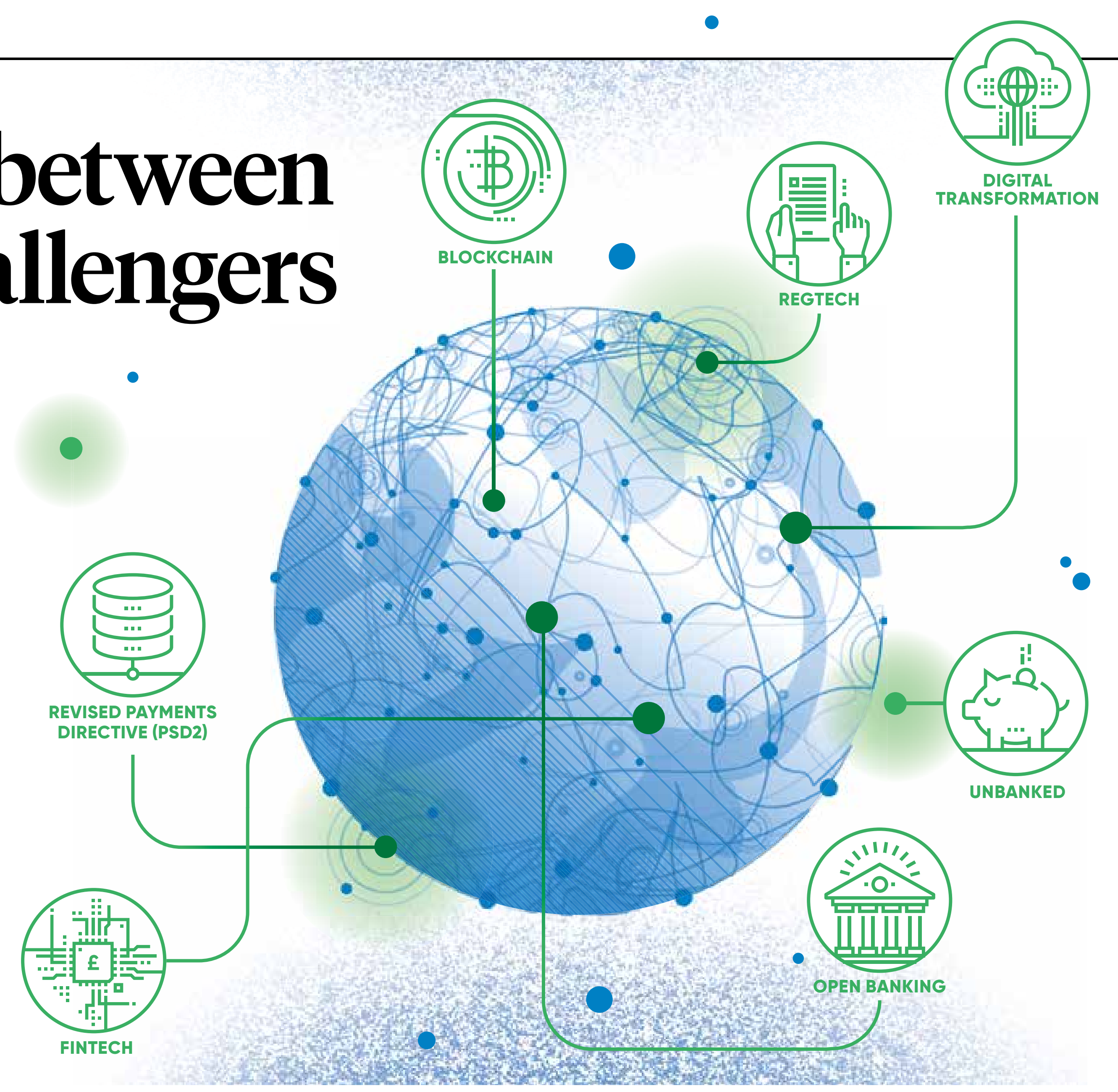
FUTURE OF FINANCIAL SERVICES

OVERVIEW

Bridging the gulf between big banks and challengers

The scale and speed of the digital revolution has left major players in the financial services sector struggling to keep up



OSCAR WILLIAMS-GRUT

American physicist and philosopher Thomas Kuhn came up with idea of a "paradigm shift" in the 1960s to describe a scientific revolution – a momentous discovery that fundamentally rewrites the laws of science, such as Galileo proving the Earth revolves around the Sun or Newton discovering gravity.

It is not too much to say that finance is undergoing a paradigm shift today, driven by smartphones, financial technology startups, and trends such as blockchain and artificial intelligence.

"Most of the change in the industry was quite incremental and what I regard as linear – the introduction of ATMs, the introduction of credit cards, those kinds of things," says Antony Jenkins, former chief executive of Barclays. "When you look at what's happening now with mobile banking, it's a true transformation. The power in people's pockets enables them to change things in really quite a radical way."

The technological revolution in finance is at least half a decade old. And yet embracing this new landscape remains a Gordian Knot for most established financial institutions. Recent PwC research found that only 20 per cent of finance executives feel their organisation is structurally ready to embrace a digital future.

Since leaving Barclays in 2015, Mr Jenkins has spent time speaking to fintech startups and banking chief executives to get a sense of the gulf between the two parties and how to bridge it. He has identified four main challenges facing incumbents: the sky-high expectations of customers who are used to services such as Facebook; the weight of regulation since the financial crisis; legacy technology within banks; and what he calls "cultural resistance".

"If you look inside a big bank, I often think it's like cutting through a metaphorical tree," he says of the tech problem. "Banks have almost every generation of technology going back all the way to the 1960s. Those legacy technology stacks are really, really challenging."

Mr Jenkins founded 10x Technologies, a startup that offers a cloud-based core banking platform – a modern operating system for finance. It aims to help banks with their digital transformation by giving them new foundations on which to build a new bank.

However, it's the last challenge, cultural resistance, that Mr Jenkins says is "the most difficult and the most powerful" obstacle.

"It's not that people in banks are bad people or have bad intent or don't really understand what's going on in the technology world," he says. "It just seems very risky to embrace the newer technologies. That is the problem we see across many incumbents in many different industries."

Kerim Derhalli spent almost 30 years in the City and more than ten years as a managing director at Deutsche Bank before leaving in 2012 to set up investment app Invstr. Like the ex-Barclays boss, he believes there is "a lot of inertia in the commercial mindset". Also, a lack of technical knowledge at the very highest echelons is holding back progress, he says.

"Bank management is largely technologically illiterate," says Mr Derhalli. "The people who are running large organisations are running them because they were great with clients or they were great with managing risk or they were great at designing products or, frankly, they were just fantastic political animals."

Financial institutions realise this and are taking action. Andrew Brem, Aviva's chief digital officer, says: "The whole of our group executive and non-executive board have been out multiple times to Silicon Valley and to Asia to experience big and small digital businesses first hand. We train them on technological subjects – cyber security, software in the cloud.

"Of course, they are not going to be experts, but they are absolutely aware that they need to know these things at least as a point of curiosity."

> "You have to pull the tiller incredibly hard to move a big business

Mr Jenkins adds: "The one piece of advice I always give executives or CEOs when asked how to change the tempo around this is to spend some time understanding the underlying technology. Once you understand that you'll understand how profound this change is going to be and that's the real driver of all this."

Still, even if those at the top of organisations can grasp the scale of change, can they translate it into an effective strategy?

"You have to pull the tiller incredibly hard to move a big business," says Mr Brem, who joined Aviva in 2014 from a retail background. "You have to be almost caricatured in your behaviour, you have to be iconic."

Aviva's chief executive Mark Wilson is a perfect example, he says. Mr Wilson established a "digital garage" in trendy East London as a physical embodiment of Aviva's digital strategy and has given Mr Brem significant budgetary support. "The important thing is just to make a bet and get fully behind it," says the Aviva digital chief.

Mr Jenkins believes creating external organisations which stand alone from the mothership is the only way large financial companies will really be able to transform themselves. And it is transformation, not innovation, that is required, he argues.

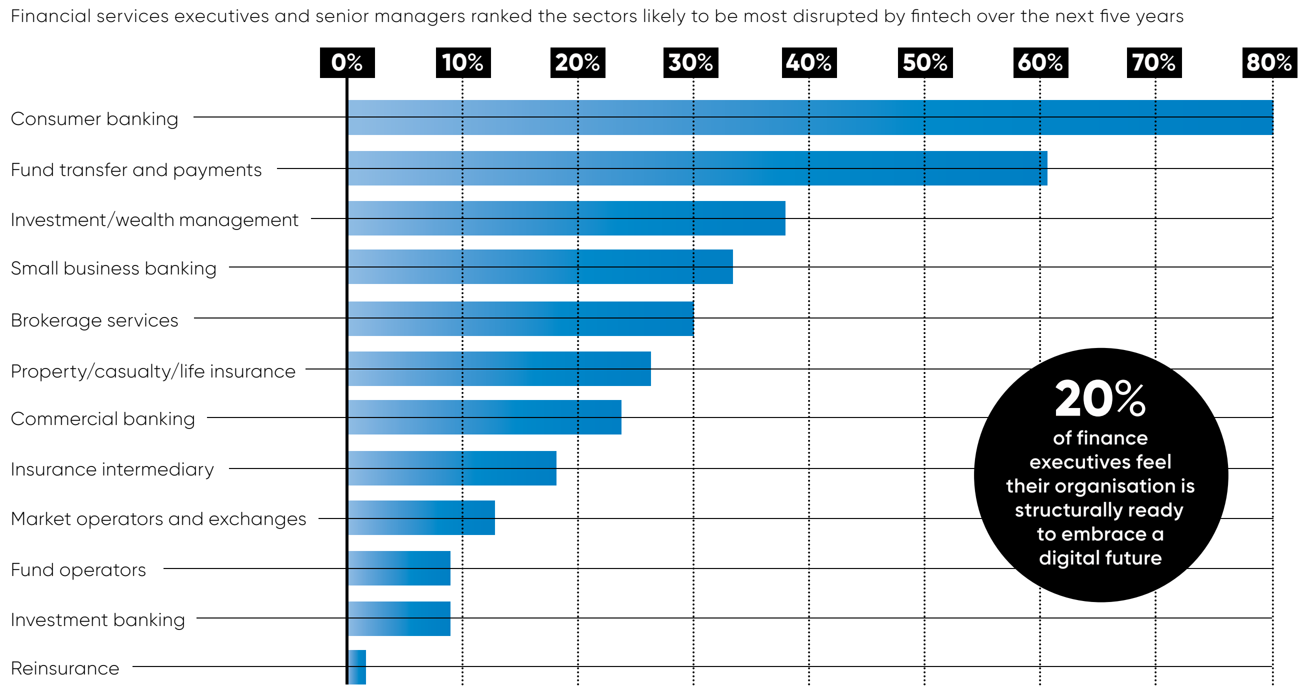
He recommends building a separate "challenger" organisation that can rise like a phoenix from the ashes of the legacy player. "Ultimately, what may happen is, once the new business is very successful, then they can begin a process of migration on to the new systems," he says.

Transforming a large institution into a digital-focused, mobile-first, cloud-ready organisation is a five to seven-year journey, Mr Jenkins says, adding: "When I started to work on 10x, there were a lot of people who thought they'd got it covered and thought that the changes weren't going to be as significant.

"Now I find many bank CEOs thinking a lot about this and being concerned about it. They've moved from thinking there wasn't an issue to trying to solve it – that's happened in the last 12 months even." The paradigm shift is underway.

