
fintechOS
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Core Banking
Future-proofing banking: how to deliver incremental innovation without casting out legacy investments

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Introduction

If modernizing core banking infrastructure were straightforward, every financial institution would have done it by now.

The pressure to deliver digitally the full range of banking services available in a branch became acute during the past years.

Customers worldwide get used to seeing the financial side of a transaction embedded in a service. They also get more apt at building on their devices their portfolio of financial services apps – which most often do not belong to their “main bank”. Banks for sure acknowledge this, but achieving such agility and personalization is not easy.

There are operational reasons for transforming internal mechanisms, too. Legacy infrastructure is expensive and cumbersome to manage. The cost of maintaining old systems curbs the ability to fund innovation and be price-competitive in the market.

Yet, scrapping legacy investments can be just as costly and painful, certainly in the short term. On top of concerns about the risk of destabilizing everyday operations during the transition, there are all kinds of regulatory and security controls built into banks’ foundations which need to be considered. Not to mention the many decades’ worth of data which they still need to be able to access.

What to do? Standing still is not an option; indeed, the pace of change and therefore the urgency to do something is growing sharply.

This paper explores the options for transforming core banking systems in a practical, manageable and affordable way. The goal is a smooth transition that enables banks to deliver innovative new services and personalized customer experiences at speed.

Mounting market challenges

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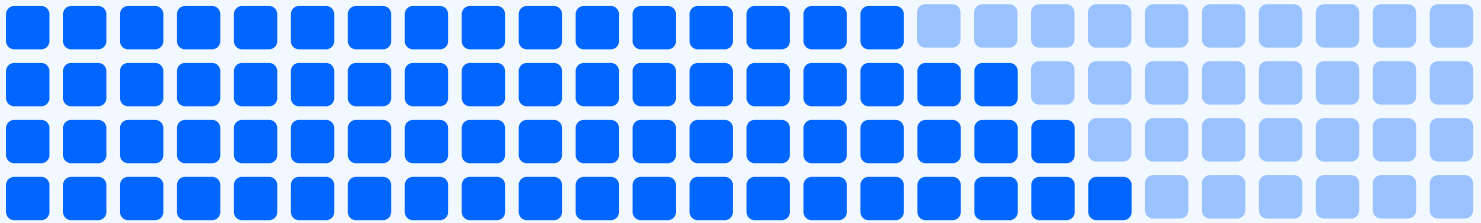
The current state of banks and their core banking systems

Traditionally, banks relied on their trusted relationships with customers. The expectation was that this would continue indefinitely, not least because there wasn't much to choose from and switching brands was a protracted and inconvenient affair.

That world no longer exists. Regulators have made it easier for customers to shop around and for challengers to shake up the market with customer-centric offerings more geared to the digital age.

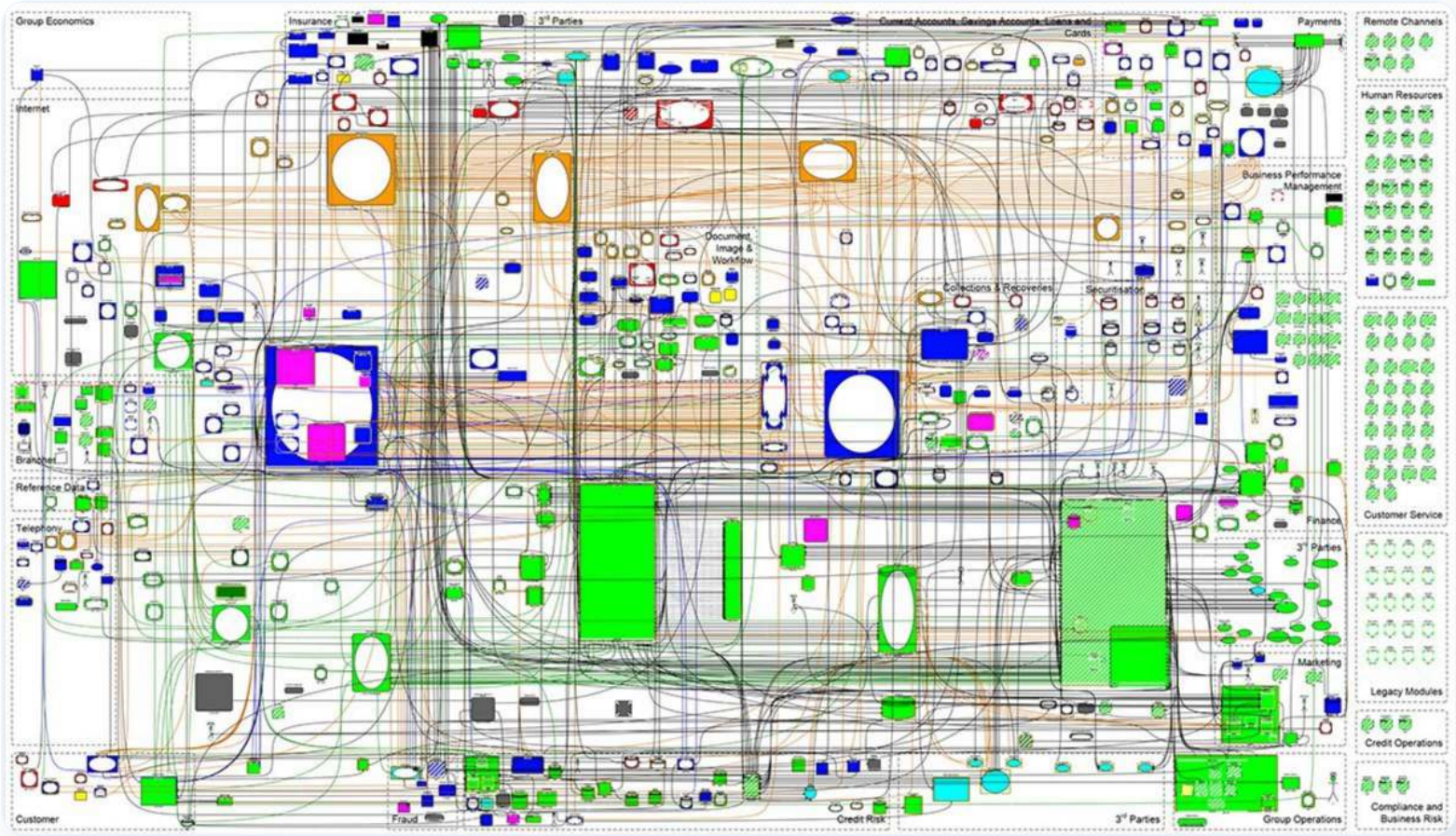
Meanwhile, incumbents have grappled with how to integrate new services with legacy back-office systems. In a McKinsey survey of banking executives in 2019[1], more than two-thirds (70 percent) confirmed that they were reviewing their core banking platforms. Many of these proprietary and highly-siloed systems were built decades ago. They were not designed to support digital services, rapid innovation, or customer-centric experiences.

