Neo-Core vs. Incumbent Core Banking Systems: A Comparison

Key Considerations when Choosing a New Core Banking System (CBS)

June 2023

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Introduction

Upgrading Core Banking: Why It Matters and Key Challenges to Expect

As the dynamics of the global banking landscape shift due to economic and technological progress, banks need to adapt rapidly to remain competitive—in a way strongly driven by their ability to modernize their IT landscapes to accommodate emerging customer needs.

With a rapidly evolving ecosystem of fintechs, neobanks, and incumbent banks, core banking solutions have become a decisive success factor for all three.

Fintechs and neobanks need core banking to swiftly set up the core of their business and scale their architecture around it.

For incumbent banks—often locked into legacy core banking solutions—this remains an impediment to keeping up with the rapidly evolving ecosystem of fintechs, providers, and competitors. With many key knowledge carriers likely to retire in the coming years, significant operational risks are also materializing on the horizon.

While neobanks often have a good starting point to introduce new cores into their architecture, e.g., due to simpler business models or less burdened IT architectures, incumbent banks need to overcome several challenges to successfully replace or upgrade their cores:

- The business case for incumbent banks is almost always negative per se, which raises the need and opportunity to couple the core transformation/replacement with a significant simplification of the business and tech operating model.
- Given historically grown architectures, there is also often a lack of knowledge or skills around the current systems, or key knowledge carriers may no longer even be available.
- Due to the significant effort required, incumbent banks also face strategic trade-offs and the need to leverage synergies versus other priorities.

While some neobanks have invested in building their own core and ledger, the option to source a core banking solution from a supplier—if modernization is not an option—remains the predominant model for incumbent banks and most neobanks.

In this article, we provide an overview of how the market of core banking solutions has evolved historically and explain the key purchasing criteria to consider and their relation to different types of core banking solutions. We close with remarks on how to be successful in choosing and implementing the right solution.

Background

Core Banking Vendor Market: Differences between Neo-Core and Incumbent Solutions

The individual vendor offerings can take very different stances on functional coverage and technological capabilities, reflecting their distinct approaches to core banking and positioning in the market. These different approaches (or even philosophies) can be broadly grouped into two categories: incumbent cores and neo-cores.

Incumbent cores are commonly provided by suppliers that have been part of the competitive landscape for decade(s), since a time when financial institutions started considering leaving the path of self-built core banking solutions in favor of package solutions. Such systems were originally characterized by broad functional coverage, delivered through comparatively large functional modules. This approach reflects the vendors' original ambition to provide comprehensive, end-to-end solutions, virtually capable of addressing most banking needs straight out of the box. Traditionally, incumbent cores started on architectures that were meant to accommodate large-scale, on-site installations and have proven their ability to handle the loads of larger financial institutions.

Neo-cores, in contrast are usually provided by new players that have received their first seed rounds in the last five to ten years and entered the market thereafter. Their solutions take a different approach to core banking, starting from the functional aspect. Neo-cores are often more streamlined systems with a smaller functional footprint when it comes to banking products and capabilities. This is a result of their distinctive philosophy: to prioritize integrability over out-of-the-box coverage. In fact, such solutions compensate for their smaller functional scope by providing cutting-edge Application Programming Interfaces (APIs) and integration patterns, providing a lean and highly flexible platform that is designed to easily connect to other best-of-breed systems. Neo-core stacks are built with a cloud-first mindset and partially cloud-native architecture, with the preferred and often only delivery model being Software as a Service (SaaS).

By virtue of their more recent inceptions, neo-core vendors have a smaller, yet quickly growing market footprint, often focused on the Retail banking and SME banking segments.

History

How Technological Advances Have Shaped Core Banking Vendors over Time

Over the last five to ten years, the advent and establishment of technological paradigms such as cloud-native systems, smart contracts, and the shift to composable and quickly adaptable architectures have redefined the competitive context of the core banking market.

First, the incorporation of these trends in vendors' offerings has led to a significant transformation of the architecture of core banking systems. Second, the rate of entry of new players has increased thanks to new ways of working and development methodologies (DevOps and agile ways of working) facilitated by the previously mentioned technologies. As a result, recent years have seen multiple new entrants seriously challenge the incumbent players with their disruptive technologies.

