Abstract

Cloud computing, a critical element of the digital revolution, is transforming the banking, financial services, and insurance (BFSI) industry. The cloud-first paradigm has the potential to drive business excellence and deliver benefits such as innovation, speed to market, and savings on infrastructure and operational spends. This is driving many BFSI firms to incorporate cloud migration into their digital transformation strategies. This white paper studies the key drivers for cloud adoption and business value and benefits. The paper also analyzes the different cloud models and their suitability and highlights aspects that must be considered for different business functions before embarking on adoption.

Cloud: An Integral Part of the Digital Transformation Journey

Cloud native architecture and models infuse business agility, provide a competitive edge, facilitate innovation, and optimize costs. Given their potential to deliver such crucial benefits, it is hardly surprising that cloud adoption is set to grow exponentially with organizations leaning toward software-as-a-service (SaaS) models.[1] In the BFSI industry, however, security concerns, legacy architecture, country-specific regulations, and challenges in managing the complex transition have inhibited cloud adoption. However, the need to embrace new business models, infuse agility to respond swiftly to market shifts, and reduce total cost of ownership (TCO) coupled with evolving regulations that support cloud deployment is motivating BFSI firms to adopt cloud technologies. Moreover, cloud adoption will enable traditional banks to compete effectively with fintech players that are embracing cloud models rapidly in a big-bang model. The business case for cloud migration (see Figure 1) is clear and cloud must form an integral part of the digital transformation strategies of banks and insurers.