> In a McKinsey survey of banking executives in 2019[2], more than two-thirds (70 percent) confirmed that they were reviewing their core banking platforms.



Mounting market challenges

A few years ago, Computer Weekly published the following image, which illustrates the IT complexity involved to support a single mortgage system[3]. If a picture paints a thousand words, this image should explain the transformation headache for banks.



So how tied are they?

A 2020 European Banking Survey for card-issuing platform Marqeta found that while more than three-quarters of banks have changed their future banking strategies, 60 percent have been thwarted by their legacy systems.

In the study:

COVID-19 has accelerated the need for transformation as lockdowns moved most financial transactions online. Consumer behavior patterns also changed, increasing the need for timely fraud detection.

The pandemic exposed serious weaknesses in existing banking operations and infrastructure, inspiring new urgency around transformation, according to a paper published by research firm IDC in September 2020[5]. For example, during the pandemic, 58 percent of U.S. consumers actively avoided visiting a branch, placing an enormous burden on bank contact centers.

Banking CIOs are now reprioritizing, McKinsey notes[6]. Many are allocating 50 percent of technology investments to enabling a digital-led recovery – at speed. Ambitions include accelerating the shift to digital channels to meet rapidly-growing customer demand; improving IT productivity to boost cost-efficiency by up to 30 percent; and modernizing the IT platform to address the scalability and reliability issues revealed by the crisis.

If incumbent banks do not make a deep enough change to their capabilities and their offerings, there's a good chance they won't survive. Challenges beyond the ongoing pandemic include:

Growing competition

Even if current economic conditions force some market consolidation, established institutions are under attack from the neobanks (direct, online banks without traditional branch networks). Between 2017 and 2000, these trebled in number globally to almost 300, according to Exton, which manages a global database of consumer banking apps. Europe leads with more than 100 live apps and 50 million accounts, with the UK accounting for one-third of that total[7].

Unsustainable cost pressures

Neobanks' cost models are very different from those of incumbents. Not only have they swerved the financial burden of owning/leasing and staffing physical branches, but these market disruptors have entered the game with a web/mobile, digital-first approach. That is, they are not carrying the weight of decades of legacy infrastructure and analog processes. They have designed their capabilities from the ground up to be delivered via the cloud, using technology that is being continuously refreshed to provide the latest features and best performance. And they can scale capacity to meet demand. By contrast, incumbent banks with legacy infrastructure spend a collective USD 200 billion a year just to keep the lights on, according to analysts at Citi[8].

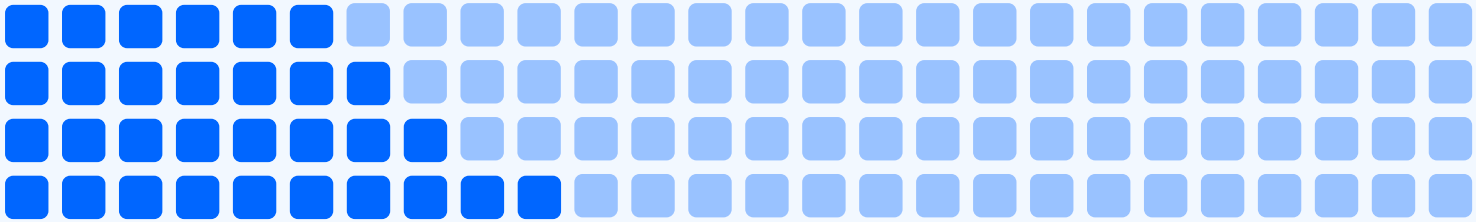
Soaring customer expectations, the rise of the customer experience

Banks have long recognized the need to move from product-based sales to customer account management, a trend which has prompted investment in modern customer-relationship management capabilities – allowing them to understand their evolving needs more holistically. Today, strategies are geared to the preferences of the individual and the kinds of experience and convenience they are looking for. That could be directly with their bank (seamless omni-channel experiences that allow more choice in the way customers transact with their service provider). Or it could be as part of consumers' broader financial activity out in the wider world.

Reduced customer loyalty

Although some commentators have noted a slight shift back to the big traditional brands during the uncertainty of the pandemic[9], the general trend is that customers are switching to providers that offer them a richer experience – in the form of maximum flexibility, convenience, and innovative new products and services that are more relevant to their needs today. Churn rates are expected to rocket once the post-COVID recovery gets going.

