# New Age in Banking:

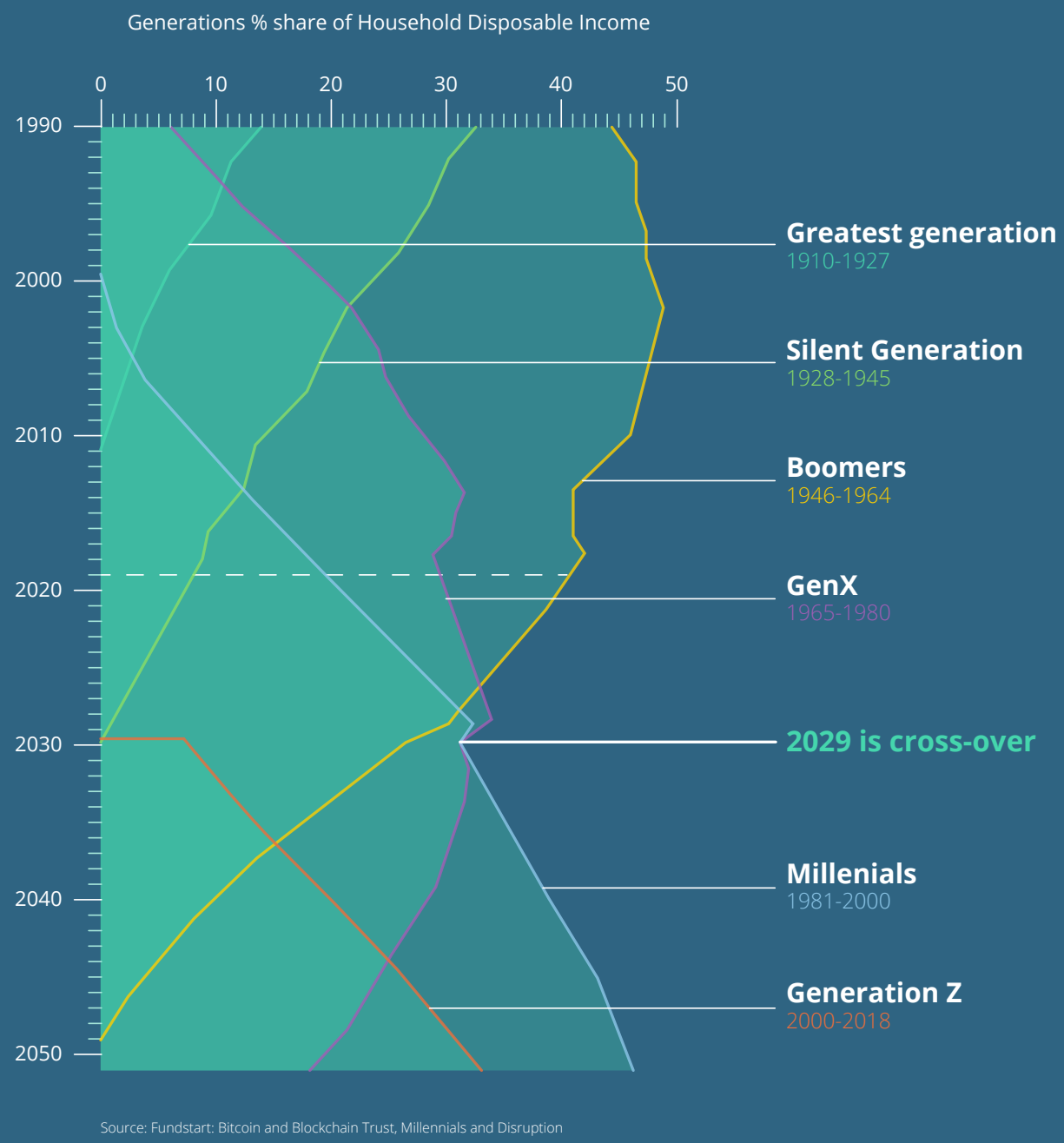
## Era of tech change

intellias

# Contents

# Executive summary

The banking sector is in peril. New customer segments are coming to the fore, and just a few banks have the technology required to cater to them. By 2029, Millennials will control the largest share of disposable income, while the wealth of Baby Boomers and Generation Y will decline[1]:




Source: Fundstart: Bitcoin and Blockchain Trust, Millennials and Disruption

Millennials and Generation Z are used to managing their financial affairs through digital channels – particularly mobile apps – and innovative FinTech products. These tech-savvy generations will determine the course of financial systems and the success of individual financial institutions globally. What will the future of banking look like under Millennial rule? It will become customer-centered, adapting to the connected landscape, reducing friction in operations, and enabling utility use cases.

The Millennial takeover of the banking sector is expected to happen between 2025 and 2035, so there's still time to prepare, right?

Perhaps. But two other major trends are shaping the banking industry in 2019 and 2020.

Digital banks – the newest entrants to the financial market – are chipping away $380 billion[2] in potential revenue from incumbent banks by **targeting unbanked consumers** in both mature and developing economies. Using the latest technologies, they're effectively engaging an underserved market segment and winning big time. Two major business models have emerged as a result: the credit card and debit card models. We'll discuss them in-depth in this report.

**TechFin players are stirring up the competition** as well. Google, Amazon, Facebook, and Apple (referred to collectively as GAFA) are actively probing the financial sector for possible disruption. With well-established platforms and billions of active users, these behemoths can easily overtake both traditional and digital banks in the race for new consumer demographics. Today, almost one-half (42%[3]) of those aged 14 to 21 feel "excited" about the prospect of using financial services offered by tech giants like GAFA.

**Within the next decade, Millennials will dominate the banking sector. Preparing for their arrival operationally and technologically is integral for future-proofing your business.**

And if you doubt that tech players can succeed in the banking industry, read about the major successes of Baidu, Alibaba, and Tencent (BAT) in the Chinese financial market. By adopting a unique lending-based business model, leveraging new technologies such as big data, machine learning (ML), and artificial intelligence (AI), and by piggybacking on an existing platform, these local TechFin players have soared to incredible heights within a relatively short period of time (2014–2019). Within five years, Alibaba issued $96 billion in loans and has grown its subsidiary, Ant Financial, to a market cap equivalent to one of the largest banks in the US[4].

Clearly, a lot is at stake for the banking sector. If no business or technological action is taken, traditional banks and some FinTech players will be left with a fraction of the market share they could have captured.

As a technology and software development vendor, Intellias has seen first-hand how new technologies can propel massive growth for banking products. In this whitepaper, we offer a deep-level take on **Banking 4.0**: the new customer demographics, the new business models for traditional and digital banks, and the proven technological solutions that can accelerate your growth and help you secure a competitive edge for the transformational decade to come.

**"The bankers of tomorrow are not bankers at all—the bankers of tomorrow are technologists who enable banking experiences your customers will use across the digital landscape. The bankers of today, the bank artifacts of today, the bank products of today, are all on borrowed time."**

***Brett King, Bank 4.0***

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Your Next
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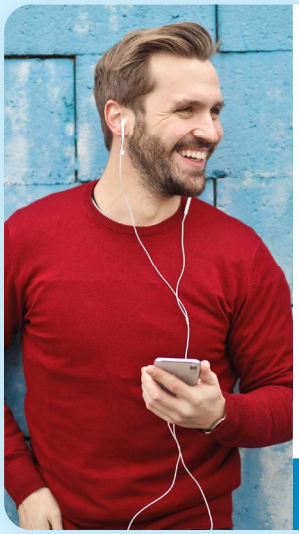
# Meet your new target audiences:

Millennial and Generation Z retail banking consumers

Within the next decade, Millennials will dominate the banking sector. Preparing for their arrival operationally and technologically is integral for future-proofing your business. To understand how to build a better digital banking business model, we invite you to meet and greet your new customer personas.



## James

**33 years**
**Older, Affluent Millennial**
**Median household income:**
**$69,000**

### Frustration

- Difficulty resolving problems
- Standing in long lines
- Inability to carry out a transaction online

### Most used devices
(hours/week)

| | |
|---|---|
| Desktop | 16.4 |
| Smartphone | 14.8 |
| TV | 14.8 |

### Bio

James is an interior designer and wants to start his own business. He is married and has a 2-year-old son.

### Favorite Brands

PayPal, Zelle, Square, Uber

FinTech Bank Business Model ❯

## Jill

**24 years**
**Younger Millennial**
**Median household income:**
**$39,000**

### Frustration

- Difficulty resolving problems
- Standing in long lines
- Inability to carry out a transaction online

### Most used devices
(hours/week)

| | |
|---|---|
| Desktop | 16.4 |
| Smartphone | 14.8 |
| TV | 14.8 |

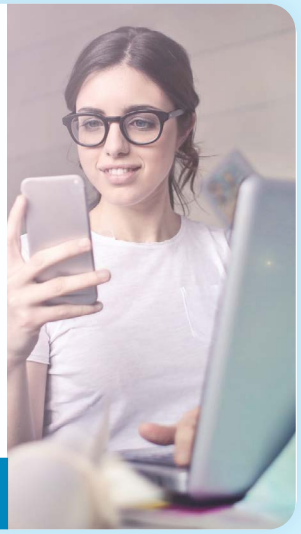
### Bio

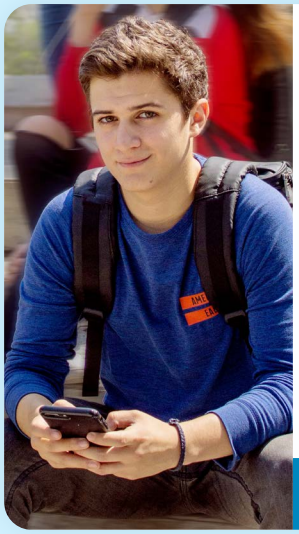
Jill has recently graduated from a college and is now living on her own. She is working hard to pay off her student loan debt.

### Favorite Brands

venmo, Spotify, amazon

Credit Card Business Model ❯





## Jamie

**17 years**
**Gen Z Consumer**
**Median household income:**
**$8,100**

### Frustration

- Overdraft fees
- Standing in long lines
- Technology failure

### Most used devices
(hours/week)

| | |
|---|---|
| Laptop | 10.6 |
| Smartphone | 15.4 |
| TV | 13.2 |

### Bio

Jamie is a freelancer who earned his first money at the age of 13. He prefers eLearning over college. Also, he likes instant shopping and delivery more than hunting for brands.

