LTIMindtree

whitepaper

Adapting to the Fintech Revolution:

Embracing Progressive Core Banking System Modernization

Table of **Contents**

Embracing Progressive Core Banking System Modernization

The modernization of core banking systems is imperative to enhance banking infrastructure. This whitepaper explores the seamless implementation of cutting-edge technologies and various approaches that will elevate the efficiency and functionality of the modern core banking system.

Embracing a progressive core banking system modernization involves integrating advanced technologies to enhance operational efficiency, customer experience, and adaptability to evolving financial landscapes. It can streamline processes, improve data analytics, and provide a foundation for innovative financial services.

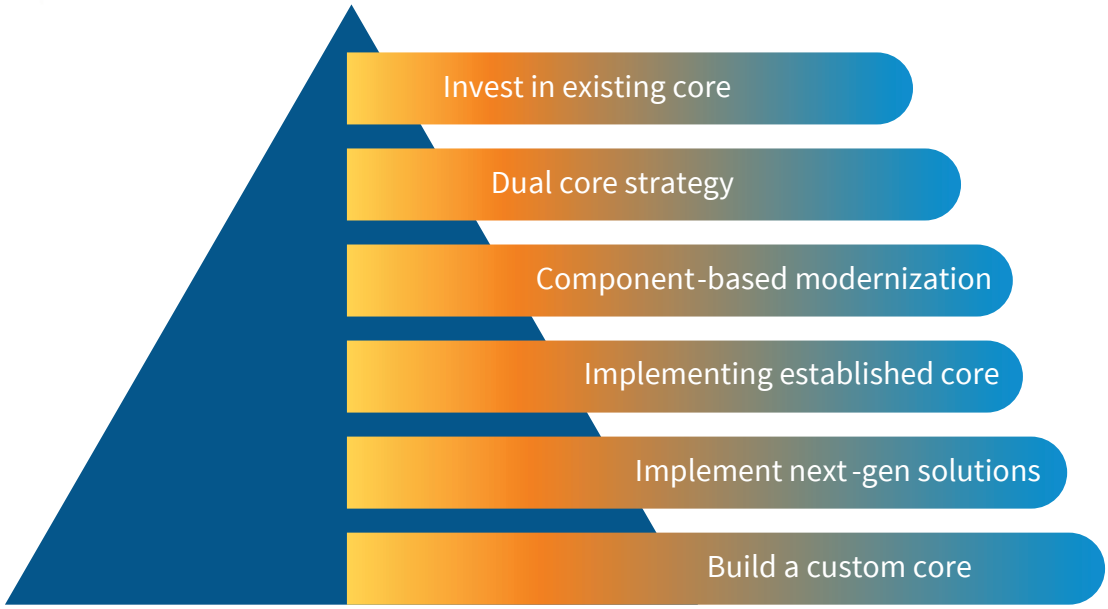
Core banking system modernization refers to the process of upgrading or replacing a bank's existing core banking software infrastructure with newer, more advanced technology.

This white paper, a continuation of the previous paper on Core Banking Modernization, discusses the core modernization approaches and key considerations that simplify core modernizing, implementation, and data migration approaches with high-level references.

It also includes the key learnings and attributes of digital core banking modernization.

Approaches for core modernization

Banks and financial institutions can consider multiple processes while implementing core banking modernization. Here are some common approaches:



Popular Approaches for core modernization

Invest in the existing core

Upgrading the existing Core Banking System (CBS) to a more advanced and efficient one without completely overhauling its existing IT infrastructure. By investing to upgrade existing CBS modules to newer versions and/or enhance the existing capabilities, Wells Fargo leverages the familiarity and integration with other systems while benefiting from enhanced features, improved performance, and better scalability with the power of CSC Hogan. This approach allows Wells Fargo to modernize its operation gradually and cost-effectively while minimizing disruption to ongoing business activities.

Dual-core strategy

The main objective of this strategy is to facilitate go-to-market of new products. The dual core involves a combination of the existing legacy system and modern components. Rather than completely replacing the legacy system, one can add new modules or functionalities to enhance specific areas. This approach allows for a more gradual transition and leverages the existing infrastructure and functionalities while incorporating modern capabilities. It can be a cost-effective and less disruptive approach. However, it may introduce complexities in integration and maintenance. These strategies are more useful for large enterprises like YES Bank and Absa bank.

Component-based modernization (shrink and wrap)

With this approach, we can replace or upgrade specific components or modules of the core banking system while leaving the rest of the system intact. It focuses on addressing specific pain points or enhancing specific functionalities. For example, it can hollow out the payment processing module or the customer onboarding module. This approach allows for targeted modernization efforts while minimizing the risks and costs associated with a complete system replacement.

