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Economist

INTELLIGENCE
UNIT

A WHOLE NEW WORLD:

How technology is
driving the evolution
of intelligent banking

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About this report

In January-March 2019 The Economist Intelligence Unit, on behalf of Temenos, surveyed 405 global banking executives on the changes they see taking place in their industry to 2020 and 2025, their organisational response, and the longer-term impact on their strategic development. This, the sixth iteration of the retail banking survey, focuses on how these retail banks are incorporating and advancing technology delivery for their current and future customers.

The survey is part of a global research programme on retail banking, which includes in-depth interviews with retail banks, fintechs and regulators from North America, Europe, Africa and the Middle East, Asia-Pacific, and Latin America.

The survey respondents were geographically diverse: 25% were drawn from Europe, 25% from Asia-Pacific, 18% from North America, 16% from Africa and the Middle East, and 16% from Latin America.

Respondents came from a variety of job functions: marketing and sales (18%), IT (15%), and customer service and finance each accounted for about one in ten respondents (9% and 10% respectively). Half of all those questioned occupy C-suite executive or board positions.

In addition, in-depth interviews were conducted with 12 senior executives and experts from regulators, banks and fintech companies. Our sincerest thanks are due to the following for their time and insight.

- Matt Cox, head of open banking, Nationwide Building Society
- Dr Tamaz Georgadze, co-founder and CEO, Raisin
- Dirk Haubrich, head of conduct, payments and consumers, European Banking Authority
- Christoffer Malmer, head of SEBx, Skandinaviska Enskilda Banken
- Sopnendu Mohanty, chief fintech officer, Monetary Authority of Singapore
- Petri Nikkilä, chief commercial and digital officer, Nordea
- Ali Niknan, founder and CEO, bunq
- Nilan Peiris, vice-president of growth, Transferwise
- Melos Sulicich, managing director and CEO, MyState
- Tamara Vrooman, president and chief executive, Vancity
- Colin Walsh, founder and CEO, Varo Money
- Steve Weston, co-founder and CEO, Volt Bank

Executive summary

Globally, retail banking has changed considerably over the past decade. Retail banks have adapted to changing consumer demands and expectations, new technologies (eg, artificial intelligence [AI], blockchain and the Internet of Things), new competitors (eg, neo-banks, payment players and tech giants) and new regulations (eg, open banking and PSD2) while reducing costs and creating value. These combined factors have resulted in retail banks adjusting their business models, rethinking their innovation strategies and investment focus, and altering their product offerings and how they are delivered.

This report, the sixth in The Economist Intelligence Unit's series on the future of retail banking, marks a significant shift in where banks are focusing their priorities, where they are investing and how they are thinking about innovating for the future.

- **New technologies like AI, machine learning and blockchain will have the biggest impact on retail banks in the short (36%) and longer term (42%).**

Changing customer behaviour and demands are still important (31%) but less so than in 2018 (58%). Emerging regulation on digital technology and data protection is coming to the fore, with 31% citing this as having the biggest impact in 2020 and 2025.

- **Open banking and digital banking are the strategic priorities.** Long term, the priority is on mastering open banking (30%) and digital engagement (27%), both of which require changes to the business proposition and how each bank's infrastructure interacts internally and with third parties. The short-term focus differs, driven by product agility (32%) and mastering digital marketing and engagement (31%).

- **Banks are realising the true opportunities of open banking.** More than four in ten (41%) see their business models evolving towards acting as true digital ecosystems. A further 28% expect to maintain their own product offerings and become an aggregator of third-party banking and/or non-banking products. Only 17% want to develop niche propositions.

- **Retail banks plan to build new digital banks.** Although banks' innovation strategies remain focused on digitisation, open banking and their partnerships with fintechs, they are also looking to build new business units and brands from scratch. The top innovation strategy this year is focused on building greenfield digital banks (36%).

- **Banks are looking to AI and the cloud.** These technologies will allow banks to add new features quickly and build scale when services capture the public's imagination. Digital investment is focused on cybersecurity (39%), cloud-based technologies (35%) and developing AI-powered digital advisers and voice-assisted engagement channels (29%). Such will be the demand for behavioural data analysis, three in five respondents (60%) foresee banks deploying more computing power in the public cloud by 2025 than they currently deploy in all the private cloud data centres.

- **Banks are becoming openly innovative.** Open bank hub initiatives are on the rise (31%). Investment in fintechs remains popular with 31% of respondents citing this as part of their innovation strategy. Banks are also interested in the security provided by regulatory sandboxes. Moreover, 29% are looking to collaborate with

fintechs and other technology providers to test new propositions in regulatory frameworks that encourage innovation and protect customers' interests. Over half of respondents (56%) believe that fintech-bank collaboration in sandboxes will become mainstream by 2025.

- **Customer and bank security remain top concerns.** Customer online security and fraud (23%) are the biggest challenges banks face concerning data and third-party access. As banks move into an open banking environment, delivering the right products to customers will require banks to be able to address customer concerns around data.

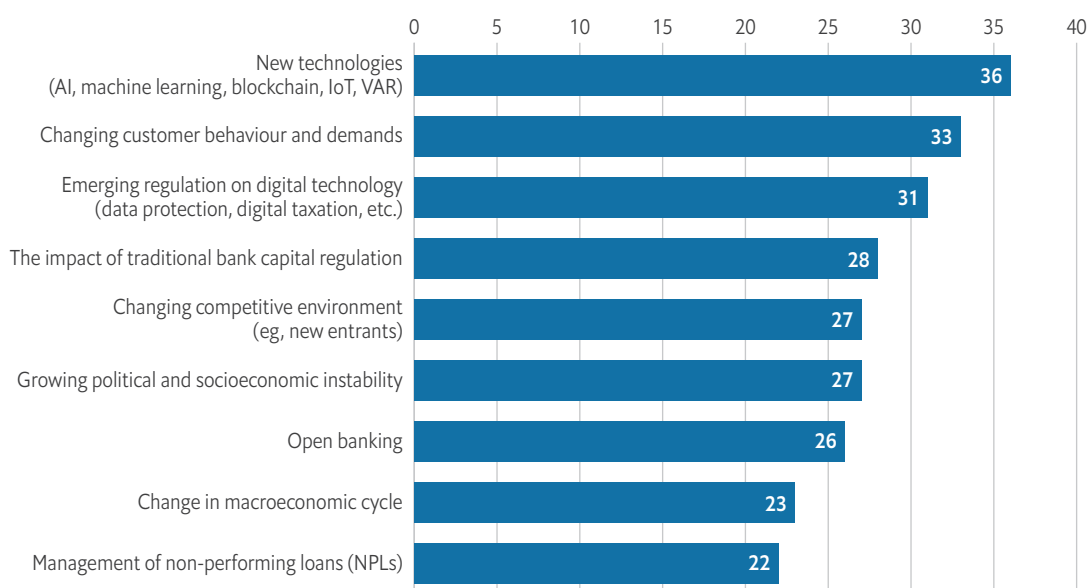
Chapter 1: Technology will rule them all

Until this year, changing customer behaviour and demands regularly featured as the key drivers of change in retail banking around the world. The shift to telephone and online banking in the 1980s gave way to mobile banking in April 2007 with the launch of M-Pesa in Africa. A few months later came Apple's iPhone, which provided a platform for banking apps. Since then, retail banks have had to juggle competing demands, technology and budgets to build multiple distribution channels. Now, for the first time, it is no longer just the customer's preferred point of contact that counts, it is the technology underneath and behind the scenes that will set the pace of change.

New technologies such as AI and machine learning are driving tactical thinking in the short and longer term. Underpinning this view is the growing political, regulatory and industry awareness of the true value of data (31%), especially in Asia-Pacific (39%). This ties in with the growth in open banking and the data it can provide (26%), which is finally rising up the to-do lists of executives everywhere.