> One survey suggests that as many as 27 percent of customers of large, multi-location banks will switch their primary provider[10], in favor of one that better satisfies their expectations.

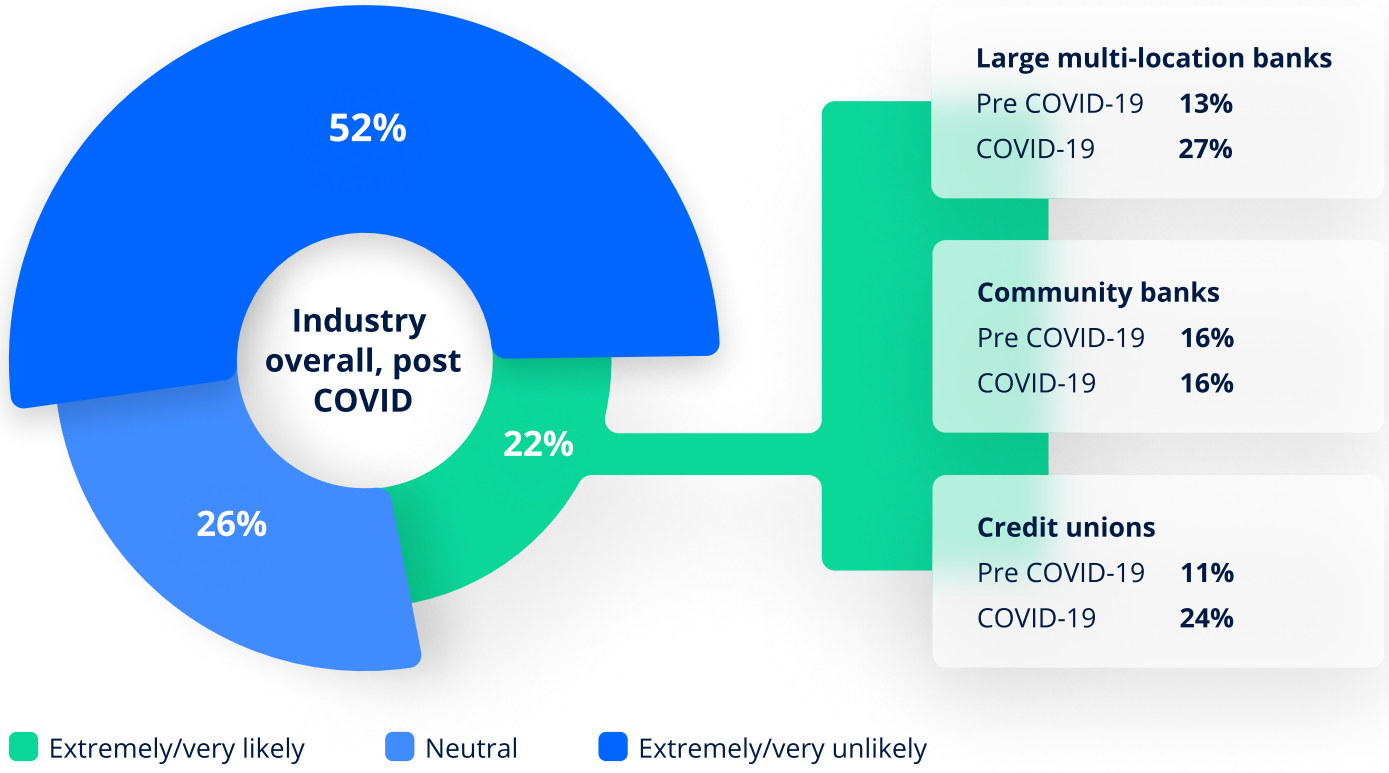


Intensifying regulatory pressures

Financial services is one of the most intensely-regulated industries in developed countries. As digital transformation of the market accelerates, regulators are continuously updating the rules to protect customers' interests and increase transparency. In a traditional back-office scenario, each new or updated regulation typically means a major new IT project, which in most cases adds no new value to the business. Since all banks have to comply, ensuring adherence is purely a cost. In a global financial services survey published in 2020, executives highlighted the growing costs of compliance, with 20 percent identifying this as their number one concern and one-third of organizations spending more than 5 percent of their revenue on it[11].

COVID impact on intention to switch primary financial institution

SOURCE: Foresight Research © August 2020 The Financial Brand



Replacing the core

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There are different approaches banks can take to reduce their dependency on old systems, allowing CIOs to choose the right strategy for a particular risk appetite, legacy entrenchment, and current competitive and operational challenges. With so much at stake, this is not a one-size-fits-all situation. Capgemini maps out three different categories of benefit linked to transforming the core, which banks can use to guide their approach[12]. The main goals are likely to include:

Business aims

Decreasing time-to-market for new products
Easing compliance with new regulatory requirements
Generating more cross-selling opportunities
Enhancing the bank's flexibility to innovate with products and pricing
Achieving a consistent multi-channel experience

Technology goals

Optimizing existing costs associated with core applications
Reducing high maintenance costs associated with legacy IT systems
Achieving a service-oriented architecture, replacing siloed, product-based legacy models for managing data, measuring performance, and guiding business goals
Building a multi-channel capability

Operational priorities

Achieving streamlined end-to-end business processes
Increasing interoperability by standardizing business processes
Eliminating manual operations
Enabling outsourcing or more flexible delivery models for non-core operations

