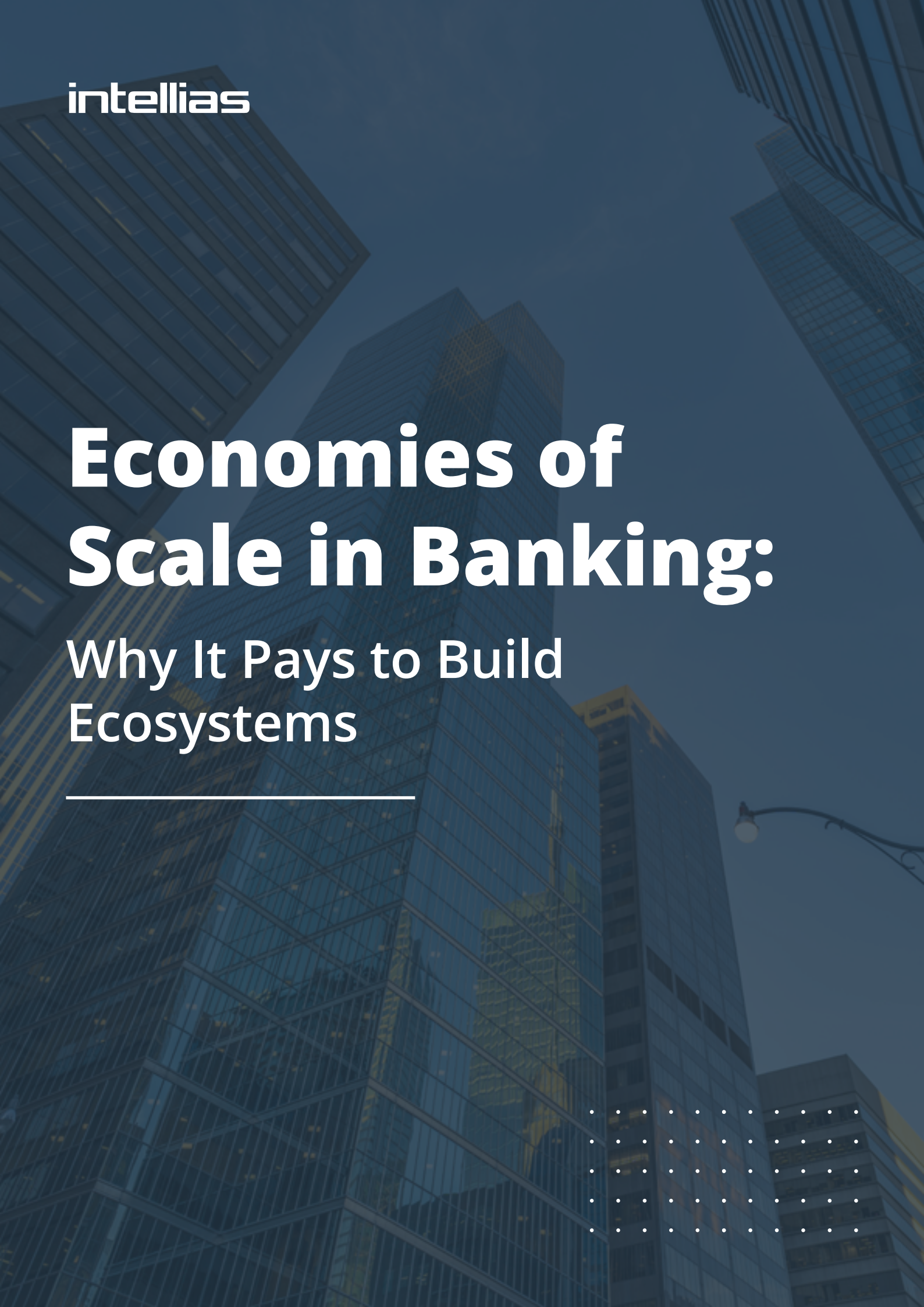


intellias

Economies of Scale in Banking:

Why It Pays to Build Ecosystems

CONTENTS

The booming FinTech market, worth **$112.3 billion** in 2022 and set to reach **$332.5 billion** by 2028, is an opportunity banks can't ignore. But opinions are divided.

Some legacy players feel threatened by disruptors. That's understandable, as Gartner predicts 80% of heritage financial services firms will be obsolete by 2030 because of digital disruptors.

Others feel curious about the competition and back promising players with cash. In 2021, US banks made 62 equity investments in FinTechs — more than in 2020.

And the smartest banks?

