

EVOLVING BUSINESS MODELS AND THE MODERN CORE PLATFORM

A PATH FORWARD

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EXECUTIVE SUMMARY

Banking has entered a period of tepid growth where traditional sources of revenue and performance are no longer reliable. Institutions are struggling to organically grow the business for the following key reasons:

- **Reduced fee income:** Transparency and customer centricity is leading to lower fees.
- **Compressed margins:** Some products are a race to the bottom. Combined with inflated “run-the-bank” costs mean margin compression.
- **New regulations:** Open Banking and the Revised Payment Service Directive (PSD2) require banks to offer third parties access to their customer data, products, and services.
- **Commoditized product offerings:** Bank products on traditional legacy leave little room for differentiation.
- **Proliferation of alternative financial offerings:** More businesses offering financial products that leverage new technology means less activity hitting the books of traditional banking.

Institutions are looking for new ways to drive value creation. They are looking toward emerging business models to open new revenue streams and enhance the value-creation properties of a true platform. Celent highlights and summarizes three:

- **Marketplace:** The bank owns the platform and experience but brokers products and services from other banks and third parties. Data management is exceptionally important, with robust analytics capabilities and interconnectivity via application program interfaces (APIs).
- **Banking-as-a-Service (BaaS):** The bank acts as the producer/supplier of products and capabilities. Extensive API-management capabilities and strong integration from the core allows white-labelled or value-added offerings for end-users. One hundred percent of the platform is exposed as API endpoints and multitenancy to support the BaaS bank.
- **Hybrid/Platform:** The bank provides the platform for value creation by being both the producer and distributor of products. This model is much more dynamic in its ability to meet ever-changing market demands. It provides modularity to configure, bundle, or

repackage third party alongside internal proprietary products or services seamlessly through one platform is key.

However, efforts to modernize have so far been lackluster, and institutions need to consider a modern core platform to grow the business. Financial institutions will need to move beyond a front-end focused view of digital transformation. The back end, specifically the core system, will be the foundation from which an enterprise meets the rapidly evolving needs of emerging business models. We identify four critical core characteristics:

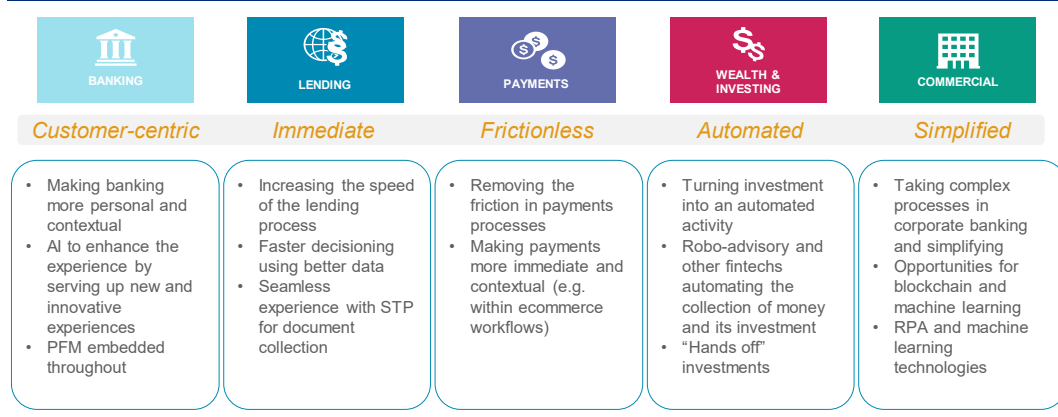
- **Componentized architecture:** Components allow banks to more easily transform and take advantages of rapidly emerging ways of working.
- **Integrated APIs and ecosystem APIs:** Fine-grained APIs allow third parties to more easily plug into core capabilities, giving banks freedom to innovate and partner.
- **Cloud-based microservices deployment:** Applications in the cloud are smarter, more scalable, and able to dramatically improve application development.
- **Data-first and open approach:** Cores need to be able to facilitate the open flow of data streaming from engagement systems to systems of record.

This report explores the evolution of new bank business models and the role the core platform must play to support it.

BACKGROUND

Banking is experiencing a period of business model innovation brought on by the emergence of new market entrants moving the ball forward on customer expectations. In Celent's financial institution (FI) surveys conducted in 2017 and 2019, banks consistently rank "improving customer experience" as the top strategic priority. Banks are being pressed to continue the move towards digitization while finding new sources of value.

Figure 1: New entrants are shaping the competitive dynamics around digitization



Source: Celent Analysis

However, the industry has not seen the sweeping disruption many predicted. Challenger banks have struggled to generate revenue based on a general approach which focused on small- to negative-margin financial products like checking and savings accounts. Alternative lenders have been successful in generating buzz (and revenue) around the industry, but aside from some standouts in the mortgage space, most of these startups have not yet generated nearly the volumes to directly compete with established incumbents. The complexity of payments infrastructure, the funding requirement and risks of lending, and the entrenched nature of incumbents has limited those looking to disintermediate, despite likely representing one of the largest opportunities. Similarly, corporate banking is highly complex with many different parties involved. Overall, many have had a hard time finding significant scale.

