

FINANCIAL SERVICES TECHNOLOGY

05 FIVE TOP CENTRES OF FINTECH INNOVATION

07 FREEDOM UP SUPPLY AND TRADE FINANCE

08 WHY OPEN BANKING IS A REAL REVOLUTION

WORKPLACE CULTURE

Keeping up with the march of the robots

Automation may pose a threat to jobs, but it also puts an added psychological pressure on staff who have to keep pace with the robots

SAM SHAW

If you are experiencing stress and frustration buying a home, to hear that a loan application could take as little as three seconds will make you question your choice of lender.

Such was the example given by Atom Bank of the fastest decision it was able to make for a customer.

"The whole thing has been set up with customer choice in mind," says Stewart Bromley, chief operating officer at Atom. "Because we started as a fully automated, self-service bank, there's no change process to manage."

Yet many financial institutions are not that lucky and significant job threats hang over central business districts the world over.

McKinsey issued a report last year that suggested as many as 800 million roles

would be displaced by robotic process automation (RPA) by 2030.

But what is RPA exactly? Leslie Willcocks, professor of technology, work and globalisation at the London School of Economics' Department of Management, describes it as taking the robot out of the human.

"RPA is a type of software that mimics the activity of a human being in carrying out a task within a process," he says. "It can do repetitive stuff more quickly, accurately and tirelessly than humans, freeing them to do other tasks requiring human strengths, such as emotional intelligence, reasoning, judgment and interaction with the customer."

In a world where we make payments with our watches and a dulcet-toned female called Alexa gets more attention from husbands than wives do, our capacity for even the slightest delay has become

almost non-existent. So it is little wonder the robots are taking over.

But there are some false assumptions being made. Gartner found that by 2019 RPA could have hampered top-line growth for 50 per cent of organisations focused on cutting costs when they needed to look at the bigger picture of the psychological impact.

Walter Price, head of Allianz Global Investors' technology team, has been investing in the sector for more than 40 years. Effectively, scenarios fall into two camps: companies delivering the automation solutions and those whose roles are being automated, he says.

Placing the human aspect at the heart of the process and not just looking at the bottom line will set companies apart, says Mr Price.

"There is quite a difference between the companies that manage the progression and redeployment of their people, and see

it is not just about reducing costs. Over the long term, those companies gaining in ascendancy are the ones trying to and focus on their employees as their most important asset."

And as ever, with technology there is rarely a return journey and in financial services even less so.

"On Wall Street, RPA is already widely adopted. You had very sophisticated clerical jobs where traders were highly compensated. Now as price discovery has become easier with automated systems, disclosure of trading is very easy to do," says Mr Price.

Anxiety caused by the perceived threat of robots needs addressing; management could be nervous over how to implement changes or employees, perhaps older and more set in their ways, could be wondering if they are still relevant.

Often concerns are exaggerated. Virtusa is a global technology consultancy that works in the banking sector, where Bob Graham is global solutions head for banking.

He says it is rarely an "all or nothing" scenario; perhaps on tasks that had already been outsourced to a cheaper off-shore centre, for example.

"We are seeing some of those tasks coming back in-house, where the robots are taking over the tasks and incumbent staff will manage the robots," says Mr Graham.

Also, rather than entire roles being automated, it is more likely that, say, 10 per cent of a job may be given to a robot, freeing up employees to take on more interesting, strategic or challenging work, he says.

In marrying finance and technology cultures together, Monica Mendiratta, a chartered business psychologist working in financial services, says culture, dress code, creativity and ability to adapt are some of the key differences that have characterised various sectors. She says companies that first acknowledge and then embrace these differences are best placed to succeed.

"In the tech industry, people are quite comfortable with the idea of failure," Ms Mendiratta points out. "We need to spell out these differences before we approach scenarios, open a dialogue and identify our unifying goals. It is not so much a cure [for culture clash] but a diagnosis." She highlights how the pace of change is key, exacerbating the fear of adoption.

Sam Fuller, founder and director at The Wellbeing Project, believes pace of change is one thing, but the ability of the employees to cope with that change is quite another, and relies on training and recruitment.

"My generation used to say there were peaks and troughs in our working day, and we could always recover," says Ms Fuller. "Now all our clients say it's all peaks, and we have to build in those times when we can recalibrate and refresh in order to have an attitude like that."

But while technology may help operationally, the hindrance might be the corresponding psychological impact, even though the millennial generation may



800m

jobs could be displaced by robotic process automation worldwide by 2030

McKinsey

Organisations focused on cutting costs when they needed to look at the bigger picture of the psychological impact

handle the "always-on" or automated work culture better than their predecessors.

"Although we criticise millennials for always having their phone on, in terms of work they have adapted in being able to step back and calibrate," says Ms Fuller.

"I think the challenge employers have is how to accommodate millennials and recognise they will need to step back, and how that benefits healthy performance and their health, wellbeing, creativity and innovation if they're not working out of threat, and completely switched on and exhausted."

But are financial services firms so pre-occupied with capitalism and the bottom line that any psychological impact is simply ignored?

Professional business coach Mark Mulligan, who runs Thriving London, says it is more a matter of priorities.

He concludes: "If you look at what is happening in the workplace as a process, organisations need to work out what they can automate, how it will work and if it is financially viable before they can begin to work out the possible psychological impact on their people." ♦

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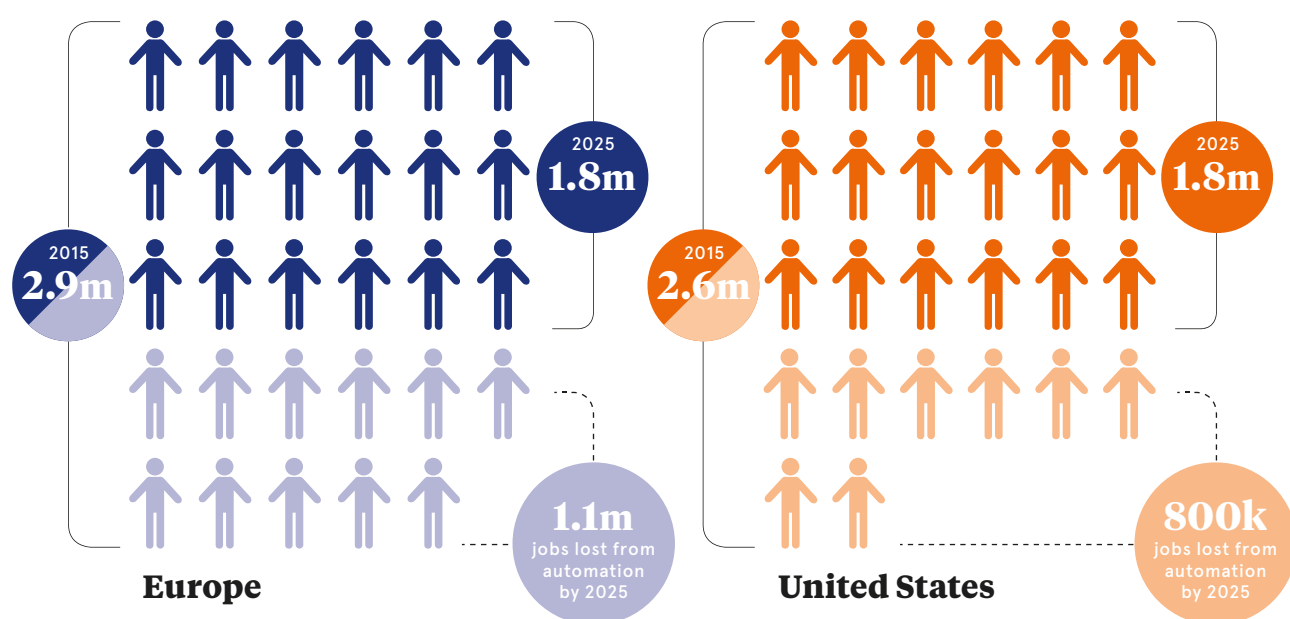
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Banking jobs under threat from automation

Number of people employed in the banking sector

1 person icon = 100k jobs



US Bureau of Labor Statistics/Citi Research 2017

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HOW DOES YOUR DIGITAL ECOSYSTEM GROW?

With data expertise from Capco.

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CAPCO

Digitalisation is driving the future of banking

Smart digital business models will unlock a wave of new opportunities, innovation and revenue streams in a rapidly digitised banking landscape, says leading business and technology consultancy Capco

The banking landscape as we know it is changing. A new wave of technology is revolutionising the way customers engage with their finances. From social to mobile capabilities, banks are having to rethink the way they do business to deliver a better customer experience and remain competitive.

The recent introduction of open banking and the Payments Services Directive 2 (PSD2) regulation is accelerating this transformation by placing power in the hands of customers. Banks must now allow customers to share their financial data, such as spending habits and regular payments, with authorised third-party providers if customers wish to do so. To navigate this uncharted reality, banks must ensure their digital offering is fit for purpose.

Dan Jones, partner and head of Capco's UK Digital practice, says convenience, speed and flexibility are no longer considered attractive add-ons, but have become a standard expectation of the rapidly changing customer-bank relationship. According to Mr Jones, successful organisations will be those that can keep pace with customer needs and demands, and embed appropriate services into the wider ecosystem of digital products.

Agile approach

Banks traditionally operated in silo channels, with different business areas operating independently of each other. Although they accumulated vast amounts of data about their customers, such an approach could not provide specific insight into customer activity, needs and preferences from which to develop new products tailored to the individual.

For Mr Jones, the pace at which regulation and digitalisation is developing means banks need to adopt an agile, iterative way of working to remain competitive. They need to put the customer at the heart of the design process and take new products to market quickly.

"The introduction of open banking and PSD2 will see a new way of banking emerge," he explains. "It will allow the industry to innovate and enhance customer service, and help new entrants gain a share of new financial products and

services. But banks will only stay ahead of the game if they embrace an agile approach and view the changes as an opportunity rather than an obligation."

Of course, the move to this new way of working does not come without its challenges. Large banks have built their technology and data around individual products and channels, and are beholden to legacy systems.

Banks need to reach a point where they understand the needs of the customer, without taking any direct feedback

To overcome this, banks must invest in technological capabilities that allow them to become more intelligent about customers' needs, says Mr Jones. They must incorporate the right architecture to respond quickly and drive an agile culture throughout all the corners of the business.

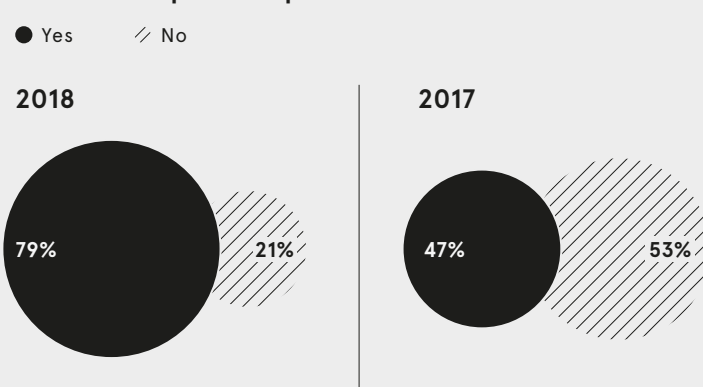
Chris Probert, Capco partner and head of UK data, explains: "Both top and bottom-line growth depend on banks overcoming the challenge of large and costly legacy infrastructures. As transactions and services continue to move from the physical to the purely digital, banks will find speed to market and flexibility invaluable."