AREA OF DISRUPTION FROM FINTECH

Financial services executives and senior managers ranked the sectors likely to be most disrupted by fintech over the next five years



PwC 2016

DISTRIBUTED IN
THE SUNDAY TIMES

PUBLISHED IN ASSOCIATION WITH
INNOVATE FINANCE
bba
The voice of banking

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COMMERCIAL FEATURE

Bridging the engagement gap

CyberAdvice "game" takes the preliminary pain out of financial planning

People scare easily. Faced with the stark financial realities of poverty in old age, never-ending mortgage payments or adult children still dependent on the bank of mum and dad, they baulk. Then they disengage. Then they're gone.

The crushing realisation that even the strictest prudence may never build, let alone protect, a gilded family future can be a make-or-break moment in a person's life.

These anxieties traditionally came to the fore during a "fact-find" – a laborious, paper-based process to determine how likely an individual was to reach his or her financial goals and attitude to risk. Mandated by compliance legislation, it did for financial advisers' clients what Novacaine did for dentists' patients – left them numb.

Manually drilling down on private wealth and lifestyle aspirations, or the lack of them, is raw, painful economic exposure. No wonder merely getting a person to sit down for a fact-find is like making a root-canal appointment.

Technology, thankfully, can deliver a more comfortable sensation.

One effective digital panacea is a game-like financial planning set of apps created by Leamington Spa-based software and consultancy firm Focus Solutions. Aimed at its slew of independent financial advisers, high street banks and mortgage-broker customers, the apps allow someone in the comfort of their office or home to "anonymously" conduct a private financial health check and see what they can do about the results.

> We want to help consumers get a handle on their finances and see that it's easy to take control

Simply put, they compile an online profile using an avatar, pump in as many financial facts as they wish, adjust for their own cost of living and lifestyle parameters – annual holidays, entertaining, expensive pursuits – if they wish and produce a detailed monetary map to their desired financial future.

Featuring the latest Office for National Statistics data and Moody's Analytics number crunching, the app generates realistic future scenarios so a consumer can discover what savings, tax and insurance measures need to be put in place to meet their goals.

Cash flow and budgets, cash reserves, ISA allowances, cost of debt, pensions, family income and savings goals as well as attitude to planning and general financial knowledge are all factored into the equation, letting the consumer see what taking action could mean to them.

According to Dave Upton, managing director of Focus Solutions: "This means that when a consumer decides to reach out to an adviser, it's for a targeted, high-value interaction. Bridging the technology advice gap by giving everyone a better financial planning experience, in an environment free from sales pressure, builds not only goodwill and trust, but also more business. In practice, if the outcome requires a simple product such as an ISA, an execution-only sale could be concluded at the end of the journey.

"Once the consumer has completed the health check – whether they started anonymously or not – this allows them to connect with the adviser who provided the app, including the option to co-browse their findings."

Enabling firms to deliver a refined digital client engagement experience, built on the rich industry knowledge the advisers possess, is a unique proposition. He adds: "Bringing the two together is a huge challenge in itself and one which most fintech firms don't offer effectively."

The apps meet the key accessibility tenet introduced by the *2016 Financial Advice Market Review*, aimed at increasing consumer engagement and confidence in dealing with financial advice. Among other recommendations, the review says information should be made more easily available to consumers and those who advise them. It also highlights the use of "nudges" to encourage customers to seek support at key life stages.

Acquired by Standard Life in 2011, Focus Solutions remains an effectively independent software house, specialising in helping advisers to punch above their weight in an increasingly competitive digital market. As a leading fintech firm tapping a burgeoning £20-billion market, Focus Solutions offers global customers omni-channel, lifetime client engagement via its core focus:360° technology platform.

Essentially, this is fintech and regtech in one system, and the underlying business platform includes mobile and web app services, a rich API (application programming interface), scenario modelling tools, back-office administration and practice management, call centre and operations management, management information reporting, data cubes, case-checking, and compliance monitoring.

From a corporate perspective, fintech platforms and apps such as Focus Solutions' liberate both in-house and independent advisers from time-consuming administrative tasks, allowing them to deal with more consumers, more effectively, each day.

38% of UK consumers now carry out all their financial transactions online

59% of people in the UK don't mind which channel they use to communicate with their bank, insurer or investment adviser

70% of consumers around the world would welcome robo-advisory services

2/3 consumers still want human interaction in financial services

Bud 2016/*Balancing Bricks & Click* 2016/Accenture 2017

"It's about giving consumers a space to model their financial futures and a way of reacting to how that picture makes them feel. We want to help consumers get a handle on their finances and see that it's easy to take control," says Mr Upton.

Mike Hearfield, head of digital at Focus Solutions, says the fact-finding apps take consumers on an engaging journey that ultimately leads to the right mix of technology and people to deliver the advice.

"People often don't know what they want until they see something; even if it's wrong, it's all about getting the consumer to react. We guide them through three simple steps – financial foundations, planning and optimisation – and seamlessly build up an accurate profile that helps them discover their own needs," says Mr Hearfield. "The consumer does not want to disengage at this point. They know they want to do something, but don't yet know what that something is. Our apps let them see what that something might be."

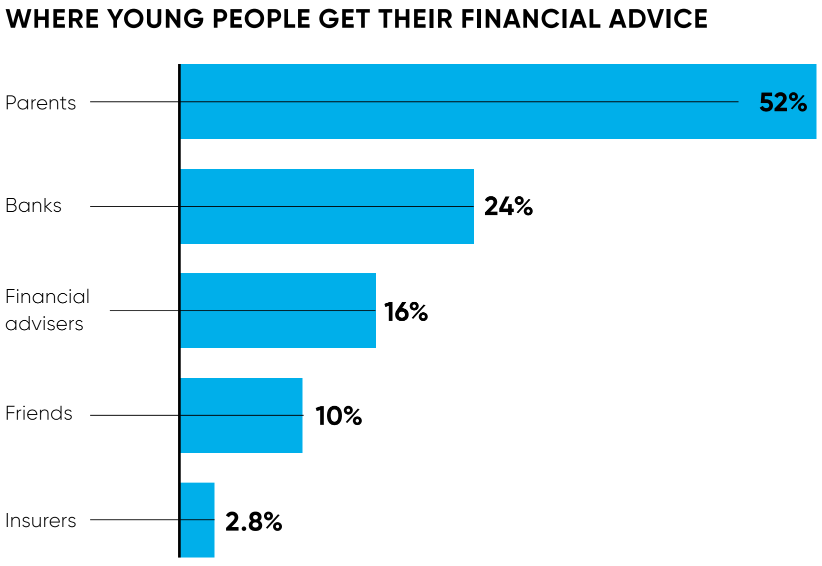
The individual apps and in fact the whole platform can be white labelled, rebranded or co-branded as enterprise versions or "shrink wrapped" for smaller firms. It can be hosted on-premise or as a managed service in a private cloud.

With larger institutions, integration work with legacy systems militates against culture clash since in-house IT crews still control their domain; the focus:360° platform merely sits on top of existing architecture. In some cases, leading financial services organisations roll out their own advice platforms at huge expense. Focus Solutions now allows firms to deliver the whole end-to-end advice distribution capability in one platform at a capability level, cost point and lead time that is unparalleled by any wholly internal build.

Focus Solutions has even provided a sandbox version for consumers to play in from their favourite device. Visit the financial engagement tool http://digital-demo.focus-labs.com.

For more information please visit www.focus-solutions.co.uk

WHERE YOUNG PEOPLE GET THEIR FINANCIAL ADVICE



Bud 2016

BLOCKCHAIN

Watch out, blockchain just went mainstream

No longer a mystical concept, applications for blockchain are on the rise and could shake up financial services

Peter Smith, chief executive of Blockchain Ltd, a bitcoin wallet provider and software developer

Bloomberg via Getty Images

CLARE GASCOIGNE

It's never easy to spot the tipping point in a technology cycle, the moment when the science leaps from the laboratory to the high street. Blockchain – the distributed database that can be used by several counterparties to build unalterable records – has been around for quarter of a century, but when will it finally make it out into the real world?

"The technology is not the issue," says Rahul Singh, president of HCL Technologies, an IT company. "The issue is the acceptance of that technology. Understanding of the blockchain is still at the R&D stage."

Much has been promised, with blockchain hype reaching fever pitch as all financial services, big and small, try to grasp the concept and the consequences. Steve Webb, financial services blockchain leader at PwC, says many clients are teetering on the edge of launching blockchain programmes that have been taken through the stages of proof of concept.

"This year is likely to see the early adopters – still a minority, but starting to bring things to market," he says. "So, for example, Santander has piloted an app to make international payments – it is currently only for staff, but the intention is to go live soon."

As the technology matures and real products and services come onstream, the uses of blockchain are diverging. Peter Randall, chief executive of SETL, a blockchain specialist, sees a key difference between the permissioned and non-permissioned environments: those blockchains that are restricted to certain people or companies and those that are not.

"The permissioned environment, a distributed ledger, operates in the way a financial services company operates already, but is a far, far cheaper way of doing a structure," he says. "But a bank has to keep control of its data; it has a lot of existing processes, from know your customer to anti-money laundering, and it's only within a permissioned environment that you could expect a regulator or compliance officer to say yes to a blockchain structure."

Unlike non-permissioned environments, such as the crypto-currency bitcoin, which are open to anyone, the blockchain developments that are going live are likely to be far more limited and targeted. Blockchain can easily be used by a single company to offer new products or services.

> Imagine, now Article 50 has been triggered, how a letter of credit that could be issued in a matter of hours rather than days could help make exporting more attractive

Stephen Holmes, chief technology officer of the Fintech Banking Lab at consultancy VirtusaPolaris, gives as an example options in agricultural financing: monitoring the use of a major piece of machinery via the internet of things, and logging that information via blockchain to determine depreciation and potentially cheaper financing.

But he adds that although blockchain can be used now by a company to create new standalone products: "To create a marketplace with interoperability, you need standards. Privacy and security are the issues that are being resolved. Part of that is agreeing standards."

The interoperability of blockchain is one of the areas that has been most hyped. For two parties to a deal both to be able to create and maintain a record of a transaction could revolutionise back-office functions in financial services, cutting through the reams of work involved in monitoring, agreeing and record-keeping.

The international community is working on global standards, but it is likely to be another two to three years before that job is done. PwC's Mr Webb says this is part of the change that has to happen before blockchain goes mainstream.

"It requires you to think more co-operatively. The benefits come from multiple participants, so multiple participants need to change," he says.

But Thorsten Peisl of RISE Financial Technologies, which provides decentralised ledgers for the post-trade industry, says there's plenty that can be done in the meantime.

"We don't need to wait for new standards; the technology needs to be compatible with the regulations that already exist," he says. "In order to bring it to life, it needs agreement and it's a matter of education. The lawyers need to talk to the technologists; it's a lot about terminology – what do you mean by the word 'token'? – and finding alignment between the two worlds."

Applying the technology to solving a business problem, particularly a problem no one knew they had, is of course the clever bit, and the ideas are flowing. Marine insurers are looking into shipping container "locks" that would tell you not only when the cargo was loaded or delivered, but if the vessel strayed into dangerous waters; premiums could be adjusted instantly.