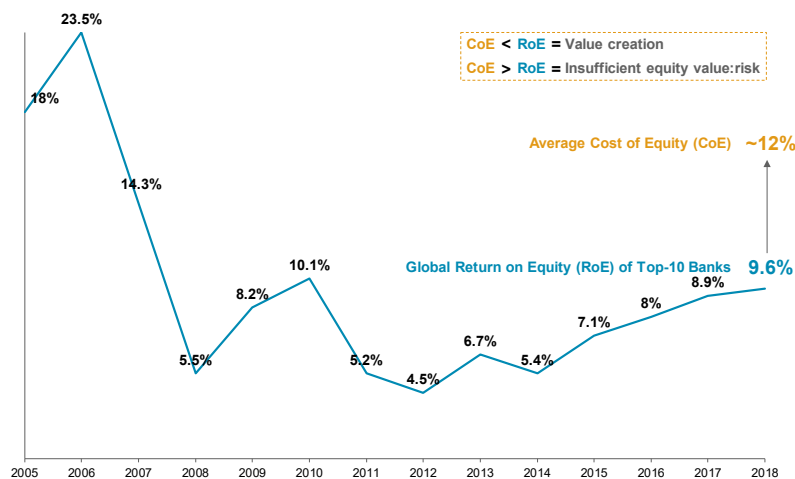
Performance across the industry has lagged in recent years as traditionally reliable revenue generators like fee income and net interest margins have failed to rebound in the recovery decade of 2009-2019. Key reasons include:

- **Reduced fee income:** Banks have a bad reputation for fees. New entrants bring transparency, low fees, and customer-centricity. Banks are following along, and fee revenue is declining.

- **Compressed margins:** Big tech, fintech, and digital competitors run lean, often offering comparable services to banks at a lower price. Some products (e.g., robo-advisory) have started a race to the bottom.
- **New regulations:** Open Banking and PSD2 require banks to offer third parties access to their customer data, products, and services—aspects which until now have helped banks derive competitive advantages.
- **Commoditized product offerings:** Banks are hard-pressed to differentiate on traditional infrastructure. Similarly, consumers don't see any difference between most institutions. As a result, value-based pricing of financial products is not possible.
- **Proliferation of alternative financial offerings:** More third parties and newer technology means more options for consumers. No single provider reigns supreme, but in aggregate, more options lower overall deposit and loan activity at traditional institutions.

Performance metrics like Return on Equity (RoE) globally have yet to return to prerecession levels. While the last few years have shown a moderate increase in ROE industry wide, the consensus opinion is that long-term ROE of traditional banking will remain below 10%. Looking at Cost of Equity (CoE), returns are being supported through more risk rather than long-term value. Cost of equity is the return investors require to compensate them for the risk of their investment relative to the market. It's almost a risk-adjusted form of ROE. In short, banks with higher ROE than COE are creating shareholder value for investors without taking as much risk. These institutions are stretching traditional profit centers.

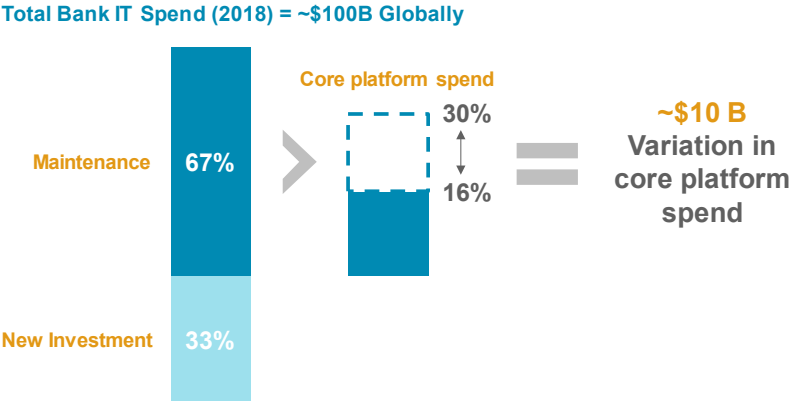
Figure 2: Banks are struggling with ROE against COE



Source: FDIC SDI, Bankscope, Celent Analysis

Performance pressures are compounded by outsized spending on simply running the bank. Celent IT spending data (Figure 3 below) shows around 67% of IT spending just on maintenance. What’s even more telling is that 16-30% of overall spending, up to half of maintenance spend, is dedicated to the core platform. More modern banks tend to run towards the 16% limit while legacy institutions near 30%. This represents a variable spend of around \$10 billion globally per annum. Still, CIOs are loath to undergo core replacements. According to Celent data, core platform switching happens at a rate of around 5% globally. Most CIOs are leery of the risk involved in a migration as well as the cost and complexity.

Figure 3: Core banking systems take a significant portion of IT spend



Source: Celent Analysis, OW Analysis

What’s clear is that banks are being pushed and pulled into two different directions. External factors are pulling down bank profitability at a time when internal legacy IT infrastructure is pushing costs up. Institutions need to think about how to stave off further erosion of their traditional value sources. Institutions need to consider how they might evolve the business model to find new ways of creating values, generating revenue, and buoying performance. And they need to think about the role of the modern core platform in doing so.