### Favorite Brands

Google, NETFLIX, YouTube, Vine

Prepaid Card Business Model ❯

For Millennials and Generation Z – the first fully digital generation – banking is an experience. These demographics want their financial experiences to be seamless, effective, and in line with their lifestyle preferences. As a digitally native generation, technology plays an important role in their choice of financial institutions. 57%[5] of Millennials say they would switch to a competing bank offering better technology.

Mobile banking solutions, in particular, are in the limelight. Among Millennials, 92%[7] already use their smartphones for banking activities even more frequently than for other services such as online shopping. In fact, by 2023, 73% of the UK's adult population[8] (35 million people) will likely use mobile banking apps.

The shift toward mobile is happening on a global scale as well. During a typical month, US Millennials access their bank accounts an average of 8.5 times via a mobile app versus 3.1 times for non-Millennial demographics. Opening a credit card account is primarily a digital activity for Millennials as well, with 61%[10] opting to do so electronically last year.

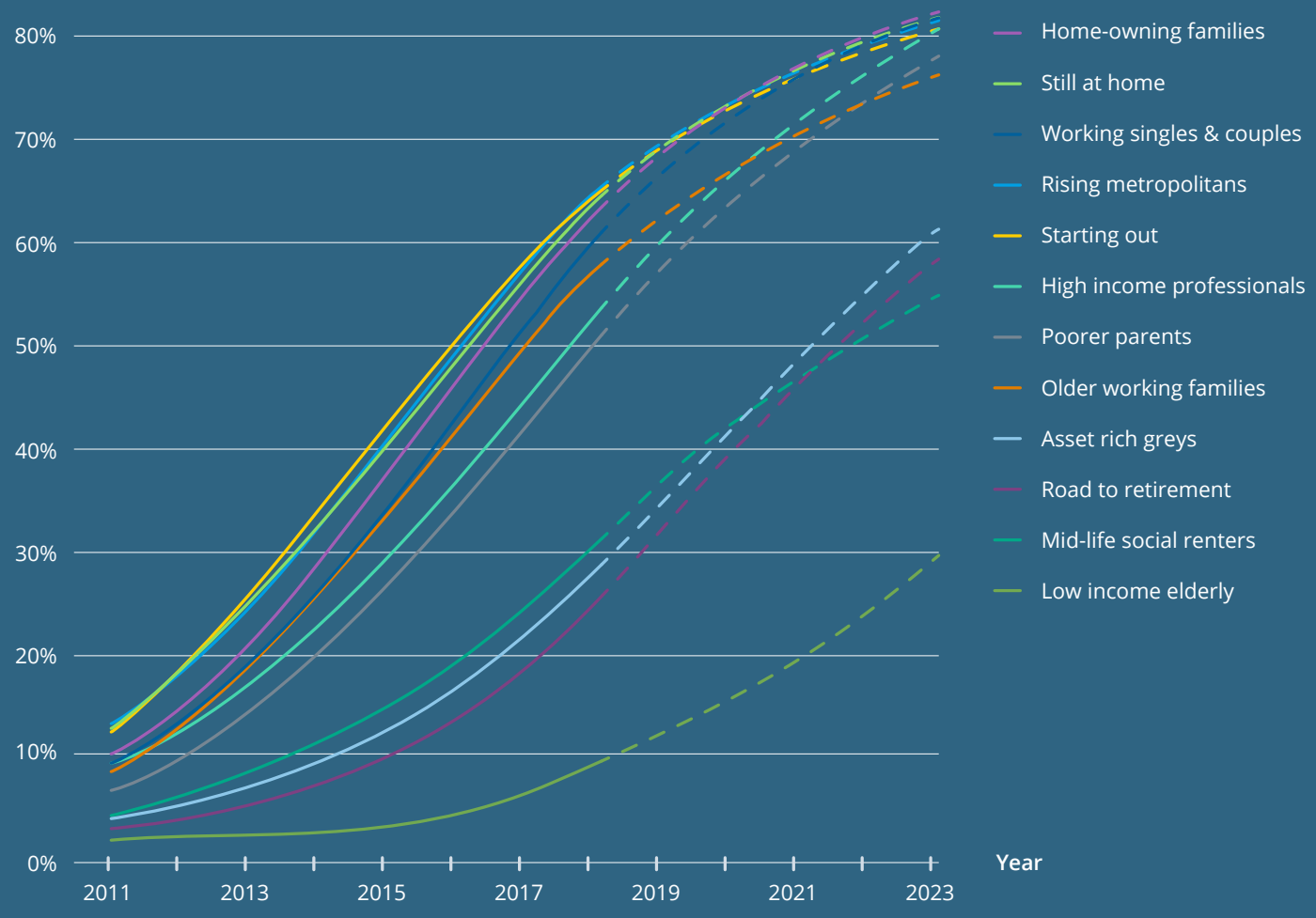
**87%**

of millennials say their smartphone never leaves their side, day or night[6].

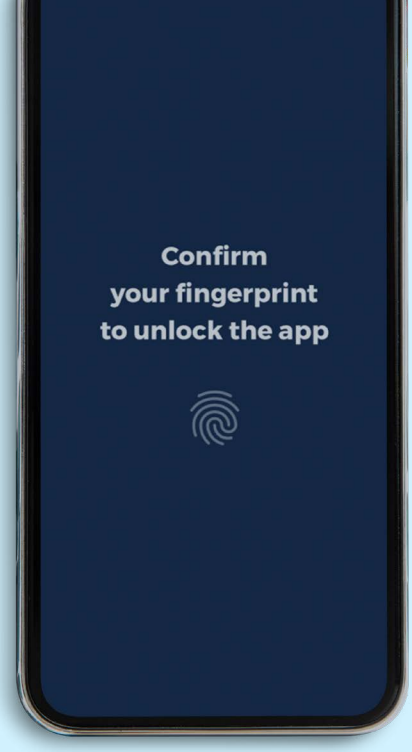
**50%**

of consumers use digital channels to apply for financial products[9].

# Who's managing current accounts on mobile?




Nearly 75% of millennials feel more excited about new financial products from tech companies like Amazon, Google, Apple, PayPal, and Square than from their own nationwide bank[11].




Tech giants have already demonstrated how simple and effective payments can be. In Europe, 68% of millennials[12] use a digital wallet service (such as PayPal) or a mobile payment solution (Apple Pay, Android Pay, or Samsung Pay). Nearly half (45%) send money to friends and family using smartphones and tablets[13].

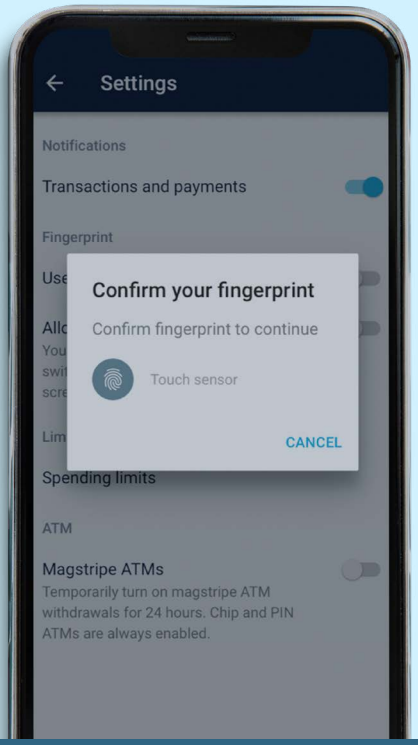
Generation Z consumers also have a strong affinity toward progressive tech companies: 42% feel excited about engaging with companies like Google, Amazon, Apple, and PayPal to manage their financial affairs. They're perfectly comfortable with treading the online waters and believe that their financial lives can be entrusted to technology companies.

**In fact, many technology companies (including the so-called GAFA) already have all the keys to success in the banking sector:**

- **A technological edge**
- **A large customer base**
- **A convenient and effective digital platform**

Among younger generations, tech companies also command a level of trust that only traditional banks and credit unions could get in the past. What's even more important is that these tech companies can collect and leverage huge quantities of customer data to build "platform solutions" – sticky, connected offerings that are seamlessly integrated into consumers' everyday lives and designed according to their needs.

Banks, even digital ones, have to catch up in terms of their analytical capabilities. In the modern world of connected experiences, both Gen Z and Millennial consumers want their financial service providers to respond to their needs even before they voice them.



**Millennial customers don't think about your banking products. They're first thinking about their needs.**

Millennials and Gen Z want an **omnichannel experience** tailored to their personal goals. Millennials crave experience-driven banking within the channel of their choice. In the EU (the UK, Norway, the Netherlands, France, Switzerland, Germany), Australia, the US, Canada, Singapore, Brazil, and India[14], the majority of consumers embrace the internet and demand that banks provide a superior customer experience (CX) through digital channels.

**«Current»**, a US-based startup, launched a debit card and app for teens in 2017, presenting parents with a modern way to give allowances to their kids. Last year, the company decided to expand its offerings and launched a full-featured bank account for Gen Z consumers. Thanks to a straightforward UX and an attractive value proposition, Current has already secured 240,000 users.

Collect data, constantly learn about your customers' hurdles, and introduce solutions that can reduce friction or help them overcome those hurdles: buying a house, purchasing insurance for a trip abroad, getting a better grip on their savings. Generation Z, in particular, would love to see more savings and budgeting tools, as this is the saver generation. Some of them start putting away money right after they turn 10. In fact, savvy FinTech companies are no longer waiting for Gen Z to "grow up," instead targeting them with offers based on their unique needs.

Millennial and Gen Z want to be informed and view banking products as their companions and advisors, helping them reach their financial goals. Currently, 66% of Millennials state that they have little or partial confidence in planning for and achieving their goals. And 75% state that they don't receive too many offers from their bank but are open to more communication[15].

## Millennial and Gen Z consumers want personalized financial advice

The wrinkle, however, is that Millennials don't like to be explicitly told what to do or pestered with generic sales pitches. To win the trust and attention of this generation, financial institutions need to function in the background, silently assisting Millennials with their day-to-day tasks by being present on their smartphones. This can be achieved, for instance, by diversifying payment options to make the payment experience even more seamless and better fitted for Millennials' immediate needs. Cards, mobile wallets, in-app payments, and integrations with wearables and third-party services create new non-intrusive touchpoints with your customers.

