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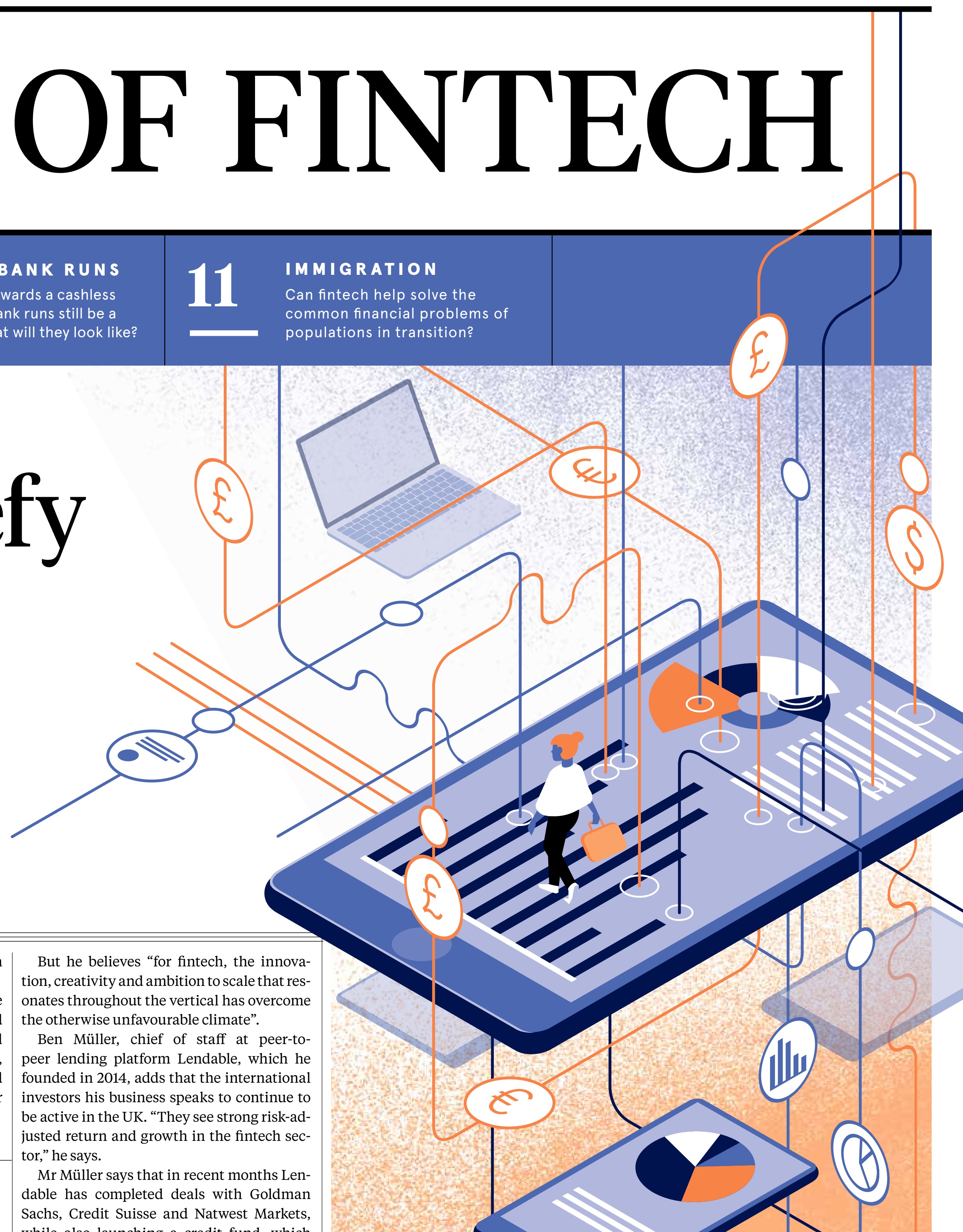


INVESTMENT

UK startups defy Brexit jitters as funding jumps

The UK fintech industry continues to enjoy healthy levels of investment despite an otherwise unfavourable climate

Josie Cox

In July, less than a week after Theresa May handed the reins of the UK government to Boris Johnson, raising the spectre of a no-deal Brexit plunging the country into economic chaos, Rado Lipuš and his team were celebrating.

Neudata, the London-based fintech startup, which the Austrian-born entrepreneur founded in 2016, had just announced a $1-million funding round.

The value of the transaction may have been diminutive compared with the sums raised by some of Neudata's larger peers, but Mr Lipuš says it represented a milestone.

"It was a clear indicator that the investment communities' appetite for innovative financial tech companies is very much intact, regardless of what might be going on elsewhere," he says.

Neudata, which uses software to source often obscure data to help asset management companies make investment decisions, has grown from one to fifteen full-time employees since launch. But its success is far from an anomaly within the UK's fintech sector, despite a political and economic backdrop racked with crippling uncertainty.

According to Workthere, the serviced-office arm of estate agent Savills, venture capital (VC) funding in the UK hit a record high of £4.3 billion during the first half of 2019, representing a 45 per cent increase on the same period in 2018.

Tech companies accounted for 60 per cent of the value of all deals and eight out of the top ten VC funding deals during that period took place in the fintech space, a sharp rise from just three a year ago.

"The UK unquestionably has a unique competitive advantage in fintech and holds an unrivalled position on the global stage, setting the pace," says Russ Shaw, founder of Tech London Advocates and Global Tech Advocates, trade bodies for the tech industry.

> **The UK unquestionably has a unique competitive advantage in fintech and holds an unrivalled position on the global stage**

"Britain benefits from a deep-seated heritage in banking and financial services, a collection of the world's greatest universities, highly skilled talent and a progressive, forward-facing regulator in the Financial Conduct Authority."

Mr Shaw, who is also a technology ambassador for the mayor of London, concedes: "Politics has returned in a big way as an investment variable for funders looking at Britain as a destination to deploy capital."

But he believes "for fintech, the innovation, creativity and ambition to scale that resonates throughout the vertical has overcome the otherwise unfavourable climate".

Ben Müller, chief of staff at peer-to-peer lending platform Lendable, which he founded in 2014, adds that the international investors his business speaks to continue to be active in the UK. "They see strong risk-adjusted return and growth in the fintech sector," he says.

Mr Müller says that in recent months Lendable has completed deals with Goldman Sachs, Credit Suisse and Natwest Markets, while also launching a credit fund, which attracted investors from seven countries.

So far in 2019, challenger banks have dominated the fundraising charts in terms of scale. In February, London-based business and property lender OakNorth said it was planning to expand internationally after completing a $440-million fundraising round led by Japan's SoftBank Group. Monzo and Starling Bank have also closed major funding rounds, while in the payments and exchange sector, startups including Checkout.com, WorldRemit and GoCardless, have all defied economic headwinds to raise cash.

But ventures from other corners of the market have enjoyed largely unfettered access to funding too. Businesses that are providing solutions to financial services firms' changing demands to securely hold and leverage the power of data are particularly garnering the attention of investors, as are companies riding trends such as the move to cloud-based technologies.

Mark Whitcroft, a founding partner at Illuminate Financial Management, a VC firm that has investments in more than a dozen fintech companies, says some of the most compelling opportunities may lie beyond the big names.

"What's important to understand is that financial services are undergoing a once-in-a-generation shift in terms of the way businesses operate," he says. "Migration to cloud is just one example of that as is data architecture or developments in the way we mine, use and handle data."

These technological shifts, he says, "are an inevitability and a long-term trend that will continue to materialise regardless of the geopolitical backdrop".

In June, Privitar, a software startup founded in London in 2014 that helps companies protect their data, and one of Illuminate Financial Management's holdings, raised $40 million in a series B round led by Palo Alto-based VC firm Accel and backed by a bevy of other investors.

"Brexit is obviously far from ideal, but the trends which are creating these opportunities are far more significant than any temporary headwinds that might cast a shadow over financial markets for the next year or two," says Mr Whitcroft.

Ben Braby, head of Level 39, a startup incubator owned by Canary Wharf Property Group, echoes this: "The country's unique conditions for growth – an abundance of world-class talent, the proficiency of cross-sector collaboration in technology, contemporary spaces specifically designed to support digital firms and a supportive policy landscape – are allowing new startups to rapidly expand into scaleups," he says.

"Despite Brexit uncertainty, these unique conditions for growth are rarely found anywhere else in Europe."

But, while it's not difficult to find both investors and businesses willing to back the funding market's strength, others remain cautious that excessive optimism might prove costly in the long run.

"Investor appetite for fintechs is clearly high; the sector is very en vogue at the moment," says Michael Magee, lead partner in PwC's UK financial services deal practice. "Private equity and VCs like to jump on the next big thing, and that's likely driving many of the investment decisions. But, even if a business can defy gravity for a bit, without strong fundamentals, it's impossible to do so forever."

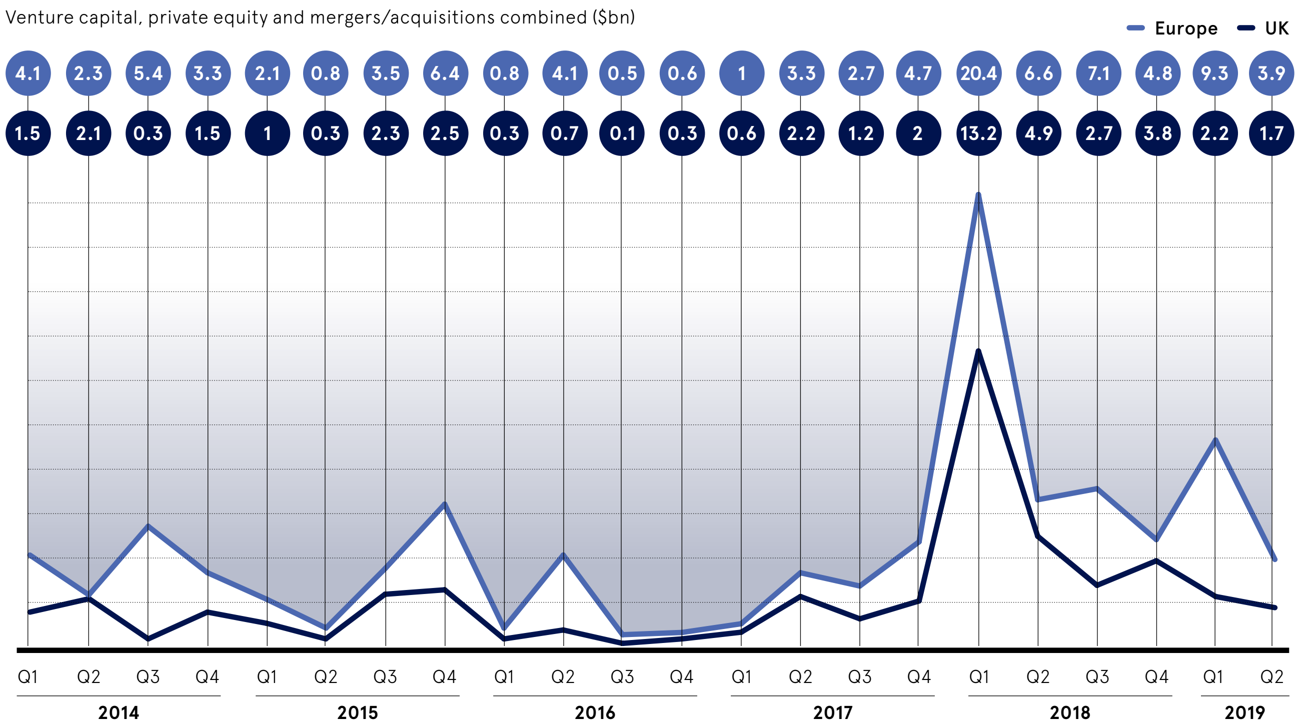
Mr Magee warns that if the UK economy deteriorates, a fintech must have all the fundamentals in place to stand a chance of weathering the storm. Some, he warns, might not.

"That includes having competitive technology, great intellectual property, solid governance and strong talent, but it also includes a resilient client base," he concludes. "If they don't have all this when the music stops, they may well find themselves in serious trouble."

TOTAL FINTECH INVESTMENT ACTIVITY IN EUROPE

Venture capital, private equity and mergers/acquisitions combined ($bn)

KPMG/PitchBook 2019



	Europe	UK
2014 Q1	4.1	1.5
2014 Q2	2.3	2.1
2014 Q3	5.4	0.3
2014 Q4	3.3	1.5
2015 Q1	2.1	1
2015 Q2	0.8	0.3
2015 Q3	3.5	2.3
2015 Q4	6.4	2.5
2016 Q1	0.8	0.3
2016 Q2	4.1	0.7
2016 Q3	0.5	0.1
2016 Q4	0.6	0.3
2017 Q1	1	0.6
2017 Q2	3.3	2.2
2017 Q3	2.7	1.2
2017 Q4	4.7	2
2018 Q1	20.4	13.2
2018 Q2	6.6	4.9
2018 Q3	7.1	2.7
2018 Q4	4.8	3.8
2019 Q1	9.3	2.2
2019 Q2	3.9	1.7

63% of UK fintech founders say the UK is the global leader in fintech, but only...

1 in 3 are optimistic about the UK's position as global leader in five years

2 in 3 say hiring enough good people across all disciplines and roles is the biggest challenge facing UK fintech now

Digital Finance Forum 2019

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Home Credit: World-leading consumer lender keeps its startup spirit

Building a global financial company in the digital era takes more than state-of-the-art technology, but having the right kind makes a difference

The marriage of financial acumen and internet prowess has promised to catapult lending from its dull analogue era into a bright future of digital financial technology.

Home Credit, a consumer finance lender established in 1997, hails from pre-fintech times. Judged simply on the year of its birth, the company may seem to need the same digital jolt as other traditional financial institutions.

According to Home Credit, which has served more than 130 million customers from Prague to Manila, that perception is wrong. "What sets us apart is our ability to take fresh ideas and rapidly test and scale them to our millions of clients. We are a global giant that thinks and acts like a nimble disruptor, and that's a rare combination," says head of Home Credit's risk research unit Lubomír Hanusek.

"Our lending expertise and advanced tools let us reach more unbanked customers and offer them the speed and smooth customer experience as well as any fintech startup today can."

A lot depends on how quickly and reliably the company can assess the creditworthiness of potential customers in a country lacking a centralised credit records bureau. Home Credit demonstrates how its robust technology helps structure anonymised big data using it for highly predictive credit-scoring. This allows the lender to include new customers into a regulated financial industry.

"When we enter a new market, we need six months to collect enough data to feed our centralised approval models and make them work," says Mr Hanusek.

The company is primarily using its technologies to cope with growing numbers of new consumers in large Asian markets. As their economies grow, an emerging middle class catches up with opportunities for a more comfortable lifestyle.

Home Credit uses the capabilities of its platform to manage its strategy and credit approvals centrally across nine countries. They include China, India, Indonesia, the Philippines, Vietnam and Russia. These countries have a combined population of almost four billion people or about half the world's population.

"Our technology platform integrates in real-time data provided 160 different data sources, credit bureaus, telco operators and utilities, and other so-called alternative data. These are anonymised scores based on big data analysis of people's behaviour processed by third parties," says deputy chairman of Home Credit's Russian unit Artem Aleshkin.

Home Credit approves about 200,000 loans every day and two-thirds are new customers. It tracks the growing financial needs of clients and helps improve financial literacy in countries where consumer borrowing is mostly still a novelty.

The company benefits from having started at bricks-and-mortar stores, providing finance for customers seeking to buy household appliances, mobile phones and furniture. As these shops went online, Home Credit followed. It also partnered with pure ecommerce companies throughout its markets, including local payment platforms, such as China's WeChat and Alipay, India's Paytm and Indonesia's GoJek.

No matter where customers look for a loan – shopping malls, eshops or through Home Credit's mobile app – the application process is paperless. The loan applicant gets a "yes" or "no" response in under a minute. At Home Credit's business scale, automation is the rule. So far this year, the company has processed 96 out of 100 loan applications without any human interaction. It employs 3,600 IT personnel overseeing more than 20,000 servers and 28 datacentres.

The company has also automated some of the work at its telephone customer help desks. "Chat or voice bots currently handle about 200,000 customer calls in China each day and up to 80 per cent of simple queries in India," says Milan Urbasek from Home Credit's group operations.

The use of speaking robots is possible partly because clients usually call in with straightforward questions about their loan balances and payment dates. Customers' behaviour, including interactions with bots, are recorded and fed back into predictive scorecard models. This data collection begins when customers apply for a loan and ends with full repayment.

Home Credit uses artificial intelligence (AI) tools to sift through these troves of big data. The goal is continuously to upgrade the predictive power of scorecards to minimise the likelihood of newly approved customers defaulting on their loans.

Big data is a trendy catch-all term to describe the vast volume of digital traces people leave behind as they go through their modern digital lives. Big data covers information from many external and internal sources, such as non-cash financial transactions, internet use, mobile devices and other digital sensors.

This data can be collected, organised and analysed to assist companies in discovering meaningful correlations that augment predictive behaviour models. Financial companies such as Home Credit can look for patterns to gauge the creditworthiness of their clients against the standard data from credit-scoring registers.

By definition, big data must pass the four Vs test – volume, variety, velocity and veracity – for company managers to extract any value from it. The four Vs experiment, described by scientists at IBM, makes Home Credit a fitting big data user since it has extensive operations in two large countries, China and India. Both markets generate data input on an enormous scale (volume) in different types (variety) by streaming modes that permit online analysis (velocity) and in the proper, accurate forms (veracity).

Scoring provided by big data companies can outperform a human loans officer. "Big data can provide better predictions about the future behaviour of borrowers than some traditional questionnaires can," says Mr Aleshkin.