This approach is also known as the “shrink and wrap” strategy, where we can retain and encapsulate the core with the existing services and, for new services, enable connecting third-party interfaces through Application Programming Interface (APIs). For example, HSBC and Citi Bank have followed the shrink-and-wrap strategy by thinning their existing core and integrating via APIs with third-party products from various FinTech.

Implementing established core

It involves adopting widely accepted and proven core technologies or methodologies within an organization. These established cores could include industry standards, best practices, or widely used platforms. In this approach, banks will undergo a transition to established core banking solutions and leverage the advantage of accumulated experience and modern technology. Like Nordea Bank Abp , Banque Internationale à Luxembourg , Komerchi Bank, and Al Rajhi Bank implementing Temenos model core banking.

Implement next-gen solutions

Cloud-based core banking systems are gaining popularity due to their scalability, flexibility, and cost-effectiveness. Cloud adoption involves migrating the core banking system to a cloud infrastructure, which offers benefits such as on-demand scalability, reduced infrastructure costs, improved accessibility, and enhanced security.

This approach allows banks to leverage the advantages of cloud technology while modernizing their core banking capabilities. Like TymeBank implemented Mambu , a next-generation core banking solution. This next-gen technology deploys cloud-native solutions with composable architecture offered by emerging solution providers.

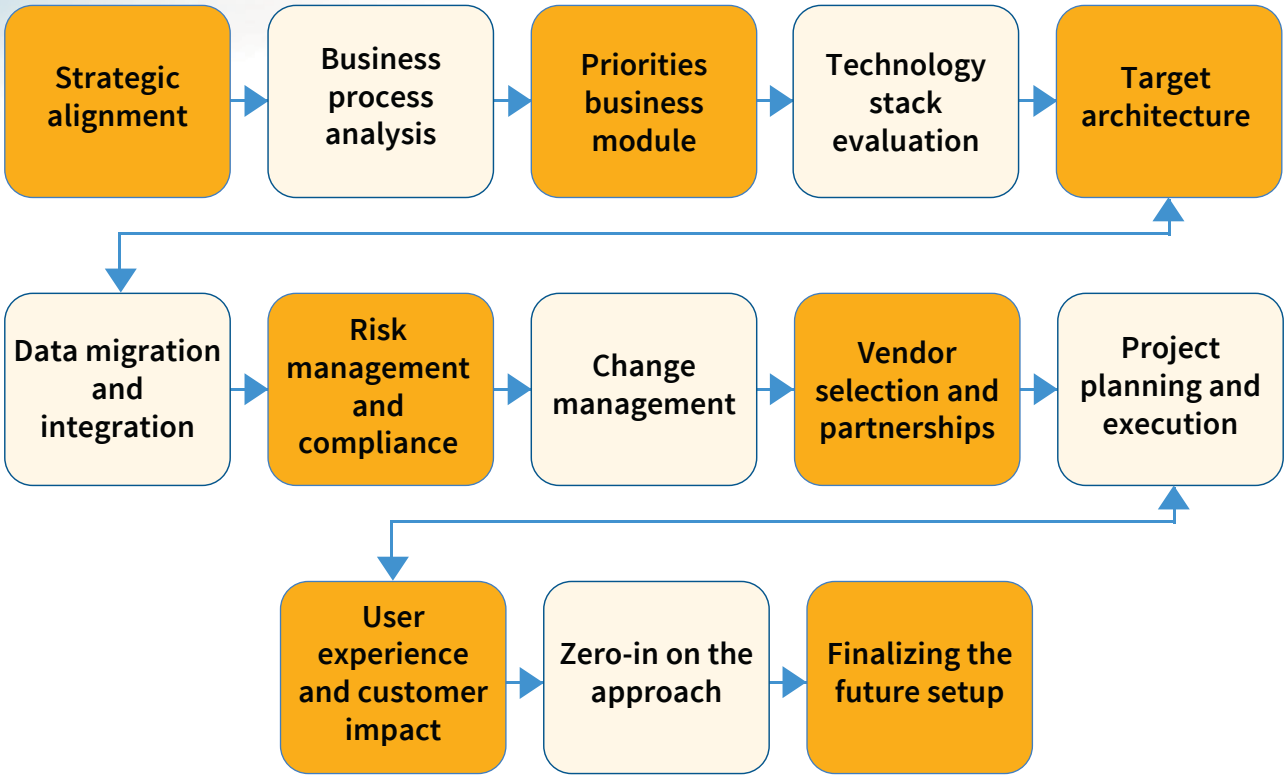
Build a custom core

Banks can also develop a completely custom-built core banking system. This approach required lot of efforts and time, which is more costly option. CapitalOne Bank opted for a custom-built cloud-native new core with microservices architecture, which re-architects on AWS, to save time, effort, and cost.

