Disruptive Influences 2: The FinTech Revolution

CII

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CICERO

Foreword by CII

This is the second Chartered Insurance Institute/Cicero report on disruptive technology. This time our focus is specifically on financial technology (FinTech). Our first was published six months ago – a long time ago in tech-time! There are some real challenges which FinTech is starting to raise and which we need to consider.

In a UK context the most significant development is the recent Brexit vote – is this irrelevant to the global march of digital change or is the nascent UK tech sector vulnerable to any economic shocks? It's probably too early to tell.

What are the real barriers which might thwart quick technological breakthroughs – funding, culture or regulation, to name but a few?

A key issue being debated – and which the CII is surveying its members as well as employers – is the extent to which there is a present and future digital skills gap in the insurance sector. And what can be done about solving the capacity problem both for our profession and the economy as a whole?

Another challenge to the CII ourselves and other educational bodies is that of adapting learning to the new requirements of the millennial generation i.e. cognitive and other forms of learning which challenge traditional models.

Finally, what is the wider public interest in the *'Findustrial Revolution'*? Is this revolution something that will engage the public and be a force for good or is it likely to end up with big winners and big losers and creating a possible 'digital divide' and possible social disruption?

Hopefully this report – and the event held to launch it – will address at least some of these points. But one thing is crystal clear: The FinTech revolution is going to transform our sector and how it engages with consumers and will reshape much of how we look at our world.

David Thomson
Director of Policy and Public Affairs
Chartered Insurance Institute

Introduction

The financial services industry has spent the best part of the last decade implementing a new regulatory framework, designed in response to the financial crisis. As the wave of reforms move fully into the implementation stage, the next big trend the sector faces is digitisation.

The growth of Financial Technology (FinTech) over the past few years can be seen via the number of venture capital deals in the sector, to the development of innovation centres inside existing established firms.

The digital disruption of financial services has the potential to transform the industry over the next decade. New technologies brought to market by start-ups will lead to market disruption across insurance, banking and wealth management, creating increased competition. Some of these market disrupters have already arrived.

It will also lead to a new customer relationship. Technology will provide financial services firms with new ways of offering products that focus on user experience. Those firms that don't offer this new user experience will suffer from increased competition. Other areas of the economy which have already experienced the force of digitisation, such as the music industry, illustrate that there will be both winners and losers.

The WEF Global Risks Perception Survey 2015 asked respondents to assess the likelihood and impact of individual risks on a scale of one to seven. Only one technological risk scored above average, cyber-attacks. Although respondents noted other technological risks, such as adverse consequences of technological advances and data fraud, they are not regarded as top priority. [1]

The emergence of FinTech is both a threat and an opportunity to the sector. This presents a challenge for both the industry and regulators. Accurately identifying the difference between the two will be one of the key on-going challenges in the years ahead.

This report

The following report analyses in greater detail the scale of the challenges facing all areas of the financial services industry, and the implications for regulators and policymakers. Digital disruption also offers business opportunities for those firms that are agile and can harness its power in the context of existing organisational structures. These opportunities will also be discussed throughout the report.

Since the underlying technologies which threaten to disrupt financial services cut across all areas of the sector, the report will proceed thematically highlighting the impact to insurance, banking and wealth management throughout. The report is split into four sections, they are:

- **Section One – Implication for politics and regulation**
- **Section Two – Implications for established financial services firms**
- **Section Three – Implications for FinTech start-ups**
- **Section Four – Implications for consumers/general public**

We hope you find our latest report eye opening about the future of financial services, and gives you an insight into what awaits the industry in the coming years.

FinTech table - the current industry lanscape

	Banking	Insurance	Asset Management
Current level of disruption	High in retail, low but rising in wholesale banking	Low but rising and focus for 2016	Medium
Disruptive technologies	• Blockchain • RegTech • APIs • Digital wallets • P2P lending	• Wearable technology • Data-analytics • RegTech • Telematics • Blockchain	• Blockchain • Data-analytics • Robo-advisers • RegTech
Areas of disruption	• Payments • Business lending • Foreign Exchange • Remittances • Investment advice • Clearing and settlement	• Risk management/pricing • Car Insurance • Traditional underwriting models	• Investment services • Clearing and settlement • Broking
What it means for the consumer	• New user experience to manage finances • Reduced fees/ charges • Personalised spending/saving goals • Increased security	• Tailored risk pricing • Reduced premiums for some features • Move towards wearable devices	• Wider access to financial planning • Lower fees • Easier investment decisions
Potential challengers	• Mondo • Atom • Starling • Transferwise • Funding Circle	• Lemonade • Insurethebox • Cuvva • BoughtByMany • Under the Doormat	• Nutmeg • Wealthfront • Betterment • Wealth Horizon

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Section One:
POLITICS AND REGULATION

Brexit

It is too early to tell what the impact of the UK's decision to leave the European Union will be on the FinTech industry. British FinTech has flourished over recent years in part due to access to the European Single Market, including so-called "passporting" rules, and the freedom of movement that allows the industry to hire the best and brightest from across the continent.

Similarly to the rest of the financial services industry, the uncertainty around the UK's future relationship with the rest of the EU is troubling to some FinTech firms. If the UK loses access to the Single Market, there are concerns that London will shrink as a global finance centre and the flow of international venture capital will slow. The industry is also worried about a brain drain of talent and skills. Brexit could make it more expensive and complicated for firms to attract and retain talented employees. Currently, UK FinTech firms employ about 61,000 people — about 5 per cent of the total financial services workforce — making the UK larger than rival tech hubs in New York, as well as Singapore, Hong Kong and Australia combined.[II]

However, there are some within the industry who strike an optimistic tone on the future of British FinTech, suggesting that the Government will now have the opportunity to position the UK as a more competitive alternative to Europe with less red tape and a more attractive corporate tax regime.

Only time will tell whether Brexit is a threat or an opportunity for the industry – or, more likely, both.

Implications for regulation

WHAT THE ISSUE IS

One of the most pressing questions about financial technology is how it should be regulated. Are existing regulatory arrangements fit for purpose, or could the development cycle of FinTech mark such a departure from existing ways of doing business that a new approach is needed? Does FinTech present new risks which are poorly understood or even as yet unknown?

WHY IT MATTERS

The business of providing financial services is inherently risky. Uniquely, failures in the financial sector can become systemic, cascading throughout the whole system. Even when failures are not systemic, they can cost billions of pounds and cause distress and disruption on a very large scale. For this reason, politicians and the public demand that the financial system, and the firms that operate within it, is supervised. The financial crisis has only increased the demand for stringent regulation and reduced public and political tolerance for failure.

Yet the desire to regulate and control can chill innovation and prevent progress. It can do this in various ways:

- Regulation raises barriers to entry, thereby protecting existing players from competition from new entrants;
- It militates against experimentation. Undertaking regulated activities usually requires express permission from the regulator and approval of the way that a firm goes about its business, something that a risk averse regulator may not be willing to give to unfamiliar or unproven business models;
- It sets up a potential 'culture clash'. The technology sector tends to embrace maxims such as 'fail fast, fail often', 'pivoting', 'lean' and 'agile' – which in spirit tend to be far removed from traditional business methodologies of financial sector firms.

Regulators are faced with a conundrum: how to encourage the development of financial technology and to bring the dynamism of the tech sector to an often staid industry without leaving the financial sector open to the risk of catastrophic failure and a loss of public confidence.

Project Innovate and Innovation Hub

The Financial Conduct Authority (FCA) launched Project Innovate in October 2014 with the aim of helping new and established businesses to be able to launch new innovative products and services.

The FCA has subsequently launched a Regulatory Sandbox for firms to trial new innovations and a new Advice Unit for firms wishing to trial new forms of automated advice.

The FCA's latest business plan set out the Innovation Hub's current priorities: end-to-end experience for new market entrants; international engagement; and engagement with large incumbent institutions.

WHAT HAPPENS NEXT?

Given that a system free of political or regulatory oversight advocated by the most ardent technologists is untenable, where is this balance to be struck?

One example of this tension between innovation and safety is in the market for peer-to-peer lending, which provides an alternative to the maturity transformation (borrow short/lend long) function of traditional banks. The Government sees these firms as offering competition to banks and therefore to be encouraged. But MPs on the Treasury Select Committee have questioned whether prudential and conduct regulation around these firms is stringent enough given the rapid growth of the market.

In an effort to strike the balance, the FCA is experimenting itself. The FCA's Project Innovate is looking to speed the approvals process and has set up a regulatory sandbox which will allow a 'safe space' for experimentation. Applications for the sandbox opened in May. The regulator is therefore journeying into uncharted territory itself in an effort to ensure it can keep pace with innovation. This is to be welcomed, though it will be important to ensure that it is adequately resourced and has political backing.

Regulators will have to hold their nerve: failures will happen, and when they do there will undoubtedly be a clamour for action, which may not always be proportionate. A key question is whether innovators will be able to fail gracefully – without putting client money or financial stability at risk.

This tension will be tested repeatedly in the years ahead. We consider some of the most pressing questions regulators will have to consider below.

Big questions for regulators

How will regulators manage the risk vs reward question?

- The concept of caveat emptor has been all but eliminated for UK retail customers of regulated financial services. Purchasers of products that fail expect to be protected and compensated for losses and the manufacturers and sellers of products are ultimately expected to carry the can. Financial technologies can allow individuals to take greater direct risks, usually in exchange for the prospect of a better return. But customers may not be clear to what extent the services they are using operate within the 'regulatory perimeter' and therefore provide investor protections.

- Spread betting, a service which is enabled by financial technology, is one example. Regulators have expressed concern about the way that products are marketed and whether firms are doing enough to make sure that the services offered are appropriate for the customer purchasing them. We can expect to see this question to be raised repeatedly as novel FinTech services come to market.

- More broadly, if FinTech results in the disintermediation of traditional financial companies, should individuals then be expected to take greater personal responsibility for losses and failures? Savvy users of financial technology platforms may opt for them precisely because they offer higher returns than may be available on the High Street, though at higher risk. There is a risk that FinTech services also attract clients that don't really understand what they are doing, but who are lured by potentially large rewards?