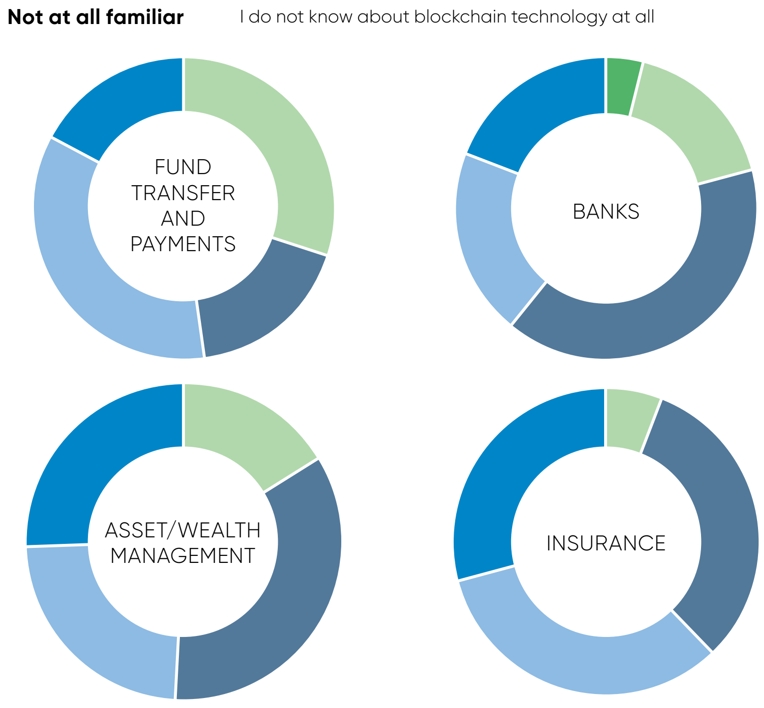
Northern Trust and IBM have built a blockchain to administer a private equity fund. Imagine, now Article 50 has been triggered, how a letter of credit that could be issued in a matter of hours rather than days could help make exporting more attractive. Suppose you need to make a payment to someone who doesn't have a bank account, blockchain might give you the option of using a mobile phone instead.

Blockchain has grown to the point where people are no longer asking about the technology, but instead asking what it can do. How long before it goes mainstream? It already has.

INDUSTRY AWARENESS OF BLOCKCHAIN

Financial services executives and senior managers described the extent to which they are familiar with blockchain technology

- **Extremely familiar** – I feel as if I am expert on blockchain technology and how it works
- **Very familiar** – I feel as if I have fairly complete knowledge of blockchain technology and how it works
- **Moderately familiar** – I have read or heard about blockchain technology in the news and have researched it to some degree
- **Slightly familiar** – I have read or heard about blockchain technology in the news
- **Not at all familiar** – I do not know about blockchain technology at all



PwC 2016

CASE STUDY

BLOCKCHAIN PLASTIC

Kristina Paukshtite/Pexels

The purchase of a cupcake last November was one of the first times blockchain technology crossed over into real life.

More than 100 users bought goods from retailers using a contactless smartcard and digitised payment system created by SETL, Deloitte and Metro Bank.

Peter Randall, chief executive of SETL, believes the technology can be used to target many inefficiencies in the financial system. "A card producer will charge a merchant anything between half a per cent to 7 per cent to process customer payments – and the merchant won't get the money for up to ten days. That's a gigantic amount of money in flight," he says.

In contrast, a blockchain system can cut the processing fees and move the money instantly – a clear advantage in both cost and speed. SETL believes it has the capacity to process billions of transactions a day.

Customers created their identity details on the Deloitte Smart Identity blockchain, which communicated with SETL's payment blockchain to set up user credentials. The purchases were made from Metro Bank accounts.

Craig Donaldson, chief executive at Metro Bank, says: "Retail payments have for too long been dominated by a few players to the detriment of customers. We hope this will move us closer to a more efficient and flexible service."

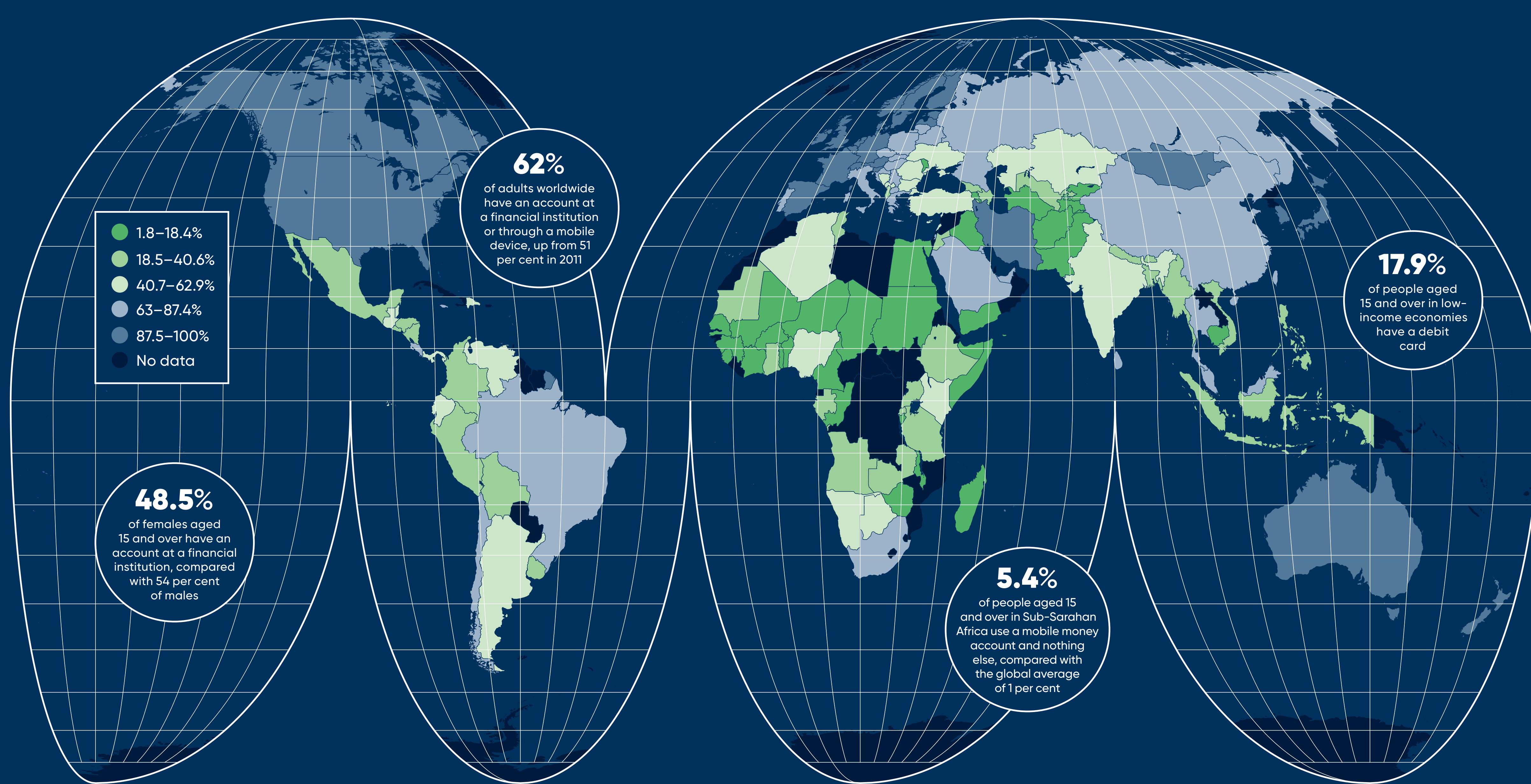
Mr Randall adds: "There's a lot of competition in this space, but the trial passed the test with flying colours. We have to have the right regulatory cover, but now we will be industrialising it."

BANKING THE UNBANKED

Financial inclusion is a key driver in tackling poverty and boosting economic growth. Yet a staggering two billion adults across the world still do not regularly use a bank account or have access to a financial institution via a mobile device. Here is the the latest data on financial inclusion, which shows a large disparity between different countries worldwide

WHERE THE UNBANKED LIVE

PERCENTAGE OF PEOPLE AGED 15 AND OVER WITH AN ACCOUNT AT A FINANCIAL INSTITUTION



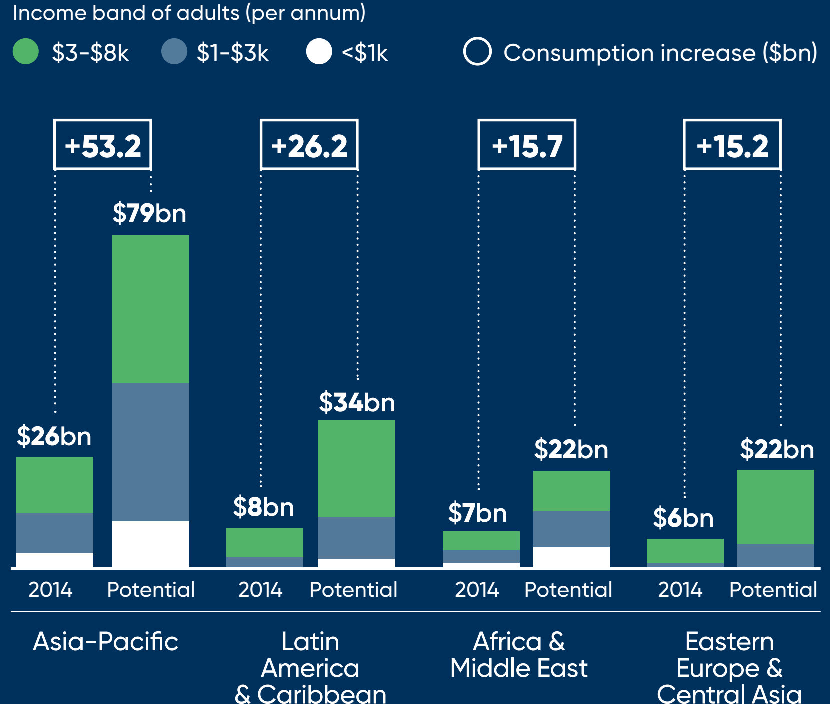
Global Findex, World Bank

$380BN OPPORTUNITY FOR BANKS IN EMERGING MARKETS

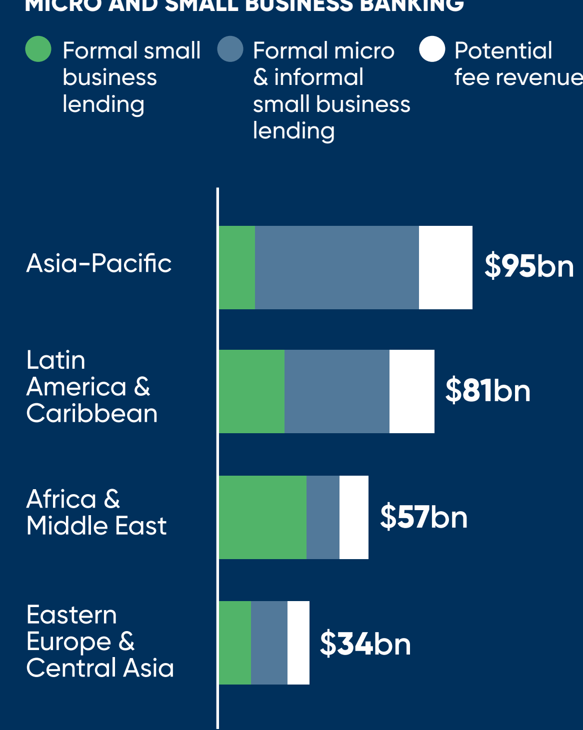
Estimated financial services consumption increase through full banking penetration and increased utilisation by adult population

PERSONAL BANKING

Income band of adults (per annum)



MICRO AND SMALL BUSINESS BANKING



Accenture/World Bank/Global Findex

UNBANKED PERCENTAGE OF POPULATION

TOP AND BOTTOM TEN FROM MORE THAN 160 COUNTRIES WITH AVAILABLE DATA

TOP 10

01	Norway	100%
02	Finland	100%
03	Denmark	100%
04	Sweden	99.7%
05	New Zealand	99.5%
06	Netherlands	99.3%
07	Canada	99.1%
08	UK	98.9%
09	Australia	98.8%
10	Germany	98.7%