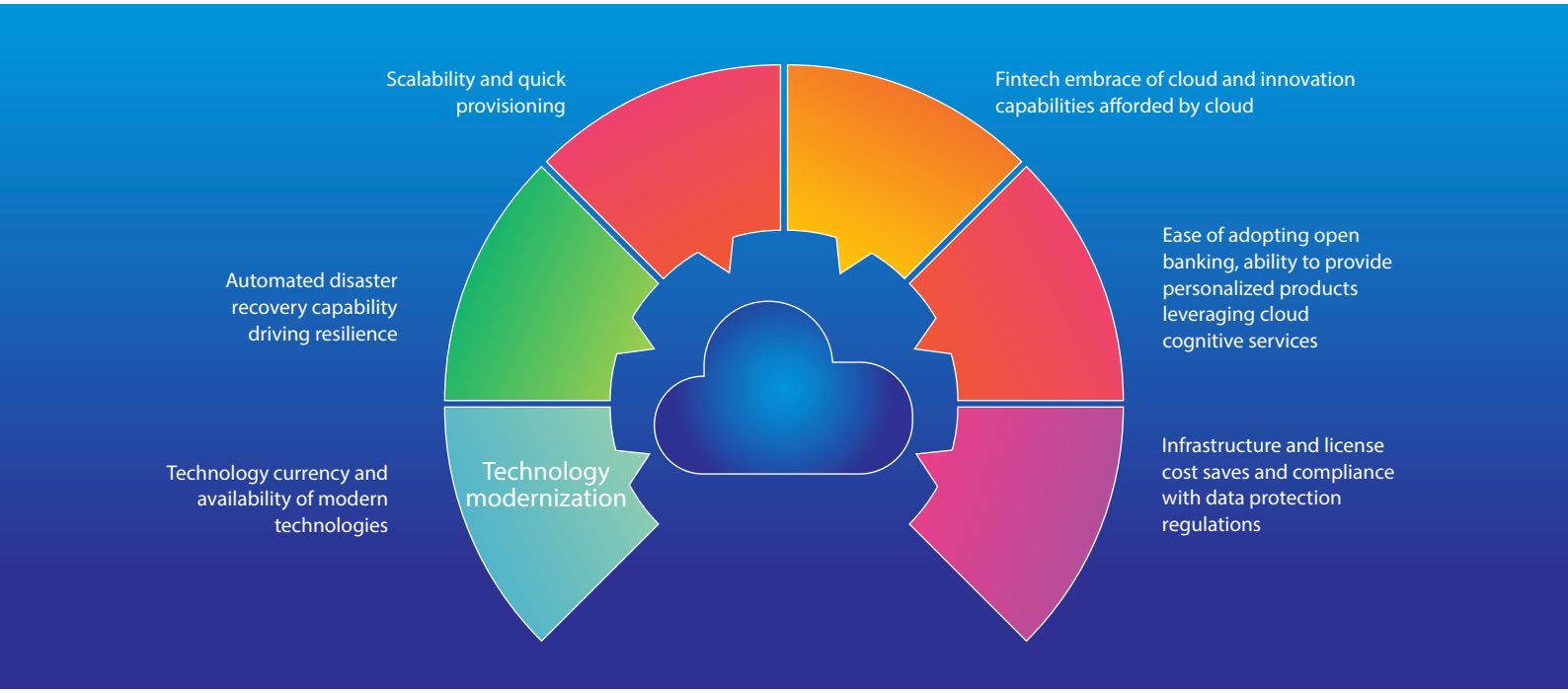

Figure 1: Business Case for Cloud Adoption in BFSI

[1] *Gartner, Gartner Forecasts Worldwide Public Cloud Revenue to Grow 6.3% in 2020, July 2020, Accessed January 2021, https://www.gartner.com/en/newsroom/press-releases/2020-07-23-gartner-forecasts-worldwide-public-cloud-revenue-to-grow-6point3-percent-in-2020*

Influencing Factors for Cloud Adoption

BFSI organizations tend to initiate the cloud journey by adopting infrastructure-as-a-service (IaaS) models and evolve to embracing platform-as-a-service (PaaS) and software-as-a-service (SaaS) models as cloud solutions and products mature. In our view, the business and technology strategy of an organization and the business functions and their demand for security, scalability, and different performance attributes play a role in cloud model selection.

Business Value and Technology Strategy

Applications that are critical and built on legacy technologies often entail high costs to migrate to the cloud and can prove to be a deterrent. Systems built on legacy technology would require a revamp before migrating to the cloud. Consequently, the cloud strategy becomes a key aspect.

Functional Uniqueness and Product Maturity

Cloud adoption, especially through the IaaS and PaaS models, is fast emerging as a critical factor in customer experience differentiation. BFSI organizations must therefore consider building customer engagement functions by leveraging either PaaS or IaaS models. Commercial off-the-shelf (COTS) or SaaS offerings can be procured from the market for standard and core functions to infuse agility and ease management.

Privacy, Security, and Regulatory Requirements

Government regulations often require data and systems to be well protected and controlled. This may limit organizations to host such systems on-premise or on private cloud. However, as cloud security and government regulations evolve, this could change.

Costs, scalability and performance

Public cloud offers scalability to accommodate the growing user or transaction base while delivering the expected performance. This model enables organizations to scale with agility, while controlling costs.

Guidance Maps for Choosing Cloud Deployment and Service Models

Business and technology priorities vary across financial institutions. Further, the products and cloud solutions available for different business functions are continuously evolving. To select the right cloud service and deployment models, we recommend using guidance maps (see Figure 2) that have been designed considering the key influencing factors. These guidance maps will help business and technical teams in feasibility analysis, cloud migration assessment, and decision-making when choosing the right deployment and service models for specific business functions.

