



Maximizing Value from Cloud Investments in Banking and Financial Services



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Introduction

The need for superior speed, agility, resiliency, and product innovation continues to push banking and financial services firms to adopt cloud solutions. But many organizations have encountered major roadblocks in realizing value from their cloud investments and are unable to speed up their transformation journey due to impact on costs, security, and latency.

A recent Everest Group study on cloud initiatives with more than 45 banks found that enterprises have, on average, only about 20-30% of their workloads in the cloud, most of which are low on complexity. Most Banking and Financial Services (BFS) firms also focused their early transformation efforts on customer engagement and data analytics as well as horizontal functions such as HR, finance, customer experience (contact center), and channel management to ensure quick win with higher returns.

In the same research, BFS firms underscore the importance of maximizing value across cloud migration, application integration, modernization, and business innovation. Over 70% of the BFS enterprises are facing challenges in realizing the benefits from their cloud transformation journey and over 88% identify maximizing value acceleration from their cloud investments as a strategic priority.

But what is the next step? To optimize their use of cloud and maximize benefits, BFS firms are increasingly pushing complex industry-specific workloads to cloud to realize user experience and growth benefits such as omnichannel use, seamless and secure transactions, and novel monetization opportunities. Large financial services firms are looking to run entire shared services on the cloud to create growth-enabling differentiators. Industry segments such as payments, mortgages, lending, trade finance are progressively making this shift.

Cloud-based transformation has proven its centrality to sustainable enterprise operations, resilient business innovation, and improved competitive advantage for BFS enterprises. However, financial services firms are increasing looking at capturing the maximum value of their investments once they migrate complex workloads on cloud. A high correlation exists between realizing the value of cloud investments and the overall maturity, roadmap, and approach of this transformation

In this report, we explore effective practices in cloud transformation to extract the most value and maximize efficiency and growth. We go beyond the "why" of cloud transformation, establishing cloud as a foundational element for the business transformation and digital technology adoption.

The role of cloud in enabling the future of banking and financial services: embedded finance

As banking becomes cash free, ubiquitous, and part of our day-to-day lifestyle, BFS firms would need to accelerate adoption of an integrated digital platform that aggregates services from different ecosystem players to offer contextualized customer experiences across different channels. The emergence of new consumption models compels banking institutions to orchestrate customer journeys rather than provide only standalone services. BFS firms have responded to this change and have embarked on a journey to modernize their IT for achieving greater synergies with the ecosystem, thereby building a foundational infrastructure for a digital economy. Embedded finance, which is this seamless integration of financial services to traditionally non-financial businesses, is enabling banks to expand their ability to influence end-to-end customer experiences. This shift to embedded finance is driving expansion and innovation across products, platforms, channels, experiences, and business models.

Successful FinTechs and BFS firms have taken a three-pronged approach as indicated in the below exhibit to realize value from the embedded finance ecosystem: solve specific but relevant needs using micro-offerings; serve clients across multiple channels and inter-enterprise and inter-industry networks; and offer personalized experience for each hyper-segment by leveraging the power of data and analytics.

EXHIBIT 1

Three-pronged approach of FS firms to accelerate adoption of embedded finance Source: Everest Group (2022)



Agility:

Solve specific but relevant needs using micro-offerings in a responsive manner enabling faster exchange of data and integration of apps



Scalability:

Serve clients across multiple channels and inter-enterprise and interindustry networks



Personalization:

Create tailored experience for each hyper-segment by leveraging the power of data and analytics As embedded finance gains traction, banks are looking beyond their own product offerings and moving to a co-creation model to combine, package, and offer solutions from the financial services industry and allied businesses to orchestrate end-to-end customer journeys, indicating a dissociation from the earlier product-centric mindset to a consumer-first approach. Overhauling their existing technology estates to pave the way for a platform-first approach may hold the key to achieving this transformation.