However, some experts warn that big data may lead to biased findings and judgments. Although AI and machine-learning concepts are neutral in the way they function, it is the programmers who have to find the strongest correlation between data and behavioural patterns. Only then can big data and AI help predict the probability of, say, loan defaults by certain types of borrowers. Answering why data findings can show this is tricky and still puzzling.

"Imagine the autopilot of a driverless car," Alan Winfield, professor of robot ethics at the University of the West of England, told the *Scientific American* journal. "If there's an accident, it's simply not acceptable to say to an investigator or judge, 'We just don't understand why the car did that'."

Home Credit avoids falling into the big data bias trap when evaluating loan applications from people with minimal financial histories by using different weightings for scoring. "We primarily rely on our client and business data," says Home Credit's risk research manager Mr Hanusek. "First we look at causations, such as a clean credit record and sufficient earnings attesting to the high probability of problem-free repayment of the loan, and only then do we look at correlations. Big data may statistically show the probability that a customer may default."

However, predictions based on big data analysis can be very accurate and outperform the decisions based on answers people provide in traditional loan applications. "A traditional loan application might have relied on checking personal income and payment histories, whereas big data can extrapolate alternative information to verify these much more accurately," says Home Credit's risk manager Václav Kozmík.

One field where big data science has meshed with AI and has progressed immensely in recent years is voice recognition and machine-understanding of spoken language. The most visible advances focus on major nations and languages spoken by many people. "It's easier to find reliable voice bots speaking Chinese or Russian than Tagalog, one of the official languages in the Philippines," says Pavel Dvořák, head of Home Credit's loan collections in Asia.

For years, robots have helped manufacturers save workers from doing boring and numbing jobs on assembly lines. Voice bots are taking over the tedious work at customer call centres. For Home Credit, the benefits are twofold, the obvious one being reducing costs and the other decreasing the staff churn rate at its call centres.

The company has been able to cut its global headcount in call centres in China by about a third to 7,000 since implementing AI-powered voice recognition services for handling customer care two years ago. "We've also seen improvements in customer satisfaction. Customers react positively to robots reminding them to make loan payments," says head of Home Credit's loan collections Radek Janušek. "They may feel embarrassed if they hear the same from a real person working at the call centre."

"Home Credit uses its global technology and risk platform to manage strategy and credit approvals centrally across nine countries

"Big data can provide better predictions about future behaviour of borrowers than some traditional questionnaires

Embedded technologies and IT infrastructure enable substantial cost and service improvements

20K	392K	3.6K	200M+
servers	decisions per "peak days"	members of IT team	capacity of transactions per day

- Paperless automated processing
- Biometric ID and video interview
- Credit decision engine
- Mobile applications
- Collections system
- Customer care centre system
- CRM system
- Voicebot and chatbot

Home Credit N.V.

Prague-headquartered and Netherlands-incorporated company Home Credit NV operates a global technology platform that centrally manages core strategy, technology, risk and financial products for consumer loans in markets in central and eastern Europe, the Commonwealth of Independent States, China and southeast Asia. Home Credit primarily serves individuals with limited or no credit history and concentrates on responsible lending by providing people with loans they can afford.

The company serves more than 130 million customers through its global presence in over 420,000 bricks-and-mortar shops, online in eshops and its mobile app. Typical Home Credit clients are white and blue-collar professionals, often first-time borrowers, making it difficult to assess their creditworthiness. The company seeks to build long-term relationships with its clients by offering different financial products, including point-of-sale loans, cash loans, credit cards and instalment payment cards.

Science and Home Credit

Last year, Home Credit offered $70,000 in prize money to scientists via Kaggle, an online network of data and computer science researchers. Kaggle, owned by Google's parent company Alphabet, hosts competitions that enable commercial companies to outsource problem-solving to a huge number of scientists globally. Home Credit asked the Kaggle community to develop a credit risk decision-making tool based on alternative data the consumer lender typically does not use. Some 7,190 scientific teams from more than 100 countries participated in the competition. "We are a global powerhouse that issued 37 million new loans in the past year alone, so any idea that can lead to even a slight improvement in our approval is not only extremely valuable to us, but can also be scaled up to incredible heights very rapidly. And that's a big draw for Kaggle contestants," says Home Credit's chief risk officer Radek Pluhař.

Home Credit's Freedom card

In 2017, Home Credit launched a new credit card in Russia. Called Svoboda, which means freedom, the card is Home Credit's take on the growing popularity of buy-now, pay-later solutions that fintech companies such as Sezzle, Splitit or Afterpay offer online retailers in the United States, Australia and other developed markets. They let buyers split bills for purchases at online stores into interest-free monthly instalments using their existing credit or debit cards. The buy-now, pay-later startups collect fees from vendors, who can increase sales by attracting shoppers cautious of accumulating debt. In Russia, the Freedom zero-interest credit card is however one answer to escalating concerns of rising consumer debt. According to the country's central bank, Russians have doubled their outstanding personal debt in the last five years. The authorities have set stricter rules, including interest rate caps of 1 per cent a day on payday loans to slow consumer lending. The Freedom instalment card has two spending limits, one for partner shops and the other for non-partners. The card can also be used at non-affiliated vendors as long as they accept Visa cards. Clients can use the Freedom card just like any other traditional credit card. Buy-now, pay-later services such as Sezzle let clients make purchases only at affiliate shops or service providers.

REGTECH

Reining in risk with AI-powered regtech

Automated regulation technology is being deployed to tighten up banks' anti-money laundering and know-your-customer policies, but can be a daunting and complex task for risk managers


Loic Leray on Unsplash

Finbarr Toesland

In the wake of the 2008 financial crisis, countless new compliance obligations have been introduced, creating a substantial regulatory burden on banks, as well as costing them dearly if they fail to comply. According to Reuters, 20 international banks were fined a total of $235 billion for breaching financial regulations between 2008 and 2015.

As firms in the financial services sector seek out innovative ways to meet the increasingly complex regulatory framework and improve their risk management, regulation technology is making dealing with these challenges an easier proposition. Juniper Research says global spending on regtech is forecast to reach $76.3 billion in 2022, up from $10.6 billion in 2017, illustrating growing demand from the sector.

Philip Treleaven, professor of computer science and director of the Financial Computing Centre at University College London, coined the term regtech. He has extensive experience in creating advanced financial regulation software through his work with Deutsche Bank on an automated fixed income trading system to create the first insider dealing detection system for the London Stock Exchange.

Professor Treleaven believes that making the regulatory handbook readable, in both human and computer form, will allow artificial intelligence (AI) to change how regulations are dealt with.

"Once they have reached this form you can automate everything. By building systems that will dynamically track changes in the regulatory handbook, banks can tell whether they are compliant or not, massively reducing the ambiguity in this area," he says.

Every jurisdiction is unique with a different set of banking rules. Major banks are typically regulated in dozens of countries, leading to significant issues around being compliant with all regulations in these distinct regions. While there is increasing harmonisation of regulations across the world, there remain many ambiguities between markets, which results in banks needing to support large numbers of compliance staff.

> **Every jurisdiction is unique with a different set of rules. Major banks are typically regulated in dozens of countries**

Professor Treleaven points out that the Financial Conduct Authority handbook alone has thousands of pages. "You can imagine the ambiguity of something that long and complex," he adds. But costs can be reduced thanks to AI, with Juniper Research finding that AI automation of know-your-customer (KYC) checks will create time-savings of 5.4 million hours annually by 2022.

Stringent anti-money laundering and KYC regulations are placing renewed burdens on banks to have a comprehensive insight into exactly who their customers are and if they are involved in illegal activities.

For example, if there is a customer who appears to engage in legitimate business activities, but is then the subject of articles in the press about potentially illicit business ventures, the fraud department may open an investigation.

At the moment, banking systems would not be able to detect this type of information, whereas if they had a programme that is looking dynamically through a large range of data sources, it would be possible.

An AI system that is able to check instantly that all regulations are complied with and alert the fraud department to potential risks would be invaluable for banks.

However, this type of advanced AI-backed regtech can also raise its own unique set of issues. The more powerful AI algorithms are almost impossible to interpret, which means that while data scientists are able to see what decision the AI has made, they are rarely able to understand why these choices are made.

As banks implement more sophisticated AI and machine-learning solutions, it's important that every effort is made only to use opaque AI where it is most effective and meets regulations, especially as algorithms are continually learning and changing, which can lead to negative unforeseen applications of this technology.

Regulations continue to develop and increase in scope, so firms in the financial industry need to embrace regtech solutions or face falling short and paying heavy fines.

"Our strategy going forward is you write your regulations using a computer-based system that you can then translate into something which is verifiable and executable," Professor Treleaven concludes.

Can AI help avoid another financial crash?

Robert Cicchetti on Shutterstock

Financial crashes are a central feature of the boom-and-bust cycle that continues to repeat itself, with 28 financial crises recorded since 1929. While clearly identifying the exact signs of a crisis is extremely difficult, regtech can help reduce risk in financial services and thereby lessen the impact of negative economic events that are possible when extreme risk-taking occurs.

Paul Ormerod, partner at Volterra Partners consultancy and a visiting professor at University College London Centre for the Study of Decision-Making Uncertainty, believes utilising regtech can help banks avoid internal business crises, by uncovering incidence of money laundering and widespread fraudulent transactions, as well as giving a level of insight into market challenges.

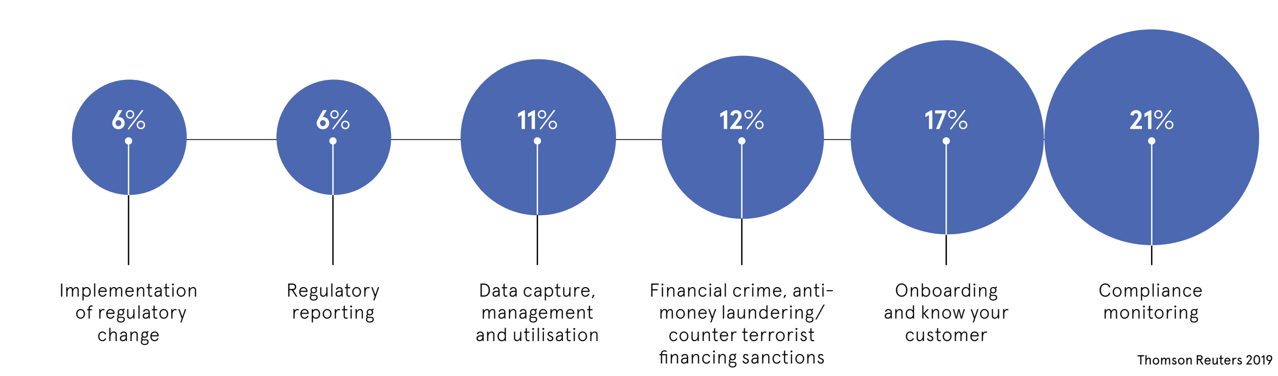
"The record of conventional forecasting, in terms of predicting crashes or even mild recessions, is by scientific standards just abysmally poor. Regtech, while not a perfect predictor, can at least provide a window into the potential of major crashes," says Professor Ormerod.

Regtech enabled by artificial intelligence (AI) allows banks to realise the value of untraditional forms of data, including text-based data such as social media and newspapers, and use insights from analysing these to gain a more comprehensive understanding of industry patterns.

Instead of just relying on data produced by official government bodies or external forecasters, banks can systematically analyse a wide range of data sources to anticipate upcoming dangers with AI tools.

TOP AREAS IMPACTED BY REGTECH

Financial services firms were asked which part of compliance and regulatory risk management would be most impacted



Thomson Reuters 2019

LENDING

Can challengers break into the SME lending market?

Dynamics are starting to shift in business sector lending, where traditional banks still hold the lion's share of customers

Daniel Thomas

From N26 to Revolut, Monzo and Starling, challenger banks have attracted hoards of customers seeking more flexible financial services.

But, while such players are challenging traditional banks in the consumer market, they have had less impact on business-to-business lending. Business customers still prefer to go to incumbents for loans and financing, believing them to be more secure, even if they are less user friendly. However, this is slowly starting to change.

Rising fintech providers have spotted lending to small and medium-sized enterprises (SMEs) as a gap in the market and have begun to fill it. While SMEs now find it easier to secure funding than they did after the 2008 financial crisis, many still struggle, particularly when approaching big banks.

"A majority of traditional banks have to keep the risk levels low and prioritise large enterprises with stable cash flow and sufficient collateral," says Martin Stiller, fintech expert at IDC.

"At the same time, the underwriting process is complex and lengthy. Therefore, many SMEs prefer to look at the alternatives."

In response, debt and equity-based crowdfunding platforms, such as Crowdcube and Funding Circle, have developed, while "neobanks" are increasingly starting to lend to SMEs, says Mr Stiller.

They tend to offer a slicker, more tailored service than incumbents, using application programming interfaces, machine-learning and big data analytics, to accelerate the underwriting process, and leverage multiple data sources to improve understanding of an applicant's risk profile.

Take Iwoca, an online bank that lends to SMEs in the UK, Poland and Germany. It has cut out the need for complex paperwork during applications and uses artificial intelligence to assess rapidly a business's performance by analysing its online accounts and tax returns.

The bank claimed to have overtaken HSBC and Santander in the UK's small business overdraft market in the fourth quarter of 2018, with a 12 per cent share.

Such growth is apparent right across the UK alternative finance market, which was worth £6.2 billion in 2017, up 35 per cent on the previous year. Other operators of real scale include Funding Circle, which has lent £7 billion globally since 2014, while UK neobank OakNorth has lent £4.7 billion to SMEs in four years.

Rav Hayer, UK fintech lead at PwC, points out that OakNorth had seen no defaults as of June this year, while investors in the bank have enjoyed a 23 per cent return on equity. "They are proving to the marketplace that a startup can lend money," he says.

Success stories are building trust in the sector, but that does not mean there haven't been hiccups. In April, US peer-to-peer lender Lending Club shut down its SME financing arm after five years. And in July, shares in Funding Circle dived 30 per cent after it warned an uncertain economic environment had damaged demand for loans.

Incumbents are likely to seize upon signs that new market entrants are less stable than they seem, something the fintech sector will have to counter. Earlier this year, Ian Rand, head of business banking at Barclays, warned that many SME lenders could go the way of Wonga, the controversial payday lender, which fell into administration in 2018.

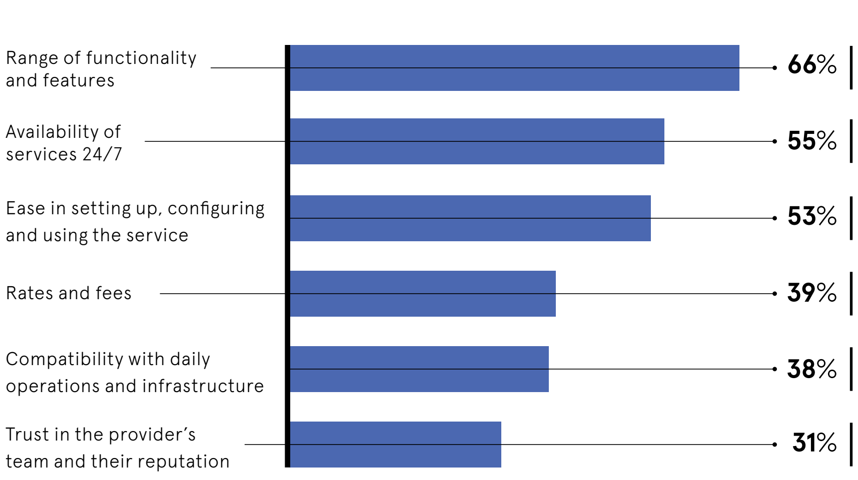
"There were a lot of people banks wouldn't lend to who went to Wonga instead. That didn't work out too well for them or for Wonga," says Mr Rand. "I am nervous that we could be going down the same path with business lending."

> **A majority of traditional banks have to keep the risk levels low and prioritise large enterprises**

TOP REASONS WHY SMES USE FINTECH

Global survey of small and medium-sized businesses who are using fintech instead of a traditional provider

EY 2019



OPINION

'Fintech, with its modernised approach to finance, was the necessary tool to restore public faith in financial organisations'

It has been just over a decade since the crisis that shook the foundations of the global financial system. Since then we have witnessed an avalanche of creativity and entrepreneurship.

The sheer volume of new ideas, largely driven by technology, has been staggering. Profound change has occurred in the way the financial industry operates, innovates, and engages with customers and businesses alike.

Genuine transformation does not emerge overnight; innovation has relied on a stream of new ideas to provide the technological tools customers and businesses require to widen their access to products and services.

When Innovate Finance was formed five years ago, with a mandate to represent an emerging UK fintech community, the picture was different to today. The focus was on models challenging traditional approaches to banking, disrupting the incumbents' model that had stood for decades.

In the years since, peer-to-peer lending became simpler, management of personal finances became more accessible, and remittance processes became faster and more affordable.

This came as no surprise. Finance was ripe for disruption and technology provided the tools to create greater transparency, clarity and efficiency. Fintech, with its modernised approach to finance, was the necessary tool to restore public faith in financial organisations.

Pressing pause at that stage would have led many to believe fintech would take over the world of banking. The 2017 *PwC Global FinTech Report* backed that 88 per cent of participants stated they were worried about losing business to fintechs. The ecosystem changed fast, but the course of transformation has since veered for the better.

Over recent years, rapid growth of UK fintech has forced mainstream financial institutions to adapt. Now the conversation has changed; traditional incumbents are embracing financial innovation in the UK.