It is important to note that the selection of the approach depends on several factors, such as the bank's specific needs, existing infrastructure, budget, timeline, risk appetite, and overall strategic objectives.

A thorough assessment of these factors, along with a comprehensive understanding of the pros and cons of each approach, will help banks make an informed decision about the most suitable approach for their core banking modernization initiative.

Key considerations for modernization



Strategic alignment

Ensure that core banking modernization aligns with the organization's strategic objectives and long-term goals. Evaluate how the modernization initiative will support business growth, enhance customer experience, drive operational efficiency, and improve competitiveness in the market.

Business process analysis

Conduct a thorough analysis of existing business processes and workflows to identify pain points, bottlenecks, and areas for improvement. This analysis will help determine the specific requirements and functionalities needed from the modernized core banking system.

Priorities business module

Either more extensive business regions can be prioritized for modernization first, which can cover significant businesses, or lower-risk regions like African countries can be prioritized. Regulatory requirements are also essential and considerable during the modernization of core.

Technology stack evaluation

Evaluate the technology stack of the modernized core banking system. Consider factors such as scalability, security, integration capabilities, availability of APIs, support for emerging technologies, and compatibility with the existing IT landscape. Assess whether the chosen technology stack aligns with the organization's technology roadmap and future requirements.

Target architecture

The target architecture is a crucial factor to consider when modernizing core banking systems. It involves designing a future-proof and scalable framework that aligns with the organization's strategic goals and enables seamless integration of new technologies and services. A well-defined target architecture ensures agility, interoperability, and improved customer experiences while minimizing operational risks during the modernization process. Target architecture should be modular, integrated, hybrid, and country-specific.

Data migration and integration

Evaluate the complexity of data migration from the legacy system to the modernized core banking platform. Assess the availability and quality of data, data mapping requirements, and potential challenges in ensuring data integrity and accuracy during the migration process. Additionally, consider the integration requirements with other systems, such as Customer Relationship Management (CRM), payment gateways, and reporting tools.

Risk management and compliance

Evaluate the modernized core banking system's ability to address regulatory compliance requirements, risk management, and security. Consider features such as Anti Money Laundering (AML), Know Your Customer (KYC) compliance, fraud detection, data privacy, and security measures. Ensure that the system adheres to industry standards and regulatory guidelines.

Change management

Modernizing core banking systems involves significant changes in processes, roles, and responsibilities. Develop a robust change management strategy to address the organizational and cultural impacts of the modernization initiative—plan for training and support to ensure a smooth transition for employees and stakeholders.

Project planning and execution

Develop a comprehensive project plan with clear milestones, timelines, and resource allocation. Consider the phased approach, where the modernization can be executed in stages, ensuring minimal disruption to ongoing operations. Allocate sufficient human and financial resources for the project and establish effective project governance to monitor progress and manage risks.

User experience and customer impact

Consider the impact of core banking modernization on end-users, including customers, employees, and other stakeholders. Ensure that the modernized system provides an improved user experience with intuitive interfaces, simplified processes, and enhanced functionalities. Consider customer feedback and preferences to deliver a system that meets their needs and expectations.

Zero-in on an approach

Big bang approach

Involves a complete overhaul of the existing core banking system in one large-scale migration. It typically requires significant investment, time, and resources but offers a clean break from legacy systems and allows for a rapid transition to a modernized platform.