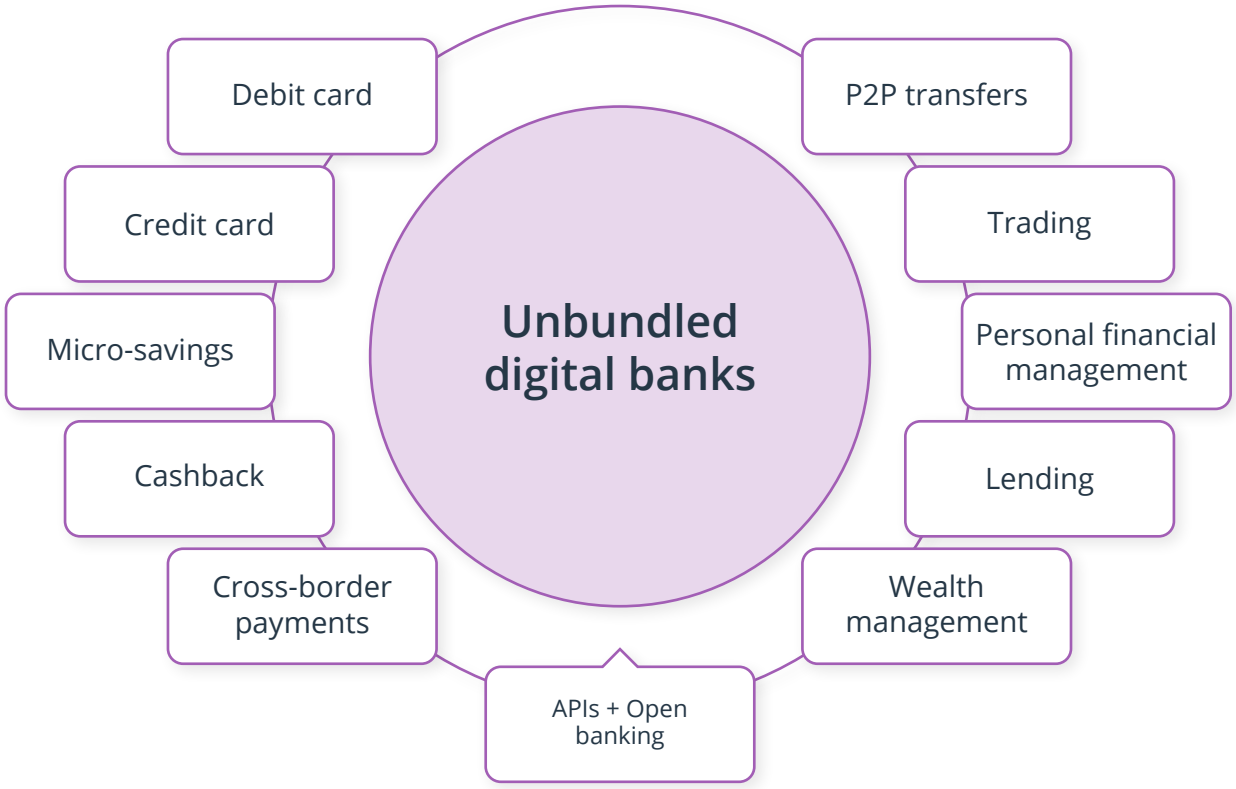
They understood early that financial sector transformation was inevitable and wanted to occupy a central spot within the newly emerging value chains.

Accenture:

Owning the value chain end-to-end and selling only your own products are no longer requirements for success. Architecting and creating value for the end customer or for the next player in the value chain offer new paths to differentiation and growth. This requires having the vision and flexibility to reimagine and "package" compelling propositions that truly focus on customers' needs and intentions.

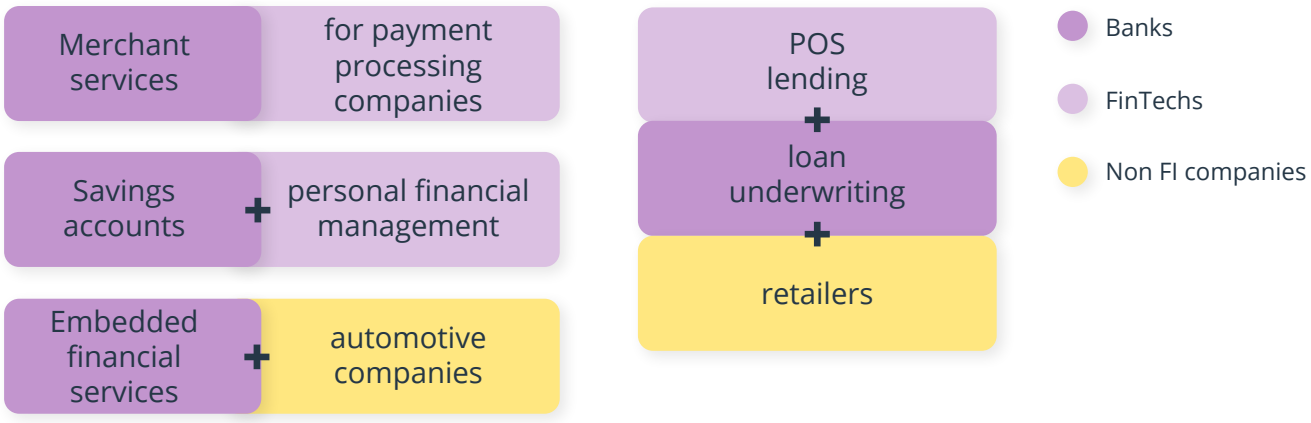
Traditional banks

- Current/checking & savings accounts
- Payments
- Lending
- Wealth management



Financial ecosystems

Banking license and core infrastructure (banking as a service)



COMPARTMENTALIZATION OF THE BANKING SECTOR

The first wave of FinTechs brought market fragmentation and siphoned profits from the most valuable revenue channels — payments, investing, lending, and wealth management.