- Related to this point is how regulators approach the issue of personal responsibility. The FCA has three operational objectives: protecting consumers; ensuring market integrity; and promoting effective competition. Increased competition is in the interest of consumers, but equally important is ensuring the adequate protections are in place that consumers expect. Striking this balance will be the regulator's fundamental challenge.

What impact will emergent technologies have on financial stability?

- Financial technologies are quickly woven into the fabric of the financial system but the implications for financial stability can be difficult to predict. The Flash Crash of 2010 saw $1 trillion wiped off the US stock market in a 36 minute event. Since then there has been a fierce debate about its causes, though high speed electronic trading is often cited as an aggravating (if not causative) factor. Though prices rebounded, it was shocking example of fragility in a supposedly robust system.

- US regulators were criticised for failing to understand how new technologies introduce new failure modes to systems. As a later response to the Flash Crash, 'Circuit Breakers' were introduced to halt wide swings in trading. Failures would not be prevented, but they would be ameliorated.

Will FinTech be more vulnerable to cyber-attack?

- A further question is whether a growing ecosystem of financial technology potentially increases the surface area vulnerable to cyber-attack. If the new technology is part of an ever more complex ecosystem, it is unclear whether this makes the system more resilient, or more fragile. The emergence of centralised ledgers for clearing and settling financial contracts and recording asset ownership (such as blockchain technology) could radically change the infrastructure of the financial market, but could also introduce a single vulnerability.

What does financial technology mean for competition?

- The prevailing view of FinTech is that it allows new entrants to challenge existing players which is good for competition and therefore good for society overall. But it is possible that the opposite could happen. The 'platformisation' of the online economy means that the largest tech giants benefit from network and scale effects that concentrates market power in their hands. The dominance of Google in search, or Facebook in social media has no equivalent in financial markets at present. But there is no reason why in time financial technologies could lead to greater concentration in the financial sector in a new breed of super giant FinTech firms.

Is there global agreement on the role FinTech should play in the financial system?

- Over time, global coordination has emerged on issues of systemic importance such as bank capital standards, resolution and derivatives trading. At present there are no equivalent standards for financial technology. However, Mark Carney, Governor of the Bank of England and Chairman of the Financial Stability Board (FSB), told G20 finance ministers in February that it was 'evaluating the potential financial stability implications of emerging financial technology innovation for the financial system as a whole, working with standard setters that are monitoring developments in their respective sectors'.[III] This sets up the prospect of greater convergence on matters of systemic risk, if not of conduct risk in future. Early evidence also indicates a broad range of views towards FinTech from regulators around the world. In its recent report for HM Treasury benchmarking the UK's position as a FinTech hub, EY highlighted that although the UK, Australia and Singapore have taken a positive stance towards innovation, "regulators in the US, Germany and Hong Kong are seen as complex, conservative, and in some respects opaque with limited regulatory initiatives towards FinTech".[IV]

Section Two:
IMPLICATIONS FOR ESTABLISHED FINANCIAL SERVICES FIRMS

Can established firms achieve success through internal innovation?

WHAT THE ISSUE IS

With the exponential growth of FinTech start-ups in recent years, large established financial services firms face the growing challenge of how to keep up and ensure that they are not lagging behind the innovative firms that are changing the way financial services are delivered. However, for huge global firms with long-established business models, embracing the opportunities of digital innovation can be easier said than done. They face a choice of whether to fully commit to developing their own innovations in-house, buying up innovative start-ups to 'import' innovation, or a combination of the two.

WHY IT MATTERS

It has been suggested that, in the US and Europe, we are at a 'tipping point' in how FinTech is changing the world of finance, with established firms having the clients and scale, but new FinTech entrants normally enjoying an advantage in innovation. The key question is whether established firms will 'get' innovation before the FinTech companies achieve scale?[V]

It is clear that many big players in financial services are trying to address their disadvantage in the innovation arena. Earlier this year Aviva opened a digital garage in East London with a remit to break every rule in the book, and not feel constrained by traditional ways of doing things in the industry.[VI] In the banking sector, Barclays' 'Accelerator' programme offers FinTech start-ups an intensive 13-week programme of mentoring, guidance and access to technical expertise[VII], reflecting a collaborative and mutually beneficial approach to working with innovative new players in the finance space.

While these examples show that traditional financial services firms are keenly aware of the need to develop their innovation capabilities and channel the spirit of the FinTech pioneers, some large firms prefer to exercise their financial muscle to acquire smaller, innovative firms rather than seeking to build their own innovative products or services from scratch. While this sounds highly appealing in principle, it is not as straightforward as it sounds. If poor purchase decisions are made, or acquisitions are badly managed, they can soon cease growing and instead represent a drag on the balance sheet.[VIII] Considering that Harvard Business School research has shown that 75% of all start-up businesses ultimately fail,[IX] it would not take too many misjudged acquisitions to have a detrimental impact on the balance sheets of large firms and potentially prompt a re-think of their approach to innovating through acquisition.

Digital skills gap

The former Department for Business, Innovation and Skills and the Department for Culture, Media and Sport published a joint report on digital skills for the UK economy in January 2016.[X] The report warned that a shortage of suitable digital skills for digital skills persists in the UK labour market.

A risk for financial services firms is not being able to fill jobs that require digital skills. The report estimates that 72% of large companies currently suffer tech skill gaps. Firms that lack the necessary digital skills will suffer a competitive disadvantage.

The House of Commons Science and Technology Committee recently warned that the UK risks being left behind if the Government does not take more action to address the "digital skills crisis".[XI] The Committee called on the Government to put in place a strategy to address the shortage of skills of particular strategic importance to the UK economy – including cyber-security, big data and mobile technology.

The CII is currently surveying employers to assess the current digital skills gap in insurance and to identify future needs.

Whichever approach established financial services companies take to innovating, whether through investing in in-house programmes or strategic acquisitions, a crucial challenge remains: will the company at large buy-in to the innovation and deploy it across the business, or will it be seen as separate to the main business of the firm and dwarfed by the long-established 'traditional' ways of doing things within insurance, banking and asset management? This 'Innovators Dilemma' – whereby a company tries to do something differently but finds that their metrics system deems it too small or unprofitable and therefore shuts it down – is a difficult hurdle to overcome and may mean that smaller, more naturally innovative firms will continue to enjoy an innovation advantage over their bigger rivals.

WHAT COULD HAPPEN NEXT?

Increasingly, harnessing the power of digital technology and innovation is going to have to be a key goal for all large financial services firms if they want to avoid losing out to those who are more in tune with how increasingly tech-savvy customers want to experience financial services. However this will pose new questions for both firms and regulators about how to ensure that the regulatory and consumer protection environment does not lag behind innovation.

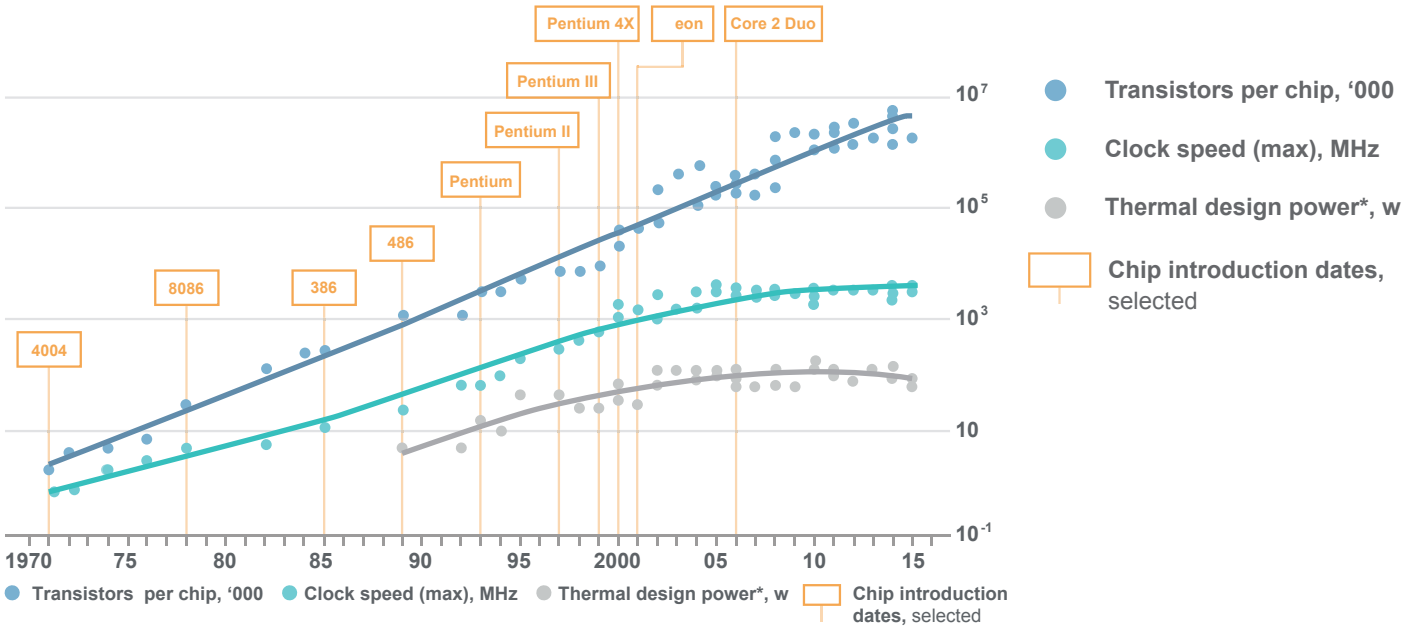
The FCA in the UK is working extensively in this area through Project Innovate and the Innovation Hub. Innovation does not negate the need for regulation and a key question going forward will be how to ensure the two can work in tandem to best serve the needs of consumers. The other question is around the expectations future innovation will deliver. At the moment the mood around FinTech has some similarities to the enthusiasm seen pre the dotcom boom. But is this enthusiasm sustainable? Will innovation deliver in the short term or will the time scale be over a longer period?