Phased migration

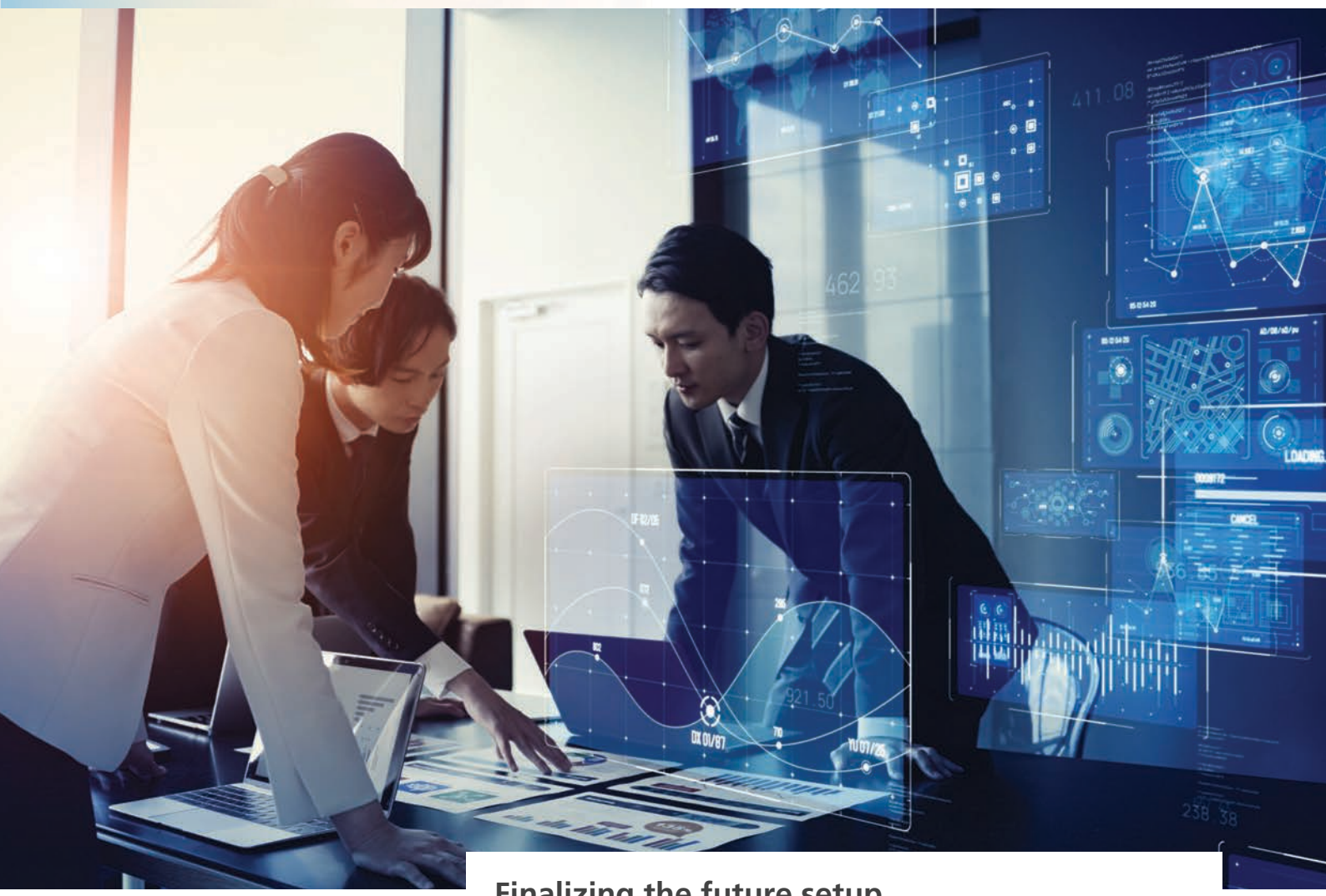
The modernization process is divided into phases or modules, each focusing on migrating specific functionalities or business lines to the new core banking system. This approach allows banks to manage the transition in manageable stages, reducing risk and disruption to operation.

Co-existence approach

The modernized core banking system coexists alongside the legacy system, operating in parallel. This approach provides a gradual transition, with the new system gradually taking on more functionalities and responsibilities over time. It reduces risk and allows for a smooth transition while ensuring ongoing operations and customer service.

Greenfield implementation

Greenfield implementation is followed for newly established banks where there is no existing customer base.



Finalizing the future setup

The next step is to finalize the deployment model. We need to finalize factors such as whether it will be on cloud or on-premises, multi-entity for approach or single entity, integration technology partners, and core structure.

By considering these key factors, banks and financial institutions can effectively plan and execute core banking modernization initiatives, resulting in improved operational efficiency, enhanced customer experience, regulatory compliance, and a strong foundation for future growth and innovation.

Core banking system modernization implementation approach

Project initiation and scope definition

The initial steps involved in initiating a core banking system modernization project, include identifying key stakeholders, defining the project scope, establishing goals and objectives, and creating a project team.