However, based on extensive experience in the industry, we have observed a partial convergence between the two solutions in the last two to three years. This is mainly because both parties have been investing to close either technological or functional gaps due to a partial overlap in the customers they need to serve.

On the one hand, incumbents have invested heavily to incorporate the "new" paradigms into their products, having started focused, albeit limited, refactoring efforts to make their technology stacks more composable and shift their solutions to cloud-based offerings. On the other hand, the rapidly growing neo-core players have been investing in progressively expanding the functional breadth of their offerings, expanding the initially often limited coverage to a broader product set.

This doesn't mean that incumbents and neo-core solutions are now comparable. The distance between their characterizing traits is still noticeable. Rather, the respective offerings are showing an increasing rate of similarities from a strategic and commercial point of view.

Comparison

What to Consider when Choosing a Core Banking Solution

Choosing a new core banking solution is a multi-layered and highly individual decision for each financial institution. The choice has a significant impact in the long run. To properly inform their decisions, COOs, CIOs, and CTOs, need to consider several key criteria: Among others, the solution's potential to cover the functional scope / the business needs, its ability to scale alongside business targets, its flexibility to adapt to strategic changes, and its technical capabilities.

Based on our ample experience with CBS strategies, CBS vendor selection, and leading large CBS implementation programs, this section shares our views on the actual practical differences between neo-cores and incumbent solutions and what potential buyers need to consider.

Functional considerations

When evaluating the functional performance of core banking solutions, two key dimensions should be considered:

First, the breadth of capabilities covered by the solution and second, the depth of configuration and customization possible for the financial institutions' accounts.

INCUMBENT SOLUTIONS

Incumbent solutions are particularly strong when it comes to the breadth of capabilities supported. Those solutions are often historically grown, which enabled the vendors to acquire a huge set of capabilities to provide to financial institutions.

In addition, incumbent solutions often come with elaborate product engines, in most cases allowing for deep product configuration. This is mainly the case because vendors in that space have been around for more than a decade and have had the opportunity to build elaborate product (account) engines.

NEO-CORE SOLUTIONS

When it comes to supporting a wide range of capabilities, neo-cores overcome their functional limitations through an open and highly composable architecture that enables the integration with best-of-breed solutions to overcome the smaller functional footprint of the core. This usually comes with great flexibility to grow and adapt business models but also requires a state-of-the-art integration architecture.

Most neo-cores' account engines are less deeply customizable than those of incumbent vendors, but there are two exceptions to this rule.

Neo-cores based on smart contracts: Those solutions leverage smart contracts that contain programmable code describing the exact behavior of the account/banking product and are deeply customizable. Buyers should carefully examine the set of products already available out of the box in case implementation speed if of essence.

Specialty neo-cores that only support one specific product, e.g., types of accounts like savings or mortgage accounts, can exhibit deep configurability for those accounts as well.

Potential buyers need to carefully weigh the product coverage, additional capabilities they need, the starting point of their integration architecture, and any ambition to use the solution across various business segments in order to decide on a solution that functionally fits their needs.