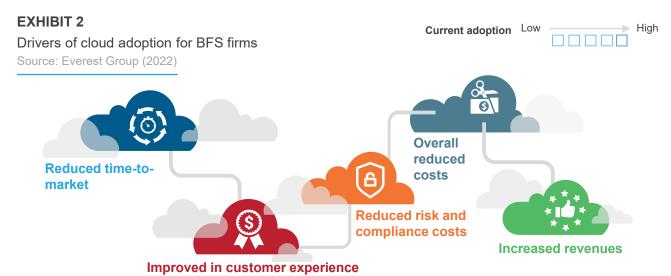
To become fully consumer-centric, banks will need event-driven systems based on events generated by customers, agents, partners, employees, devices, systems, channels, regulators, and other ecosystem entities. For example, a mortgage application goes through several stages from the time it is submitted to the time it is approved. Each of these stages represents an event. Banks may also need to build inter-enterprise networks to respond to these events to provide contextualized experiences as well as allow interoperability to operate across multiple ecosystems. Banks can use data and analytics to make informed decisions, more profitably serve their customers with personalized experiences for each hyper-segment and streamline operations.

IT roles and their definitions are evolving quickly, driven by rapid technology advances and the need for stronger embedded finance orientation. The expanse and nature of technical and non-technical competencies that constitute IT roles for these business priorities are shifting significantly. Building the right partnership ecosystem that comprises data science and intelligence capabilities is another enabler to monetize the embedded finance opportunity. BBVA's Open Marketplace is an example of a platform-based approach to leverage the multiple innovation ecosystem. These ecosystems serve multiple customer hyper-segments and foster speed and transparency.

Thus, a platform-based operating model supported by data and intelligence requires banks to modernize their IT infrastructures, data, and core and non-core applications. Cloud has become the de-facto technology choice for firms to drive this transformation.

The business value equation for cloud in BFS

The BFS industry is grappling with a variety of challenges including lower interest rates, demand volatility, profitability pressures, complex regulatory mandates, the impact of the pandemic, and rising geo-political risks. Firms are under pressure to run operations efficiently, manage security and compliance, evolve business models to meet growth objectives and remain profitable, and be nimble and agile. These challenges, coupled with evolving customer expectations and changing regulatory requirements are driving BFS enterprises to undertake IT modernization initiatives with the focus on cloud transformation. The following **exhibit** on the next page illustrates the impact of cloud transformation on key business metrics. Our research indicates that banks are tapping into the cloud not only to reduce time to market and overall costs but also increase revenues by gaining insights from data, and to be able to innovate faster.



improved in customer experience							
Busine	ess metrics	Impact of cloud transformation	Instances of cloud to impact key business metrics in BFS				
(0)	Reduced time-to-market • Savings in total cycle time		 Higher processing rates for high volume operations such as payments and trade reconciliations 				
	On-time implementation of new features		 Faster turnaround time for customer onboarding and new product/services alignments enhances overall experience 				
<u></u>	 Improved in customer experience Low application downtime High NPS (Net Promoter Score) Higher CRR (Customer Retention Rate) 		 Optimized code bases enables banks to be flexible in implementing the technical changes required for varying customer requirements Leveraging applications in an as-a-service model with cloud-native and APIs offers stable uptime to focus on product innovation and user experiences thereby enhancing NPS 				
(A)	 Reduced risk and compliance costs Lower fines due to non-compliance Less security risk Improved time to error detection 		 Cloud-native workflows for AML, KYC, and fraud checks enables banks to save manual effort and enhance scalability Proactive identification of security instances that saves on fines due to non-compliance 				
<u> </u>	Overall reduced costs • Lower headcount • Lower cost of tooling		 Improvement in response time to identify fraudulent transactions reduces manual interventions Improvement in trade productivity due to cloud-based analytics 				
*** * !:: *	 Increased revenues Decreased cycle time Reduced rate of failed deployments 		 FS enterprises can widen the scope of customer acquisition through faster deployment of a multichannel and multi-product strategy Increased scalability ensures delivery of newer features to customer applications without compromising existing deployments 				

The business case for value realization from cloud has now firmly pivoted from optimizing costs and efficiency to driving product and experience innovation. BFS firms are thus looking to run business operations on the cloud – to design event-driven systems that use the power of democratized data and cognitive technologies to create data-driven operations.

Intelligent transformation must balance business drivers, technology needs, and industry complexity such as regulations and risks to achieve the right blend of scale, shape, and speed for banks' unique needs. There is no one-size-fits-all approach. As banks shift more of their business onto cloud, it is increasingly imperative to balance cost with the growth and experience benefits of cloud-native software without overlooking security or compliance. One of the critical drivers for cloud adoption for BFS firms is to stay a step ahead of technology shifts, evolving security threats, and changes in regulatory requirements. As indicated in the below exhibit, cost, experience, and compliance are the three pillars that help banks realize value from their cloud investments.