Requirements gathering and analysis

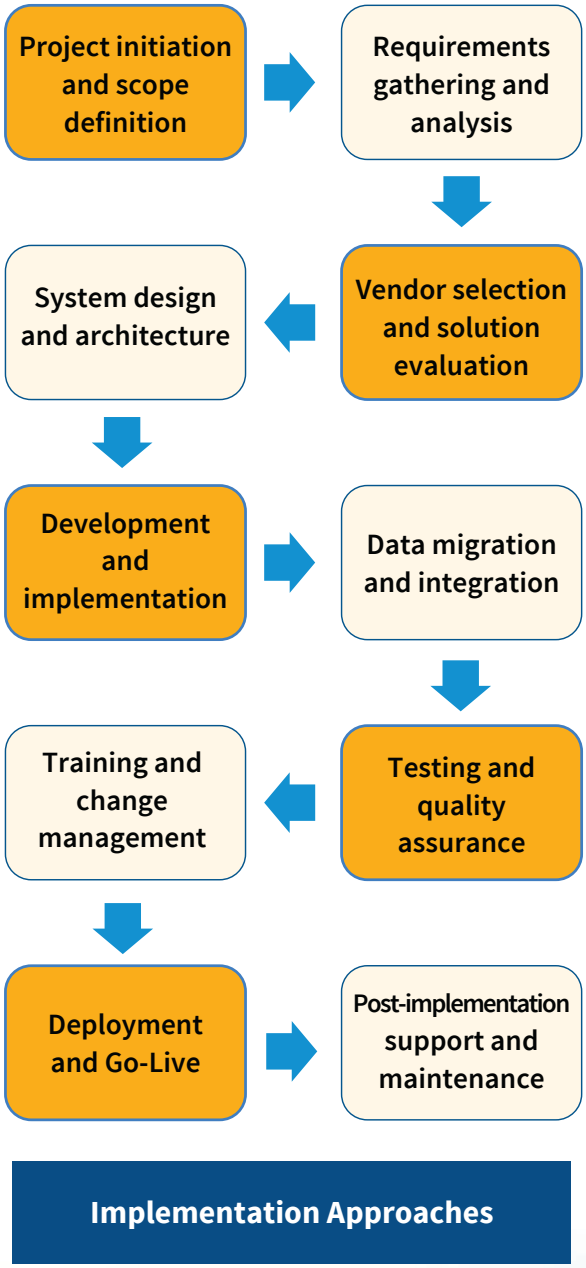
The crucial process of gathering and analyzing requirements, understanding current pain points, identifying desired functionalities, and mapping out future processes and workflows.

Vendor selection and solution evaluation

Selecting the right vendor or solution partner, considering factors such as technology expertise, scalability, integration capabilities, compliance with industry standards, and track record.

System design and architecture

The design and architecture phase, includes defining the target architecture, ensuring scalability and flexibility, and establishing integration frameworks to enable seamless interoperability.



Development and implementation

The development and implementation phase, including system customization, configuration, and coding, as well as project management methodologies and best practices for successful implementation.

Data migration and integration

Data migration is a critical process of the project: migration of data from legacy systems to the modernized core banking system, ensuring data integrity, and establishing secure integration with external systems and third-party services.

Testing and quality assurance

Thorough testing and quality assurance processes to ensure the stability, reliability, and security of the modernized core banking system, including functional testing, integration testing, performance testing, and security testing.

Training and change management

Training has a significant role in the modernization of the system. Identify, prepare for training, and change management strategies to ensure a smooth transition to the modernized core banking system, including user training, stakeholder engagement, and communication plans.