Established firms and legacy IT systems: a barrier to innovation?

WHAT THE ISSUE IS

Many of the IT systems in use today in the financial services industry have been in service for a long-time. The technology they operate on is effectively obsolete. And, systems initially developed for a specific task have only been 'modernised' to deal with procedural changes by 'bolting on' additional functions rather than undertaking substantive reconfigurations. Moreover, IT systems failures in the UK banking market has led the Treasury Select Committee to call on the Prudential Regulation Authority to assume a leadership role on the issue.

Moore's Law over time *(The Economist)*



*Maximum safe power consumption

Source: Intel; press reports; Bob Colwell; Linley Group; IB Consulting; *The Economist* XII

WHY IT MATTERS

As computing power continues to increase exponentially, many major companies and institutions – including ones responsible for critical financial infrastructure – are finding themselves falling behind due to computer technology that is severely outdated. The system may work but if legacy software runs only on antiquated hardware, the cost of maintaining a system will eventually outweigh the cost of replacing it and the restrictions it places on an organisation's potential agility impairs competition.[XIII]

In the age of innovation it matters when something stymies it. Older, established institutions – those with significant heritage and reputations – may find they cannot keep up with the smaller, newer, more nimble entrants.

The banking system has experienced a number of high profile system failures, or outages, in recent years. When people are unable to withdraw money from a cash machine or bills miss being paid, there are tangible repercussions which directly impact consumers. Julian Skan, managing director of financial services at consultancy Accenture, recently pointed to the fact that often banking groups have not fully integrated IT systems following acquisitions, "When a bank reaches a certain size it becomes too risky to change the core technology, so you build layers on top, and that adds complexity", he added.[XIV]

What was previously the ambition of systems, has perhaps become, in part, their downfall – as the desire to obtain stable and continuous services overlooked the future need to adapt and refresh an approach. These institutions are now met with aging systems in a modern world. Ones which speak a nearly-extinct programming language and ones which are dependent on being maintained by a skillset that is ultimately depleting. Not only is it becoming increasingly hard – and more expensive – to keep existing systems running but services that were once configured to undertake specific functions have grown into monolithic beasts of often unimaginable complexity.

For established firms, the near constant requirement for the infrastructure to provide a service only exacerbates the problems. These are systems that cannot be turned off or taken out of service, even temporarily. So the issue gains a further layer of complexity as the need for a seamless migration to new platforms becomes apparent. And it's not just about the actual hardware, the physical machines and the redundant code. New systems still need to be able to talk to old ones, they still need to be compatible so they can integrate and they also need to evolve to patch existing vulnerabilities and strengthen security.

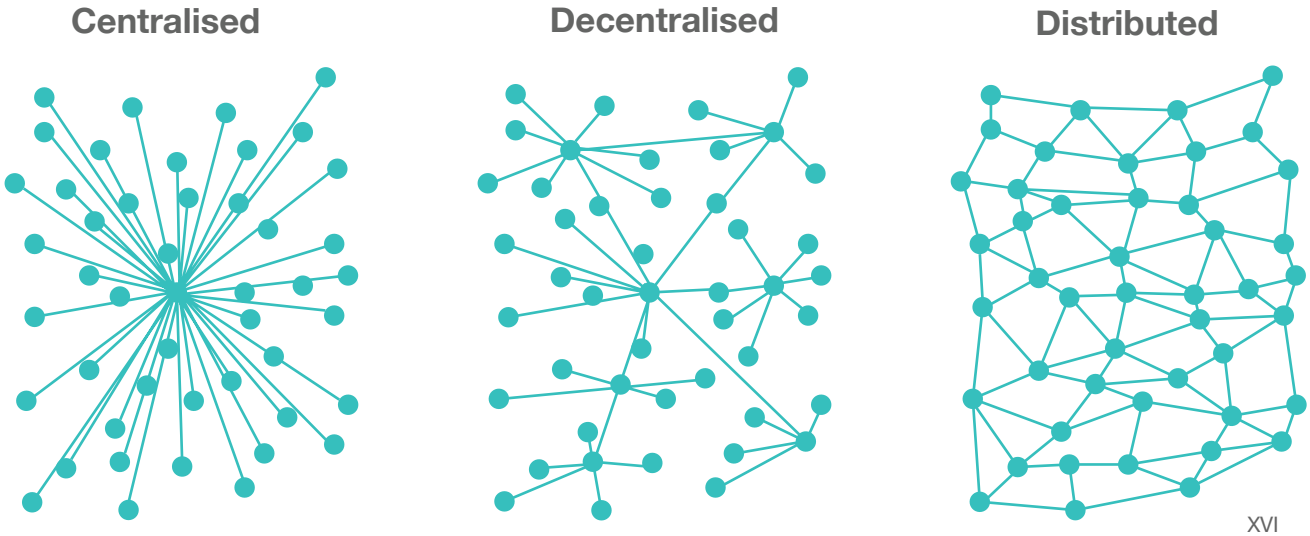
WHAT COULD HAPPEN NEXT

Financial services firms know that their legacy systems are a risk and widespread action is being taken to ensure they can maintain service needs. The key goals are essentially uniform: to standardise operations, increase efficiency, reduce cost and provide a standardised open-formats endorsed by the combined intelligence and expertise of industry and regulators. In the meantime, high profile outages are likely to cause further frustration for consumers, as the slow work of building resilient IT systems continues. Established firms will hope that during this process consumers do not decide to switch their loyalty to a new challenger brand.

What role will blockchain technology play in the future?

WHAT THE ISSUE IS

The virtual currency Bitcoin is underpinned by a technology called the blockchain, which is a 'distributed ledger' where all transactions are recorded on a publically held and publically available register that is simultaneously stored on millions of computers and which update every transaction in near-real-time. Whereas physical cash can move between real wallets without a trail, virtual wallets offer irrevocable proof of ownership and a traceable history, providing a new type of authenticity. This paradigm shift in transparency, whereby every transaction in the system can be viewed by the rest of the network, has to potential to breakdown the traditional centralised approach of financial institutions. Moreover, looking into the future, blockchain technology could be applied to almost any application: almost anything that exists on paper today could exist on a shared ledger. [XV]



[XVI]

Source: Distributed ledger Technology

WHY IT MATTERS

Technology continues to fundamentally change the way we live our lives and the internet has enabled vast transformations in the way we buy, sell and use services; however, it has only ever had a superficial impact on the actual way in which corporate enterprises transact with each other. When it comes to financial transactions, the old has been resurrected in the new; it not been revitalised or transformed.

Ledgers have always been at the heart of commerce. Online transactions currently replicate the same practices used for recording the movement of assets since the ancient Egyptians first used papyrus: centralised databases controlled by a centralised institutional owner. But with the recent establishment of digital currencies, such as Bitcoin, its underlying blockchain technology has the potential to transform the ways in which data management and storage has traditionally been conducted.

So what level of impact could the blockchain have on financial services? Blythe Masters, formerly of JPMorgan and Chief Executive of Digital Asset Holdings, compared the potential of blockchain technology with how the internet transformed other industries, "I would take it about as seriously as you should have taken the concept of the internet in the 1990s".[XVII]

The concept of a shared ledger will transform the ways in which data management has traditionally been conducted in financial services. Security and accuracy of assets stored in the ledger are maintained with cryptography and while a single database is vulnerable to attack, a distributed ledger creates censorship resistance, meaning no individual can prevent a transaction from being added and that individual changes are instantly identified and corrected.[XVIII]

Financial institutions, regulators, central banks and governments are already exploring the possibilities of using this technology to streamline a plethora of different services. A secure, global record could be used for the depositing of a last will and testament, for example, or it could be used to reduce fraud and increase efficiency in finance. There is also scope to make many services simpler, faster, and less bureaucratic; jobs and services could be replaced and assets exchanged without an intermediary, such as a government or bank.[XIX]Blockchain enthusiasts also see the technology playing a key role in the clearing and settlements infrastructure, reducing transaction time down to minutes, rather than days.

The technology allows innovation to move one step further by utilising 'smart contracts'. These are contracts embedded in code rather than legal language, ones which can automatically execute clauses, and ones which have the potential to consider risks and reduce human involvement. For insurance, the technology could have far reaching implications. Not only could costs be reduced but by utilising data from connected devices, risk could be recalculated in near-real-time and new markets could open whereby policies are traded between suppliers.

WHAT COULD HAPPEN NEXT?

What began in 2008 as Bitcoin, a system where transactions could take place without an intermediary, is quickly becoming a phenomena. Even if Bitcoin as a digital currency is not an eventual success, its underlying technology is very likely to change the digital landscape. Indeed it's already happening in organisations and governments across the world. As banks, insurers and asset managers all conduct research into how the technology could be used, a question for the industry is whether companies decided to compete or collaborate? If blockchain is as revolutionary as some of its proponents make out, it could become the technology which underpins and revolutionises the future of financial services infrastructure.

Cyber security - the biggest risk?

WHAT THE ISSUE IS

The risk from cyber-crime has grown dramatically over recent years, both in terms of number of attacks and severity. Cyber criminals now operate on very sophisticated levels, adopting more profitable, effective and efficient tactics.[XX] As well as increased risk, the pace of technological innovation means that financial services firms are changing the way they compete and operate, with their digital activities continuing to grow. They are collecting more and more data, and becoming increasingly reliant on it for their day-to-day operations. Therefore, not only are businesses exposed to more risk than before, breaches of data are becoming more business critical.