Suddenly, instead of going to a local bank branch, consumers could:

- Get a no-cost debit card from a digital bank
- Invest spare change in stocks with an app
- Use a payment provider to send money abroad cheaper than with a traditional bank

Easier access to financial services fueled fast adoption. In the US, the percentage of consumers using technology to manage their finances increased by 52% (from 58% to 88% of consumers) in **one year**.

Plaid:

FinTech is the most widely-adopted consumer technology apart from the Internet. More people today use FinTech apps than video streaming services (78%) and social media (72%).

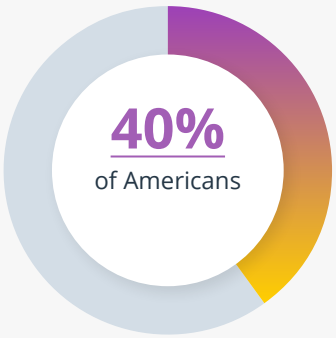
But there's also the other side of accessibility — **too much choice**. Remember those glorious times when you only had text messages? Then came Messenger, WhatsApp, Slack, Signal, and dozens of other messenger apps your network of contacts were dying to use.

Fast enough, people decided to prioritize one app over another, deleted the redundant ones, and otherwise minimized the overwhelming volume of alerts, buzzes, and follow-ups.

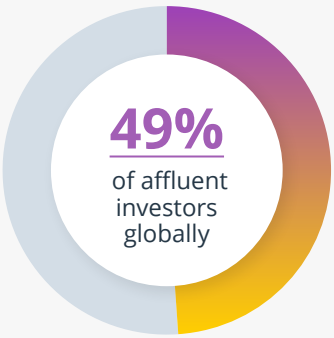
Do you know who silently observed all this in the background? Email. Despite so many app choices, most people still extensively rely on email — and on traditional banks too. Seventy-seven percent of US adults have their primary or secondary accounts with a traditional bank, though 46% of these consumers also keep funds with other market players.

But there's a caveat. Unlike email, primary banks rarely serve as an **enabler** to access different types of financial services, nor do they act as **aggregators**, consolidating all the elements of consumers' financial lives in one continuous experience.

Yet continuity and breadth of financial services are what connected consumers want.



have opened more than one bank account because their primary institution doesn't offer fully integrated services.



would prefer to use a single company for most of their financial needs.

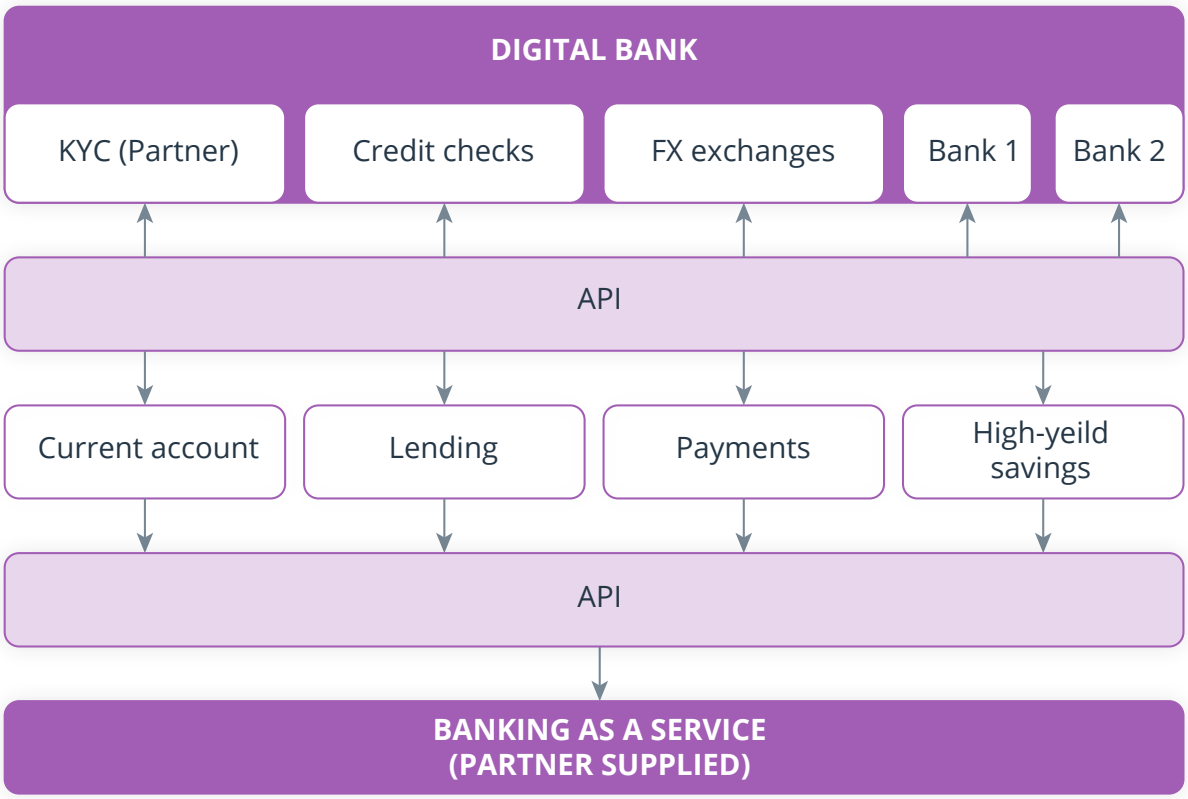
are ready to pay more for relevant add-on services from their bank (but few offer them).