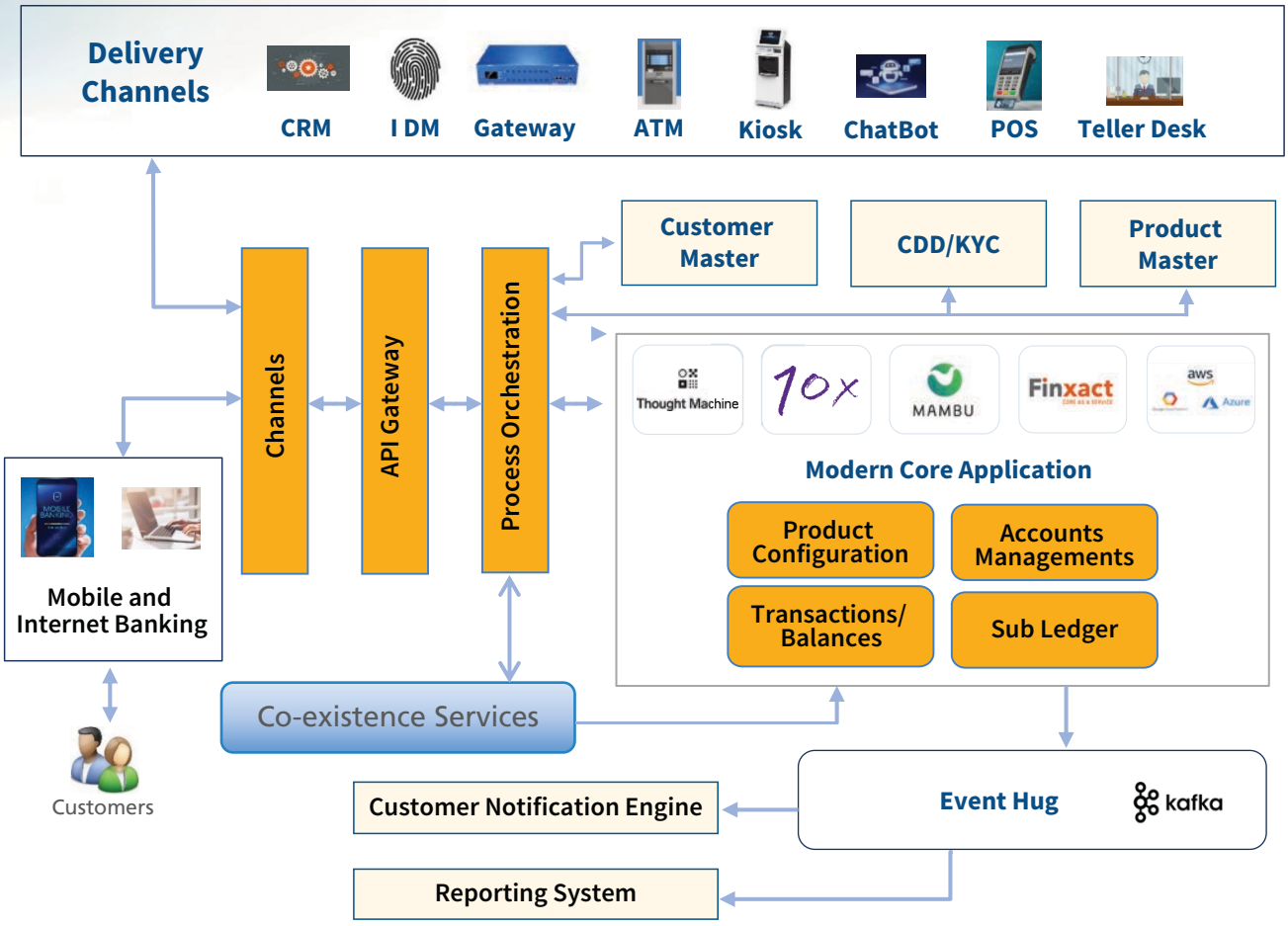
Deployment and go-live

The ultimate step involved in deploying the modernized core banking system includes system installation, configuration, and final testing. It also covers the planning and execution of the go-live process, ensuring minimal disruption to banking operations and customer experience.

Post-implementation support and maintenance

Plan for post-implementation support and maintenance activities to address any issues, provide ongoing system updates and enhancements, and ensure the long-term success and stability of the modernized core banking system.

High-level reference architecture



Typical core banking system architecture

Important architecture principles

- Cloud-enabled
- Banking Industry Architecture Network (BIAN) data model compliant
- Software-as-a-Service (SaaS)/Backend-as-a-Service (BaaS)
- Scalability, availability, and resiliency
- Out-of-box reuse over customization
- API-first
- Data platform
- 360-degrees customer view
- Stream real-time
- Multi-level secured communications
- Continuous integration and continuous deployment

Data migration approach

Data migration is a critical aspect of core banking modernization. Here is a general approach for data migration in the context of core banking modernization:

Market-specific data migration strategy

Analyse and understand the unique regulatory requirements, customer preferences, and data formats of the target markets, and then design a tailored approach to extract, transform, and load data from the existing systems to the new core banking platform while ensuring data integrity and compliance with local regulations. This strategy aims to minimize disruptions, maintain data accuracy and consistency, and enable a seamless transition to the new platform, supporting efficient and compliant banking services in the target market.

Tech stack selection for data migration

When selecting a tech stack for data migration, it is crucial to consider factors such as scalability, security, compatibility with existing systems, and data transformation capabilities. It is common to leverage a combination of technologies, such as Extract, Transform, and Load (ETL) tools, database management systems, cloud platforms, and data integration framework, to ensure efficient and accurate migration of large volumes of data while maintaining data integrity and minimizing downtime.

Data inventory and assessment

Conduct a thorough inventory of the existing data in the legacy core banking system. Categorize and prioritize data based on its importance, relevance, and usage in the new system. Perform a data quality assessment to identify any data inconsistencies, duplicates, or anomalies that need addressing during the migration process.