**How Financial Services Companies Can Benefit from IoT and Wearables**

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# What do Millennial and Gen Z customers want?

**Intuitive tools for decision-making.** Millennials lag behind in terms of financial literacy. But instead of seeking professional advice, most fill in those knowledge gaps using third-party online tools and apps. The majority feel under-informed about the long-term impact of their current financial decisions and would like to have tools assisting them at different stages of their journey.

As Millennials are stepping onto the home ownership ladder, their demand for advice is increasing. Banks already hold all the information they need to deliver advice to their customers. By adopting big data analytics and machine learning, banks can turn that data into actionable insights and can regularly dispatch it to consumers through an app. After all, Millennials expect their financial institutions to "get them" – to understand their unique life situation and goals at a given moment of time, not to pitch generic services based on their age, income, or buyer persona.

Gen Z consumers are also inclined toward having more financial tools to help them manage their finances and receive guidance on how to save and invest.

**Clear value proposition.** The first question a Millennial consumer asks when assessing any new product or service is **What's in it for me?** They want to clearly understand the value they'll gain from entrusting their money to a bank. Even when it comes to such major choices as banking, Millennials still experience FOMO (fear of missing out). If they've partnered with one institution in the past (e.g. to receive a mortgage), they may opt for a better-suited alternative service provider for their next financial product. Millennials are comparison shoppers. They want to know the alternatives and compare deals before making any choice.

Banks that are transparent about their fees, accessible on the go, deliver personalized product suggestions, reward loyal customers with special perks, and proactively help customers attain their financial goals win over Millennial and Gen Z customers.

"It would be super cool if my bank could proactively help me manage my finances. I'd love to receive tips on where I can trim my costs to meet my savings goals e.g. if you stop buying lattes every day and ditch two subscriptions, you can go to Hawaii next summer."

*Kelly M.*

# **The unbanked:**

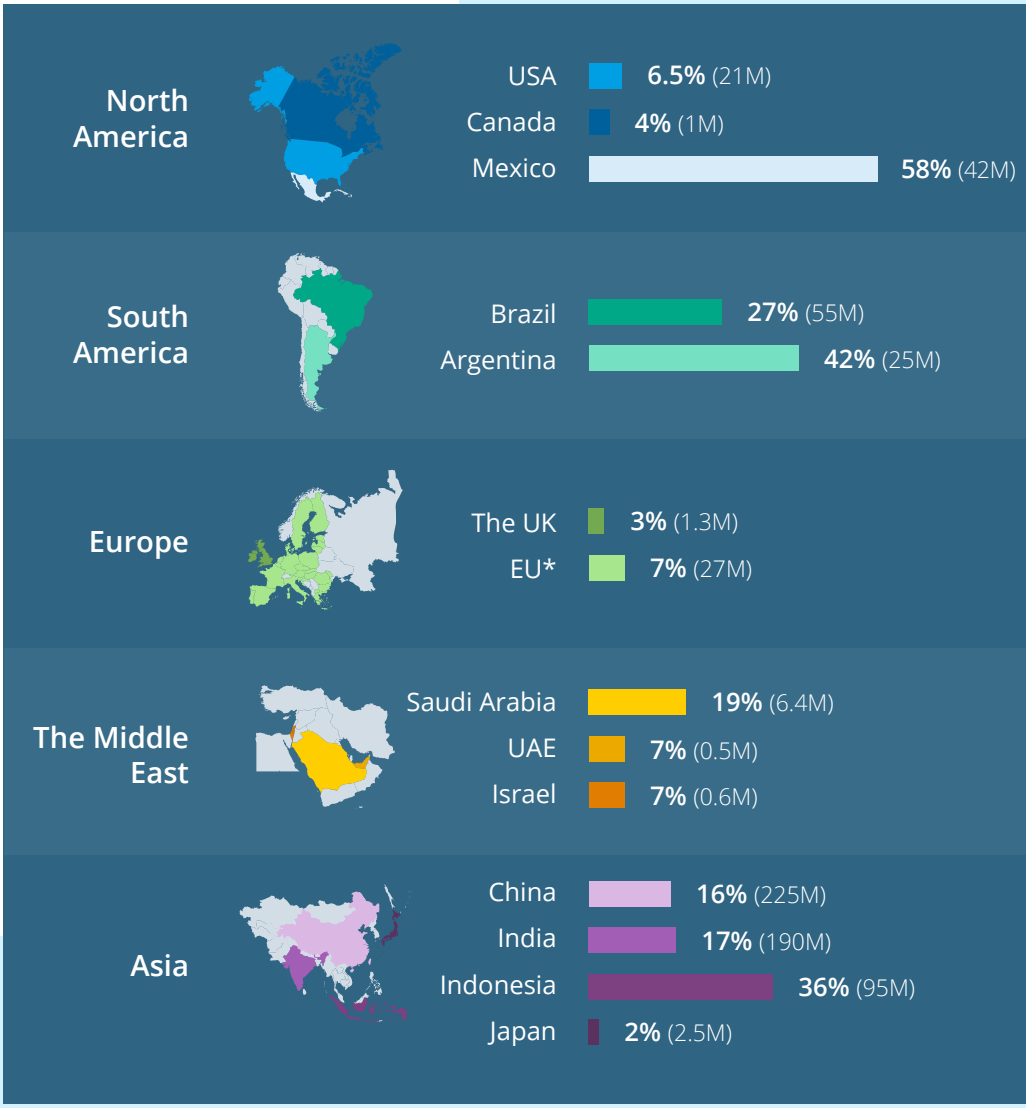
# A ten-figure revenue opportunity

Banking may be a commodity in developed economies, yet over 30% of adults globally are still excluded from the traditional financial sector. And it's not just the poorest populations in developing nations who are unbanked. In Canada, for instance, 7% of low-income individuals don't have a bank account with a traditional financial institution. At the same time, among Canadian households in the top 60% by wealth, 3% of adults also don't hold an account with a traditional bank. Beyond that, close to 15 million Canadians are underbanked: they may hold a bank account, but their engagement with mainstream financial institutions remains limited.

In Europe, unbanked and underbanked consumers can be found aplenty in markets where banking products are expensive and offer poor usability. In the UK, where opening an account with a traditional bank remains cumbersome, nearly 1.4 million adults still live without access to a traditional current account or modern digital banking services such as Monese, Revolut, and Monzo.

**"Banks could generate about $380 billion in annual revenues targeting unbanked consumers in emerging markets."**

***Accenture***[16]



**33%**

of the EU's unbanked are employed full-time and 9% are students[18]

Unbanked consumers in the EU are primarily young people (35% are aged 18–34) and people who receive regular income or support from family/government (such as retirees).

In these markets, there's an alarming disconnect between the growing access to the internet and technology and the lack of growth when it comes to connecting to financial institutions. In fact, 27% of unbanked respondents claim they still find it hard to access financial products and services, and 20% say that they don't want a traditional bank account.

**Only 69% of adults around the world have an account with a traditional bank or mobile money provider[17]**

Thus, Millennials are far more likely to bank online and opt for a simple solution that makes managing their finances intuitive and straightforward. Right now, when it comes to mobile banking, incumbent institutions are outpaced by FinTech players offering great core products without overwhelming users with choices.

# What do unbanked customers want?

**Simple access to financial services.** Low financial literacy, lack of trust in traditional banking institutions, and high fees deter unbanked consumers. Mobile financial services, offering easy and instant sign-ups and low-to-no banking fees, on the contrary, are catching on.

**The right value proposition.** Tailor your product to solve a precise problem for your potential customers – send/receive money across borders, pay bills – instead of overwhelming them with choices. Your solution should come with a low learning curve, winning over users' trust one new feature at a time. Opening an account should take a few minutes and should be possible to do remotely.

**Attractive costs.** Services should be affordable for unbanked individuals from lower-income households. At the same time, low fees can be your competitive edge to attract a larger cohort of customers frustrated with the hidden costs of their day-to-day banking operations. Make your platform transparent and include activity-based pricing for different types of services.

A digital experience, overall convenience, and affordability are three major factors influencing the banking decisions of younger demographics. Failing to cater to this growing cohort of customers with the right offers is a major opportunity lost.

"I couldn't get a bank account anywhere without specific kinds of proof of address which I didn't yet have access to. Monese was the only solution I found that gave me a prepaid card, bank sort code/account number so I could send and receive money (rent, salary)."

*Diane*[19]

# Why are digital banks currently winning over new demographics?

Instead of opting for a traditional operating model – assuming a vertically integrated value chain that goes from production to sales, distribution, and servicing – digital disruptors are choosing their areas of competition wisely. They're going after services with the highest profit margins, leaving low-margin, high-cost services (e.g. safety deposit boxes) to the traditional banks.

