Legacy Modernization in Financial Services: Challenges, Approaches, and Strategies

Abstract

In today's competitive and fast-changing environment, adaptability and resilience are critical for financial institutions to survive and thrive. Traditional banks, however, operate with legacy applications that lack adaptability and resilience. In addition, banks also face challenges in maintenance and enhancements of legacy applications, which are further compounded by ever increasing competition from fintech and new entrants that offer better customer experience and newer channels and services at a lower fee. Furthermore, complex and frequent regulatory changes demand quicker turnaround time for compliance. Given the ongoing pandemic, financial institutions are under pressure to offer contactless banking services and enhanced digital channels. All of this underscores the urgent need for legacy modernization. Though banks want to migrate to new application architecture, they lack clarity on the strategy to be adopted (big bang or phased migration) and face difficulties in identifying the applications to be migrated and the sequence of migration. This white paper discusses the key factors that must be considered to arrive at the most appropriate strategy and suggests strategies that financial institutions can adopt.

Need for Legacy Modernization in Financial Services

Legacy applications are built using old design principles and technologies that lack the capability to meet today's need for adaptable and resilient applications. Implementing even a small change to the big and complex monolithic systems requires a lot of time and effort and is fraught with myriad risks. This results in longer time-to-market and often leads to loss of existing business and constrains banks from capitalizing on new opportunities. Constraints in extending digital offerings and channels or accessing new geographies, high maintenance costs, risks due to shrinking skills, non-availability of support, and inadequate security, operational inefficiencies, and poor customer experience are only a few of the challenges that banks operating with legacy infrastructure face. Lastly, legacy infrastructure often delays regulatory change implementation exposing banks to stringent regulatory scrutiny, financial penalties, and loss of reputation and brand image. The triggers for legacy modernization in banks could be singular or a combination of factors (see Figure 1). Legacy applications are generally not well-integrated and run in batch mode thus limiting real-time updates in turn causing rework for operations and resulting in wrong or sub-optimal decisions leading to financial and opportunity loss. In our view, the solution lies in adopting an agile, cloud-enabled application architecture, underpinned by micro-services and application programming interface (API) frameworks, and equipped with the capability to embrace artificial intelligence (AI) technologies.

- Customers satisfaction
- Demand for new products and services
- Enhancements in existing products and services
- Time-to-market for changes
- Competitor challenges

- Functional issues
- Manual work
- Interface/technical issues
- Ease of use

Business needs

Costs

Operational efficiencies

Risks

- Annual maintenance costs
- Legacy IT resources rate
- Complexities in to change
- Transition enablers development

- Security
- Transaction volumes
- Design/technical constraints
- Third party software support
- Legacy technology support
- IT and functional skills availability
- Business resilience
- Human error

Figure 1: Classification of Triggers for Legacy Modernization

Evaluating Strategies for Legacy Modernization and Application Migration

Once the decision to modernize is made, financial institutions must select the strategy for legacy modernization and migration of legacy applications to the new landscape. Basically, financial institutions have three options for legacy modernization – using third party packages available in the market, in-house upgrades, and a combination of third-party products and in-house upgrades – to choose from. Coming to migration, applications can be migrated with a big-bang approach or in a phased manner in a specific sequence for each application or group of applications.

Legacy modernization

Each option comes with its own pros and cons. Using standard packages to completely replace the legacy infrastructure can free financial institutions from concerns related with regulatory and legal compliance. This option reduces time-to-market for enhancements and has the potential to deliver future benefits from the enhancements that are part of the package. However, with this approach, banks have less control on costs and limited freedom to add new features. Selection of the appropriate package depends on various factors like license and maintenance costs, alignment to functionality, reliability and commitment of the package vendor, regulatory compliance, and product roadmap for functional and non-functional enhancements.

In-house upgrades offer more control on selection and sequencing of enhancements, budget, and technology and tools used. However, disadvantages include longer time-to-market, risks of failures, higher costs to build and maintain, challenges in accessing skilled resources, and compliance adherence.