Banks have modernised their offerings, making their services more personal and more accessible through an increased focus on customer service, with regaining trust and transparency proving key components in this.

Take internet banking, for example, an area that has seen significant transformation. By 2015, there were 9.6 million log-ins each day, a technological engagement that has only increased with the creation and constant update of banking apps.

In 2018, this was taken further with the launch of the industry-wide open banking initiative. With the nine biggest banks and building societies in the UK already enrolled, more are projected to join. All this serves to illustrate that by looking at the new parameters of the financial market, UK banks have proven themselves capable of adopting innovation.

Progress has been made possible as incumbents are now open, receptive and ready to implement innovation on a wide scale. For a sector with such a historical pedigree for global excellence and leadership, to adapt swiftly, and at a high rate, must be applauded. It's precisely why the UK finance sector has long stood as the global leader and why it will remain the trendsetter for years to come.

We have now entered an age when there is no longer a clear divide between fintech and the traditional finance sector. Fintech is the future of finance and vice versa.

Technology has moved from being an exciting element of financial services into the mainstream, thanks to its disruptive power, effectiveness and wide appeal.

Financial institutions in the UK have demonstrated they can direct their growth in a way that fits the changing technological landscape and meet new demands of the market.

Yet again, the UK has set the global benchmark for ingenuity in the sector. By demonstrating an ability to mould themselves around the digital revolution, UK financial institutions have successfully showcased how the global sector can continue to thrive.

Charlotte Crosswell
Chief executive
Innovate Finance

INVESTING TECH

Investors are increasingly interested in apps and tech solutions that can simplify the investing experience, and while this part of the fintech market is still in its early stages, personalisation and customer experience will be key to future adoption

MOST DESIRED BENEFITS OF TECH-BASED INVESTMENT SOLUTIONS

Percentage of US investors who would use the following if provided

A **90%** Tailored investing advice

B **52%** All info is centralised and accessible

C **45%** Provides best possible returns

D **44%** Provides a customised quick and simple analysis

E **43%** Provides the ability to optimise returns and minimise taxes

F **39%** Customised portfolio with regular updates and suggestions

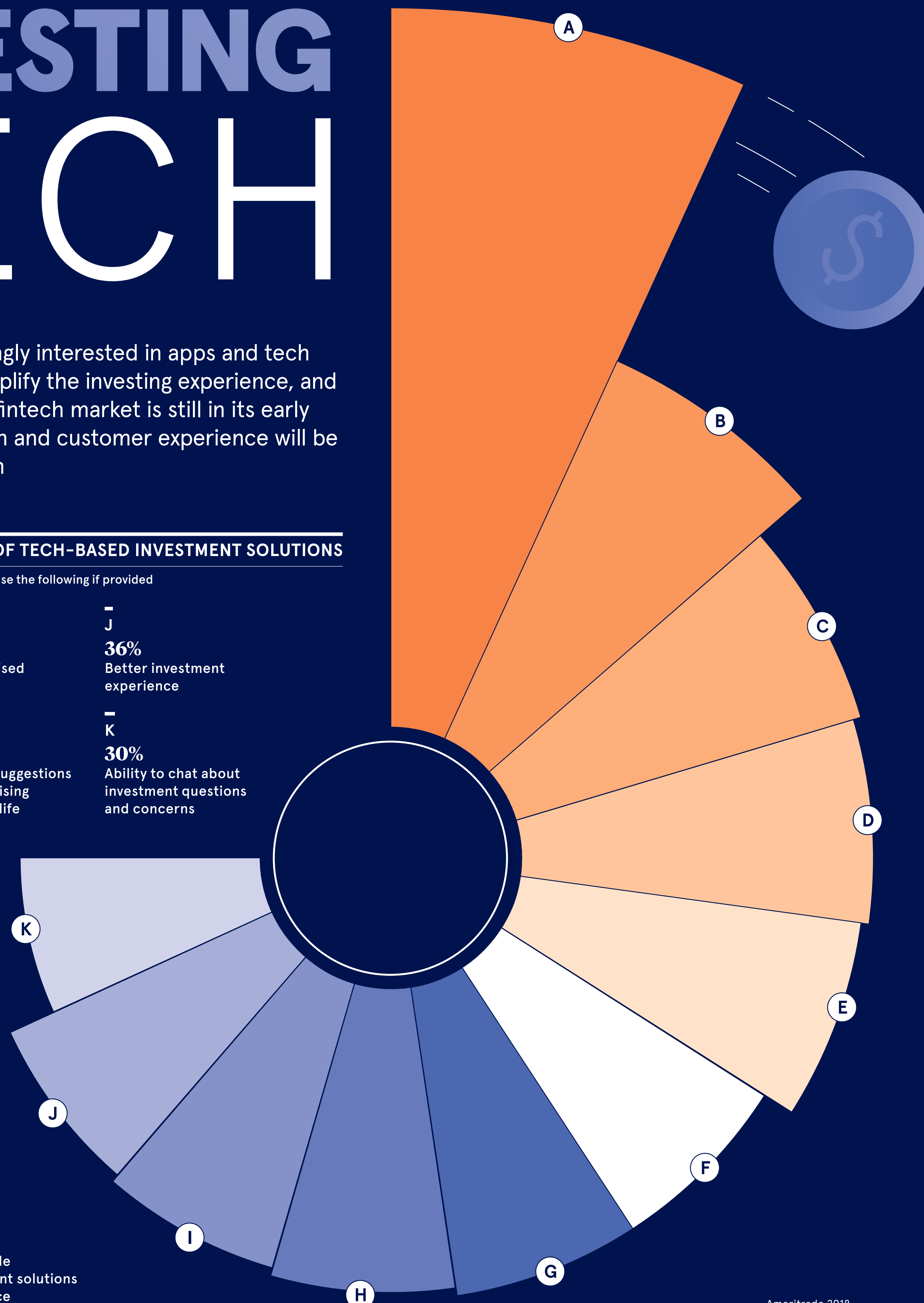
G **39%** Personalised budget

H **38%** Regular suggestions on optimising financial life

I **37%** Affordable investment solutions and advice

J **36%** Better investment experience

K **30%** Ability to chat about investment questions and concerns

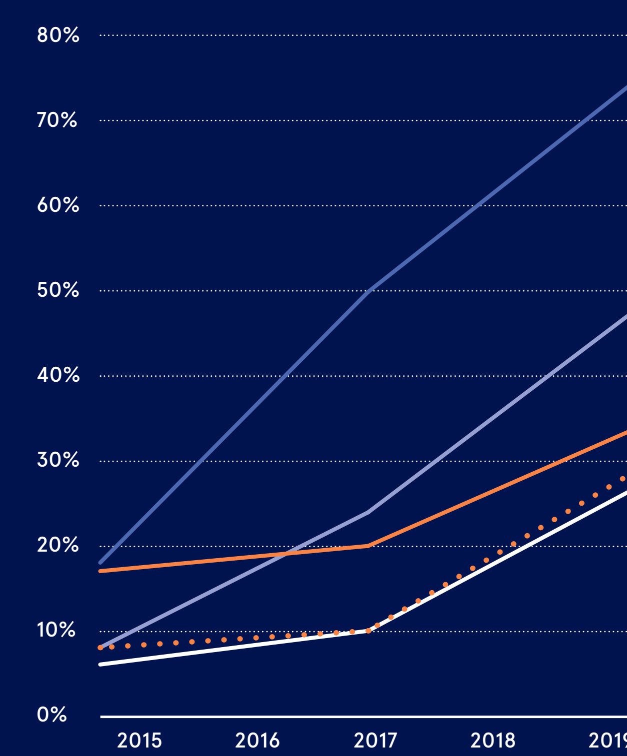


Ameritrade 2018

ADOPTION RATES HAVE RISEN, BUT REMAIN BEHIND OTHER FINTECH SERVICES

Percentage of digitally active global population who have used the following fintech solutions

Money transfer and payments — Insurance — Borrowing — Savings and investments — Budgeting and financial planning

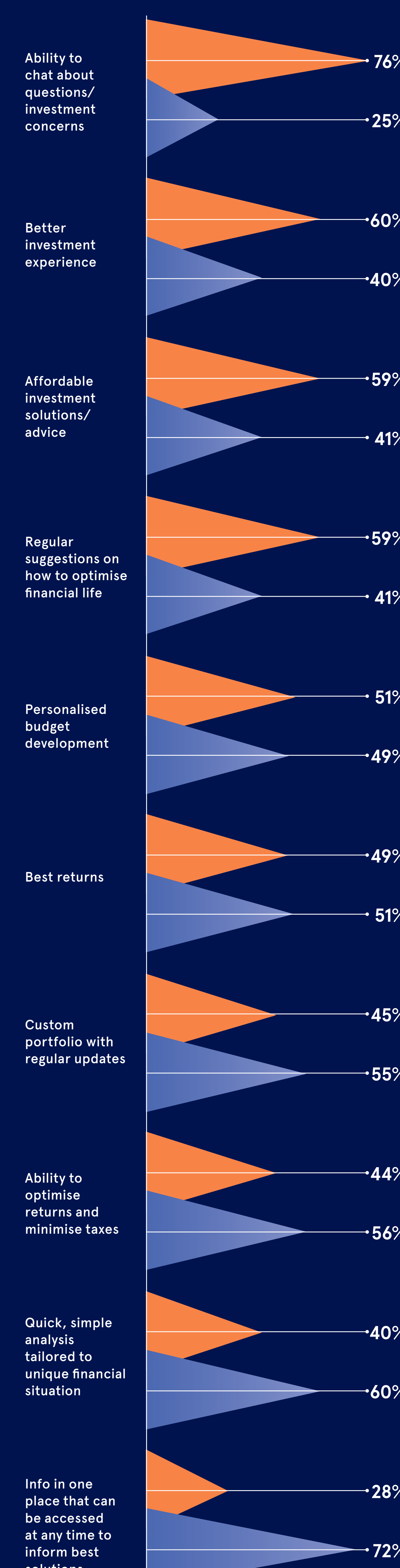


EY 2019

ATTITUDES TOWARDS HUMAN AND COMPUTER CUSTOMER EXPERIENCE

US investors were surveyed over whether a human or computer would do a better job with the following

Human · Computer

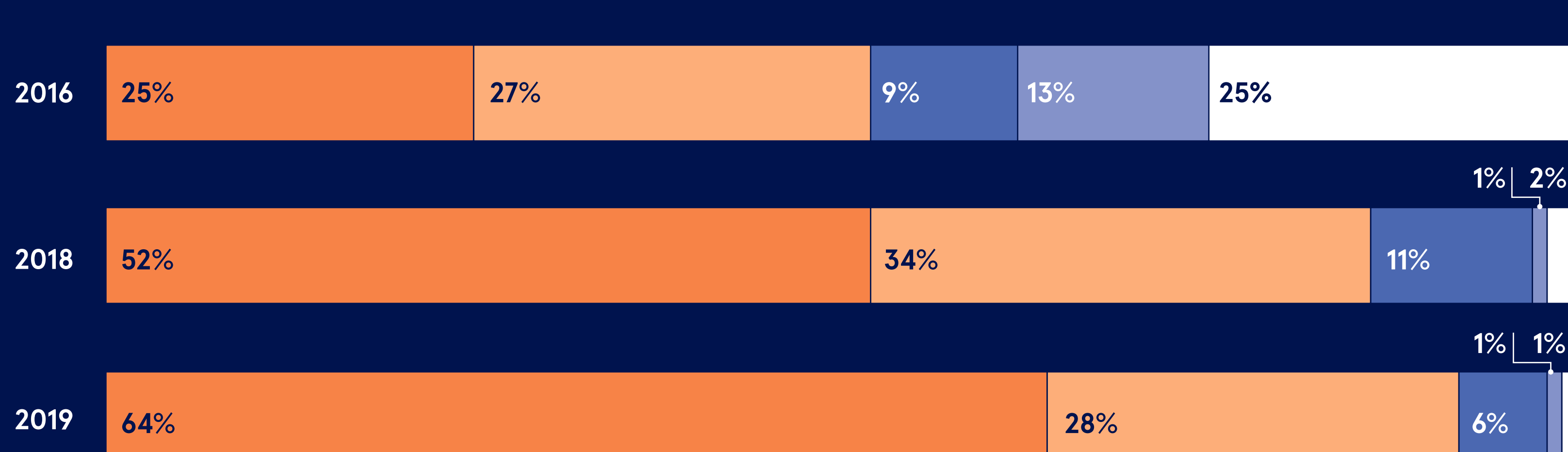


Ameritrade 2018

WEALTH MANAGERS' OPINION OF DIGITISATION

Global survey of wealth managers' attitudes toward the digitisation of wealth management services

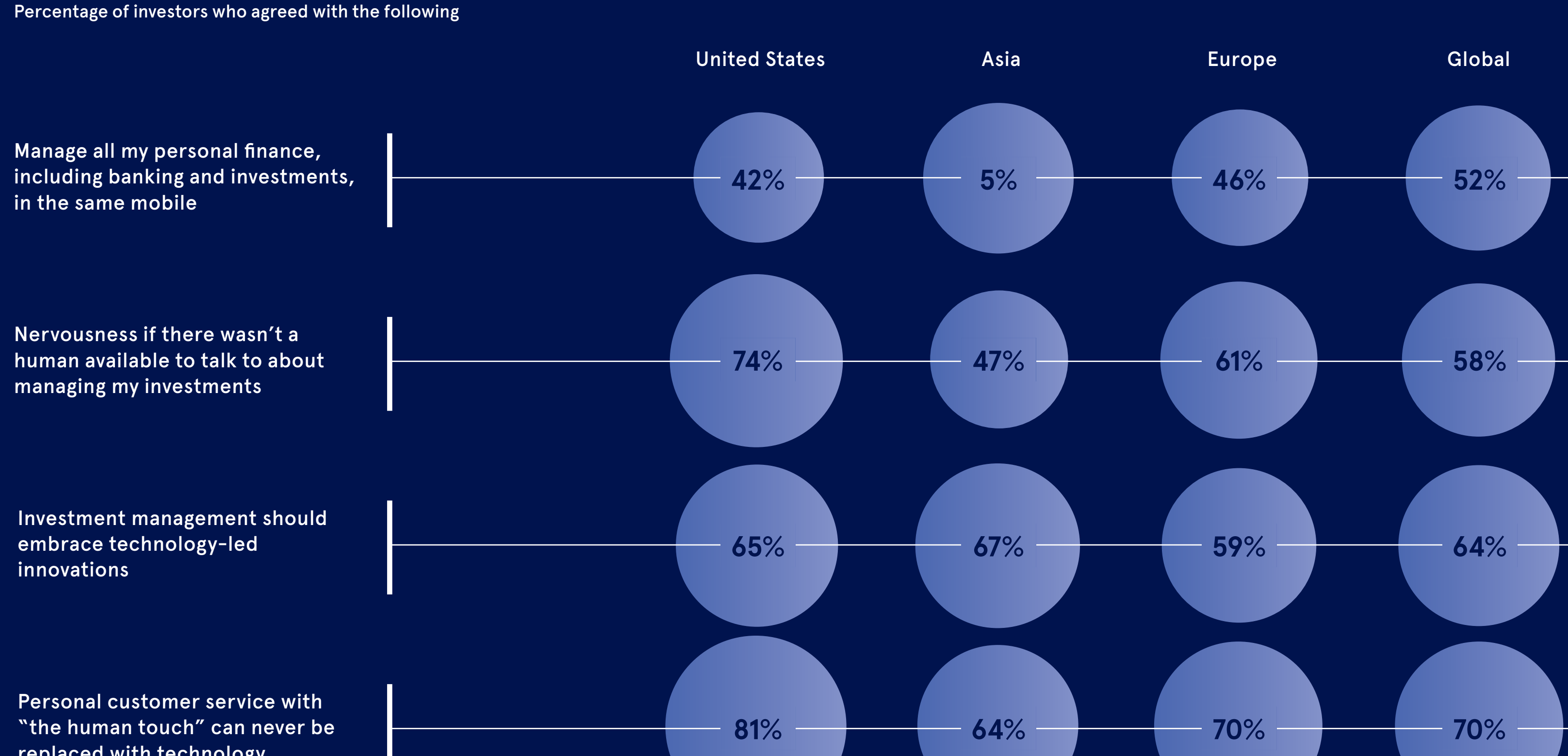
- It is essential; I need a virtual platform to do my job and enhance the client experience
- It is good overall, but it frustrates my traditional clients
- It frustrates me because I spend so much time wrestling with technology
- Digitisation is harmful to my business because it reduces personal service
- I have no opinion



Forbes/Temenos 2019

INVESTOR ATTITUDES TO TECHNOLOGY

Percentage of investors who agreed with the following



Legg Mason 2018

Jens Johnson / Unsplash

SAVINGS

The next-gen apps simplifying savings

Apps are putting consumers more in control of their money, but are they turning savers into investors?

Marianne Curphey

Anyone who has downloaded and used a savings app on their smartphone will appreciate the ease and convenience of being able to keep tabs on their money in real time.

With the advent of a new generation of evermore sophisticated mobile money apps, you can set savings goals, check how you are spending money, allocate money to different accounts and monitor your savings account.

"Savings apps have made investing convenient, available any time, engaging using gamification and seamless through round-up technology: buy a coffee for £2.40 and 60p goes into an investment account," says Joe Parkin, head of iShares and UK digital wealth at BlackRock.

One of the best-known apps in the personal finance app space is Monzo, which has developed from being a pre-paid debit card to a mobile bank account.

Others, such as Moneyhub and Money Dashboard, enable you to see all your accounts in one place, including current accounts, savings and credit cards.