THE ROAD TO FINANCIAL SERVICES CONTINUITY

Banks have little idea what happens outside the realm of customers' current/checking and savings accounts. They are also increasingly constrained in distribution because of their monolithic, linear business models and rigid technology cores.

FinTechs pioneered the idea of compartmentalized financial services — creating smaller bounded financial products (like credit cards) and distributing them as APIs. This has led to faster assembly of other FinTechs that operate as a collection of best-of-breed partners rather than by offering a monolithic product core developed decades ago.

Anatomy of a digital bank



Legacy banks, in turn, still have the advantage of a banking license, security, and government support. What they lack, however, is the agility to form technology-led partnerships with others.

Let's take Stripe. The company gained a large market share because of easy integration with other products. The Stripe payment API can be integrated into any platform in a matter of days (and sometimes minutes). Few merchant services from banks offer the same speed and ease of integration. The same goes for P2P payment apps like PayPal and Venmo. They pioneered the idea of instant, no-fee money exchanges ahead of same-day SEPA and ACH payments.

Yet FinTechs are still dependent on traditional banks when it comes to obtaining banking licenses and meeting industry requirements. A number of legacy banks have chosen to become FinTech companies' guarantors. Revolut partnered with the Bank of Lithuania to obtain a Challenger bank license and then start providing consumer credit and accepting deposits. Stripe chose Goldman Sachs and Citi Bank as partners for its new range of financial services. Other challengers follow a similar pattern: choose (or even purchase) a traditional bank to meet statutory and capitalization requirements for licensing and accelerate market penetration.

But today banks can (and should) take these partnerships beyond compliance. Banks can support FinTechs in their growth and profit from integrating new players into their product ecosystem to deliver more comprehensive and seamless experiences to consumers.

Partner bank Logo	State	Assets	FinTech partners
WELLS FARGO	Nationwide	$2T	Blast (FBO accout)
Goldman Sachs	Nationwide	$1T	Apple (credit card)
BANK OF THE WEST BNP PARIBAS	Nationwide	$90B	Brex (credit card)
BBVA	Nationwide	$90B	Azlo (SMB banking), Wise (SMB banking), Simple (debit card deposits), Digit (savings), Catch (saving), Modo (pooled FBO accounts and ACH)
FIRST HORIZON	Tennessee	$43B	Synapse Partner
UMB	Florida	$24.1B	Personal Capital (high yield), Unifimoney (high yield and deposits)
comenity	Ohio	$13.9B	PayPal Credit (formerly Bill Me Later)
axos BANK	California	$11.5B	N26 (debit card and deposits), H&R Block (tax refund processing), NetSpend (debit card)

Source: Andreessen Horowitz

Read more about the new distribution channels, higher CX, lower IT infrastructure costs, digital-led revenue enablement are the outcomes Intellias achieves for banks »