EMERGING BUSINESS MODELS IN BANKING

A modern institution that seeks to continue to acquire new customers, generate new streams of revenue, and grow margins will need to explore new business models beyond the traditional vertically-integrated approach. Profitability pressures are driving institutions to seek new sources of differentiation and growth. Commoditization of retail banking products and services (e.g., savings rates, mobile remote desktop connection (RDC)) makes it exceedingly hard to differentiate. New business models present opportunity.

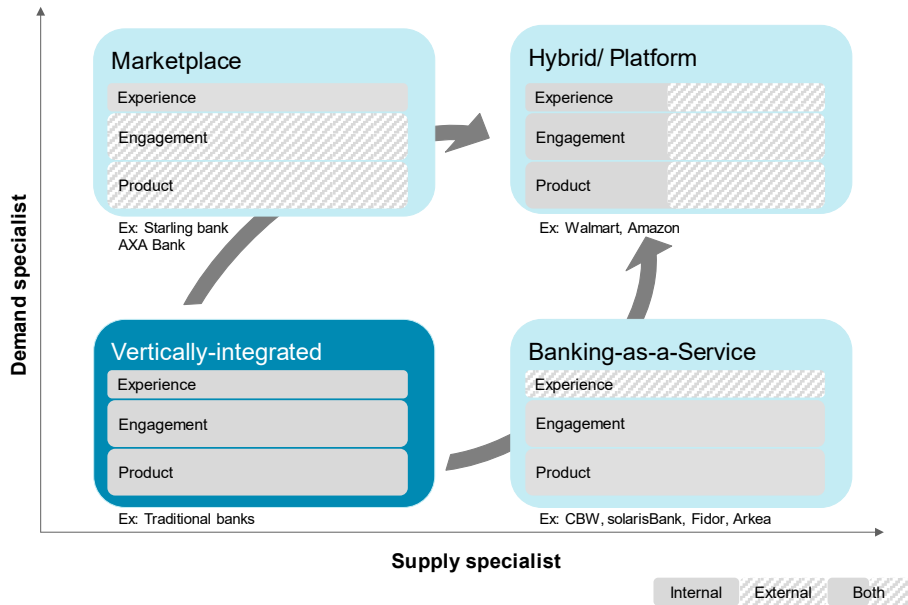
MOVING BEYOND TRADITIONAL SOURCES OF REVENUE

The traditional model for banking may no longer enable long-term success; institutions need to evolve. Most banks are vertically integrated, meaning they rely on a closed ecosystem of customer experience, customer engagement, and product. It sells its own products, to its own customers, through its own distribution networks. This bank views most of its business as proprietary, closely guarding against any risks of cannibalization. Figure 4 below illustrates how Celent sees the market evolving across the following three paths:

- **Marketplace:** The bank owns the platform and experience but brokers the connections among other third parties. The engagement may originate internally but will likely be migrated to the product providers' operational frameworks. A marketplace aggregates and uses data to amplify value—generally low margin but highly scalable. An example in financial services is Lending Tree or the mutual fund marketplaces.
- **Banking-as-a-Service (BaaS):** The bank acts as the producer/supplier of products and capabilities. It leverages third parties to either distribute the product or add value on top of supplied functionality. Where the third-party BaaS provider is providing a product (e.g., a loan product through a third party channel a la P2P lenders), it will typically retain the engagement as well as the product. In cases where the BaaS provider is offering infrastructure (e.g., payments processing or deposit accounts through a partner bank), only the product is internal, and engagement is handled through the third party. An example is an institution like CBW in the US which runs infrastructure for Moven Bank.
- **Hybrid/Platform:** The bank provides the platform for value creation by being both the producer and distributor of products. Experience, engagement, and products are at once internal and external. Third party products complement bank products, producing scale advantages. Communities of third parties engage with the institution

for co-creation and collaborative innovation, producing innovations based around an open ecosystem of network actors rather than constrained internal bank development teams.