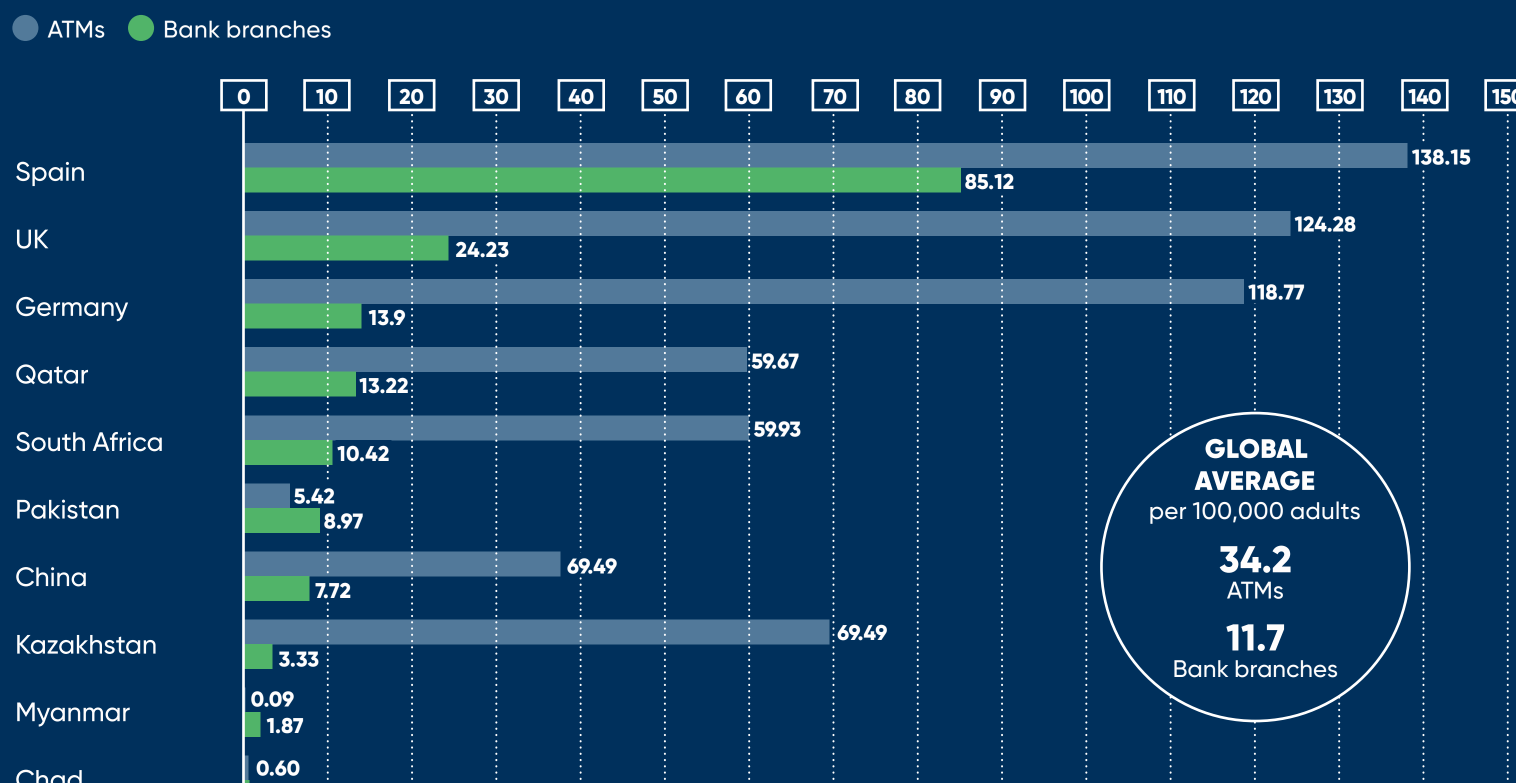
BOTTOM 10

01	Turkmenistan	1.8%
02	Niger	3.5%
03	Madagascar	5.7%
04	Guinea	6.2%
05	Republic of Yemen	6.5%
06	Burundi	6.9%
07	Chad	7.7%
08	Somalia	7.9%
09	Pakistan	8.7%
10	Afghanistan	9.9%

Global Findex, World Bank

COMMERCIAL BANK BRANCHES AND ATMs PER 100,000 ADULTS

MOST RECENT DATA AVAILABLE FOR SELECTED COUNTRIES



World Bank/Global Findex

FINTECH RIVALS

Competition to claim the fintech global crown

London's prowess as a global financial technology centre of excellence faces the challenge of Brexit

JAMES HURLEY

Finstar Financial Group, a private investment group, recently opened a venture capital arm, called FinstarLabs, which is hoping to find and invest in the next generation of financial services giants.

The first major decision Finstar had to make was where to set out its stall. London would have appeared to be the natural choice.

The capital of England has been heralded as the financial technology, or fintech, capital of the world. Within the space of a few square miles, startups can find the world's largest financial services sector, one of Europe's most promising technology hubs, and sympathetic policymakers and regulators.

So why has FinstarLabs instead opened its doors in Berlin? Mark Ruddock, a British businessman who has just moved out to the German capital to launch the business, explains: "Not only is the city a vibrant hub of startup activity and youthful ambition, it has many critical attributes that will help sustain and expand that activity.

"The cost of living is low, relative to the rest of Europe. It is attracting a wide range of talent from across the world. Top-tier venture firms are here in force, as are larger firms wanting to develop innovation centres. Berlin may very well become the epicentre of European fintech."

> Zurich has nurtured a thriving financial services and fintech sector, and boasts excellent infrastructure, a solid legal system and protection for consumers

London will not lose any sleep over any one organisation falling into the arms of a rival, but there is concern that Britain's departure from the European Union could advance the claims of a host of fintech hubs, as they play on fears including access to investment, the single market and talent. There is also the simple fear that London will become less relevant as a fintech centre if the City's banking sector shrinks.

So which fintech hubs should London be most concerned about? Berlin and Paris appear to be making the most noise. Both cities have mounted aggressive campaigns to try to lure startups to their own hubs. Their inward investment teams claim they are being contacted by London fintech companies considering a European base so they can continue to benefit from EU regulation that will allow their products to cross borders easily.

It can also be cheaper to move than to stay. Commercial property in a prime location in Berlin, for example, can be less than a third of the cost of London and private rents are cheaper too.

Berlin Partner, an agency that promotes investment in the city, says it has also been fielding inquiries from companies from Asia and America that in the past would have naturally chosen London for their European base.

However, while Berlin may be a noisy neighbour, it may not pose the greatest threat to London's status.

The Global Fintech Hubs Federation is a network of 44 emerging and established fintech hubs. In April, a ranking of these hubs by Deloitte still placed London at the top of the pile. Perhaps counter-intuitively, the closest European rival on the list – Berlin is not a member of the organisation – was not even in the EU.

COMPARING FINTECH HUBS IN EUROPE

RANKING SUBFACTORS FOR SELECTED HUBS OF THE GLOBAL FINTECH HUBS FEDERATION

Deloitte 2017

Zurich, Deloitte found, "has nurtured a thriving financial services and fintech sector, and boasts excellent infrastructure, a solid legal system and protection for consumers".

Katka Letzing, who leads the fintech division at startup Kickstart Accelerator, says: "With its heritage in financial services and the presence of some of the world's largest financial institutions, Zurich is very well placed to become a global fintech hub. The incumbents, such as Credit Suisse and UBS among others, are working closely with the emerging fintech startups."

Frankfurt and Stockholm were the next most highly ranked European cities in the report. The German city benefits from being home to more than 300 banks and the largest stock exchange in Continental Europe, Deutsche Börse Group. It also has a vibrant startup scene, investors, talent, financial institution and regulators. IT security is a particular strength.

The Swedish capital, meanwhile, is second only to Silicon Valley in producing the most highly valued technology startups per capita. When it comes to fintech, Stockholm attracts about one fifth of all investment in Europe and is home to Klarna and iZettle, two of Europe's most promising payments businesses.

Rhydian Lewis, co-founder of RateSetter, a peer-to-peer lending platform, says the company is staying in London, but he's noticed attempts of rival cities to lure promising companies like his.

"The key things that founders will look for are access to talent, a supportive government and low costs. Paris and Frankfurt have the first two, but are very expensive cities. I think that some smart founders will look further afield to cities in Eastern Europe which have great tech talent, welcoming authorities and are much cheaper places to do business," he says.

Guy Wilkes, financial services regulatory and enforcement partner at law firm Mayer Brown, says rival hubs have obstacles to overcome. "None of the European competitors have the benefit of a financial services industry as large or as developed as London on their doorstep," he says. "For example, Berlin suffers to some extent from being dislocated from Germany's financial centre in Frankfurt. The importance of a symbiotic relationship between fintech and established financial services firms cannot be overstated."

In that context, New York may be a more obvious rival, with Wall Street having a huge capital base a need for fintech innovation. Yet even the Big Apple has its fair share of challenges. "The US is a major centre for fintech, but in many ways it's a more complex regulatory environment, not least because there are more bodies, with 50 states, federal agencies and law enforcement, to deal with," says Mr Wilkes.

Asian competitors, particularly Singapore, could yet pose a tougher threat.

INSIGHT

ASIAN CHALLENGE

New York is viewed in some circles as the most directly comparable fintech rival to London, but the biggest threat might be found by looking east rather than west.

America's regulatory environment is notoriously tricky to navigate and a recent Deloitte study found that European hubs generally rated regulation in their cities negatively, with regulatory barriers cited as a common challenge. The picture is different in Asia, with officials taking a more British-style approach to nurturing fintech.

Deloitte found that Asian fintech leaders were more positive about their interactions with regulators than their European counterparts.

China, South Korea, Hong Kong, Japan and Singapore have all signed international co-operation agreements with other regulators. Singapore's central bank, MAS, has signed more fintech co-operation agreements than other regulatory bodies in the world.

While Singapore's claim on London's fintech crown is well known, a credible threat is posed by Tokyo. Japan, one of the biggest financial markets in the world, has enjoyed marked growth in its fintech ecosystem over the past couple of years, with startups, industry players, regulators and government all collaborating.

Deloitte's research noted that Japanese regulators have recently launched "fintech-friendly laws" around blockchain and application programming interfaces, or APIs, along with initiatives to support new startups.

A sign of a hub's maturity is often marked by the big boys sitting up and taking notice, and Tokyo has also earned a tick in this box. Last year, Mitsubishi UFJ Financial Group set up a unit to research and develop new financial technologies, the first of its kind for a major Japanese bank.

OPINION COLUMN

'Financial services can become one of the first sectors to help solve the gender gap'

GEORGIA HANIAS
Head of diversity programmes
Innovate Finance

Innovate Finance recently conducted a survey to find out how women felt about working in the fintech sector. Some 48 per cent of respondents believed fintech was becoming a more attractive space for female talent and 35 per cent felt that female bosses were helpful in achieving their career goals.

While the survey is positive, there is still a major gender gap at the leadership level. Within the Innovate Finance startup community, only 8 per cent are founded or headed up by women. If you look at the membership base, there are only 21 female founders out of a total of 260 fintech member companies.

One of the reasons for this is the skills gap. Girls often outpace boys at school, but few are pursuing STEM – science, technology, engineering and maths – studies that can land them top jobs in financial technology. Though we are living in a more technically driven digital economy, there are fewer women getting tech skills today than ever before.