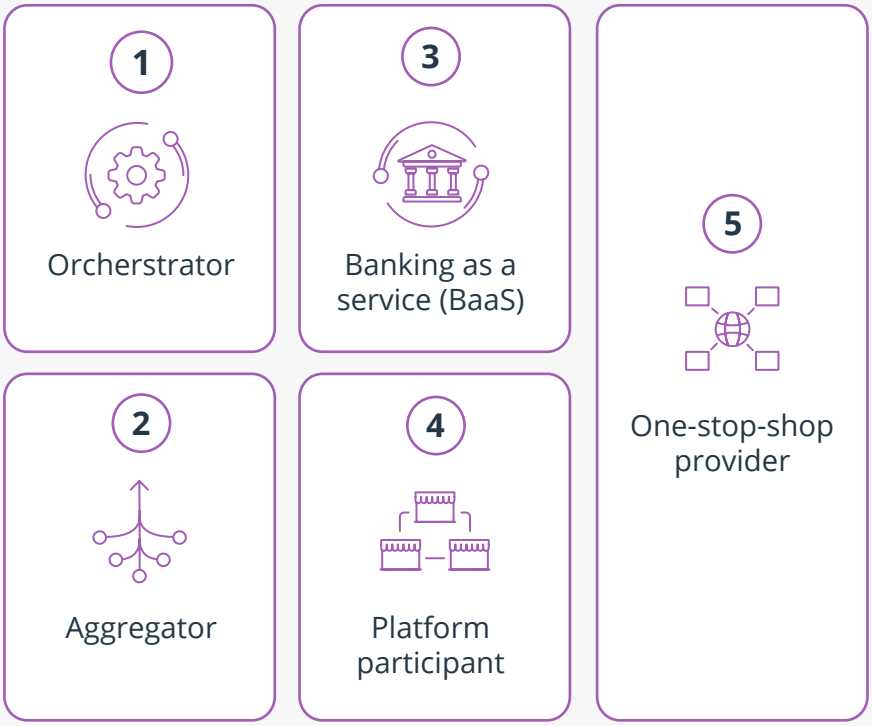
MAOP: 4 TECHNICAL PILLARS OF FUTURE BANKING BUSINESS MODELS

Microservices, **A**PIs, **O**pen Banking, **P**latform Thinking

What we see today is not just inserting extra technology into banking but rather using it to model new relationships between different players — data providers, strategic cross-industry partners, and FinTech companies.

Such ecosystems prove beneficial for all participants. At the most basic level, FinTechs receive access to the core infrastructure they need to grow, while banks profit from extra deposits and transactional revenue. In more advanced ecosystems, banks can fundamentally change their business model:

- Improve core services through data and/or integrations with other market players
- Launch new products faster with the help of partners (consume APIs)
- Distribute proprietary products via other companies by embedding them into apps and digital experiences



1. **Orchestrators** derive value by enabling and governing relationships between ecosystem participants.

2. **Aggregators** entice customers with partner-supplied financial products and services.

3. **BaaS** players offer acces to modular financial services to external financial and non-financial partners.

4. **Platform participants** join forces with other market participants as supplier.

5. **One-stop-shop** financial services providers tap into every channel to ensure full coverage of customer needs.

The above ecosystem business models are possible thanks to four core technologies:

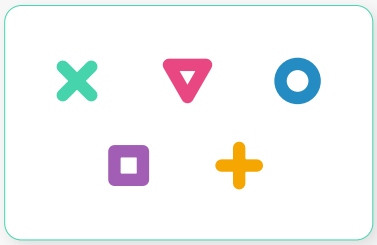
- **M**icroservices architecture
- **A**pplication programming interfaces (APIs)
- **O**pen banking
- **P**latform-centered thinking

MICROSERVICES ARCHITECTURE

> A **microservices architecture** is a collection of loosely coupled services (microservices) that can run independently and communicate with each other via lightweight protocols known as RESTful APIs.

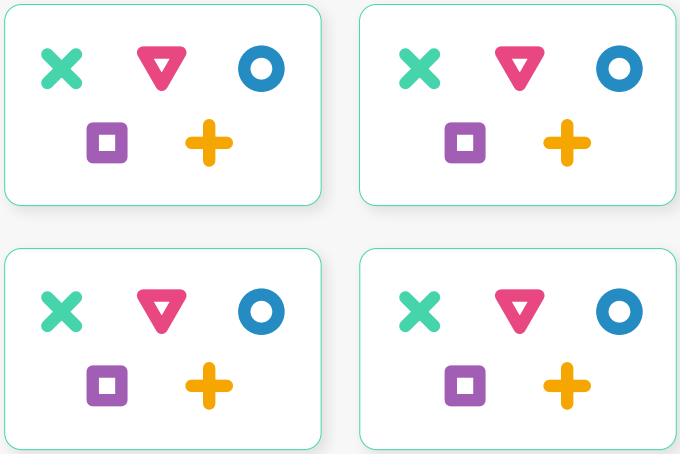
You can think of a microservice as a LEGO brick. It can stand independently or be combined with other bricks to build something bigger.

MONOLITHIC

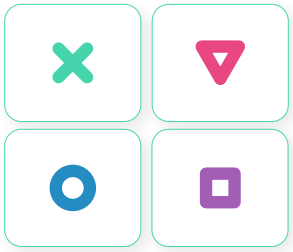


A monolithic application puts all its functionality into a single process

and scales by replicating the monolith on multiply servers

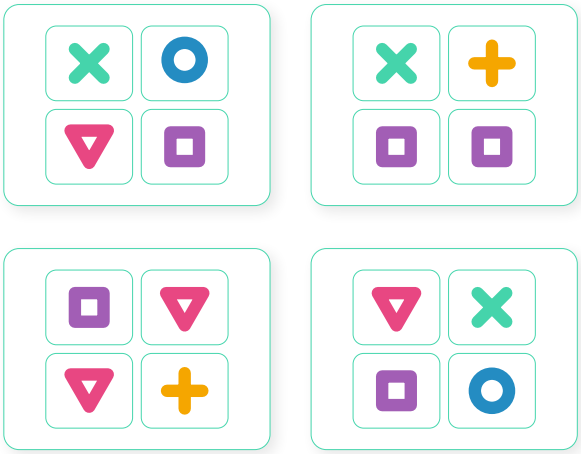


MICROSERVICES



A microservices architecture puts each element of functionality into a separate service

and scales by distributing these services across servers, replicating as needed



In a microservices-based platform architecture, different services communicate via application programming interfaces (APIs) — code-level interfaces for connecting applications.