Choosing the right path to transformation

When considering the best approach to transforming the core, banking CIOs need to weigh up the degree of transformation needed against the likely speed to value. Wholescale 'big bang' change might be what's needed ultimately, but this kind of program can take years, cost a fortune, and create risk – not least because requirements will keep evolving as work progresses. Given the pace of market transformation, of changing customer expectations, and of new technology advancement, banks cannot afford to make huge, deep-pocket investments in IT transformation that could lead them into new operational or IT-based dead ends. Rather, they need to prepare a path to continuous innovation – a state of being able to keep flexing and adapting as new challenges and opportunities present themselves.
In a flash survey of 100 banks at a conference in 2019, McKinsey found that the three main options typically being considered were: big bang; progressive modernization; or a green-field scenario[13].

viewpoint **a bank's infrastructure could be their differentiator**

Until innovation starts touching customers, it's just theatre. We've seen banks buy things, we've seen banks create things.
But have they really driven the scale of change they wanted? No. Digital isn't about a channel to sell the products you've been selling for years. It's a fundamentally different way of operating. And there's still a long way to go.

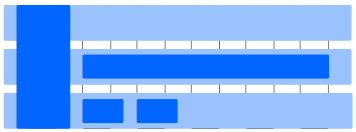
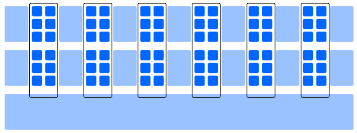
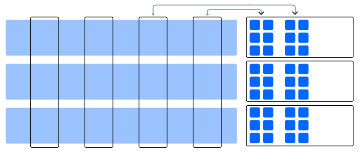
We shouldn't underestimate how far we have come. But there's more that we could be doing.
The thing that has been missing is urgency. Too often it's fear that is driving innovation, when it should be opportunity.
We're entering into an era where your fundamental infrastructure could be a differentiator and secure your future.
But it requires first and foremost that banks make this a mission and go on the offensive.

David Brear
Founder and CEO, financial services consultancy **11:FS**

Banks have three options for replacing the core

Replaced
Preserved

Low
Medium
High

	1. Big-bang replacement of core	2. Journey-led progressive modernization	3. Green-field tech stack
User interface Integration Core systems			
Description	'Big bang' approach with monolithic system upgrade every few years Selected systems upgraded or replaced according to architecture roadmap (through 'buy' or 'build' approach)	Top customer journeys reinvented end-to-end through zero-based design New business logic built iteratively as modular microservices (and selectively 'hollowed out' from existing systems) with shared utilities	Green-field tech stack leveraging cloud-native architecture (eg. hyper-parametrized, real-time, modular, API first) New customers onboarded on the new platform, existing customers migrated (eg. cancel and re-enroll, recreate accounts)
What the bank needs to believe	Current core is dated or out of support and there is an urgent need to replace	Current core has support and is usable for the next 5 to 10 years Lower appetite for risk of data migration required than for 'big-bang' or green-field option Highly complex product set-up or legacy customers making migration a challenge	Risk appetite and budget to experiment with a technology hedge Speed of product innovation over risk of data migration challenges for legacy customers
Speed	● ● ●	● ● ●	● ● ●
Risk profile	● ● ●	● ● ●	● ● ●
Investment	$100 million to $500 million+	$50 million to $200 million	$50 million to $100 million

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With all of the inherent cost and risk of 'big bang' projects, banks show little appetite for this approach. The impact of a large disruption in operations is too much. According to Cognizant[14], only a quarter of projects are successful and costs are often double or treble the original estimate. A green-field tech stack, on the other hand, separates the old and the new, using a stack that is completely separate from the legacy infrastructure to accelerate the launch of new offerings and deliver value quickly. The existing customer base is not exposed to the new platform until the technology is proven with new customers for new products.

Yet taking advantage of this option as a traditional bank is likely to mean spinning off a separate brand, and the opportunities to offer both old and new customers the same fresh experience via the new platform may never be realized. Transferring existing customers to the new platform will also prove difficult for active loans and mortgages because there is no connection to the legacy core system that services these products.

For these reasons progressive modernization has become the most popular approach. Here banks retain their legacy platform, but progressively reduce their reliance on it. Many see digital-on-top as a rational combination of reduced risk, retaining critical core banking functions, and enabling digital innovations.

viewpoint **digital initiatives should be about reinvention, not replacement**

Across the banking industry, we've seen a lot more consumer choice, transparency, and lower costs. But right now, we have a digitized version of banking as it's always been. Over the next couple of years, I think we'll see a reinvention that harnesses the technology available to really reimagine banking and help people do money better. Next will come figuring out at what point these banks replace the core business, or if indeed they do. Successful innovation is all about the killer use case: how we legitimately create value in a customer's life. If a bank can get that right at scale, it will win.

Jamie Broadbent
Head of digital & innovation - **RBS International**

Assessing the digital-on-top advantage

Modernizing the legacy core with a digital layer on top allows banks to implement a new 'digital core' that meets their own and customers' advanced needs not offered by the legacy core. The 'digital core' can support innovation in ways that the legacy infrastructure doesn't support. It can define new products and services, integrate siloed internal information and provide access to external data services and fintech services. This option offers a good alternative for banks looking to transform quickly without the need to replace legacy core banking systems in a single big project.

Benefits include

- The chance to match the speed and flexibility of neobanks and fintechs – incumbents' nimblest, technology-driven competitors.
- Removing the limitations of a siloed product-focused architecture in which it is too hard to pull in data from diverse system silos to create a comprehensive experience for the customer.
- The ability to choose the pace of change – testing and innovating quickly where needed, without detracting from current business (it's now possible to build digital products in weeks rather than months).
- The ability to connect into existing digital ecosystems and to form partnerships with leading app and service innovators, again without risk to established systems and products.
- The chance to demonstrate timely progress and the bank's commitment to delivering exciting and convenient new customer experiences.
- The ability to redefine the customer experience – by providing a complete digital journey through the smart automation of digital processes, enabling personalized products and experiences for each customer.

viewpoint boldness pays

The banks that are ahead with digital transformation today are those that aren't just approaching it as a technology-led initiative, but as something much bigger.