Smart data

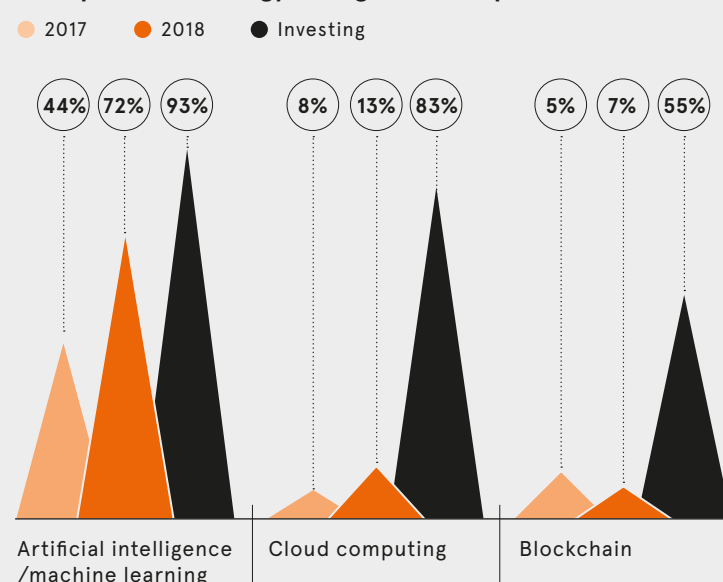
Tech-savvy customers are increasingly seeking a user experience nuanced to their particular needs. Central to a bank's success in the digital economy is therefore the data they accumulate about customers and intelligent ways of processing it.

Digitalisation and data are so tightly entwined, one could not function without the other. You only need look at the phenomenal success stories of Amazon, Facebook and Google to understand the impact customer data has on customer experience.

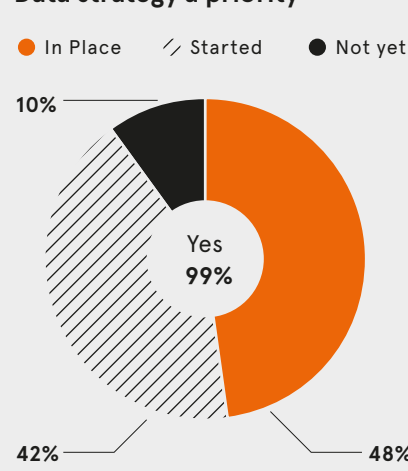
Fear of disruption/displacement



Disruptive technology with greatest impact



Data strategy a priority

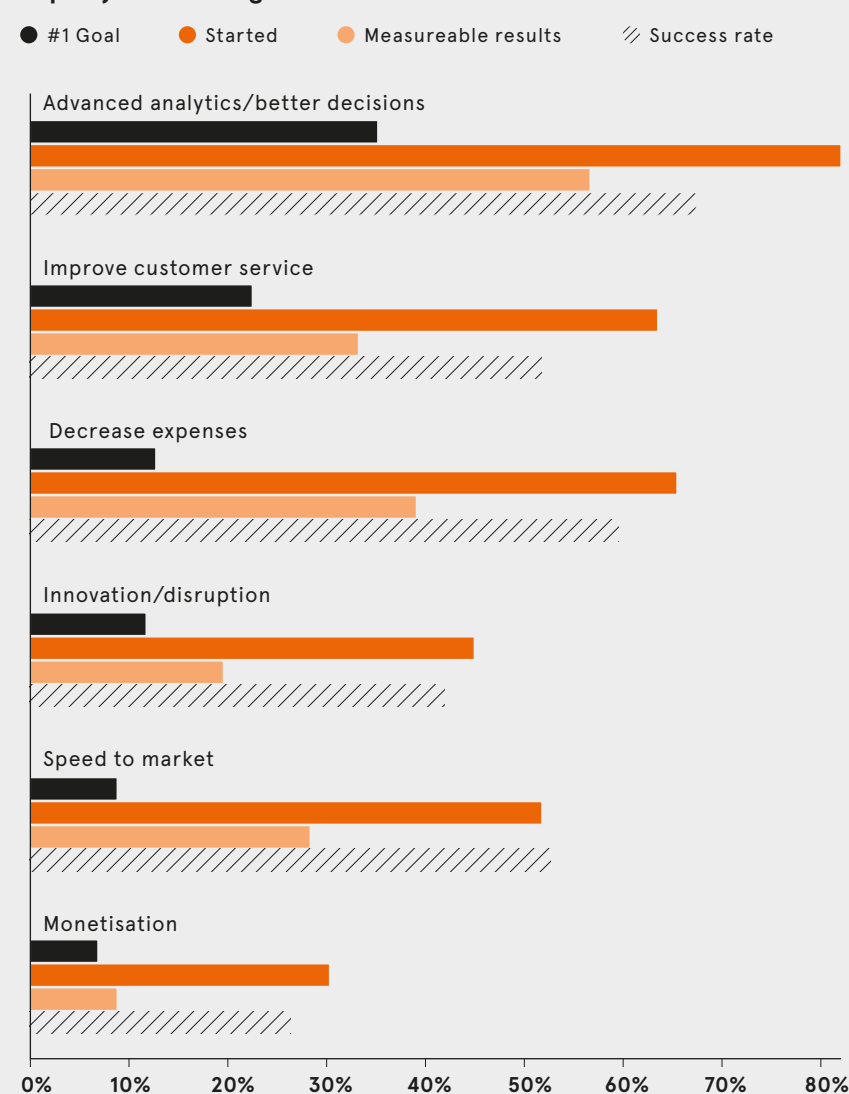


Business adoption of data initiatives remain a challenge

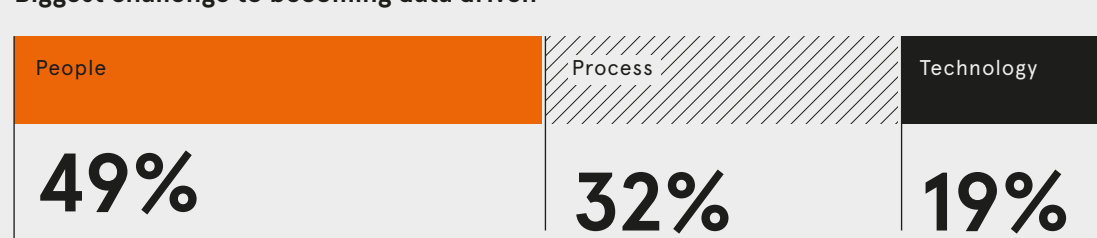


Big Data Executive Survey, NewVantage Partners 2018

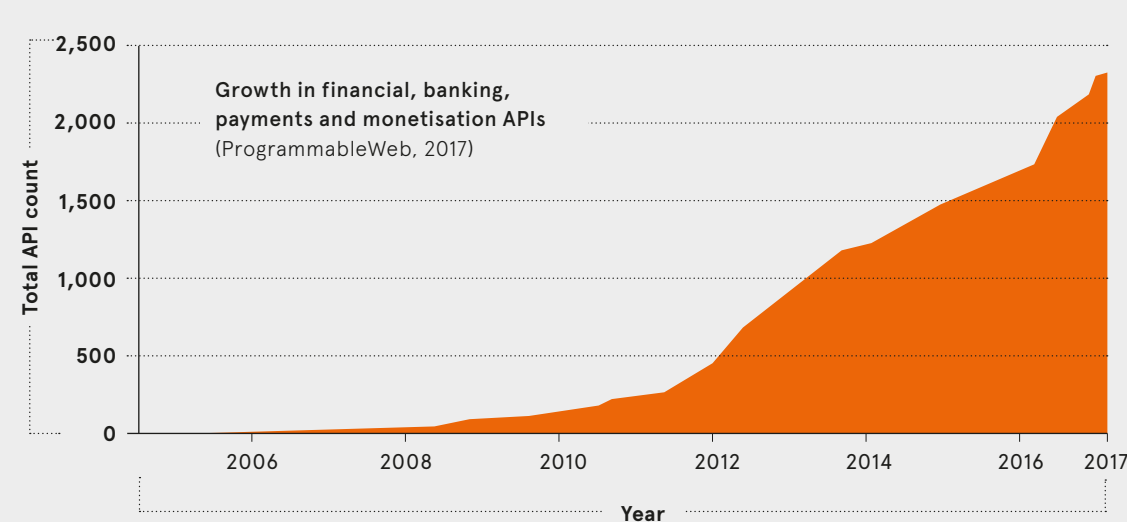
Top objective of big data AI investments



Biggest challenge to becoming data driven



Growth in financial services APIs



While challenger banks have the distinct advantage of being agile and customer centric, legacy banks potentially have the upper hand due to the sheer volume of data they hold, as well as being trusted, long-established brands.

Mr Probert says: "Legacy banks have a huge challenge in implementing digital strategies, but if they harness the data they have and maximise the effectiveness of its uses, they could develop successful client-orientated products. What they must not do is sleepwalk into the future and be leapfrogged by the challengers."

For both legacy and challenger banks, the operative word is "harness". Captured data is only useful if banks can use it effectively. Banks must ensure they have easily accessible, high-quality data. This

is where technology such as data virtualisation has a key role to play.

"It's not about volume; the true game-changer will be the application," says James Arnett, Capco partner. "The future is real-time, data-driven services. By gleaming meaningful insights, they can create audience segmentation and deliver innovative, customised products in a way that appeals to customers."

"Banks need to reach a point where they understand the needs of the customer, without taking any direct feedback."

Digital collaboration

While we have come to expect driverless cars and robots will be part of our not-so-distant future, it should be equally straightforward for us to envisage a future

banking system with its own form of artificial intelligence (AI).

Many banks have already taken advantage of AI-enabled tools such as chatbots to interact with customers, but that is just the tip of what is to come. From virtual financial assistants to automated credit scoring and predictive analysis, AI has the potential to refashion organisations on an unprecedented scale.

Mr Jones explains: "From a customer point of view, machine-learning is starting to enhance their experience in smart ways, quickly and efficiently resolving their problems."

"Perhaps more importantly, AI and machine-learning will allow banks to spot patterns and solve customer problems at a fraction of the current speed in a very

If there is one thing we can bet on, it's that time waits for no bank

cost-efficient manner. It's about making informed assumptions about the future that will drive customer value."

This second wave of disruption will have a powerful impact, transforming the banking industry and with it the customer journey. Now is the time for banks to seize the opportunities technology presents to shift to the next gear. Because if there is one thing we can bet on, it's that time waits for no bank.

Open banking revolutionises the face of financial services



Lance Levy
Capco CEO

How have banks responded to the launch of open banking?

This is the beginning of what is shaping up to be a very exciting new chapter for the financial services industry. Around the world, the digital revolution means customers are looking to transform the way they bank and manage their money.

In Europe, the Payments Services Directive 2 is setting application programming interface (API) standards for payments and the same is happening across the UK. These regulations have been designed with increased competition in mind and to offer customers greater control over their money. However, the emergence of a new API-enabled market is a game-changer. It has the power to fragment products and services that large banks have historically owned, on an unprecedented scale. It will allow new providers to enter the market and transform banks into open platforms.

Until now, these banks have largely focused on becoming compliant with open banking regulation. However, I believe we will see a wave of technological innovation, especially through the latter half of 2018, as banks and new providers alike look to unlock revenue streams we haven't yet imagined.