EXHIBIT 3

Value enabled by cloud transformation

Source: Everest Group (2022); Based on recent surveys with ~170 CIOs and IT infrastructure heads working with global enterprises with over US\$1 billion revenue

	Cloud for Efficiency (CfE)	Cloud for Growth (CfG)	Cloud for Compliance (CfC)
Cloud philosophy/ model	Cloud-based environments	Cloud-native environments	Cloud-based environments
Objective function	Operations simplicityCost efficiency and reduction	 Business/customer/ user value Time to market Operations scalability and resilience 	Compliance with industry and regulatory standards Offering greater control
Examples of output metrics	% yearly TCO reduction% compliance improvement	 Revenue through API monetization Growth in payment volume/value 	Avoidance of financial risk lapses and security breaches
Stakeholder	s IT	Business + IT	Business + IT + Operations
Enterprise strategic	CIO-focused conversations	Business-focused conversations	CRO-focused conversations
priority	Infra-led large modernization engagements	Digital enablement engagement(s)	Risk, control, and security enablement

The transition to cloud is not immediate, of course; there is a long coexistence period, and managing this transition effectively is critical to maximizing the benefits. This transition period has inherent friction as the two technology organizations – legacy and digital – operate at different speeds. Organizations can mitigate this function through robust change management and talent management practices. For instance, maintaining a workforce adept at handling both on-premises and cloud workloads simultaneously could help to smooth the transformation. Also, legacy IT must leverage accelerators and other tools to speed transformation, while the digital-native organization must simultaneously employ guardrails and controls to ensure that the speed of transformation is identical to the speed to serve the customers. The SLA metrics for the two sets of workloads would be different across banks. A bank starting cloud adoption would need to make changes in SLAs to minimize friction in the intermediary stages.

There are also challenges in maintaining a workforce adept at handling both on-premise and cloud workloads. New roles such as cloud FinOps will be needed even when the cloud estate is moderate in scale. The need to build robust change management and governance models will become important, as banks that do not have a robust change management processes often find it challenging to deal with changes such as roles and responsibilities, contracts, pricing, processes, and integrations.

Lastly, longer migration period implies that traditional BFS firms would have to procure all tools, accelerators, and key cloud resources from the onset even if the utilization is not at a hundred percent. The Total Cost of Ownership (TCO) of longer duration transformation programs is higher than similar sized programs with shorter timelines.

For instance, after the merger of BB&T and SunTrust, Truist Bank ensured a stronger push toward cloud computing and simultaneously handled a complex integration across the IT estate to ensure that it met its objectives around data-led and digital- first transformation. The bank went through a rigorous transition cycle to achieve cloud-based innovation in complex areas such as real-time payments, loan disbursals, and wire transfers.

The business case for cloud-based transformation across business lines

There are strong business cases for cloud-based transformation across business lines, based on business and stakeholder priorities. For instance, retail banking is increasingly evolving from basic financial services provider to orchestrator of end-to-end financial needs – providing solutions for financial wellness and supporting customers in their life goals of home or auto purchase, travel, etc. Similarly, as mentioned in the below exhibit wealth managers need to design highly contextualized, personalized, reliable experiences for their customers' personal finance, savings, and investments seamlessly across channels. In both lines of business, changing expectations require banks to introduce hyper-segmentation, adopt digital front-end technologies, and accelerate the introduction of new offerings.

As the need to add capacity and speed across these business segments increases, cloud computing solutions become increasingly critical, both to BFS firms' ability to deliver and to their ability to meet customers' demand for "bank-as-a-platform" over physical branches. At the same time, banks need to maximize the value of their cloud transformations as demand rises for customer insights, efficiency, innovation and agility, security, and business continuity. As an overarching organizational advantage, cloud transformation will increase human productivity and enable insights that can positively impact both front- and back-office transformation.