Figure 4: Banking business models are evolving towards a Hybrid/Platform

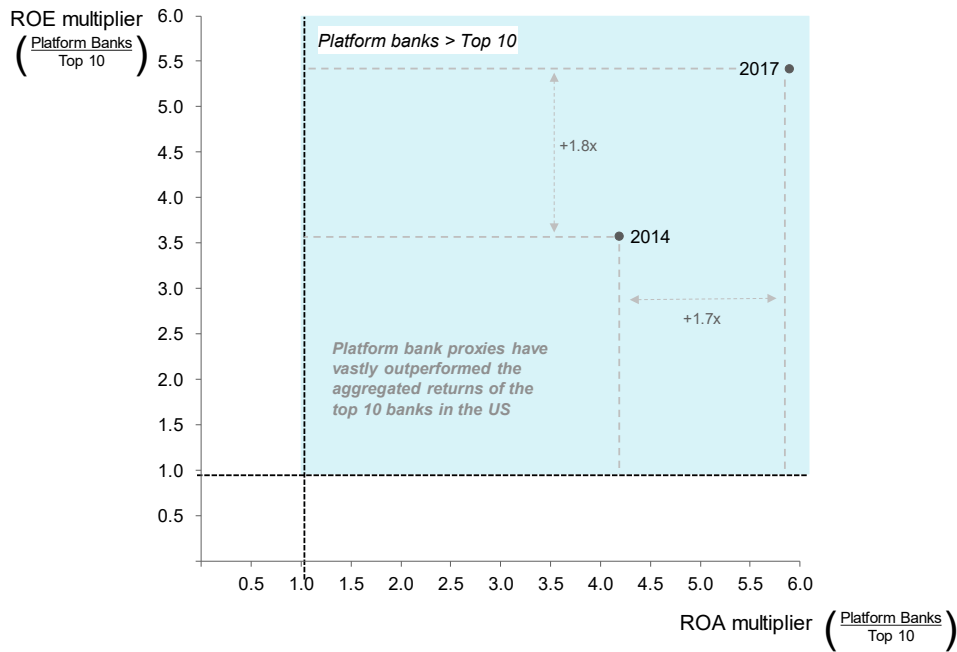


Source: Celent Analysis

Many variations exist within this framework and are evident throughout the globe. Data/service monetization through APIs is driving new economies of product. Challenger institutions are emerging with fresh products and modern technology stacks to move the ball forward on the art of the possible. Banks are adapting to specific product or LOB niches. The overall goal is differentiation and value creation beyond the traditional approach.

The advantage of emerging business models is indicated in a comparison of the aggregated returns earned by the top 10 US banks and by examples of business model innovation. Shown in Figure 5 below, over the past four years, the example institutions have generated returns on assets (ROAs) and ROEs ranging from more than two times to nearly six times that of the top 10 US banks.

Figure 5: Business model innovation can generate ROE far ahead of bank competitors



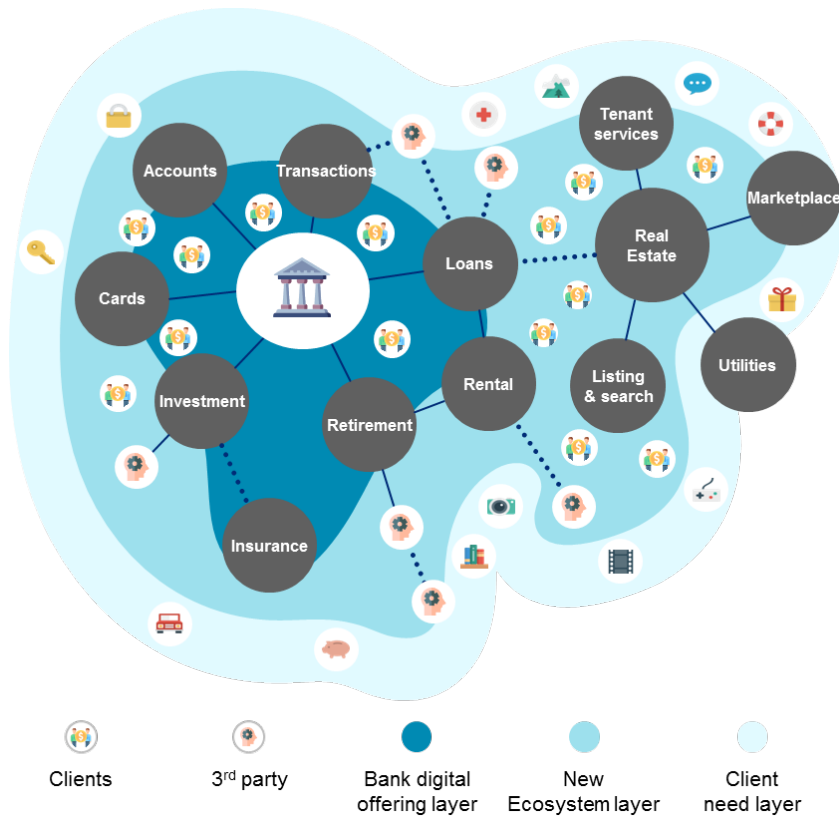
Source: FDIC SDI

THE EXPANDED ECOSYSTEM

New relationships will form an inextricable source of value creation as institutions look to evolve their core businesses. More forward looking, digital ecosystems will serve as a platform for “one-stop shopping” across a number of dimensions. Shown below in Figure 6, the bank that embraces the ecosystem will be able to expand its capabilities in a multitude of ways. Aggregating the supply of products will ultimately enhance experience and engagement for the customer, cementing the bank-client relationships.

Ecosystems will increasingly be crucial to the success of midsize and smaller banks. Collaboration and partnerships will help such banks gain access to capabilities, technologies, channels, and touch points at efficiencies and scale that previously only large global banks could afford.

Figure 6: The future bank will interact bilaterally with new partners



Source: Oliver Wyman Greenfield, Celent Analysis

Trendsetters in this area have typically come from large tech around the globe. Alibaba wants to create a lifestyle platform with its financial services arm, Ant Financial. Alipay, its payment service, has more than 650 million users and processed more payments last year than Mastercard. It even has a credit score called “Ant Score” which other institutions can access at a cost. Rakuten (known as the Amazon of Japan) has embedded itself into the lives of its customers through its e-commerce platform, while operating one of the largest Internet banks in Japan. It has also made moves to acquire a banking license in the US. Amazon in the US has dipped into traditional financial services through product offerings like small business lending, credit cards, payments, and a future deposit account product.