With the development of artificial intelligence (AI), some apps now have built-in functionality which can personalise savings advice and nudge you into making behavioural changes or switching to more competitive deals. For example, apps such as Chip and Plum use AI to analyse spending and can reduce bills. OpenMoney gives personal financial advice to help you save for the future and manage your money better.

As a result of the gig economy, many people have irregular income. These apps, which sweep spare money into virtual savings pots, provide greater flexibility than traditional savings accounts which weren't designed for our modern working life.

"The way we live is changing fast and it's essential that the financial sector catches up," says Victor Trokoudes, chief executive and co-founder of Plum. "Savings apps are the solution to the problems caused by modern saving patterns. Many people have fluctuating incomes and less predictable and more hectic lives."

One big appeal for millennials using these apps is the ability to allocate money to specific life goals.

"Millennials want to see specifically what their savings are going towards rather than arbitrary savings accounts," says Alex Lathan, chief executive of Chip. This helps encourage small acts of saving which wouldn't have been practical with traditional deposit accounts.

People aren't necessarily always looking for a quick fix to their finances or expecting to solve their long-term saving dilemmas at the click of a button, says Samantha Seaton, chief executive of Moneyhub. But savings apps can reduce debt if people feel they are more in control of their money. Messages or "nudges" can remind the user in real time to put money aside.

"For example, a micro-saving nudge can be generated if utility bills are lower than normal or if you cancel a monthly subscription," she says.

While previously the world of investing was inaccessible for many, these apps have democratised it, making it viable to invest relatively small amounts of money. Some providers, including OpenMoney, allow people to invest from as little as £1, opening the opportunity to invest to almost anyone and everyone.

The appeal of these apps is they make saving for a rainy-day fund simpler and more accessible, and in turn that can reduce financial stress.

"It's hugely important to understand the positive impact a savings mindset can have on modern-day stresses," says Colin Dyer, head of client proposition at 1825, the financial planning arm of Standard Life. "If people can build up three, four or even five months of income, enough to cover essential bills and expenditure, it can reduce their money worries significantly."

> **Savings apps are the solution to the problems caused by modern saving patterns. Many people have fluctuating incomes and less predictable and more hectic lives**

One key question is whether this new generation of smartphone savers can be encouraged to covert their cash into a pension, ISA or stock-market fund.

Many of the apps in the UK are currently focused on cash products, says Mr Parkin of BlackRock, but Moneybox in the UK and Acorns in America are good examples of businesses that are turning savers into investors.

"Savings apps with the ability to invest money by the pence and pound, can make investing accessible and affordable to a much wider audience," he says.

Anjali Sarin, head of UK at hybrid digital wealth manager Moneyfarm, says introduction of digital financial solutions has revolutionised money management for retail investors, whether people need help budgeting or want to access fairly priced wealth management services. Now 60 per cent of users manage their pension or ISA via an app.

"Saving and investment are still distinct offerings, and the arrival of new players and digital solutions hasn't significantly changed this," says Bill Packman, head of asset and wealth management consulting at KPMG UK. "For the investment sector, however, it may take a generation or more to see universal adoption of tech platforms operating alongside the traditional adviser community."

Generational differences

Savings apps have largely, and understandably, been aimed at younger consumers. But are older savers being ignored?

"Millennials are looking for a simple and jargon-free experience that they feel comfortable using," says Tom McGillycuddy, co-founder of tickr, a savings app. "Despite there being many investing apps currently out there, 80 per cent of our users are first-time investors. Most of them tell us they were already saving money for the long term, but were doing so in interest-free accounts.

"It's clear from conversations we have with our user-base that most existing options are designed by, and consequently for, people who have invested before. And that's the main reason we think millennials haven't really invested to date."

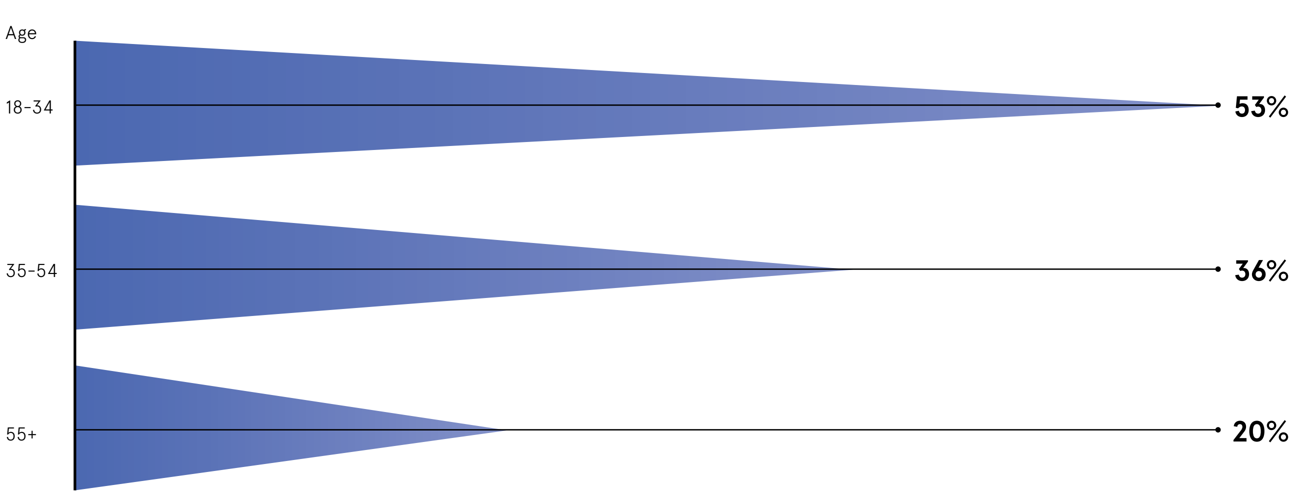
Samantha Seaton of Moneyhub says: "For those later in life, it's a lot easier to start a conversation with an adviser when a true financial picture can be examined rather than a rough sketch. This ensures that any recommendations around retirement strategy and products can be properly informed."

Anthony Morrow, chief executive and co-founder of financial advice service OpenMoney, says savings apps are relevant regardless of age or demographic. "People are drawn to the ease of use, convenience and low cost, which is an appeal that transcends all life stages," he says.

"The appeal of money management isn't confined to one specific demographic. While we understand people will have different saving and investing requirements at different life stages, these have a relatively universal appeal when the initial investment sum isn't sky high."

PERCENTAGE OF DIFFERENT AGE GROUPS WORRIED ABOUT THEIR FINANCES

Older generations are less concerned about money, which could be why savings apps are mostly targeted at younger demographics



Close Brothers 2019

Commercial feature

Playing the long game in challenger banking

At least one challenger bank aims to keep its customers happy all the time

There is no question that cutting-edge fintech startups have disrupted countless industries and revolutionised how business is done across the world. Fintech is clearly booming with positive regulations, including open banking standards in the UK, fostering strong investor interest in challenger banks.

According to analysis from consultancy Accenture, global investment in fintech ventures more than doubled in 2018 to reach $55.3 billion, up from $26.7 billion in 2017. Yet, as substantial venture capital funds flow into challenger banks, the core metrics they rely on to measure success can shift away from profitability and towards user numbers or the number of apps installed.

"It's up to each fintech to decide whether the venture capital investment model is right for them at the stage of the journey they are on," says Ali Niknam, founder and chief executive of innovative European challenger bank bunq.

"In our particular case, if we would have received venture capital money early, that would have diverted our focus into whatever metric was important for venture capital firms and away from the goal of everybody at bunq, which is to create a product people love to use."

Focusing purely on rapid growth may not necessarily be in the best interest of the users, as attention will be moved away from ensuring customers have access to an advanced banking product. In the short term, attracting new users is a much-needed element of any successful challenger bank, but keeping them active will prove equally as valuable in the long term.

2012
founded by Ali Niknam

€211m
user deposits in 2018

800%
increase in user deposits from 2017

"Most venture capital firms make an investment with a view to exit four years later and maximise their profit. There's nothing wrong with that, it's just that when a company starts, I believe it's better if it gets to go through a phase where it is allowed to interact with its users and to take the time to really create a product that is great for them," says Mr Niknam.

bunq has a very simple business model, based on earning revenue from service fees, as opposed to traditional banks that make a living based on interest spread and many other fees. "We just don't believe that in modern times the conventional banking business model leads to user satisfaction," adds Mr Niknam.

He founded bunq after seeing the damage left behind in the aftermath of the 2008 financial crisis. "I saw a lot of people suffer from it. Some were friends of mine, who were forced to sell their house, or entrepreneurial friends, who in some cases needed to quit their startup because their credit was revoked," he says.

Although the impact of the crisis was severe and widespread, Mr Niknam didn't see a meaningful response from the banking sector which reached the core cause of the financial crisis. Lack of a constructive response led him to start work on his own solution, resulting in the creation of bunq.

bunq exists to show the world that banks which try to reinvent what is available in the industry can operate, and show it is possible to be user friendly and put users first, while still being successful.

Mr Niknam believes bunq is fundamentally different from the other two groups of banks operating in the industry: the incumbents and rival challenger banks.

"bunq operates completely differently than these other players. Our service model is very simple and transparent. We are here to make our users happy and, if they are happy, they will pay us a service fee, which means we will survive and flourish. This makes our commercial reality aligned with the happiness of our users," he explains.

The vast majority of the current spread of products from both conventional and challenger banks offer customers a fee-free current account. While there may be no upfront monthly or annual fee, these banks make their revenue from other services paid for by users.

Tempting new customers in with incentives can help to inflate user numbers initially. But by judging success in terms of customer usage, rather than the total number of users they are able to attract, challenger banks will be able to gauge how successful their products are more accurately over the long term.

"Many people believe banks are free, but how can a current account be free and then banks make billions in profit? That doesn't add up and this profit is usually at someone's expense," says Mr Niknam.

Traditional bricks-and-mortar banks profit on everything from penalty fees, when the customer goes into their overdraft, to charging bumper foreign exchange mark-ups. And the vast majority of challenger banks have little or no clear route to profitability, leading to questions about how sustainable they are in the long run.

By choosing a bank based on the practical benefits they offer, including usability and safety of deposit, rather than one-off joining incentives and marketing hype, Mr Niknam believes customers will have the best experience.

Achieving the long-term sustainability of bunq is of the utmost importance for Mr Niknam, as he has invested his own money to build the challenger bank into a tool that can make life easier for users, through easy budgeting and savings.

> **We are here to make our users happy and, if they are happy, they will pay us a service fee, which means we will survive and flourish**

"I'm not gambling with somebody else's money; I'm trying to build a truly sustainable business," he says. For a great deal of venture capital-funded challenger banks, success is measured by reaching higher valuations at each investment round, locking the bank goals into a small selection of chosen metrics and little else.

"It's not necessarily about keeping customers happy, creating a great product or ensuring employee wellbeing; it's just about hitting your numbers to make that next round."

Challenger banks that are constantly seeking to increase their customer numbers rapidly can afford to only have 95 per cent of their customer base happy, as it will be cheaper to lose some users and simply replace them.

bunq has a fundamentally different mindset and works hard to keep all users happy by introducing innovative features and offering an app that gives customers the freedom to spend, save, move and invest their money on their own terms.

Through effortless card management and a myriad of other tools that give users full control over their money, bunq is making customers happy and enabling them to simplify their lives.

"Thanks to our aligned incentives, bunq has this amazing bond with our users, where we have a mutual understanding that we're in it together, as we pay very close attention to our users' wants and needs," Mr Niknam concludes.

For further information please visit www.bunq.com

REGULATION

Taking the next step in sandbox evolution

The Financial Conduct Authority's sandbox, which has successfully cultivated UK innovation in fintech, must evolve if it is to remain relevant in a fast-moving sector

Michelle Perry

Since the Financial Conduct Authority launched its Innovate programme in 2014, resulting in the creation of the FCA sandbox, it has supported more than 700 firms and increased their average speed to market by 40 per cent compared with the regulator's standard authorisation time.

The FCA continues to be inundated with requests for support from startups as well as larger established financial services firms. In total, it has received more than 1,500 requests to enter the UK sandbox.

When you consider the benefits to the firms accepted, it is not surprising it is in demand. Authorisation from one of the world's leading regulators is like a golden ticket to the global market, particularly for startups. Receiving regulatory certainty has also led to substantial funding success. Startups in the first cohort to enter the FCA sandbox have received a total of £135 million in equity funding with 80 per cent of firms still in operation.

The sandbox provides a safe space for firms to prove their business model works and that it will survive in a regulated world. The sandbox is not, however, a guarantee of survival or success. Firms entering the sandbox must ensure they have bank accounts in place, which is not always the easiest thing for startups, and that they have the capital to return cash to customers or clients should the business fail.

Samantha Emery, the FCA's Innovate head of department, says: "It's not just the fintechs that have been benefiting, it's actually more established players as well. They may be partnering with fintechs, or opening up their own innovation labs or programmes. But they're starting to mimic the behaviour [of startups]. They're starting to engage with the fintechs and that will be seen as positive because it means the whole industry is moving forward."

For example, digital identity platform Yoti, founded in 2014, was accepted into the FCA sandbox, along with Barclays, Nationwide and First Direct, among others, in 2017. Yoti used the sandbox to test consumer appetite for its know-your-customer format, which lets people prove their identity via a digital identity app. One of the hardest things for a startup is to build regulatory credibility, so an invitation to enter the sandbox is a major advantage.

"The actual entry and the forms to fill in were pretty straightforward. They were very flexible. And one of the things we really appreciated was they understood we were a scaling business; that we didn't have absolutely every answer to every question at that stage," says Julie Dawson, director of regulatory and policy at Yoti.

Suchitra Nair, director in the EMEA Centre for Regulatory Strategy at Deloitte, says the sandbox has changed positively firms' ability to enter the regulated area, whereas in the past barriers to entry were "justifiably" high.

> **What would be great is sandbox networking out into other sandboxes around the world**

"I don't think it has lowered the barriers. What the sandbox has done is create an environment where they tailor the barriers to address the specific risks and volumes of business the innovative firm wants to experiment with, with all the legal protections for consumers. I think it's made a positive contribution to the fintech landscape in the UK," she says.

Paul Prendergast, chief executive of insurtech startup Blink, says for technology entrepreneurs, ensuring they have the regulatory and underwriting side of the business right from the start is a key focus. Blink, now part of CPP Group, entered the FCA sandbox in 2016 and worked with the regulator for four months before exiting with a licence to trade.

"We're technology startup guys and it seemed obvious to us that the insurance sector was open for some innovation. But we knew before we started designing any software code that the regulatory piece was critical," says Mr Prendergast, adding that having access to the FCA's Innovate team was a huge advantage for an early-stage company.

Despite the success of the FCA sandbox, it is not immune from criticism. Harry Armstrong, head of technology futures at innovation foundation Nesta, questions the level of evaluation done on firms going through the sandbox and what happens to them afterwards. But this is an issue for sandboxes around the world, he says.

"There is very little robust evidence or evaluation that gets done on any of these kinds of programmes anywhere. Without doing interviews, it's very difficult to uncover some of the benefits or the underlying limitations. And we think that's a big issue," says Mr Armstrong.

After five years in action, the FCA acknowledges that it has reached an inflection point where it is time to take stock of achievements and consider where improvements can be made. It is a timely move because another criticism aimed at the regulator is the inability for firms that have successfully exited the sandbox to operate in multiple jurisdictions without submitting to further regulatory sandboxes.

Mr Prendergast says: "What would be great is an evolution towards the sandbox networking out into other sandboxes around the world. If you get approval from London or Hong Kong or Canada, then automatically other sandboxes will say, 'Great, you've been through the rigour of that sandbox, which we trust'."

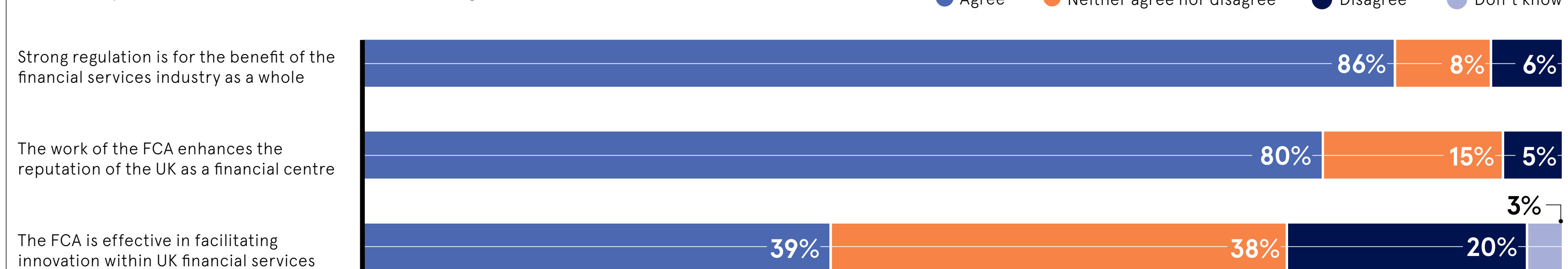
A further complaint is the lack of cross-sector collaboration with other industry regulators. The FCA's Ms Emery acknowledges all these points and says the regulator is working on the issues. The FCA has established an initiative called the Global Financial Innovation Network (GFIN), which began with a small number of international regulators, but has since grown to include around 40.

Ms Emery says establishing GFIN then prompted the FCA to consider cross-sector collaboration, which has received funding and enabled the regulator to discuss these issues with other sectoral UK regulators. They are currently sifting through responses on the idea of a cross-sector sandbox.