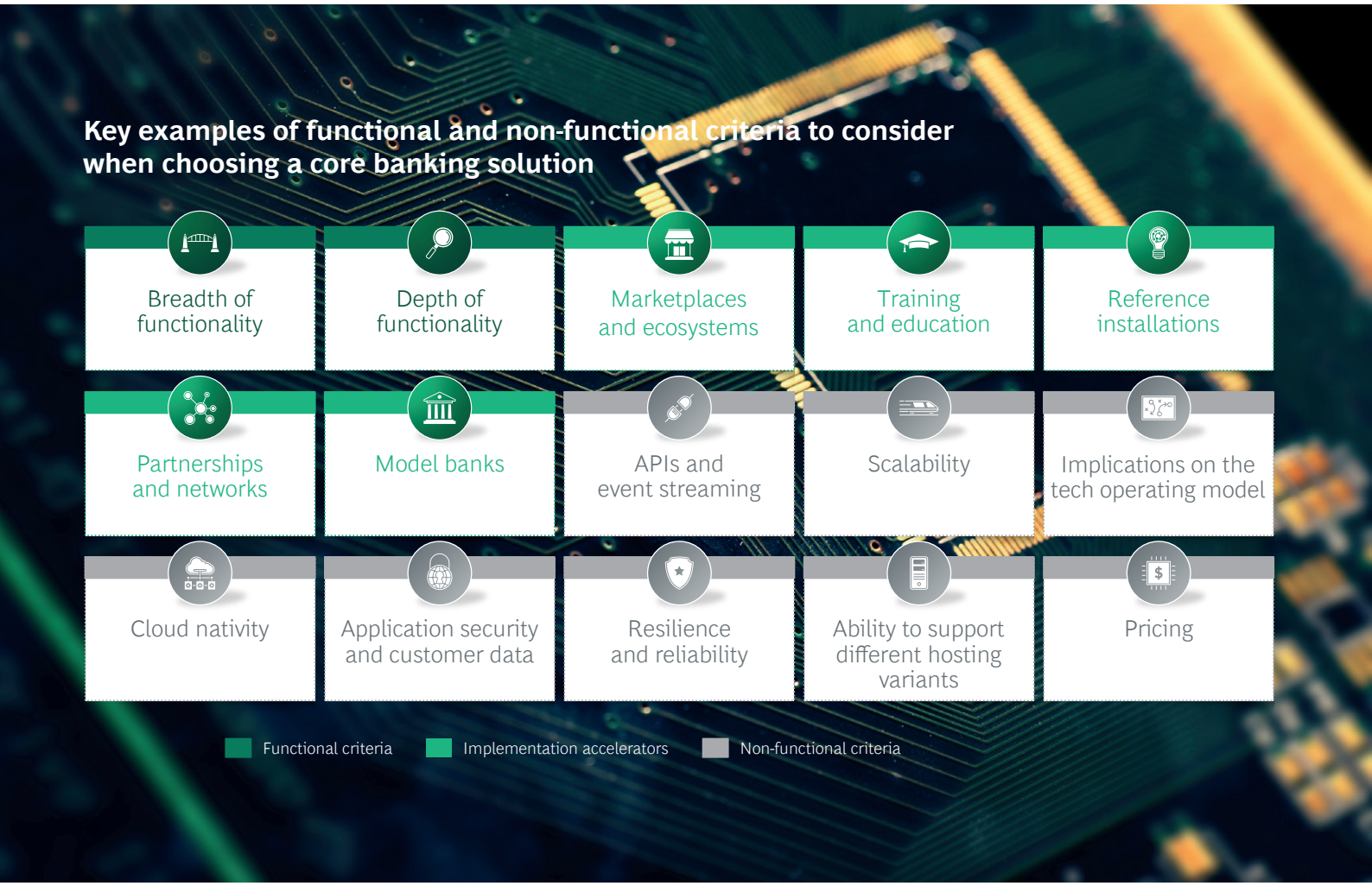
Non-Functional Considerations

APIS AND EVENT STREAMING

APIs and event streaming have become a necessity in recent years, and their integration with other fintech and SaaS solution providers lies at the heart of agile financial institutions. They have essentially become a prerequisite for competing in today's environments.

Traditionally, neo-cores have excelled in this discipline. Designed for integrability and composability from the start, they were among the first to disclose APIs and events publicly and to invest in good, simple, and openly accessible documentation.

As incumbent vendors have come under pressure, they have invested substantially in updated APIs over the last two to three years, and most of them have significantly caught up in their API adoption journeys, including public disclosure.



Differences remain in the structure of APIs, their proper versioning and dynamic typing, as well as security aspects, and the level of depth to which solutions can expose events.

Potential buyers should not only look at APIs and event streaming capabilities by means of analysis of documentation but should also consider a simple Proof of Concept (PoC) as part of the selection process to put integration and functional capabilities to the test.

Scalability

Actual scalability often depends on the technical architecture, which is not frequently disclosed to buyers in detail. Core solutions can usually increase vertical scalability by providing SaaS deployments or on-premises installations on more powerful hardware. This typically holds for all core systems. However, scalability is limited in that respect.