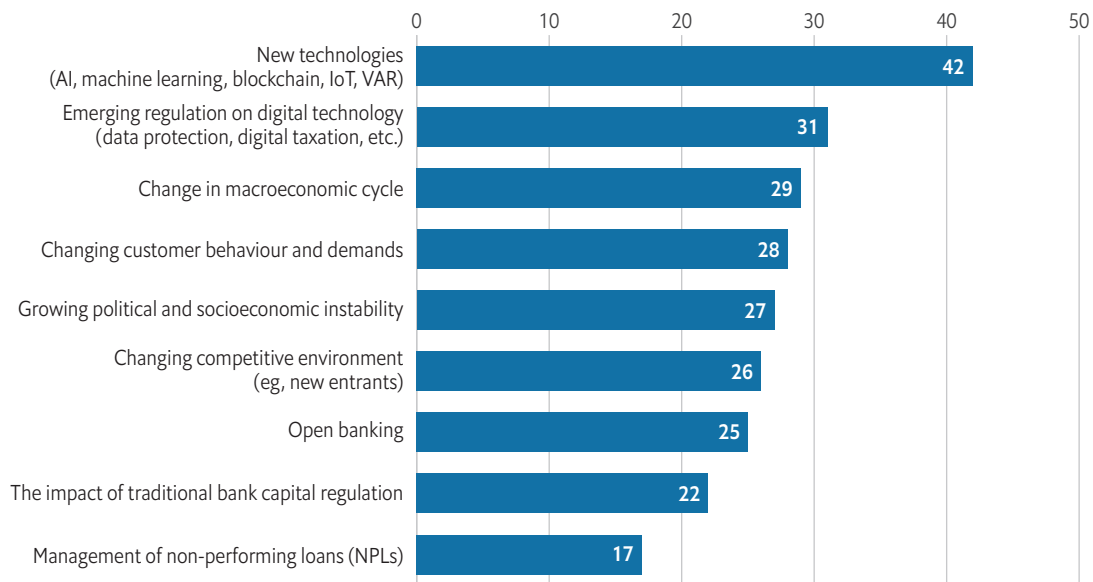
In the longer term, the importance of technology is even greater (42%), suggesting that banks that are not yet innovating need to move fast. Again, open banking and data regulation may be the push they need to commit to using new technologies (31%).

Chart 1: Which trends do you believe will have the biggest impact on retail banks in your country by 2020?
(% of respondents)



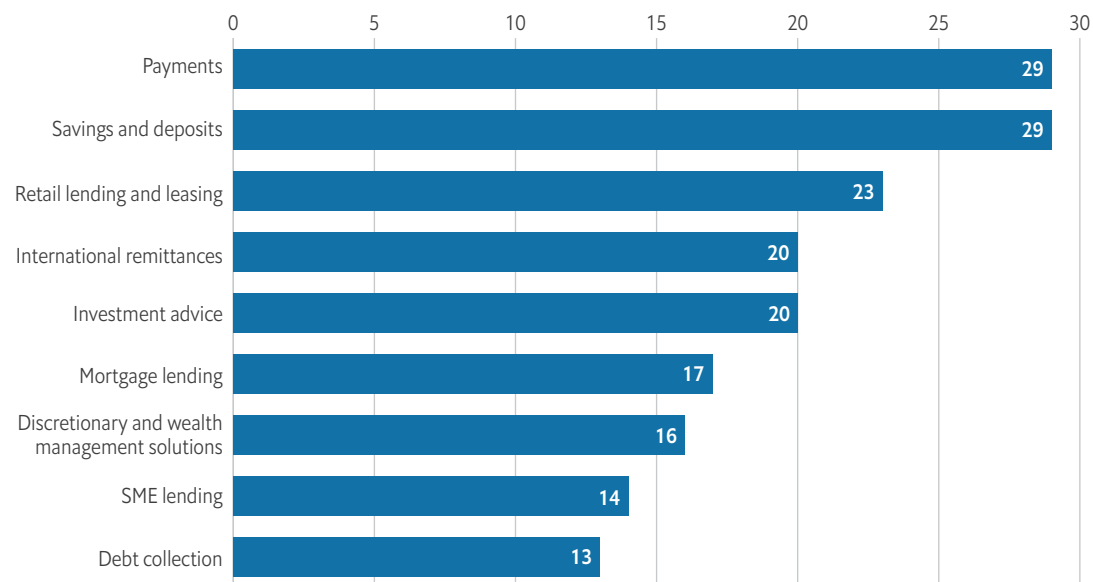
Source: The Economist Intelligence Unit.

Chart 2: Which trends do you believe will have the biggest impact on retail banks in your country by 2025?
(% of respondents)



Source: The Economist Intelligence Unit.

Chart 3: What is the main area where you expect new entrants to gain the most market share?
(% of respondents)



Source: The Economist Intelligence Unit.

New payment players still represent the biggest threat in the short term (29%), no matter the complexity of regulatory oversight they face. The focus by 29% of respondents on savings and deposits reflects the need by all financial services providers to tap diverse sources of funding at the cheapest acquisition cost.

Digitising discretionary and wealth management remains something of a distant

goal for newcomers, despite a clear need for broader access to such tools in markets with large or growing middle classes. Just one in six (16%) respondents see it as their main target. However, there have been reports in the press^{1,2} of banks shutting down their AI-driven platforms or downgrading growth expectations³ due to the cost of acquiring new customers and the need for human intervention in complex financial matters.

Remaining respectful: How to make the most of personal financial management tools

Nordea's mobile customers use their apps 20 times or more per month, a frequency that most retailers would love to achieve. But the bank must keep those engagements relevant and respectful if it wants to move customers onto more profitable products.

"More than 40% of our advice interactions are now remote for consumer. In some markets, more than 50% of mortgage conversations are held online," says Petri Nikkilä, Chief commercial and digital officer at Nordea.

"We actually found a better conversion rate with wealth management and mortgage conversations online. It is

a bit more relaxed; you do not need to go home and think about it—you're at home already," he says.

Nordea has been surprised to find its Net Promoter Scores for remote channels are as good as, if not better than, traditional branch meetings. However, banks need to tread carefully about how they initiate such conversations. The industry's obsession with building in personal financial management visualisation functions may not promote the loyalty and trust it craves.

"As an industry, we overestimate customers' interest in something that is interesting for us. We assume that personal financial management

¹"Investec shuts robo-advice service due to 'low appetite'", Financial Times, May 16th 2019, <https://www.ft.com/content/eb2a18e8-77bd-11e9-bbad-7c18c0ea0201>

²"UBS to sell digital SmartWealth platform to fintech start-up", Reuters, August 29th 2018, <https://uk.reuters.com/article/us-ubs-group-smartwealth/ubs-to-sell-digital-smartwealth-platform-to-fintech-startup-idUKKCN1LE1Y5>

³"Wie Deutschlands Banken ihre Robo Advisor absaufen lassen", finanz-szene.de, May 7th 2019, <https://www.finanz-szene.de/eigene-artikel-von-finanz-szene-de/wie-deutschlands-banken-ihre-robo-advisor-absaufen-lassen/>

[PFM] will automatically translate to better sales,” says Mr Nikkilä.

Nordea has invested in Swedish fintech Tink, a financial aggregator that offers PFM solutions. Despite its investment in Tink, the bank has yet to launch its own insights services, as it wants to ensure that when it does it will fully encompass all delivery mechanisms (eg, video and mobile) while maintaining data privacy. As noted by Mr Nikkilä, Nordea does not want to abuse customer trust.

“Some of the big players have stumbled with data privacy. Trust

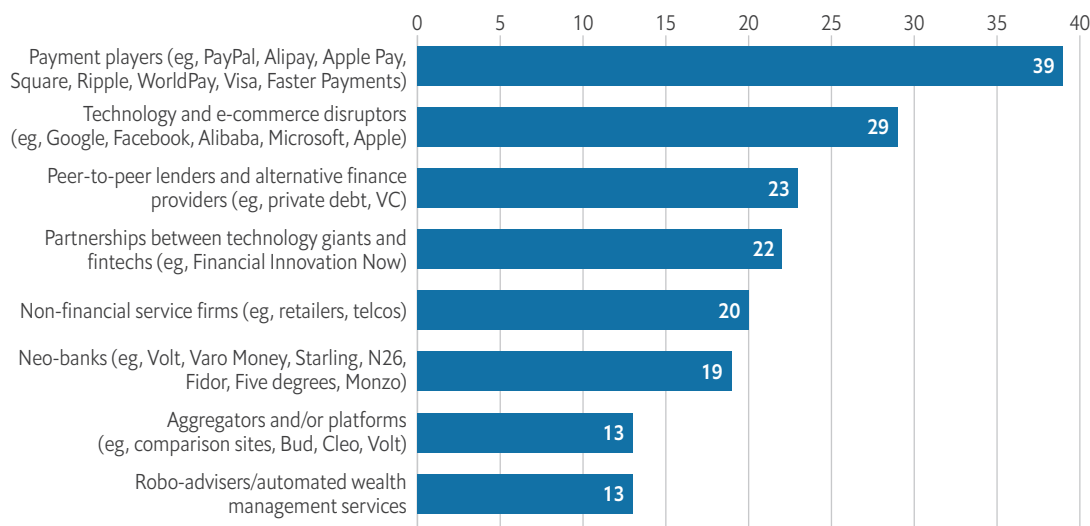
in the digital era will have an even higher currency than before. We need to be very cautious,” he says.