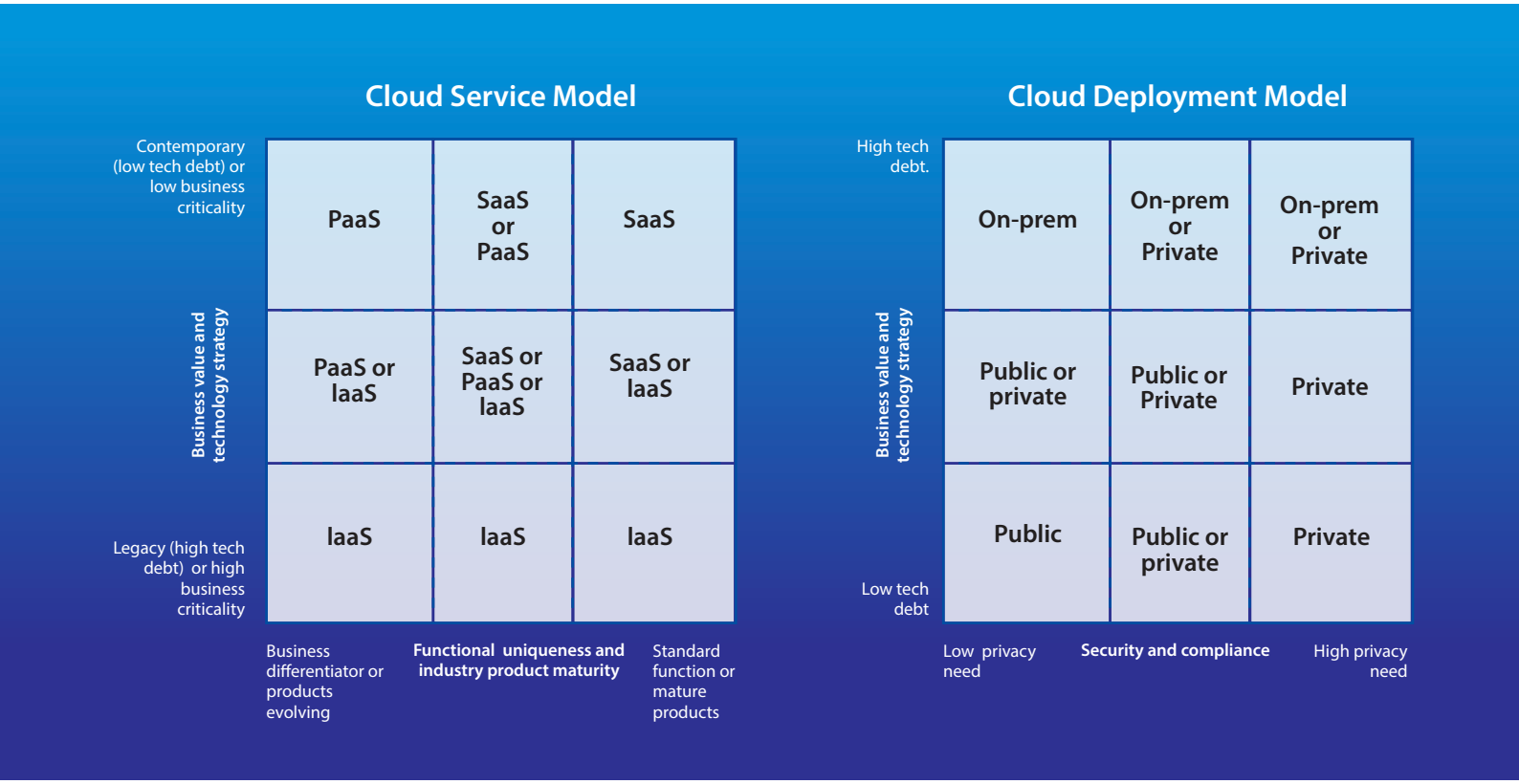

Figure 2: Guidance Maps for Selecting Cloud Service and Deployment Models

Figures 3 and 4 depict suitable cloud service models and deployment models for key functions. For example, the guidance map recommends the PaaS model for the customer on-boarding function with a public or private cloud deployment. For the know your customer (KYC) function, the guidance map recommends PaaS or SaaS model with a public cloud deployment.