Horizontal scalability is very much driven by architecture choices made by the vendor. If the vendor's core banking solution depends on a single instance database, scalability is limited to the transaction throughput of the database. Though vendors advocate for cloud-native designs for their solutions, having the core deployed on a fully distributed database is not necessarily a capability a vendor might support.

Vendors with a cloud-native architecture, e.g., leveraging microservices, serverless technologies, and/or distributed databases, have a strong architectural starting point in terms of scalability compared to vendors that shifted partially monolithic, single-instance database solutions to the cloud. However, it is important to note that cloud nativity is not an exclusive indicator of scalability and that there are exceptions to this rule in the market.

Potential buyers should not only trust architecture descriptions but should also consider sizes of reference installations the vendor actually has in production. This should remain the ultimate criterion for judging the (proven) scalability of a vendor's solution, as actual performance can differ once the client-specific configuration and customization has been added.

Accelerators

Accelerators are additional solutions, capabilities, integrations, or partnerships suppliers can provide to speed up the adoption of their solution.

Marketplaces and Ecosystems

Marketplaces offer integrations with other solution providers and partners of the vendor. Vendors can usually deploy them to provide pre-integrated solutions with their core banking system. The quality of those integrations can vary, and their functional scope and number of reference deployments need to be thoroughly challenged. Neo-cores were among the first in the market to offer them, with incumbents having started to offer them as well over the last couple of years.

Differences exist in the specific solution providers that vendors collaborate with. Often a smaller set of key vendors are shared across the different CBS vendors.

Potential buyers should carefully consider the type of integrations that are needed and should, consider marketplace providers as part of the selection process of their End-to-End (E2E) architecture where applicable.

Training and Education

Often overlooked, this is essential for the successful and self-reliant adoption of a core banking system. Vendors usually offer training as part of an implementation project that can be negotiated individually. The biggest driver of successful training is open, unrestricted access to documentation.

Best-in-class vendors additionally offer training programs in the form of webinars, available free of charge to buyers. Some vendors charge for access to training material beyond the implementation of the core solution.

In addition—due to their lower functional footprint and impact on usability—configuration-based neo-cores tend to be easier to learn and understand.

Potential buyers should consider their need for initial training as part of initial implementation and check availability of training material after a project ends.

Reference Installations in Markets

Existing reference installations are important because they demonstrate that a supplier has previously delivered the solution to the market, exemplifying that challenges such as support for local products, regulatory compliance, and the availability of skilled resources in the local market have already been met in the past. An "industrial" offering based on previous installations is often called a "model bank" and can be considered as the next level of this accelerator.

> **Potential buyers should carefully evaluate reference installations and compare the functional scope and size of installations, as well as the split of functionality in- and outside the core to draw the right conclusions for their own implementation.**

Partnerships and Networks

Typical partnerships maintained by suppliers include system integrators, infrastructure providers, consulting companies, and other application/solution providers. Depending on the collaboration model defined by the supplier, such partnerships may include training and certification of partners or may only be characterized by a joint go-to-market approach.

Partnerships provide a good starting point for buyers to build their own network of solution providers, integrators, and consulting companies for their implementation. Specifically, when choosing system integrators and/or solution providers, it is very important to reconfirm the depth of the collaboration or integration available. Usually, vendors are happy to guide and recommend partners they have previously worked together with successfully in the market. Independent steering and oversight of the implementation is crucial for buyers to assure unbiased control over the implementation, as conflicting interests can arise among the parties.

Other partnerships include digital incubators, which are offered by integrators and consultancies alike. They often focus on an E2E digital bank offering ranging from customizable apps to customer journeys and integration into the supplier's core banking solution. Those incubators are especially helpful to quickly launch a neobank or a digital banking proposition as part of an incumbent financial institution.

When it comes to partnerships and networks, it is difficult to make general statements about neo-core and incumbent solutions, as partnerships and networks are driven more by the maturity of the supplier than the actual type of core banking system.

> **Potential buyers should evaluate partnerships and networks, as they can be a crucial accelerator to successfully and quickly implement the solution.**

Model Banks

Unlike digital incubators, model banks come with a pure CBS-only focus. A model bank can, for example, provide a set of products already set up in the core banking system that have been used before by other clients, for example products specific to the local market.