Nordea has already developed a comprehensive policy setting out what data it gathers, how it will be used, who can access it and how data usage is monitored.

“We are not utilising customers’ data to the full extent because it won’t be in the customers’ interests. It would be intrusive and we would be eroding their trust,” insists Mr Nikkilä.

Chart 4: Which non-traditional entrants to the retail banking industry will be your company’s biggest competitors by 2020?

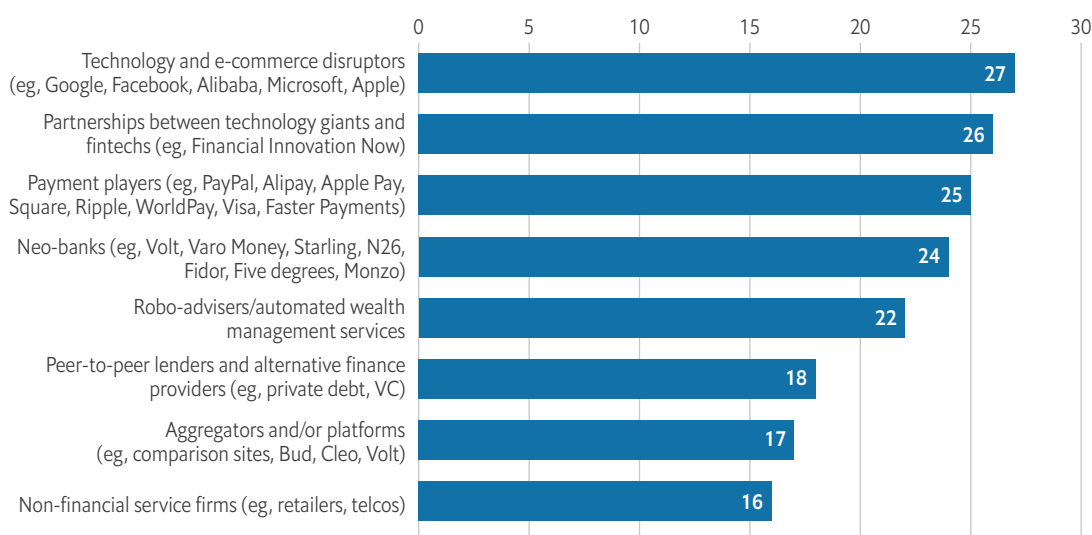
(% of respondents)



Source: The Economist Intelligence Unit.

Chart 5: Which non-traditional entrants to the retail banking industry will be your company's biggest competitors by 2025?

(% of respondents)



Source: The Economist Intelligence Unit.

The arrival of new non-bank competitors is also a consistent driver, with around one in four respondents (see charts 1 and 2) citing it as a key trend. But that figure is down sharply on last year, when 36% thought that challenger banks and tech giants could decimate their hold on retail customers.

The regional picture is more nuanced, due to different circumstances. Almost three in ten (29%) of executives in under-banked markets in Asia and Latin America think that by 2025 the non-financial disruptors, such as giant tech companies like Google, will be their biggest non-traditional competitors. However, in North America 19% see more barriers placed in the path of the neo-banks, reflecting

the tangle of national and federal rules and authorisation in the US and Canada.

For a quarter of respondents, it appears inevitable that Apple Pay, Alipay and third-party providers (TPPs) that can hang off fast payment platforms will take a substantial share of payment volume to 2025. By then, the disruptors' focus will have moved on, with tech giants, e-commerce providers and their partners (27% and 26% respectively as shown in chart 5) offering more than easy ways to pay, save, borrow and invest. The rise of the neo bank may be less disruptive—for now at least, with only 19% seeing it as a problem to 2020, but that number increasing to 24% by 2025.

When digital cannot wait

Colin Walsh, founder of US-based Varo Money, knows all about regulatory barriers. He is still waiting for a nationwide Federal Charter from the US Office of the Comptroller of the Currency. However, by using a mix of state licences, Varo has not let this delay hinder the company's development. Varo Money has launched transacting, savings and lending products, with useful lifestyle tools attached despite the lack of regulatory clarity.

"I like to say you don't have to wait to become a national bank in the US," jokes Mr Walsh.

To do so, Varo currently relies on Bancorp as a sponsor to offer transaction and savings accounts with full depositor protection. Its lending footprint is far from complete,

however. Varo has licences in 21 states and has yet to obtain one for the remaining 29.

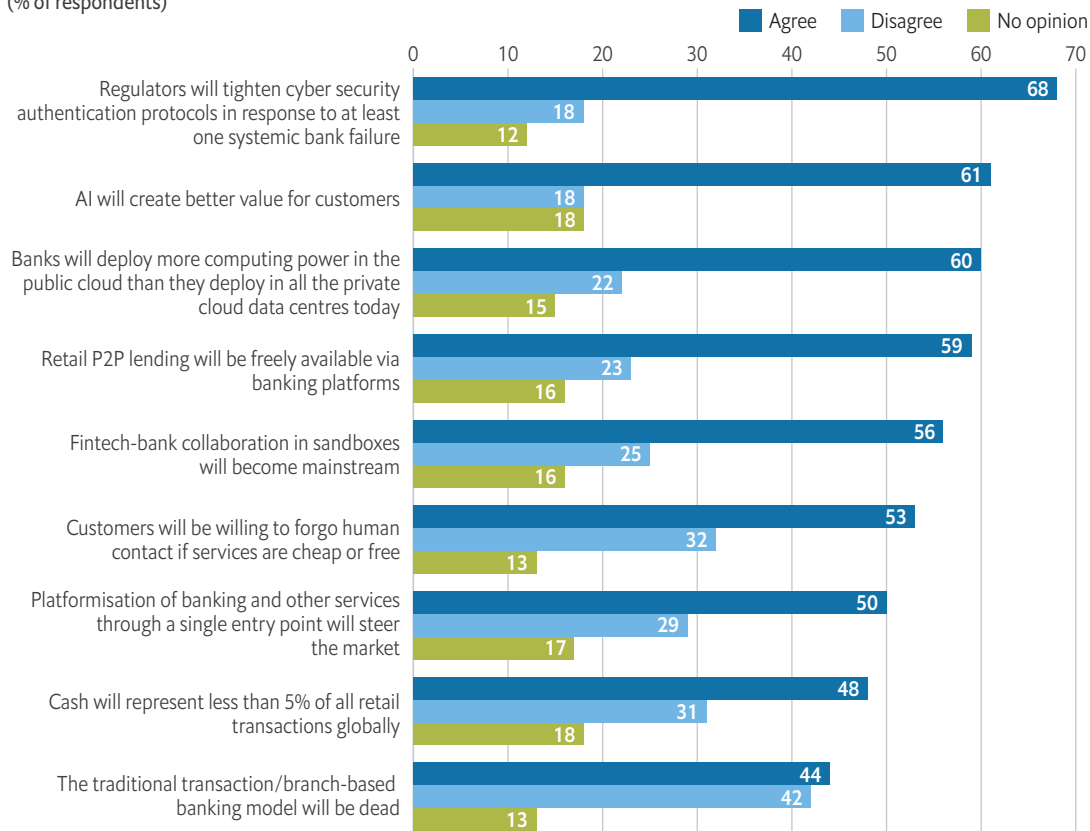
"We haven't opened the bank yet, so we are still operating as a fintech. It's a bit of hybrid model we operate under today," says Mr Walsh.

"If you're in a state where we do not have a state lending licence, we will not be able to make a loan to you today. The good news is that we have licences in states that represent over 70% of the US population," he adds.

Although it is still not clear exactly when it will be granted, a federal licence will allow the bank to offer all products in all 50 states, making the local licences redundant. It should also lower costs and complexity when Varo Money migrates customers onto its own IT system.

Chart 6: Do you agree/disagree with the following statements? By 2025....

(% of respondents)



Source: The Economist Intelligence Unit.

The onward march towards cashless payments will possibly benefit the digital-first newcomers more than the banks that still need to find a viable business model for their physical branches. In the digital-only world, all should be mindful of the Google effect: services are free to use when customers (and their data) are the unwitting product. Over half of respondents already know that clients will forgo human contact altogether when a service works and they do not have to pay for it.