The idea behind microservices is that they can run independently. For example, instead of having a monolithic customer account, you can deploy independent microservices for KYC, digital account opening, card issuing, current/checking account creation, and cross-border payments.

To lay the foundation for future partnerships, banks must gradually add modularity to their IT architectures. You can decouple and modernize certain elements of your core systems by separating different business capabilities into scoped, standalone services you can operate, distribute, and maintain as independent products.

Read more about the microservices architecture »

TECHNICAL ADVANTAGES OF MICROSERVICES

Greater system stability

If one microservice fails, requests to it can be rerouted to failover microservices.

Reduced downtime

Deploy updates, changes, or patches to one service rather than the entire app.

Lower risk of system failure

Develop and manage each microservice without exposing other internal system components.

Faster product development

Deploy new products as containerized microservices to speed up the frequency of new releases.

Technological diversity

Each microservice can be programmed in a different language, meaning you can diversify your tech stack and cherry-pick the best technology for each purpose.

Sustainable modernization

Decouple and modernize core systems incrementally by replacing legacy components with microservices.

APPLICATION PROGRAMMING INTERFACES

> **An application programming interface, or API**, is a virtual cord that consists of definitions, protocols, and tools you can use to connect different applications.

APIs enable two-way data, service, and product exchanges between a company's own microservices and third-party microservices. With API services, you can:

- Exchange customer data with other companies
- Authenticate people, devices, and services
- Incorporate third-party financial services into your platform
- Explore new distribution channels such as BaaS and embedded services

How APIs enable new business models for banks

Non-linear, ecosystem models

Aggregator

Use third-party data APIs to collect more data from others and deliver a unique customer experience.

Example: Credit Karma started as a lending product aggregator and evolved into offering branded savings and current/checking accounts.

Marketplace

Provide access to banking and non-banking products from third parties within your own product to cover a wider spectrum of customers' needs.

Example: Starling Bank offers access to partner-supplied insurance, investment, mortgage, and credit-building products.

Banking as a service (BaaS)

Distribute your core banking system (or certain business processes) in the form of as-a-service solutions for other players.

Example: Contis by Solaris Bank provides core banking infrastructure (accounts, cards, processing, and payments) to other financial industry players.

Embedded products

Create modular financial products others can embed into their platforms via APIs to scale your distribution capabilities.

Example: BBVA offers a range of embedded financial products such as auto loans, checkout financing, and white-labeled bank accounts.

Digital banks initially had the upper hand in the API game because they started with cloud-based microservices platforms. Many, in fact, operate as a collection of partner-supplied products and services rather than in-house systems. Under the hood, N26, a challenger bank valued at $9 billion, assembled its full-service banking offering with the help of industry partners.

Traditional banks are starting in a different position. They have most products built in-house but are trapped deep inside monolithic systems. To achieve growth, they have to first establish API connectivity with core systems — then progressively rebuild them as microservices packaged for easy internal and external distribution.

To get access to the data stored in a monolithic system, you can add an API abstraction layer atop it and connect the system with newer microservices. This layer can contain multiple APIs that extract valuable data from the core and transport it to other services that need it.

Read more about creating an API strategy for your bank

OPEN BANKING

> **Open banking** is a set of legislative and technical principles promoting wider access to financial data through application programming interfaces (APIs).

To improve access to financial services and market competitiveness, European and British regulators launched the open banking movement.

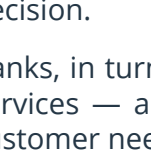
Supporting legislation empowers consumers with the right to share their transactional data with any third party. Technical guidelines, in turn, enable standardized API development among market players, leading to greater market adoption.

Thanks to open banking, consumers can grant access to their financial data to any type of institution in exchange for better service. For example, with open banking, when you want to get a mortgage, you don't need to provide all of your personal information to a bank to get a quote. You can merely provide access to your aggregated data that tells the full picture of your finances and get an instant decision.

Banks, in turn, gain the opportunity to embed new data sharing APIs to provide one-stop financial services — a personalized and informed range of financial products encompassing everything a customer needs at every stage of their life.

Open banking use cases

Over £7.2 billion in revenue will be generated by open banking standards in the UK by the end of 2022.



Digital account opening and KYC
Especially for underbanked and unbanked consumers

Personal financial management
Contextual, personalized money management advice

Online lending
Based on traditional and alternative credit scoring data

Wealth management
Algorithmic financial planning based on customers' financial profiles

*Data from PwC

Open finance enables new scalable vectors of product development and unlocks access to alternative revenue streams while also delighting the consumer with fast and seamless onboarding and KYC, a consolidated view of finances, more personalized offers, and higher levels of service.

By taking advantage of partners' data, banks can successfully assume the role of an orchestrator or a one-stop-shop banking provider.

B2B: Ecosystem orchestrator

> An **orchestrator bank** enables collaboration between different financial ecosystem participants. Think of an orchestrator as an event management company — they provide a venue, organize a lineup of performers (partnering companies), and ensure that visitors (consumers) get the best experience possible.