Other capabilities of model banks can include country- or market-specific data schemes that are preconfigured in the CBS, such as country-specific customization of data structures, country-specific validation rules, or standard regulatory reports for a specific market.

Often, model banks are used as a starting point to guide implementation workshops to determine the need to adapt the model bank. This can speed up implementation, as adoption programs do not start with a blank sheet of paper. Model banks are usually a domain where incumbent solutions excel.

> **Potential buyers need to challenge providers on the scope of a model bank to understand it as an accelerator to speed up the implementation, particularly because there is no standardized interpretation associated with a model bank and boundaries are fluid with digital accelerators, preexisting integrations, and available product (account) libraries.**

Cloud Nativity

Cloud nativity, i.e., cloud-native CBS, has become a critical selling criterion for a modern core banking solution.

As there is no industry best-practice definition of cloud nativity, suppliers mostly use their own marketing-driven interpretation of the term. To avoid confusion, in this context we distinguish between (1) cloud-native and (2) cloud-ready core banking solutions.

1. In our definition, a cloud-native CBS follows a cloud-native design, i.e., it leverages the technology stacks and paradigms offered by public clouds or technology stacks commonly used in public clouds. At the heart of cloud-native designs are Platform as a Service (PaaS) and SaaS solutions, e.g., DBaaS cloud-based distributed databases. The CBS functionality is developed in patterns following serverless and microservice architectures, i.e., a separation of functionality into independent microservices enabling quick turnarounds on new functionalities.

2. On the other side, we consider cloud-ready solutions when a lift-and-shift option is already enabled by the nature of the core banking design, for example leveraging container technologies without major refactoring of code. This enables a faster shift from on-premise deployment to cloud without completely rearchitecting the solution.

Based on our experience, most non-mainframe-based core banking systems fall under the definition of "cloud-ready" or are in part "cloud-native". Many vendors have shifted their cores to cloud (via containerization) but only a small fraction of them have been designed from the start to be fully microservice-based or serverless. Many vendors that were not "born" with a cloud-native design claim to have completed or to be in the process of completing modernization journeys that involve refactoring of selective parts of their CBS to a cloud-native design. This follows a phased approach driven by business priorities.

An at least partially cloud-native core banking architecture, e.g., fully microservice-based and serverless, adds value: Suppliers with fully microservice-based architectures have a head start when it comes to future product development, as services can evolve independently of each other as opposed to in a monolithic architecture. In addition, fully cloud-native architectures can leverage event-based design concepts at their core, e.g., to drive data insights more easily. Potential buyers need to take a careful look at the architecture of the CBS and ask the right questions to understand the true state of the underlying architecture and interpret the implications correctly.

> **Potential buyers need to take a careful look at the architecture of the CBS and ask the right questions to understand the true state of the underlying architecture.**

Application Security and Customer Data

Most vendors have a broad range of certifications to assure potential buyers that their internal operations and engineering processes are aligned with high industry standards. In addition, role-based rights configuration is supported by a vast set of solutions—what differs is the extent and depth of those configurations.

While vendors can often demonstrate that their solutions have been implemented in a GDPR-compliant setting, the leading solutions have data anonymization directly built into the core and can therefore operate without any personal customer data being disclosed to the core.

Integrations with external customer information files are typical in the market. For larger SMEs and large corporates, some solutions can extend customer data with elaborate credit group risk structures. This functionality, where available, is predominately found in incumbent solutions.

> **Potential buyers should make sure suppliers have market-typical certifications such as ISO/IEC 27001 (information security) and SOC 2 Type 2 (safeguarding of customer data).**

Resilience and Reliability

When it comes to the resilient deployment and operation of core solutions, vendors can apply different concepts. Depending on internal architectures, vendors can also fully utilize a cloud-native design that pushes resilience and reliability in the underlying cloud services.

Batch processing has been a part of most core solutions for decades. Often, incumbent financial institutions face challenges on the duration of End of Day (EOD) batch networks spanning the landscape from core banking to regulatory warehouses.

Challenges of EOD batch processing can be aggravated by monolithic designs; for instance, when an EOD batch runs across all accounts, failures in single accounts may lead to challenges to complete the entire EOD batch. Leading core solutions have managed to improve on this problem, making their solution more resilient when it comes to batch processing.