Banks also need to be alert to accidental or unintended competition. Many fintechs have morphed from their original proposition into more overt direct competitors by bolting on new features to their flexible platforms. A quick response to new and popular services is vital.

Business customers now account for a fifth of Transferwise's low-cost remittance transfers. The segment is growing twice as fast as the retail book, but even Transferwise

was surprised at the popularity of its free borderless bank account.

The account allows corporations to pay invoices, buy inventory and handle payroll in over 70 countries by transfer or through a corporate credit card. Businesses also get a local bank account number and routing address in countries they export to. That lowers the costs for buyers making payments, even if they themselves are not Transferwise users.

"Over half of our business customers use their borderless bank account. We only launched it in November last year; the take-up and usage rates are fantastic," says Nilan Peiris, Transferwise's vice-president of growth.

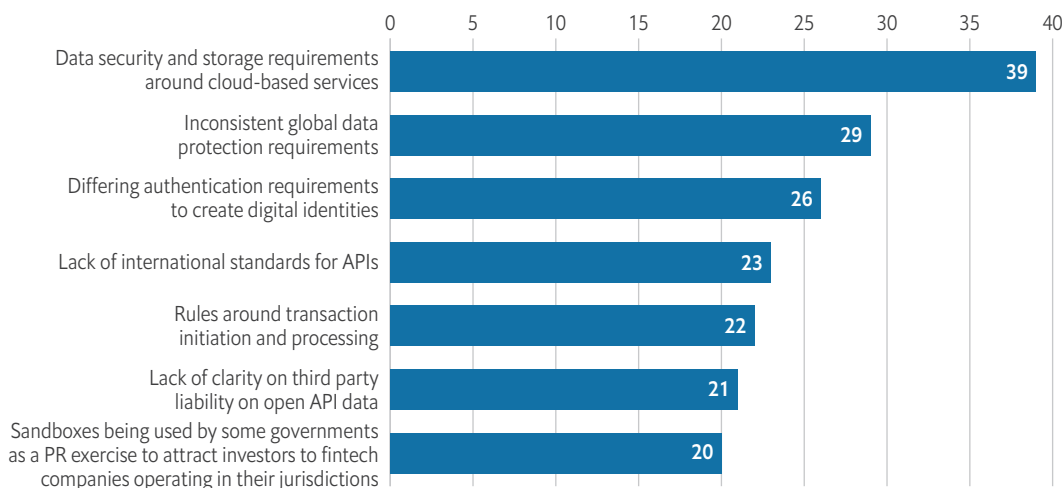
The company has no intention to deviate from its primary remittance business, but is happy to pick up bank transacting along the way. Integration with the Xero accounting platform comes as standard, another value-added feature that ties in customer loyalty.

Chapter 2: Being open but staying safe

Customers may want cheaper, faster and simpler service all day, every day. But, as indicated in chart 6, they are not quite willing yet to forsake the human touch. Nor are regulators willing to sacrifice security, safety and oversight, especially as open banking and AI spread through the retail banking world.

In the strongest reaction to any scenario posed for 2025, over two-thirds of respondents believe that regulators will respond quickly and harshly if cyber-security creates panic and instability in the financial system (68%).

Chart 7: What are your biggest concerns regarding regulation and standards
(% of respondents)



Source: The Economist Intelligence Unit.

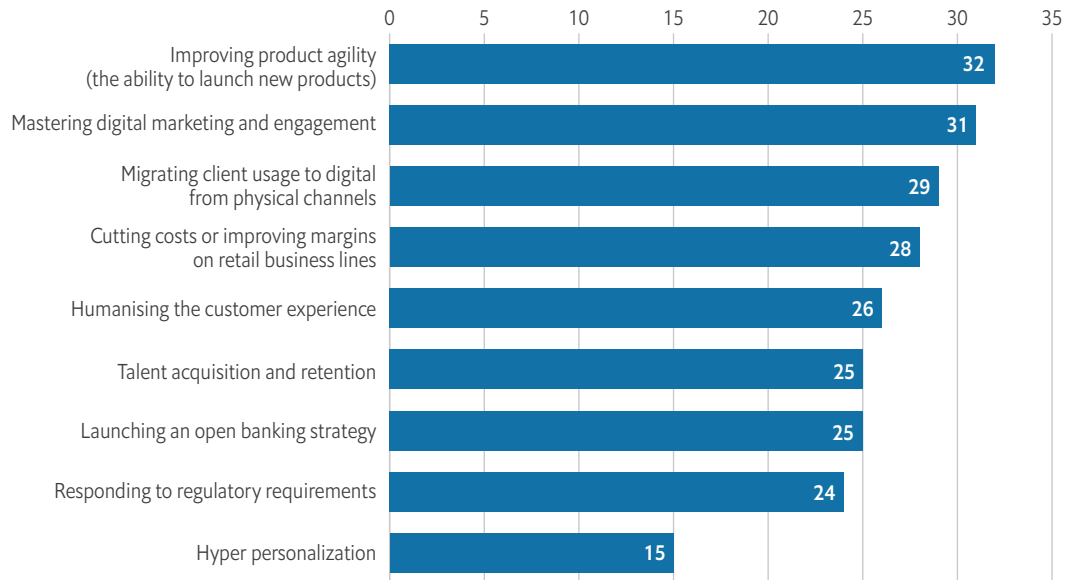
Inconsistent global standards for data protection (noted by 29% of respondents) are to be expected in the complex world of banking. Even global players like HSBC and Santander, or growing regional players like Ecobank in Africa and DBS in Asia, know that products, services, customer information and expectations are not consistent from

one country to the next—even in supposedly standardised environments like the EU’s single market. Far more important is security, as cited by 39% of respondents, particularly when it comes to the growing reliance on cloud-based services. Those concerns may grow as open banking spreads, which will be discussed in Chapter 3.



Chart 8: What are the top strategic priorities for your company by 2020?

(% of respondents)

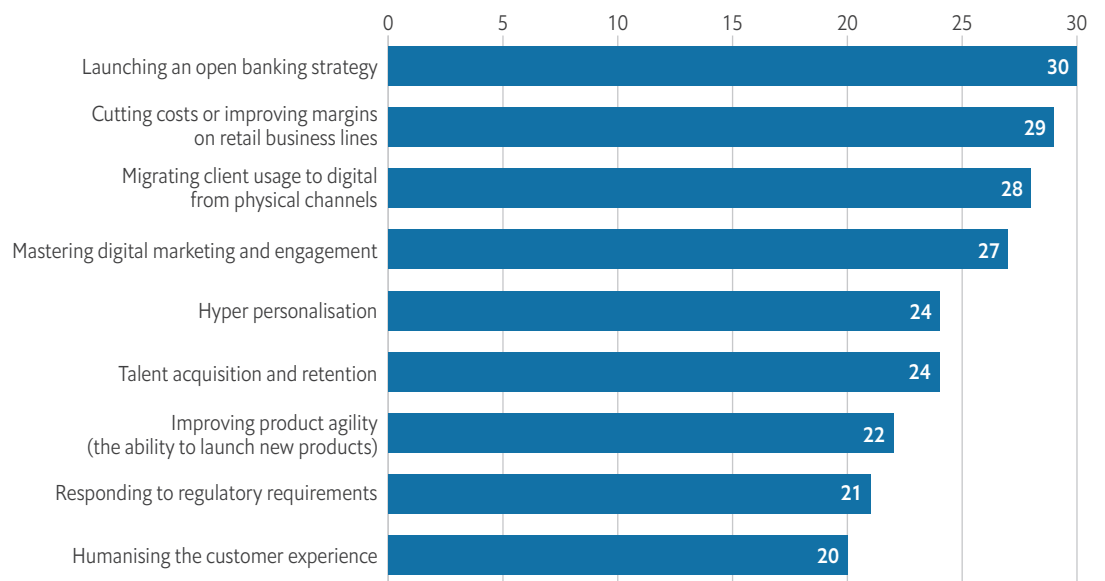


Source: The Economist Intelligence Unit.



Chart 9: What are the top strategic priorities for your company by 2025?

(% of respondents)



Source: The Economist Intelligence Unit.