Green Dot Bank originally made money by offering basic financial services — prepaid debit cards and low-fee checking accounts. But a series of smart technical decisions have led them to become an enabling bank for brands like Apple, Amazon, Walmart, and Uber. Green Dot's comprehensive BaaS platform brought in $118 million in revenue in Q4 2021, growing at 58% year-on-year. Consumer and technology company partnerships have been key to the company's growth.

BBVA pursued a similar strategy in Europe and South America. Once a regular bank, BBVA made a technological shift towards BaaS in the mid-2010s. Since then, BBVA has brokered partnership deals with Uber and Google Pay, among others. They are now building an open finance ecosystem together with the Italian Banca Sella group and open banking technology provider Fabrick. In 2021, BBVA posted its highest recurring profit in a decade (€5.7 billion) and acquired over nine million new customers.

B2C: One-stop-shop banking provider

> **One-stop-shop banking** means that your customer gets a total package of financial tools, accessible from one account, courtesy of both you and your partners.

By integrating data from third-party platforms, you can attract customers with better deposit offers, use alternative data in making lending decisions (or even fully automate the loan origination process), and extend more personalized products to low-risk customers.

- Aggregated view of all checking accounts
- Competitive mortgage offers
- Different high-yield savings plans
- Access to various pension funds
- Insurance deals
- Local and cross-border payment tools
- Personalized consumer credit products
- Insurance deals
- Wealth management products

Read more about creating a one-stop-shop banking experience

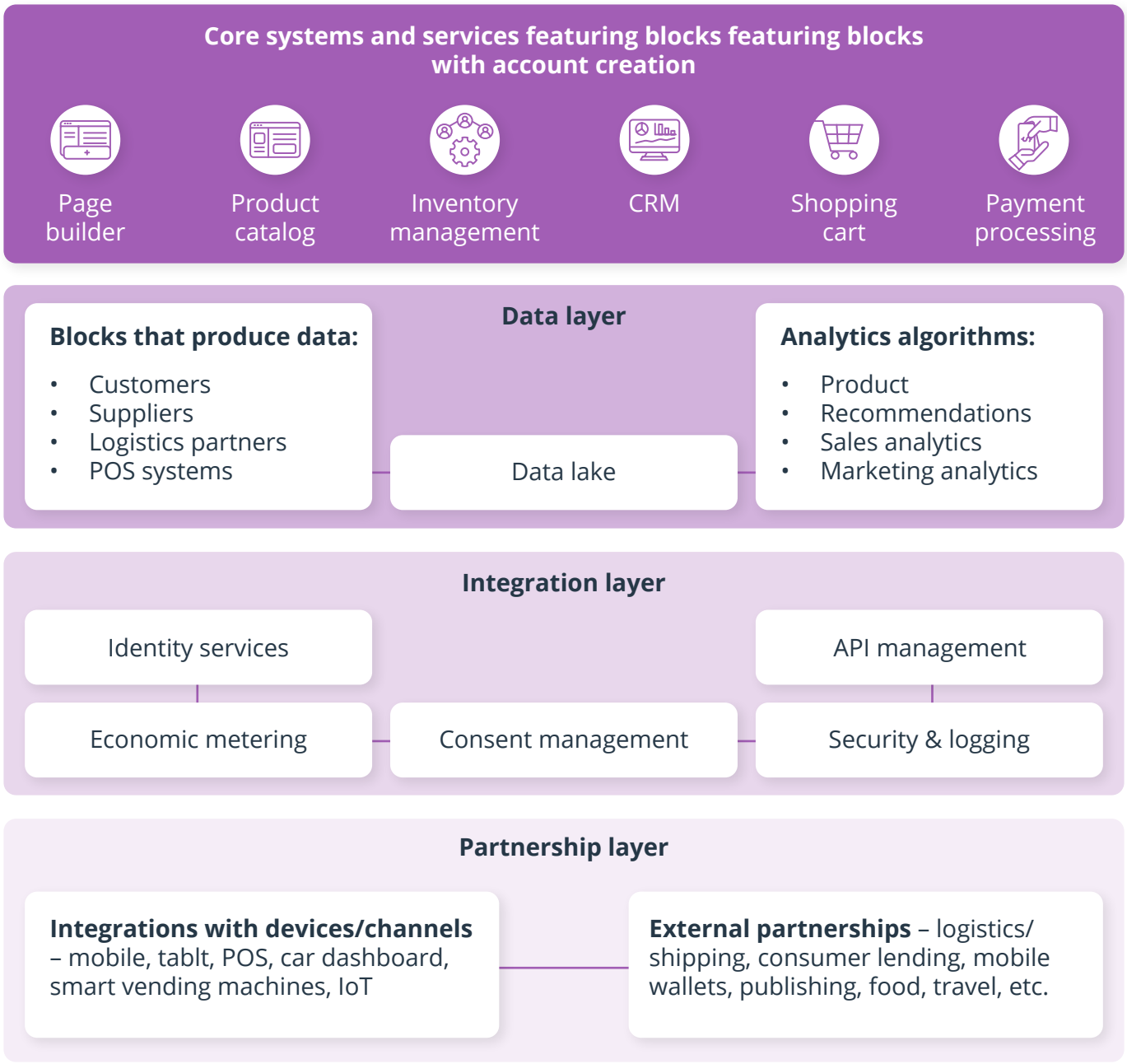
PLATFORM THINKING

> A **digital platform** is a type of IT architecture that connects previously disparate systems, applications, data streams, and service providers into a multi-vector ecosystem of participants.

