risk management, and fraud detection.

Scalability and agility

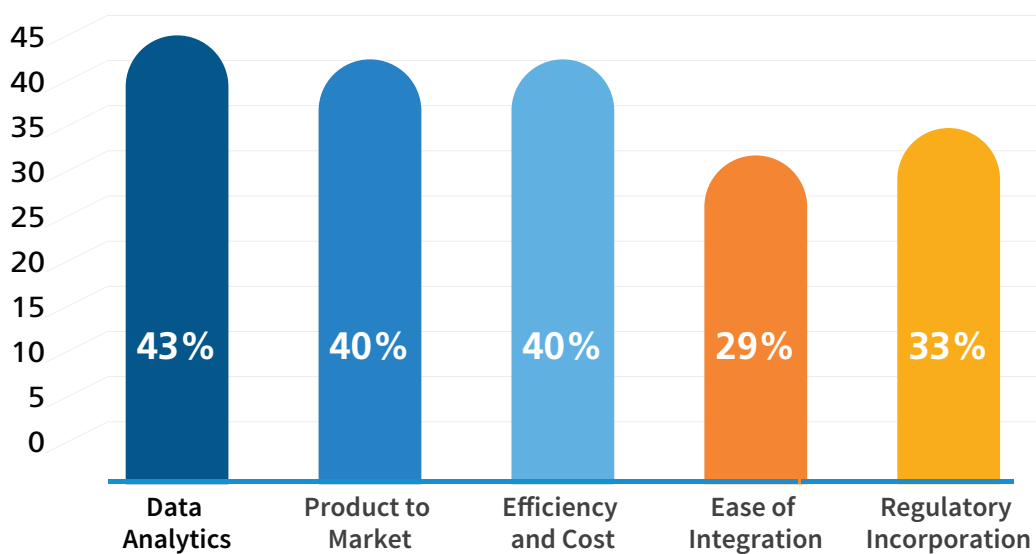
Traditional core banking systems often need help to handle increasing transaction volumes, accommodate new products and services, or adapt to changing business requirements. Modernizing core banking infrastructure enables banks to achieve greater scalability, flexibility, and agility to respond quickly to market demands and scale their operations efficiently.

These factors, among others, contribute to the motivation for core banking modernization to improve operational and financial efficiency, enhance customer experience, meet regulatory requirements, and stay competitive in the rapidly evolving banking industry.

Bank's dissatisfaction with current core system's capabilities

Product and channel growth

According to the market survey and various research published, banks are dissatisfied with existing monolithic and complex core banking systems in terms of the following factors:



Dissatisfaction factors with current core banking systems

Other dissatisfaction factors

- Unable to support complex products
- Limited integration with new platforms like data warehouse and CRM applications
- Minimal flexibility to improve development as per market needs
- Unable to accommodate new risk management frameworks
- Incapable of providing a customer 360-degree view
- Limitations in providing more efficient and effective delivery capabilities
- High customization capabilities increase system complexity

Key elements driving core modernization



Key driving elements for core modernization

Customer segment

Modern core banking systems can help divide a bank's customer base into distinct groups based on shared characteristics and behaviors. This enables the bank to understand its customers better, offer tailored products and services, and deliver personalized experiences. By leveraging customer segmentation, banks can enhance customer satisfaction, provide a better user experience, and optimize resource allocation for maximum efficiency and effectiveness.

Market and regularizations

New-age core banking systems are ready for deployment in any market with less effort/customization. They are also developing an inbuilt regularization process for various geographic and country-specific issues. Mambu is compliant with the Payment Card Industry Data Security Standard (PCI DSS), General Data Protection Regulation (GDPR), and Service Organization Control Type 2 (SOC 2).

Business products

During core modernization, banks access, revamp, and optimize their existing business products to align them with the digital age. This involves leveraging modern technologies and streaming processes, enhancing customer experiences, and introducing innovative features and functionalities to meet evolving customer needs and stay competitive. The goal is to transform and upgrade the bank's product offerings to align with the capabilities and requirements of modernized core systems.

Key expected features from new-age core banking products

Faster

Demonstrate remarkable **speed** and **agility** and can quickly process data in real time.

Lighter

Possess a **lightweight composable architecture**, optimizing resource utilization and delivering seamless performance.

Efficient

Epitomize efficiency, streamline processes, reduce costs, and enhance customer experiences with rapid transaction processing and banking operations.