Acknowledging limitations is critical to the continued success of the FCA sandbox and others around the world, but the issue for startups is the speed with which regulators can move. Yet regulators are faced with the considerable challenge of balancing their main purpose of protecting consumers with encouraging innovation in an increasingly fast-paced world. It is no easy juggling act for a regulator, even one considered to be the best in the world.

INDUSTRY ATTITUDES TOWARDS THE FCA

How flexible portfolio firms feel about financial services regulation



Financial Conduct Authority 2019

Commercial feature

How to harness the power of face-to-face meetings

The world's leading banks are radically upgrading their performance

We all know that face-to-face meetings are more powerful than digital interactions. But how much more? Research by academics at Cornell and Western University in 2017 measured responses to identical requests to complete a survey made over email and face-to-face. The response? Requests made face-to-face were 34 times more likely to succeed.

The findings match other research which prove how critical it is to meet customers in person. When it comes to the really important things, such as advice on pensions, mortgages and retirement, there is no substitute.

But there is a problem. Many financial organisations struggle to arrange meetings, particularly as more business moves online. In theory, it ought to be easy to offer bookings via an online form on a website or smartphone. But the reality is very different.

One well-known British building society analysed what was going wrong.

It discovered a long list of issues. The size of the building society made it hard to process the volume of requests for a meeting. Staff manually sifted through hundreds of appointment submissions to match each and every one with an available staff member.

And there was the question of conversion rates. A lack of information on the online form meant leads weren't qualified. Staff had no way of knowing which meeting requests would be the most productive.

The building society knew how important face-to-face meetings were to customers. So it embarked on a radical rethink.

It installed a new booking system, provided by JRNI, a specialist in the field. The online form gathered rich information from each application. Members answered questions to ensure they'd be paired with the right adviser. Appointments were scheduled by the JRNI system and added to staff member's Outlook calendar automatically.

The result? Admin time cut by half. The staff time saved was spent on delivering improved customer service.

"There are times when only a face-to-face meeting will do," says John Federman, chief executive of JRNI. "The uplift from a well-organised meeting can be three to tenfold. It is critical banks and building societies make the booking process as smooth as possible."

JRNI's technology radically improves the chances of a productive meeting. It starts with the online form. Customers answer questions to enrich their basic request. The financial institution can find out vital information, such as whether the customer needs high-net-worth advice. Do they have any specific requests or needs? A well-structured online process can help generate sales momentum.

Secondly, existing information is woven into the mix. "Financial institutions have a wealth of information on their customers," says Mr Federman. "They can use this to their advantage. But it's not easy. The information may be in multiple databases, customer relationship management systems or marketing platforms. It can be a struggle to incorporate this information at scale, which is why so many organisations miss out."

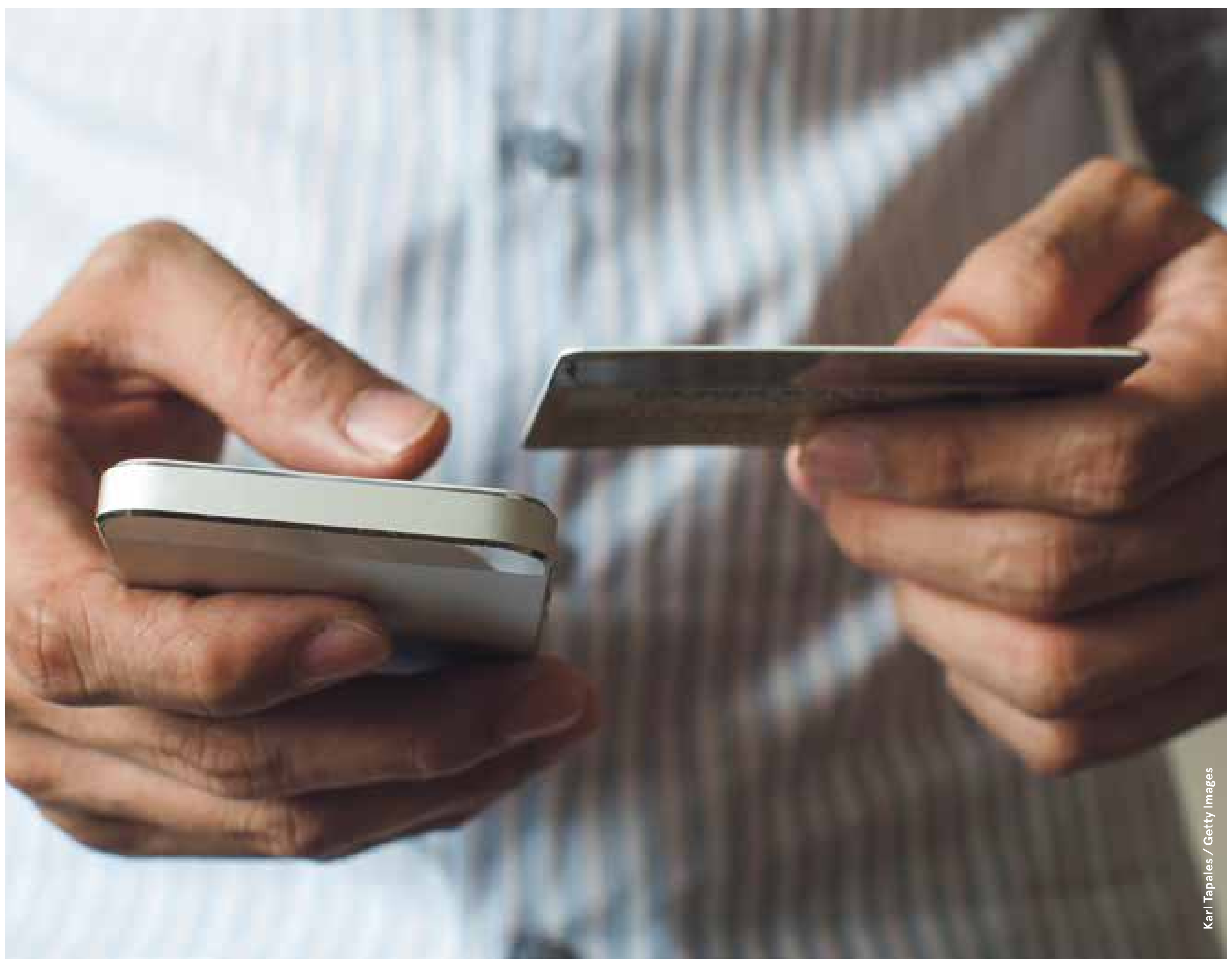
Then comes the challenge of finding the right staff for each appointment. For a large organisation, this can be a bureaucratic nightmare. Who is the right person for each request? Are they free? JRNI automates a large part of this. Oriental Bank, a major institution in the United States, cut waiting times by 50 per cent for customers by partnering with JRNI, while processing 13,000 appointment requests a month.

Security and implementation are key issues. Most booking solutions are ineligible because they don't meet the rigorous needs of the finance sector. By contrast, JRNI is cloud based with application programming interface access and meets a multitude of industry standards, including ISO 27001. It works with the largest financial institutions across North America, Europe and Asia Pacific, including Bank of New Zealand, Border Bank, US Bank and the Co-operative Bank.

"There's no point training staff to offer expert advice if they sit in branches with no appointments," says Mr Federman. "With the right technology, you can increase the number of face-to-face meetings. It's also possible to qualify leads, so every interaction has the maximum chance of a great outcome. It's clearly an area financial institutions have struggled with, which is why so many partner with JRNI. We are delighted to help them improve their customer experience in such a critical area."

For more information please visit www.jrni.com or email us at sales@jrni.com

jrni



CYBERSECURITY

Fraud: focus shifts from detection to prevention

Artificial intelligence is being deployed to not only detect cyberfraud, but also prevent it. But can AI eliminate the threat altogether?

Christine Horton

Digital banking is a way of life for many of us. In fact, almost three quarters of people in the UK regularly manage their accounts or pay bills online, according to the Office for National Statistics.

But while online and mobile banking has created a host of new channels through which financial institutions can engage with their customers, it also means fraudsters have become increasingly sophisticated in their approach.

Fraud attacks on financial platforms are considered to be some of the most complex, with banks and cybercriminals engaged in a constant battle to leverage technology for their own use. "As the technology becomes more mainstream, the potential uses for it on both sides of the divide will increase," says Robert Dean, forensic partner at KPMG.

There are many high-profile attack types, but one in particular, account takeover (ATO), is emerging as a growing threat to customers. ATO fraud is a form of identity theft where a fraudster gains access to someone else's account, changing the username, password or other personal information, and then making unauthorised transactions from that account. Incidents of this type are on the rise, with KPMG reporting a 57 per cent increase in the number of ATOs for the first half of this year.

The growth is fuelled both by a rising number of data breaches, where usernames and passwords are stolen, and the influence of the dark web where data is bought and sold, along with the cyber toolkits to carry out the attacks.

The ATO problem is compounded by consumer desire for a frictionless checkout experience, says Ajay Bhalla, president, cyber and intelligence solutions at Mastercard, who adds that not wanting to lose business, "many organisations respond by favouring convenience over security".

Nevertheless, an increasing number of financial institutions are turning to AI to detect ATO activity and fight fraudulent transactions in real time. The banking industry is set to spend more than $5 billion this year on AI systems, focusing its investments on automated threat intelligence and prevention systems, and fraud analysis and investigation.

"Combating ATO fraud relies on analysing vast amounts of real-time data, as being able to determine the risk of a situation and accurately detect suspicious activity in real time is key," says Mark Crichton, senior director, security product management at cybersecurity vendor OneSpan.

"New risk-based technologies, powered by AI, are improving financial institutions' ability to analyse huge amounts of transaction, device, geographical, behavioural and other contextual data to build up a detailed picture of each transaction. The data analysis is completed in milliseconds, efficiently detecting complex patterns and flagging suspicious, potentially fraudulent transactions that can be difficult for human analysts alone to identify."

73% of people in the UK use online banking

Office for National Statistics 2019

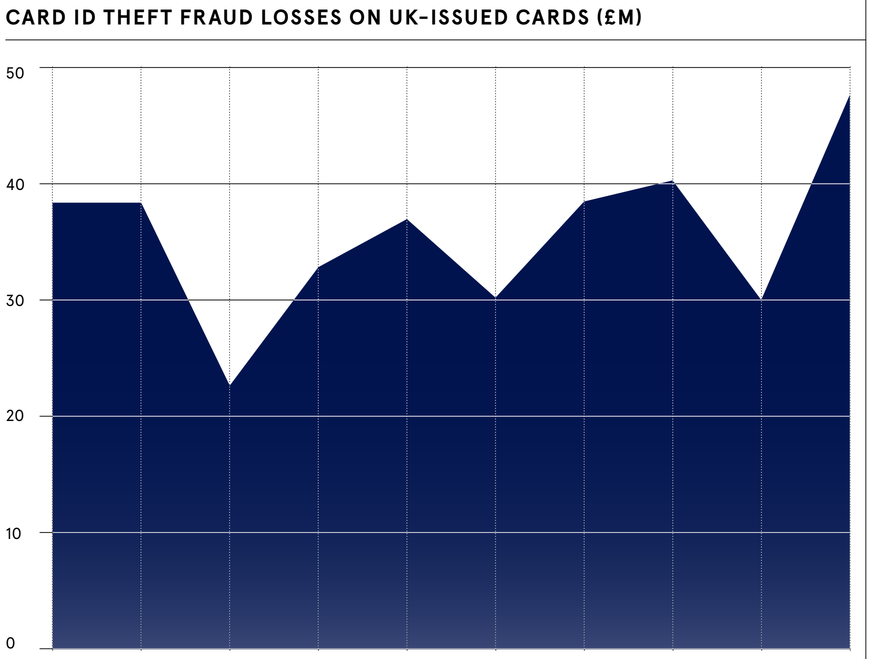
57% year-on-year increase in the number of account takeovers reaching court in the first half of 2019

KPMG 2019

$5bn estimated spending by banks worldwide on artificial intelligence in 2019

IDC 2019

CARD ID THEFT FRAUD LOSSES ON UK-ISSUED CARDS (£M)



UK Finance 2019

Mastercard's Mr Bhalla says: "AI's defining attributes – processing reams of data, learning to adapt to real-life applications – have brought greater security to online banking. And with the addition of passive biometrics, which look in real time at the speed at which you type or hold your phone to verify that you are indeed you, this added security doesn't come at the cost of convenience."

However, there are still too many cybersecurity solutions that only address fraud when ATO has already occurred and it's too late to prevent damage, according to Yinglian Xie, chief executive and co-founder of fraud prevention vendor DataVisor. She says conventional rules or model-based solutions require pre-knowledge of how attacks work to be effective. They will identify historic patterns or trends, but are not as effective against emerging types of fraud.

DataVisor uses unsupervised machine-learning (UML), which Ms Xie says helps organisations detect incidents of fraud before they take place. "You have to identify potential attacks in the very early stages and stop them before they can launch. To do this, you must be able to identify incubating accounts, recognise what they're being primed for and neutralise them before they can be harnessed for use in a major coordinated attack," she says.

"The true goal of any fraud management strategy isn't actually detection, it's prevention. Achieving this requires action from all stakeholders, the businesses, individuals and fraud management solution providers."

But while a multi-layered approach that uses machine-learning or AI will undermine cyberfraud attacks threatening businesses, it is harder to predict what technology criminals will using to launch their attacks five years from now.

"As security solutions use machine-learning and AI, and become more accurate, bad actors will be forced to move their attacks somewhere else or use other techniques," says Justin Fox, director of DevOps engineering at biometrics and behavioural analytics company NuData. "As security solutions, we have the responsibility to continuously evolve and improve to protect companies and end-users from fraud as it evolves."

But even by employing these next-generation technologies, is there any possibility of eliminating financial fraud for good? Heather Adams, managing director for financial services at Accenture UK, thinks not.

"While the financial institutions are incentivised to stay a few steps ahead of each other, they will always be a step behind organised crime. While the temptation of the money is there, the fraudsters will keep investing in how they can exploit new techniques, technologies, channels and products to gain access to the money," she says, adding that banks will still be reticent to implement anti-fraud measures that bother customers.

This situation may change following introduction of the Cyber-Attacks (Asset-Freezing) Regulations 2019 in June, which requires banks to repay any funds to customers stolen as a result of ATO.

But despite any preventative technological measures taken by banks, most fraudsters get their hands on the customer data they use for ATO through social engineering and phishing attacks. This means there is a simultaneous need for a people-centric approach to cybersecurity alongside AI in the ongoing fight against cyberfraud. ●

Bringing fairness to banking

Challenger banks and fintech startups are fast becoming alluring options as alternative banking providers, but are they any different?

Their use of innovative technologies allows them to provide cutting edge features, effortless account creation and lower fees. But are these new financial services really offering a different solution versus conventional banks?

To answer the question, we need to look at the business model of a bank. You could think of a bank as a platform, bringing together borrowers and depositors. However, normally with a platform you'd expect a much lower platform rent, nothing like the discrepancy we see between the rates charged to borrowers for overdrafts, credit cards and loans versus the rates banks offer depositors for their current and savings accounts.

Due to this high platform rent we assume banks must add extra value acting as an adviser to their customers, by helping to reduce debt and increase savings. But as long as they rely mostly on consumer debt for profitability, it will prove difficult to convince shareholders to invest in propositions that focus on helping customers to grow their money, rather than spend it.

"A sustainable business's commercial interests should be aligned with the needs of its customers. To really drive innovation that delivers customer benefits that go beyond a slick app and somewhat improved transparency, you have to start with the business model," says Aritra Chakravarty, founder of fintech startup Dozens. Mr Chakravarty previously spent more than a decade at HSBC covering investment banking, strategy, chief operating officer and digital roles.

He then left to found Dozens, a company built on a business model that aligns business interests with the customer's financial wellbeing. Dozens' financial products, app and services were designed in collaboration with 300 people across the UK to ensure it caters for a variety of financial needs.

By providing customers with simple, digital access to financial literacy and opening up sophisticated products previously earmarked for wealthier segments of the market, Dozens looks to make saving easier and more rewarding for everyone.

"We get to invest time in creating quite different features for budgeting and saving because our business model relies on it," says Mr Chakravarty.

Dozens is not a bank, but it is the only UK fintech licensed as both an e-money institution and an investment firm. In that, Dozens' offering is unique as it is able to combine a current account with smart budgeting and saving tools, as well as an investment manager, all in one app. With this integrated approach, Dozens aims to support people on their journey, wherever they are, from spender to saver, or saver to investor.

A great number of people budget by checking their balance every day, so Dozens' smart budget feature which simply takes a user's income and expenses, and calculates a budget that adapts allowing for fluctuations in spending, goes a long way to enabling users to stay on top of their finances.

"If a customer has £20 to spend a day and they go over this limit, then obviously more money has to come from elsewhere. The budget feature tracks how much you've overspent then it recalculates your budget to balance the difference across the week and keep you in credit. If you can focus on having a positive week, you are much less likely to go into overdraft by the end of the month," says Mr Chakravarty.

In addition to its budgeting tool, Dozens also offers a variety of ways to save, like their roundup feature: customers can choose to save by rounding up transactions and creating automatic saving rules, such as "save £1 every time it rains" or when someone tweets. While these features might only appear to help users save a small amount, this amount – and the change in behaviour – builds up over time and helps spenders save in the long term.

"Habitual spenders find it natural to get their account balance to zero, but when they have switched on these rules, saving is smooth and effortless, and so they are helped on their journey to becoming a habitual saver. It's all about bringing saving a little bit closer to the customer's life and then trying to make it fun," says Mr Chakravarty.