There is a huge potential for banks to transform their products and services, but the key is to focus their attention in the right way. Open banking requires banks to think beyond their own needs

and business growth; they must meet untapped customer needs and prove invaluable to distributors.

Is the customer ready for open banking?

In recent years, we have seen the boom in technology bring about a shift in consumer expectations. Today's digital-savvy customer views apps and websites as an eco-system, so yes, customers are ready and the financial services industry must keep pace.

This is particularly the case for millennials and generation Z, who have grown up in an era where efficiency, speed and interconnected devices are the norm. Older generations, however, tend to have stronger ties to their financial providers, so may be slower to embrace the change.

Open banking offers consumers lots of tangible benefits, including new insights to help them better manage their money, access to products that may not have been previously available and the opportunity to obtain a single view of their finances.

The younger consumers are looking for services that are tailored to their "money milestones" and they're prepared to put their trust in third parties that may not be banks. They have grown up during a period of financial turmoil and slow economic recovery; there is less loyalty to the big banks. They want lower prices coupled with better quality service and the introduction of open banking will help them achieve that.

Will we see significant changes in the banking business model?

While open banking presents an unrivalled opportunity for startups and fintechs to move into uncharted territory, it also allows existing organisations to improve their offering; it is challenging banks to raise their game.

Banks need to remember that they do not have a captive audience. Times have changed and some clients will migrate where the best services are, regardless of where the underlying product sits. For example, customers could use a new fintech app, banking website and customer service model, but the current account that sits at the heart of it is held with an existing large bank that the customer will no longer interact with directly.

First and foremost, banks must decide if they want to continue to own the customer relationship. Banks hold a huge amount of raw data and information, but they need to be smarter in the way they utilise it for the benefit of the customer. Digital-first services offer greater value to consumers and banks need to work out how they will tackle this. They can either form partnerships with aggregators to take ownership of the user interface or they could choose to retain ownership through building their own platform.

I believe organisations are becoming much savvier about building collaborations to deliver best results for customers. We've already seen some fantastic

examples of partnerships in this space and, going forward, I expect we will see the emergence of new and exciting collaborations, tools and services as banks seek to find their way in the new market.

How can banks monetise the data they have?

You need only look at companies like Google and Uber to see the vast benefits of being smart with data. Banks are in a uniquely powerful position with the volume of data they possess, and we are seeing a global shift towards not only capturing and analysing data, but monetising it.

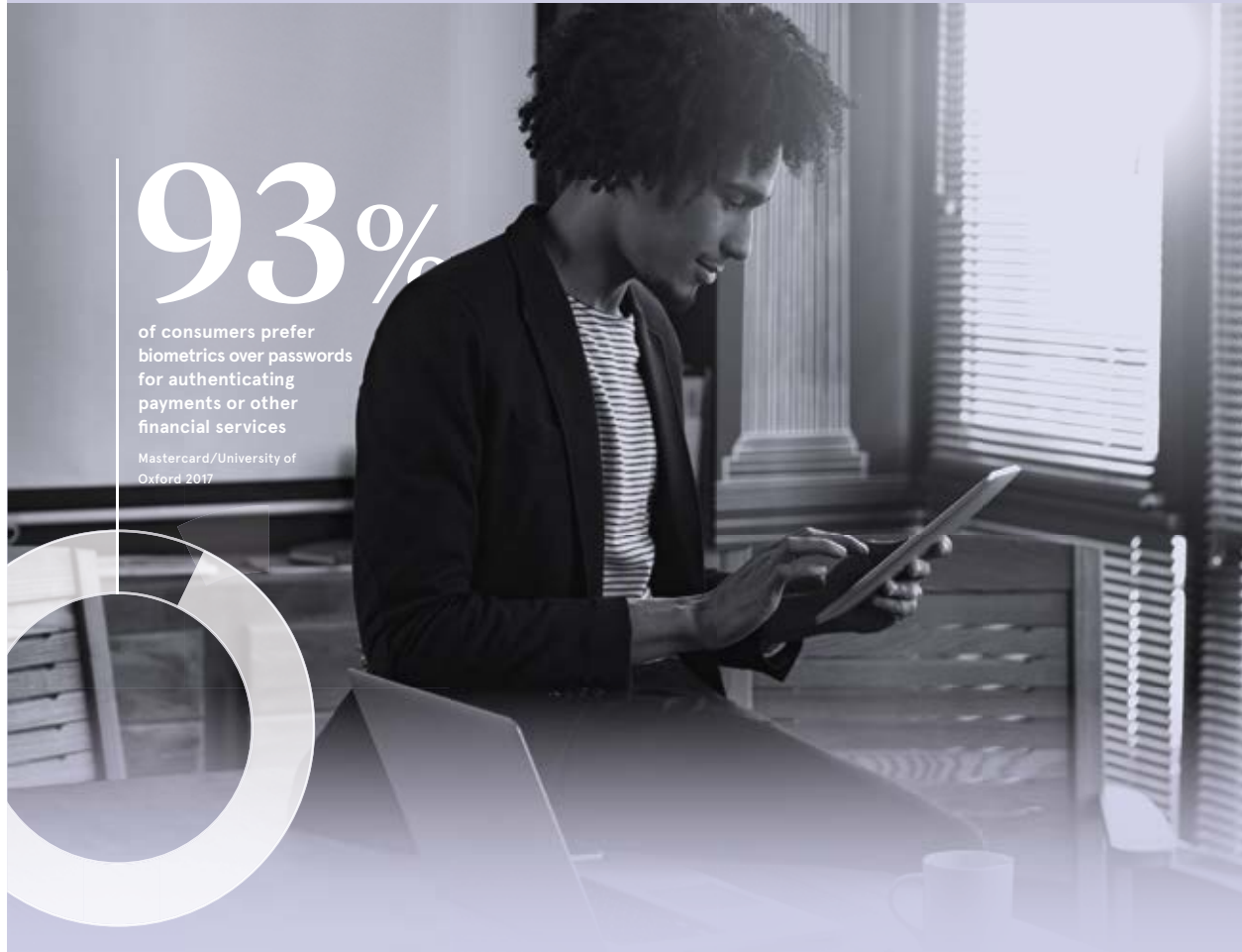
Developments in data analytics have allowed financial institutions to obtain a 360-degree view of the customer, enabling them to improve the range of services and enter new markets. Open banking will lead to a rise in data exchange between banks and third parties, and I think we will see banks increasingly recognise the value of offering free services in return for data. Ultimately, if a customer feels they are being offered a relevant, tailored product, they are far more likely to buy it.

For more information please visit www.capco.com



CUSTOMER FOCUS

As a sector that has historically struggled to engage with customers, financial services is waking up to the fact that acquisition and retention can have a huge impact on the bottom line. From personalising offers to 24/7 communication, financial services providers are rethinking aspects of the entire user journey, proving that an engaged customer is a happy customer



93%

of consumers prefer biometrics over passwords for authenticating payments or other financial services

Mastercard/University of Oxford 2017

Mastercard

Mastercard have addressed the growing demand for convenience with the introduction of Identity Check, which gives customers the option to authenticate payments using their face. Dubbed "selfie pay", the technology includes biometric identifiers such as fingerprint, iris, facial and voice recognition to verify customers' identities using their mobile to dramatically speed up online checkout times and battle card fraud. Ajay Bhalla, president of Mastercard's enterprise risk and security division, says: "The time has come to drop cumbersome passwords and embrace a better consumer experience through biometrics".

01

02

Yomo

Yomo is a savings and investments app that rewards customers for being frugal. Users can open an account in 30 seconds, set up automatic transfers and earn free rewards for hitting savings milestones.

Financial pitfalls of UK millennials

25% have run out of money before pay day

21% have gone into an unplanned overdraft

13% have had their card declined without realising they had no money

Experian/YouGov 2016

46%

of UK adults report low knowledge about financial matters

24%

have little or no confidence in managing their money



Financial Conduct Authority 2017

03

Fidor Bank

As a self-titled "people's bank", Fidor Bank is challenging the traditional approach to customer experience, by giving customers a say in how the organisation is run and shaped. The online-only firm provides an online community for customers to give and receive financial advice, and rewards users for doing so with benefits such as cash, improved interest rates and savings bonds. "The key success of Fidor is its community. We create a digital place where people can exchange and discuss money in an open and transparent manner," says chief executive Matthias Kröner.

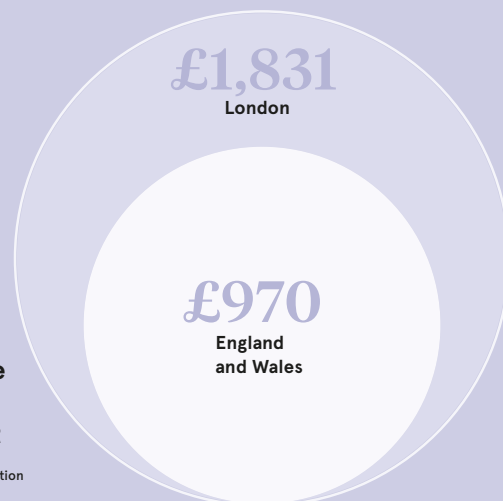
04

Dlighted

Saving enough for a deposit is one of the biggest headaches for renters; luckily there's a firm out there that hopes to cut the cost of moving house by almost 90 per cent by doing away with the hefty upfront fee. Through low-cost deposit-replacement insurance, Dlighted offers landlords and letting agents protection of £600,000 against unpaid rent, legal fees and property damage. For renters, its tenant vetting service is also based on rent history as opposed to credit files and, once accepted, tenants will be able to earn no-claims bonuses to lower future rent.

Average rental deposit

Deposit Protection Service 2017



05

Modulr

Modulr is speeding up the tediously slow process of business payments with a 24/7 automated service that brings transaction times down to less than 90 seconds. The company says it wants to make the idea of business-hours payments a thing of the past. "New alternative banks are able to make the customer sign up process a matter of minutes – compare that to opening an account at a traditional bank which can take days or weeks and require you turn up at a branch with a stack of documents," says Kosten Metreweli, chief commercial officer.

72%

of small and medium-sized businesses say they would consider switching banks for the offer of real-time payments

ACI/YouGov 2017



06

Bought By Many

For many living with cancer and other serious conditions, buying travel insurance can be a costly, stressful experience. Bought By Many's mission is to make insurance better for everyone. By grouping together people with similar niche insurance needs, the firm is able to negotiate better deals for them as a collective for better quality, often better priced, insurance. "Incumbent insurers are often slow to change and rely on legacy systems, while we're free of these constraints," says chief executive and co-founder Steven Mendel. "This means we can rethink existing products and create our products from scratch, keeping a close focus on how the policies and processes can be better for the customer."