In banking, the challengers have set the tone. Entrants are active in extending their reach through partnerships. Starling Bank is taking a marketplace approach by relying primarily on third party apps packaged on top of a deposit account and payments technology. In fact, they self-describe as a “payments company” first, bank second. They’ve built a core proposition around payments supported by a large ecosystem. Monzo’s platform is API-enabled and flexible enough that it can work on top of products like Uber or IFTTT (an

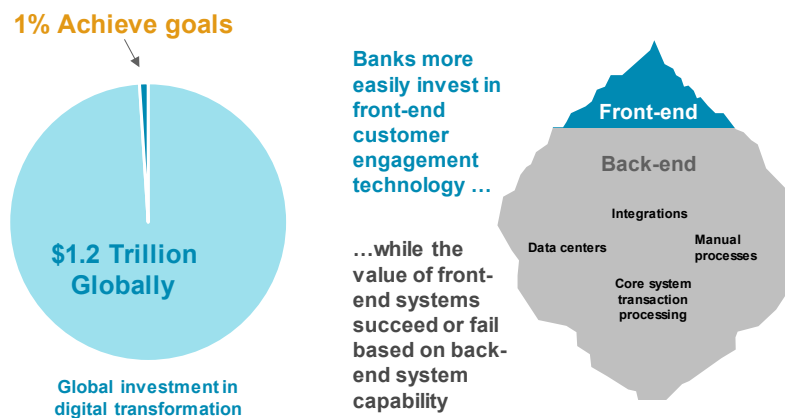
app which allows users to build their own condition statements across apps, e.g., “if stock price of X hits Y, then transfer Z to savings”).

Crucial to this development is the role of the core banking system. New business models will need to be supported by modern technology capable of taking financial institutions to the next level. The models need to be *streamlined* platforms to support new deployment models, *flexible* to plug into the new ecosystems of partners, and *agile* to adapt to the changing markets needs of customers. The following section outlines the characteristics necessary for the modern core platform.

THE ROLE OF THE CORE PLATFORM

IT transformation efforts underpin emerging business models in banking, but so far there has been a disconnect between effort and result. Shown below in Figure 7, according to the World Economic Forum (WEF), only 1% of digital transformation initiatives have met their goals. In Celent's view, this has to do with a primarily front-end focus on transformation rather than the back-end core.

Figure 7: Transformation often does not meet its goals due to an overemphasis on the front end

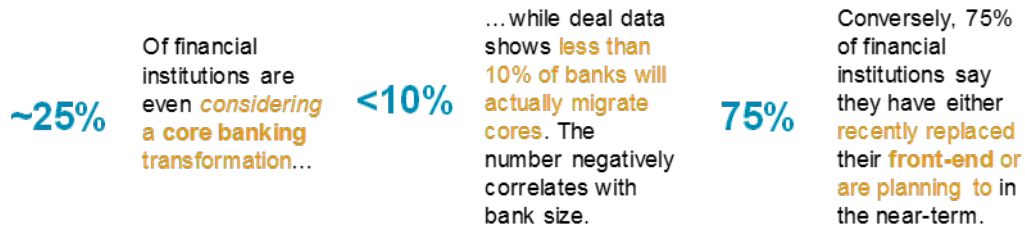


Source: World Economic Forum 2018 Digital Transformation Report; *Celent IT Spending in Banking, 2019*

Banks looking to simplify legacy operating models, automate processes, provide new and innovative account features, and enable cloud deployment and many other advantages need to consider the back-end core platform as the linchpin for transformation.

Figure 8 shows the results of a survey conducted by Celent in Q418 and core platform deal data from 2019. It shows the disparity between core transformation and front-end migration, with less than 10% of institutions changing cores while more than 75% switching digital platforms.