> **A sustainable business's commercial interests should be aligned with the needs of its customers**

Dozens also looks to make investing more accessible for those people who have already built some savings. Research by YouGov, Dozens and Seedrs this year found that almost half of consumers don't know what interest rates they are getting on their savings, and more than seven in ten people do not have investments.

Mr Chakravarty notes: "Banks holding retail deposits aren't structured in a way which incentivises them to help customers invest some of their savings into higher-return products, even if it's right for their risk appetite and financial situation. Any funds moved away from current and saving accounts means a smaller lending book and so less revenue."

To simplify and open access to investing, Dozens offer 5 per cent per annum listed fixed interest bonds. How are Dozens able to offer a fixed interest of 5 per cent? Because they treat the 5 per cent as part of the cost of building an entire offering around small savers, making interest rates a topic of discussion again. Dozens look to further open up the world of investing by making it easier and more accessible with their thematic portfolios and a simple onboarding journey: "With interest alignment in mind, we don't charge platform fees if your investment goes below its original value. So on those days you lose money on the investment, we don't charge, meaning we only do well when you do."

It's not just the financial space Dozens is looking to disrupt with the principle of fairness, it's the workplace as well. Mr Chakravarty is looking to redefine the culture of a financial institution. The unconventional team behind Dozens is almost two-thirds female and approximately half the employees do not have a finance background. Communications, all the way to salaries, are completely transparent and product development always starts with understanding the diverse team's financial needs, and then expanding this process to the Dozens community across the UK.

As financial inclusion is key to Mr Chakravarty's mission, the firm is also investing in non-digital customer research. They currently run initiatives such as "The People's Money Survey", a tour of the UK where Dozens seeks to understand people's financial needs and which services are needed, and a pop-up in partnership with Westminster City Council on Harrow Road, a struggling high street in London, to learn from local businesses and residents about how financial services can help revive the street.

It may seem like a no-brainer that a business' and customers' incentives should align, but in the financial industry it's unheard of. So, have these financial services actually offered a new solution? Unlike many challengers, Dozens is going beyond simply offering a user-friendly interface and is truly committed to fundamentally transforming the financial industry so it is fairer towards customers.

When investing (excluding our 5 per cent per annum fixed interest bonds) your capital is at risk. Find out more at www.dozens.com

dozens

Bloomberg / Getty Images

CASHLESS

Turmoil, panic and bank runs in a digital future

The prospect of a run on a bank in the modern era was unthinkable, until September 2007. As we move towards a cashless society, could it happen again?

Joe McGrath

A little over 12 years ago, Northern Rock fell victim to the UK's first bank run in living memory.

Scores of people queued outside branches to withdraw their money after the lender confirmed it had turned to the Bank of England for support, having been unable to repay loans it had taken out on the money markets.

Worried customers panicked and surrounded cash machines across the country. Branches were mobbed as ATMs churned out cash. Widespread panic was reinforced by 24-hour rolling news coverage on TV, in newspapers and online.

More than a decade on, with the very real prospect of a cashless society and a world where people no longer carry physical notes and coins, central banks, regulators and governments face some tricky questions.

Potentially, cash can now be transferred from accounts in greater amounts, more quickly than before and, even if banks enforce temporary limits on online withdrawals, what effect would the resulting panic have on the banking system as a whole?

"In a world without physical cash, the rules of engagement for situations such as a bank run will require a different framework," says Simon Fairbairn, director of solution development, western Europe, for Ingenico Group. "The rules and systems of today will need to evolve to accommodate the demands of a run."

Mr Fairbairn questions whether present digital banking infrastructure is sufficient to cope with sustained pressure of this nature.

"Regulation, compliance, technology; processes have all evolved to try and prevent the sins of the past, but until tested, can we really be sure it won't already be found wanting," he says.

> A digital bank run in a hypothetical future would be much more dangerous as it would happen in seconds and minutes

It may sound like scaremongering, but Mr Fairbairn's cautious view has broad support from many in the financial services community.

"A digital bank run in a hypothetical future would be much more dangerous as it would happen in seconds and minutes when clients could simply use mobile banking apps to transfer money to another account," says Susanne Chishti, chief executive of Fintech Circle.

"Such a digital bank run would be much more difficult to contain and an appropriate technical response for such a scenario would have to be coded in at the outset to offer any chance of being effective."

Of course, banks' internal liquidity monitoring processes should already have alerts in place that trigger warnings and are able to react to stop any such run, which would threaten the organisation's financial stability.

However, regardless of whether a bank is physical or digital, if customers all try to withdraw their deposits simultaneously, the bank will not be able to provide all the cash.

David Luck, chief executive of Capital on Tap, explains: "It won't remove the possibility of a run on the banks since digital banks, just like physical ones, only keep a fraction of their customers' deposits in cash."

Although advances in digital banking over the past 12 years mean fewer people would these days queue for their money outside high street branches, consumers and businesses are now far more connected through social media and technology. Rumours and panic can spread in new and different ways, and potentially quicker than before.

Proliferation of fintechs, digital challenger banks and digital currency providers that now hold assets globally also raises questions about whether risks to the financial system are more broadly spread than they were in simpler times, when competition in the banking sector was more concentrated.

Alex Daskalov, chief executive of KNØX, claims there is now insufficient risk management applied to companies managing cash in the form of digital assets.

"We need to step up the risk management that we apply," he says. "Traditional financial services companies will need to play a large role in that. There is a role for the government and regulators to play in monitoring this space and saying that financial stability is the stability of the system as a whole."

Mr Daskalov says the industry needs to be careful about how the future digital asset regulatory landscape is crafted, warning that policymakers could store up problems for the future if they do not take action now.

"Many of the financial regulations that existed in the traditional financial system make sense also in the digital assets space. Those regulations can be reapplied. Let's take some of the lessons we learnt in the last century and reapply them so that they make sense to this new digital asset space," he says.

However, the risk doesn't lie purely with new market entrants, according to Suresh Vaghjiani, chief executive and vice president of Tribe Payments, although he warns that outdated technology may ultimately be the undoing of legacy banks.

"Traditional banks need to have the ability to handle bank runs from a technical perspective rather than a cash reserves perspective," he says.

"Legacy technology is still largely used in many traditional banks, whereas in challenger banks modular and disposable technology is in high use. This allows the challengers to constantly update their infrastructure and improve the customer experience.

"The outdated IT and technological infrastructure could very well end up being the Achilles' heel for legacy banks."

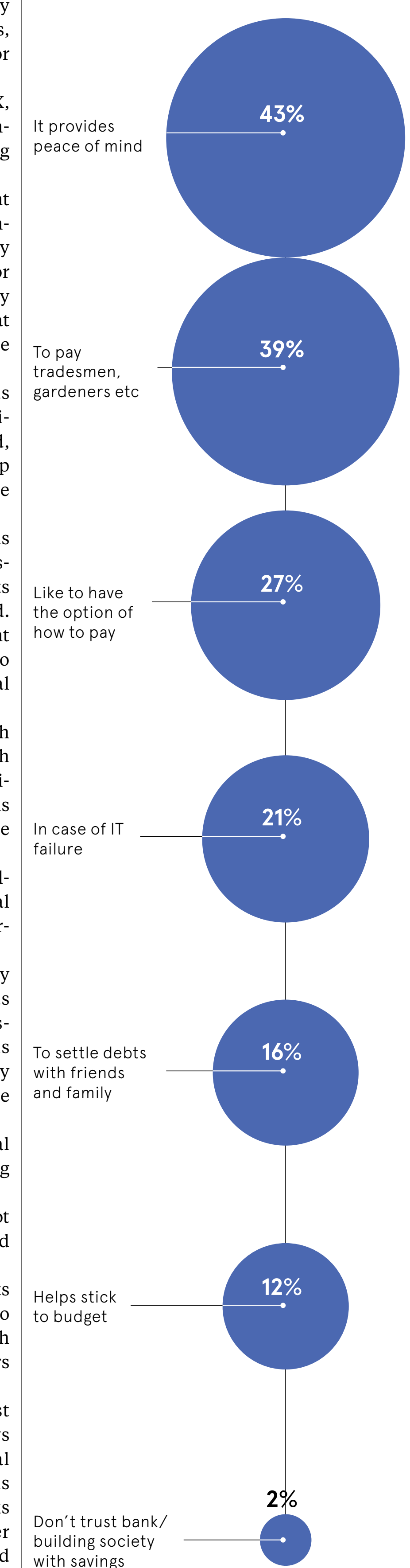
Given the conflicting views, experts cannot agree on which types of organisation would survive the next wave of banking turmoil.

While some think new market entrants have better infrastructure to respond to a run more quickly, others say their youth could count against them when customers consider who they trust.

"Bank runs are caused by a lack of trust in the institution holding funds," says Josh Gosliner, vice president of global market strategy at Juvo. "If bank runs become commonplace on digital banks or in cashless economies, smaller, newer digital banks, which have accumulated less trust, would likely lose out to traditional banks that have survived bank runs in the past."

WHY WE'RE STILL USING CASH

Reasons why UK consumers still keep cash in their homes



Access to Cash 2018

Commercial feature

Why it's time for tax transformation

Digital transformation of tax is an opportunity to drive business value

It is fair to say the tax department has historically been one of the most undervalued functions within an organisation. In many cases, long-term underinvestment means employees still struggle with outdated, time-consuming and ineffective processes.

Such is the prevalence of these error-prone processes, almost a quarter of UK businesses admit they are not confident in their tax figures.

However, change is coming. The government has introduced the Making Tax Digital (MTD) scheme with the aim of making it easier for businesses to get their tax right, thereby reducing tax lost due to avoidable mistakes. With the initiative, HM Revenue & Customs hopes to create one of the world's most digitally advanced tax systems.

The first phase of the scheme was launched earlier this year, affecting 1.2 million VAT-registered UK businesses with taxable turnover above £85,000. The next step will be to introduce digital linking between software programs in 2020. However, HMRC's long-term vision is that all businesses and individuals who do their own taxes will submit their returns online to HMRC from their own MTD-compatible software.

At a time when the C-suite is fixated on digital transformation, now is the perfect opportunity for companies to think about tax transformation.

The idea is to not only make tax more accurate, but to provide a greater level of transparency so management can make better business decisions based on its tax position. For example, imagine the value to the company if the tax manager could analyse historical data to predict the next two years' returns? The tax department instantly moves from being a resource to a business enabler.

It can be argued that the stakes are simply too high not to consider automating and digitising the tax process. Paying the right tax is synonymous with good business practice, and several businesses have hit significant financial troubles because they didn't have transparency into their finances and taxes. Investors, too, are demanding greater scrutiny into their company's tax affairs as the reputational damage and subsequent long-term loss of business can be just as harmful as any initial fallout.

For successful tax transformation, businesses need an overarching view of their organisation so they can eliminate silos of data and tie all their systems and processes together. They should look to automate manual processes in a way that mirrors what's happening across the rest of the business.

56%

of people, whose main function is tax, spend over ten days preparing, checking and submitting their VAT

1 in 4

businesses don't believe their taxes are 'very accurate'

Arkk Solutions 2019

Arkk Solutions' platform, for:sight, enables businesses to automate the entire process, from cleansing data to submission. This means chief financial officers (CFOs) and their teams can go beyond compliance, transforming their financial reporting to provide greater transparency, control and insight.

While it's not necessary to throw everything out and start again from scratch as organisations can take a phased approach to transformation, it is important to keep one eye on the future, as traceability and governance will only become more central to tax reporting.

The key is engaging the right stakeholders to elevate tax up the business agenda. This means being able to highlight the benefits of investment in tax to the chief executive, the CFO and the IT department. In the same way they recognise the competitive advantages that business transformation can deliver, it's time for the C-suite to see the value in tax transformation and how it can elevate their business.

In 2019, it's no longer acceptable to rely on spreadsheets cobbled together from disparate sources across the business or to extract data from 'black box' legacy databases to make the numbers work.

Instead of simply complying with the new MTD regulations, organisations should look at overhauling their old-fashioned processes and, moreover, consider how the tax department can start delivering real value and a competitive advantage to their business.

Interested in transforming your tax function? Please visit www.arkksolutions.com

arkksolutions

Commercial feature

Jordan Conner / Unsplash

BLOCKCHAIN

Beyond the blockchain buzz

As the biggest buzzword to hit the financial services industry in years, blockchain is attracting great interest from the largest institutions and is tipped to transform the sector. But is it living up to the hype?

Joe McGrath

When it comes to hyped innovations in financial services, few come close to distributed ledger technology or blockchain.

The technology has been gaining prominence over the past decade after its was adopted as the public ledger for all bitcoin transactions.

Since then blockchain has crossed over into mainstream financial services, with the world's largest banks, asset managers and support service operators spending big to trial projects, which they claim could revolutionise the financial ecosystem.

> **I am convinced that a number of blockchain use-cases probably don't need a blockchain to achieve the same result**

Around the world, delegates at major conferences will find seminars and lectures on exploring the use of the technology. At the recent Sibos conference, one of the largest financial expos in the world, there were no less than five seminars dedicated to blockchain. Make no mistake, the industry believes the technology is important.

"We're now seeing testing and implementation across the financial services sector, with a view that it will be mainstream in the not-so-distant future," says Peter Zonneveld, head of trade and commodities finance at Rabobank.

But Kasim Zafar, chief investment strategist at EQ Investors, cautions that some projects may be using the technology when it's not needed.

"Blockchain is undeniably an ingenious invention that has progressed well beyond the concept stage as there are already hundreds of use-cases implemented in the real world. But I am equally convinced that a number of these use-cases probably don't need a blockchain to achieve the same result," he says.

Beyond all the conference hype that blockchain is the future, there are some genuinely ambitious projects underway which could change the way financial companies do business.

Visa and J.P.Morgan, for instance, are already offering live solutions which are trying to improve international settlement times.

"They have slightly different approaches, but both recognise the current speed of settlement for businesses is not good enough," says David Janczewski, chief executive and founder of cryptocurrency insurance group Coincover.

"As individuals, we're still probably a couple of years off seeing the benefits of these initiatives, but it is good to know those benefits are coming."

Rabobank, meanwhile, is developing a new blockchain-based trading platform that aims to improve the fluidity of metals trades between banks and traders.

"It will help track metals from the initial point of trade through to warehouse storage and delivery, which will make the process more efficient, and increase transparency and traceability," says Rabobank's Mr Zonneveld.

"The vast majority of the current emails and paperwork that form part of a metals transaction will be automated and stored in the blockchain."

EQ Investors' Mr Zafar says financial services groups have invested in blockchain-related projects in syndication markets, such as loans and trade finance, and in programmes to improve anti-money laundering practices.

Beyond institutional finance, there is a consensus that research in the financial services sector will also transform consumer finance, changing how we apply for mortgages and personal credit products, through a simpler process that is less paper intensive and far easier to track.

The difficulty for finance companies, however, is that any new innovations need to work with their existing technologies. And for established giants in the world of finance, this can be a slow and tricky business.

John Garvey, global financial services leader at PwC, explains that blockchain is often a technology choice that involves replacing entire legacy systems.

"This means blockchain must be clearly superior to what it is replacing. Hence, the need to find the killer app or apps," he says.

"A number of our clients continue to search for this and one area that looks promising is custody, where the industry's technology stack is generally very old and expensive, and will need to be replaced in the coming five to ten years."

Some say the world's largest financial services firms, while keen to implement blockchain, have done so in a way that is not fully decentralised, which doesn't take full advantage of the technology's potential.

Ralph Hazell, chief product officer at banking platform Tally, explains: "The way Facebook's libracoin has implemented blockchain is quite similar to how a lot of financial services companies have looked at using blockchain, in a way that is only partially decentralised, where named organisations take on the role of miners by hosting and validating a version of the database."

This is very much an inferior use of blockchain compared to a fully decentralised version where anyone can be a miner, he points out.

However, Francesco Roda, chief risk officer at custody platform Koine, says the real issue is less about integration and more the extension of governance and regulatory procedures into an area where there is currently no regulation.

"The practical implementation is less of an issue," he says. "Blockchain is a technology rather than in itself a business solution and experienced tech teams in financial services are experimenting with the business concepts for which it is appropriate.

"The real issue is the embryonic nature of the industry, which means there is limited best practice available and appetite for risk around regulation and governance."

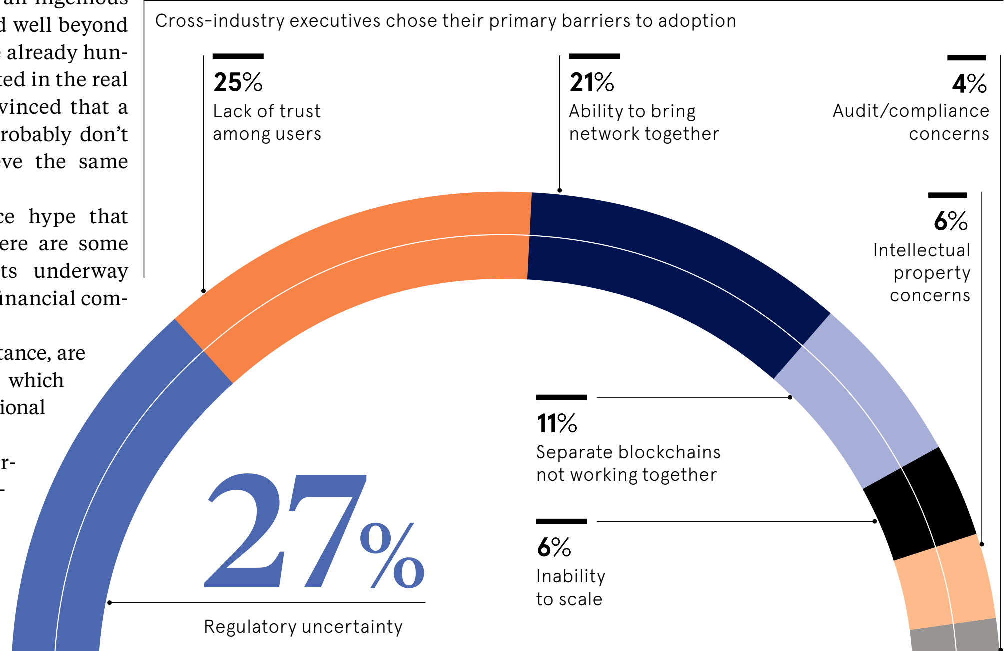
Despite the implementation challenges, there is widespread agreement that the investment in blockchain systems will prove worthwhile for the financial services industry in the long run.