## Traditional banks vs digital banks

| | Traditional Banks | Digital Banks |
|---|---|---|
| **Customer Acquisition** | Branch, online | Mobile-first |
| **Customer Experience** | Branch-focused, with complimentary online and mobile channels | Digital-only, with a strong focus on effective mobile UX |
| **Customer Service** | Branch, contact centers, self-service | Self-service, chatbots, social media support |
| **Target Demographics** | Gen X, Boomers | Millennials, Gen Z |
| **Product Approach** | Product-centric. One service for all types of customers | Customer-centric, community-driven, personalized |
| **Operating Model** | Centralized, vertically-oriented | Decentralized, services-oriented |
| **Development Approach** | Waterfall, with reliance on in-house R&D and computing resources | Agile, with a strong reliance on cloud computing, APIs, and new technologies like AI/ML |
| **Risk and Compliance** | Strong internal focus on regulation and compliance | Managed through partners |

# What do existing digital banking customers want: **Personal Accounts?**

### UK Student Abroad

The ability to precisely customize cards for personal use to avoid fraudulent transactions, for example, is a very welcome feature that I didn't even realize I need. Another is the automated customer service bot which has claimed to solve about 20–30 percent of customer queries without the need for an actual representative.[20]

### Daniel

Integrated cash back from partner shops/stores, the one thing I miss from my legacy bank![21]

### UK DB User

How about if we could have a pot named Committed Spending, which would work as follows:

- Every payday, the exact amount you need for your committed spending (plus maybe a specified-by-you "buffer" amount in case your DDs go up in a given month/pay period) is automatically placed into this pot
- Then the committed spending DDs and standing orders come out of thispot

This way, your committed spending money is automatically ring-fenced to prevent you from accidentally spending it and you know exactly how much you have left to spend every month.[22]

### Kumnaa

You can tell it how to treat income so budgets don't fall over. Add spending analytics so I can see how I'm doing vs last month and by merchant.[23]

### Sean

**IF THIS, THEN THAT**. So when something is triggered (the IF) something else happens (the THEN). Example:

- IF: Restaurant category > £250 this month
- THEN: Send email and get alert with content "Stop eating out so much!" to myself[24]

### Paul

Get additional cards linked to the master account with our children's names on? i.e. they are under 18 years old?[25]

### Felix

Bicycle insurance or even a complete home contents insurance (including the bicycle obviously).[26]

### Ricardo

I just can't wait to invest using this [digital bank] broker.[27]

# What do existing digital banking customers want: **Business accounts?**

### Simon Drayson, owner of an architectural practice

Business savings account paying some interest. Free quick pay link on invoices similar to GoCardless.[28]

### James, sole director of an LLC

I've had Barclays business accounts in the past and tried [bank brand] but the fees and slow/bad service with those two put me off.[29]

### Dan, entrepreneur

Pots to separate my VAT and Corporation tax. Allow direct debits from HMRC to take money out of these pots, automatically move the VAT from transactions into the pots, and a set amount for corporation tax from each income (if it matches an invoice).[30]

### Nicola, business owner

Some form of bulk-requesting the cards for the whole organization, with a single initial shipment to a company rep. Or some form of linking each individual account request from the app to a company to allow the individual app to be linked to a company and employee - and let him perform the onboarding/documents - via self-service - via the current KYC excellent workflow.[31]

### Mike

An option within the app to somehow print out the invoice for various fees that occur during the use of [the] card. The invoice would have to include also the TAX ID number that we use in the EU.[32]

### UK SME

A simple way of managing pre-pay across the cards, perhaps by having a single account and multiple individual cards linked to this account.[33]

# Why every FI should accelerate digital transfor-mations?

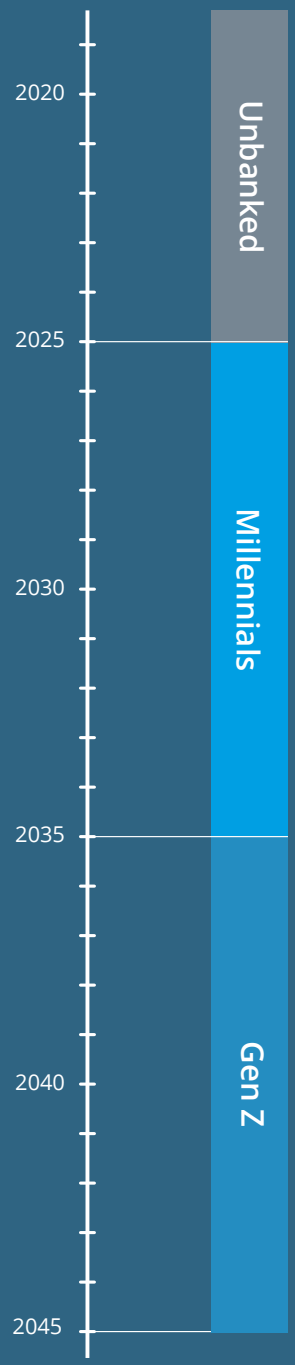
As you've learned from the previous section, Millennial consumers are now at the forefront of the banking revolution, closely followed by unbanked and underbanked consumers.

With Gen Z consumers coming of age, the battle for customers will only get tougher. Incumbent banks are no longer only up against the savvier digital FinTech players – they're up against the consumers themselves. The new cohort of banking clients will no longer settle for a big name alone. They demand better technological solutions, lower banking costs, and more streamlined mobile-friendly user experiences.

## Action points:

- **Leverage new technologies** (machine learning, location-based services, big data) to anticipate customers' needs and match them with major life events. Then deliver personalized offers and recommend banking products based on this data.
- **Develop a better understanding** of your customers' lifestyles, channel preferences, and communication styles to create meaningful new digital touchpoints.
- Recognize and capitalize on **various service and communication delivery methods** (mobile/desktop apps, wearables, email, smart kiosks, SMS) that are best suited for different types of messaging and audience segments.

## Mobile banking revolution timeline



If you're a traditional banking institution, now is the time to act. Failing to accelerate the digitalization of your offerings now may cost you a significant chunk of profits in the near future.

## Digital banking is a must to prevent churn
(millennials in the fin services)

**92%**

Use online banking

**79%**

Use mobile banking

**66%**

Use branch banking

Source: CB Insights Consumer Banking Report

The big question is: **Can your bank successfully digitize its expansive product lines?**

Digital-first banks shouldn't get too comfortable either. The banking ecosystem is buzzing with new players. Your customers may be delighted with your current level of service, but most are always eager to get more, as our quick customer survey demonstrated. To access new markets, capture new audiences, and increase profits, FinTech players will need to think more about banking product strategies, not just digital innovations.

The question FinTech companies should be asking is: **How can we effectively scale product lines in the digital environment?**

In this section, we'll dive deep into the three digital banking business models worth pursuing for both traditional players and innovative market disruptors. Each model analysis also includes actionable suggestions for a new technology stack that's worth exploring.

**"Digital sales now make up 24% of all our sales in our consumer business."**

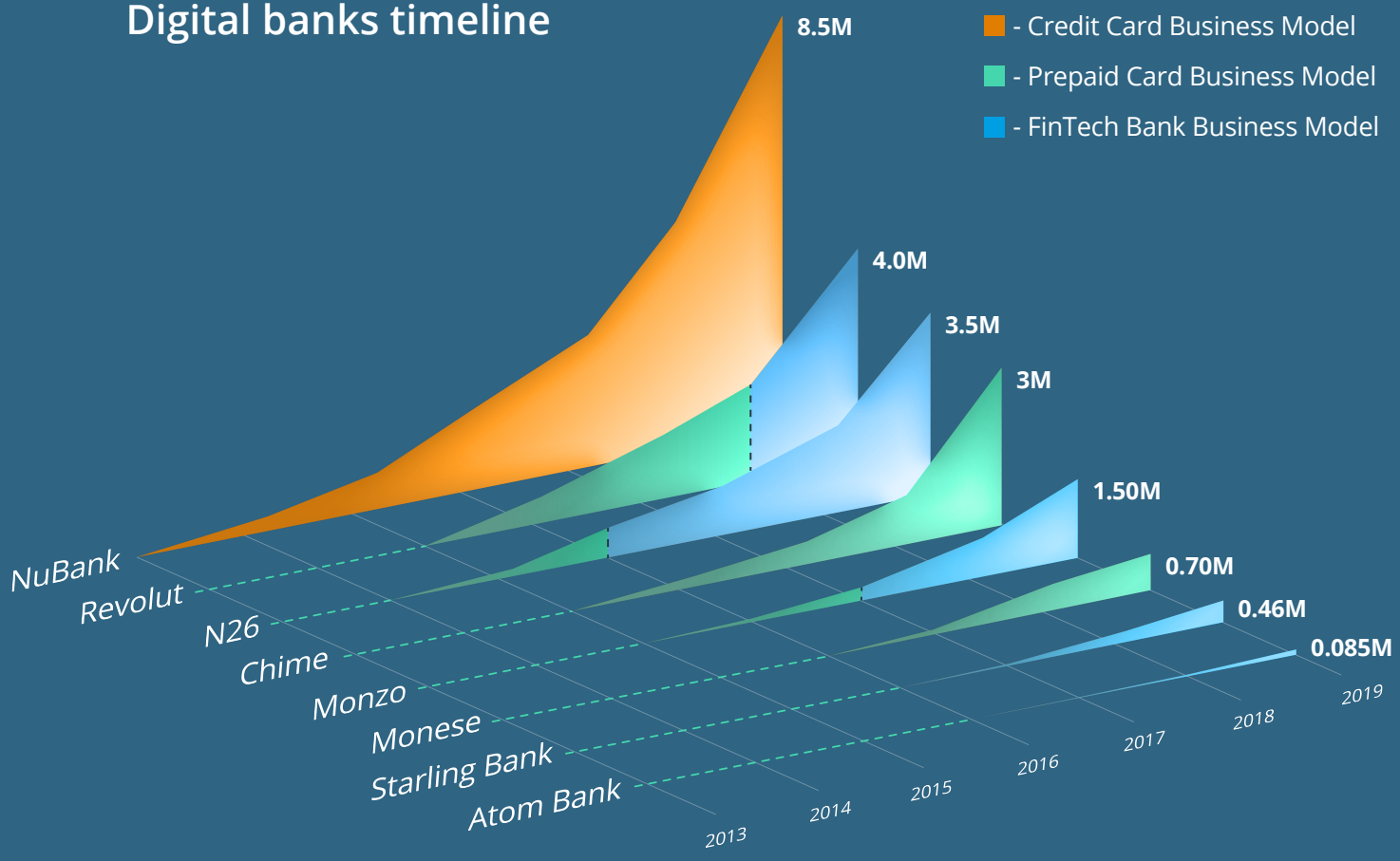
***Brian Moynihan, Chairman and CEO of Bank of America***[34]