There are many success stories out there. Commonwealth Bank of Australia is widely recognized for leading with innovation and bringing new solutions to the market to provide customers with products and services that make life easier or integrate into the customer's lifestyle. Rabobank, TD Bank in Canada, Credit Agricola's new digital bank (Moey) in Portugal and Banca Mediolanum's Flowe in Italy are further examples. By meeting customers' needs, these organizations create a deeper bond, which differentiates them and is driving growth.

Banks that aren't advancing or achieving scale in their transformation typically lack executive sponsorship or are failing to include business leaders in their plans. Their vision may not be sufficiently far-reaching either, and they may be trying to hang on to existing solutions rather than leveraging the latest technology options.

The growing maturity and acceptance of the cloud should be driving new waves of innovation now, allowing banks to develop new products more rapidly, service customers more easily, scale sustainably, and create amazing customer experiences that match those of even the most advanced fintechs.

Ed Herman
Worldwide financial services lead, Azure & AI - **Microsoft Consulting Services**

What are some of the considerations when exploring and planning a digital-on-top approach?

Identify immediate and mid-term goals for modernization

One of the pitfalls in any core banking modernization project is the belief that all functions are equally important, and that therefore all functions should be updated as soon as possible. Rather than trying to do everything at once, risking delays and inflated costs, it makes sense to identify the biggest gaps in terms of service provided and solve for those gaps first. For some banks this means launching novel products, for others it will include building a better digital customer experience, while for other banks change will focus on regulatory demands. Identifying priorities upfront will reduce the scope of projects and focus the organization on delivering well-defined goals.

Start small and expand

How do you eat an elephant? One bite at a time. Banks should consider approaches to modernization that are modular and extensible by design. The key to extensibility is that it must be a design feature of the new technology. A boutique technology firm could build several projects for a bank, but one-off projects do not lead to interoperability or sustainability. They cannot be updated and extended in the future. Large monolithic platforms, on the other hand, cannot be built in small increments and are also not extensible or easily upgraded. Change isn't part of their design. Only solutions that can be built in smaller projects and retain their flexibility over time can help banks to address immediate challenges first and mid-term goals later.

Think customer-centric, not product-centric

Banks need to organize their services around the customer rather than trying to organize their customers around their services. The traditional banking infrastructure reflects how banking worked in the 20th century. Customers visited the bank and were used to completely disconnected services. Customers would fill out the same forms over and over again for different departments in the bank and sacrificed leisure time to get their affairs in order. These days this isn't acceptable. Banking has become far more competitive and banks that cannot provide a strong customer experience will lose market share. A new banking infrastructure should reflect this change. Customers expect banks to provide tailored offerings and smarter customer experiences that are relevant to them and convenient to use wherever they are.

The FintechOS approach

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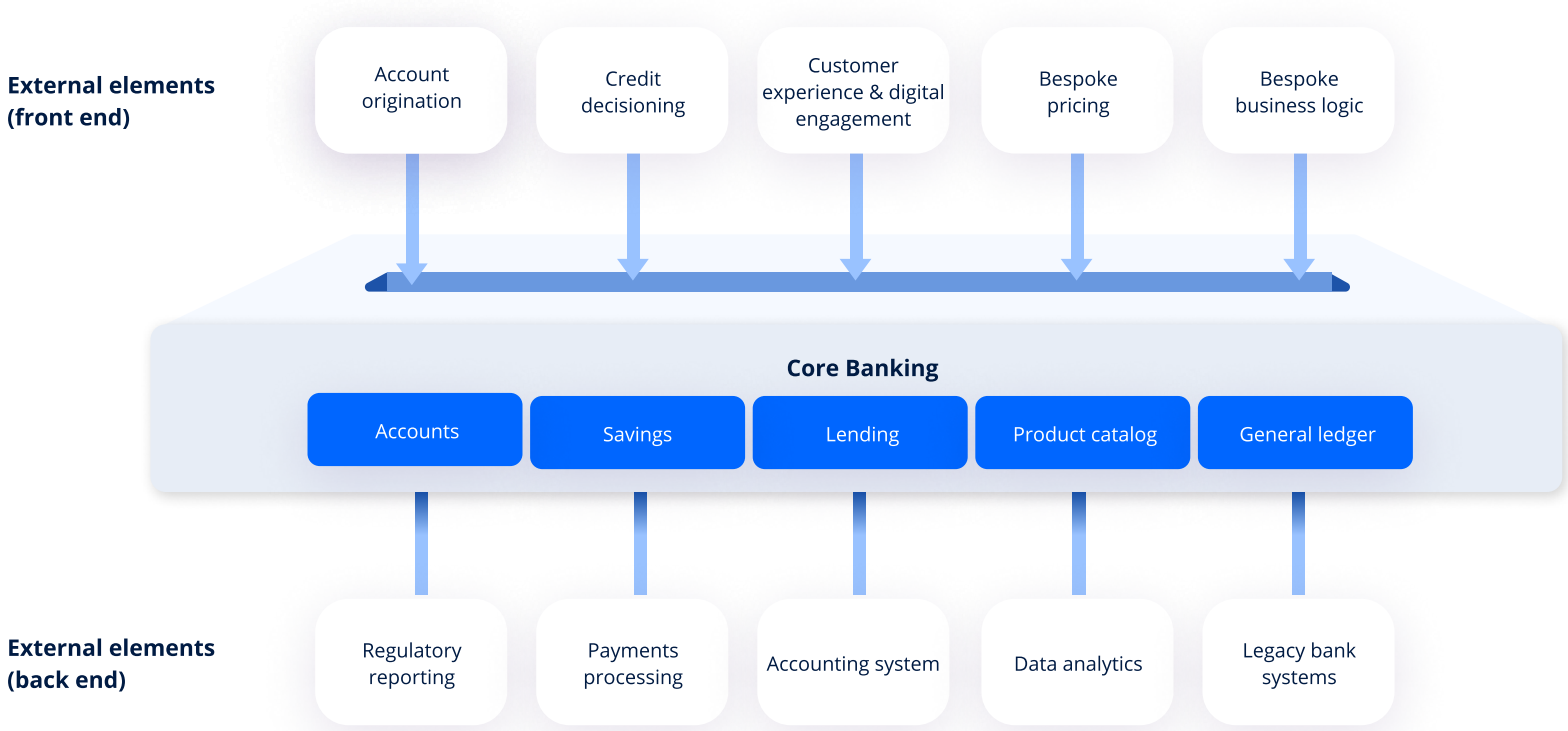
The FintechOS approach