Modular

Showcase modularity, allowing for easy integration of diverse modules and customization based on specific requirements.

Flexible

Exhibit flexibility, have **configurable workflows and API integrations**, adapt to evolving needs, accommodate diverse business models, and support seamless scalability.

Features of new age core banking systems



PAYMENT BILL / HISTORY



PROTECION PAYMENT



PAYMENT SYSTEM ACCESS

Some popular modern core banking systems and their offerings are 10 X SuperCore, Thought Machine-Vault, Finxact and Mambu.



Key offerings

- **Low maintenance cloud-native architecture:**
With cloud-native architecture, these systems offer Software-as-a-Service (SaaS)-based implementation, which improves resilience and cost-effectiveness while reducing maintenance needs.
- **Open APIs for easy integration:**
API-enabled new-age core systems are easy to integrate with third-party systems. For example, Thought Machine - Vault has core APIs for posting and streaming.
- **Architecture:**
Modern core banking systems leverage composable microservices-based architecture, which is easy to integrate with third-party systems.
- **Powerful parameterization:**
A set of fundamental components for financial products can be configured and re-configured.
- **Real-time transaction processing:**
These core banking systems use advanced technologies such as in-memory databases and event-driven architectures. These systems enable immediate and seamless processing of transactions, providing customers with online updates on their account balances and transaction history.
- **Quick go-to-market:**
New-age core banking systems empower banks to rapidly introduce new products and services in new markets and segments by providing flexible and modular architecture, streamlined integration capabilities, and efficient deployment processes.
- **Secure by design:**
New-age core systems are secure by design through a combination of robust encryption, multifactor authentication, strict access controls, continuous monitoring, and regular security updates to mitigate vulnerabilities and protect customer data. For example, Mambu complies with PCI DSS, GDPR, and SOC 2.

Business realization with modern core

Modern core banking systems offer numerous benefits and can lead to significant business realizations. Here are some key points to consider:



Time to revenue

New products/quick to market: To expedite time to market through the modernization of core banking systems, banks can consider leveraging preconfigured solutions and templates offered by modern systems, streamlining data migration and integration processes, implementing efficient training and change management programs, and developing a comprehensive go-to-market strategy aligned with the capabilities of a new system. These steps help banks to accelerate their implementation timelines and quickly launch new products and services to generate revenue.

Target market (customer segments): With the advancement of data analytics in new core banking systems, banks can discover new customer segmentation and offer tailor-made services to specific market targeting groups. By understanding the unique needs, preferences, and behaviors of different customer segments, banks can design personalized products, enhance customer experiences, and effectively target their marketing and communication strategies. The customer-centric approach fosters customer loyalty, attracts new customers, and drives revenue growth, ultimately maximizing the benefits of CBSM.



Banking experience

Composable banking: Facilitated by the modernization of core banking systems, it allows banks to create a modular architecture where various banking services and functions can be independently developed, deployed, and scaled. This approach enables faster innovation, easier integration with external partners and fintech providers, and the ability to adapt to changing market demands quickly. Composable banking empowers banks to offer a wide range of personalized services and drive business growth in a rapidly evolving financial landscape.

Blending of industries: New age core banking systems are providing advantages through the blending of industries by enabling seamless integration of financial services with other sectors. By leveraging open APIs and partnerships, these systems facilitate collaborations between banks and industries like retail, e-commerce, and fintech, allowing for innovative product offerings and enhanced customer experiences. The blending of industries also promotes financial inclusion by bringing banking services to underserved sectors, such as rural areas or emerging markets. Moreover, integrating data from different industries enables banks to gain valuable insights and develop personalized financial solutions tailored to specific customer needs.

Cost reductions

Running costs: While an initial investment is involved in implementing and migrating to a new system, modern core banking systems can lead to long-term cost savings. By streamlining operations, automating processes, reducing manual errors, and eliminating the need for multiple legacy systems, banks can achieve greater operational efficiency, reduce maintenance expenses, and scale their operations more effectively, resulting in overall cost optimization.

Change Cost: The costs associated with modernizing core banking systems can impact banks in the short term. These costs include system implementation, data migration, training, and change management expenses. However, the long-term benefits of modernization, such as improved operational efficiency, enhanced customer experience, and increased agility, can outweigh the initial change costs, leading to greater cost savings and improved profitability for the bank over time. Effective planning, budgeting, and execution of the change process can help mitigate the impact of change costs and maximize the overall return on investment.