Data mapping and transformation

Analyze the data structures and formats of the legacy system and the target core banking system. Develop a data mapping strategy to determine how the data in the legacy system will be transformed and mapped to the new system's data model. Define rules and procedures for data transformation, including data cleansing, normalization, and standardization.

Data cleansing and enrichment

Cleanse the extracted data to remove any inconsistencies, duplicates, or errors. Perform data validation and enrichment to ensure data integrity and completeness. Resolve any data quality issues identified during the assessment phase.

Data transformation and loading

Transform the cleansed data into the required format and structure of the new core banking system. Map the data fields from the legacy system to the corresponding fields in the new system.

Develop data loading scripts or use data migration tools to load the transformed data into the new core banking system. Implement data validation checks during the loading process to ensure data accuracy and integrity.

Reconciliation and verification

Perform reconciliation activities to compare the data in the legacy system with the data loaded into the new core banking system. Validate the migrated data by conducting sample checks, data comparisons, and reconciliation reports. Address any discrepancies or data integrity issues identified during the reconciliation process.

Data archiving and retention

Develop a data archiving strategy for preserving historical data from the legacy system. Determine the data retention policies and regulatory requirements for archiving and purging data. Implement data archiving processes to transfer historical data to an appropriate archival storage system while ensuring data accessibility when needed.

Testing and validation

Develop a comprehensive testing plan to verify the functionality and accuracy of the migrated data. Perform data validation tests, integration tests, and end-to-end tests to ensure the new core banking system operates as expected with the migrated data. Address and resolve any issues or inconsistencies identified during testing.

Post-migration validation and support

Monitor the new core banking system and validate the accuracy and integrity of the migrated data post-migration. Provide support and assistance to users and stakeholders in accessing and utilizing the migrated data. Continuously monitor and address any data-related issues that may arise in the new system.

It is crucial to involve experienced data migration specialists and subject matter experts to ensure the success of the data migration process. Additionally, thorough testing, validation, and quality assurance measures should be implemented to minimize the risk of data loss or corruption during the migration.

Program delivery–key learnings from our experience

Big bangs are troublesome

Implementation happens in a single instance. Big bang projects have the potential to cost less and deliver in shorter time frames if all goes to plan, but they carry greater risk.

Incremental approach

Incremental and phase-wise implementation gives frequent benefits and early realization of implementation advantages. An incremental approach makes costs and program direction easier to control through course corrections and adjustments.

Co-existence is costly

This approach is time-consuming and may take a very long, which may result in forcing the new systems too need to undergo further changes. That means this approach is costly, time-consuming, and requires robust governance.

Adhere to the "adopt-not-adapt" model

After buying the new core banking system, some business practices need to be customized or built entirely, which are not available out-of-the-box. Avoidance of this cardinal principle makes the implementation expensive and induces delay in addition to increased cost of run-the-bank operations.

Decommissioning strategy

Functional migration of capabilities allows the decommissioning of applications and sometimes physical processes as well. Decommissioning unwanted processes/functionalities from the existing core is important.

Data migration	It is important to have a clear data migration strategy that clarifies what data is migrated and for what use case and not to migrate complete data from legacy to new.
Architectural change management and design authority	Technical architectural/design decision review and approval and ensuring Implementation is aligned with defined architecture and guidelines is a must.
Technology debt management	Risk-based technology debt elimination prioritization and maintenance of debt register. Define, adopt, and monitor core engineering practices and automate everything.

Conclusion

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

Moreover, the modernization process is not a one-time but an ongoing journey. Financial institutions need to continually adapt and upgrade their core banking systems to keep pace with emerging customer expectations. This required a culture of innovation and commitment to investing in technology and talent.

In conclusion, core banking modernization involves a phased approach to minimize disruptions. This involves several key aspects like successful system migration through testing and validations, user training, seamless integration with existing systems, ensuring regulatory compliance, and ongoing support to address any post-implementation issues. Regular evaluation and feedback loops are essential to refine the system for optimal performance and user satisfaction by providing the best services.