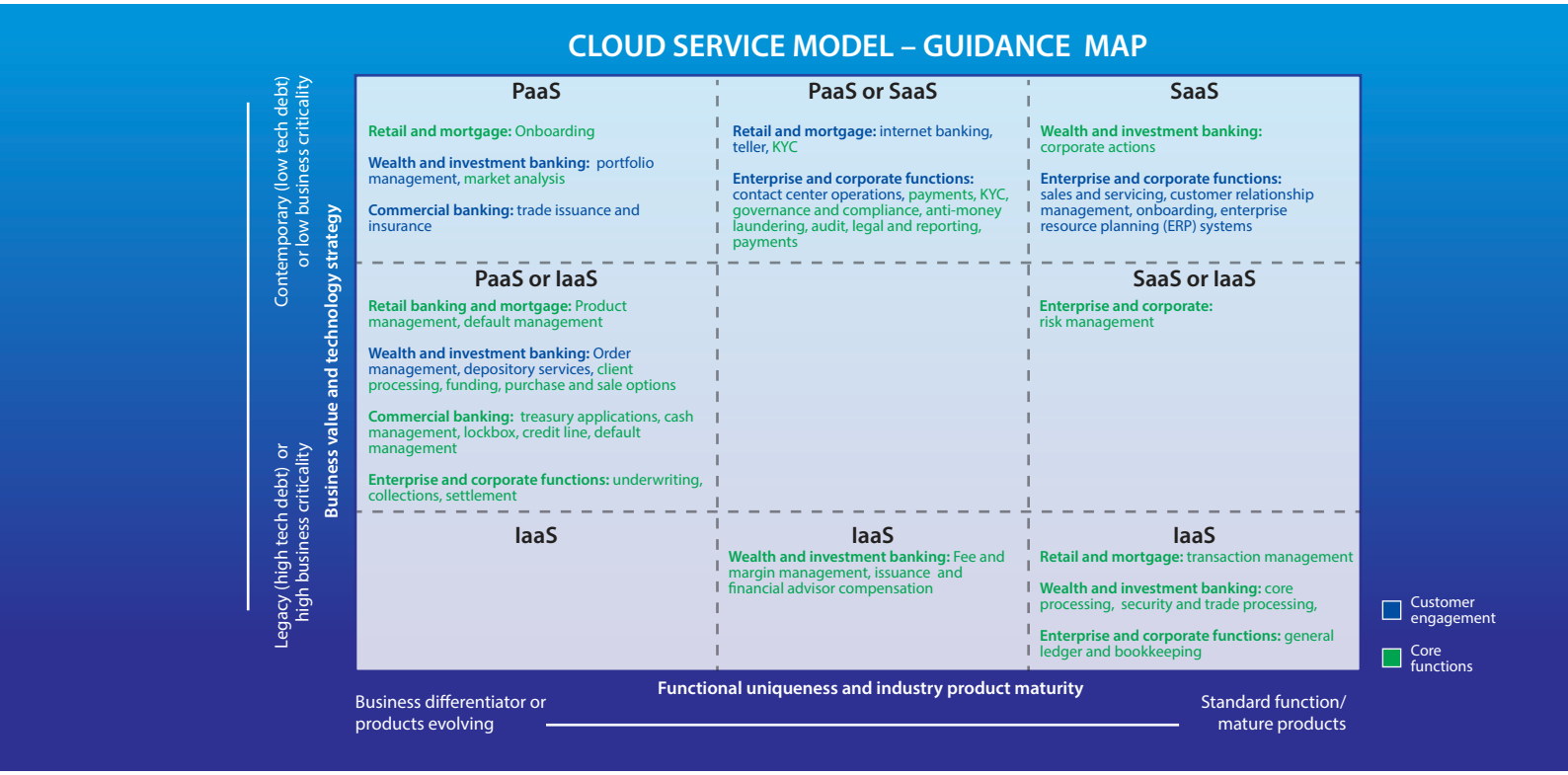

Figure 3: Guidance Map for Cloud Service Model

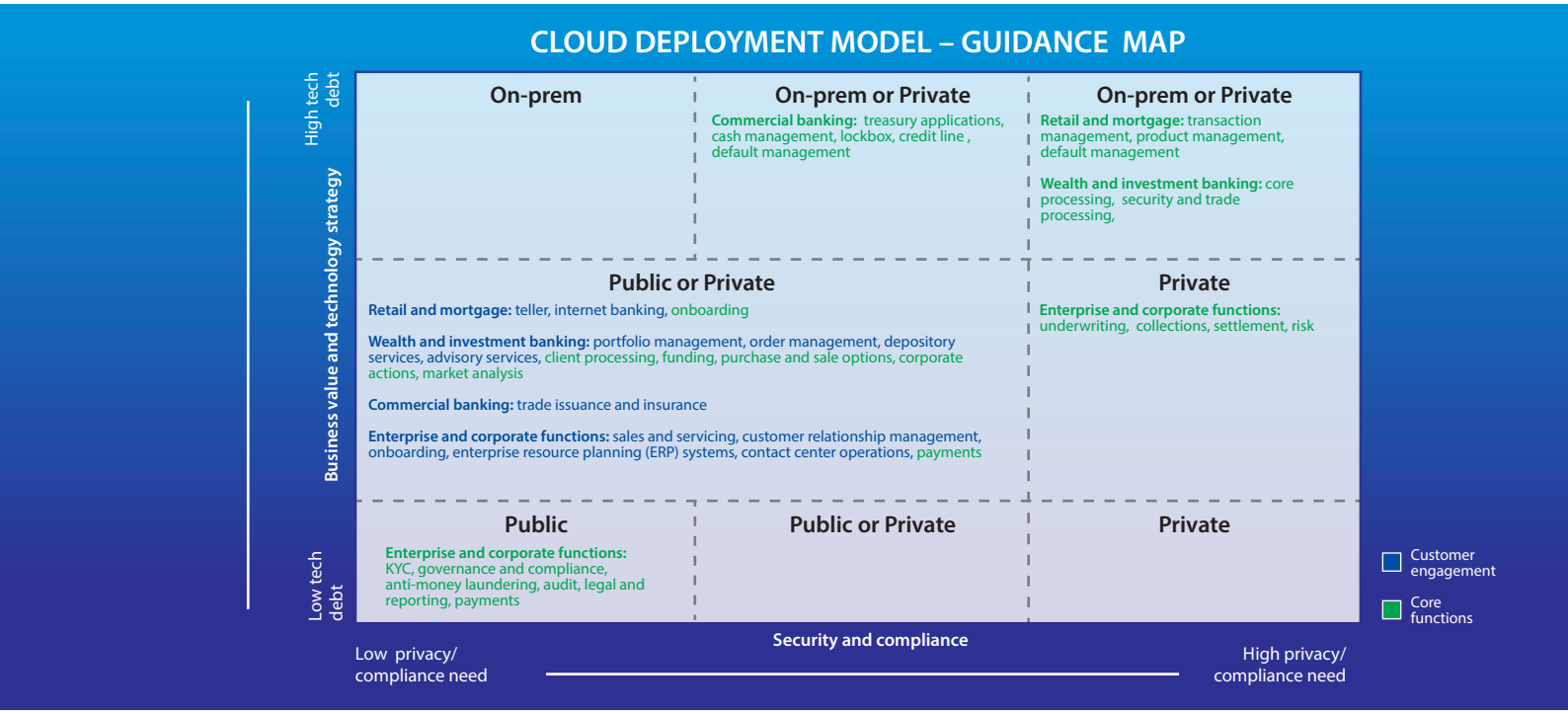

Figure 4 Guidance Map for Cloud Deployment Models

Case-in-point

- A large North American bank specializing in cards, wealth management, and investment services, embraced cloud to modernize its channels by enabling features like digital identity, behavioral biometrics, push notifications, e-wallets, and QR payments using the IaaS and PaaS models on private cloud. The bank improved time-to-market by 40%, reduced annual infrastructure cost by 15%, and expanded active mobile user base by 20%.
- A leading Norwegian bank adopted the PaaS model on public cloud to transform its peer-to-peer mobile payment application. The bank built a DevOps based microservices on the cloud. With this, the bank was able to capture almost 80% of the market, facilitate innovation, optimize TCO, and ensure high application availability and scalability to service approximately two million customers. Transaction processing throughput increased by 10x, infrastructure setup time dropped from 60 to 6 days, and release cycle time fell by 3x.
- A large global bank transformed its legacy core by implementing microservices based private cloud through the IaaS and PaaS models. This initiative enabled a universal architectural approach across applications. It also helped the bank to increase the number of features delivered by 3x year-on-year, move from quarterly to monthly release cycles, and reduce payment execution effort by 60%.

Cloud Adoption Trends in Customer Engagement Functions

Several banks have adopted PaaS and SaaS models to modernize channel and teller applications to provide unique experience aligning with changing customer preferences. Web and channel compatible apps and self-service portals are increasingly being deployed on cloud to drive operational cost efficiencies.