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EXHIBIT 4

Critical business priorities for BFS firms while adopting cloud services for different business use cases Source: Everest Group (2022)

				High Medium Low
BFS use case	Cloud for efficiency	Cloud for growth	Cloud for compliance	Key benefits
Wealth management customer onboarding				 Ensure a seamless customer onboarding experience and drive growth across hybrid advisory channels Reduce the cost of customer acquisition
AML and financial crime regulations				 Reduce the cost of compliance and enable agile risk management practices Avoid fines/penalties
Mortgage processing				 Leverage cognitive technologies to automate processes and reduce paper-based processing Improve loan processing cycle time Reduce the cost of processing loan application

Steps for BFS firms to maximize value realization from cloud initiatives

BFS firms are more mature in their cloud-based transformations than other industries. The pandemic fostered remote working, and work-from-home environments required hyper-agile infrastructures that only cloud technology could enable. Consequently, a bank's cloud initiative should start with defining the business value enabled in its specific circumstances; identifying those dimensions that will have maximum business impact in the organization.

In the past 12-18 months, the pace of cloud adoption has accelerated significantly. Exhibit 5 looks at the transition of a BFS organization across four levels. The first two levels illustrate priorities around cost savings, seamless connectivity and availability, and security and encryption. These are good outcomes to establish the baseline. Some BFS organizations can unlock high value from their shift to cloud by achieving cost, efficiency, security, and scalability outcomes. Banks that aspire to reach higher levels of cloud maturity may need to exponentially increase their investments in process, technology, and people, which may not be suitable for the enterprise. Hence, a one-size-fits-all approach does not work. All prioritized goals should naturally correspond to the bank's strategy and support its business operations.

Some banks attempt to skip the changes related to level 2 or 3 and jump directly from level 1 to level 4 with technology solutions. To do so successfully, maximize returns, and leap directly to high cloud maturity, a bank must build an arsenal of tools and ensure its ability to innovate, because cloud enables options legacy infrastructure does not. Cloud rewrites the risk/benefit paradigm, and the ability to experiment with new things, fail fast, and move forward is unparalleled in the cloud. This has always been the goal of a cloud maturity model – the difference now lies in the speed of execution at which banks can get to those higher and more compelling functional levels.

For instance, some large banks, such as HSBC, have taken an incremental approach to cloud transformation. HSBC partnered with Google Cloud, to automate the review of its contact center sales calls from a quality perspective. The transformation achieved improvements in the quality of conversations and compliance with customer needs. The efficiency gains achieved in the first cycle fostered innovation and product development as it advanced its capabilities to drive richer insights from the data on cloud. The bank navigated from significantly reducing the time of sales calls to reimagining product innovation and improving customer experience.

EXHIBIT 5

Cloud maturity framework for BFS enterprises

Source: Everest Group (2022)

Level 2

Stable and virtualized to handle varying workloads, investors (retail and commercial) partners, and employees with certainty. Example, seasonal variations in originations

Cloud infrastructure can meet planned demands and small spikes in demand (Apps with planned spikes such as loan delinquency)

Internal stakeholders such as traders, loan originators, relationship managers can focus on meeting business needs

Inefficiency in private cloud infrastructure utilization leads to higher cost of operations (unused capacity due to seasonal variations in debits and loans)

Level 3

Cloud infrastructure is optimized to deliver predictable and stable services across key stakeholders (different employee personas, partners, agents, customers, etc.)

Service Stability Business Flexibility Service Experience Cost Effectiveness

IT infrastructure supports changing business needs and is commissioned on an on-

Internal stakeholders (traders, loan servicers, originators) have a differentiated experience across access financial services products, mediums, and channels

Predictable infrastructure costs. Example – payments utility on cloud on a pay as you go basis

Level 4

Flexible as-a-service model that remains stable and predictable as demand patterns change. Examples of shared services as-a- service models in payments, mortgages, etc.

Users can decide across a variety of infrastructure options based on need and use on a pay-as-you-go basis. Example, for cash management SMB clients of banks pay only when they use the service

Internal and external customers have a delightful experience across access mediums. For instance, interoperability of data and applications across the banking network across cloud environments

Component-level transparent and predictable infrastructure costs

Level 1

Unstable cloud infrastructure leading to high incident rates and low downtime. Example – High app downtime for KYC/AML processing

Unable to support evolving business needs and new initiatives (new product and asset class launch, new markets)

Internal IT stakeholders (traders, brokers, loan officers) experience poor service

Low cloud maturity causes productivity and operational inefficiencies resulting in high cost of operations Our research has identified four ways BFS firms can maximize value realization from their cloud investments.