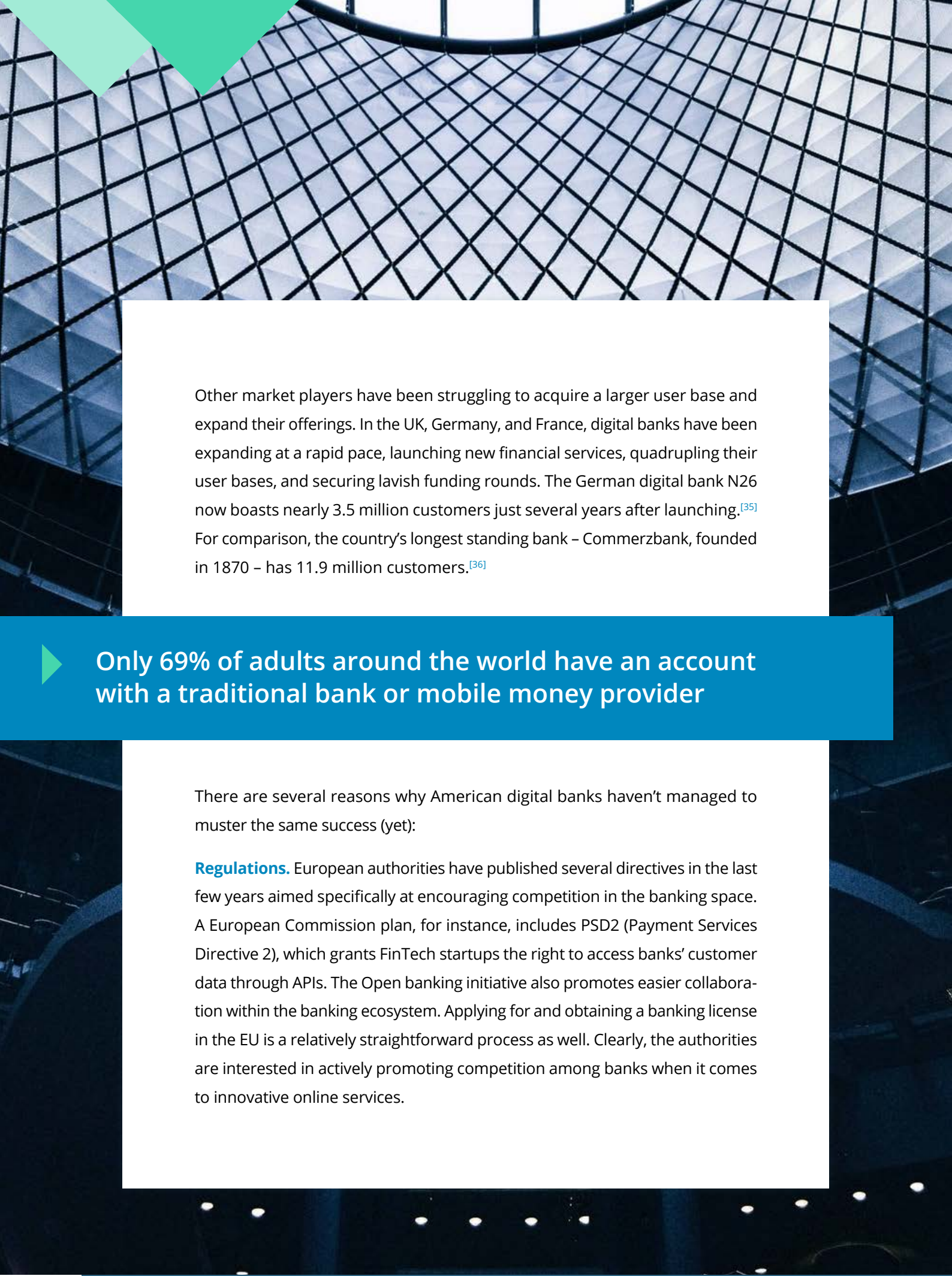
# Overview of three business models for digital banking

Digital-only banks – disruptive startups that deliver banking products outside the traditional financial system – started emerging in 2009, when John Reich, an Australian software developer and hedge fund quant, decided to launch a "really boring, simple bank" as an alternative to the complex American banking ecosystem. So Simple entered the arena, and a year later, another challenger bank, Moven, was launched by yet another Australian entrepreneur. Chime and Varo Money opened their doors shortly afterward.

The US is now home to some of the "oldest" digital banks. However, the country's digital banking ecosystem currently lags behind its European counterparts.

## Digital banks timeline



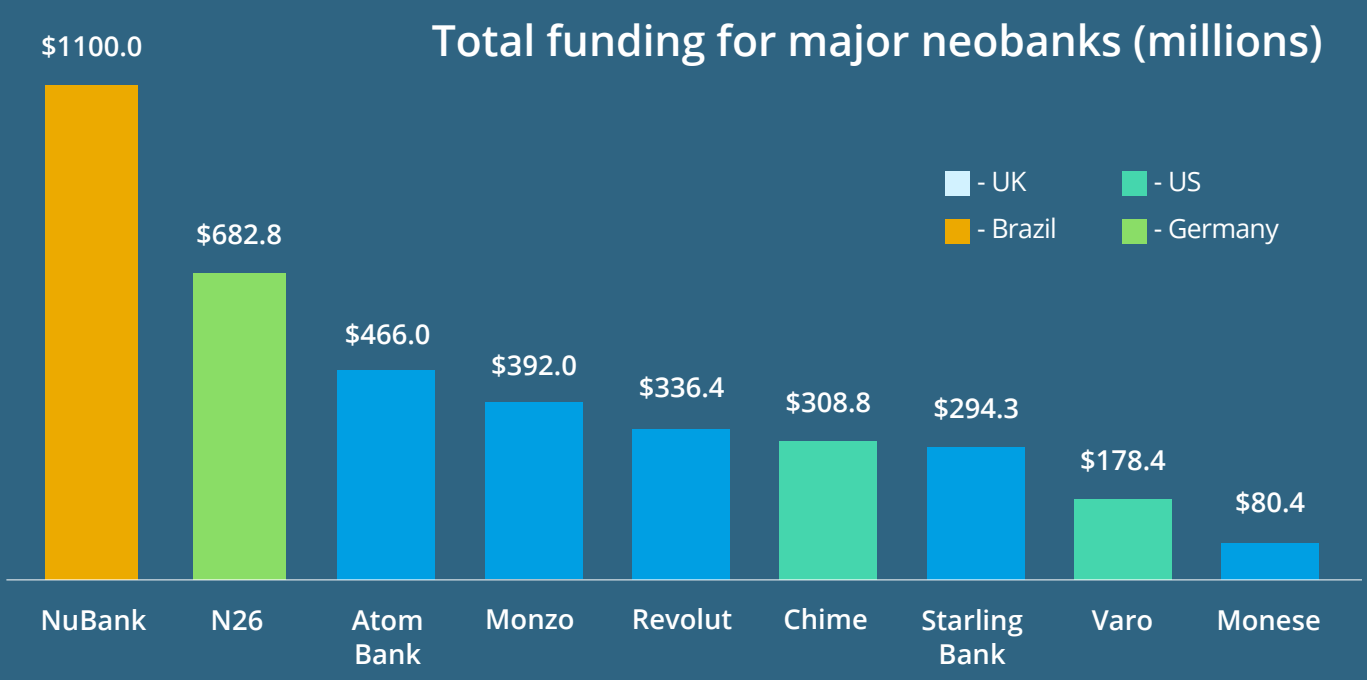


Other market players have been struggling to acquire a larger user base and expand their offerings. In the UK, Germany, and France, digital banks have been expanding at a rapid pace, launching new financial services, quadrupling their user bases, and securing lavish funding rounds. The German digital bank N26 now boasts nearly 3.5 million customers just several years after launching.[35] For comparison, the country's longest standing bank – Commerzbank, founded in 1870 – has 11.9 million customers.[36]

## Only 69% of adults around the world have an account with a traditional bank or mobile money provider

There are several reasons why American digital banks haven't managed to muster the same success (yet):

**Regulations.** European authorities have published several directives in the last few years aimed specifically at encouraging competition in the banking space. A European Commission plan, for instance, includes PSD2 (Payment Services Directive 2), which grants FinTech startups the right to access banks' customer data through APIs. The Open banking initiative also promotes easier collaboration within the banking ecosystem. Applying for and obtaining a banking license in the EU is a relatively straightforward process as well. Clearly, the authorities are interested in actively promoting competition among banks when it comes to innovative online services.




In the US, however, the regulatory landscape has not been as favorable. Obtaining a banking charter and necessary approvals has been a major stumbling block for the country's digital banks. As a result, most choose to stick with the most basic digital banking model, offering prepaid cards alone.

However, recent regulatory developments indicate that US FinTech startups may finally get a green light for expanding operations.

**Venture capital.** European FinTech companies have an easier time securing funding for product development. Between 2014 and Q1 2018, 57% of digital banking[37] deals have emerged from Europe and only 21.9% from the US.

American investors are interested in the FinTech niche, but they aren't actively funding digital banking projects. The reasons? Heavy regulations and a highly competitive local banking landscape.

**So how can US digital banks compete?** By leveraging new digital solutions, building a better UX for their customers at the pre-license stage, and leveraging emerging legislation to work their way toward acquiring that coveted license. Otherwise, they're at risk of losing their potential user base to European players, who are now eyeing the US as their next target market. N26 has already rolled out its services in the US, and others will likely follow suit.

As mentioned, there are several revolutionary business models for digital banking that neobanks choose to pursue. Each comes with certain pros and cons as well as unique technological opportunities for expansion.

# The credit card business model

| Strengths | Weaknesses |
|---|---|
| • Lower customer acquisition costs<br>• Earlier customer feedback<br>• Faster time-to-market<br>• Easier regulatory landscape | • Non-credit worthy customers<br>• Limited potential for product development |
| **Opportunities** | **Threats** |
| • Significant opportunity in emerging economies<br>• Easy competition with incumbent banks in terms of pricing<br>• Customer loyalty<br>• Engaging the unbanked/underbanked consumers | • Regulations and banking license approvals<br>• Limited potential for growth within the credit card niche alone |

Credit cards may not initially appear to be the most exciting banking product. However, they hold immense power of attracting early clientele to a new digital banking solution. New market entrants to the FinTech space choose this business model to build trust. After all, people are more likely to trust a new bank when it comes to receiving credit than when it comes to opening a deposit account.

| Data source | Estimated size of credit-underserved market | Data source's definition of "credit-underserved" |
|---|---|---|
| **Experian** | 35 million adults | Not "credit active" |
| **Fair Isaac** | 54 million adults | Having no credit files that can be scored, either because of no credit history (22 million adults) or thin credit files (32 million adults) |
| **National Credit Reporting Association** | 70 million adults | Having either no credit score or a lower credit score than their financial history and payment potential warrant |

Source: Federal Reserve Bank of Minneapolis[38]

Digital banks also entice users with low or no-fee accounts: something incumbent banks can't always offer. While low interest rates to customers do amount to lower profit margins, digital banks operating with this model rely on rapid growth and customer loyalty.

Technologically, a credit card business model is easy to implement. By leveraging cloud technologies and API programming, it's possible to develop a mobile credit card processing platform with basic expense management functionality within **seven months**[39] and deploy additional product features with relative ease.