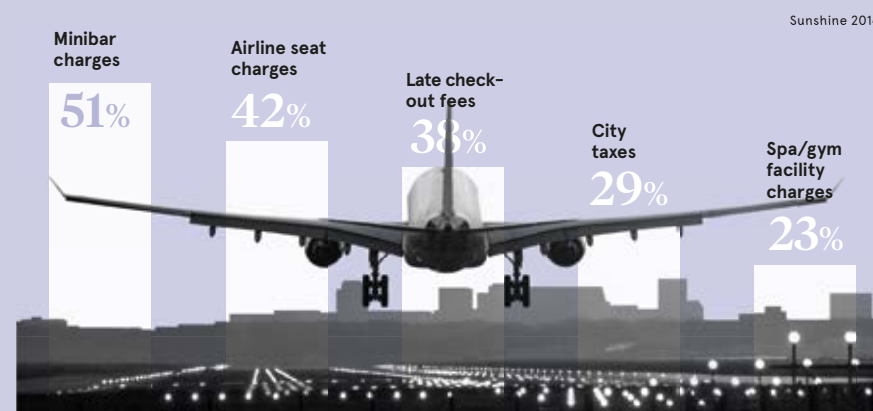
£2k+

potential cost of travel cover for someone with cancer for a week away in France

Bought By Many 2018

Most common unexpected hidden costs on holidays abroad

Percentage of UK public who have experienced unexpected costs on their last holiday abroad



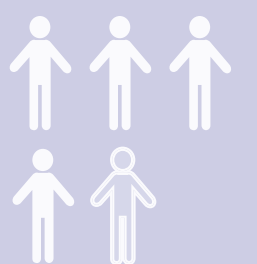
Thomas Cook Money

Thomas Cook Money was launched late last year to transform the holiday money and insurance market, and eradicate the "financial hangover" that holidaymakers face when they get home. Customers are able to save, spend, borrow and protect their money at home and abroad all year round, "not just for the two weeks they're away", according to managing director Anth Mooney. "By looking after holiday money all year round, we hope to help our customers have more and happier holidays than ever before," he says.

08

Generali

Insurance giant Generali says it has taken steps to address the industry's "revolving-door syndrome" by making sure customers are engaged and feel valued. The firm partnered with Medallia to identify critical pain points such as a "lack of human touch" during the customer journey. One particular change was the introduction of "empathy coaching" for staff and welcome calls to new customers to enhance the customer experience.



4 in 5

consumers prefer that human customer service interactions remain a part of customer service

Verint Systems 2016

Financial knowledge

Percentage of UK public who think they know enough about mortgages to choose a suitable one without consulting a financial adviser

Financial Conduct Authority 2017



09

Habito

Anyone who has bought a house knows that the process of applying for a mortgage can be a drawn-out affair full of confusing rates and additional fees. This is where Habito comes in. The fintech startup offers free, 24/7, online mortgage advice to find customers the best deal from more than 70 lenders, with a dedicated mortgage expert on hand from start to finish. "Our purpose is to set people free from the hell of mortgages," says Habito's communications lead Naomi Lane. Customer centricity has also filtered down to the product itself: "Because we know people are often kept awake worrying about mortgages, we designed our website in dark-colours 'night mode' so the light doesn't disturb their eyes too much."

Top reasons why consumers follow brands on social media

Percentage of global consumers



Sprout Social 2016

10

Santander

Santander is making social media the foundation for engaging with its more than 14 million customers. Through its work with social media management platform Sprinklr, the bank was able to centralise its social capabilities across silos and reach customers on their preferred channels at their preferred time for a more personalised experience. Santander UK's chief marketing officer Keith Moor says: "What social media does is obliterate the traditional barrier between a brand and its customers. If people like something, they'll talk about it. If they don't, they'll certainly talk about it."

Why AI? Why now?

Automated artificial intelligence decision-making is driving an AI revolution, says **Imam Hoque**, chief operating officer and global head of products at Quantexa



Imam Hoque
Chief operating officer and head of product, Quantexa

Just as the Industrial Revolution transformed the world during the 18th and 19th centuries, we are facing the dawn of an equally far-reaching artificial intelligence or AI revolution that will be measured in years rather than decades. AI has reached the point where it is capable of surpassing the decision-making of humans in many situations: consistently, accurately, 24/7 and based on more facts. But why now and how do businesses harness this capability?

AI has been around since the 1960s; only now is the confluence of three key factors coming together. Firstly, AI has languished as a "disembodied brain in a jar", isolated from the real world. Today we have reached the point where digital channels are becoming the norm, providing the brain with all the senses and limbs it needs. Our customers and suppliers communicate with us electronically, so why place a human in the loop to make decisions?

Second is the availability of data, the new "digital fuel". Data lakes are popping up everywhere, application programming interfaces or APIs are available on the internet to access all manner of data, and we as individuals and businesses are generating a huge but insightful "digital exhaust".

Finally, whereas steam machines were fashioned out of steel with large capital investment, huge cloud compute capacity can be provisioned in seconds for dollars. The AI revolution is set to take the service industry by storm, with the potential to change the role of the white-collar worker irreversibly.

OPPORTUNITY FOR THOSE WHO RACE TO EMBRACE AI

This is a truly global race; the opportunity is automating or augmenting many decision-making tasks in real time, more accurately using more facts. The starting gun has been fired, there is a pack out front – the global internet players: Amazon, PayPal, Google, Facebook and friends. The stakes are further compounded by government regulation driving competition through open banking and the revised Payment Services Directive.

If the global internet brands steal a march, with their low cost-bases, seamless real-time interaction and highly competitively priced products, it could prove hard to catch them.

AI can generate significant insight into your customers, suppliers and business relationships from huge volumes of seemingly disparate sources of data. This underpins the ability to make automated unique decisions per individual or organisation on a whole range of topics. It can also identify hidden trends and patterns of behaviour.

The applications are potentially limitless and have a profound impact on headcount as well as opportunities for more innovative offerings or significantly improved customer service.

CASE STUDIES

Imagine being able to create 80 per cent more, targeted, potential customer prospects and complete the pre-qualification automatically. By combining global lists of businesses, directors, investors and shareholders, along with your own current customerbase, AI systems can do just that. They will work out what your best customers look like, scour the global lists, find similar businesses, rate them based on a whole range of factors, present you the best opportunities and even go as far as telling you which of your current customers could make an introduction.

The AI revolution is set to take the service industry by storm, with the potential to change the role of the white-collar worker irreversibly

The cost of compliance is a huge burden, with financial institutions deploying tens of thousands of staff to perform know-your-customer, sanctions checks and anti-money laundering transaction monitoring, reacting to adverse media or Panama leaks. By producing a full contextual view of prospects and customers, linking data across many sources, AI systems can auto-classify for potential criminality far more accurately than traditional rule-based systems or humans following rules.

Identifying more illicit money movements, and by improving the 98 per cent false positive rates, AI can save up to 70 per cent of staff effort. This is critical to

making a real impact on the proceeds of crime, reducing organised crime, human trafficking, terror, radicalisation, inequality through tax evasion and corruption.

Predicting risk of default more accurately is possible when AI is provided more context about a business being assessed. After all, you would not buy a house by looking through the letter box; you would go inside, look around the neighbourhood and then make your decision. Likewise, using shareholder and director relationships, even the businesses' own customers and suppliers networked together will drive superior AI decision outcomes.

SECRET TO AI SUCCESS

Step 1: Getting your data prepared

Organisations understand that data creates business and customer insight, and their response has been to set up a chief data office and data lakes. Not all have seen the value, however, as they have not yet plumbed in automated AI decision-making. People also panic about data quality. Don't, it will never be perfect: AI is a game of statistics and you can use quantity of data to overcome quality. Start by making sure you generate a statistical single view of a customer, don't wait for some master data management programme to complete as you'll miss the starting gun. Context is critical: the AI engine needs to be fed with networked data providing the full picture to make decisions. For example, why assess a claim in isolation, when looking at the network of connected claims would prove it is genuine or an organised fraud ring. Finally, ensure you can generate single customer views and networks in real time, not just old-fashioned batch.

Step 2: Understanding AI

Don't confuse AI with robotic process automation, which is a basic capability that introduces another computer to try to automate existing legacy computers by following the same rules a human operator would. AI is a step-change to achieve superior decisioning based on deeper insight and more data. Don't only think AI is about machine or deep-learning; AI is more effective as a combination of techniques, effectively creating an expert system.

Step 3: Find the right problems

Organisations that have struggled with AI have succumbed to one of an unsuitable problem, the data was not prepared correctly or users were alienated – "computer says no" syndrome. It is very important to select carefully the problems that make a real difference and ensure the right data is available. To solve the user-interaction problem, don't just think of AI as purely machine-learning – a yes/no answer. Engage users to derive expert system-type rules and models. Then ensure the interface presents the full picture and reasons underpinning the decision back to the user, effectively amplifying your best decision-makers.

Step 4: A well-structured programme

You need streams of work to underpin a series of AI pilots and projects – data acquisition, data sciences skills, open technology data-lake environments, IT engagement, pilot-to-production process, awareness and communicating success. Don't wait for the race to be won, make a start today, take baby steps and reap the benefits of success.

For more on single customer view, context, networks and AI-driven decisions please email info@quantexa.com or visit www.quantexa.com

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GENERATIONAL WEALTH



Wealth managers must now move with the money

As wealth is passed between generations, advisers must adapt to their new target group and adopt the right technology

TIM COOPER

Millennials will soon become the wealthiest generation, challenging wealth managers to adapt their services to a younger mindset.

People born between roughly 1982 and 2002 are set to receive the biggest inheritance boom of any post-war generation. The Royal Bank of Canada (RBC) estimated the figure will be around \$4 trillion in the UK, Canada and United States.

RBC says millennials are still largely unprepared for this wealth transfer, having received inadequate financial guidance. But they know what they want and are determined to acquire the knowledge they need.

Wealth managers can adapt their businesses to engage with millennials in many ways. These include the use of digital advice, and improvements in communication, transparency and convenience. These all address younger clients' expectations around technology and their distrust of traditional financial institutions.

In addition, active social media, a knowledge-sharing approach, and an ethical ethos and investment style will be important.

James Wetherall, director of Wetherall's, aims to attract younger wealth management clients by using tech solutions, including an investment portal and cash-flow modelling software.

"We want to blow away the stuffy, old, ego-led advisory model," he says. "Millennials want everything to be simple, accessible and easy to use, so user experience and gamification [making software work like a computer game] in the portal are crucial.



Insight

Ethical investment

Interest in sustainable investment continues to grow among millennials, according to Morgan Stanley's Institute for Sustainable Investing. In 2017, 86 per cent of them were attracted to this area of investment, up from 84 per cent in 2015.

To engage with this group, wealth managers must embed sustainability into their investment advice and demonstrate an ethical business ethos. This could take many forms, from publishing recycling targets to demonstrating fair treatment of staff and suppliers.

"Millennials care less about how much they've accumulated, and more about their values and lifestyle. So cash-flow modelling provides an easy visual picture of how the money will translate into lifestyle goals."

Wetherall's is not planning a digital service, also known as robo-advice, as that is for those who want scale, he says, and Wetherall's wants to remain small.

The key is to worry less about what the market is doing, and more about your clients' functional and emotional needs

Robo-advice gives financial advice online with little or no human intervention, enabling a low-cost, low-entry-level service. Millions of millennials are expected to use it and robo-solutions will manage \$8 trillion of assets globally by 2020, according to some predictions.

However, the market has had a shaky start. A study by the Financial Services Consumer Panel says many robo-services are failing customers with bad communication, opaque charging and unclear explanations about compensation should things go wrong.

Many robo-providers are also struggling to make a profit, partly due to the small sums invested.

Lee Coates, director of Ethical Investors, says: "I see far more interest in responsible lifestyles from millennials. One big trend is veganism and making sure money doesn't finance animal exploitation. As a pioneer in developing vegan funds, we are getting more and more inquiries."