Figure 8: More banks are switching out their front-end systems than back-end

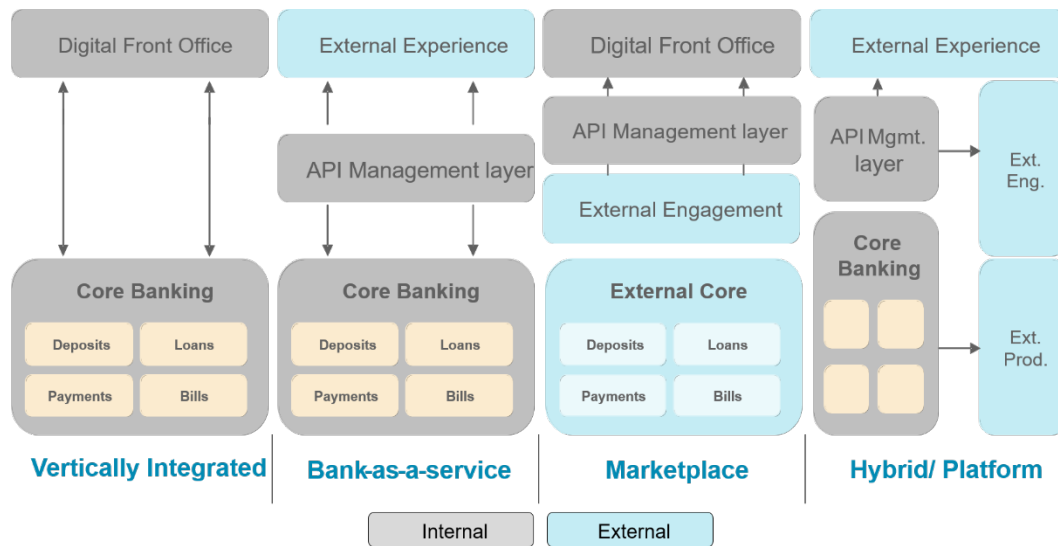


Source: *Celent FI Survey, 2018; Celent Core Deal Trends Data, 2019*

HOW CORES ENABLE THE EMERGING BUSINESS MODELS

Emerging business models require a core system which can accommodate a range of new requirements: Time to market, flexibility to make changes, innovative transactional characteristics/functionality. The core is a critical piece of the puzzle.

Figure 9: How the IT landscape will evolve with new business models



Source: Oracle and Celent

NEW CHARACTERISTICS

Celent sees four characteristics paramount to support a transformation journey and new business models.

Componentized Architecture

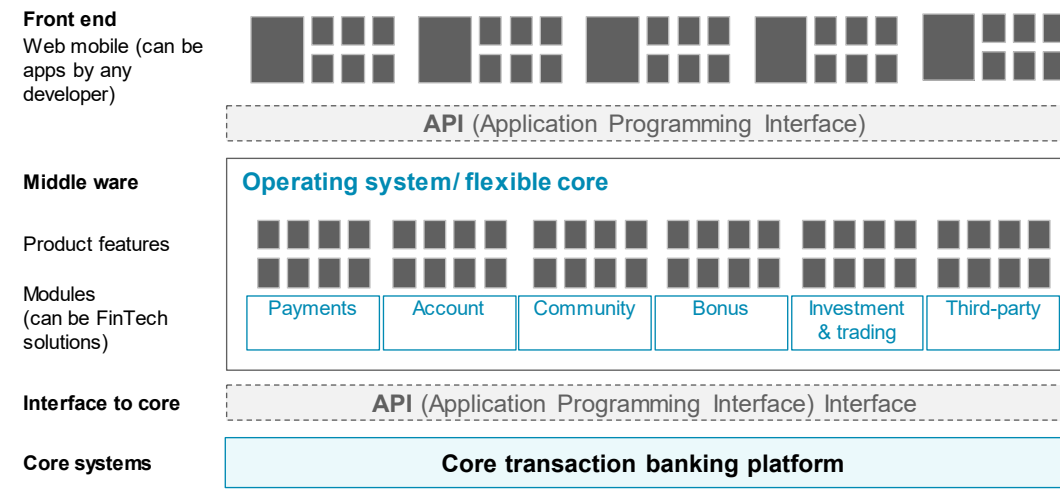
Core systems need to be flexible and adaptable to support new ways of working.

Componentized architectures not only allow for bespoke configurability and

implementation, but also fine-grained processes exposed as APIs let other applications consume services. Marketplaces will more easily ingest data while BaaS providers will be able to expose functionality to third parties.

With modular components, each product can stand alone and be pre-integrated, including the core platform itself. In a containerized environment (i.e., cloud), a component may also be deployed separately, on top of a common infrastructure layer.

Figure 10: Modularity decouples dependencies and allows for “plug and play” banking



Source: Celent

In this environment, core functionality can evolve in relative isolation. Developers work with decoupled pieces of the platform instead of a monolith. Development becomes much quicker as teams can work using agile processes.

An institution with a componentized architecture is more easily able to transform and take advantage of rapidly emerging ways of working. Changes go from months to days. Projects become much less complex, affecting both risk and cost.

Architecturally, many modern cores are built into well-defined tiers for front end, business logic, and data:

- The presentation tier is stateless and refers to all supported channels and APIs into the system.
- The business logic tier is compiled to be portable across systems. The code remains the same regardless of the hardware and operating system being used, thus offering portability and optimized performance across many environments.
- The data tier is integrated with the rest of the environment and allows for bi-directional flows between applications in real time.

Architectural layering allows for better configuration, bundling, repackaging, and distribution of third-party products and services—for example, servicing a deposit account through a partner bank holding funds.

Integrated APIs and Ecosystem APIs

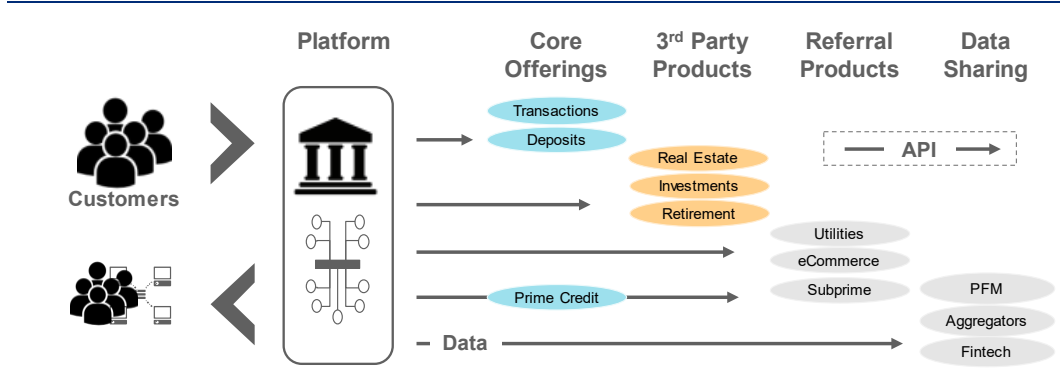
Building off the architectural components, the glue for the modern core platform is API connectivity. A modern core system can help an institution build, process, and manage fine-grained APIs to externalize a service for use by third parties or partners. It can also strengthen the connectivity with applications that may be consuming data.