The biggest weakness of this model is client verification. To avoid signing up insolvent clients, digital banks must create an efficient (yet seamless) Know Your Customer (KYC) procedure to attract and sign up the right types of customers en masse. Choosing to go mobile gives you an advantage here, as you can instantly tap into a wealth of data stored and generated by devices – including location data and social media information – that can be leveraged to create referral trees and cross-assessments of users based on their networks.

**Basic product features for a successful launch:**

- Fast, technology-driven KYC and customer checks
- Seamless digital onboarding using smartphone features including cameras and location-based services
- Low/no-fee credit card
- Credit card rewards/points program
- Expense management

Choosing the right technology and financial partners is also crucial. To run more comprehensive background checks, progressive digital banks should rely on data from credit rating agencies (e.g. Schufa) and credit score companies (e.g. Experian). Deploying additional functionality such as P2P transfers also entails the need for additional partnerships with vendors.

The credit card business model is a great launchpad for new digital banks, as it's a relatively low-cost, fast, and effective way of testing the waters and signing on early users. However, product expansion with this model can be limited, as certain features (e.g. current accounts or debit cards) will require striking a partnership with another bank or applying for a banking license.

# Opportunity spotlight: Implement AI credit scoring and predictive analytics

## AI-driven credit card fraud detection system

The present state of Machine Learning (ML) and AI allows banks to create intelligent fraud detection systems that self-learn over time. For instance, you can train an algorithm that will instantly recognize fraudulent transactions using accumulated customer behavior and transactional data, and notify your security team about any abnormal activity.

eBay recently deployed a similar solution and managed to detect fraudulent purchases with high precision 40% of the time.[40] For their team this means a major cut down in manual work as they now need to examine only 2000 data points versus 284,807.

### The benefits:

- **Cost effective & easy-to-maintain**
  AI-powered systems learn over time and require less and less human supervision to generate accurate results

- **Fast & secure verifications**
  Reduce the customer frustration with your security features. AI systems can run round-the-clock and personalize security standards for different types of users (based on their past behavior). High spenders will be able to withdraw as much cash as they need without getting their card frozen, while frequent online shoppers will enjoy secure and fast payment verification when shopping with different merchants.

- **Scalability**
  AI driven security systems become more effective with larger datasets and can be seamlessly scaled to cater to a growing cohort of customers

## Conversational AI for credit scoring

Digital banks launching with a credit card business model need to overcome a Catch-22: they want to onboard creditworthy clients, and yet attract the unbanked and underbanked customers with little-to-no borrowing history.

Adding social data to the mix of transactional banking data can help you make better decisions. And AI-powered systems can help you collect and operationalize those tidbits during the KYC stage. For instance, you can develop a chatbot to conduct a quick onboarding interview and gather data about the prospects lifestyle, profession, spending habits etc. to get a complete view of their financial situation. As well, you can plug in additional data sources e.g. social media data. Further, the collected data can be sent to predictive systems for analysis and credit scoring, and issue various levels of credit limits to different groups of customers.

### The benefits:

- **Faster & streamlined KYC**
  Simplify the onboarding process by turning it into a delightful conversation instead of a dragging paper routine.
- **Reduced risks**
  Onboard creditworthy prospects and create personalized limits for different groups of customers.
- **Less bias**
  Get a more comprehensive picture of the prospects financial affairs and make better decisions.

## Predictive analytics for credit risk

Predictive analytics can help you model different usage scenarios for users and identify credit card prospects whose accounts would default within a certain period, for example. As well, you can devise different models to boost customer loyalty. For instance, if one of your customers usually uses just 90% of their credit card credit. But then you see them entering a shop where she normally purchases for $250-$400, yet her credit is just $150. Considering that this client has a good payment history and regular cash flow, your system can automatically offer them a one-time credit limit increase for $500.

### The benefits:

- **Reduced risks**
  Minimize the number of defaulted accounts, and proactively take steps to get your clients back on the repayment track. One Eastern European managed to increase claims recovery by 70%[41] after rolling out deeper credit risk insights.
- **Improved up-sells & cross-sells**
  Pitch different credit card products/offers to customers based on their individual risk profiles and behaviors.
- **More competitive offers**
  Offer better interest rates on loan and credit products by relying on customer data. Reward loyal and creditworthy clients with better deals, and add extra "padding" for customers with higher repayment risks.

# The prepaid debit card business model

| Strengths | Weaknesses |
|---|---|
| • Rapid user base acquisition<br>• Mild regulations<br>• Fast time to market<br>• Instant user feedback for product development | • Need for interim partnership with a bank<br>• Limited potential for product development<br>• Unfavorable vendor/partner lock-ins<br>• Limited data analytics capabilities |
| **Opportunities** | **Threats** |
| • Easy competition with incumbent banks in terms of pricing/CX<br>• Engagement with unbanked/underbanked and Millennial consumers<br>• Can deploy new services/features through third-party integrations | • Limited potential for growth without offering current/checking accounts<br>• Complex process of banking license application/approval<br>• Paid partnerships limit the potential for competing on prices |

Launching with a prepaid debit card and a basic checking/savings account has been another route for FinTech startups. To set up shop, a lot of companies choose to sign partnership agreements with more mature FinTech players and/or rely on partner bank platforms for providing core financial services.

Just like with the credit card business model, launching with a prepaid offer is a great way to acquire a critical early user base, test product features, and collect feedback for further product development.

Several digital banks now boasting unicorn status and a shiny new banking license have pivoted with this model by enticing consumers with more attractive offers that aren't tied to revenue from fees. Unlike traditional banks, FinTech companies choose not to profit from the financial mistakes consumers can make (e.g. account overdrafts, spending in a foreign currency without knowing about the conversion costs). On the contrary, they create clear and transparent pricing structures that allow users to achieve financial success and choose to spend more and entrust more funds to their new digital partner.

Several factors contribute to solid success with this business model:

**Fast onboarding.** The majority of digital banks leverage the benefits of mobile platforms to create simple, effective, and secure onboarding experiences. Cameras and location-based services can be used to capture customer data (taking a selfie and uploading a scan of an ID), with additional background checks performed through partners.

**Competitive offerings.** Most digital banks in this category charge low or no fees for the standard set of banking services such as bank transfers, currency exchanges, multi-currency spending, etc. However, as the landscape has become more competitive, such basics are already viewed as must-haves by consumers. To stand apart from the competition, consider these additional perks:

- Cashback/loyalty bonuses
- Automated savings with monthly/yearly bonuses for meeting goals
- Instant/turbo money transfers
- Pay-per-use insurance options (offered through partners)
- Premium accounts with additional perks (faster support, higher credit/FX exchange limits, access to special offers)
- Basic spending analytics and personal financial management tools

**No overdraft fees.** Consumers don't need to worry about overdraft fees and penalties, while product owners mitigate the risks of onboarding insolvent customers that come with having a credit line.

**Basic product features for a successful launch:**

- Seamless onboarding
- Low/no-fee debit card
- Multiple account top-up options (direct debit, debit/credit card, digital wallets (e.g. PayPal)
- Basic savings account
- Spending analytics/expense management
- Fast and affordable P2P/bank transfers
- Favorable FX rates

**Personalized banking experience.** A mobile platform allows you to gather and analyze a multitude of data points and behavioral patterns and deliver tailored offers and services to your customers.

As more users adopt your solution as their primary account, you'll receive access to even more transactional data to help you assess the needs of your customers and pitch them relevant financial services with less risk.

Both models are effective for rapidly capturing a good chunk of the market, securing a loyal user base, and outpacing the less agile competition. The **biggest benefit** of choosing one of these models is the lax regulatory landscape. As a FinTech product (not a bank), you're bound by fewer regulations and can innovate faster.

The **biggest drawback** of these models is the lack of sustainable growth. You can go only so far as positioning yourself as a personal financial management product or a personalized financial coach.

To deploy additional financial services such as current/checking accounts or lending and investment tools, you'll need to apply for a banking license and make a significant push toward the next business model: **FinTech bank**, or **banking as a service**.

**The credit card and prepaid debit card models are interchangeable: both are proven steps toward creating a full-fledged digital bank.**

# Opportunity spotlight: AI back-office for data analytics & AI-driven personal financial management

## AI-driven personal finance management system

Being armed with data on how your customers are using (or not using) their debit cards gives you an edge to create more targeted campaigns to boost engagement and card utilization. Deploy an AI personal assistant that will help your customers identify potential savings opportunities, improve their spending patterns and optimize their day-to-day financial lives. The entire experience can be gamified to further steer up daily usage and increase loyalty.

The obtained data can be used to brainstorm creative marketing campaigns and personalized offers for different user segments. BankFirst, for example, used data to reactivate the underperforming customer segment. They've decided to reward users with gift cards for performing a certain number of monthly transactions and/or spending within a certain threshold. Over 3 months, the bank gained a 51% increase in transaction volume and a 82% sustained increase in spending[42] amount from the total target group.

### The benefits:

- **Increased engagement**
  Help your audience develop a sticky habit of using your app at a faster pace through relevant cues and personalized financial advice.
- **Sharp marketing**
  Pitch the right offers and the right time by knowing exactly what kind of goals your customers have; and what types of offers will make them tick.
- **Personalized advice**
  Deploy an AI personal assistant that will help your customers in real-time to manage their finances and make better daily decisions.
- **Robo-investing**
  Introduce your customers to investing and help them navigate the waters by offering acute investment advice and portfolio allocation suggestions.

## AI-powered back office

Reduce operational costs by smartyfing your back office operations. AI-systems can help your teams shift the focus from mundane tasks to value creation. For example, your team can be supplied with instant insights regarding individual customers to make decisions on the go. Machine learning algorithms can be combined with natural language processing to automate the report generation process. Algorithms combing through the compliance data, for instance, can notify the managers whenever they identify a potential issue or mis-selling. Furthermore, AI can be effectively employed to assist with customer support queries and automatically identify customers who are most likely to churn or be unsatisfied with the services and escalate their cases to CS specialists.