In the UK, only 10 per cent of practising engineers are women – lower than in any other European country. For women who do have the skills, many can struggle to navigate their career and family obligations, and stay in the job that they want.

A contributing factor to the drop rate is how a woman's career progression changes depending on the stage of her life. A woman fresh out of university and just starting her career might be more optimistic about her prospects than someone who has been in the workforce for a while and trying to balance work and family life.

For many, the result is often a lack of promotion, big career progression, pay gaps and women deployed in jobs below their abilities.

This recurring problem has been captured in the recently published book *The Paula Principle: Why Women Work Below their Level of Competence* by Tom Schuller. He argues that women outperform the opposite sex at the start of their careers. By the time they hit their forties, they fall behind in terms of their jobs and salaries. The gender pay gap is big across all business verticals, but the financial services sector stands out: it offers the highest-paid careers, but has the widest gender pay gap. Women earn 60 pence for every pound earned by a man.

Mr Schuller says pay and career blocks have a lot to do with the motherhood penalty, with women still struggling to find a job that offers meaningful flexible time and also provides a path to promotion.

What can be done? Firstly, STEM skills must be prioritised in primary and secondary school curriculums, and available to all students with an emphasis on coding and software skills. Secondly, we need more mentoring programmes to encourage women to become entrepreneurs and this should start at secondary school to inspire the next generation of leaders. Thirdly, we must legislate flexible working practises better to help parents so women and men can balance their work and family life.

Ultimately we must back female talent with investment. Women often see opportunities and risks very differently from men, and their perspective can provide a different view on delivery and investment to help balance decisions.

We're seeing some positive changes. Coding schools are attracting more women and returnship programmes, aimed at luring women back into the workforce, are also gaining popularity.

Government is doing its part with the launch of HM Treasury's Women of Finance Charter, where signatories agree to a series of recommendations that aim to promote women to leadership positions in financial services.

Fintech firms are in a great position to make things happen. Many are already building a workforce that reflects the diversity of the society it serves.

Together with their help and support from investors, education and government, financial services can become one of the first sectors to help solve the gender gap, and serve as an example for other businesses to follow.

COMMERCIAL FEATURE

monitise

7 anxieties KEEPING BANK CEOs up at night

1 CUSTOMER DEMAND
...is high and satisfaction is low. The ideas are there, but legacy IT is a major roadblock.

2 REGULATORY PRESSURE
...is increasing. I'm spending more and more on building systems and processes to keep up.

3 COMPETITION
...is coming from all angles, increasing customer expectations, while I have to focus on compliance.

4 SHAREHOLDER DISAPPOINTMENT
...is palpable. Returns aren't big enough, there's a lack of new products, traditional customer engagement is falling and financial technology startups are coveting the profitable bits of my business.

5 OUTDATED TECHNOLOGY SYSTEMS
...are too expensive and difficult to replace. Our core system isn't fit to deliver the experience, service and product suite my customers expect.

6 CRIMINAL THREAT
...is worrying and it only gets worse when I think about the new, potentially high-risk technologies I need to drive faster innovation.

7 TALENT STRUGGLE
...makes hiring the best people a daily challenge. My pace of tech delivery is not appealing for millennials wanting to deliver on innovation.

Q&A Collaboration is key to unlocking the new wave of banking

Monitise, the financial services technology firm, is riding a huge wave of change in the banking industry. Chief executive **Lee Cameron** says big banks must liberate themselves from the constraints of legacy technologies and processes to accelerate digital transformation and meet customer demand. He suggests that partnerships with fintechs represent the surest path to making the new wave of banking a reality

How long has Monitise been in the financial technology space?
Monitise was founded in 2003, and since then has worked closely with banks and other regulated financial entities. Starting out as a mobile-only firm in those pre-smartphone days, we were confident we had felt the winds of change coming for the banking sector and we were proved right. We've constantly evolved since then to ensure we are providing banks with the solutions and support they need as new regulations and changing consumer behaviours continue to shape the market.

LEE CAMERON
CHIEF EXECUTIVE
MONITISE

What have been the major developments for retail banks?
Smartphones, apps and instant on-demand services have become the norm. Consumers have been conditioned by fast-growing companies, Uber and Airbnb, for example, to expect a seamless and tailored service at the touch of a button, and offerings from the big banks are being left behind. New challenger "neobanks", such as Monzo, Atom and Starling, are providing more personal services focused on helping consumers manage their money. These challengers can iterate and innovate much more quickly than the big banks, and are building strong brand relationships, especially among younger consumers.

There have also been regulations such as the payments services directive (PSD2). Then there are the recent Competition and Markets Authority measures on open banking, which will increase competition and transparency by making consumer data shareable with third parties. These reforms will enable banks to improve the experience for consumers, but will also require them to work harder and smarter to retain those consumers as alternatives become clear.

How successfully are big banks meeting these new demands?
For banks, success is ultimately measured in terms of consumer satisfaction, profit and shareholder value. Times have been tough all round, with challenges relating to changing consumer expectations, shifting regulatory demands, competition from new players and the limitations of legacy technologies and processes undoubtedly causing bank chief executives sleepless nights.

There are great teams within banks trying to make innovation a reality that customers can hold in their hands, rather than letting it be stuck internally. But these teams have been dealt a bad hand, both in terms of the legacy systems they have to navigate and when it comes to board-level fear of failure connected to security, risk and compliance. So while consumer demand for digital services is high, and growing all the time, and the appetite is there in banks to meet this demand, the pace of change remains relatively slow.

That's why we created FINkit®, a bank-grade development toolkit and build-and-run platform, populated with ready-made micro-services to help banks accelerate the development of new consumer propositions in a safe and compliant way.

Are new competitors forcing their hand?
Not yet, but the big banks are certainly paying close attention to new, fast-moving competitors, their total focus on the customer, and their ability to get products to market, learn from feedback, and quickly iterate and improve.

So far, consumer uptake of services from neobanks has been relatively restricted – it's mainly younger, tech-savvy early adopters. These firms' ability to pose a real threat will probably be limited by low levels of switching across the board and their unsustainably high cost of consumer acquisition.

Where those businesses could pose a real challenge to the incumbents is in directly targeting the most profitable parts of the banks' businesses, in which their products or customer experience are weak, such as small business lending or foreign exchange. Banks are right to worry about disintermediation and a future in which they continue to provide core services on top of which specialists sweep in and take the profits and the customer relationships.

Is there a good way for bank chief executives to respond?
Collaboration with fintech startups is emerging as the surest route to enabling innovation and accelerating digital transformation. But before doing anything else, banks need to find a way to free themselves from the limitations of their legacy technologies and processes. Only then will they be able to move at the pace of the new breed of potential fintech partners and collaborate effectively.

Many bank chief executives worry about working with a disruptive competitor, but doing so does not necessarily create a threat. There is potentially a much greater threat in failing to meet consumer demands for these services.

Instead they need to change the way they address digital progress. They must recruit the right people and adopt new ways of working. It is true that chief executives are being pulled in lots of directions, but the best way to respond is through effective work with experts.

Where does Monitise FINkit fit in?
We're an enabler. With FINkit we provide the platform and toolkit for banks to increase their pace of change and to reduce the cost of developing services and bringing them to market.

FINkit features a range of pre-built micro-services, from us and from our partners, including global financial and information services firms such as Mastercard and Experian, as well as the most innovative fintech firms including BehavioSec and LivePerson, so banks never have to build any new product or service entirely from the ground up. We are then able to plug in our own subject-matter expertise to help banks make the most of the platform.

We are not going to turn up at a bank and claim we can solve all their problems, and chief executives should be wary of anyone who does. What we do is help businesses to build their services so they can engage customers quickly, in a more comprehensive and cost-effective way, working with carefully selected industry-leading firms.

What is the future of your business?
We will continue being a trustworthy company that provides best-of-breed services to support customer-orientated innovation. We will continue to enable banks to accelerate their digital transformation, helping them build, pilot, launch, run, and iterate digital services quickly and continuously, while making sure they do so in a bank-grade, compliant, secure and scalable manner.

To find out how to bring about the innovation your customers demand please visit monitise.com

7 steps TO A BETTER NIGHT'S SLEEP

What came first, the chicken or the egg? Is anxiety the root of bank chief executives' sleep troubles or vice versa? What we do know is this: the constant game of "whack a mole" you have to play as a leader in retail banking can leave you feeling physically, emotionally and mentally drained, which can lead to chronic insomnia.

Monitise FINkit has studied the retail banking environment for almost 15 years. Its experts have worked closely with bank chief executives to guide them through technological and regulatory turbulence and have put together a vital guide to restoring a peaceful night's sleep.

Join us as we explore the wisdom of lifestyle and stress management experts, and guide you through your worries to a peaceful solution.

01 SHARE YOUR WORRIES WITH SOMEONE YOU CAN TRUST
Identify a confidante with unrivalled experience in financial service technology. Someone who creates and runs live services and platforms for banks, used by millions of people around the world every day. A problem shared is a problem halved – and then solved.

02 DON'T WORRY ABOUT "WHAT IF?" FOCUS ON RIGHT NOW
Leave the tools and platforms to the experts, and focus on the products and propositions that are going to drive customer satisfaction. Give your team the tools to develop immediately so you can start seeing the benefits.

03 REDUCE STRESS WHERE YOU CAN
Use a technology system that is bank-grade and PCI DSS-compliant. Demand better security models and lower overheads in the application development life cycle.

04 SURROUND YOURSELF WITH POSITIVE, CAPABLE PEOPLE
Work with best-in-class, build and run capabilities to create one seamless and coherent solution.

05 MEDITATE TO VISUALISE A SERENE ENVIRONMENT
You don't need to struggle to build from the ground up. Reuse components, embrace industry-leading partners, and execute new ideas quickly and safely.

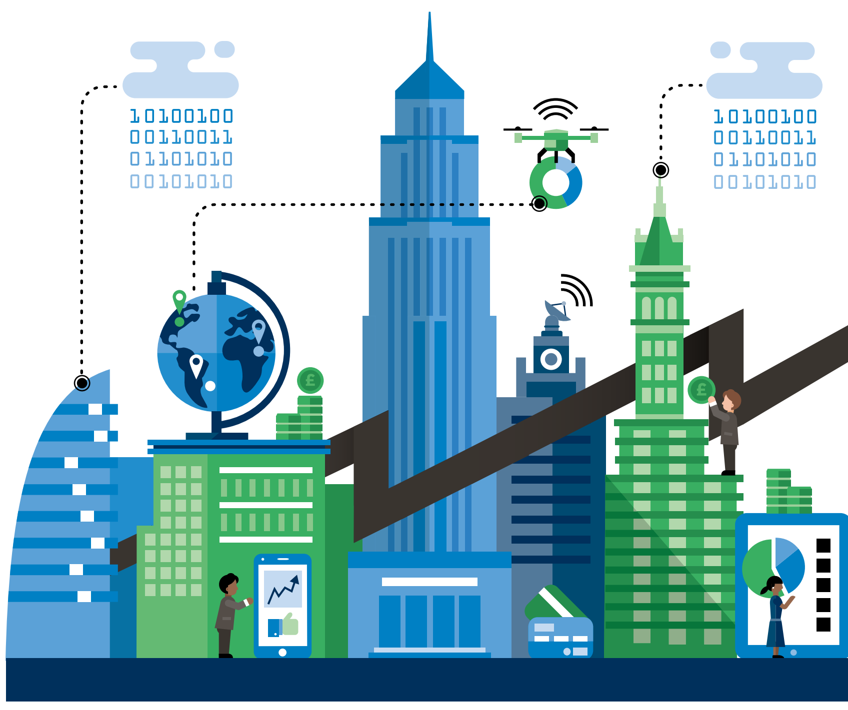
06 FOCUS ON EXERCISE AND IMPROVE AGILITY
Get from pen to production in days, not months or years and evaluate the results you see being delivered every two weeks.