This becomes even more relevant when exploring the role of ecosystems. Open APIs, API stores, API management capabilities, and app store offerings are critical in creating an ecosystem. For example:

- Participating in emerging ecosystems such as PSD2, UPI, and the UK Open Banking initiative
- Creating partner business ecosystems where banks partner for new products, e.g., SVB and Aspiration and
- Bringing a curated, pre-integrated ecosystem to clients.

BaaS and hybrid/platform banking also mean new ways of distributing products and services. Figure 11 below explores what this might look like in more detail, where the new bank platform steers customer demand toward the right product. This could be a third-party partner product or an internal bank offering. The core platform in this scenario must support a smart and responsive design which not only enables an open architecture but also has a strong grasp of different standards of connectivity. Integration needs to be delivered securely and with proper governance.

Figure 11: Better integration from the core will allow for bespoke demand aggregation



Source: Celent

Cloud-based microservices deployment

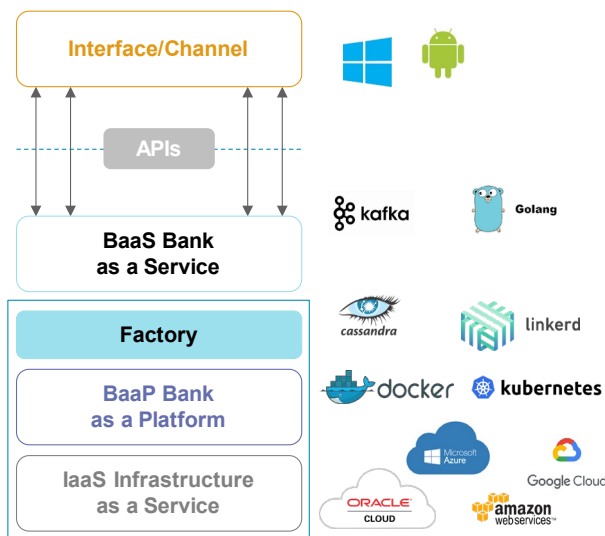
The cloud supports bank-as-a-service flexibility, ease of integration, and co-development, among other advantages. For most institutions, moving from in-house core processing to the cloud will be the path forward to remain competitive. Cloud service providers offer data center capacity on a per-use basis, without limit, and on demand. Large banks are starting to establish private cloud environments within their own data centers.

Specific characteristics Celent envisions include:

- **Externalizing a business process or service**
- **Continuous delivery**
- **Smart/responsive business process management**
- **Easy-to-configure and launch products and capabilities**

Core platforms should be able to fully take advantage of the cloud, supporting cloud-native environments and tools. Vendors and platforms will need to be able to support a partner ecosystem which includes cloud providers for scalability and resiliency. Security and infrastructure management practices will augment these partner capabilities, providing “managed services” for software as a service (SaaS) applications. Advanced platforms will support development and testing in the cloud. Robust DevOps platforms will allow banks to package and ship new product features on a continuous basis.

Figure 12: Example of a cloud architectural model



Source: Celent

Core platforms that support emerging business models need to conform to the principles of an application designed for the cloud: API-first, containerization, continuous integration

and deployment, distributed database, and multi-tenant capabilities. It will be table stakes to compete.

Data-first and open

The growth of transaction volumes, new business models, GDPR, open banking, cyber-security risk, and more require a strong approach to data. Core platforms need to be able to support a range of database management systems, both enterprise and open source.

Data should be able to flow in real time, streaming across applications. This will allow new creative offerings and ease the interoperability between real time partners. The core architecture must also allow for data to be seamlessly shared between various applications within a family of products.

Core platforms with API catalogues containing robust data/information APIs are better-positioned to support open banking. Data APIs which expose the underlying data model to API consumers are necessary for institutions looking to monetize access to data or allow consumer-permissioned access by third parties.

FUTURE-PROOFING AGAINST EMERGING TECH

Core platforms built decades ago had no way of planning for the evolution in technology over the past 10-15 years. Technology is drastically reshaping the way consumers interact with their banks and has catalysed a new generation of fintech startups. Core platforms should support visibility into these technologies, both enhancing the ability of the bank to partner or directly contribute to functionality. Celent sees AI, blockchain, and biometrics as key contributors and core characteristics of emerging business models in banking.