WHY IT MATTERS

Cyber-attacks pose a significant financial threat to the UK economy and to companies. It is estimated that the total cost of cyber-crime to British firms is £34 billion per year,[XXII] with the average cost of a breach to large businesses estimated at £36,500.[XXIII] Financial services firms lost an average of only 1.5% of their revenue as a result of cyber security breaches; however the revenues of typical companies within the industry mean that these are likely to add to several billion pounds.[XXIV]

Recently TheCityUK warned that the financial services sector – banks, insurers, asset managers, markets, technology and advisory firms – is a "perfect target for cyber-crime".[XXV] Moreover, the industry needs to think about cyber protection on two levels: individual firm protection and the system as a whole. Deficiencies in either will lead to increased exposure to cyber-crime. Further work is still needed to raise awareness at a company level, with only 50% listing cyber in their top ten risks.[XXVI]

Board Cyber Check-list

01 The main cyber threats for the firm have been identified and sized

02 There is an action plan to improve defence and response to these threats

03 Data assets are mapped and actions to secure them are expensive

04 Supplier, customer, employee and infrastructure cyber risks are being managed

05 The plan includes independent testing against a recognised framework

06 The risk appetite statement provides control of cyber concentration risk

07 Insurance has been tested for its cyber coverage and counter-party risk

08 Preparations have been made to repond to a successful attack

09 Cyber insights are being shared and gained from peers

10 Regular Board review material is provided to confirm status on the above

XXI **Source: RUSI**

Firms also face a risk of reputational or brand damage in the event of a security breach. For example, TalkTalk lost 101,000 customers following the cyber-attack on their company last October.[XXVII] Indeed, consumers are increasingly recognising the importance of cyber security, and consumers mistrust in companies to keep their personal data secure has increased, with particular worries relating to social media companies, online retailers and financial services firms.[XXVIII] As many consumers expect businesses to keep their data safe - with 84% in one study believing that companies should be held responsible for ensuring the safety of user data and personal information online - companies need to step up to the challenge or risk losing customers to alternative firms with better security reputations.

However, while many consumers think businesses should be responsible for a breach, it has been suggested by the Government's Cyber Security Agency that consumers should take responsibility if they have inadequate online security, such as using outdated software.[XXIX] Indeed, while many consumers indicate that they would like to learn more about online security and take more control over this, their intention has not yet turned to action, and many still make very little effort to be safer online. For example, password practices remain lax, with the two most common passwords in 2015 being '123456' and 'password'.[XXX] Additionally, 73% of consumers rely on the same passwords for different accounts, and almost half use a password that hasn't been change in five or more years.[XXXI] A question for policy makers is whether it is fair for consumers to make life easier for hackers while businesses cover the cost?

WHAT COULD HAPPEN NEXT?

Many firms are getting better at managing cyber risks, with almost two-thirds now setting out their approach to cyber security in their annual report.[XXXII] Good cyber security will need to become a core part of every business, integrated fully into business strategy rather than being considered merely an IT issue, and accountability will need to reach board level. However, there will also be a need to encourage consumers to improve their own cyber security standards so that as companies' cyber security improves, consumers do not become the weak link. As technology develops further and becomes more widely available, and knowledge around cyber security becomes more ingrained in society, consumers that do not keep pace may well end up facing the burden of financial loss themselves.

Section Three:
IMPLICATIONS FOR FINTECH START-UPS

The scale-up problem – why the technology that powers a start-up is not necessarily designed to handle rapid business growth

WHAT THE ISSUE IS

Once FinTech entrants establish themselves in the market place, they are beginning to face new challenges. By almost all metrics, the FinTech sector is in the ascendency, but is the sector running before it can walk?

As FinTech platforms rapidly grow into the market, there are concerns that the current IT infrastructures and data frameworks available to start-ups are either too under-developed or inaccessible for firms' ambitions. Without being able to transition from start-up to an established competitor within the market, small FinTech firms worry that larger, existing institutions will be able to re-consolidate the sectors which have begun to open up to new entrants.

WHY IT MATTERS

In the finance sector, information is power. PwC believes that, globally, the financial services industry spends $300bn a year on information technology. About $40bn is being spent on innovation and $20bn of that is money spent in the tech sector on solutions that were historically oriented towards financial services.[XXXIII]

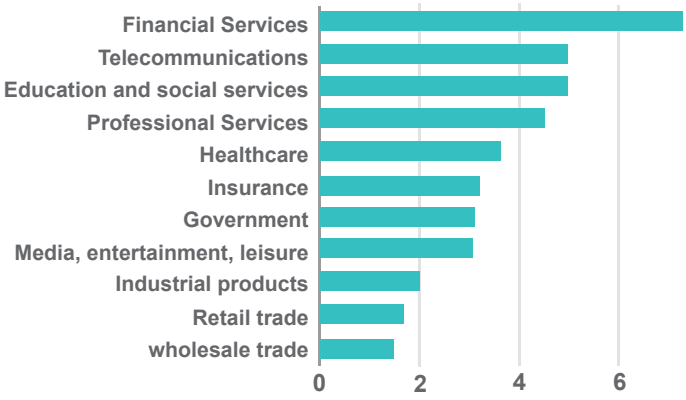
Three of the fastest growing FinTech sectors at the moment are payments, wealth management and peer-to-peer lending. So far, firms in these sectors have been focusing on developing customer-orientated solutions that use innovation to lower borrowing costs and/or increase returns on investment.

As a result of focusing on the goals of short-term survival and product design, a number of platforms are now facing unforeseen challenges. In addition to increasing scrutiny from regulators, FinTech firms are finding their growth is obstructed by the IT infrastructure upon which their platform is built.

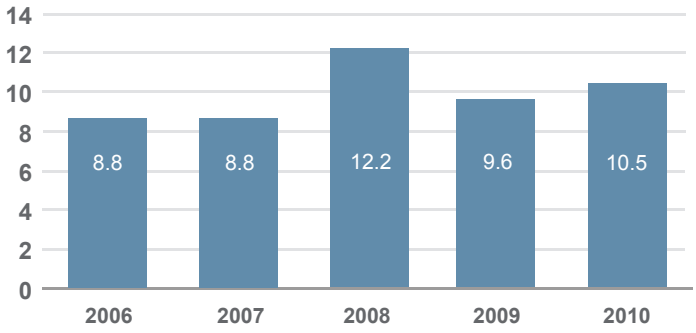
Whilst the established banks have had decades to develop and integrate their IT systems, the explosion in the FinTech system has seen platforms struggling to keep up. To give context, platforms which form the Peer-to-Peer Finance Association have lent £5.1 billion since 2010, with £715m of new lending during Q1 2016 alone.[XXXIV]

Specifically, most FinTech platforms require IT to support three key components: Payments, intermediation between savings and investment, and in some cases, algorithmic asset management systems. In order to ensure FinTech platforms are able to continue innovating services involving these components, FinTech firms need to secure better access to core payments infrastructure, and a more streamlined process for accessing customer data.

Total IT spending as % of revenues or gross output



IT costs as % revenues for European Banks



XXXV

Source: DB Research

WHAT COULD HAPPEN NEXT?

Currently, just 18 of the UK's largest banks own VocaLink, the infrastructure that processes 90% of the payments in the UK. The system processed 11 billion transactions with a value of £6 trillion last year, and this has made it very difficult for start-ups and challenger banks to push forward with innovation in the payments sector. In February 2016, the banks that own VocaLink were ordered to sell part of their stake to smaller firms. It is hoped that this will trigger new incentives for payment systems to shop around and encourage greater innovation.

Steps are also being taken to open up data for FinTech firms. Currently, banks benefit from huge amounts of transaction and customer information. Policymakers are now improving the accessibility of data through the MiData initiative, which allows consumers to download their current account transaction data which can subsequently be used by third party intermediaries. We are likely to see further disruption from new small firms who make use of big data made available by new levels of transparency. Moreover, the Payment Systems Directive 2 will require banks to provide access to consumer data and an open Application Programming Interface (API) which should further spur competition and innovation.

Will I get my money back from a FinTech start-up?

WHAT THE ISSUE IS

In the current low interest rate environment, investors have been keen to chase the higher rewards offered by peer-to-peer lending platforms promising 5-8% returns. However, there are concerns that lending to SMEs is far riskier than platforms are stating.

In February 2016, former Chair of the Financial Services Authority (FSA), Lord Adair Turner warned that "the losses which will emerge from peer-to-peer lending over the next five to 10 years will make the bankers look like lending geniuses", adding that he didn't feel the platforms were doing sufficient credit underwriting before issuing loans to businesses. This remark was strongly refuted by the Peer-to-Peer Finance Association (P2PFA).

WHY IT MATTERS

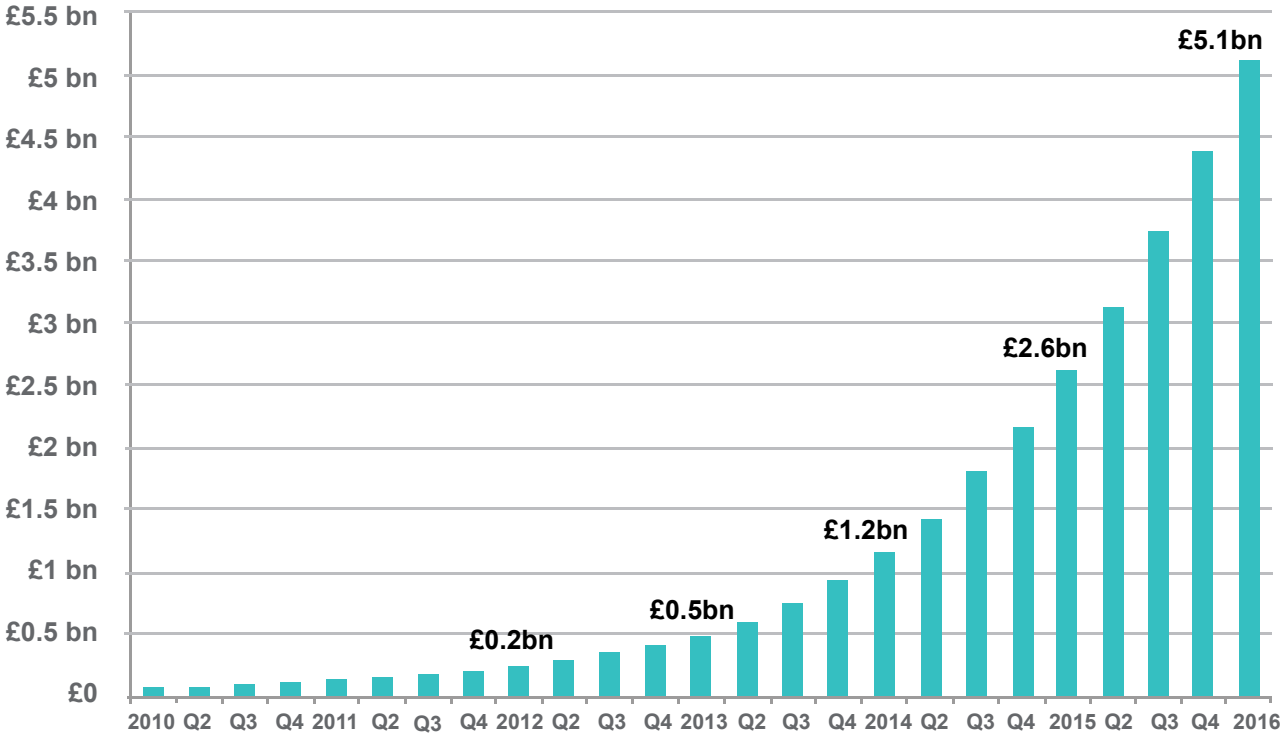
Peer-to-peer lending platforms are protected from some of the dangers faced by banks. They do not leverage their capital and so are less vulnerable to liquidity shortages. However, they are only able to offer such high returns on investment because SME lending is well known to be a riskier game. According to the insurer RSA, 55% of SMEs do not survive more than five years.