Accelerate cloud value realization through sequencing the migration and cloud-native builds

Establishing clear, actionable priorities is essential to successful cloud transformation. The natural temptation is to invest time in defining all workloads that could potentially be affected during cloud adoption. But that is counterproductive, especially early in the adoption process. Instead, we recommend that you identify the highest-priority workloads that are significantly easier to transform and offer competitive advantage. These workloads will be less dependent on legacy technology and will be less complex operationally. The below exhibit depicts a prioritization framework that banks could leverage for their migration journey.

EXHIBIT 6

Virtuous cloud cycle to maximize returns from cloud Source: Everest Group (2022)

High priority workload

High

Difficult to adopt + high competitive advantage

- These are complex applications with significant legacy dependency, but the opportunity to create competitive advantage through innovation and experience is very high
- These are typically front-office focused where innovation, agility, and experience benefit from cloud and data powered by cloud

Easy to adopt + high competitive advantage

- These are business operations where potential to augment competitive advantage through experience, innovation, and agility is the highest. They can be decoupled from legacy environments easily
- While the cloud journey could start with horizontal functions, the value realized will help scale transformation for some front-office workloads that can be decoupled from core systems. For instance, CRM, customer 360 degree

Difficult to adopt + low competitive advantage

- These workloads are legacy in nature and form the bulk of the core operations
- Change management is complex and risky as they are mission-critical; the business benefit for cloud adoption is difficult to justify
- For instance, judgement-oriented functions such as forecasting may fall under this category

Easy to adopt + low competitive advantage

- Given the limited competitive advantage but ease of moving to cloud due to repeatability and scalability of the workloads, these are not prioritized
- Reporting, assessments, back-office calculations, and workloads that are considered cost of doing business (do not create differentiation) fall here

Low

Competitive advantage (Innovation. agility, and experience)

Low (Difficult to adopt)

Ease of cloud adoption
(Legacy dependency, complexity, and volume)

High (Easy to adopt)

For instance, most BFS firms started their cloud transformations in horizontal functions such as HR, finance, and customer support. As they move more applications to cloud, they gain clarity around the business benefits, which might prompt changes in priorities. Issues like technical complexity, the extent of legacy technology resident in the organization, the roadmap to the future-state technology stack, organizational priorities, financial health, and regulatory actions all might drive changes in thinking related to staffing allocations, timelines, and sequencing of technical efforts.

This sequencing approach provides enough information to plan for next iterations and while retaining the ability to change. This phase will generate cost savings, growth and experience gains, and operational efficiencies as the prioritized workloads are migrated.

The savings generated in this iteration funds the next iteration. The iterative nature of this prioritization creates a cyclical funding model, building a virtuous cloud adoption cycle where quantified business value is used to fund the next wave of workloads. However, to achieve the maximum benefits, workload priorities must be reevaluated every six months.

In addition to sequencing the workloads, BFS firms should evaluate their modernization approaches for each workload and assess their buy-versus-build options regularly to keep pace with SaaS and cloud-enabled software innovations.

Design data-driven operations

Cloud Services Providers (CSPs) and Cloud Data Providers (CDPs) are instrumental in the democratization of data and machine learning technologies, making it simpler, faster, and cost effective for BFS firms to infuse data and intelligence in their operations. A major portion of cloud value realization lies in the ability to unlock the value of data. However, the nature of data has evolved due to volume and complexity of operations and the rising number of data sources that BFS firms use. Banks need to ensure availability, access, and insights to gain competitive advantage by leveraging tools and Machine Learning (ML) libraries. Organizations need to harness the massive volume of data generated through systems, channels, partners, and other sources in real-time to better analyze the market, competition, risks, and – most importantly – customers. The cloud's flexible and elastic compute power helps banks to process large volumes of data, resulting in new insights and correlations that support better decisions and increase customer engagement.

Real-time analysis is crucial as it enables banks to act quickly based on the insights derived. CDPs and CSPs such as AWS, Azure, GCP, Snowflake, and Cloudera enable access to a wide variety of third-party data through their networks and provide sophisticated data management technology to marry data from different sources with banks' own data. Banks can use these data and intelligence capabilities for a wide variety of benefits: faster mortgage processing through better credit decisioning and experience personalization, sophisticated investment advisory and personalization in the wealth management portfolio, and prevention of fraud in payments. Banks have a huge potential to infuse data and intelligence in their business operations to drive benefits such as process efficiencies, improved stakeholder experiences, less risk and fraud, increased sustainability of each action, and new products and services aligned to customer demand.