Artificial Intelligence (AI) / Machine Learning (ML)

AI is dramatically reshaping the banking landscape. While many of the more visible break-throughs are taking place on the front end, AI still represents a significant opportunity for cores looking to support new business models. First, AI fintechs generally occupy a healthy partner ecosystem which requires better integration and more sound data management practices. AI/ML operates best when data is high volume, easy to consume, and real time. Core systems which take advantage of some of the characteristics listed in the previous section will be well-poised. Celent also sees a couple of use cases this will likely most affect:

- **Embedded analytics:** All cores have some form of embedded business intelligence or analytics. This could be used to improve customer engagement or risk management. Machine learning could help with loan loss mitigation, limits and

collaterals analysis, forecasting, customer lifetime value, and a range of other use cases.

- **Fraud:** This includes payment screening and transaction monitoring as well as other capabilities. Better data helps to manage fraud like account takeovers, fraudulent transactions, account origination, trade surveillance, and others.
- **Robotic process automation (RPA):** Process automation with intelligent bots helps in the areas of customer onboarding, workflow acceleration, data entry, validation, or reconciliation. RPA solutions come in a variety of forms, but more advanced incarnations work better and embed themselves into underlying platforms.

Biometrics

While biometrics are typically implemented at the front end or within internal user-facing channels, banks are looking to these areas to provide enhanced levels of security and more effective customer authentication. The implication for the core will be ease of integration. How easily does the solution integrate into the existing IT environment? Streaming data from front-end systems or event creation during an interaction will require a nimble core which is easily able to fulfil the request or capture that event. Integrating into a customer record for use cases like facial recognition (e.g., high net worth customers). As biometrics become more prominent, the core will be a critical part of that interaction.

Blockchain

There has been a lot of talk in the industry about the impact of blockchain, from those hailing it as the next big thing to others disparaging it as dead on arrival. In core, some have gone as far as to predict the end of traditional platform and the emergence of distributed ledger technology in its place. Celent views this as highly unlikely to happen any time in the foreseeable future, although taking advantage of some of the more peripheral use cases for blockchain technology would require a modern core.

Cores need to support building adapters which interface with blockchain systems and facilitate an easy transformation of information between the traditional applications and the blockchain data. At a transactional level, blockchain transactions can hit the core and be transformed and captured in a customer record. They will be able to be queried and viewed from the platform. Minimal human intervention in transformation and processing will allow for better process efficiency, reducing any risks which arise across systems.

Going forward, many vendors are beginning to build cloud platforms which take advantage of emerging technologies and allow development teams to better integrate these networks into their back-end systems.

THE BENEFITS OF A MODERN CORE

Financial institutions need to be thinking about how to find new sources of growth. While the core may seem ancillary to emerging business models, it's a critical piece of the puzzle. There are numerous benefits to a modern core. We outline four here.

Faster integration into new third-party products/services

More modern cores built for new business models in banking provide seamless integration into a broader ecosystem. Strong API management capabilities make it easier to govern and de-risk integration efforts. Large libraries of business services exposed as APIs makes integration into another application much easier. Standards make sure that any future changes won't require unnecessary bespoke efforts.

Better time to market for innovation

Being able to innovate quickly will be the hallmark of successful institutions in the future, and new cores optimize a bank's ability to bring new products and services to market. Large monolithic cores may require months of work on back-end legacy systems to even implement minor code changes. Component-based configurability and flexibility of more modern cores will be a key enabler as institutions explore more of the possibilities of emerging business models.

Streamlined technology infrastructure and improved time to value

Applications built over decades of complexity are difficult and expensive to maintain. New changes in customer expectations, regulatory requirements, and much more can require IT resources to be locked away trying to work in outdated and inefficient legacy. New, modern cores written in modern programming languages can streamline an IT environment. New deployment models can drastically reduce total cost of ownership (TCO). Bank resources previously tasked with onerous maintenance efforts can instead focus on faster innovation at lower cost.

Future-proofed business agility

Cores with granular building blocks allow an institution to better adapt and change over time. Architecturally, modular, microservices-based platforms let developers work on pieces of functionality and processes in isolation, allowing capabilities to be modernized as needed. Highly customizable, parameterized features around product creation or pricing let banks similarly innovate and meet the needs of customers as they change.

KEY FEATURES FOR THE MODERN CORE

A modern core needs to be able to support a variety of different capabilities to position an institution to success in the emerging business models of banking. In the table below, Celent lists some of the key features that core platforms should be able to accommodate.

Key Features	Business Model Benefits
Cloud-enabled / microservices-based architecture; containerized. Java or similarly modern language (not proprietary)	Enables continuous development and DevOps for developers
Fully componentized, composable architecture	Makes the operating model more flexible to accommodate new business requirements
Multi-tenant (support for complex organization structures)	Allows institutions to provision infrastructure to third parties
100% API exposure providing API management capabilities and RESTful API connectivity	Facilitates integration and allows FIs to expose functions or data from applications. Critical for developer communities/portals
Embedded analytics and AI capabilities (ML for BI)	Gives FIs ability to customize to the needs of the user/consumer
Support for open banking as well as connectivity standards (e.g. IFX, ISO 20022, etc.)	Broadens the ability to seamlessly plug into existing ecosystems
Extensibility through coded plug-ins or configurable parameters (development tools)	Enables FIs to create new innovative products or services
Internationalization features (multi-language, multi-currency, multi-time zone)	Expands the reach of products and services to new markets
Supports open-source and cloud-native tools for continuous development and DevOps	Allows faster time to value for FI platforms and enables more frequent releases

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