Given that the eight platforms which form the P2PFA have lent £5.1 billion since 2010, the failure of even one of these would represent a huge blow, not only for the platform's investors and borrowers, but also for the reputation of the emerging industry.

Christian Faes, CEO of platform LendInvest, has said "our reputation is everything". Members of the P2PFA have tried to demonstrate transparency by publishing their full loan books on their websites. They must also advertise their net, rather than gross, rates of return (after losses from bad debt and fees) to ensure that potential investors are as informed as possible before making any decisions.

The peer-to-peer lending industry does not hide that there is no reward without risk and investments do not benefit from the same security as bank deposits. However, whilst peer-to-peer lending platforms are not protected by the Financial Services Compensation Scheme, FCA rules mean that if a platform fails, all outstanding loans would continue to be administered by an independent party, and consumers would have rights to fair redress through the Financial Ombudsman Service.

P2P Finance Association Lending Growth



[XXXVI]
Source: P2PFA Data

WHAT COULD HAPPEN NEXT?

The peer-to-peer lending sector is still relatively young and is yet to experience the strain of a credit crunch or a financial crisis like that of 2008. Across the sector, there are many platforms attempting variations of the peer-to-peer model. As the industry undergoes cycles, models will be strained and it's possible that some will have to either adapt quickly or struggle to continue.

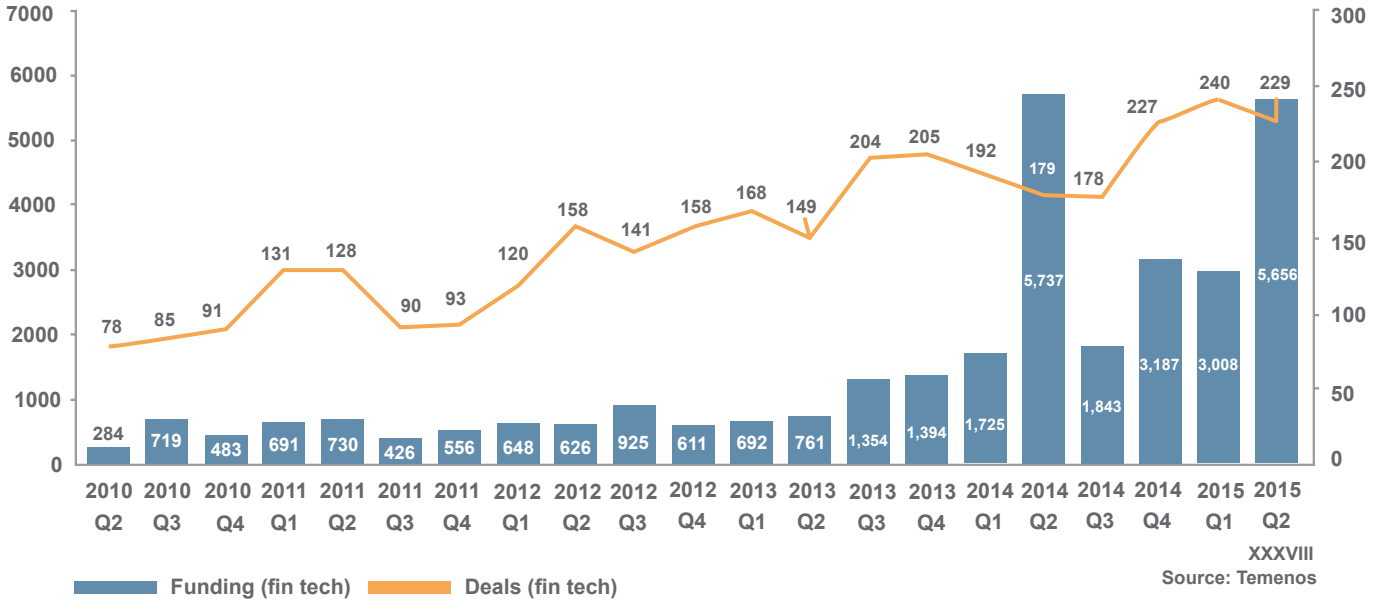
In May 2016, Andrew Tyrie MP, Chair of the influential Parliamentary Treasury Select Committee, wrote to the FCA requesting it to set out its approach to the risks and opportunities of the sector and asking if more regulation might be needed. The FCA has subsequently announced a new review into the sector. So far the UK's regulators have been reticent to over-regulate, fearing that further measures would suffocate innovation and completion. However, the collapse of just one large platform may be enough for the calls for further regulation to carry greater weight with the FCA.

Is there a FinTech bubble?

WHAT THE ISSUE IS

Global funding for FinTech firms is likely to hit record levels in 2016. Total FinTech funding deals reached $5.7 billion in Q1 of 2016, which includes funding from angels, private equity firms, mutual funds and hedge funds.[XXXVII] Of this figure, Venture Capital (VC) counted for $4.9 billion of funding. So far the largest party of funding for FinTech companies has focused on firms providing lending and payment services, leading to a mounting challenge for traditional banking firms to compete. This has led to the following question: Is there a FinTech bubble similar to the dot-com bubble?

FinTech Funding



XXXVIII
Source: Temenos

WHY IT MATTERS

Warren Mead, global co-lead of KPMG's FinTech practice wrote that 2016 will be the year when the type of funding into FinTech shifts from 'disruptors' to 'enablers'. In short, established firms will increase the overall investment into FinTech firms that have the ability to help their long-term growth. Established firms have spent the past few years hearing in the media about new firms that will eat away at their customer base and profit margins. Investing in enablers is a way of protecting their long-term growth.

Does this mean an end to VC funding? Not at all. Rather, the funding landscape will continue to change and develop in the coming years. Instead of firms primarily relying on VC funding, it will become apparent that the overall number of interested potential funding parties is increasing. This means, for example, insurers will increasingly look to invest and fund insurance tech, while banks are likely to show further interest digital wallet FinTechs. There will also be FinTechs that cut across all areas of financial services that will be of interest, such as cyber security.

A broader concern is how established firms go about investing in new innovative start-up companies. Equally, it is a question for start-ups to consider – is the funding or partnership the correct one? In the rush to be seen as innovative and forward thinking, there is a risk that established firms go on a funding spree without strategic direction. How will the start-up in question complement the wider business? What is the growth potential of the start-up in question? These are just a couple of the questions firms must consider. A single poor funding decision may not be a problem in itself. But a series of failed endeavours could have wider ramifications and call into question the direction of a business.

The question of whether there is a new tech bubble is one journalists seem to enjoy asking. If the sector continues on at its current rate then 2016 promises to be another record breaking year, possibly growing by around 36%, according to KMPG and CB Insights.[XXXIX] For the time being it looks like the demand for FinTech investment opportunities will continue, in part helped by some of the potential rewards on offer for those companies which are able to compete and lure custom away from established firms. The pace of innovation will also help the sector, as new start-ups enter the market using new technologies to offer new products and services. The fact established firms are now so active in the funding of these start-ups highlights the threat they pose to the future of their business.

WHAT COULD HAPPEN NEXT?

2016 will in all likelihood be a record year for FinTech investment, bar a wider economic slowdown. Established firms are looking to build their brand profile across insurance, banking and asset management to position themselves as digitally disruptive businesses. This could lead to some firms competing over the same start-ups, pushing up valuations. The funding decisions made firms will also give an insight into the future of financial services. What technologies do firms see as the future? What scale of investment will firms put into robo-advice start-ups compared with big data start-ups? The first glimpse of the future will come through tracking where investment decisions are made.

Regulatory barriers for start-ups

WHAT THE ISSUE IS

FinTech start-ups operating in the UK firms must be authorised and meet the FCA's Threshold Conditions, just as any other firm does. Start-ups are well known for their demanding work environment, as founders look to build a minimum viable product (MVP) against tight deadlines and a limited amount of working capital. FinTech firms operate with the added pressure of meeting the required regulatory demands.