Given the seemingly incompatible challenges of opening up to greater data sharing and the need to keep that data safe, banking executives face difficult choices in the next few years. Who is most important when they set out their strategic direction: customer or regulator? In the minds of our respondents, there is no choice: the customer comes first. In the short term, migrating services to the digital realm (cited by 29%) and developing viable, profitable business models (28%) that keep customers happy and attract new business via a strong digital engagement strategy (31%) while cutting costs (28%) are noticeably more important strategic objectives than adapting to regulator imperatives (24%).

As noted by 32% of respondents, product agility is key to it all, at least in the short term, to allow banks to launch new products and features quickly. For that, banks have to focus on talent acquisition and appeal to programmers, data scientists and innovators as great places to work and be seen as a viable career route for those with such expertise.

Yet, before these plans can be realised, banks have to deal with the basics of banking and the IT systems they use. If legacy technology is holding you back, or even a business risk in itself, the logical solution is to scrap it and start again. But bank boards are often reluctant to do so; the process can be costly, complex and a reputational disaster if service is not maintained throughout the transition period. Rewards come to the bold.

“Over the last five years, we have replaced our entire technology stack—core system, origination engine, enterprise service bus, customer relationship management [CRM] and

the internet and mobile banking platform,” says Melos Sulicich, head of MyState, a Tasmanian-based bank.

The bank’s predecessor had acquired other banking businesses, so was running several core systems at the time. Mr Sulicich says that MyState would have had to spend money on IT to stitch them together in any case.

“Management and the board also took a pretty strong view that the world was changing significantly and we were well and truly into the next industrial revolution, one that would be digitised. If we were to compete in the future, we needed a new technology stack and an uncomplicated stack to do that,” he says.

“We pressed some of our technology suppliers quite hard to build out their systems. Our origination software was really branch-based, so we said to our supplier that we needed it in real time and online. We worked with them on the solution and they sell that to other customers too now,” says Mr Sulicich.

Management may not find that they can avoid the need for flexible, more robust systems for much longer. By 2025 it certainly appears that open banking will dominate executive time and strategic plans (cited by 30%) around the world. That is already true in Europe (cited by 29%), where the second Payment Services Directive (PSD2) is in full swing, and executives are juggling its impact, agility and profitability in equal measure (see case study). North American executives may wish to call on their European colleagues for advice and real-life experience if and when open banking finally takes hold on their home turf. Nearly four in ten (37%) of executives in Canada and the US see it as the absolute priority by 2025.

Open banking: Build it and they will come, eventually

The UK's largest member-owned building society is a keen supporter of open banking in the country that has led its development. Customers are looking for tangible value-added services from their bank rather than open banking per se.

"It's not really something they care about or should care about. What they care about is 'what is the value to me, why should I share my information?' That's a really difficult question to answer until there are some really meaningful propositions at scale in the marketplace," says Matt Cox, head of open banking at Nationwide Building Society.

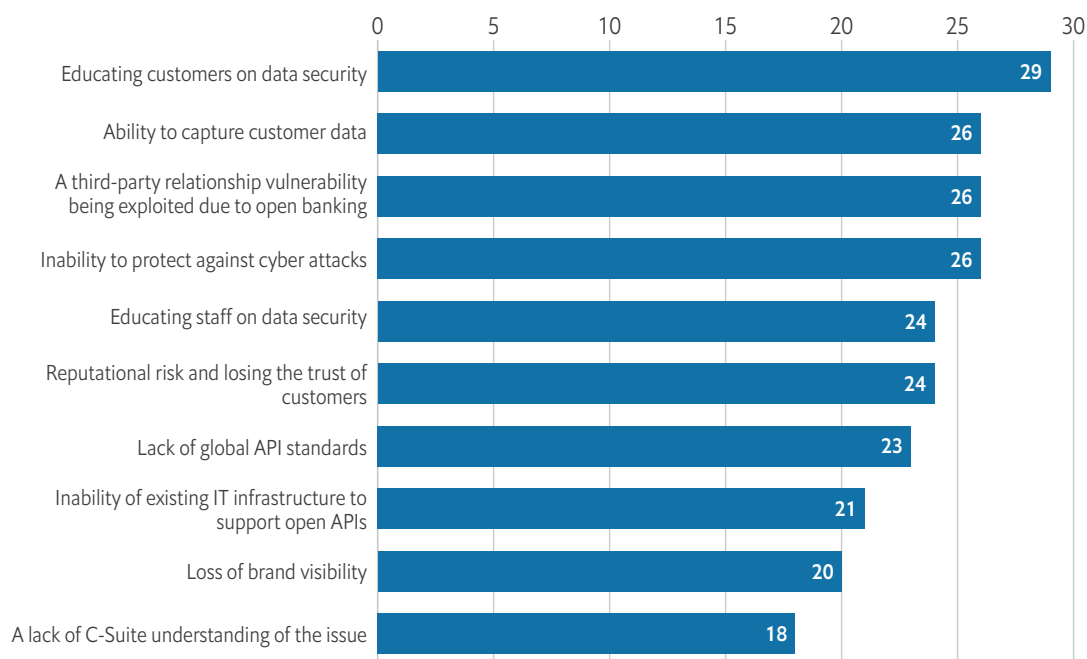
Around half of Nationwide's 15m members have current accounts,⁴ but Mr Cox says fewer than 50,000 of them have chosen to share their data with third-party providers.

"The vast majority of organisations they are sharing that information with are other large providers—our peers in the marketplace rather than new propositions and fintechs," he says.

That points to an early lead for the existing banks, although that may change. As Mr Cox says, "We have another 12 to 18 months before we can make any meaningful assessment of the success of these services."

Chart 10: What are your main concerns in relation to open banking?

(% of respondents)



Source: The Economist Intelligence Unit.

⁴ "Annual Report and Accounts 2018", Nationwide, <https://www.nationwide.co.uk/-/media/MainSite/documents/about/corporate-information/results-and-accounts/2017-2018/annual-report-and-accounts-2018.pdf>

Dirk Haubrich, head of conduct, payments and consumers at the European Banking Authority (EBA), knows just how complex open banking can be. Although banks have had several years to plan for new Payment Services Directive (PSD2) regulations that come into force in September, testing their interfaces is causing problems.

Under PSD2, all EU banks must build and test application programming interfaces (APIs) that allow third-party providers (TPPS) to interact with their customers' accounts. If the testing portals are not robust enough or suffer down time, the banks will have to provide a fall-back route to obtaining customer information such as account balances. Typically, the fall-back is screen-scraping from their websites—a cumbersome and costly solution for banks, an inelegant experience for customers, and potentially a security risk.

The banks can apply for an exemption from offering a fall-back if they can prove their API portals have been “widely tested”. What happens if nobody else has bothered to put the portals through their paces?

“There are issues on both sides. TPPs claim that the banks have not made their testing facilities available. If that is the case, the banks would not be able to qualify for an exemption,” says Mr Haubrich.

“There are also claims by the banks that say that we have made the testing facilities available, but there is no TPP that is interested in testing our facilities,” he adds.

Both sides of the argument have merit. Not all banks have a full suite of APIs in place. In many cases, third parties are primarily interested in testing the architecture of large banks to check that systems can cope with high volumes of data requests. Smaller banks, co-operatives and credit unions may be overlooked, trapped between a rock and a hard place.

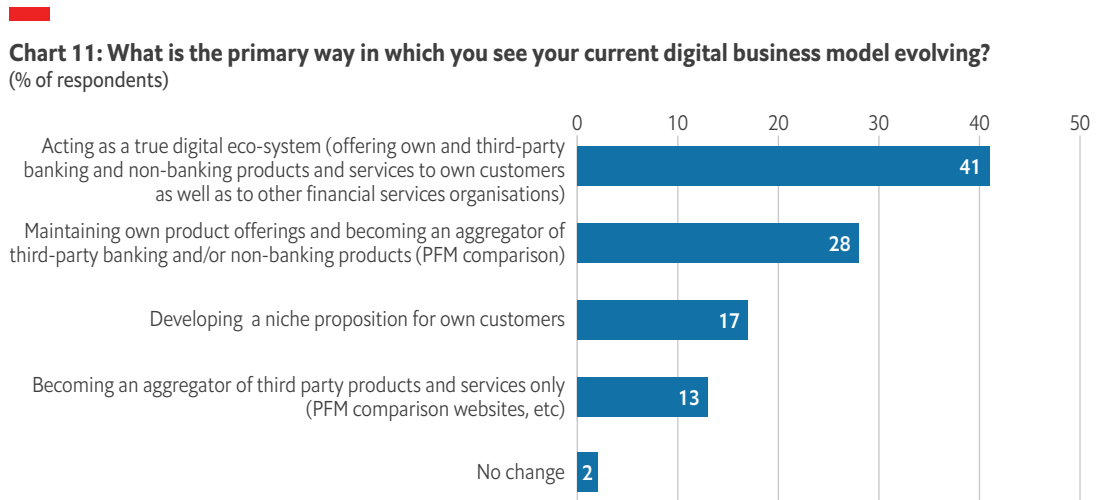
The EBA solution places the onus back on banks; they must prove they built their testing facilities and made an effort, even if third parties are not interested.