Transformational core digital-on-top is the approach taken by FintechOS. Key is the ability to identify and access all existing data about customers – as well as the bank's product catalogue – from right across the organization and combine it with external data from sources ranging from credit bureaus to payment providers. The software converts that data to a common format, ready to be called into play as part of any new and future customer service innovation.



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What innovating with FintechOS means for banks

Personalized banking

The FintechOS Lighthouse platform is built on the premise that better customer experiences start with better data. All the data needed for a single customer view is stored right along the traditional banking data so that the data to build and market smarter products is always available together in the one place. This place is called the Evolutive Data Core. Now banks can create customer segments and inclusion criteria at the heart of their financial services and create products that are more relevant, more targeted, and offer a better experience to the customer.

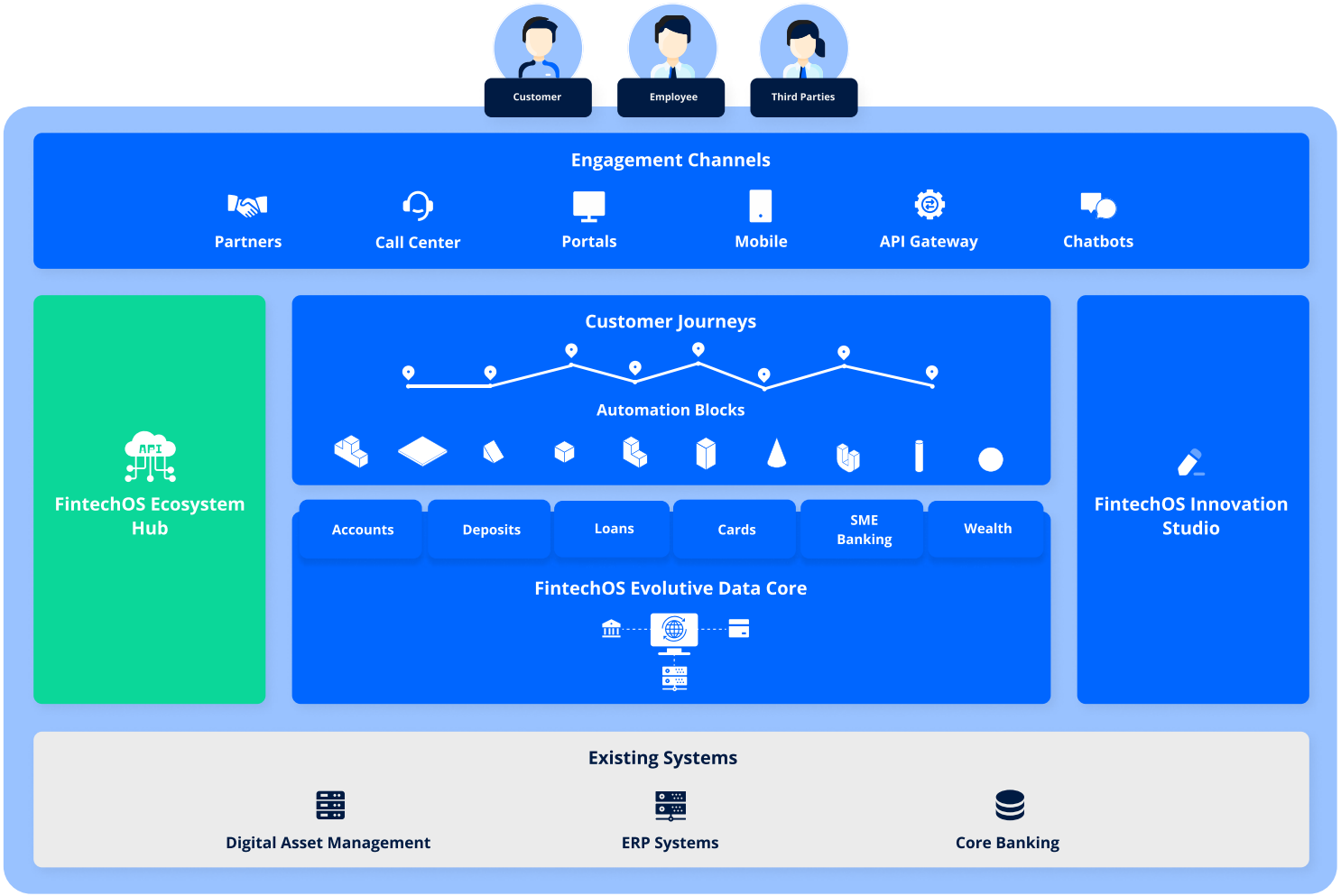
Operational efficiencies

Better customer experiences also result in lower operational costs for banks. Especially in banks that still rely on paper-based processes and manual handovers, automation can bring time savings and cost savings. To name a few examples, fully digitized operations that eliminate paper-based processes increase the speed of business processes and increase their reliability. Digital document creation and electronic signatures make sure that loan origination can be completed in a single session for standard applications and drastically reduce time-to-money for customers. Face recognition, liveness technology, and OCR help to streamline KYC checks that otherwise slow down operations and create friction with customers.