Appendix Attributes of digital core banking

Functional attribute

Attributes	Digital core description	Performance Impact
Account opening	Remote and secure with a simple process and user-friendly UI.	• Operations • User experience
Product development	Available Out-of-the-box or configurable or low code new product definition.	• Efficiency
On-demand analytics	Data is available in real time and generated on-demand and scalable.	• Risk • Compliance • Efficiency
Identity	Automated collection of customer data securely and use of personal identity information for personalizing customer experiences.	• Operations • User experience • Risk • Compliance
RegTech	Automated collection of customer data securely and use of personal identity information for personalizing customer experiences.	• Operations • User experience • Risk • Compliance
Connectivity	Easy to connect through API gateways with other financial institutions and access points using standard data definitions and protocols.	• Operations • Risk • Compliance • Efficiency
Intelligent configuration	Operational, process, and performance controls and settings to automate banking processes and predictive risk alerts.	• Operations • Risk • Compliance • Efficiency
Cost reduction	Scalable with banking business volumes and the lowest-cost processing platforms.	• Efficiency
Flexible licensing	Bank on-premises and external hosting and licensing options, including lifetime, annual subscription, and SaaS-enabled.	• Compliance • Efficiency

Technical attributes

Attributes	Digital core description	Performance Impact
Scalability	Ability to scale up or down according to business needs, even when unexpected rapid increase happens.	• User experience • Risk • Efficiency
Cloud-native	Advantages of native cloud-computing features and provide scalable and resilient.	• User experience • Change • Risk • Compliance • Efficiency
Persistent distributed database	Providing high-integrity data distribution and redundancy.	• Change • Risk • Compliance
Extensible data	Ability to extend data models using metadata, data maps, user-defined data, and data bridges between legacy and new digital data formats.	• Operations • Change • Risk
Notion	Build on layer hierarchy where each layer more easily builds upon the component capabilities of the layers below it.	• Operations • Risk • Efficiency
Platform agnostic	They can deploy on all popular cloud offerings, infra, OS, and Databases.	• Operations • Compliance • Efficiency
Multi-multi	Modern systems can provide services and run in multi-country, currency, and time zones, and all countries are easily consolidated for performance and financial reporting purposes at the enterprise level.	• Operations • Change • Risk • Compliance • Efficiency
Global 24x7x365	They are highly available and resilient products that can run anywhere at any time.	• Operations • User experience

Delivery/Change Attributes

Attributes	Digital core description	Performance Impact
Orchestration	Ace of orchestrating various business processes, automating and personalizing easily.	• Operations • Change • Efficiency
Repository lineage	Singular, managed repository of micro-services and assembled components such as APIs and gateways whose change is traceable and revokable, and controlled under release management.	• Change • Risk • Compliance
Open API	Use industry standards for exchanging information between services and functions in agreed-upon formats.	• Operations • User experience • Change • Efficiency
Microservices	Repository of all possible features at the micro level, which can be assembled and configured to create all banking products and processes precisely.	• User experience • Change • Efficiency
Low code	All products, processes, features, and banking operations can be developed and launched with no coding or simplified coding.	• User experience • Change • Risk • Efficiency
Agile	Small batches of change can, with rigor and certainty, be continuously created and productized as often as several times daily. New features are managed under environment, release, and repository control to ensure lineage.	• Operations • Change • Risk • Efficiency
Containerized	Development, databases, channels, and policies are consistently defined as robust platforms in containers that can be activated immediately to accelerate change.	• Change • Risk • Compliance • Efficiency
Responsive device agnostic design	Customers provided a choice of device with a digital core having a responsive design to operate similarly across all devices.	• User experience

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Dr. Mohan Kumar is an experienced delivery leader with over two decades of expertise in the IT industry, particularly in the Banking and Financial Services sector. He currently serves as a Senior Director and Delivery Partner for major accounts at LTIMindtree.

He has spearheaded multiple core banking transformation programs, showcasing his proficiency in driving strategic initiatives within the financial domain. Notably, Dr. Kumar played a pivotal role in establishing innovative greenfield cloud-native digital banks, demonstrating a keen understanding of modern technology trends and a strong partnership ecosystem. He holds a Ph.D. in Machine Learning and as a thought leader, contributes to shaping the future of technology within the BFSI industry.

About LTIMindtree

LTIMindtree is a global technology consulting and digital solutions company that enables enterprises across industries to reimagine business models, accelerate innovation, and maximize growth by harnessing digital technologies. As a digital transformation partner to more than 700 clients, LTIMindtree brings extensive domain and technology expertise to help drive superior competitive differentiation, customer experiences, and business outcomes in a converging world. Powered by 82,000+ talented and entrepreneurial professionals across more than 30 countries, LTIMindtree — a Larsen & Toubro Group company — combines the industry-acclaimed strengths of erstwhile Larsen and Toubro Infotech and Mindtree in solving the most complex business challenges and delivering transformation at scale. For more information, please visit **https://www.ltimindtree.com/.**