Arnoud Star Busmann, chief executive at MineHub, concludes: "The value that blockchain systems can create, including efficiencies, transparency and access to finance, are far bigger drivers of change than the hurdles they need to overcome."

BIGGEST BARRIERS TO BLOCKCHAIN ADOPTION

PwC 2018

Cross-industry executives chose their primary barriers to adoption



Banks must adapt quickly to thrive in the future financial ecosystem

By 2030, the purpose, size and operations of incumbent financial institutions are expected to change substantially. As technology disrupts business models, generates new customer expectations and introduces strong competition from startups, it is essential established banks and insurers take a central and collaborative role in the new ecosystem

The global financial services sector is undergoing a customer experience overhaul and as a result the threat of new competitors is evermore real. As a new ecosystem of organisations emerges, established banks and insurers need to act quickly and assertively if they are to remain at the forefront.

Incumbents have the scale to take advantage of the myriad technological opportunities in front of them, which enable them to respond. But to do so successfully often requires a significant reconsideration of strategy, as well as how they structure operations, incentivise staff and define services, and this remains a tough challenge.

"Banks have certainly invested extensively in technological innovation, but many haven't made the extensive progress they would have liked," notes Rav Hayer, head of fintech at consultancy PwC UK. "On the flip side, numerous challengers demonstrate deep innovation and scalability, and they are aligned to customer expectations for better bank experiences, adaptive insurance, smart payments and access through online marketplaces. This is creating urgency among the incumbent players."

Smart use of data will be essential to future innovation. Developments such as open banking legislation, which ensures consumers can share and consolidate account data from, and with, multiple organisations, are raising awareness within established financial organisations about the potential impact of information-driven change.

Arthur Hughes-Hallett, financial services disruption lead at PwC UK, expects the highly data-empowered banks of the future to be able to provide sharply different services from today. "By 2030, banks won't just be somewhere that people store money, they will be much more integrated into the way consumers manage products and address their 'financial health' on a daily or even minute-by-minute basis," he says.

Incumbent players must also keep pace with the demand for more seamless and personalised user experiences. "Banks and insurers have always focused on products such as current accounts, loans and mortgages, and now they need to ask what additional experiences and platforms they can bring into the mix," adds Mr Hayer.

As banks and insurers find ways to "self-disrupt" in these areas, they will be innovating in an ecosystem that contains inherently more agile startups, which have begun with a blank canvas and often focus on a specific area rather than offering a full-service model. To preserve success, incumbents may become umbrella organisations that tap into the capabilities of myriad smaller businesses to excel in new areas.

Some will turn to mergers and acquisitions (M&A), which have long been a crucial route for accessing new business models, cultures, technology and customers, but these are not necessarily an easy solution. "M&A takes a considerable amount of time, effort and money, and even when there is a great culture and skillset on offer, it can be difficult to integrate and then react quickly enough to changing customer demands," says Mr Hayer.

This means many banks and insurers will instead consider partnerships with these fast-growing startups, including offering each other a route to specific markets and even sharing services. "In most cases, we see fintechs and incumbents working together to drive solutions and services forward," he notes.

Such partnerships will be essential to help banks access a more innovative culture, given that many have wanted to recreate the spirit of innovation seen among the likes of rapid-growth fintech businesses Klarna, Stripe and Monzo. They may also enable smarter incentives for staff around ideas and experimentation.

"If a bank incentivises staff based on the success of a longstanding product, where is the motivation to think about longer-term innovation?" asks Mr Hughes-Hallett. "Banks will increasingly think about incentivising people in a different way, in which there is value placed on trying out new ideas."

For the new ecosystem of innovative, collaborative partnerships to thrive, transparency between all participants is essential. Regulators may empower the change by working more closely with all players, to ensure innovations and new technology, including artificial intelligence and robotics, can be delivered to customers safely and effectively. Regular industry-wide engagement will also help ensure access to talent meets demand.

The banking sector of 2030, therefore, will be a complex ecosystem that centres on collaborative innovation and experimentation. Mr Hughes-Hallett adds: "Incumbents need to find agile ways of working, enabling more integrated and personalised customer experience, rather than the approach of one size fits all. The new ecosystem will be essential to this step-change."

Indeed, incumbent organisations are increasingly establishing teams across the globe to identify the best innovators to work with. Many large banks and other established financial services organisations, and newer firms, turn to PwC to ensure they choose the right route to collaborate, be it through partnership, shared services, outsourcing, mergers or acquisitions.

PwC guides businesses throughout identification, selection and due-diligence processes for partnerships, and into the long term of working together. It has extensive experience helping incumbents to build a fintech strategy, transform existing operations through smart technology and collaboration, and foster a culture of innovation. Meanwhile, it works with numerous startups to assist in growth and partnering, explore funding opportunities and maximise the success of collaborative development.

"Making the most of this ecosystem is of high importance for incumbents and newer players," says Mr Hayer. "The number of banking licences issued in the UK in recent months is a clear indication that Britain is very much at the forefront of fintech innovation and is transforming quickly. As a new ecosystem grows, those acting consistently to be at the forefront will gain a very substantial competitive advantage."

> **Britain is very much at the forefront of fintech innovation and is transforming quickly**

76.5k

people work in fintech UK-wide, 42 per cent of which are employees and entrepreneurs from overseas. This number is set to grow to 105,500 by 2030

1.6k+

fintech firms in the UK and this number is estimated to more than double by 2030

82%

of incumbents expect to increase fintech partnerships in the next three to five years

$3.3bn

of VC, PE and CVC investments into UK fintech in 2018

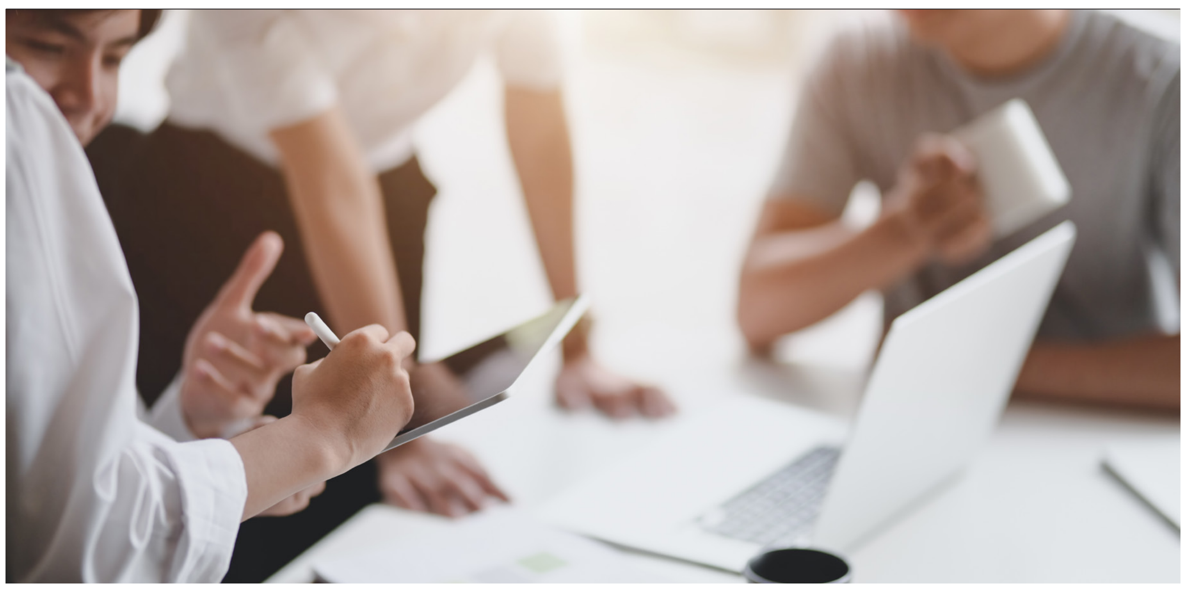
64k

number of financial and professional service firms in London – the world's highest concentration

HM Treasury and the Department for International Trade

To find out how to make the most of the new financial services ecosystem please visit pwc.co.uk/currency-collision

Commercial feature



Regtech gives banks the operational resilience they need

With operational resilience set to be central to the financial services sector's success, regtech is enabling banks to improve decision-making and adopt a more preventative approach to risk

Operational resilience continues to be a key focus area for the Financial Conduct Authority and other regulators. Risks facing a bank's operations have escalated as the cyber landscape continues to evolve. With many financial institutions still sitting on legacy systems that may be more vulnerable to attack or disruption, it is becoming exceedingly more difficult to maintain critical services.

Outages could not only result in substantial regulatory fines and business downtime, but also reputational damage. Banks that achieve real resilience in their operations and core services, even amid disruptions, will enjoy a competitive advantage and long-term sustainability in the years ahead. To achieve this it's crucial banks shift their focus from investing only in fintech innovation on the revenue side of their business to also bolstering their regtech (regulatory technology) capabilities on the cost side.

Regtech helps organisations to digitalise their traditionally manual processes where spreadsheets and endless email chains have long reigned. Through the adoption of smart technology, such as machine-learning and cloud computing, which banks are already implementing to offer savvier fintech products, they can address compliance requirements while supporting their cost-cutting efforts to boost profitability.

> **Regtech leverages next-generation technology to make financial institutions more agile**

"There has been a lot of innovation on the revenue side of banks, but not so much on the cost side," says Karl Viertel, chief executive of regtech firm Alyne. "Fintech began in traditional areas like payments then moved into services, such as portfolio management or algorithmic trading, which also help enhance the revenue side. How can we defend our position as a bank? How can we leverage fintech to increase our revenue capability?

"Meanwhile, there have been massive costs with which banks have had to contend. Every time a new regulation pops up, banks hire someone new, usually a consultant, who would build yet another spreadsheet and things just get bloated. It is now time to take all the proven capability we've seen transform the revenue side of banks and bring it to the back office. It's a much less sexy side, but it's where the bank's profitability really lies at the moment."

While financial institutions may previously have gained an understanding and generated data around specific risks or resiliency of their individual systems, there was less focus on understanding what makes an entire service operationally resilient and how executives can make informed decisions on maintaining that resilience.

When banks use more service providers and outsourcing, the ability to ensure the stability of the financial system is paramount in allowing payments and other financial products to be accessible by customers at all times. Operational resilience becomes even more important as banks increasingly work with fintechs because the depth of value delivery drastically decreases.

"We're no longer in a time where we are challenged to obtain data," says Mr Viertel. "Banks have tons of systems delivering enormous amounts of data. However, to strengthen operational resilience, so that stakeholders can make smart decisions to retain the resilience of their services, you need information. That's where regtech comes in."

Alyne combines critical data to make information available to all its stakeholders and leverages next-generation technology to make financial institutions more agile, from prevention to response and recovery planning. It can take operational risk key performance indicators and new regulatory requirements around operational resilience, understand them in the context of the organisation, its processes and applications, and present relevant information to the stakeholders who need to make a decision.

This capability is provided by Alyne through software as a service, which quickly and objectively evaluates criticality of assets, services and processes for any organisation. It automatically analyses requirements, standards, laws and regulations, and understands how they are relevant to maintaining compliance and operational resilience. Alyne's solution also enables firms to quantify the operational risks to the resilience of their services.

Operational resilience is just one example of how regtech is assisting banks. It is also helping them to identify customers through know-your-customer processes, preventing money laundering or terrorist financing by using artificial intelligence to detect suspicious patterns. Regtech provides new ways to influence employee behaviour so they're making smart decisions, acting in a compliant way and not endangering information assets. However, it is operational resilience that will be the greatest differentiator in the years ahead.

"If you look at any financial statement of a bank, the cost side is going to be drastic, especially on IT and compliance, compared to the gains you can make on the revenue side," says Mr Viertel. "Our customers have achieved cost-savings of 60 to 70 per cent depending on the process. Though it may be harder to quantify, risk transparency is equally as important in terms of value to banks, giving them better insights and understanding of their risk exposure and therefore avoiding regulatory fines.

3-4x

increase year over year in customers utilising operational resilience use cases within Alyne

Alyne

"By embracing regtech, banks can also enable their people to be more productive and do smarter things. Banks hire incredibly smart, well-trained and expensive resources in risk, security and compliance roles, but a lot of the time they just end up massaging data because that's the tooling they have available. Compliance and risk may not be directly revenue driven, but it's obvious that having expensive people massage spreadsheets is not the best bang for your buck. Regtech upgrades their capabilities and enables them to focus on core bank solutions."

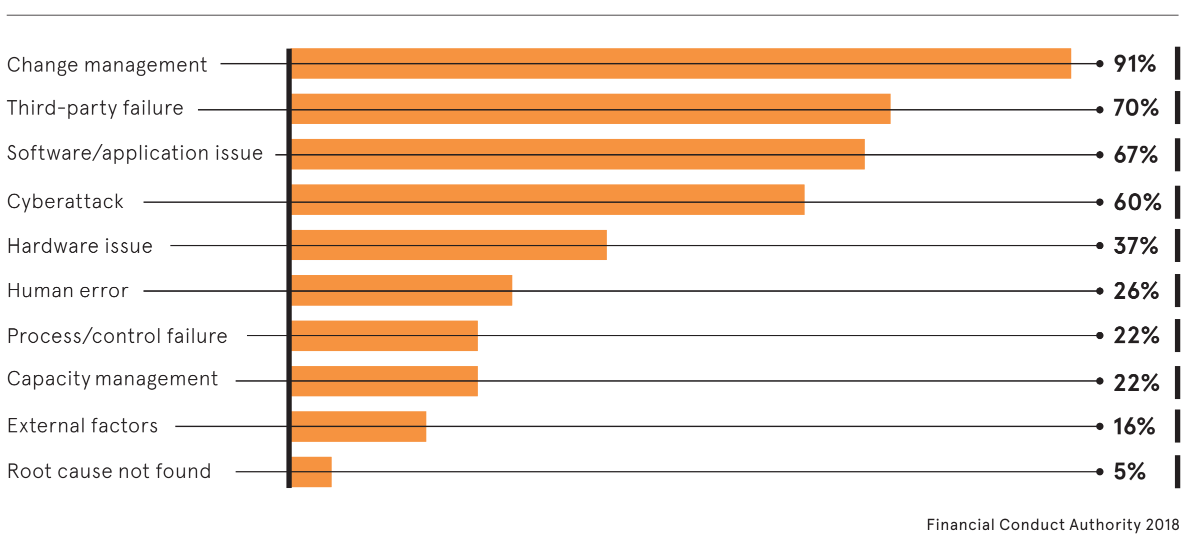
With most banks currently in the midst of digital transformation, it's important they leverage the full capability of regtech solutions, rather than for only one or two use-cases. Every digital transformation strategy involves creating a large data lake of information to draw upon. The data is there and the regtech solutions are there, but too many banks are struggling on the people, culture and change management side.

"Banks lack the mature capability or have poor resilience targets. They are drowning in a sea of data, with no accurate sense of how resilient they really are," says Mr Viertel. "It's not enough to just provide new technology, you actually have to help people along on this change journey, embracing new technologies and doing things differently.

"A lot of what's happening in compliance and risk is detective in nature; banks put capabilities in place so they can realise when something has gone wrong and then put out fires. Regtech will enable them to move into a more preventative approach and it's vital they reach this phase quickly because in my view regulators will soon require organisations to prevent non-compliance actions happening via technological measures. That's the product vision of Alyne.

"We want to help people and organisations make smart and informed decisions, and at the same time consume that information in real time to detect and prevent non-compliant or risk-increased behaviour from happening."

ROOT CAUSES OF INCIDENTS REPORTED TO THE FCA BETWEEN OCTOBER 2017 AND SEPTEMBER 2018



Financial Conduct Authority 2018

REGULATION

Indonesia tightens net on digital loan sharks

Regulator shuts down hundreds of unlicensed firms hunting for easy prey, but what drove the explosion in illicit activity?

Richard Brown

When a national financial regulator orders almost a thousand fintech startups to cease trading in less than a year, you know something's amiss. Judging by the ongoing debacle, if fintech in Indonesia was credit scored as a sector, it would never even get a micro-loan.

In the first nine months of 2019 alone, the Indonesian Financial Services Authority, known as the OJK, had shut 826 unlicensed fintech firms for a range of dodgy practices, ranging from charging inflated fees to strong-armed debt-collection tactics. Since the enforcement action by the OJK against rogue traders began last year, some 1,230 fintech firms have been forced to shut up shop.

The clampdown came despite a voracious appetite for innovative banking and financial services apparent across the largely unbanked Southeast Asian nation in a region renowned for lacking mass financial inclusion. Consultancy PwC estimates 70 per cent of individuals and small and medium-sized enterprises in Indonesia do not have access to traditional sources of finance.

With over 260 million citizens, the world's largest Muslim nation has proved too tempting for thousands of ambitious – and some shady – entrepreneurs seeking to lure people without credit cards or access for formal banking services to online borrowing.