"We also do lots of talks for employers about auto-enrolment. Young people are genuinely interested in investing pensions ethically, particularly if you explain what happens if they don't."

Chris Holmes, director of Almus Wealth, says his older children drove him to include social impact and sustainability in his investment decisions.

"They would be appalled if their money was invested in tobacco, armaments or environment-damaging industry," he says. "They are far better informed than previous generations and motivated to invest in companies that benefit agriculture, water or climate, for example."

"I'm deeply sceptical of non-specialist wealth managers who whitewash these areas, but latterly realised they are missing out. Millennials will also want positive activism from wealth managers by demanding better governance and sustainability practices from invested companies."

Online financial adviser Wealth Wizards claims it spends 30 seconds providing retirement advice that takes human advisers seven to fifteen hours. It will develop its offering further with an artificial intelligence-led service next month.

Head of advice Martin Harris says: "Most traditional advisers are currently focused on helping millennials' parents with their inheritances. That leaves most millennials in the 'advice gap'. Advances in technology and robo-advice are filling this gap. If traditional advisers don't embrace this step-change, they will find it nibbling at their ankles soon."

Shane Williams, co-head of UBS's robo-offering SmartWealth, says: "As younger generations inherit wealth, we can expect a radical shift in expectations of wealth management towards online service levels matching the likes of Amazon, and on-demand advice and information."

Stefan Fura, managing director of Furnley House and recognised as a top young adviser, published research in this area last year and says he was surprised to find that under-35s value face-to-face advice as much as over-35s do. Also, telephone or video advice is not popular with either group.

"People want to use technology, but it cannot substitute emotional understanding and reassurance – the value they see in personal advice," says Mr Fura. "Most wealth managers cannot yet offer face-to-face advice that millennials can afford. So the real value of automation and artificial intelligence is in driving efficiencies to reduce costs."

Many wealth managers are addicted to percentage-based fees, so have not engaged millennials because of the lower investment sums involved.

Another acclaimed young adviser Carl Roberts, managing director of RTS Financial Planning, charges fixed fees rather than percentages to avoid this problem.

Mr Roberts also has a lower-cost entry-level service to entice younger clients. He has no office, and uses a wide range of back-office tech to keep costs and prices down.

"I also plan to offer a free service via our portal Moneyhub, moving up to a paid service when clients need," says Mr Roberts. "This would encourage younger clients as it is more akin to the online models they are used to."

Despite large numbers of people using new robo-startups, Mr Williams says big wealth managers are not losing out.

"Startups have captured early-adopters," he says. "But that's not many people. When we launched SmartWealth a year ago, we were the first big traditional wealth manager with a digital service designed for the new client mindset. The key is to worry less about what the market is doing, and more about your clients' functional and emotional needs."

Robert Forbes, founder of wealth manager Stadden Forbes, believes robo-advice is a threat to wealth managers, so is setting up a digital-human hybrid offering alongside his traditional service.

"All wealth managers need to embrace a range of front and back-office technologies to deliver a top service," says Mr Forbes. "Robo-advisers are good at delivering up-to-date, relevant information to clients – an area for us all to improve on."

Timothy James & Partners advises creative professionals, including top performers and DJs. Christophe Beaupain, chartered financial planner at the firm, says: "Advancing technology is giving millennials better access to information, more savings options and reduced costs."

"Investment portals will give them a head-start on how to allocate their inheritance and where to seek advice. Robo-advice will help explain the type of investor you are, choose suitable investments and select a target outcome."

"But it cannot offer a considered opinion on more complex scenarios, nor liaise with your accountant and lawyers, for example. So robo and [face-to-face] advice can co-exist." ♦

86%

of millennial investors said they are interested in sustainable investing, compared with 75 per cent of all investors

61%

have taken at least one sustainability-oriented investment action in the last year

Morgan Stanley 2017

Five top centres of innovation in financial tech

Leading fintech cities, including London and Berlin, should not be complacent because there are emerging centres of excellence snapping at their heels

IAN FRASER



Stockholm

The Swedish capital already attracts one fifth of fintech investment in Europe and has a record of creating high-value technology businesses from scratch including Skype. The Swedish government has invested heavily in infrastructure such as high-speed internet connectivity since the 1990s, and the city has a well-educated, internationally minded and Anglophone workforce. Successful fintech firms based there include Klarna and iZettle, and the city is poised to benefit further from a likely exodus of fintech players from London after the UK leaves the European Union. Michal Gromek and Timotheos Mavropoulos, of the Stockholm School

of Economics, say: "Heading towards a cashless society with a focus on digitalisation, high internet accessibility and with an existing strong base of fintech companies, Stockholm can easily benefit from the uncertainty connected to Brexit to advance its image as a unicorn breeding ground." The Stockholm Fintech Hub, launched as an independent, not-for-profit organisation in 2016, last year spread its wings, dropping Stockholm from its name and seeking to embrace similar hubs both in Sweden and nearby countries. "We've expanded our operations to Gothenburg, Malmö, Oslo and Helsinki, and we're looking forward to expanding to Estonia, Latvia and Lithuania in the first half of 2018," says founder Matthew Argent.

Taipei

In December, Taipei cemented its position as an emerging Asian fintech hub when the Taiwan parliament approved a sandbox approach to fintech research and development projects. The move was welcomed by Alice Huang, managing director of corporate banking at BlockEx, a London-headquartered digital asset exchange. She already sees Taipei as an attractive base for companies such as hers, thanks to its large and affordable pool of talented engineers, but believes the sandbox initiative reinforces Taipei's attractiveness. In addition to being Taiwan's capital, Taipei hosts some 2,000 traditional financial institutions as well as fintech players such as Fugle, Maicoin and Airsig. Recent crackdowns on cryptocurrencies and ICOs by the authorities in China and South Korea have strengthened Taipei's position as a regional cryptocurrency trading hub, with politician Jason Hsu suggesting Taiwan's very "statelessness" – the country is currently only recognised as an independent nation by 19 other countries – should help entrench its position. Mr Hsu, a plugged-in 38 year old who was the champion of the sandbox initiative, believes that further government-led initiatives are required, including tax breaks for venture capital and angel investment, plus greater support for fintech startups from local tech giants such as Acer, Asus and HTC.



Edinburgh

Having lost some of its momentum as a financial centre after its two biggest banks HBOS and RBS crashed and burned in 2008, Edinburgh has picked itself up and dusted itself down to become the UK's largest fintech hub outside London. The Scottish capital is fuelled by an asset-management and insurance base that was less tarnished by the crash than the banks. Leading fintech players based here include FreeAgent, Nucleus, Lending Crowd and Payfont, and their growth has been underpinned by the fact that Edinburgh is the "most educated" city in the UK, with 55 per cent of the workforce having a university degree or equivalent,



according to the Office for National Statistics. The University of Edinburgh's School of Informatics, a world leader in machine-learning and big data, has been central to some of more interesting developments in the city. Fintech startups in Edinburgh also benefit from funding and support from the likes of Scottish Equity Partners, Scottish Development International and Scottish Enterprise, and from access to incubators such as CodeBase, Seedhaus and Entrepreneurial Spark. Last year the Scottish government, University of Edinburgh, Scottish Financial Enterprise and private sector players jointly launched the dedicated trade body Fintech Scotland, which appointed its first full-time chief executive in January.



Shenzhen

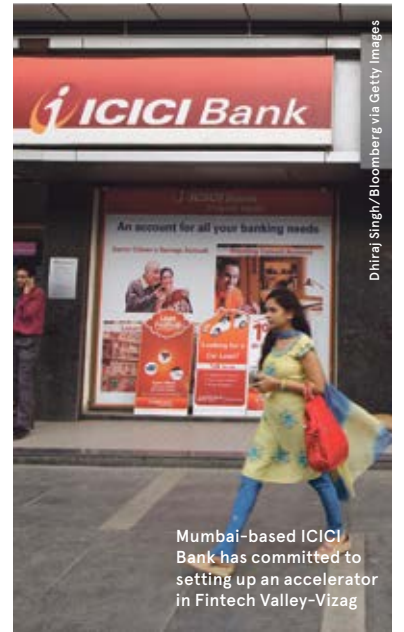
Described as the Silicon Valley of China, Shenzhen is a sprawling city with a population of 11.9 million located in Guangdong province just north of Hong Kong. A small fishing village until 30 years ago, Shenzhen today ranks first in China in terms of the volume of patent filings and is home to the Chinese technology, finance and social media giant Tencent, whose \$550-billion-plus stock market valuation eclipses even that of Facebook. Already host to sizeable fintechs, including Linghui, Fenqile, Viewtran, Wei Zhong Shui Yin and WeBank, China's first digital-only bank, launched by Tencent in 2015, the regional government is

determined to ensure Shenzhen remains at the cutting edge of fintech development. Brett Diment, head of global emerging market debt at Aberdeen Standard Investments, says cities such as Shenzhen are awash with venture-capital funding and benefit from a benign regulatory regime. However, Shenzhen is facing competition from other Chinese cities including Hangzhou, home to the giant Alibaba Group, which now has more unicorns or startups valued at \$1 billion or more. Last year, Shenzhen entered a pioneering three-way deal with competing fintech centres Singapore and Hong Kong aimed at bolstering collaborative fintech developments and harmonising standards between the three cities.

Visakhapatnam


Located in the port city of Visakhapatnam, also known as Vizag, overlooking the Bay of Bengal, Fintech Valley-Vizag is a fintech cluster born of a co-ordinated strategy led by a hard-driving regional government, aided by regulators including the Reserve Bank of India and private sector players. Launched by the government of Andhra Pradesh in October 2016, the initiative has seen Visakhapatnam, which already plays host to IT firms such as outsourcing group Wipro, start to morph into a centre of excellence for blockchain, cybersecurity, data analytics and artificial intelligence, and it recently selected eight fintech startups to take part in an accelerator programme.

According to Gartner's India research head Partha Iyengar: "For the first time, a government has stepped in to encourage blockchain and other financial technologies." Mumbai-based lenders ICICI and Mahindra Finance have committed to setting up accelerators in Fintech Valley-Vizag, while US funds group Franklin Templeton Investment is building a 40-acre technology campus there. Officials, including J.A. Chowdary, lead adviser to the Andhra Pradesh government, who was behind the earlier transformation of Hyderabad, claim Fintech Valley-Vizag is already a global brand. "Companies go to Silicon Valley and Bangalore because they have the ecosystem. We're creating the same here," says Mr Chowdary. ♦



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'Banks face new challenge from tech giants'

HSBC's digital chief Raman Bhatia (pictured) predicts a shake-up in retail banking as the big banks create collaborative online platforms offering services from newcomers

OSCAR WILLIAMS-GRUT

Reading the headlines it's easy to think that retail banking is on the way out with more than 400 branches closed across the country last year alone, according to a government briefing.

But the reality is retail banking is healthier than ever. It is going through a tech-driven revolution that is sparking more innovation than the sector has seen in decades.

"What we want is a very personalised experience for customers; much more real time, future looking, based on their behaviours, and which has a predictive component to it – that is the Holy Grail in the next few years for anyone in retail banking," says Raman Bhatia, HSBC's head of digital.

Mr Bhatia and others like him are tasked to reinvent our idea of what a bank is and what it can do.