WHY IT MATTERS

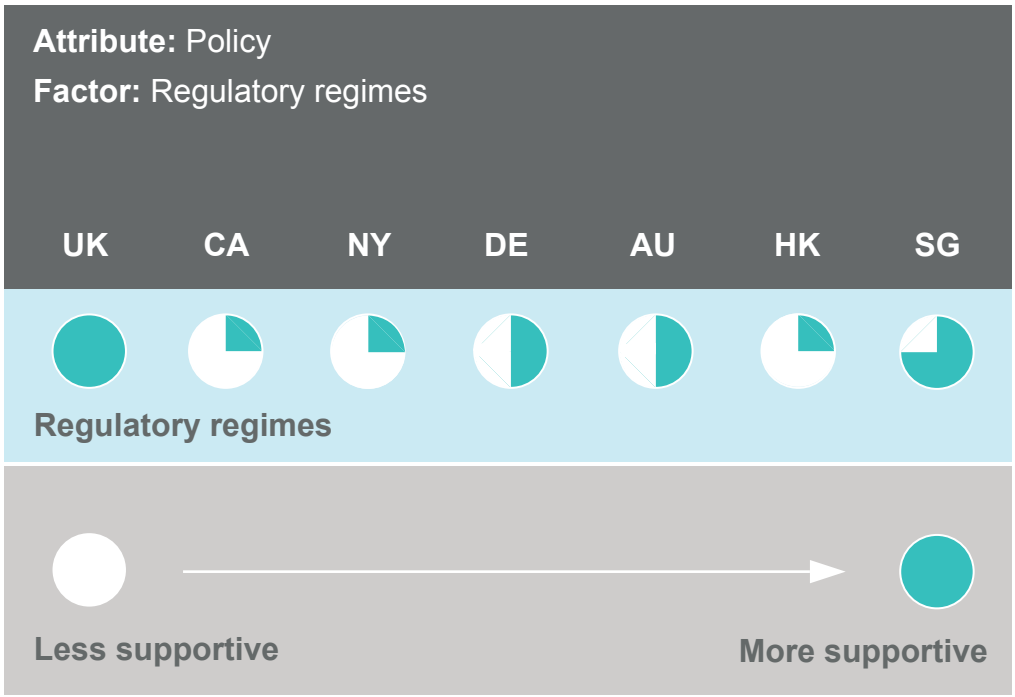
The added burden of meeting the FCA's authorisation requirements is a potential barrier for FinTech start-ups. Moreover, examples outside of financial services demonstrate how successive start-ups have been able to disrupt markets and the existing regulatory landscape. Uber and Airbnb are two of the best known examples.

One future area of disruption in financial services that could upend the current business and regulatory landscape would be autonomous vehicles and motor insurance. Currently over 90% of all road traffic accidents are due to driver error. Autonomous vehicles will dramatically reduce the number of accidents, pushing down premiums in the long-term, according to Moody's. The rating agency also argues that insurers will face "long term challenges from autonomous vehicles", posing the question as to what role insurers will play in the future.[XL] Autonomous vehicles will still need to be insured, however, it will be the technology itself, and other risks such as cyber-attacks, policies will need to cover.

However, regulation can be stifling if it is too restrictive. In a bid to tackle regulatory uncertainty, the FCA's Innovation Hub offers FinTech firms direct support to navigate complex regulatory hurdles and allows them to save on costs from using a consultancy. The Innovation Hub helps FinTech firms to understand the regulatory landscape, which in turn assists the process of positioning their business as an appointed representative to help them bring their product to market more quickly. The FCA uses 'informal steers' to free up communication between the prospective firm and the FCA. In its first year the FCA Innovation Hub helped over 175 innovative businesses. Five of these businesses went on to receive authorisation to undertake regulated activities.

FinTech start-ups can benefit from the FCA's new Regulatory Sandbox, consisting of a 'safe space' in which businesses can test innovative products, services, business models and delivery mechanisms without immediately incurring all the normal regulatory consequences of pilot activities.

Level of support by regulatory regimes



Source:FinTech - On the cutting edge [XLI]

Bob Ferguson, head of the FCA's Project Innovate, has made a point to stress that innovation does not mean the FCA will let its standards slip. "Being innovative is not some kind of universal solvent that does away with the need to observe requirements that are there to safeguard consumers or to safeguard the integrity of financial systems. Innovation is not a licence to cut corners", he recently warned.

The FCA's approach to reducing the barriers to regulation is much needed and welcome. Especially if the UK is to secure its position as the global leading centre for FinTech. One FinTech investor recently spoke of the concerns around uncertain regulatory requirements, stating "Due to the complex nature of the UK financial market, it is sometimes difficult for FinTechs to understand which elements of the regulatory framework apply to them".[XLII] A clear regulatory framework and easing the process of authorisation will go some way to address these concerns, which should fuel further investment and growth in the sector.

WHAT COULD HAPPEN NEXT?

Helping FinTech start-ups to gain authorisation and reach the market is a priority focus for the FCA. There are a number of initiatives we can expect to progress in 2016 to achieve this. For example, the FCA will publish feedback from its call for input on Regulatory Technology (RegTech) in summer 2016, after which we can expect new rules around authorisation for RegTech start-ups. As further moves are made to help with the authorisation process, the debate is likely to intensify around the point made by Ferguson: will innovation lead to corner cutting? The FCA has been clear that this will not be the case, but the line between going too far and not doing enough is a narrow one.

Section Four:
IMPLICATIONS FOR THE GENERAL PUBLIC

Big Data – How will it be used and what will it mean for the insurance market?

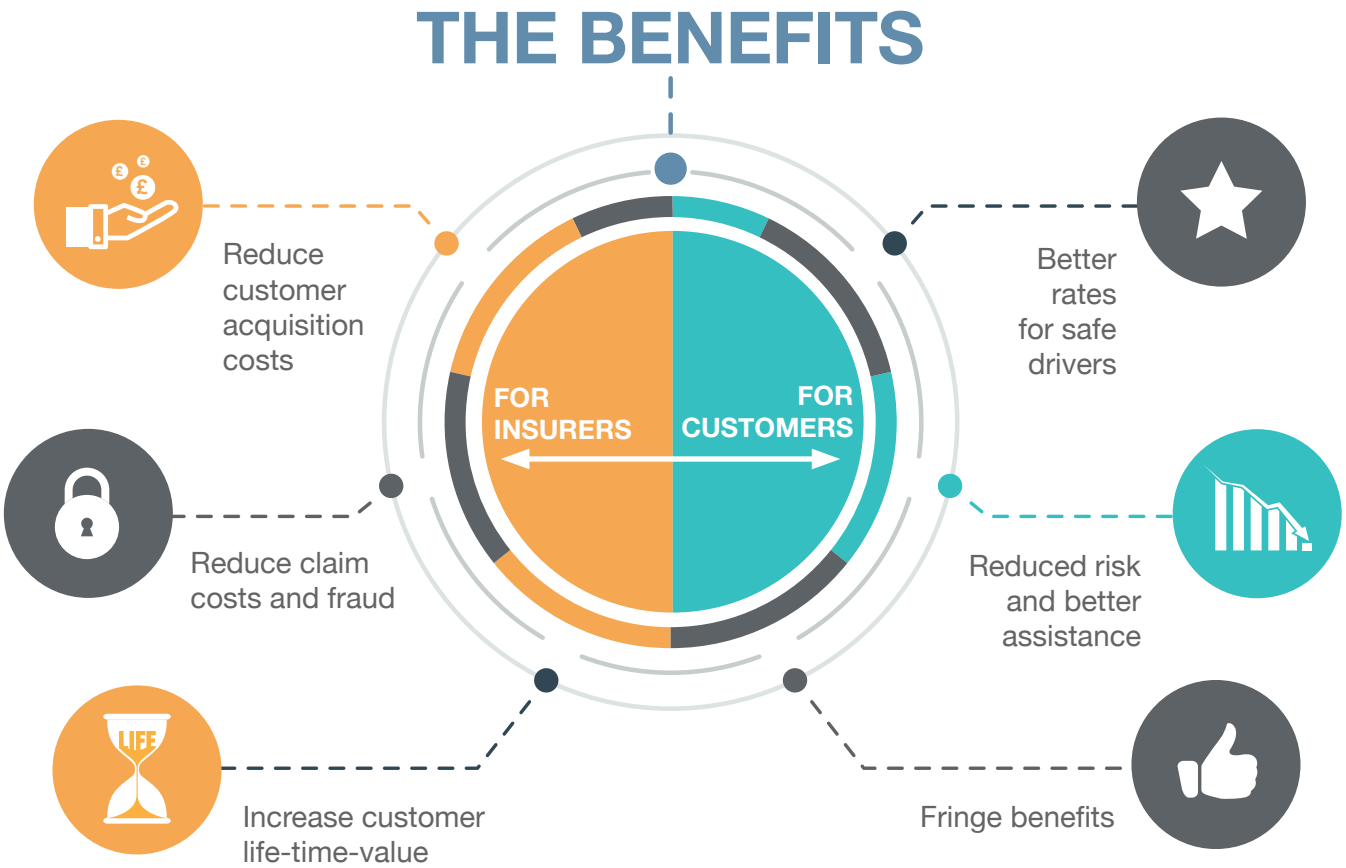
WHAT THE ISSUE IS

Due to the rapid growth of digital devices, wearable tech, and the Internet of Things (IoT), the volume of consumer data has grown exponentially over recent years and will continue to do so for the foreseeable future. Many estimate that about 90% of all the world's data has been created in just the past two years.[XLIII] This growth in consumer data, or 'Big Data', has the potential to be immensely valuable to businesses for numerous reasons, including, most obviously, providing the ability to specifically target marketing activities and personalise product offers. Big data has, however, also raised serious questions about data ownership, particularly whether consumers own "their" data or whether the businesses that collect the data can claim rightful ownership.

WHY IT MATTERS

With the rise of big data, businesses' ability to capitalise on advanced analytics will be key to long term profitability. Analytics can provide deep and valuable insights into the needs of individual consumers. Evidence shows that businesses that are able to secure consumer data, create targeted marketing campaigns and offers, and curate personalised products and services will be the ones most likely to succeed. Big data has already shown its ability to reshape traditional operating models in a number of different industries, including retail banking, retail consumer goods and telecommunications. The insurance industry, however, is still making progess in the area.