In our view, financial institutions must opt for a combination of third-party products and in-house upgrades. Such a strategy comes with the benefits of both the third-party and inhouse approaches. However, it also has additional costs and risks due to system integration requirements.

Application migration

A big bang application migration could be too risky as it will impact various stakeholders and areas such as customers, business-as-usual, front- and back-office operations and staff, and regulatory compliance. Apart from functional issues, a big bang strategy can lead to non-functional issues around volume throughput, system performance, appropriate infrastructure availability, and so on. We recommend adopting a phased approach – migrating an application or a group of applications in a defined sequence. This approach mitigates the risks associated with a big bang migration and outweighs the additional costs of building transition enablers.

Getting Down to Brass Tacks

In our experience, banks usually opt for phased migration to the new solution architecture given the multiple risks involved with a big bang strategy. As phased migration can run for multiple years, it is critical to decide the priority and sequence of modernizing applications being used in the existing solution landscape. To ensure that the right applications are prioritized, banks must adopt objective criteria and minimize subjectivity in the decision-making process.

Priority matrix

We recommend using a priority matrix while arriving at the sequence in which applications need to be migrated to the new infrastructure. This process involves some key steps:

- Identifying and classifying the factors affecting the prioritization decisions into four categories — business, costs, risks, and operational inefficiencies — and assigning weightage for each applicable category (see Figure 2).

Decision category	Factor	Weightage
Business	A	40
	B	20
	C	10
	D	30
Costs	G	20
	B	40
	H	10
	E	30
Risks	H	10
	G	20
	I	40
	J	30
Operational efficiencies	K	40
	B	10
	L	15
	M	35

Figure 2: Assigning Weightage to Factors Affecting Prioritization Decisions

- Rating each application for the identified factors on a scale of 1 to 5. If a particular factor is not applicable to an application, it can be assigned a value of zero.

- Computing the score for each factor in the category for individual applications using the formula: score = factor weightage*rating.

- Assigning importance for each decision category on a scale of 1 to 5 based on organization-specific modernization objectives and arriving at the final weighted consolidation score (see Figure 3).

Decision category	Importance	Application 1	Application 2	Application 3	Application 4
Business	5				
Costs	3				
Risks	3				
Operational efficiencies	2				
Consolidated score					

Figure 3: Arriving at the Consolidated Score

- Ranking all legacy applications in the descending order of their final consolidated score – an application with a higher rank would have a higher priority for modernization.

Case-in-point

A leading Europe based capital markets infrastructure player started its legacy modernization journey with its asset servicing applications. The firm decided to look for a third-party solution to ensure maximum functional coverage and acquire the capabilities to fulfill its existing functional and technical requirements as well as become future-ready to embrace emerging technologies and respond swiftly to market shifts. In line with this decision, the firm identified a third-party offering with modern platform architecture features such as componentization and microservices, containerization, and cloud enablement. Once the package was selected, we embarked on a study to identify the functionalities and legacy applications that needed to be migrated to the third-party solution. The study also identified applications like customer channels, tax processing, and reporting, which could be enhanced within the legacy application framework.

As big bang application migration to the third-party package was considered too risky, we created a priority matrix. Based on the priority matrix, a five-phase migration program was defined — phase 0 for product setup and reference data migration, phase 1 for meeting and disclosure, phase 2 for elective events, phase 3 for mandatory securities events without cash, and phase 4 for mandatory events with cash. Applications with the highest scores were prioritized for migration in the early phase of the program. The priority matrix approach helped optimize costs through planned retirement of costly-to-maintain applications and enhanced operational efficiencies by enabling straight-through processing (STP) for applications with low STP rates. The approach also helped reduce risks by retiring applications more prone to risks and improved customer satisfaction by providing complete and accurate information to customers in real-time.

In a Nutshell

While legacy modernization is a key imperative to thrive in the digital era, there is no one-size-fit-all strategy. However, an objective assessment of the existing landscape and organization specific risks and demands can help banks select the best possible strategy in a given context. Given the demand for digital contactless service will only increase in the post COVID-19 era, banks need to act swiftly and set the legacy modernization ball rolling to stay relevant and retain market supremacy.

About The Author

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