"If you speak to customers now, even the ones who are logging on multiple times a week, the relationship with their banks is still very transactional," he says. "While customers trust us with their data, with their money, their deposit, do we play the role of a trusted adviser? Speaking for the banking industry as a whole, I would argue that we do not, as much as we could."

I would argue that over time you will have fewer challenger banks

To change this, retail banking is embracing technology, everything from fingerprint recognition, big data and even experiments with devices such as Alexa.

It's not just the current technology that Mr Bhatia and his colleagues are focusing on either.

"There are four or five big technologies over the next five to ten years," he says. "There is obviously AI [artificial intelligence]. Many of the initial use-cases have focused on back-office efficiencies, applying AI to streamline processes. But what's happening now is AI is being used to personalise experiences for customers using their data."

"On cloud, it is becoming very clear that the next generation of apps and experiences will be built on cloud infrastructure."

"The other big technology that's much hyped is DLT [distributed ledger technology].



would play an active role in that sort of scenario," Mr Bhatia says.

Open banking and the possibility of competition from big tech outfits leads to possibly the HSBC executive's boldest prediction for the future of retail banking: the big banks will cease to be monoliths, trying to do everything themselves.

"There would be an evolution from banks doing everything on their own to banking becoming more like a platform, a marketplace, where a trusted brand in the centre is orchestrating customers' disparate needs," he says.

HSBC may sell you a loan from a peer-to-peer lender on its platform, for example. Monzo and Starling are already trying to build this kind of marketplace, inking partnership deals with startups doing everything from loans to international transfers.

If that's the future, then, why do we need banks at all?

"If you imagine the bank as a platform, you can have multiple players working together and there'll be a lot of open sourcing. Someone needs to organise that," says Mr Bhatia. "Could that be banks? Could that be big tech players? I would claim that HSBC is a global brand and has a key role to play. We have the trust of our customers and that's what we need to build on by continuing to invest in technology."

HSBC is already experimenting with what this brave new world may look like. The bank is developing an app with startup Bud that will trawl through online listings to find the best broadband and energy deals for customers based on the data HSBC has on them.

"The particular experiments we're doing right now are to learn more about customer behaviour to see how they react if we introduce them to products we don't manufacture ourselves," Mr Bhatia says.

All of this crystal ball-gazing is intriguing, but what of the humble bank branch? While online marketplaces might cater for millennials keen to see their banking look more like a tech startup, many people fear older customers, particularly in rural areas, will be left behind as more and more branches close. More than 4,000 bank branches disappeared across the country between 1997 and 2014, according to government figures.

"No one is arguing, at least I won't argue, that there is no scope for branches in this conversation," Mr Bhatia says. "But I think, if you're looking on a ten-year horizon, you're really talking about a more cognitive experience of banking and the channel conversation should be secondary to it."

Ultimately, whatever HSBC and other big banks do over the next decade will be driven by what customers want, he says.

"It starts with the customer. Whether it's challenger banks or fintech players or indeed large banks, we are still in the early stages of personalising the experience for our customers."

"By that I mean knowing your customers, having conversations with them, knowing their behaviours and actually having a sense of where they're heading. Not being retrospective, which is what all bank models are built on, but rather being predictive. That obviously will be data led. That is very clear. That is the direction of travel in the next three to five years."

If you imagine the bank as a platform, you can have multiple players working together

Mr Bhatia worked at Airbnb rival House Trip prior to joining HSBC and he says his experience at that startup taught him the importance of good management in making a successful business.

Still, he does think the UK's traditional big banks could face serious competition from another quarter in the global tech giants.

"I would be naive to think it cannot happen," he says when asked if the likes of Facebook or Apple could get into banking. New rules dubbed "open banking" came into force at the start of the year that require banks to share customer data with third parties if the customer agrees. This could provide a foothold for tech companies, making it easier for new players to enter the sector.

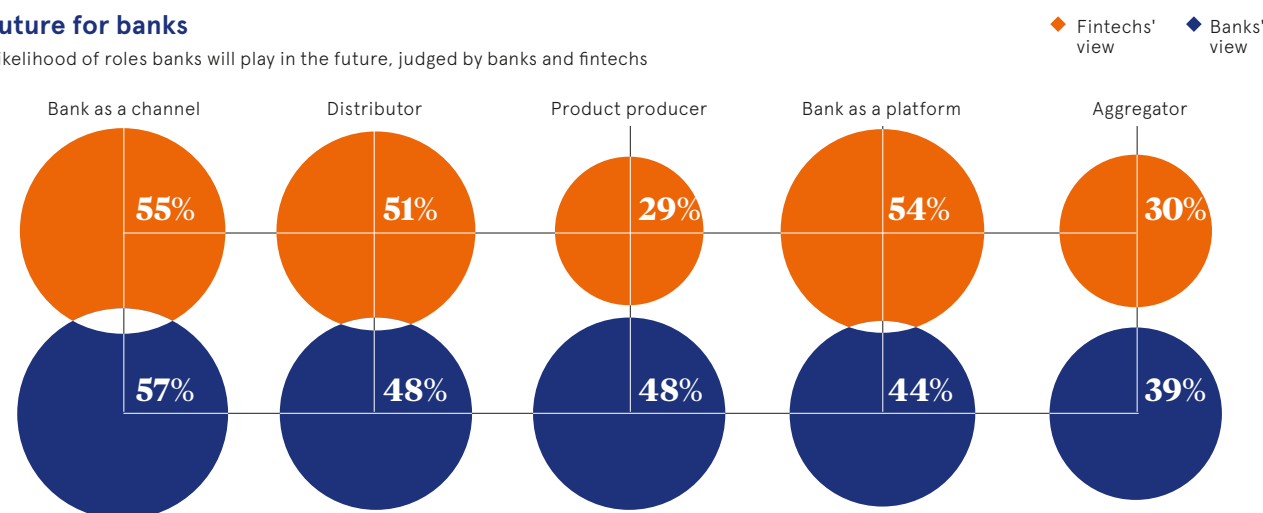
Mr Bhatia says: "If you look at what's happened in China, there [banking] emerged in a very different fashion, partly because the formal banking infrastructure and industry was not as mature as in the UK. There you have fully baked ecosystems orchestrated by online retailers."

Alipay, the mobile payment and money management app owned by Chinese e-commerce giant Alibaba, has more than 500 million users and processed over \$1 trillion in payments last year.

"Could that happen in other markets? I think it can happen, but at the same time there are other players like ourselves who

Future for banks

Likelihood of roles banks will play in the future, judged by banks and fintechs



Capgemini 2017

Raman Bhatia	Ogilvyone	Bain & Company	Expedia	Director of strategy, Europe, Middle East and Asia	Director of hotels, Europe, Middle East and Asia	Housetrip	HSBC
CV	Strategy consultant	Consultant	Senior manager, strategy and new initiatives	Director of strategy, Europe, Middle East and Asia	Director of hotels, Europe, Middle East and Asia	Head of marketplace and trading	Head of digital, UK
						Vice president	Head of digital, UK and Europe
	2007	2008	2010	2011	2011	2012	2014
							2016

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Supply chains and trade finance could be freed up

Development of blockchain is set to revolutionise the supply chain and increase the flow of trade finance

SARAH RUNDELL

First came denial by incumbent institutions. Banks said, for a long time, this isn't happening," says Bart Ras at Greensill Capital in London, recalling the arrival of blockchain technology in the trade finance industry. "Second comes anger, where I believe we are now. The third phase will be acceptance."

Blockchain, or distributed ledger technology (DLT), the shared record of transactions that is maintained by a network of computers on the internet, is best known for underpinning cryptocurrencies such as bitcoin. In recent years, banks, fintechs and corporations have embarked on hundreds of partnerships and pilots, and now blockchain is on the cusp of transforming the billion-dollar trade finance sector too, one of the most antiquated corners of the banking industry.

The new transparency in trade will draw other providers of capital into trade finance

Trade finance still relies on traditional, paper-intensive processes. Bills of lading, the paper proof that goods have been shipped, and letters of credit, the bank's guarantee that it will step in if a vendor isn't paid, are essential documents. Add title papers, quality and quantity certificates, and customs forms to the paper trail and it's no surprise bureaucracy and inefficiencies mean companies can wait weeks for payment.

Blockchain digitises these documents, which are then stored, together with every other detail from a product's ocean progress to its sustainability credentials, on a shared ledger that is visible to all in the supply chain. Blockchain is also immutable because it can't be changed, reducing the chance of goods being tampered with. It guarantees a provenance that would have prevented Tesco's horsemeat fiasco or the warehouse receipt scandal at China's Qingdao Port when criminals used false warehouse certificates to pledge metal as collateral for multiple bank loans.

The technology also includes smart contracts. These computer programmes, run on the ledger, execute payments automatically as goods progress around the world once certain conditions are met. Presently, an arduous system involves invoicing, buyers checking goods on arrival and instructing a bank to make a payment. "Smart contracts do all this on their own based on conditionality. It will reduce overheads in transactions,"

says Mr Ras, who is also a research fellow at Windesheim University of Applied Sciences in the Netherlands.

Blockchain is the perfect technology for supply chains because the data isn't centralised. Like complex supply chains, which link hundreds of different companies and elements, blockchain isn't built around one dominant or clear owner. On blockchain's decentralised system, although all the data is in the block, people can choose what they share. The creator of the data can cryptographically lock the data entirely, leave it open or make it available according to certain conditions they choose.

This is important because suppliers, for example, wouldn't want to sign up to a system that meant their buyer could see where, and at what price, they purchased their goods. With blockchain if a supplier is happy for a buyer to see where their goods are coming from they can reveal it, but only if they want to.

Trade finance banks have welcomed blockchain's arrival. It gives them visibility on what they are financing and lowers their reputational and regulatory risk, just when stiff financial penalties from regulators have muted their appetite to finance trade.

"The biggest fans of digital ledger technology are financial crime and compliance teams at banks," says Shona Tatchell, chief executive and founder of Halotrade, a fintech specialising in using blockchain to increase trade finance for sustainable trade. A recent survey by the International Chamber of Commerce found continued unmet demand for trade finance.

She believes banks are also set to gain because blockchain will increase financing opportunities. If companies have visible and open supply chains, the credit risk is lower, meaning more bankable names. Supply chains pose risks even to the most robust brands, like the bad publicity Apple suffered in 2010 following suicides at Foxconn, its biggest supplier in China. Primark paid out millions following the Rana Plaza tragedy in Bangladesh in 2013 when the building housing garment factories it used collapsed.

But the new transparency in trade will also draw other providers of capital into trade finance, increasing competition and driving down bank margins. Some fintech providers are posing a threat to banks in this respect. Skuchain, a Californian-based blockchain platform, offers inventory finance as an incentive for companies to join its platform. It offers this asset-backed lending, which allows businesses to use inventory as collateral to obtain credit, through its own special purpose vehicle or SPV.

"We buy inventory from suppliers in the blockchain, then when buyers are ready to use it, we sell it to them," says Skuchain's Rebecca Liao. The SPV is financed by a commercial bank, so banks have a role to play, but they are not financing trade directly.

However, regulation is stalling fintech's march; banking requires licences few have. It's why banks and tech providers are partnering to pool technology and market access, like the recent hook-up between IBM and seven of Europe's biggest banks to build a DLT platform for small and medium-sized businesses to trade across.

Blockchain holds a host of challenges. Supply chains are complex and its success depends on creating an ecosystem that combines all the different stages of trade from raw material production to super-market shelf, not just individual companies or organisations.