Insurance Telematics



XLIV
Source: Dolphin, Insurance telematics

Earlier this year research commissioned by Teradata found that 82% of UK insurance companies with more than £500 million turnover are prioritising big data strategies in 2016.[XLIV] Insurers are realising how big data enables more evidence-based decisions, and importantly, a better understanding of their customers. Further, advanced data analytics — through telematics or wearables — improve the ability of insurers to understand customer risk. Better understanding of specific risk allows insurers to calculate personalised risk assessments. With individualised data, insurers can provide consumers information on how to reduce their risk and minimise losses, and ensure individual policies reflect individuals' circumstances as accurately and fairly as possible.

Most British consumers appear to welcome the use of personalised data to allow insurers to tailor policies as many people are increasingly interested in engaging with financial services. A recent survey found that 85% of insurance customers would like their insurer to give them insight into how they could lower their premium, for instance by changes in their behaviour.[XLV] By providing data collected by a telematic 'black box' in a customer's car or from wearable devices, like FitBit or Apple Watch, consumers will be able to more actively engage with the insurance market and receive lower premiums based on less risk-adverse behaviour or lifestyles. The same survey found that 56% of current insurance customers would be happy to use these devices to get a more accurate premium.

In addition to potential benefits for consumers, big data brings opportunity for improving fraud detection and claims mitigation and prevention. By developing predictive models based on both historical and real-time data on medical claims, legal costs, demographics, weather data, and wages, businesses are in a better position to identify suspected fraudulent claims in the early stages. Catching fraudulent claims earlier will not only save insurers money, it will also reduce the negative impact on their customers who are charged higher rates to account for the losses.

WHAT COULD HAPPEN NEXT?

However beneficial it may be for some consumers, greater use of personal data raises issues for data ownership, privacy and security. A recent Eurobarometer survey found that 67% of Europeans expressed concern about not having control over personal information they provide online.[XLVI] Further, in response to an FCA investigation of data use by insurers, the Financial Services Consumer Panel raised concerns that consumers are often unaware of how their data is used, and highlighted a need for them to give explicit consent.[XLVII] There is a risk that the increased use of personal data in the form of individual pricing is done against the wishes of consumers. If consumers are concerned about the use of their data, is the insurance industry right to press ahead, or should it refrain from such innovation? As we have previously pointed out, it is essential that the right balance between personalisation and pooling of risk is achieved in the future.[XLVIII]

Moreover, due to the speed of innovation, data protection laws — mostly drawn up in the 1990s before mass internet use — have not been able to keep up with technological changes. Governments and regulators are slowly starting to play catch up. Whether they can adapt to the pace of innovation, though, is another question.

Big Data and the future of risk

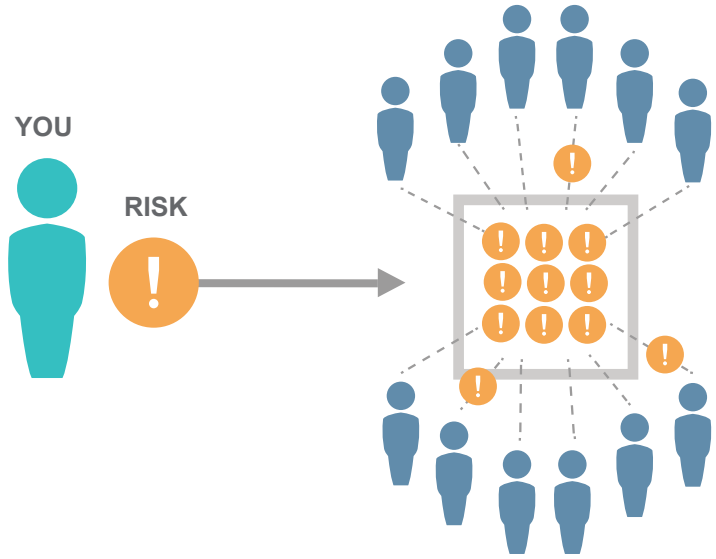
WHAT THE ISSUE IS

As discussed in the previous section, new big data analytics offer insurers opportunities to develop their businesses beyond the boundaries of traditional insurance. Increased use of telematics and wearables will mean insurers could have the option of shifting from a business model based on the principle of pooled risk using historical data, to one where they can automatically assess and price risk individually and in real-time. While individualised pricing may lead to lower insurance premiums for the most conscientious drivers and the healthiest people among us, it could also lead to certain high risk groups losing access to vital services. These higher risk individuals continued access to insurance will depend on how, and whether, regulators decide to intervene to ensure a 'fair' market.

WHY IT MATTERS

The insurance business depends upon enough people being exposed to broadly similar risks and seeking broadly similar insurance cover. No matter whether cover is required by law or chosen, a critical mass of risks and policyholder is needed, leading to a focus on general portfolios rather than individual customers. In theory, when accepting a specific risk from a consumer, insurers should look to charge the right price based on the cost of adding that specific risk to the portfolio of risks pooled by the insurer. However, with a limited data set, the extent to which the insurer can do so is constrained — this is where big data threatens the principle of pooled risk in insurance.

Pooled Risk



Source: XLIX

With increased individualised information available about customers, insurers will move away from general portfolios and broad pricing structures to personalised risk assessments and more customer-specific pricing. This new technology may give access to more data about customers, but such personalised underwriting can challenge the ability of insurers to pool risk, which underpins the effectiveness of insurance cover. However, with so much data available on individual risk factors, it no longer makes sense for companies to group policyholders together.

This means, however, some people may be identified as such high risk to insurers that they are priced out of insurance altogether. Big data could, in effect, create groups of 'uninsurable' people. While in some cases this may be to do with modifiable behaviour, like driving style, it could easily be due to factors that people can't control, such as where they live, age, genetic conditions or health problems. For example, a person with a FitBit who only logs a limited amount of activity or exhibits other signs of ill health may be evaluated as a higher risk for health insurance than they would have without the wearable tech feedback. Similarly, if individuals did not agree to share their data with insurers, they may be defaulted to a higher premium.

Should the Government intervene to ensure insurance remains accessible even to people who represent a higher risk? In flood insurance, the Government has decided that intervention is indeed necessary to ensure all households have 'fair' access to cover. The recently launched Flood Re scheme, which ensures provision of affordable cover to people with high flood risk homes, was its answer to the problem of 'uninsurables' — but is this model sustainable across all sectors of the insurance industry? The FCA is due to report in Q3 2016 on its big data review to better understand how big data affects customers. It will be the FCA's first detailed study of big data and the regulator plans to use what it learns in its work with other sectors.

WHAT COULD HAPPEN NEXT?

Regulators have a role to ensure consumers have access to 'fair' pricing, but fair pricing does not necessarily mean making insurance more affordable and accessible for all. The difficulty for regulators will be to balance a desire or 'fair' access to cover for all consumers with the need to keep the industry competitive. As more sophisticated analytical and predictive tools become available, insurers will be able to estimate risks in greater detail, which may in turn lead to more granular risk segmentation. Depending on how swiftly the FCA intervenes to ensure 'fairness', the use of big data has the potential to accelerate trends towards groups of 'uninsurables'.

The loss of commercial data sets is one of the biggest reputational risks firms face. Centralised computer systems with single points of failure are exposed to cyber-attacks. If consumers see their personal data stolen, or see stories of other people who lose data, there could be a backlash and calls for increased privacy from consumer groups. Consumers may be forgiving at first, but unless firms make significant advances, the opportunities around big data could be curtailed.

Robo-advice – does technology offer the best answer to financial planning?

WHAT THE ISSUE IS

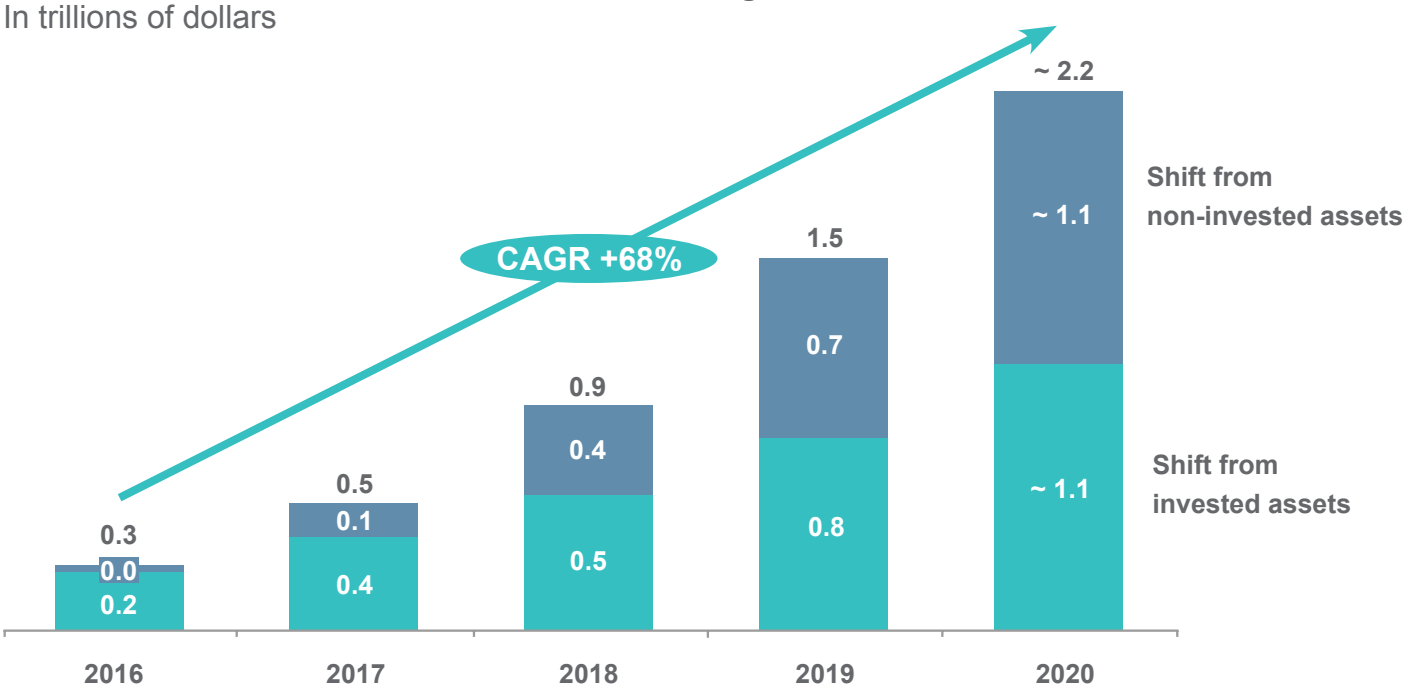
In 1975, the Vanguard Group launched a new innovative product into the wealth management industry, the First Index Investment Trust. Initially criticised as "un-American", tracker funds are now a popular choice with most investors. The latest innovation in wealth management, so called robo-advisers, have the potential to open up access to financial advice to consumers who have otherwise been priced out of the market. Moreover, competition between emergent firms, such as Nutmeg, or WealthFront, and established wealth management providers, will see great choice for consumers in the market place. Despite these possible benefits, some critics question how appropriate the technology is to some consumers. Is too much hype being put on a relatively low cost solution to the complex issue of financial advice?