By establishing close technological ties with other players, banks can meet a wide range of customer needs at different life stages and deliver continuity in financial services. A platform business model enables banks to deliver more relevant value propositions to consumers by leveraging their own data and ecosystem partners' services.

As the platform owner, you assume the role of an orchestrator — a central authority that decides how different resources are used and which combinations of resources can be leveraged to drive value for end customers.

At the same time, you can choose to **rent out** your own financial services to others — as many leading banks do.



PLATFORM DEVELOPMENT PRINCIPLES

Melding cloud computing, a microservices architecture, and a formalized API strategy with a strong data governance framework and advanced big data analytics, digital platform businesses can consolidate monolithic services into an integrated offering.

Alternatively, or on top of that, a platform business model enables faster penetration into new verticals with a lower chance of failure. You can leverage your existing customer base (and the data you have about your customers) to foster early adoption.

That's what Ping An did. Five years ago, the legacy Chinese insurer started building a platform of services related to different aspects of consumers' lives. Rather than trying to directly sell insurance products to customers, they focused on eliminating friction associated with common insurance use cases — going to the doctor, starting a business, or buying a new car. Ping An embarked on insurance software development to launch 11 integrated digital engagement platforms (including a standalone banking service and lending platform) across different verticals. Their online medical service, connecting patients with doctors and upselling insurance products, had amassed over 364 million users as of mid-June 2020.

Platforms also capitalize on data they accumulate, analyze, and classify to properly connect people, processes, and assets.

Read more about the technical advisory for platform development. Your product vision — our consultancy and execution.

One of our clients, the first provider of digital banking services in Germany, originally launched a free online community where people received rewards for evaluating financial products. Using data obtained from this community (and the power of the network effect), the company then launched a dedicated payment service, and afterwards a digital banking platform. Our team has helped them build a cloud-based data management solution to aggregate, store, and analyze large volumes of data from various sources and leverage it for future product development.

Core services, embedded microservices, a data layer, and APIs comprise the underlying modular infrastructure for a digital banking platform. Once that's figured out, you can look into ways to grow beyond your initial business vertical.

By reusing different core service components, banks can deploy competitive B2B2X offerings

Launch complimentary services

Insurance, robo-investing, and automated wealth management tools

Explore new distribution channels

Embedded financial services for retailers, transportation providers, and automotive companies

Enable external partners to build products on top of your platform

Banking as a service products for FinTechs and aspiring TechFins

Branch into new service verticals

Business banking, merchant payments, and investing products

Plaid x Accenture:

Embedded finance can meaningfully improve the customer experience and unlock a huge market opportunity, with an estimated $230 billion in net new revenue by 2025.

THE "CO" IN ECOSYSTEM — COLLABORATION, CO-EXISTENCE, AND CONTINUITY

Bit by bit, the biggest global banks are turning into a patchwork of interconnected services delivered by a cross-sectional bunch of partners.

For many, this has led to

- **Lower customer acquisition costs** because of improved digital acquisition + new channel partnerships
- **Higher customer lifetime value (LTV)** thanks to better retention, personalization, and cross-sells
- **Faster time to market for new products** due to greater reliance on APIs and Agile software development practices
- **New revenue streams** courtesy of both technical and business model transformations

Amazon and Apple's market capitalization compared to the US banking industry

Image Source: S&P

Given the above, it's not surprising that nine out of ten banks are strongly interested in forming or joining a customer-facing ecosystem.

Microservices, APIs, open banking principles, and platform thinking (MAOP) are the four cornerstones of emerging banking ecosystems. This combination enables banks to create value both for the end customer and for other players in the value chain. As we all know, such an **economies of scale** strategy stands behind today's most valuable companies, which have already overtaken the biggest US banks by market capitalization.

Banks can leverage the same effect to rebundle their product portfolio in line with market demands. Evaluate where you already excel, decide where you'd like to develop in-house products to maintain a competitive edge, and determine where you could benefit from sourcing capabilities and products from ecosystem partners.

ABOUT INTELLIAS

Intellias is a global technology partner enabling change and transformation across industries and generating long-lasting value for businesses, people, and the wider world.

We inspire confidence in our partners and clients from various verticals that their digital initiatives will succeed. With over 20 years of market experience, we help our partners thrive in a digital-first world by combining engineering craftsmanship and industry insights to solve challenges of any nature, scale, and complexity.

Focused on the business's strategic objectives, we enhance the product vision, technology application, and production capabilities so that your company is ready to respond to the increasing call for change.

Our people-centric approach and passion for clients' success unite engineers, creators, and innovators around the globe who breathe life into great ideas with the power of digital technology.

Get in touch!

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