Short time-to-market

Lighthouse helps banks to build the majority of the customer journeys needed out of pre-built, productized functionality called Automation Blocks. These contain necessary and often reused technology for things such as security, identity and access management, business logic for scoring and rating, workflows, and digital documents and signatures. Building with Automation Blocks is fast and reliable and allows banks to focus on the elements of their customer experience that need to be unique. The FintechOS Innovation Studio helps banks to build that unique experience for their target audience. It offers business users a low-code approach to configure new customer journeys and financial services, or to build bespoke business logic.

FintechOS Lighthouse



FintechOS technologies

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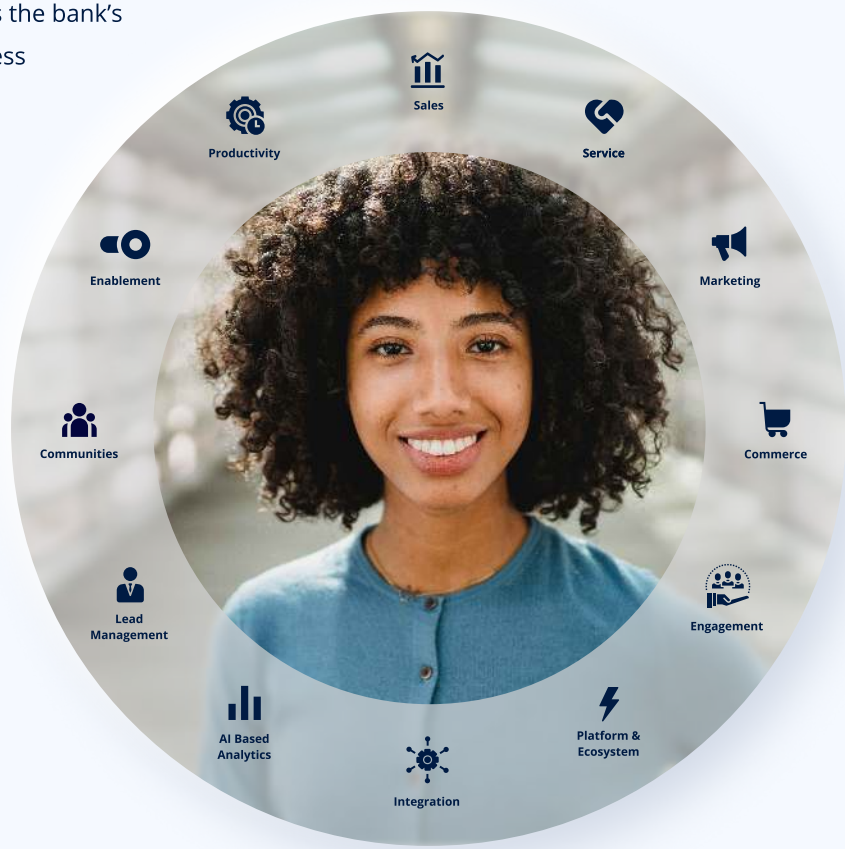
The Evolutive Data Core

FintechOS brings together data from the bank's legacy systems alongside third-party data and ecosystem services in its Evolutive Data Core.

This is an API-driven extensible data model that can be updated continuously with new data and connections. This means that FintechOS enables the bank's systems to grow and learn over time to keep pace with business changes. It also offers pre-configured integrations with over 150 external sources, such as Transferwise, Onfido, and Dun&Bradstreet.



Customer Journeys

FintechOS provides pre-configured functionality in Automation Blocks that can be combined in many configurations to meet diverse needs. For a loan application, for example, a bank might put together blocks addressing KYC, workflows, scoring rules and credit decisioning, document generation, and digital signatures. With 90 percent of the new customer journey already available as Automation Blocks, creative teams can build the final customization to create new standout experiences at speed. This kind of capability is rare if not unique among digital banking technology providers today, but it will be critical to providing the truly customer-centric experiences of the future.

Comprehensive

Customer Journeys span all layers of the platform, from the Evolutive Data Core to the Digital Engagement Layers