As yet, nobody has a clear picture of who is ready or not, or how well tested all these data links are. It may be August before national regulators can assess how many exemption requests they have received. How long those regulators take to evaluate requests will be crucial: any of Europe's 6,000 banks with no exemption and no fall-back will be breaking the law, says Mr Haubrich. That September deadline suddenly appears worryingly close.

In 2018 a majority of respondents (61%) still clung to the notion they could develop a niche digital proposition for their customers, even though they accepted that their biggest, most frequent point of contact was cashless digital payments that mostly look and feel the same everywhere, especially as faster and cross-border payment systems spread.

Support for niche strategies is no longer the top choice (17% in 2019 vs 61% in 2018), particularly in Asia-Pacific (cited by only 11% in 2019) where Alipay and WeChat are making their presence felt across borders. They are forcing local regulators and banks to shore up their defences with common standards for digital payments in Singapore, Hong Kong and now beyond. National payment systems now recognise that the freedom of movement of payments across borders is no bad thing.

Yet payments are not the only service that banks provide. Savings, loans and advice are more profitable, but even here it would appear that respondents now recognise that they cannot compete on all fronts at all times. Few want to focus on just being an aggregator and stop offering products altogether (13%). They are instead much more open to developing a shop front for other financial providers while maintaining their own product ranges (28%).



Source: The Economist Intelligence Unit.

Even more exciting and interesting from a customer’s point of view is the fact that more than four in ten (41%) are thinking completely outside their banking box. Perhaps inspired by Alipay et al, they want to drop the barriers altogether and become digital eco-systems

that are home to a wealth of shopping experiences and lifestyle management. Will they all be able to do so by 2025? To achieve that, banks need a whole lot more technology, regulatory encouragement and a big dose of collaborative spirit.

The multi-platform approach

German-based Raisin is playing the platform game from two sides. It offers a simple portal to savings products from 76 banks from 24 European countries. Know Your Customer (KYC) onboarding is only performed once, leaving customers to move freely from bank to bank and across borders. Now banks are integrating Raisin to offer their own customers more choice.

Neo-banks and challenger banks that have focused on attracting current account and credit card users see the appeal of integrating Raisin directly into their product range. N26, one of Europe's largest challengers, has already done so. The 45m customers of mobile operator O2 have access in Germany too, via the phone giant's banking app, itself operated by challenger Fidor.

Different distribution routes have widened Raisin's appeal to distinct customer groups. The average Raisin customer is 55 or older, not the typical target market for a fintech firm. Predominantly male, these customers are proactive and enthusiastic, increasing their deposits three times in the first two years after signing up.

The profile changes considerably when they come via a partnership with a challenger bank. N26 customers using Raisin are just over 30 on average, with an initial deposit of a quarter of the sums of customers who come direct. That makes sense, as younger people have less spare cash to save.

"We do not really appeal to digital natives because the product is less relevant to them. We rather appeal to people who use money supermarkets who tend to

be 50 to 60 years old," confirms Tamaz Georgadze, co-founder and CEO of Raisin.

He understands why some banks may fear cannibalisation by offering products from other providers. If their savers desert them to other Raisin banks, then the funds they have available to lend will fall.

"Banks often have young, newly hired and motivated open banking and innovation teams. They can have a conflict of interest with the savings product team that currently has a monopoly over the sales team of each bank," says Dr Georgadze.

Yet some banks are using Raisin to solve specific issues, including profitability.

That is the case with Commerzbank, when it found it was costing money to deposit excess liquidity at the European Central Bank because of negative interest rates. Rather than telling corporate deposit customers to simply leave or pricing them out by slashing its own interest rates, Commerzbank has integrated Raisin to keep customers loyal and more profitable.

"Short-term cash is revenue negative so integrating Raisin is a positive solution. The bank could say to customers that you can leave your money with us, but it would cost you 50 basis points, or we could offer you other solutions," says Dr Georgadze.

He says the pipeline of larger banks now wanting to integrate Raisin is healthy. The platform also offers flexibility in which types of offers bank customers can see. Commerzbank limits third party account providers to investment grade only, limiting choice to better known brands and reducing reputational risk.

Chapter 3: Building a digital and intelligent bank

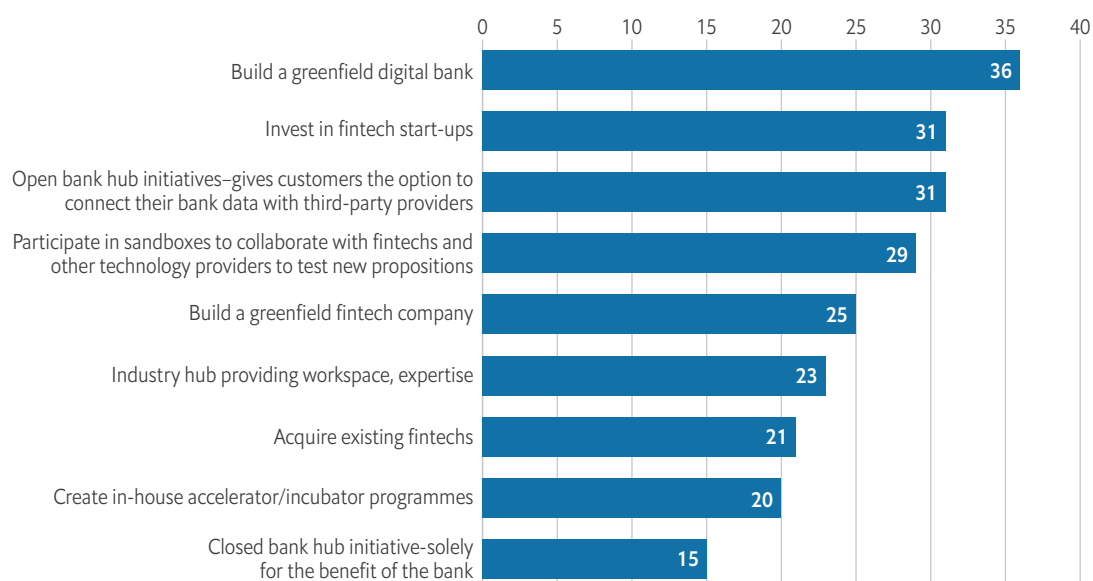
Ambitious targets to integrate into the customers' lives (and the clients of other financial providers too) should rightly be applauded. If banks retreat behind walls, they risk being disintermediated and hidden by disruptors with a clearer understanding of what customers want and the means and expertise to deliver.

Tech firms remain largely unregulated, thus far freer to follow Google's old maxim of "Move fast and break things". But banks are naturally cautious, having spent centuries building their industry and brands on trust, security and compliance with the law. They know that when banks do wrong or go wrong, the results can be spectacularly painful for all involved. Is there a clear investment route to digital innovation that does not put customer money at risk?

The need to innovate has become ever clearer and this is reflected in banks' innovation strategies. The desire to build greenfield digital banks (cited by 36% of respondents) makes clear that banks are looking to leverage their expertise in compliance and safety. But they are looking to do this in a new way by freeing a new digital-first brand from the constraints of old core systems.

Previous Economist Intelligence Unit Global Retail Banking Reports have charted the success of Pepper, the greenfield brand from Bank Leumi of Israel. Ilan Buganim, Pepper's chief technology officer, was refreshingly candid at the time, admitting that if Pepper was a success (and it is), it might be better to simply migrate customers over from the old bank to the new, avoiding the potential pitfalls of large-scale system upgrades.

Chart 12: What is your bank's innovation strategy?
(% of respondents)



Source: The Economist Intelligence Unit.

Other bankers could be coming around to the same point of view. Bank Leumi is currently looking for a partner in the US who wants to follow the same approach. Royal Bank of Scotland thinks it can pull off a similar trick; it plans to launch digital bank Bó this year and migrate 1m customers from its incumbent NatWest bank brand to the new platform. Banking customers should expect a whole host of new brand names with familiar backing across the world.