### The benefits:

- **Cost savings**
  Automation of low-value tasks leads to massive productivity gains and cross-functional operational costs reductions. Report generation alone can help banks significantly slash costs. Automated back office operations are expected to save banks nearly $200 billion.[43]
- **Improved compliance**
  Keep your ends protected by allowing algorithms to identify policy gaps and other issues that may result in problems with regulators. Additionally, such systems can help you stay atop of all stages as they happen in real-time. Nearly a half of FIs reported a 15% or more increase[44] in cost savings after automating their compliance systems.
- **Efficiency Boost**
  Empower your teams with better tools and systems to help them do their best work, instead of wasting time on low-value tasks.

# The FinTech bank business model

| Strengths | Weaknesses |
| --- | --- |
| • Greater scope of initial services offered to consumers<br>• More competitive pricing than other digital banking models / incumbent banks<br>• Higher level of consumer trust<br>• Complete control over technology / back-office operations<br>• Increased flexibility with new offerings / services | • Regulatory and compliance pressure can slow down product development<br>• Banking license application takes up to 2 years<br>• Miss out on the first wave of early adoption |
| **Opportunities** | **Threats** |
| • Rapid market/cross-border expansion<br>• Competition with incumbent banks over key demographics<br>• Innovative and unique services driven by the latest tech | • Banking license can be revoked due to non-compliance<br>• Fewer financial resources to compete with incumbent banks |

"Fintech Bank is a business model in which the production and delivery of banking products and services are based on technology-enabled innovation."

*European Central Bank*[45]

The major benefit of obtaining a banking license is the ability to deploy and develop your own business systems to support payment processing, credit, checking, and other functionality. Say goodbye to unfavorable partnerships with other banks and vendors. You can now develop and deliver essential financial products (current/checking accounts, loans, etc.) on your own and minimize both the operational costs (by eliminating partnership fees) and IT costs.

A banking license grants you the green light to further product diversification and access to **digital lending** – a $1 trillion opportunity over the next five years[46]. Additionally, owning the business lending process from end to end can result in approximately 30% greater efficiency[47].

Unlike incumbent banks, who have been trying to improve the credit process piece by piece and lost the customer focus somewhere along the way, digital banks are in a unique position to get a full picture of a client's finances by leveraging new technologies:

- **Systems for verifying customers' income and obtaining credit scores through credit bureaus**
- **In-house credit scoring models relying on internal data to cross-validate credit scores obtained from third-party providers**
- **Internal tools to make sure the team is meeting all regulatory reporting obligations**

**Effective KYC** procedures are also a regulatory must and a rising customer demand. In the EU markets, 52% of potential retail banking customers[48] churn at the onboarding stage – a 35% increase over the last two years.

Yet again, FinTechs are in a good position here. They already offer fully digital onboarding experiences – a feature that 72% of consumers want from their banks. Additionally, 52% of consumers state that they would opt for additional services from a bank that doesn't require them to use paper-based identification during onboarding. Getting things right with KYC and onboarding will be critical for success.

Your internal KYC setup should also include back-office mechanisms to ensure customers' repayment capabilities (if you plan to support lending, credit, or overdrafts). This is one of the key requirements for a banking license application in the US.

Specifically, you'll need to create smooth mechanisms for the following:

- **Verifying a customer's identity to prevent fraud**
- **Assessing a customer's repayment capabilities based on known income sources and current debt load (from external data sources)**
- **Assessing a customer's willingness to repay based on their past credit performance**

**Anti-money laundering (AML) risk profiling and transaction monitoring.** Smarter models will be required to automatically detect debit/credit card fraud. However, digital banks will need to balance compliance requirements with their customers' affinity for seamless payment experiences. To minimize false positives and provide risk assessment in real time, machine learning-powered systems are the best choice, as they can be trained to create an individual risk profile for each customer.

Additionally, digital banks will need to look into better chargebacks and recovery mechanisms to minimize fraudulent chargeback claims and recover losses from negative balances.

**Real-Time Back-Office to Optimize Data Workflow and Automate Risk Management**

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# Opportunity spotlight: Robotic process automation for reporting & AI-driven security

## Robotic process automation (RPA) for financial and compliance reporting

Robotic Process Automation can be effectively deployed to tackle the time-consuming, yet low-value processes such as financial and regulatory reporting; transaction reconciliation process; receivables and payables management; and data quality management. Such automated systems can work 24/7 and cut data entry costs by 70%. What's more, deploying an RPA algorithm costs ⅓ times less[49] than hiring an offshore worker to perform the same set of tasks.

As well, you can deploy a predictive analytics system that will notify you about the possible gaps in compliance and help you proactively tackle the regulatory risks.

### The benefits:

- **Productivity boost & error reduction**
  Bots can help your team deal with large volumes of data and standardize the operational process. One bank has seen a 55% productivity increased and a 5% reduction in manual errors[50] after implementing RPA for transactional data checks.
- **Major cost savings**
  Slash the operational costs by relying on technology instead of hiring more people. RPA can provide cost savings ranging from 20%–60% for financial operations.
- **Solid ROI**
  RPA solutions are non-invasive in nature and can be deployed without major architectural changes. As a result, they are typically executed in 6 to 12 months and start bringing positive ROI in less than one year.

## AI-driven mobile security

Mobile digital banks have an edge: they can leverage a multitude of additional data points (location, social, biometrics data) to deliver bulletproof security to customers and exercise real-time fraud detection. After all, the faster you respond – the less financial loss your bank will bear.

ML-algorithm can collect and process all that incoming data to accurately determine when the security may be compromise and prompt your teams to take immediate action. You can train the models to identify suspicious behaviors on a per-user level, and consistently improve accuracy as more data becomes available.

### The benefits:

- **Ultra speed**
  AI systems can monitor all the customer activities 24/7 and proactively respond to potential risks and abnormalities.
- **Reduced fraud investigation costs**
  Send algorithms for unbiased investigations to reduce the workload on your human teams. One bank reported a 20% reduction[51] in the investigative workload post AI-system adoption.
- **Increased customer satisfaction**
  Reduce the number of false-positive alerts resulting in major customer frustration. AI-powered systems can be pre-trained to develop custom risk tolerance portfolios for individual customers and minimize the friction of following security best practices.

## ML for preventing card fraud and money laundering

With the help of algorithms you can extra the so-called "deep" transaction features that are telling you more about customers' behaviors, spending patterns and other external factors that can indicate whether a transaction is fraudulent or normal. The state-of-art classification algorithms and decision trees can predict with greater accuracy if any given behavior is typical or not.

As well, algorithms can be effectively trained to identify suspicious customer activity that may be associated with money laundering and/or other illegal practices, allowing your institutions to take proactive actions and mitigate crime before it takes place.

### The benefits:

- **Higher efficiency**
  Boost the quality and efficiency of fraud analysts' work by making their workload more manageable. AI system can prioritize different cases based on custom risk scores and escalate the highest to your teams.
- **Utmost security**
  Algorithms can be rapidly trained (or self-trained) to detect and respond to new types of fraud and cybercrime. You no longer need to continuously upgrade your policies and conduct frequent personnel trainings to ensure that you are protected against the latest threats.

bonus

# The Asian-style, lending-oriented business model

China has been at the forefront of the digital banking revolution with a striking willingness from local customers to adopt FinTech services instead of traditional banking products. What's more striking is that the local "coup" was staged by TechFin players (Baidu, Alibaba and Tencent) who managed to secure rapid and frictionless growth thanks to their platform solutions. In the West, such a business model may not be viable due to an entirely different regulatory landscape. But there are a few major lessons product owners can borrow from the Asian approach to banking innovations.

**40%**

of consumers in China are using new payment methods[52]

**The benefits:**

- Rapid growth through leveraging parent companies' user bases/ integrations
- Technological edge: widespread use of AI/ML, big data & cloud computing
- Financial support from local tech players & government
- Low competition in the lending sector

China's digital banking ecosystem is dominated by lending solutions. At present, China has one of the lowest retail loan penetration rates in the world (20%). Local incumbent banks, owned by the state, have been consistently under-serving the SME and retail customer segments. As a result, one in four Chinese adults remain unbanked, and SMEs receive only 20–25% of bank-disbursed loans.

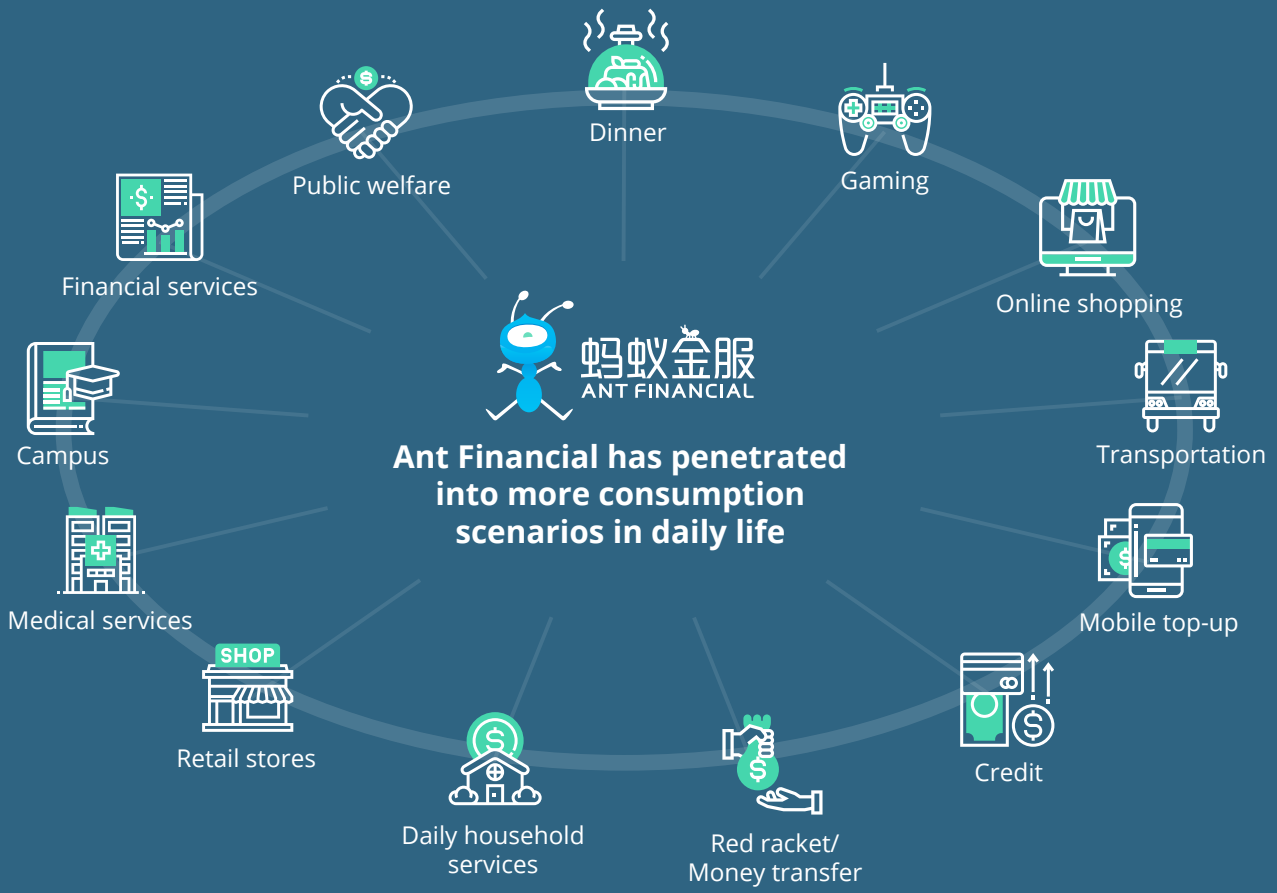
But where traditional banks are failing, FinTech players are succeeding. As the local economy keeps booming and the Chinese middle and affluent classes keep growing, several major digital-only players have emerged in the space, including **WeBank** and **MYBank**.