WHY IT MATTERS

Last year in the United States the Securities and Exchange Commission (SEC) issued an investor alert on automated investment tools.[L] Although welcoming the emergence of automated investment products, the SEC cautioned "It is important to understand their risks and limitations before using them".

The SEC highlighted a number of risks investors should consider before using any automated investment tools. One of the main risks cited by the SEC was the potential limitation of automated investment services in catering to the specific needs of individual investors. Automated investment products promise a great deal: low cost, easy to use, widening access to financial advice. However, potential investors need to consider whether such products can cater to their financial needs or goals, and the implications of how they use the product to determine their investment strategy.

Estimated U.S robo-advisors assets under management
In trillions of dollars



1. Non-invested assests inlcude liquid funds (e.g., cash and cash equivalent deposits)
2. Invested assets include credit market instruments, corporate equities, mutual funds, IRAs and 401 (k)
Source: A.T Kearney simulation model

LI

The algorithm at the heart of an automated investment firm uses the responses provided by the end-user to create the appropriate investment strategy. Therefore, the end-user must trust that the outcome recommended by the service is the correct course of action. Although the industry is still in its infancy compared to traditional wealth management providers, what would happen in a situation where a faulty algorithm incorrectly told an end-user to adopt a strategy that was not the optimum one? Nutmeg recently echoed regulatory concerns it has in this area, pointing to the fact that a faulty update to the system could lead to hundreds of people being wrongly advised in just a short space of time. This underlines the point that although automated investment services reduce the barriers to consumers gaining access to financial advice, the overall level of detriment could be higher in the case of system problem.

This is why, then, that the FCA has launched a new Advice Unit which will work with firms developing models that provide 'personal recommendation' investment management services for their clients.[LII] Ensuring the correct regulatory protections and structures are in place will help give the industry the certainty it needs to bring new products to market. It will also help manage potential risk which could otherwise damage consumer trust in automated investment services.

WHAT COULD HAPPEN NEXT?

The Retail Distribution Review led to most large UK banks giving up on providing investment advice to many consumers. However, all of the main high-street brands are developing automated investment services. This could mark an opportunity to attract new customers, but also build trust. If consumers take advice from an algorithm rather than a sales-person, will it help restore the reputation of banks? For automated investment services in general, the initial hype about their potential to close the advice gap is likely to give way to increased concerns about who is using these products, and whether they are delivering the desired outcomes.

What will the growth of FinTech mean for non-digital consumers?

WHAT THE ISSUE IS

The growth in FinTech firms and increasing role of the internet and smart phones in the delivery of financial services brings many potential benefits to those consumers who are equipped to take advantage of them. However it remains the case that, in the UK alone, over 10% of adults (5.3m people) have never used the internet.[LIII] Globally, still less than half (46%) of the population of the world is online, with penetration particularly low in Asia (40%) and Africa (29%).[LIV]

WORLD INTERNET USAGE AND POPULATION STATISTICS
NOVEMBER 30, 2015 - Update

World Regions	Population (2015 Est.)	Population % of World	Internet Users 30 Nov 2015	Penetration (%Population)	Growth 2000-2015	users % of Table
Africa	1,158,355,663	16.0%	330,965,359	28.6%	1,319.1%	9.8%
Asia	4,032,466,882	55.5%	1,622,084,293	40.2%	1,319.1%	48.2%
Europe	821,555,904	11.3%	604,147,280	73.5%	474.9%	48.2%
Middle East	236,137,235	3.3%	123,172,132	52.2%	3,649.8%	3.7%
North America	357,178,284	4.9%	313,867,363	87.9%	190.4%	9.3%
Latin America / Carribbean	617,049,712	8.5%	344,824,199	55.9%	1,808.4%	10.2%
Oceania / Australia	37,158,563	0.5%	27,200,530	73.2%	256.9%	0.8%
WORLD TOTAL	7,259,902,243	100.0%	3,366,261,156	46.4%	832.5%	100.0%

Source: LV

WHY IT MATTERS

Smartphones are ubiquitous here in the UK with over three quarters (76%) of adults owning one. [LVI] Nevertheless, this means that almost a quarter remain unable to take advantage of opportunities such as mobile banking and payments. In 2015 only 13% of UK adults had made a mobile payment in-store and, while this represented a significant leap from 3% the previous year,[LVII] there is clearly some distance to travel before digital financial services become universal even in an advanced economy such as the UK.

Digital innovation and financial technology could be a highly positive development for both industry and customers – and is already so to a significant degree – but there are clearly grounds for concern that some people will simply not be able to enjoy these advantages either through lack of access or lack of capability. This in itself is potentially problematic for the financial services industry as it seeks to tap into new markets and continue to grow its customer base. For international firms, they will find it difficult to sell FinTech products and services to those markets where vast swathes of the population remain offline or without access to digital technology. There is therefore a sound business case for encouraging governments to invest in global digital infrastructure. This would be beneficial for those population groups who are currently without access, opening up significant new opportunities for them to learn and take advantage of new services.

Another important consideration is whether financial innovation could in fact reinforce and exacerbate existing inequalities between financial services 'haves' and 'have nots'. Again, looking at the UK, it has been estimated that there are anything from 1 million[LVIII] to 1.5 million[LIX] people who are currently without bank accounts. It stands to reason that many of these will be the same people who remain without internet access or smart phones and so, far from being an avenue to overcoming their financial exclusion, FinTech could in fact serve merely to cement it. There is a real responsibility on government and industry to try to equip as many people as possible with both the resources and the skills to take advantage of new financial innovations.

WHAT COULD HAPPEN NEXT?

Both in the UK and globally, there is recognition of the importance of maximising access to digital communications infrastructure, for example through the UK Government's Digital Communications Infrastructure Strategy, which aims to extend superfast broadband coverage to 95% of premises by 2017.[LX] However, extending access to digital technology is only the first step and it is also about ensuring that people have the understanding and skills to enable them to take advantage of FinTech. This should be part of all future government-led financial education and capability initiatives, as well as supported wherever possible by the financial services industry. If government and industry can work together on this, it will be to their own benefit and the benefit of society as a whole.

Conclusion

Our previous report on disruptive influences looked at the pace of technological change and risk in sectors from the sharing economy to nanotech. This report has explored issues around FinTech and the way in which technological innovation could potential transform the financial services industry, and the risks that could arise as a result.

Paul Volcker, the former Chairman of the Federal Reserve, said you need to go back over 30 years to find the last great innovation in financial services: the invention of the ATM. In that time other industries have been fundamentally redesigned as a result of disruptive innovation. Napster, Itunes and Spotify have transformed the music industry.

There is a general agreement that the pace of technological innovation in financial services is quickening. There is, however, a dispute over how the innovation will alter the industry. Will incumbent firms maintain their market share or will the future of financial services be one of disintermediation and technology companies who happen to sell financial products?

Some FinTech enthusiasts imagine a financial services system underpinned by the blockchain, leading to a distributed and transparent means of commercial exchange. Blockchain proponents point to the fact the technology could be used to revolutionise all areas of finance, from underwriting to foreign exchange. Blockchain rose to prominence as a result of the digital currency Bitcoin, which has become known as much for its volatility in price as its use as a new means of exchange. The underlying blockchain technology could go on to play a transformative role, although advocates of blockchain worry excessive regulation will be its eventual un-doing.

How regulators enable innovation to flourish is perhaps the most challenging risk in the future. It is ultimately consumers who will be at the forefront of innovation in FinTech, and it is the responsibility of financial regulators across the globe to ensure adequate protections are in place. The FCA has so far been an example of best practice in this regard, but the pace of innovation means it will be a challenge for regulators to stay on top of the latest trends in digital and mobile technology.

Perhaps the ultimate test in judging the success of FinTech is whether anyone still uses an ATM in 30 years.

Acknowledgements

Head of Political Risk
John Rowland

Report Editor
Paul Worthington

Deputy Editor
Jasmin Harper

Contributors:
Simon Fitzpatrick
Julia Root-Gutteridge
Charlotte Adamson
Joe Moor
Dan Regan

Designer
Megan Harley

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FOOTNOTES

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For more information please contact:

John Rowland
Executive Director
Tel: +44 (0)20 7297 5975
Email: john.rowland@cicero-group.com

www.cicero-group.com

@CiceroGlobal

London
10 Old Bailey
London
United Kingdom
EC4M 7NG

Brussels
2nd Floor
14 Rue de la Science,
Brussels, Belgium
1040 Brussels

New York
Cicero Inc
Suite 500
745 Fifth Avenue
New York NY

Singapore
Level 24, 1 Raffles Place
Singapore 048616
Singapore

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Contact:

David Thomson
Director of Policy and Public Affairs
20 Aldermanbury
London EC2V 7HY

Email: david.thomson@cii.co.uk

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http://www.cii.co.uk/media/6715682/cii-cicero_disruptive_influences_report_final.pdf

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