Flexible

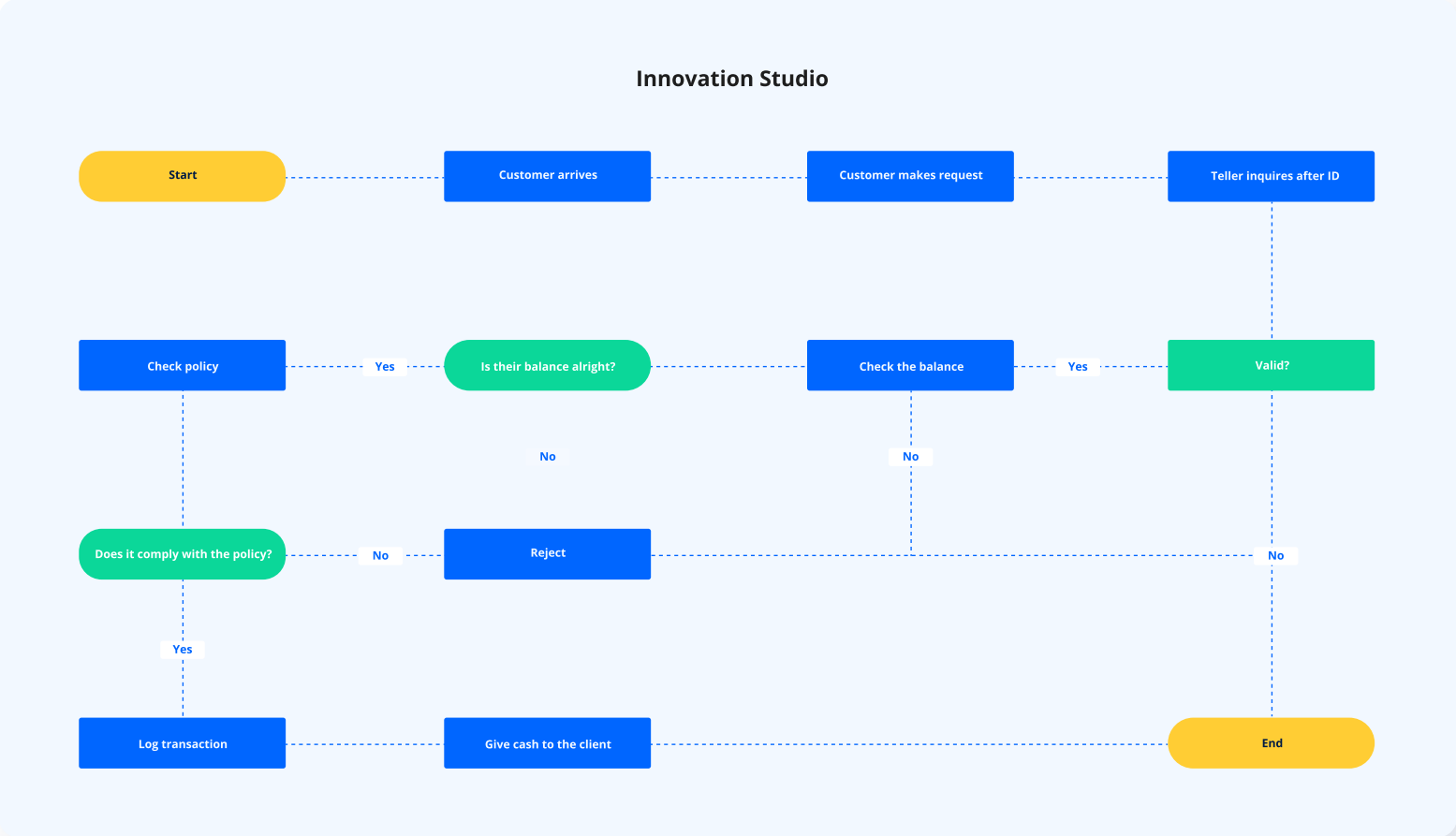
Customer Journeys are orchestrated and customized with the Innovation Studio.

Connected

Customer Journeys can be exposed in third-party engagement layers too and can use ecosystem data and services

Innovation Studio

Within the creative playground of FintechOS' "Innovation Studio", lenders can create and deploy financial services and customer experiences in a "low code" environment. This is faster, more direct, and more user-friendly for finance experts than the traditional approach of working with IT teams. This allows the bank's product developers to use their experience and knowledge to innovate even if they do not have deep technical expertise.



Conclusion

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Conclusion

Up to now, banks have faced the dilemma of embarking on radical change or taking a disjointed approach to transformation, exposing them to either too much cost and risk, or a fragmented customer experience.

As banks have moved toward a progressive modernization approach, a vertically connected approach to transformation has proven more effective than creating separate technical stacks horizontally. Replacing only the front layer or the bank's middleware can result in good-looking apps that lack functionality and aren't especially smart. Moving the business toward a vertically connected architecture in a comprehensive way is preferable, especially when that technology scales and more services, business lines, or geographies can be added later.

Certainly future success will rely on banks understanding their customers to the degree seen in e-commerce. The ability to learn from data, and compete on convenience, tailored offers and personalization, will be increasingly critical. To do any of this well, banks need to improve their ability to gather data and learn from it, as well as their ability to launch products and customer experiences more quickly.

Banks need to choose their technology partners carefully, then. As McKinsey puts it, "The platform decisions leaders make now will set their direction of travel for the next five years or more. They need to think carefully about their next move. Still, there is scant opportunity for delay. The industry is approaching an inflection point, at which technology leaders will put clear blue water between themselves and the competition. The bottom line? CXOs need a clear strategy to avoid being left behind[15]."

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How we can help

FintechOS changes everything banks know about the speed of process and product development. Our Technology as a Service (TaaS) platform, which can be hosted in public, private, or hybrid environments, is based on the latest technologies and features an 'evolutive data model.' This makes it possible to pull in data from legacy systems on demand and enrich it in the cloud to create adaptive models and data-driven products.

Our future-proof, open source-based architecture has no tiers or layers, but provides maximum flexibility to connect in new capabilities as desired, via our out-of-the-box open API. To support smart digital process automation, we harness advanced AI capabilities, cognitive automation, and machine learning.

Although we can also provide a lean banking core if this is required, for example in a green-field scenario, we will never provide more than our customers need. Our focus is on getting you to where you need to be, as effectively and as painlessly as possible.

To find out more about FintechOS, please:

- Visit www.fintechos.com
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