> **Potential buyers should examine the supplier's architecture and its impact on resilient operations.**

Ability to Support Different Hosting Variants

The ability to deploy a core banking system on different hyperscalers on a public cloud, or to deploy it on a private cloud, depends strongly on the specific supplier.

Buyers looking for private cloud deployments—for example, due to regulatory constraints or geographic constraints on the public cloud—are most likely to find this capability with incumbent vendors, although some neo-cores offer it as well.

Whether neo-core suppliers can or are willing to provide a private cloud deployment depends on the current adoption journey and positioning of the vendor. Recent entrants to the neo-core market might be more open to private cloud deployment as opposed to more established neo-cores.

Public cloud deployment has meanwhile become the standard model for adoption if regulatory and location constraints can be managed.

> **Potential buyers should examine the supplier's options to deploy to different clouds and need to consider their individual cloud strategy and regulatory constraints. In case of non-SaaS operations (e.g., when deployed in the buyer's own private cloud), familiarity with the supplier's solution is essential to ensure stable operation.**

Pricing

A wide variety of pricing models exist in the market.

Unlimited enterprise license

This model allows for an unlimited installation or use of the supplier's core banking software with lump sum pricing. This often comes without any limitations on the number of accounts or users on the system and often goes hand-in-hand with a private cloud deployment. This model involves a one-off payment at the beginning of the contract, with a yearly returning license fee. Neo-cores, which usually come with a SaaS pricing model, do not typically provide this licensing model.

SaaS- or BaaS-based pricing model (consumption-based model)

This model is often provided by neo-cores and incumbent vendors alike. Users often pay a yearly, consumption-independent fee and are additionally charged by use, e.g., based on the number of accounts, number of users, etc. This model often goes hand in hand with an SaaS deployment model.

Discounts are common in the market when buyers pay up front.

> **Potential buyers need to carefully identify and estimate their cost drivers and should be open to a wide variety of pricing models, propose pricing models, or ask for beneficial pricing models. Depending on the situation of individual suppliers, attractive propositions may emerge as part of this process.**

Implications on the Tech Operating Model

The implications on the tech operating model that come with specific providers are often overlooked by buyers.

Incumbent solutions have grown over years in functional capabilities and vendors have developed service and consulting organizations around their products, e.g., networks of system integrators. Those solutions are often functionally powerful but also difficult to understand without help provided by vendor consultants or people very seasoned in the specific product. This means that buyers make a conscious decision to—in the future—remain at least partially dependent on consulting services provided by the vendor.

We have seen some financial institutions overcome this dependency to a large degree, but it involved significant investments in building up internal knowledge over years, for example by aggressively hiring vendor personnel or international experts from other programs into their business-as-usual organization.

Most of the time, neo-cores are easier to learn, get accustomed to, and experiment with by people that have a rather generic tech and banking background. The generally good availability of documentation helps in scoring quick wins. Usually, organizations manage to run them without major vendor support (SaaS). Neo-core vendors tend not to have large delivery organizations for their products and are less incentivized to seek implementation programs.

> **Potential buyers should not underestimate the impact of the core banking selection on their tech operating model. Depending on the product, significant in-house knowledge needs to be adopted. Neo-cores also often require a more tech-driven, self-reliant IT organization, which can imply a change in the overall IT operating model depending on the individual starting point.**

Conclusion:

How to Successfully Choose and Implement a New Core Banking Solution

When it comes to choosing the right core banking system, there is no one-size-fits-all solution. The process is one of strong deliberation of various criteria, often leading to trade-offs that need to be made between functional coverage, non-functional capabilities, and overall risk of implementation.

Whenever incumbent banks consider replacing their core banking system, it is a key success factor to couple this with a business simplification or transformation of their operating model. This requires strong business involvement and commitment starting with the selection and ending with a successful go-live of a simplified operating model.

Financial institutions—depending on their size—can ease the process by breaking up the decision into smaller pieces and leveraging joint PoCs with the vendor to reduce the risk of ending up with the wrong partner.