Always on

High availability: Modern core banking systems are designed with high availability in mind, ensuring that banking services are always accessible and reliable for customers.

These systems employ network infrastructure and data centers to minimize downtime and maximize uptime. Additionally, they often feature advanced disaster recovery mechanisms, such as data replication and failover systems, to ensure seamless operations even during unforeseen disruptions. The high availability of modern core banking systems enables banks to provide uninterrupted services, maintain customer trust, and minimize potential revenue losses.

High reliability: Modern core banking systems prioritize high reliability to ensure consistent and error-free operations. These systems are built with robust architecture, data integrity checks, and advanced error-handling mechanisms to minimize the risk of system failures and data inconsistencies. By implementing backup systems, thorough testing processes, and cloud deployment capabilities, banks gain a reliable infrastructure for critical banking functions, reducing the likelihood of disruptions and ensuring the integrity and accuracy of financial transactions and customer data. The high reliability of these systems infuses confidence in customers, strengthens the bank's reputation, and fosters trust in the overall banking operations.



Core banking modernizing – Challenges and methods

CBSM involves upgrading or replacing existing banking systems to meet current technological standards, improve efficiency, and enhance customer experiences.

Challenges

Legacy Systems: Outdated technology and rigid legacy systems can hinder innovation and integration with modern solutions.

Data Migration: Transferring large volumes of data while ensuring accuracy, security, and minimal disruption is a complex task.

Regulatory Compliance: Adhering to changing regulatory requirements throughout the modernization process is critical.

Cost and Resources: CBSM projects often require significant investment, time, and skilled resources.

Risk Management: Minimizing operational risks and ensuring continuity during the transition phase is challenging.

These challenges and methods highlight the complexity involved in modernizing core banking systems and the strategic approaches required to navigate through them effectively.

Methods

Strategic Planning: Create a comprehensive roadmap outlining objectives, milestones, and resource allocation.

Technology Assessment: Evaluate existing systems, identify gaps, and select suitable modern technologies and platforms.

Agile Approach: Adopt an iterative development methodology to manage complexities and adapt to changing requirements.

Data Management: Prioritize data accuracy, quality, and security throughout the migration process.

Change Management: Engage stakeholders, provide training, and communicate effectively to ensure smooth adoption of the new system.

Compliance Integration: Ensure the new system complies with industry regulations and standards.

Testing and Quality Assurance: Rigorous testing at each stage to identify and resolve issues before deployment.

Post-Implementation Support: Provide ongoing support, maintenance, and continuous improvement after deployment.

Conclusion

Core banking modernization aims to update and enhance the underlying infrastructure and systems of financial institution's core banking operations. After considering the various aspects and implementation process, we can draw the following conclusion:

The core banking modernization is critical for financial institutions to stay competitive, improve operational efficiency, and meet customer's evolving needs and expectations in the digital age. It involves replacing outdated legacy systems with modern, flexible, and scalable solutions that enable faster transaction processing, seamless integrations with new channels and technologies, and enhanced data management and analytical capabilities.

By modernizing their core banking systems, financial institutions can streamline operations, reduce costs, and improve customer experiences by offering faster and more personalized services. It allows them to introduce innovative products and services, such as mobile banking, online account management, and real-time payments, which are essential to meet the demands of today's tech-savvy customers.

In conclusion, core banking modernization is a critical initiative for financial institutions to transform their operations, enhance customer experience, and drive growth in the digital era. While it presents challenges and requires significant investments, the benefits of improved efficiency, agility, and customer centricity make it a worthwhile endeavor for forward-thinking organizations.

References

¹ <https://www.mckinsey.com/industries/financial-services/our-insights/banking-matters/how-asset-managers-can-create-strategic-distance-with-technology>

ⁱⁱ <https://www2.deloitte.com/us/en/pages/consulting/articles/core-banking-digital-transformation-strategy.html>

ⁱⁱⁱ A Transformation Approach to Smarter Core Banking (ibm.com)

^{iv} <https://isg-one.com/articles/the-new-future-for-core-banking-a-short--medium--and-long-term-view>

⁵ <https://www.scribd.com/document/519436730/Thought-Machine-IDC-Whitepaper-Truly-Digital-Core-Banking#>

⁶ <https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/tech-forward/how-banks-can-use-seven-levers-to-modernize-their-core-systems>

⁷ <https://ibsintelligence.com/ibsi-news/3-challenges-faced-by-banks-in-modernizing-their-core-banking-systems/>

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About LTIMindtree

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