Strategies to perfect new technologies are changing too. In previous years, the impact of open banking was understated by respondents, which may explain why

innovation strategies were often more focused on closed hubs that encouraged new proprietary technologies that could give banks a lead over conventional rivals. That approach is now the least favoured option, cited by only 15% of respondents. Even in North Africa and the Middle East, where digital disruption is seen as lagging other regions, only 9% agree.

Now, open hub initiatives are far more popular (31%), a global recognition that banks must bring in third parties if the benefits of open banking are to be shared. That upswing towards collaboration also extends to playing an active role in the regulatory sandboxes (29%) that are springing up everywhere to incubate and test new ideas.

Sandboxes in the desert

Last year's Economist Intelligence Unit report found that the Middle East has a young, phone-addicted, under-banked population and a desperate need for better remittance, digital ID and domestic banking experience. Regulators are setting up sandboxes in the desert to help the industry exploit this opportunity.

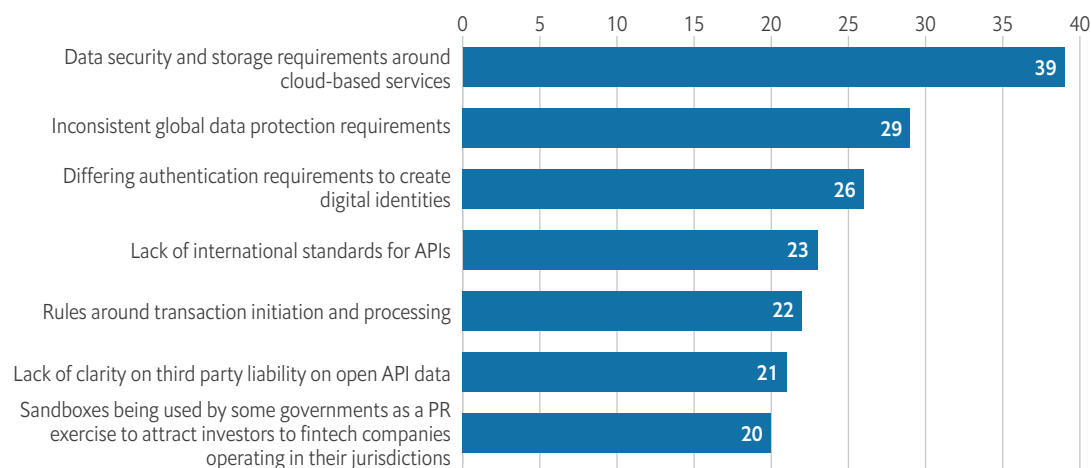
The Saudi Arabian Monetary Authority is the latest to instigate a sandbox as

part of the Kingdom's vision to galvanise the economy and go cashless by 2030. Seven fintechs have already joined, mainly working in the e-wallet and payment space. Successful firms should not find themselves short of eager customers. Gulf Co-operation Council (GCC) states are pushing digital identities and payments heavily to a young mobile-savvy population. GCC smartphone penetration is already at 74% and rising rapidly.⁵

⁵ "The Mobile Economy – Middle East and North Africa 2018", GSMA, <https://www.gsma.com/r/mobileeconomy/mena/>

Chart 13: What are your biggest concerns regarding regulation and standards?

(% of respondents)



Source: The Economist Intelligence Unit.

Greenfield banks may be the perfect solution for banks to demonstrate their compliance and risk expertise, and their technological brilliance. However, data security issues are important, as cited by 39% of respondents, especially as new operations rely on cloud computing for speed, cost and scale.

Customers are not always the best at protecting their data, identities and passwords

(29%). Third-party relationships may provide a weak point of entry (26%) for fraudsters. Equally worrying is whether banks can guarantee their systems are strong enough to repel a cyber-attack (26%). Regulators are concerned too. In May 2019 G7 countries conducted co-ordinated cyber tests on their financial systems,⁶ recognising that hacks and malware can spread far beyond national borders.

⁶ "G7 countries to simulate cross-border cyber attack next month: France", Reuters, May 10th 2019, <https://www.reuters.com/article/us-g7-france-cyber/g7-countries-to-simulate-cross-border-cyber-attack-next-month-france-idUSKCN1SG1KZ>

Digital proofing

The Monetary Authority of Singapore is already planning for the widespread introduction of and data mining technology. It has a far-reaching policymaking strategy for re-tooling the financial system for the digital economy. It has already upgraded the payment network and introduced standardised QR codes for transactions across the country.

The regulator was also heavily involved in the development of digital identities for individuals and corporates. With a focus on ensuring trust in the financial industry, it laid out its fairness, ethics, accountability and transparency (FEAT) principles last year to ensure that AI and data analytics and infrastructure are deployed responsibly.

“These are the technologies that will drive the future. As a public policymaker, what are the policies we must have in place to facilitate such adoption? And what are the risk considerations we must take so we can show that this technology does not create unintended consequences? And what are the experiments we must do to allow this technology to be adopted in a thoughtful way?” says Sopnendu Mohanty, the regulator’s chief fintech officer.

Other regulators have raised concerns that AI may unintentionally exclude customers from access to banking if it introduces bias against certain new customers or those seeking loans. The Hong Kong regulator is following Singapore’s lead in seeking to ensure customers and their data are treated fairly.

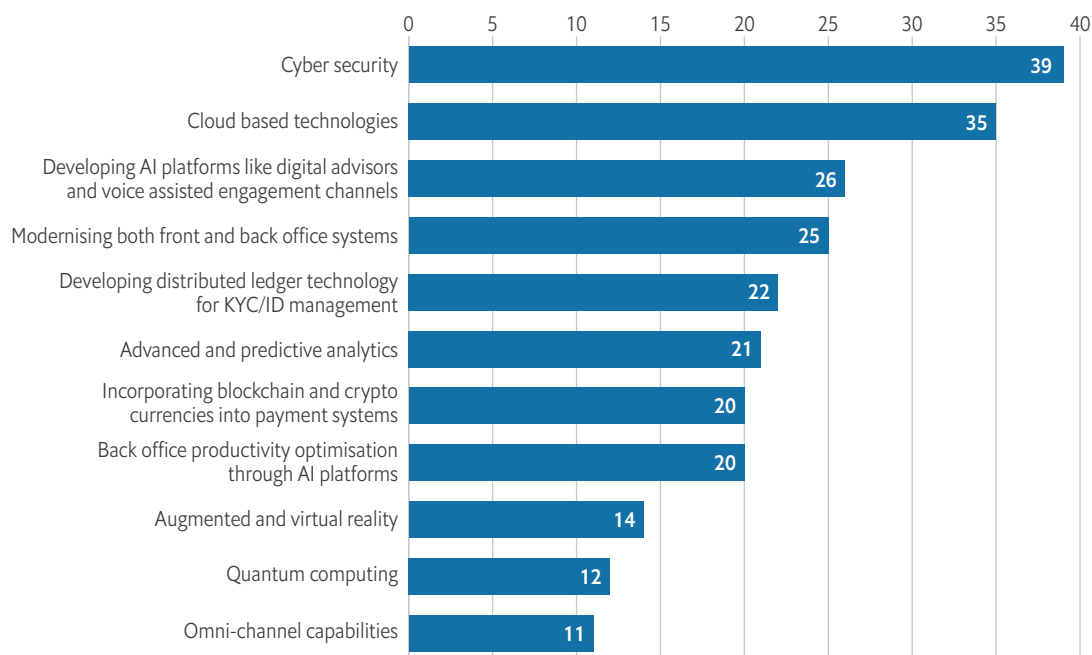
Looking towards the intelligent cloud

Banks are well aware of the reputational risks involved and are focusing their tech investment on cyber-security above all else

(39%). However, when it comes to technology itself, the cloud has become a priority for many (35%), reflecting the need for agility and cost control that survey respondents have expressed.

Chart 14: Where is your company focussing its digital investment?

(% of respondents)



Source: The Economist Intelligence Unit.

Australia: Cloud security matters

Australia's newest bank will be cloud-only, creating new challenges and raising issues for regulators and customer data.

The founders of Volt, Australia's first cloud-only bank, want to deliver an intelligent bank using cloud-based technologies that provides a first-class mobile-user experience and a platform for third-party products and services. PayPal is already on board, as is Australia's largest retailer, ahead of its launch later next year.

"Customers are saying to us that they want to someone who understands what they are trying to save for and helps them achieve that," says Steve Weston, one of Volt's co-founders.