For instance, commodity traders are leveraging AWS marketplace weather data for futures trading as forecasting the produce of crops improves. Similarly, Azure's Synapse Analytics creates a unified customer experience by enabling ML platforms to ingest, explore, prepare, transform, and manage data. This power to infuse data and intelligence at an enterprise-grade scale across operations allows banks and financial services firms to run end-to-end data-led operations.

Financial services firm Goldman Sachs has leveraged CSPs such as AWS to build a financial cloudnative data platform that is designed to help other banks save time and money on developing their own data management and analytics tools by providing them with a set of ready-made libraries.

Large banks in Latin America such as Banco ABC Brasil have partnered with CDPs such as Informatica to enhance analytics capabilities and expedite the processing of loan applications, expanding the scope of digital financial services to their customers. Similarly, Banco de Crédito, Peru has leveraged Cloudera on Microsoft Azure for data-driven business operations, thereby delivering new services that generate incremental revenue streams.

Unlock the power of the ecosystem

The advent of embedded finance and the BFS firms' pivot to orchestrate customers' end-to-end financial experiences makes ecosystem orchestration a key value creation lever for BFS firms. BFS firms are expanding their influence with their customers, serving needs beyond traditional financial services offerings, often by partnering with organizations outside the financial services industry. This extended view of customer needs requires BFS firms to communicate and collaborate with many external entities, which amplifies the value delivered to all stakeholders. Some of these entities are cloud-native FinTech firms or cloud-enabled services across industries. The cloud enables BFS firms to operationalize this expanded customer offering across inter-enterprise networks and capture a portion of the increased value delivered to the customers.

CSPs and CDPs are creating marketplaces and other channels of access to a rich ecosystem of FinTechs, RegTechs, data providers, and participants from other industries. The cloud is enabling BFS firms to extend their products and services and offer them as APIs to ecosystem partners, as well as to consume data and services APIs from partners to enrich their own offerings.

In the last two decades, many FinTechs have entered the financial services arena. Large, farreaching companies such as Apple, Google, and Amazon, which started out as technology companies, have also entered the payments and lending markets, offering competing platforms. BFS firms need to tap into this rich ecosystem and enable their corporate customers and other partners to co-create and co-innovate in the cloud.

Major financial services platform providers such as Temenos have built a FinTech marketplace that offers pre-integrated and certified Fintech solutions that can be easily deployed within the platform's cloud environment.

The ease of access to ecosystem participants and other partners firms is creating more revenue generation potential for BFS firms through access to more channels, product and value-added services offering innovations, and monetization of data and services. BFS firms can benefit from the innovation and market demand offered by Decentralized Finance (DeFi), Web 3.0, and the Metaverse, but to do so, they must work with a wider ecosystem as customers demand services and products around digital assets such as NFT, cryptocurrencies, and other private tokens as well as access to existing banking products in the Metaverse. The distributed nature of blockchain-based technologies has firmly rooted them to the cloud.

BFS firms need to aggressively push their trading, settlement, custody, customer service, and risk management services to cloud to work seamlessly with these digital-native and cloud-native digital assets. They will have to work with Metaverse technology and operations providers, all of which operate exclusively over cloud-based technologies.

BFS firms can capture a variety of powerful Web 3.0 growth and differentiation enablers by working closely with the ecosystem using a platform-based operating model built on the cloud. For instance, large BFS firms such as Bank of America, Broadridge, and Goldman Sachs have announced their intent to invest in building their own financial services-compliant cloud. This cloud environment will help them co-create and collaborate with the ecosystem using a platform-based operating model powered by APIs, AI, and data technologies and be extensible to capture the power of blockchain, DeFi, Web3.0, and the Metaverse, among others.

Adopt a hybrid cloud model to deploy and scale solutions

The right technology portfolio is obviously vital for financial services firms transforming to the cloud. They need to consider a wide variety of factors such as budget, disaster recovery, security, and governance policies in choosing their cloud platform providers and the ecosystem partners. Furthermore, given the complex and highly regulated nature of financial services industry, they need to look for flexibility, scalability, responsiveness, and the solutions' compliance capabilities to ensure they run at enterprise-wide grade and scale.