Financial institutions should not be afraid to consider updating their core banking architecture—given that key personnel is often likely to retire in the upcoming years, inherent operational risks already exist. While core banking implementations in established financial institutions are challenging programs to execute, the methodology (approach, tools, and governance) is actually well established. This means there is – despite counter examples in the market – still a fair chance that those programs are able to succeed in case they are steered by a C-level business representative to ensure sufficient business priority, business simplification, and swift decision making.



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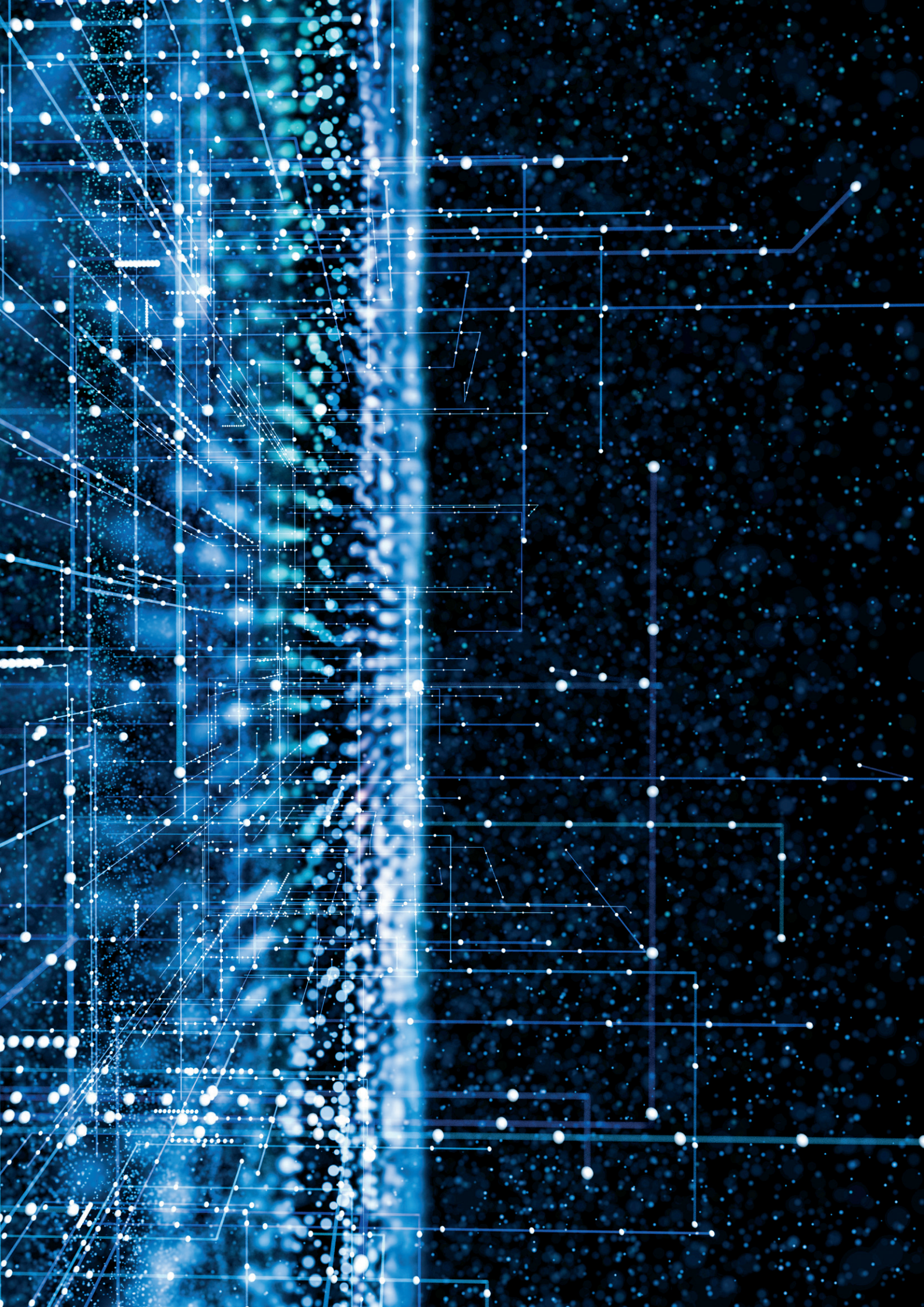
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