07 BREAK DOWN THE BIG ISSUES
You cannot quickly or cheaply change your core technology. Instead choose a route that ensures low costs to get started, fixed pricing to test and learn, and "pay as you grow" for operational services.

Never put off until tomorrow what you can do today. Three months from now, you will thank yourself.

Contact the Sleep Doctors at Monitise: sleep@monitise.com to find out how they can help you turn fitful nights into restful ones with FINkit, the bank-grade, secure, trusted platform and toolkit for accelerating digital transformation. Alternatively, visit monitise.com for more information

GREENFIELD TECHNOLOGY



Start building from the ground up with greenfield tech...

Established financial organisations can often be disadvantaged by outdated legacy systems and need to start afresh with so-called greenfield technology

DAN BARNES

When asking for directions, the response "I wouldn't start from here" may seem unhelpful. Yet IT developers often find the path they have followed leads them to a point at which they cannot easily progress.

But getting in tune with the demands of the customer will mean banks have to leapfrog older technology if it is hindering service provision.

Niall Cameron, global head of corporate and institutional digital at HSBC, says: "People have seen digitalisation in their personal lives, but in their corporate lives expectations are lower. But I think that's changing. If this technology exists to order a taxi, why doesn't my transaction banking have that level of quality?"

Brownfield development, building new systems upon legacy technology, has been the mainstay of financial IT for many years. However, development teams cannot always bridge legacy systems with new IT easily. To start afresh, greenfield technology development can allow a bank to reach ahead without restraint. Transforming legacy, by putting the user experience first, requires a balance of the old and new.

> The idea of greenfield is to develop without any constraints based on legacy systems, in a totally new environment

Alain Fischer, chief digital officer for the global banking and investors' solutions division at Société Générale, says: "The idea of greenfield is to develop without any constraints based on legacy systems, in a totally new environment. In our global portfolio, every new project is now thought and driven thanks to a disruptive approach, even if developed on the top of the legacy IT, putting the user experience first, describing screens and data-related services, and then implemented with brand-new web technologies."

Outside retail payments, financing usually involves bilateral lending and securing of valuable assets over a period of time, requiring a combination of vetting, risk-modelling and trust, rather than an agency model. As such "disruptive" within banking is more about transforming than it is replacing.

Mark Beeston, partner at Illuminate Financial, a global venture capital firm focused on capital markets technology, says this point is often a valuable consideration for fintech providers.

"We often tell them they should be selling their solution against the incremental opportunity, rather than the disruptive opportunity," he says. "Solve the problem of unbundling research and trading payments in capital markets that no one has solved internally yet, rather than trying to convince them to replace their entire research platform. Fintech is a very cost-effective way to develop or adopt new greenfield tech against those incremental business opportunities."

The role of greenfield in system development is also realised within banks. Last year, HSBC decided it needed to change fundamentally its approach to corporate and institutional digital development, as well as the approach to some of its heritage systems and platforms, a core part of the bank.

"We started building something separately as a [greenfield] prototype outside our main systems," says Mr Cameron. "Within two months, we realised we wouldn't get it integrated if we continued to build it outside for much longer."

The challenge it faced was to maintain the freedom the greenfield approach offered while guiding it on a path that would lead to greater integration. Having brought the development inside the bank, it took six weeks for the new team and the old team to begin working together, marrying the traditional style of working with the more typically agile digital approach.

"If we were doing something with new technology, such as distributed ledger, or built something new that didn't have existing teams, processes and systems, you would probably be better off to do it in a more greenfield way," says Mr Cameron. "That doesn't mean developing outside the bank; you can create zones within the bank that are greenfield – proof-of-concept zones, business labs and technology labs."

OPINION COLUMN

'Great regulation only exists by design, so a collaborative approach by policymakers, regulators and the banking industry will be necessary'

ANTHONY BROWNE
Chief executive
British Bankers' Association

The future of everyday banking services is digital with new financial technologies, collectively known as fintech, already transforming the way UK banks and their customers do business.

The UK currently offers one of the best environments for developing these technologies for retail and wholesale use, while also benefiting from one of the strongest regulatory frameworks in the world.

As an industry, UK banking is now well placed to leverage this model and lead initiatives towards what we believe to be the ultimate goal of global harmonisation of regulation that evolves alongside technological developments, encouraging further innovation, while still ensuring the protection of business objectives and customers.

For this goal to be achieved, it's critical that regulation is able to keep pace with these fast-changing technologies. Great regulation, however, only exists by design, so a collaborative approach by policymakers, regulators and the banking industry will be necessary to support a seamless evolution of banking services.

So what could a future banking landscape look like? One of the buzzwords in the digital space is blockchain and its potential to be a disrupter. Looking beyond the hype, many in "traditional" banks are not threatened by the growth in this technology, but excited at its potential.

Blockchain, based on distributed ledger technology (DLT), the system behind bitcoin, could dramatically speed up the process of securing trade finance, for example. It allows information about people and transactions to be shared securely across a wide range of counterparties, with real-time updates that could make it quicker and simpler to exchange assets without the need for centralised bodies to check and verify the paperwork. Technology replaces paper, saving time and money, while improving accuracy.

Another potential benefit from the use of blockchain is enhanced cyber security. While the security of DLTs has not yet been subject to significant, broad-based testing in the financial services industry, the benefit of distributing data across a network of connected servers, as opposed to a centralised entity, arguably makes a cyber-security breach both less likely and less effective, primarily as there is no single point of attack.

As we prepare to leave the European Union, government and businesses are firmly focused on building strong global trade links. Technology such as blockchain could be an essential component of these relationships as it enables improved trade processes and outcomes.

The industry is not working alone in developing these products. The UK's banking conduct regulator, the Financial Conduct Authority, already offers banks and technology companies an opportunity to test new ideas through its regulatory sandbox, a model that has been emulated from Singapore to Sydney. Closer to home, the Bank of England has a similar initiative in the form of its Fintech Accelerator programme.

Traditionally, we've adopted a "wait and legislate" model, with rules drafted following the development of new technologies and products. But now we need an agile model, one that evolves alongside the technology and works towards a more harmonised international regulatory framework, including regulatory support for globally accepted standards, demonstrating best practice and regulatory compliance for emerging technologies.

For example, existing public blockchain networks can be seen operating across many jurisdictions, as the technology is not limited by geographic boundaries or enforcement jurisdictions by a single legal and regulatory regime. To provide an effective regulatory framework in response to DLT developments, that framework should be based on harmonised international standards rather than local or regional requirements.

The jurisdiction that best allows its companies to export their services by harmonising its regulatory approach will have an advantage over others. UK regulators should, therefore, now look to ensure their regimes do not present undue hurdles to companies trying to employ technologies such as cloud computing or DLT. Success here will benefit large and small firms alike.

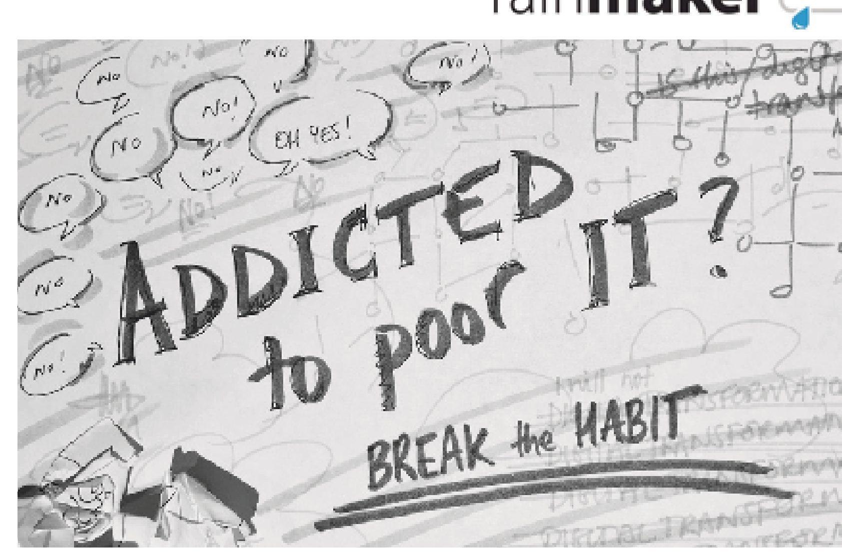
The banking sector's single biggest ask is for early clarity and collaboration with policymakers, regulators and supervisors to develop standards that keep pace with the way technology is developed and used, while maintaining an even regulatory landscape and consumer confidence.

COMMERCIAL FEATURE

Stamp out archaic practices

Financial services companies are addicted to a cycle of damaging behaviour that locks them into complex and expensive IT contracts, leaving businesses vulnerable to competition from the fintechs revolutionising the sector

rainmaker



The financial services sector has become dependent on spending vast amounts of money with large consultancies and systems integrators that fail to deliver any major changes or reap any benefits.

That is the passionately held view of Jan Joubert, chief executive of digital business transformation specialist Rainmaker Solutions. His blunt message to chairmen and chief executives is that they need to break the habit fed by the IT industry, big consultancies and IT departments.

He warns: "Corporate IT and outdated procurement practices perpetuate this archaic approach to systems and contracts. It often comes in the guise of a seemingly shiny, but actually ill-fated target operating model. Requirements are set at a fixed moment in time and are often spurious, bearing little resemblance to user, customer and market needs.

"To make things worse, they spend up to 18 months procuring a supplier to deliver this mess and lock them in for five to ten years.

"This is sheer lunacy because by the time it is implemented, it will be two to three years out of step with the business, users and clients. It is obsolete on delivery."

Mr Joubert accuses IT and procurement departments and suppliers of hiding behind compliance, security, governance and legacy to convince senior management that there is no alternative. Poor processes result in a repeated cycle of failure.

Fintechs enthusiastically harness the benefits of service design anchored in user needs and technical innovations, such as automation, artificial intelligence and the cloud, which are changing the economics of IT, allowing newcomers to snatch customers from complacent banks and insurers.

Mr Joubert's answer is to remove the blockers in the way of change, harness the benefits of technological innovations and most importantly adopt a user-needs design-based approach.

He does not pull his punches and advocates: "Fire anyone feeding that addiction to this outmoded way of doing things and find a partner that can help break the cycle of damaging behaviour."

Rainmaker helps companies draw up a crystal-clear aspirational vision for the business and align it to the pace of technical change, championing an iterative and adaptive approach that enables continuous improvement.

It encourages IT departments to focus on areas that deliver value, where IT can rapidly provide a competitive advantage, and to focus less on the provision of ancillary commodity services, such as e-mail, cloud-hosting and networking. "IT has a role to play in driving change, not just keeping the lights on," advises Mr Joubert. "Focus on those areas that truly differentiate you and move the needle for your business."

Rainmaker encourages disruption of poor buying behaviours, moving to shorter IT deals that can be amended quickly, yet still allow room for long-term relationships with trusted suppliers of best-in-class products.

One of its clients is a global financial services company, where it worked with people across the organisation to define its purpose, understand its needs and highlight opportunities for change.

In just six weeks, the IT department was being seen in a different light by the rest of the business, appreciative of its collaborative and consultative approach.

As a result, IT was elevated to a place in the boardroom because senior management saw the value it brought through rapid development and deployment of new products.

Not only does this change in approach transform the way businesses work, it reduces costs. Rainmaker claims it typically identifies and starts delivering efficiency savings of 30 to 60 per cent over a 36-week transformation plan.