"Blockchain needs multiple touch-points with people who may not have worked together," says Ms Liao. Large

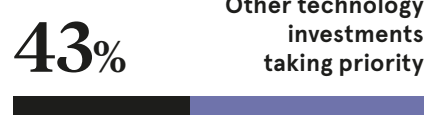
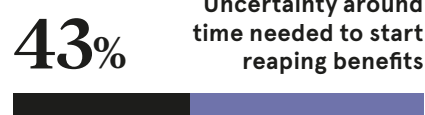
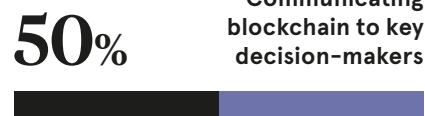
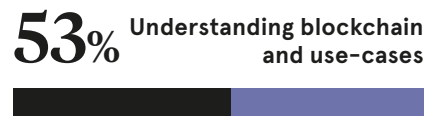
Top five expected benefits of blockchain in financial services

Percentage of financial services professionals who expect the following benefits...



Top five internal barriers to adoption of blockchain

Percentage of financial services professionals who expect the following barriers...



Cognizant 2017

companies won't participate without legal and regulatory underpinning, and banks face a long and expensive journey swapping their legacy IT systems for blockchain.

Explaining the concept is one of the biggest challenges, but Halotrade's Ms Tatchell has an answer for that. "Do people need to know exactly how it works?" she asks. "Do people ask how the internet works? No, they just use it." ♦



Case study Tea industry

The idea that sustainability issues blighting the tea industry, such as child labour or land and water management, could be solved by blockchain is difficult to fathom. But a pioneering pilot, combining trade finance banks, blockchain technology and a handful of multinational companies, is proving the link.

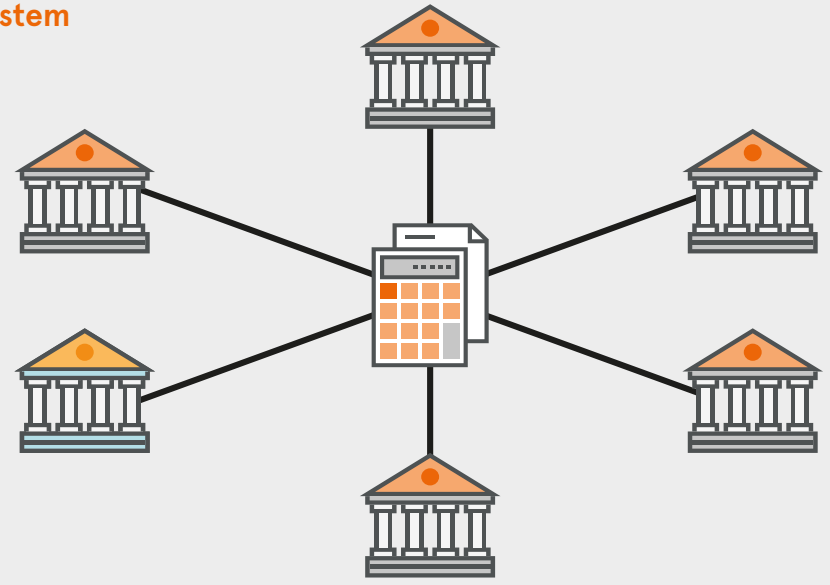
In the first pilot to combine blockchain's ability to log sustainability in supply chains with access to trade finance, the technology is being used to track and trace parcels of Malawian tea every step of its journey from bush to brew through processing and packaging processes, to the supermarket shelf.

Next, banks involved in the pilot reward evidence of sustainability, logged in the blockchain, with preferential access to credit for Malawian farmers and co-operatives. It means cheaper working capital for these smallholders, enabling them to boost investment and productivity, and spend more on sustainability.

"The better producers score on sustainability, the lower the price at which the bank funding is released. This creates a lever which you can pull," says Shona Tatchell, who left a distinguished career in Barclays trade finance division to set up Halotrade, one of the fintechs behind the pilot. "My vision is to move away from supply chains, which have a level of obscurity and opaqueness, and create something more akin to a trust circle."

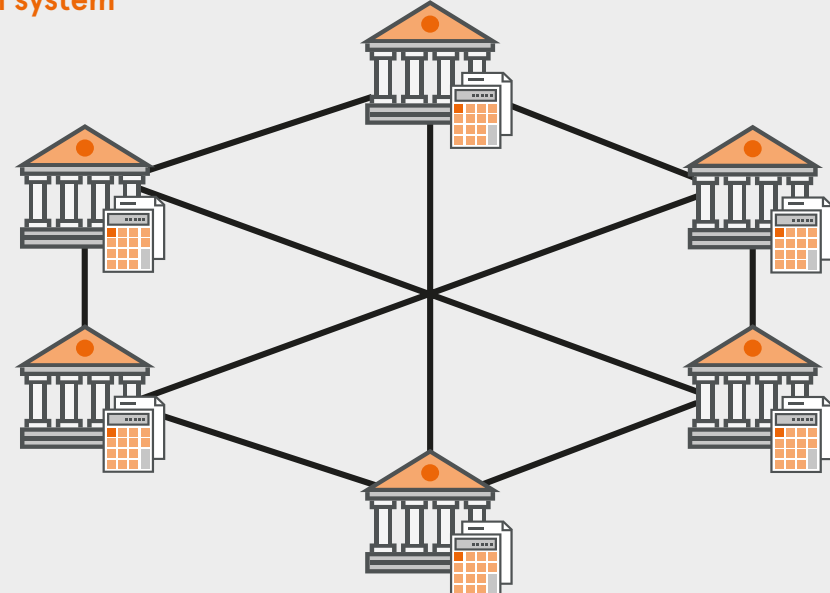
Commercial feature

Current system



All banks check with central electronic ledger

Blockchain system



All banks have their own replicated copy of the ledger

How blockchain will disrupt the financial sector

Blockchain is going to have a huge impact on finance, says **Mike Bradford**, chief executive of Crealogix UK

While blockchain will ultimately ensure a more efficient, more transparent, more secure financial marketplace, there will be a lot of pain along the way. I want to explain the major areas of disruption, and exactly who and what will be shaken up by blockchain. I'm not concerned with open blockchains such as bitcoin, which is a train fast heading down a branch line which will soon crash into the buffers. Here I'm talking about private, permissioned blockchains, which is where the future of the technology lies. Adoption of this technology will impact almost every area of the financial industry. Let's look at a few – trusted third parties, the back office, post-trade settlement, trade finance, insurance, and compliance and regulation.

The current structure of inter-bank transactions relies on a trusted third party to maintain a central ledger, which is the record of authority. Banks currently need this third party because they don't trust each other. Who'd have thought? When I speak of trusted third parties think of clearing houses, settlement organisations, stock exchanges.

In the blockchain world, each bank maintains its own copy of the ledger. This is identical in each case and, because it is blockchain, it is tamper proof so everyone knows that everybody else sees what they are seeing. There is no room for dispute or error.

So what does this mean? Who will be disrupted in this new blockchain world?

Well it'll come as no surprise that one of the biggest impacts will be felt by the trusted third parties.

If we look again at the two diagrams, we see when moving from the current structure to the blockchain structure that there is now a hole in the middle where the trusted third party used to be.



Mike Bradford
Chief executive
Crealogix UK

The role of the third party is to reduce risk between parties who don't trust each other. They are no longer needed when everyone has the same, agreed, trusted record, which is what the blockchain ledger will provide. And this applies as well to current, third-party virtual monopolies such as Swift. They will be superfluous and the inefficiencies characteristic of a monopoly situation will disappear. Internal back offices and the staff within them are also under direct threat as it is no longer necessary to employ teams to author, approve and monitor transactions.

Blockchain will have a deep disruptive effect on almost every sector of the financial industry

Errors are reduced with blockchain because authorisations are visible not just to transacting parties, but to any related parties such as lawyers, controllers and accountants. This means there are no reconciliation errors and therefore no need for the current hordes of staff needed to resolve them.

Reduced staffing is one of the main reasons why Morgan Stanley believes it can halve costs via blockchain.

This leads to reduced capital requirements; fewer mistakes means less capital tied up in disputed trades and therefore more capital available for new trades, improving the velocity of capital.

Because of this, UBS, for example, sees an opportunity to greatly restructure its cost base by deploying blockchain.

When it comes to post-trade settlement, again fewer staff will be needed for the same reasons as those relating to the back office.

And, because blockchain removes the need for centralised data, external third parties such as Traiana and Omgeo will no longer be required.

One of the areas best positioned to benefit from blockchain technology is trade finance.

Currently there is a plethora of parties involved in trade finance. It is a cumbersome, slow process involving many entities across the world that don't trust each other, so more third parties, such as banks and clearing houses, are needed to mediate.

Smart contracts on a blockchain, which execute automatically, will transfer title to goods and money, remove the need for banks to provide documents, such as letters of credit, drastically cut out the middlemen and their fees, and create a trusted network of assured authority concerning the origin of the goods and products being supplied.

IBM, together with a number of banks, has recently launched a global trade finance platform and more banks are joining them by the day.

In insurance, fraudulent claims, slow manual processes, fragmented data sources and legacy underwriting models are some of the biggest challenges facing the industry.

Creating policies as smart contracts on a blockchain is ideal for insurance. This offers complete control, transparency and traceability for each claim, and could eventually lead to automatic pay-outs.

Blockchain technology will also improve risk modelling for the sector and greatly reduce fraudulent claims by capturing the origin and ownership of ships, cars, homes or any other asset.

Aegon, Allianz, Munich Re, Swiss Re, and Zurich have already launched the pilot Blockchain Insurance Industry Initiative, or B3i, to make this real.

Regulators love blockchain systems! In such a blockchain system, the regulator just becomes another node on the blockchain and then has complete visibility of every transaction. Individual trades can be monitored and policed.

Because they'll have a complete overview across all markets, regulators can become aware of systemic risk at an early stage and take appropriate action at the policy level.

At the individual firm level, blockchain technology can achieve what King Canute couldn't – turn back a seemingly inexorable tide and actually reduce the number of compliance people required within an organisation because blockchain presents an irrefutable record of every transaction undertaken.

So, there you are – a quick survey of just a few of the areas which will be disrupted as blockchain technology comes to the fore. Blockchain will have a deep disruptive effect on almost every sector of the financial industry. When combined with the implementation of the Payment Services Directive 2, or PSD2, this impact will only be greater.

In the short term, many currently working in the financial sector will be greatly affected. Whole areas of operation, mostly labour intensive, will become superfluous, as will a large number of companies that are currently "in the middle" of financial transactions. Tens of thousands of jobs will disappear.

The job of governments and financial organisations is to ensure that the damage to workers in the industry is mitigated to the greatest extent possible.

Ultimately the winner will be the consumer, who will benefit from greater efficiency, greater security and greater transparency.

The impact of blockchain will be profound and early adopters will benefit. My company Crealogix is already introducing blockchain trading systems and blockchain-compatible interfaces to its digital banking technology.

Blockchain is the future of finance and I'm excited to be making it a reality.