The rapid success and massive growth of Chinese FinTech banks are underpinned by Baidu, Alibaba, and Tencent, who have decided to expand their ecosystems across both financial and non-financial activities. By leveraging data and user bases of existing applications, Chinese FinTech banks have managed to launch with more services and offer more comprehensive customer experiences than traditional financial services players.

In 2015, Alibaba rolled out Sesame Credit – China's first private credit scoring company – that has access to purchase records and payment data from more than 500 million consumers who use Alibaba's Taobao and Tmall marketplaces on a monthly basis. The company also has payment histories of 400 million users registered on its Alipay mobile payment app.

FinTech players have skyrocketed China to the status of the biggest P2P lending market globally, advancing 3% of system retail loans versus 0.7% for P2P lenders in the United States.

## User engagement across Ant's expanding ecosystem




Source: Payments Next[53]

Unlike European and US counterparts, Chinese FinTech companies tend to launch with a banking license and often with lavish funding provided both by private investors and government-affiliated firms.

With a strong focus on affordable lending, local FinTech players have skyrocketed China to the status of the biggest P2P lending market globally, advancing 3% of system retail loans versus 0.7% for P2P lenders in the United States.

Chinese FinTech banks are also cloud-native, with lean microservice architectures enabling rapid service deployment. Innovative technologies such as big data, chat-bots, and AI are the "commodities" every financial app is equipped with.

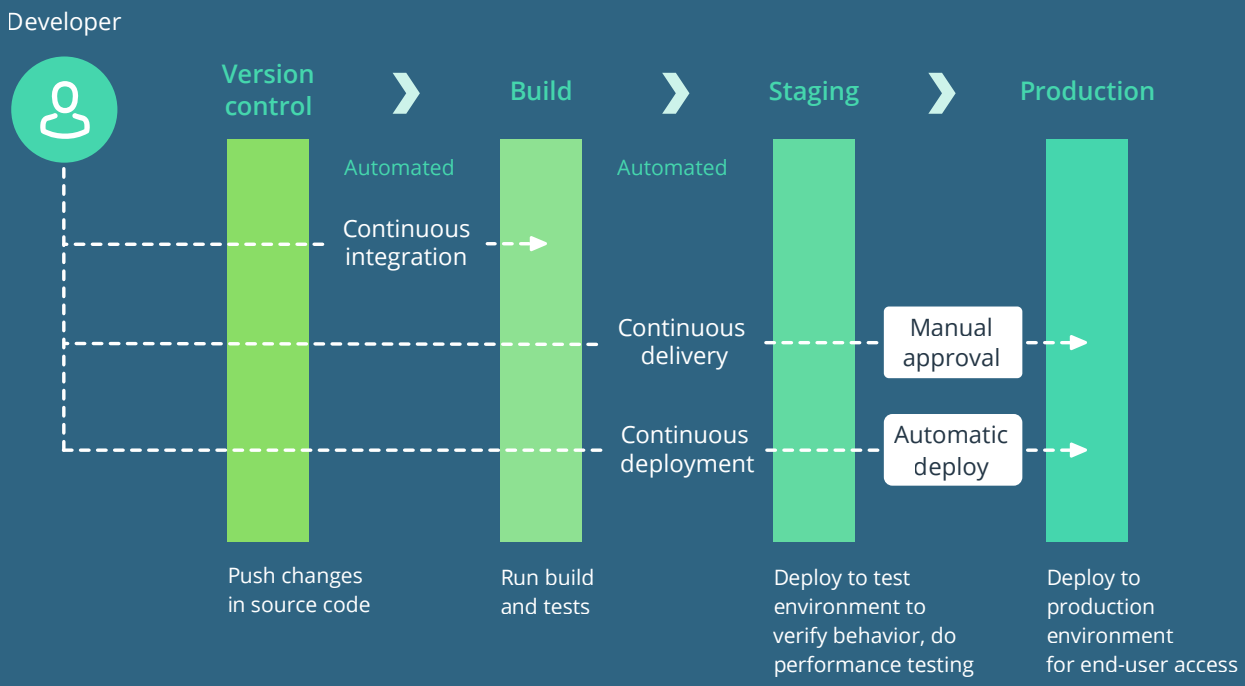
# Moving forward with execution:

## Product development framework

*The four business models we've described should help you shape your product vision and come up with additional ideas for introducing new solutions to customers and expanding your reach.*

*No matter which business model you choose and no matter if you're a FinTech company or a traditional financial institution, it's important to start your digital transformation with a detailed product development roadmap. Get one step closer to building a digital bank of the future with our technology stack suggestions.*

# Step #1:
# CD/CI & microservices architecture




Continuous delivery and, afterwards, continuous development are the two pillars for upgrading your delivery model. CI/CD, backed by DevOps, helps companies attain 20% faster[54] time to market for new services, face 50% fewer application failures, and recover from failures that do occur in 10 minutes or less.[55] Respond to customer expectations and technological trends faster to future-proof your business.

Once you've upgraded your development processes, you can start threading new solutions atop your legacy systems with ease. The microservices architecture (popularized by Amazon, which can muster up to 50 million deployments per year) allows you to massively improve your application scalability, reduce time to market even further, and maintain top software quality and security.

**Discover the Pros and Cons of CI/CD for FinTech**

# Step #2:
# Data science & big data analytics

Data is key to improving the customer experience and creating new revenue streams for your digital bank. Additionally, by gaining deeper insights into your customers' behavior, you can deploy better security systems and automate compliance procedures. There are several areas where data science and analytics play particularly large roles:

## Predictive analytics enables:

- **Better customer insights** to tailor your digital banking functionality, user interfaces, marketing, next best actions, and calls to action for different audience segments.
- **Enhanced cross-selling and customer acquisition.** New analytics solutions can predict the payback of new product offerings and help you optimize your CAC costs and cross-selling at an unprecedented scale.
- **Social data mining and analysis** to develop more detailed customer profiles and sharpen your marketing focus.
- **Predictive credit scoring** to make sure you onboard the right users.
- **Fraud prevention.** Advanced predictive systems can help you maintain an invisible yet robust layer of security.
- **Streamlined loan approval.** Delight your customers with fast approvals without bearing increased financial risks.

## Machine Learning & AI enable:

- **Next-level gamification.** Scale your user base by providing a more personalized experience, more relevant deals, and a gamified savings/financial management experience powered by AI.
- **Enhanced customer service.** Dispatch intelligent bots to service your customers and deploy more advanced assistants to handle the more daunting aspects of your consumers' financial lives.
- **Fraud & anti-money laundering.** Further mitigate security risks by relying on machine learning systems that learn over time.
- **Platforms.** Build a robust back-office infrastructure to automate and accelerate service provisioning. Reduce operational losses even further by incorporating robotic process automation.
- **Robo-investing.** Deliver new-gen wealth management functionality for customers with different levels of financial literacy.

**Data Lake Platform for Advanced Data Collection and Management**

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# Step #3:
# Financial compliance technology stack

Create smarter models and tools to overhaul your operations in the following areas:

AML risk profiling and transaction monitoring. Deploy personalized risk profiles for individual customers to proactively respond to fraud while minimizing false positives, which result in a bad CX (for example, frozen accounts due to misunderstandings).

Anti-money laundering AI system. Deploy predictive models that calculate risk scores for every user based on their history of activity and statistically estimate the probability of money laundering.

**Estimated savings brought by AI:**[56]

- Front office – $490 billion.
- Middle office – $350 billion. Applying AI to compliance, KYC/AML, authentication, and other forms of data processing alone can save banks $217 billion per year.
- Back office – $200 billion. $31 billion of this can be attributed to underwriting and collections systems.

## Step #4:
# Financial analytics tools for customers

Deliver a superior customer experience by adding new financial tools backed by analytics:

- Spending analytics
- Budgeting tools
- Financial forecasting tools
- Real-time money management tips
- Dynamic savings
- AI-backed personalized financial plans for individual users

**How Machine Learning Drives Loan Approvals, Stock Forecasts, and Faud Prevention**

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## Step #5:
# Expand your value chain with additional financial products / banking services

To further accelerate userbase growth and engagement, consider introducing the following much-requested features:

- Business accounts for SMEs
- P2P/business lending
- Wealth management tools
- Robo-investment functionality
- Contextual customer support backed by AI

**How to Use Gamification in Banking and Drive Customer Engagement**

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Want to expand your reach and capture new customer segments with better, bolder, and more bankable technology solutions?

## Get in touch with us!


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# About Intellias

**1600+** engineers in-house

**17** years of experience

**5** engineering centers

With a strong industry focus on FinTech, Intellias has been a trusted partner of financial institutions from Germany, the Netherlands, the US, and the UK for 17 years.

**Intellias** software development expertise and accumulated knowledge in the finance and digital banking industries have helped Fortune 500 companies and leading financial innovators create secure, effective, and revenue-driving software solutions.

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