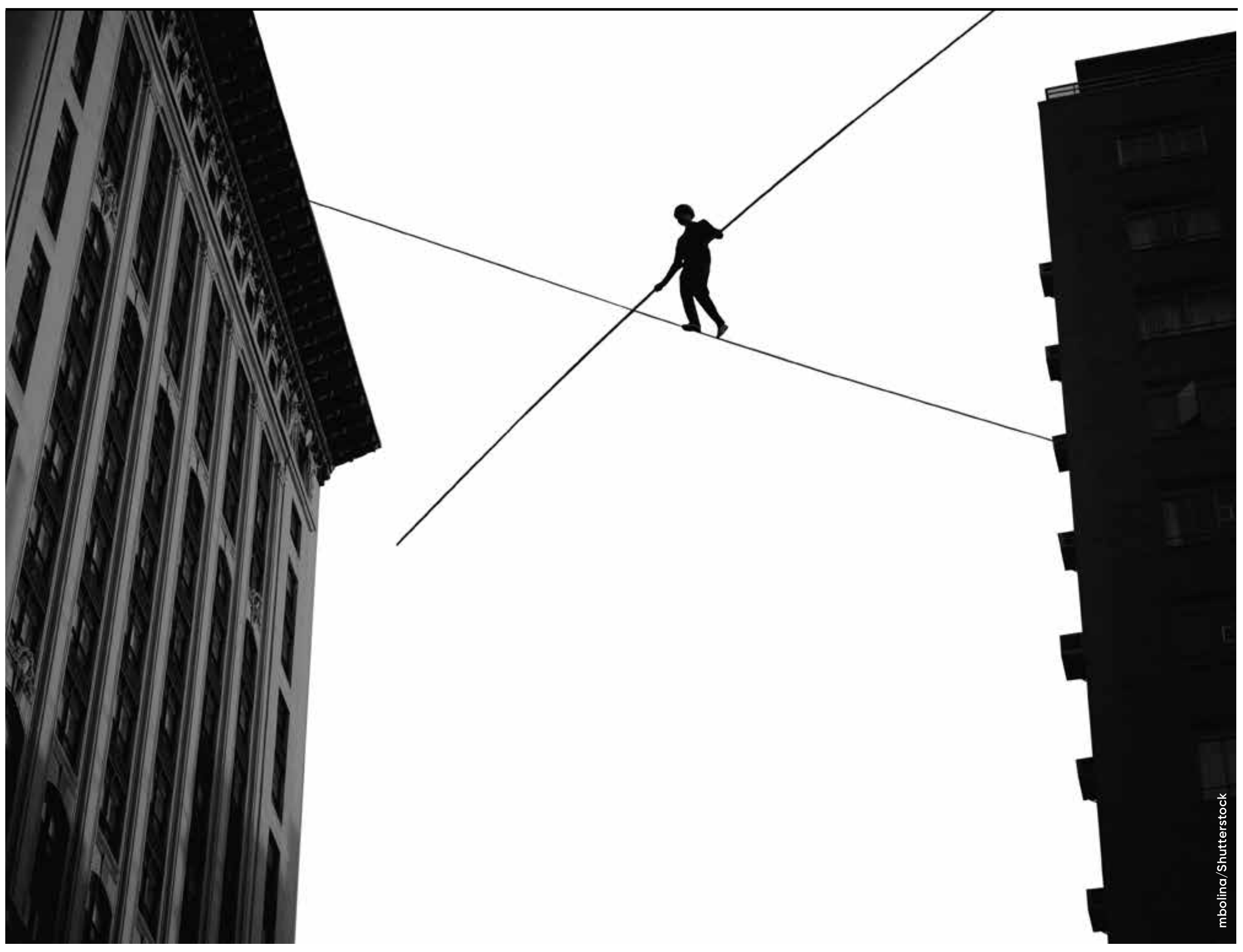
Any change in any organisation needs champions and Mr Joubert says that for financial services companies, the stakes are so high it cannot be left to IT departments and must come from the top.

He says: "I think chief executives have to take responsibility for technical transformation because in many cases their IT teams are actually acting as blockers to change. I'm appealing to business leaders, who instinctively know that IT is getting it wrong, and telling them to have the courage to take a radical approach and stamp out this addiction to archaic processes."

Rainmaker Solutions has a wealth of experience in delivering transformation across the private and public sectors, and openly shares its knowledge and techniques to help others.

For more information please visit www.rainmaker.solutions or e-mail jan.joubert@rainmaker.solutions

REGTECH



mbolina/Shutterstock

Smart machines spot fraud and assess risks

With innovation increasing almost daily, regulatory technology is aiding organisations to tackle complex compliance issues, manage risk and also bust fraud

DAVEY WINDER

The emerging regulatory technology or regtech market, driven by artificial intelligence, is helping to reduce fraud in the financial services sector, but how is the so-called future of compliance computing progressing?

Stefan Sulistyo, co-founder of Munich-based risk-management-as-a-service company Alyne, overheard a director of a German bank talking about it having more than 1,200 employees tasked with compliance functions alone. Indeed, Deutsche Bank lists more than 1,000 positions in audit, risk and compliance.

There can, it seems, be little doubt that big financial institutions are throwing what Mr Sulistyo calls "an insane amount of people" at the regulatory compliance problem. "An informed estimate for financial institutions is now around 10 to 15 per cent of total workforce dedicated to governance, risk management and compliance," he says. Unsurprisingly, he adds that the best risk professionals are in such high demand they are "as rare as unicorns and more expensive than their weight in gold".

Mr Sulistyo says if you talk to London bankers, they are already hailing AI-driven regtech as a kind of magic silver bullet and saviour of the financial industry. But can it really fulfil these expectations?

Nobody in the financial services sector would argue that the impact of increasing regulation and increasingly large fines for regulatory failures has built steadily over the last decade. Nor, for that matter, that risk and compliance is now one of the largest areas of spending within the industry. It hasn't been exactly uncommon for banks to have increased their budgets over this period by 15 to 25 per cent a year in this area alone.

"It is now reaching saturation point," argues Jeremy Doyle, associate partner with Watson Financial Services at IBM UK. "Continued spend is becoming untenable and there is increased urgency to find ways of reducing cost, while remaining compliant, protected and in a position to drive growth."

Luckily, during this same period, the maturity of technology in cloud computing, machine-learning and artificial intelligence (AI) has accelerated dramatically while the entry cost declines. So are AI and machine-learning now driving the next generation of regtech solutions to reduce fraud in the financial services sector?

If machine-learning, a subset of AI that has been around for many years now, can help to identify complex and nonlinear patterns in the increasingly huge data sets within the financial services sector and by so doing create more realistic risk models, then surely it's uptake is a given? After all, the single most effective method of preventing fraud is refusing the fraudster entry in the first place.

"In the financial services area, we see specific applications in insurance telematics – edge devices that send information against which insurers can evaluate and mitigate risk using machine-learning classifiers," says Steve Wilcockson, financial services industry lead at MathWorks. This could be validating whether an alleged crash is a fraudulent claim or even convolutional neural networks – popular in machine-vision technology solutions – identifying counterfeit bank notes.

MathWorks surveyed financial risk professionals last year and Mr Wilcockson says they found that machine-learning use has quadrupled compared to a similar group surveyed in 2014. Which sounds good, until you learn that 60 per cent of respondents were still not actually using machine-learning; half of those have plans to do so in the next year.

Application of machine-learning is progressing at different rates across risk-taking buy-side firms and the more risk-averse sell-side. "On the buy-side, machine-learning techniques are often an extension of risk-factor analysis suites to differentiate from peers and rivals, while the sell-side has a more nuanced risk management first view, oriented around task, skills and, importantly, regulation," Mr Wilcockson says.

Paul Garel-Jones, regtech lead partner at Deloitte UK, says one of the hottest areas at the moment is applying AI to convert unstructured data sets, such as video, image or voice, to consumable and actionable information.

"Financial service institutions are already using image and voice analysis to identify and authenticate their customers remotely," he says. "They're also increasingly using voice and image recognition-based AI techniques to profile behaviours and identify risks better."

Some within the industry, such as Husayn Kassai, co-founder and chief executive of next-generation background check service Onfido, sees machine-learning as being hugely beneficial for financial services when it comes to banking the unbanked. Identity verification can prove tricky as these rely on people being registered with a credit reference agency.

Onfido already combines document checks with what it calls a "street-level check" where a postcard is sent to an applicant's house to verify identity. But traditionally, only complex and expensive software has been able to scan and compute identity documents. "What's cool about machine-learning," Mr Kassai explains, "is that it will help us to be highly accurate in identifying documents which have been uploaded using commodity technology such as low-resolution smartphones." If all you need to upload a document is a basic smartphone and an internet café connection, even people in developing countries can then be background checked.

Of course, it's not all rose-smelling in the artificial intelligence garden; there are downsides to AI and machine-learning in regtech solutions. Torsten Mayer, vice president for regulatory solutions at data analytics company FICO, warns that the biggest danger in applying AI to regtech is that compliance, risk and fraud officers will get caught up in the hype around AI.

"There are a lot of vendors out there who are promising to solve everything with unproven AI solutions," he says. "AI is not the sole answer to compliance and a great algorithm doesn't by itself make a great solution."

Indeed, AI can currently get you 80 per cent of the way there, but 80 per cent is not good enough in risk. A point picked up by MathWork's Mr Wilcockson when he says that methods developed from Silicon Valley on largely static and fixed problems don't automatically translate to the extreme dimensionality and unpredictability of Wall Street, City of London or Raffles Place.

86% of financial institutions expect investment in compliance capabilities to increase over the next two years

27% consider artificial intelligence to be one of the most impactful technologies to compliance

48% ranked fraud and financial crime among the top three compliance risks over the next 12 months

Accenture 2017

> London bankers are already hailing AI-driven regtech as a kind of magic silver bullet and saviour of the financial industry

BENEFITS OF REGTECH

SHORT-TERM BENEFITS	LONG-TERM BENEFITS
Reduced cost of compliance	Positive customer experience
Sustainable and scalable solutions	Increased market stability
Advanced data analytics	Improved governance
Risk and control convergence	Enhanced regulatory reporting

EY 2016

COMMERCIAL FEATURE

Automation beyond e-signature: fixing the final hurdle of digitisation

Financial services firms need to digitise and secure their agreement processes to avoid fines and reputational damage, but also because their customers demand an e-signature experience that is safe, easy and frictionless

dealflo

Globally, some $15 trillion of financial agreements are signed every year. A growing number of these contracts will be carried out electronically. However, all too often firms still rely on a patchwork of semi-automated and manual processes.

This is inconvenient for customers resulting in around $75 billion of lost sales a year and it unnecessarily costs firms about $50 billion annually because of inefficiencies, according to research by Dealflo, the world's only service focused on end-to-end automation of financial agreement processes for products such as loans, motor finance and pensions.

"Customers who are familiar with the ease and convenience of services such as Uber or Amazon are no longer prepared, for instance, to have to print out a 20-page contract, sign it in various places, scan it and e-mail it back," says Abe Smith, Dealflo chief executive. "Alongside this, increasingly complex regulations, more aggressive regulators and bigger fines are adding to the risks that firms expose themselves to because of blind spots in semi-automated or manual processes."

He points out that the errors and risks involved in substandard e-signature procedures, as well as those that rely on a physical or human element, have contributed to the $200 billion that financial services have been fined since 2008.

"To protect themselves from fines and regulatory action, firms have to understand the difference between 'legality' and true contract 'enforceability'," says Mr Smith. "Organisations might have adhered to legal advice to generate an agreement but, if a customer takes them to court, can they convincingly prove they've done all the right things? That's what the legal community means by 'enforceability'. Legal experts have identified six principles that every financial services firm should address to mitigate the risks of automation."