To find out more please visit Crealogix.com or email Mike.Bradford@crealogix.com



OPEN BANKING

Opening up banking is a revolution

Possible sharing of consumer data, through new tech-driven banking arrangements, is set to open up the financial sector amid concerns for customers' privacy

CHARLES ORTON-JONES

Open banking is about to shake up the industry. From January 13, high street banks were obliged by law to share consumer data with third-party providers, so long as consumers consent. Open banking will allow consumers to access a galaxy of new services, including account aggregators, so they can keep track of accounts across multiple banks and services, and direct payment services, to disrupt the traditional payment system.

But there is a problem. Privacy is a huge concern. If consumers don't trust banks to keep their data safe, they will avoid engaging altogether. But how corrosive are privacy worries?

A new survey by the Emerging Payments Association, an industry body for the payments industry, shows 34 per cent would not wish regulated authorities to access their accounts to offer better banking and services. But 35 per cent would consent to the data being used, as long as it remained secure. Awareness of open banking is poor with 51 per cent unaware of the term.

So clearly privacy is a major challenge. But if this gulf in trust can't be breached, the efforts will be severely underused.

What's the solution? The first step is to highlight that the open banking protocols are genuinely secure. Raconteur asked more than 20 banks, third-party service providers and security consultancies for their verdict on security, and received an overwhelmingly confident response.

Henry Felton, senior consultant at Capgemini Consulting, says: "The type of technology being used, APIs [application programming interfaces], has been specifically chosen with security in mind and those

who want to get access to customers' bank information must be authorised by the regulator, the Financial Conduct Authority."

There are a few doubters. Tim Ayling, Europe, Middle East and Africa director of fraud intelligence at RSA Security, says it's foolish to write off consumer concerns as merely irrational. "An easy way to access customer banking data will always be at the top of the hacker wish list," he says.

"While there are undoubtedly benefits to open banking, the aggregation of customer data held in potentially less-secure and dynamic environments, such as fintech startups, is a hacker's birthday and Christmas come together. The risk to the consumer is very real."

Critically, he adds: "Whether this undermines open banking is a whole new question however. Many consumers seem happy to live the risky way. We only need to look at the amount of personal information shared on social media to understand that."

This is the crux of the debate. Security is always a trade-off. Service providers must dangle tantalising products in front of consumers to change behaviour. If so, the worries about privacy and security, real or imagined, will fade.

It's early days, but signs are encouraging. When shown benefits, consumers are far more likely to agree to share their data.

A UK survey by MuleSoft revealed 48 per cent would be happy to share transaction data with third parties if they received a more personalised service. One in three would be happy for tech giants, such as Google, Apple and Facebook, to offer banking services because of the personalisation they offer. Ask younger consumers and the figure rises to half.

Some open banking participants are on their way to becoming household names.



If the industry fails to win consumers' trust, this revolution in banking will fail before it has even begun

Revolut and TransferWise offer cut-price foreign exchange services. There are new banking entrants, or challengers, such as Monese, Atom, Monzo, Coconut and Starling. The process of taking open banking mainstream is well underway.

The mission depends on no false steps. Alas, there is a minor, if limited, problem with current open banking practices. Megan Caywood, the chief platform officer of Starling Bank, the app-only challenger, waggles her finger at slackers in

the banking industry that may be using a sub-standard protocol.

"Many banks did not meet the January 13 deadline, so are instead enabling screen-scraping as an interim solution to APIs. For those unfamiliar, screen-scraping requires users to share their banking credentials – logon and password – to share their data with a third party, whereas APIs do not, and this method is an insufficient and insecure way of sharing data."

"It's possible that allowing this as an interim solution to buy the banks more time to properly implement open banking will accidentally undermine the intent of the legislation and decrease customer trust." Starling Bank, like other top-tier providers, only uses maximum security APIs to avoid the screen-scraping problem.

Poor practices like screen-scraping could lead to a leak of data and a scandal. If errors happen, consumers need the right of redress. Simon Paris, deputy chief executive at fintech services provider Finastra, says: "Creating the appropriate safeguards and redress mechanisms is a critical part of gaining consumer confidence, so they know who to turn to if something happens."

"If something goes wrong with a payment, the bank should help customers get a refund. If someone misuses a customer's data, then the case is subject to data protection laws and complaints should be directed to the Information Commissioner's Office."

Ultimately, no one should believe the adoption of open banking in scale is guaranteed. Carlos Abarca, TSB's chief information officer, warns: "The industry must give customers the confidence that their money is safe. In this emerging phase of open banking, tactical solutions, such as web aggregation, are being adopted that could pose a security risk."

"If we fail to communicate the security benefits of new technologies, we risk undermining open banking completely. Ultimately, if the industry fails to win consumers' trust, this revolution in banking will fail before it has even begun." ♦

OPINION COLUMN

'When we in the West look to America for innovation, we are looking the wrong way'

Often talk about the world of change we are going through and how Europe and America are living in legacy economies. Our banking, financial and payment services were invented way back when in the industrial era, which is why our financial system is built with a focus on the physical distribution of paper in a localised network focused upon buildings and humans.

"The cheque is in the post" was the greatest innovation of that era and, as we automated things, we made faster horses. We moved from cheque to plastic cards and from branch pass books to automated banking online, but the actual products and services reflect that industrial era history.

We talk about open banking and the fintech revolution, but it isn't really happening. The reason it's not happening is that nearly all our core-system infrastructures were implemented in the last century, before Mark Zuckerberg was even born. Instead, we are trying to add funky, digital, modern networking over that broken scrapheap of the past and it will fail.

I know it will fail as I travel the world non-stop and can see it. For example, while we are trying to make faster horses with faster payments and faster banks, Asia is making turbo-charged motor cars that speed around the world. That is why China saw \$15.5 trillion of consumer payments pass through mobile payments wallets in 2017, triple the volume of 2016 and forecast to reach \$50 trillion by the end of the decade.

China's economy has leap-frogged the industrial era payments via cheque books and plastic, and transcended immediately to mobile. The two technology giants of China, Tencent and Alibaba, have a very different model of the world too. To me they seem like PayPal integrated with Facebook and Amazon, a social, commercial and financial ecosystem that is tightly integrated.

But the story in China is of cars replacing horses. There is an even greater phenomenon taking place in Africa. China has a new system that reimagines the old one. Africa had no system and is reimagining everything. Using that analogy of cars and horses, Africa is creating financial aeroplanes.

Until the mobile phone arrived, Africans could only pay each other by physically transacting cash. Most of the people in Nigeria, Uganda, Tanzania and other sub-Saharan countries had no bank account and no access to electronic money.

Therefore, they had to move cash physically around, and it was insecure, dangerous and subject to excessive risk. Now all Africans with a mobile subscription – more than four out of five people – are using their mobile to move money. One in three Africans with a mobile phone use it as a mobile wallet. There is one big difference between the African mobile wallet and the Chinese one however, and that is the size of a transaction.

Africans living on \$2 a day can take out microinsurance for 10 cents a day, they can save 5 cents a day and invest 7.5 cents a day, if they want to. Equally, Africans, who historically could only sell their produce to the nearest marketplace in a small village or town, can now sell their offerings to anyone, anywhere.

The digital revolution driven by the mobile internet is creating a ground-up reimagining of everything and when we in the West look to America for innovation, we are looking the wrong way. We need to look to Asia, Africa and South America. This is where the true transformation is coming from.

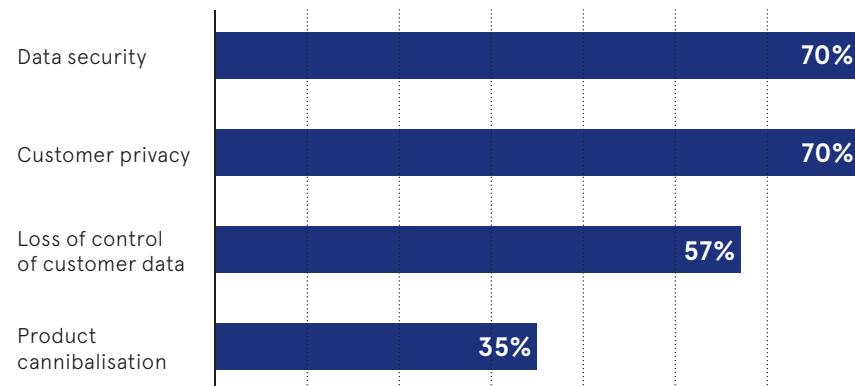
Chris Skinner is author of a new book, *Digital Human*, which describes how humanity is being revolutionised through digital inclusion



Chris Skinner
Chairman
Financial Services Club

Banks' concerns for API adoption*

Application programming interfaces or APIs are central to the open banking concept, allowing third-party providers to access bank data



*Global survey of banking executives

Capgemini 2017

1 in 2 UK consumers would be happy to share transaction data with third parties if they received a more personalised service

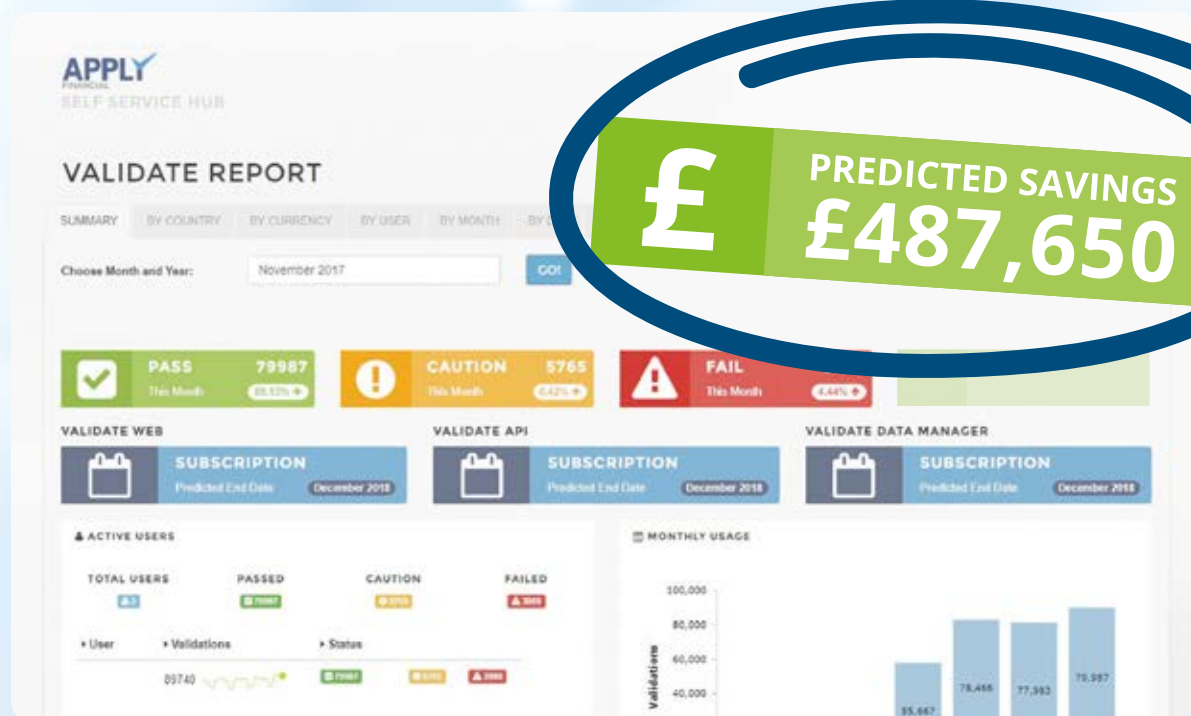
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MuleSoft

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