A report released in July by PwC estimates fintech lending will reach 223 trillion Indonesian rupiah (IDR) or £12.8 billion of accumulative loan disbursements in 2020, up 214 per cent from 2018. The sector also has the potential to add IDR19.4 trillion (£1.1 billion to the financing gap of micro, small and medium-sized enterprises, while boosting credit access for individuals by 12 per cent.

Tongam L. Tobing, chief of the investment watchdog at OJK, has marshalled police and public in a bid to find other illegal fintech firms, whether luring customers through social media, mobile apps or websites.

Indonesia earlier this year sought to ensure Indonesians did not fall victim to fintech fraud or unethical practices – that had spectacularly plagued China in recent years – by tightening rules for online lending platforms.

The OJK introduced caps of 0.8 per cent per day on interest rates, mandated that lenders obtain online signatures for all contracts, secure permission from the IT Ministry and work with micro-insurance firms and credit-scoring firms licensed by the regulator. Fintech firms must also only partner with debt collection agencies registered and licensed by the Indonesian Fintech Lenders Association (AFPI).

Fintech in Indonesia has myriad triggers, according to PwC. The country's burgeoning cohort of unbanked, plus its small businesses largely beyond the reach of traditional financial services, have spurred the creation of hundreds of digital-only financial services startups.

A dearth of reliable infrastructure and professional risk management services also rendered small firms and individuals untapped by conventional lenders a ripe market for new fintech entrants.

"Globally it has been the case that regulation generally is behind innovation and Indonesia is no exception to this trend," says Ravi Ivaturi, advisor at PwC's Jakarta practice.

Offering a vast population scattered over 17,000 islands – only 10 million live in the sprawling capital, Jakata – given adequate coverage the reach of digital financial services trumps that of bricks-and-mortar bank branches and easily eclipses their queue-and-wait appeal.

With an estimated 267,000 lenders and 5.2 million borrowers, according to PwC, Indonesia's fintech lending ecosystem is on a roll. Yet a mere 99 operators are currently registered with authorities. They have to date disbursed IDR25.9 trillion (£1.5 billion) worth of loans.

PwC cites innovative approaches, such as online-to-offline (O2O) channels as well as alternative data for credit assessment, as further reasons leading to the surge in fintech in Indonesia able to attract those deemed 'credit invisible'.

Startups' operating costs beat those of conventional lenders, too. Instead of physical documents to determine eligibility, digital identity and footprint are used by fintech startups in Indonesia.

In its report, entitled *Indonesia's Fintech Lending: Driving Economic Growth Through Financial Inclusion*, PwC cites key drivers of fintech growth across the archipelago: surging mobile phone subscriptions; soaring fintech lending due to closer links between industry stakeholders; and the roll-out of critical IT infrastructure and digital identification processes. Combined, these developments result in more expansive coverage and accelerated know-your-customer procedures.

"We see Indonesian regulators getting their act together and supporting the industry in a very constructive manner," claims Mr Ivaturi. He points to clear licensing requirements for fintech lending companies and a code of conduct through the AFPI and Indonesia Fintech Association. "This initiative has created a conducive ecosystem for innovation while ensuring customer protection."

> **Globally regulation generally is behind innovation and Indonesia is no exception to this trend**

The OJK's fintech sandbox initiative is also cited for attracting a number of fintechs to test their disruptive technology within a specified protected data set, where successes and failures can be analysed without causing any form of systemic risk to borrowers or the wider economy.

The collaborative approach is the key differentiator, according to Mr Ivaturi. "Learning quickly from past incidents in the market and setting regulatory policy which is supportive of growth and at the same time providing customer protection is very unique to Indonesia."

Lessons from India

Fintech in India is growing at a rapid clip. A report by NASSCOM forecasts the Indian fintech software market will command $2.4 billion in sales by 2020, up from $1.6 billion in 2016. Last year, there were an estimated 400 fintech companies operating in India, riding a rising tide of digital payments.

Billionaire Vijay Shekhar Sharma and his company Paytm have helped propel India's fintech startup scene. With a valuation of $10 billion and 300 million registered users, Paytm achieved rapid growth thanks to its virtual payment wallet and spurred by the withdrawal of high denomination banknotes in November 2016.

According to a 2019 report issued by India's Department of Economic Affairs, Ministry of Finance, "Fintech, while offering myriad opportunities, also poses threats – arising out of illiteracy, ignorance of risks."

As a result, the PM Gramin Digital Saksharata Abhiyaan (PMDISHA) has been launched to enhance digital and financial literacy of 60 million rural

citizens on the advantages and risks of digital financial services and channels. The scheme's main aim is to help rural communities fully participate in an increasingly digital world and "empower at least one person per household with crucial digital literacy skills by 2020", according to the PMDISHA website.

Laws to ensure consumers have meaningful choice and control over their personal data, combat online fraud and reduce the risk of mistaken transactions are also being discussed at ministerial level.

INCLUSION

Immigration: can fintech help with the transition?

Immigrants face an array of financial hurdles when arriving in a new country and some startups are now offering services unavailable from established institutions. True inclusion, however, requires a concerted effort from wider stakeholders to support such initiatives

Gouri Sharma

Yemen-born Rushd Averroës, founder and chief executive of fintech BABB

Ten years ago, Rushd Averroës moved from Yemen to the UK to study. Keen to start settling into the country straightaway, one of his first steps was to try to set up a bank account. But, as he soon found out, getting access to finance wasn't as easy as he had hoped.

"It was very hard," says Mr Averroës. "Almost every traditional bank I went to didn't let me open an account because they said I couldn't prove my identity. Even though there were many ways to prove who I was, the banks only wanted to use the system they had been working with for years. This is where immigrants can feel excluded because a bank account is a basic human right."

His difficulty in accessing traditional banking services is a common one among the world's nearly 30 million refugees and asylum seekers. Their financial inclusion is being restricted by banking rules that prevent access to finance, not only opening a current account, but also getting a business loan. This therefore impacts how quickly new arrivals can start growing financial roots.

Swati Mehta Dhawan, researcher and consultant on the financial inclusion of low-income households, has studied access to finance for refugees and asylum seekers in Germany, where immigration has significantly increased over the last few years, amid the arrival of nearly one million people, notably from Syria and Afghanistan.

"As people get into the system and integrate, they will end up performing a lot of financial firsts, like getting a rental contract, opening a bank account or registering a business," she says. "They are bound to make mistakes because they don't understand the system or the new language very well. While support for integration in the labour market was in place, we found that when it came to financial aspects, the support was not there."

This gap within the context of immigration can, however, be filled by fintech solutions. In the past few years, companies such as Leaf, a virtual bank that allows refugees to save and transport assets securely across borders, and Now Money, a digital bank for migrants in the United Arab Emirates that helps them send remittances cheaply and easily, are playing a role in banking the unbanked.

US-based Accion Venture Lab, the seed-stage investment initiative of global non-profit organisation Accion, is supporting Leaf and has just launched a $23-million fund for inclusive fintech companies.

Vikas Raj, managing director of Accion Venture Lab, says: "From our perspective, the opportunity is twofold. There is more opportunity for fintechs working with migrants and refugees by using the same tools that others are already leveraging. Leaf, for example, is using a whole set of tools that didn't exist ten years ago, including mobile money and blockchain. That would not have been possible before because not everybody had a mobile phone and blockchain was just an idea. We have these tools now."

The issue is mainly down to discrimination and misunderstanding. Ms Dhawan says: "It's important not to see refugees and immigrants as one homogenous group. These newcomers might have had limited interaction with formal banking systems, but in many cases they are successful entrepreneurs, skilled savers, have built assets and have extensive social networks for borrowing and lending through difficult periods.

"The problem is a lot of it was outside the formal financial systems and these skills cannot be transferred to countries that are highly formalised. This is where fintech can play an important role and move beyond traditional banking systems. It can help people build credit histories and, crucially, help in areas like remittance and lending."

After his experience, Mr Averroës has founded his own company to address access to finance for the unbanked. Using blockchain and biometric identity, BABB aims to decentralise banking and provide peer-to-peer banking services to the global micro-economy. Through the BABB app, which launches officially in the next couple of months, users can open a UK bank account, send and exchange money.

He says: "We are designing for the micro-economy, so our system is much cheaper, and we require very basic identification at the beginning. The system is very inclusive; we are getting to the root of the issue."

> "Almost every traditional bank I went to didn't let me open an account because they said I couldn't prove my identity

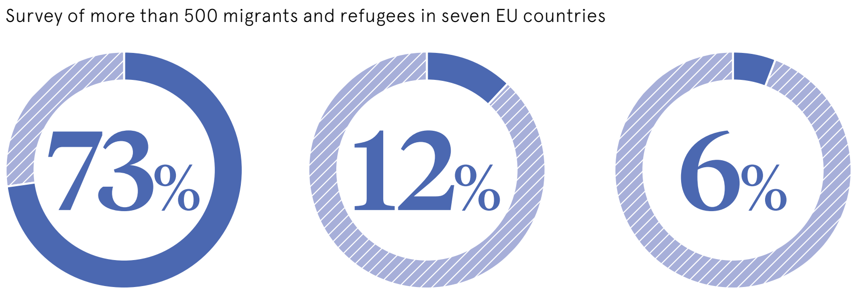
Despite some of the benefits fintech solutions can bring to immigrants and refugees, analysts say more needs to be done to ensure the full financial inclusion of such people in their new countries.

Scalable efficient solutions are still in their infancy, according to Mr Raj, who calls for both more innovation and wider engagement with the problem. "We need more startups innovating in this space, looking at models that work by leveraging technology, which didn't necessarily exist before. Then you need investors like ours and our peers to support those companies. Finally, we need larger institutions, regulators, civic society, to integrate with these markets. That's what needs to happen. A whole heap of stakeholders needs to get hip to this."

Similarly, Mr Averroës says local and central banks need to get involved. "The issue is not with immigrants and refugees only, or even the unbanked. What about the banked? In some cases, they are the families of the unbanked and need a platform to make a payment. We need one bank for the micro-economy that caters to everyone. I believe connectivity is everything. If we are not connected, it will be very hard to build a financially inclusive platform," he concludes.

MIGRANT TRANSITION

Survey of more than 500 migrants and refugees in seven EU countries



are very dissatisfied with the integration services provided

have heard about the availability of small loans for refugees and migrants

of those who had heard about microcredit did actually apply for it

European Migrant Advisory Board 2019

Five common financial challenges facing immigrants

Getting used to a new banking system, access to finance and documentation are among the most common obstacles during the transition

1 Fleeing their homes

With many refugees fleeing their home countries during times of conflict, taking and keeping hold of IDs such as passports or birth certificates is not always possible. Traditional banking regulations such as know your customer, which aim to tackle money laundering, make things particularly difficult for refugees and immigrants because they aren't always able to comply with these strict demands. Fintech solutions using biometric data make it possible for people to be identified through alternative means. Iris scans are being used in refugee camps in Jordan, with data storing how much cash and products an individual should receive.

2 Saving and accessing

A refugee's journey can be dangerous and travelling with financial assets can make them more vulnerable. Virtual banking using mobile phones is one fintech solution that provides access to finance at a later stage. Companies such as Leaf are working to alleviate risks. The company is using blockchain to convert money into stable investments. The company says: "Whenever the refugee reaches a point of safety, they can withdraw into the new local currency or use their balance as collateral on a micro-loan. Leaf's platform offers a secure, affordable, convenient way to safeguard and transfer money across borders that ultimately leads to an economic identity."

3 Considered high risk

Studies show that traditional financial providers don't understand the financial needs of refugees and immigrants, view them as high-cost and high-risk clients, and therefore restrict their access to finance. As Micol Pistelli, financial inclusion expert at the United Nations refugee agency UNHCR, says: "Providers lack information on livelihood opportunities for refugees, the business case for serving them and their credit risk, and so they make assumptions. Typical assumptions tend to be that refugees are only in the country temporarily, that they are dependent on aid and that they don't have any assets." Analysts say fintechs don't have the same high-cost and risk implications, so can offer a more cost-effective solution to its users.

4 Remittances

According to the World Bank, remittance flows to low and middle-income countries is expected to reach $549 billion this year. Transaction fees and other costs that come with traditional remittance services can often make it very expensive for someone to send money back home. There are a number of companies working with technology to make this process easier and cheaper. These include InstaReM, which offers rates at much more competitive levels than traditional services, and Now Money, a digital bank that works with employers of migrant workers in the United Arab Emirates.

5 Getting used to the system

Refugees and asylum seekers are confronted with various challenges once they reach a new country. In many cases, they are starting afresh with a new language and they don't know or understand complex financial or benefits systems. This may lead them to avoid, or to not being able, to put their money in banks. They may also have to rely on more informal sources for loans, further delaying formal financial inclusion in their new country. Fintech solutions give the user more control and privacy over how much data they share. Additionally, they are able to kickstart the financial inclusion process by building digital financial records.

MARKETING

Cutting through the noise to win hearts and minds

Fintech startups and challenger banks have disrupted the entire nature of financial services, but establishing value, market differentiation and trust is tougher than ever

Bloomberg / Getty Images

Daniel Thomas

Fintech leaders have been successful at disrupting the traditional financial services industry, but they can find it hard to win the trust of clients and customers, and prove they offer value.

Take the challenger Metro Bank, which has built up more than 1.7 million customers in the UK since it launched in 2010. Earlier this year the lender, which prides itself on doing things differently – for instance by keeping branches open seven days a week and offering fee-free transactions in Europe – saw queues of worried customers outside its branches after an accounting error sparked fears about its finances.

As its shares plummeted, rumours circulated on messaging service WhatsApp that the bank was facing difficulties and urging savers to withdraw their money from accounts. In fact, Metro Bank was still profitable and would resolve its difficulties within weeks through a lightning-speed rights issue. But at the time, the fake news prevailed.

It's hard to imagine a traditional bank facing such problems, but when it comes to fintech challengers the same rules do not always apply, particularly when they are consumer-facing operators such as digital banks. Customers may be wowed by the perks and flexibility offered by these nimble startups, but they still crave the credibility and certainty the incumbents provide.

Rav Hayer, UK fintech lead at PwC, says it's even an issue in the much bigger business-to-business side of the market, where fintechs sell their wares directly to big banks and financial institutions that know more than the average consumer about the sector.

"One of the issues has been if a small organisation can offer you a solution to a problem, how do you scale it effectively without it going wrong? The other is that big financial institutions have been so tied up in regulations since the financial crisis, in terms of capital controls or personal data, that it has restricted them working more closely with startups, which don't have to meet such stringent standards," says Mr Hayer.

On the whole, however, he thinks attitudes are starting to change as regulators become more proactive about understanding fintech and banks appear more willing to take risks. In short, they have realised that if they don't work with the market entrants, they could end up being left behind. "New fintech companies have shown consumers what is possible and if the incumbents don't work with them, they won't survive," he says.

Martin Stiller, fintech expert at IDC, sees an increasingly competitive fintech market emerging in which the biggest issue will be standing out from the crowd. He says: "Chief information officers at big financial institutions are overloaded with messages from emerging startups pitching their solutions, so differentiation is key."

To cut through the noise, Mr Stiller says fintech leaders need to build direct relationships with banks or promote their services through third-party marketplaces. Promoting themselves through thought leadership or by networking at exhibitions, such as Finovate in the United States and Europe, is another powerful way to build awareness.

A further route has been the in-house startup accelerators run by banks such as Goldman Sachs and Barclays. Through these schemes, fintech startups get to develop their ideas, network with potential buyers and improve their credibility, not to mention secure growth capital. For the big banks running the schemes, it's an opportunity to meet and learn from groundbreaking new businesses that might help them in the future.

Big institutions use other routes to find out about fintechs, too. Research companies, such as IDC and PwC, may advise them on which startups are hot and those that are not, for instance, while tech intelligence services like CBInsights offer useful market information.

Mr Stiller points out that many financial institutions now employ fintech experts in-house, so they can make more intelligent investments and see through the hype, which still surrounds the sector. "We've seen hundreds of startups incorporate buzzy technologies like blockchain and artificial intelligence into what they do to inflate their market value, so corporate buyers need to be careful," he says.

In addition, institutions are increasingly turning to third-party marketplaces to find fintech services, examples being Mambu, Temenos and Finastra. These portals pre-select good fintech companies and do due diligence on them on buyers' behalf. According to an IDC survey, 30 per cent of European banks have already purchased a cloud solution through a marketplace.

> We've seen hundreds of startups incorporate buzzy technologies into what they do to inflate their market value

"Banks can use them to build a really unique IT stack based on best-of-breed solutions," says Mr Stiller. "The marketplaces do the onboarding too, so integration is easier. A good analogy is the Google or Apple store, which lets you build a unique platform for your phones."

At present, most marketplaces are run by specialised banking IT vendors that offer a handful of third-party solutions from fintechs alongside their own to make life easier for clients. These vendors tightly control what appears on the platform, only adding services that complement their own offering, says Mr Stiller. However, he says in future we are likely to see open marketplaces offering a much greater number of competing solutions.

Whatever the route to market, Mr Hayer believes demand for innovative fintech companies is only going to grow. Traditional financial institutions and fintechs will increasingly work together to solve problems in the coming years, he says, as consumers demand better and more personalised financial services.

Driving all this is the fear that if incumbents don't adapt their own offerings, a much bigger threat could end up overtaking them.

"Big digital companies have so much valuable data on their customers and their habits, and could quite easily enter the space," says Mr Hayer. "If Amazon, Apple or Facebook started lending money, I think consumers would be very much for it. You could even end up seeing one of these giants buying a traditional bank at which point the sector would really change."

BANKING-FINTECH COLLABORATION

Top reasons why European banks have relationships with fintech companies