In terms of sheer computing power, Volt is likely to require as much cloud space to run its data-driven customer service, budgeting and comparison tools as its will for its core banking system.

"If there were a black swan event, if something happened to our primary cloud environment, we would move over to a secondary environment. We have also had to invest very significantly in cyber security. A cyber security event would not just be financially damaging for us, it would impact our customers," says Mr Weston.

Volt's management team has invested significant time and money in complying

with the Australian Prudential Regulation Authority's updated cloud-computing policy. Banks that are still reliant on traditional technology need to prepare too, ensuring their old core systems remain reliable in order not to interrupt services for their customers. For on-frame storage, there is probably more of a concern given that many core banking platforms are 30 to 40 years old,' he says.

While potential Volt customers are largely unaware of the distinction between public and private clouds, they are, as our survey revealed, concerned about their data and how it is used. Volt is thinking ahead by developing a data policy that will be overseen by independent committees that it hopes will be adopted by other Australian banks.

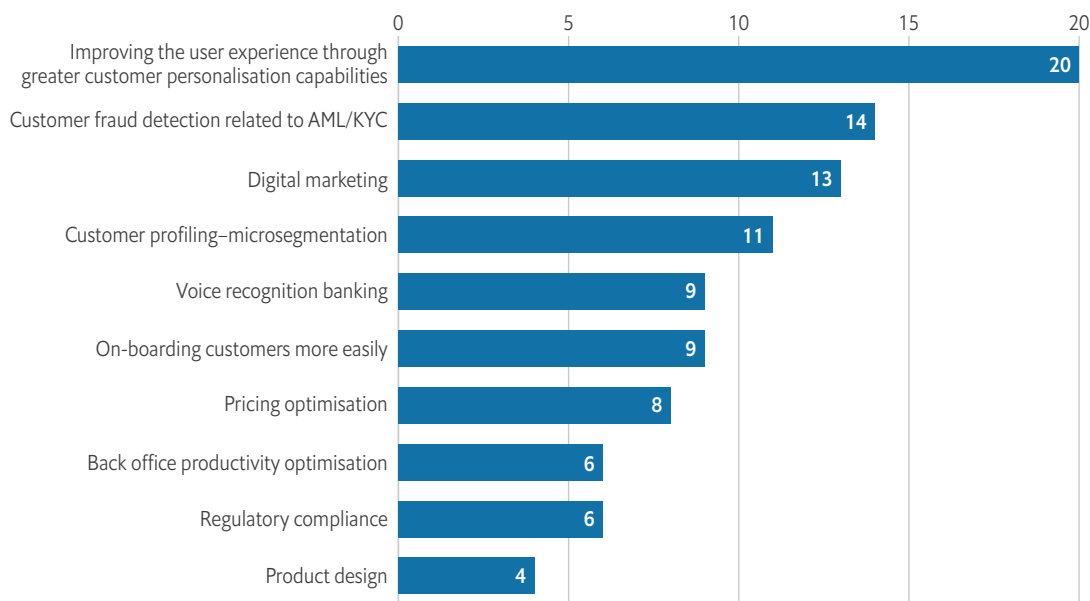
Although 26% are focusing their digital investment in AI, it is no panacea. Increasingly, regulators in Europe and elsewhere are warning that algorithms cannot accommodate all situations and outcomes, particularly when it comes to fraud detection (14%).

AI may have far more potential in looking after the customers that banks already have (20%) with a personalised level of service.

Our survey respondents think it may also prove more useful when it comes to digital marketing to new customers (13%) than it ever will in regulatory compliance (6%).

In fact, customers may prove a bigger barrier to the virtual bank run entirely via a black box. Survey respondents are acutely aware that customers are increasingly sensitive to how their data is stored (44%) and used (34%).

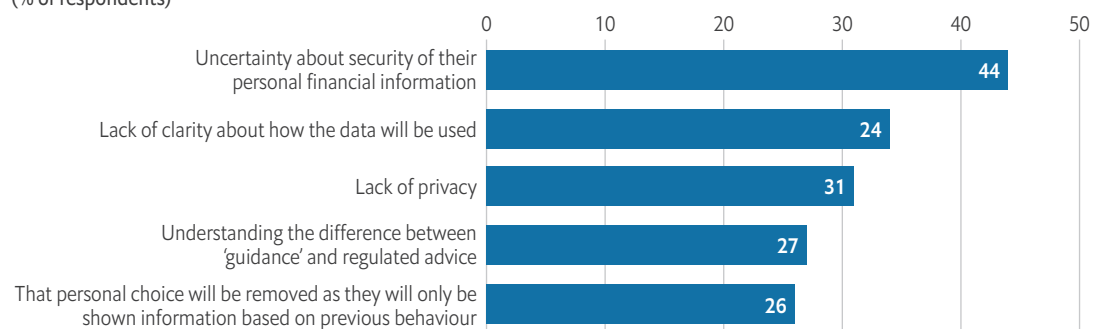
Chart 15: What do you believe will be the most valuable use of Artificial Intelligence for retail banks?
(% of respondents)



Source: The Economist Intelligence Unit.

Chart 16: What do you think are customers' biggest concerns related to Artificial intelligence?

(% of respondents)



Source: The Economist Intelligence Unit.

It also causes issues for any banks planning to deploy AI higher up the value chain. Product offers based only on past behaviour (26%) may not find much favour among customers who face potential financial exclusion (see case study). And bankers may wish to protect themselves from personal responsibility for mis-selling by machines; more than a quarter of respondents worry about the unintended consequences of technology on advice and regulated products (27%).

The issue is a hot topic for Vancouver's Vancity, the largest community credit union in Canada. The bank has piloted projects on credit scoring and customer profiling using social media and algorithms. Nothing has been applied at scale yet, as Vancity wants to see how different data elements interact without compromising customer privacy and transparency.

"We don't have enough experience yet to see which data are good predictors of credit worthiness over time," admits CEO Tamara Vrooman. "The issues around blackbox algorithms have given us some pause."

Vancity customers are also concerned about the security of their personal information. To better understand their concerns, the bank hosted a public forum with a local research university on disinformation in the digital age—3,000 people turned up. And it isn't just customers that are concerned; Canadian regulators are also requiring banks to be careful about sharing data. The B-10 guidelines issued by Canada's Office of the Superintendent of Financial Institutions require banks to see through any outsourcing arrangements they have with third parties in terms of the type, veracity and transparency of the data they share.

Conclusion: the intelligent bank is coming for all

Whether pushed by regulation or nudged by consumer demand, banks must open up and adapt if they are to prosper.

There are two models to follow: regulation-light or regulation-led. In Kenya and China, the first movers faced few regulations and attracted a large number of users who were poorly served by the incumbent banks. That allowed them to dominate at speed, but has led to unforeseen issues. African states have learned the lessons of Kenya and are putting in regulations to ensure a level playing field between mobile money operators like telecoms firms and financial institutions.

The alternative is enforcing equal access and collaboration, the route chosen by the EU and being considered across Asia, Canada and Latin America. Rules are complex and often prescriptive to ensure every player operates to the same standard. This model is likely to dominate future developments in open banking. Regulators understand the importance of customer data security and financial infrastructure resilience.

This poses some deep questions for the US in particular. Its banking infrastructure is poor and needs significant investment before innovation can truly shine. Leaving that to market forces has proved suboptimal to date. But if profit-driven banks do not collaborate, they will continue to antagonise their customers. Small fintechs (like Varo Money) demonstrate that it is possible to put together

a national neo-bank in an environment of regulatory uncertainty. While Apple and Google may prefer a national licence for simplicity's sake, in reality, they do not have to wait to drag American banking into the 21st century.

In the short term, that means putting all the pieces in place, creating a culture of agility and developing the expertise to exploit it. It means embracing new technologies as well as open banking. Five years from now, when describing intelligent banking, it will be a bank that is using cloud, AI and other technologies, and will be capable of offering a whole range of services to their customers, with payments as the glue to hold it all together. No longer will they be the closed-off, marbled palaces of the past.

And tearing down the walls may lead to the growth in intelligent digital banks. There is a growing recognition that, for some, building a new digital bank and migrating customers across at leisure could be easier than a disruptive upgrade that potentially upsets all concerned.

Challengers and disruptors can learn from the banks too. Technology is not the answer to every banking conundrum. Customers do not fit every onboarding path and situations may be complex, meaning there remains an important role for humans, empathy and an ability to override the system when required.

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