The first is to be able to produce a full identity audit trail to satisfy regulatory requirements. Second, they must be able to reproduce exactly what the customer would have seen on the screen when they came to sign. Third, firms need to be able to show what the customer did when they signed.

> Carrying out agreement processes in a manual or semi-automated way represents an operational risk because providers have little control over them

"Here, for instance, it's advisable not just to keep a written log of the customer's actions, but to be able to record and replay a visual log of what was presented to them and how and when they interacted with the workflow," says Mr Smith. "More often than not in financial services transactions this isn't just signing a contract, but fulfilling additional activities such as verifying the customer's identity, showing supplementary documents like pre-contract information or uploading proofs."

The fourth principle is the capability to demonstrate that the version the customer saw on the screen as well as the one they took away with them and the master copy are all the same. Five, should an agreement be challenged, the firm in question needs to be able to provide evidence that the customer, the judge and the regulator can all understand as non-IT experts. "If the evidence is too technical, it just won't be convincing or compelling," adds Mr Smith.

According to the sixth principle, and arguably the most important, firms need to reference all evidence in a single electronic package, which has to be given integrity ideally with digital signature, to ensure it is court admissible and cannot be challenged.

When done correctly, other advantages of end-to-end automation include improved sales conversion with easier know-your-customer, anti-impersonation checks and a process less prone to errors. Not only are operational inefficiencies reduced, but the entire sales process is captured and electronic agreements can be easily retrieved. Modern financial services companies have compliance at their heart and by automating, they're able to design, control and evidence this process for every deal signed.

Recognised by Deloitte as one of the fastest-growing technology companies in Europe in 2016, Dealflo has developed a platform that specifically addresses these six principles of enforceability while delivering an unrivalled digital customer experience.

Dealflo process £20 billion of financial agreements annually for many leading financial services companies, including BNP Paribas, BMW Financial Services and Prudential. "By using our automated systems, customers find that processes are faster, more efficient and more likely to generate increased sales," says Mr Smith. "They're also freed from the risks of non-compliance. Carrying out agreement processes in a manual or semi-automated way represents an operational risk because providers have little control over them."

A growing number of financial services firms are using Dealflo's cloud-based platform to digitise and secure the financial agreement process, whatever the contract type, customer type, risk or geography, enabling them to satisfy the six principles of enforceability. They appreciate the automation of the end-to-end procedures from workflow management through to ID-verification, e-signature, evidence capture and secure vaulting.

Dealflo clients are also reporting an increase in sales of between 10 and 25 per cent with a reduction of up 90 per cent in the time taken to complete a deal – in many cases down from days to just a few minutes.

The platform enables lenders to prove customer intent when signing agreements by uniquely embedding evidence into the electronic agreement itself that replays the customer's journey through every step in the process. The signed agreement is given a tamper-proof seal and securely vaulted, ready to use as evidence in potential customer, legal or regulatory challenges.

"Firms come to us because we give them the reassurance that their digital agreements are secure, compliant and legally enforceable," says Mr Smith. "Our service delivers the user experience that customers expect and it helps firms to stay in control of their compliance. The financial sector spends billions of dollars to manage financial risk at the front door. Our service allows firms to prevent legal and regulatory risk coming in through the back door while scaling safely and efficiently."

For more informatin please visit dealflo.com

ABE SMITH
CHIEF EXECUTIVE
DEALFLO

BENEFITS OF END-TO-END FINANCIAL AGREEMENT AUTOMATION WITH DEALFLO

- 10–25% increased conversion
- 90% reduction in time
- Reduced risk - full compliance control
- Reduced carbon footprint

MANUAL AND SEMI-AUTOMATED AGREEMENT PROCESSES CREATE FRICTION AND RISK

$15trn worth of agreements are processed in financial services each year globally

$200bn in fines since 2008

$75bn loss in sales each year from poor agreement processes

$50bn unnecessary costs from poor agreement processes each year

THE SIX PRINCIPLES OF ENFORCEABILITY

- Full identity audit trail
- Reproduce exactly what the customer saw
- Reproduce exactly what the customer did
- True copy for the customer
- Persuasive evidence: • simple • non-technical
- Non-repudiable evidence: • unity • integrity

OPEN BANKING

Opening up can be a window to new business

The second payment services directive (PSD2) was approved by the European Parliament in October 2015 and will apply to the UK during Brexit negotiations

A European Union directive, aimed at improving customer service, is set to open up banking by making data held by banks available to third-party companies

IAN FRASER

For centuries banks have enjoyed an almost exalted status. Governments and regulators have allowed them to dominate much of the financial services landscape, including current accounts, deposit accounts, loans, payments, debit cards, credit cards, mortgages, pensions and insurance, on condition they keep money and credit flowing around the economy.

Barriers to entry have been so high and customer inertia so strong that the banks have been able to thrive despite offering what has often been a poor and anachronistic service.

Much of this will change on January 13, 2018 when the European Union's second payment services directive (PSD2) takes effect. The legislation aims to give consumers better protection when they make online payments, to promote the development of innovative online and mobile payment systems, and to make cross-border European payment services safer.

> Banks now universally see it as a strategic opportunity, and are being very proactive and ambitious about it

The directive will effectively prise open the payments market, while compelling banks to release their tightly held customer data to third-party companies, which will be lightly regulated as long as they can prove their data defences are robust and that the customer has given their consent.

Initially the legislative change, which was approved by the European Parliament in October 2015 and will apply to Britain despite Brexit, provoked wailing and gnashing of teeth in the executive suites of most of Europe's banks. Bankers feared their institutions would be squeezed out of the market by Chinese apps such as Alibaba, Tencent and Baidu, cutting-edge businesses which have the advantage of having grown up in the digital age and have already managed to integrate social, commercial and financial into a single app, as well as Silicon Valley players, notably Apple, Google and Facebook.

Chris Skinner, chief executive of Balatro and author of *Digital Bank: Strategies to Launch or Become a Digital Bank*, says banks have been lobbying in Brussels and Washington to get the requirement to hand over their customer data blocked or watered down. In the United States, where legislation along similar lines to the EU directive is mooted, banks have been more successful persuading regulators and politicians that it is in nobody's interest for them to lose control of their data.

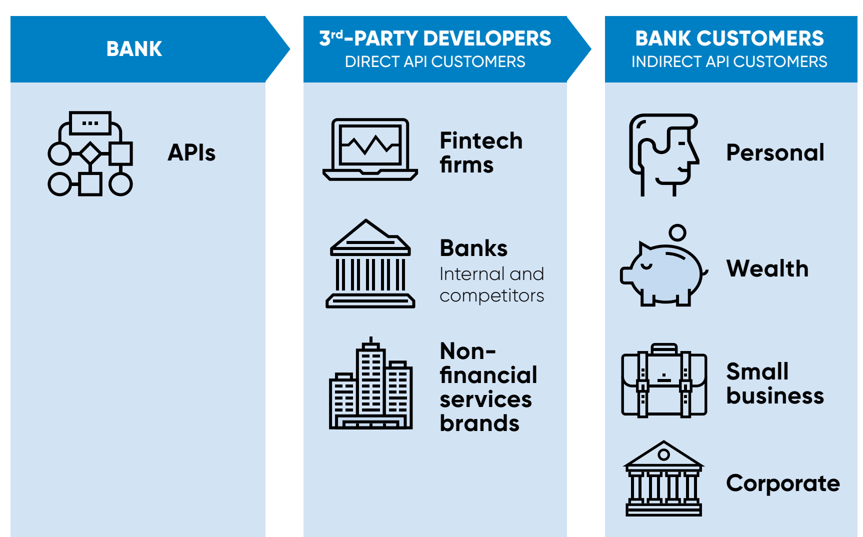
But others argue banks have latterly been more accepting of PSD2 and "open banking", and anyway the tech giants are less eager to become fully fledged banks than they were a couple of years ago as a result of the regulatory headaches this would entail and reduced profitability of the banking sector.

Jonathan Turner, payments leader at PwC, says the mood has shifted from fear of being disintermediated out of existence to enthusiasm for the opportunities ahead. "Banks now universally see it as a strategic opportunity, and are being very proactive and ambitious about it," he says.

Application programming interfaces (APIs) are pivotal to banking's brave new world. Danny Healy, financial technology evangelist at MuleSoft, describes these as the "digital glue" that will enable incumbent banks and new payments players to interact seamlessly, share data, and offer more apposite and timely financial products to consumers.

OPEN BANKING ECOSYSTEM

APPLICATION PROGRAMMING INTERFACES (APIs) ARE KEY TO THE OPEN BANKING REVOLUTION



Capco 2016

"APIs allow banks and their partners to track a far greater portion of customers' lives and day-to-day behaviour than currently," says Mr Healy. "They help banks get closer to their customers and deal with many more niches than they're capable of doing today."

Under an "aggregator" or "marketplace" strategy, banks will in future offer a "catalogue" of APIs, he says, drawing parallels with the way apps are presented on a smartphone. "If they can make their APIs readily understandable and easy for developers to consume in a self-service, independent way, then they'll attract those third parties," he adds.

Acknowledging they are out of their depth in the new digital environment, many banks have been casting the net wide and getting into bed with large numbers of financial technology startups.

Mr Skinner says: "A common strategy is to support startups to 'play' with their business and, where those companies are successful, to take ownership of those companies."

Recent tie-ups have included HSBC's partnership with six-year-old Danish company Tradeshift, described as "a social market for invoices". Spanish bank BBVA, widely regarded as being way ahead of the curve in digital banking, is a majority shareholder in UK-based digital startup Atom Bank. The Madrid-based bank has also acquired Holvi, a Finnish API-based fintech innovator, which specialises in small business payments, and US-based Simple, an established retail digital bank that uses APIs to analyse customers' monthly expenses and assist them in managing their money to meet defined objectives.

Unless banks radically modernise their systems, they risk being left behind and becoming little more than "dumb pipes" in the new environment, providing the back-office financial plumbing through which consumer-facing brands such as Simple channel their products and services to market.

PwC's Mr Turner says: "If a bank decides to do nothing with PSD2, the danger is they slip into becoming a utility, in which case the brand would start to drift away and the added value the consumer sees starts to evaporate."

According to Mr Skinner, silo-like structures, warring internal fiefdoms and the lack of technologists on their boards are also holding banks back. He says some British banks, including RBS, have tried and failed to move towards "enterprise data architecture".

"If you don't have enterprise data architecture, you will never be able to exploit artificial intelligence or leverage analytics for consumer relationships," he says. Ultimately, banks without enterprise data architecture will be so weakened they are likely to fail or succumb to takeover, Mr Skinner warns.

Ewan Fleming, financial services practice leader at Grant Thornton, says the death of the current account, which he predicts will be in a decade, is another issue for incumbent players.

"Current accounts have been the hub and consolidating product for banks over the past many decades, so when they go we will see an accelerated fragmentation, with better informed and more price-conscious customers becoming much more willing to spread their business around. This fragmentation is going to destroy the economics of the way big banks run their businesses," he says.

Branch networks will become even smaller than their current pared-back form and banks will derive less revenue from retail payments. Bob Graham, senior vice president at VirtusaPolaris, estimates banks will lose between 8 and 10 per cent of retail payment revenues to new payment competitors. In Europe that implies a loss of some $13 billion of revenues across the banking sector.

"Banks have a strong presence in terms of millions of customers, billions of capital and centuries of history, but that could be wiped out in ten years if they don't adapt to opening up their capabilities for others to play with them," says Mr Skinner. "The survivors will be the banks that can curate best-of-breed services to their customers."