Mature, configurable, and low code SaaS offerings are available for sales, servicing, customer relationship management, onboarding, enterprise resource planning systems, and prospect management. Adopting these SaaS offerings increasing business agility, developer productivity and speed to market. Communication-platform-as-a-service (CPaaS) and contact-center-as-a-service (CCaaS) solutions help save infrastructure costs and time besides being easy to set up.

Cloud Adoption Trends in Core Banking Functions

Core applications are hosted on-premise or on private cloud IaaS models due to functional complexity and compliance and security mandates. Core modernization is planned after diligent business evaluation and risk mitigations. In these scenarios, cloud migration is complex and entails big investment and must therefore be approached in an incremental manner to reduce transition risks.

Core banking platforms and products are evolving and are offered both on public and private cloud (IaaS) deployment models. Many organizations are considering moving their large and complex data onto the cloud (big-data-as-a-service, data lakes) to reap the benefits of cloud storage, compute power, and cost-efficient operations. Data first and last

approaches are evaluated based on the application. On-premise and private cloud with PaaS based application programming interface (API) management systems (secure gateways) as interface are suited for inhouse financial systems.

For some capabilities like payments, banks are innovating with cloud power. Functions like KYC, corporate actions, application processing, and market analysis platforms are banking on cloud for infrastructure, platform capabilities, and storage while leveraging machine learning (ML) capabilities to gain a 360-degree customer view. End-to-end automated processing and rule-driven and configuration-oriented offerings in SaaS and business-process-as-a-service (BPaaS) models are on the rise. BPaaS solutions for treasury applications is an emerging trend. Storage and ML capabilities offered by cloud providers are instrumental in transforming risk and pricing functions.

An Approach to Adoption

Besides selecting the right cloud model, BFSI firms must choose the right service provider after performing a thorough due diligence exercise. In addition, firms must meticulously plan the implementation to ensure hassle-free migration keeping in mind the following considerations:

- Evaluate cloud-agnostic and poly-cloud models to mitigate risk, ensure audit compliance, deploy the required features, and manage disaster recovery scenarios.
- Implement cloud-based microservice architecture and API frameworks for internal and external functional services, interfaces, and dependencies; complement this with serverless and PaaS services.
- Adopt lift-and-shift method to migrate simple applications; subsequently, move to complex applications considering the dependencies.
- Adopt cloud-based development and test environments for rolling out minimum viable products, pilot applications, content-rich websites, workplace on cloud, and desktop-as-a-service (DaaS).

In a Nutshell

Given the benefits of IT scalability, security and agility coupled with the emergence of mature cloud services to support business functions, cloud adoption will soon gain traction in the BFSI industry. Firms must embrace this technology to deliver innovative services and compelling value propositions to their customers. Going forward, we foresee cloud becoming integral to IT strategies for banks and insurers. However, firms must adopt a careful approach with focus on maximizing the benefits and minimizing the risks during cloud transformation programs.

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