Our analysis of over 45 banks as depicted in the below exhibit across North America, Europe, and Latin America indicates that cloud migration to an open hybrid multi-cloud environment is common: More than two-thirds of these BFS firms already use multiple cloud providers and a mix of private and public cloud. A hybrid multi-cloud approach helps bank balance innovation with stringent regulatory requirements at enterprise-grade velocity and scale and avoids any form of vendor lock-in or technology obsolescence. It also offers the advantages of access to best of the breed solutions and mitigation of privacy and security concerns at the outset.

EXHIBIT 7

A high incidence of hybrid cloud indicates that banks are choosing different cloud platforms for different types of workloads and services to drive maximum business value realization

Source: Everest Group (2022)

BFS enterprises' that have adopted hybrid cloud across geographies¹

2021-22; Percentage of BFS firms

100% = 48





North America

UK & Europe

Latin America

80%

69%

62%

1 Based on research of over 45 BFS firms to understand their preferred cloud deployment model Source: Everest Group (2022)

For example, JPMC has formulated a multi-cloud strategy as part of its 2025 planning exercise which includes the firm's private cloud Gaia and three large hyperscalers – AWS, GCP, and Azure. On the other hand, Brazilian bank BTG Pactual (personal banking) and BTG+ Business (SMB banking) leveraged AWS to have operations running completely on the public cloud.

The best cloud deployment model is unique to each organization. BFS firms must determine their approach based on their size, business mix, data and technology strategy, and ambitions.

Proactively address challenges that slow cloud business value realization

As you transform to the cloud, you will encounter many challenges – cost overruns, change management issues, talent scarcity, and security and compliance concerns – that could dampen the value from your cloud investments. Solving these challenges during or following migration can significantly impact the value your business could realize from its cloud initiatives. Extending the principles of shift-left in an agile software development process, we advocate a shift-left approach to bringing a culture of security, interoperability, resiliency, and compliance by design philosophy to your cloud roadmap and strategy design.

Addressing these issues early in the systems design and architecture phase can unlock massive value by avoiding waste and eliminating effort and costly rework. An interoperable systems design will favor containerization of applications to ensure that you do not get locked into a specific vendor and can continue to demand fair prices from your cloud service providers and cloud data providers, thus managing the cloud economics in a long-run.

A shift-left approach is a useful mechanism in designing modular architectures and systems that can adapt quickly to changing customer, regulator, and business demands. This approach means that banks must build applications that can run anywhere, on any cloud or data platform. For instance, the DevOps team plays a vital role in application security at the earliest stages in the cloud transformation cycle. The shift left will entail building more automation, security, quality assurance, and networking features directly into the application so that the code of the application can orchestrate and automate infrastructure demands, including security, based on the application needs.

Conclusion

As BFS firms replace outdated mainframe and on-premises infrastructure that has become harder to update and increasingly costly and inefficient to scale and maintain, they are looking for flexible and scalable solutions that are both responsive and efficient. A cloud-based environment is vital to resolving these challenges for banks of all sizes and across geographies. However, as they transition to the cloud, banks need to create strong governance to achieve the full potential of this transformation, including creating robust business cases, considering self-funded cloud adoption models, investing in talent and right set of partners, and taking a shift-left approach to security, compliance, and quality.

BFS firms must incorporate new ways of working and continuously develop emerging skills in their organizations. They need to sequence and prioritize their cloud workloads to develop a strategy focused on revenue upside and cost efficiency opportunities while aligning goals. Along the way, this journey will help banks unlock industry- and function-specific data insights trapped in legacy systems through cloud data models. Banks will have data-driven operations that run at enterprise-wide speed and scale. Lastly, to maximize returns, bank must leverage skills and experience of appropriate partners.

In addition to implementing plans to optimize cloud spend, BFS firm also need a strategy for ongoing spend management with clearly defined spending guidelines, clear processes to maintain savings, and a way to automate the implementation of recommendations for optimization. KPIs and metrics must be defined, as they provide insights into spends.

Cloud adoption enables BFS firms to go beyond their traditional sphere of influence and create alternate avenues of growth and differentiation. Organizations that continuously adopt new ways to maximize their gains from cloud will maintain competitive advantage for their products, experience, and business models. The value maximization model outlined in this report creates a robust foundational infrastructure to take advantage of this opportunity in a scaled and resilient manner. Are you ready to accelerate value realization from your cloud investments?



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