


# Future Horizons report

October 2017

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# 1 Introduction

The way consumers access and use financial products and services has fundamentally changed over the last 15 years. New technologies are often highlighting the differences between traditional firms and new entrants, and consumer demands are evolving amid wider social and economic change.

How might these trends continue over the next 15 years? And what can we do now to prepare? The challenges and opportunities ahead are both important and difficult to assess.

Are we close to seeing a major technological disruption that will transform people's experience of financial services? Where will the responsibility lie if financial services fail in a world where technology, finance and data are increasingly integrated and undifferentiated? How is the economy responding to changes in working patterns and lifestyles?

Answering these questions will prove challenging for the industry and regulators alike.

As a regulator, we aim to anticipate market developments, not only by using our rule making powers but also raising issues to shape developments in the public interest.

To that end we have ongoing discussions with leading thinkers in financial services to look at developments over the longer term, around 15 years or more. Our inaugural Future Horizons Conference in April 2017 is part of this. This conference looked at the future risks and opportunities these changes bring for the FCA, financial services, and wider society.

The conference centred on a set of 'stories' which created imaginary narratives on how the next 15 years could play out.

In this report we introduce a selection of these stories. We outline the main drivers behind each potential future, how these futures may look, and the challenges they could present for policy makers and regulators. Each of the stories explored in this report highlights one of four themes; the role of data, platforms, innovation and uncertainty.

This report does not seek to make predictions of the future, set out a likely FCA response or represent FCA policy. Instead, we want to share how participants at the conference thought the future may play out, to provoke debate and help us understand the potential risks and opportunities ahead.

Alongside this report we published 23 expert papers that helped us understand different ways in which the future could play out. We have also included extracts from these papers in pink boxes, throughout this report. Like this report, these papers are not forecasts but are plausible versions of the future based on existing analysis and research.



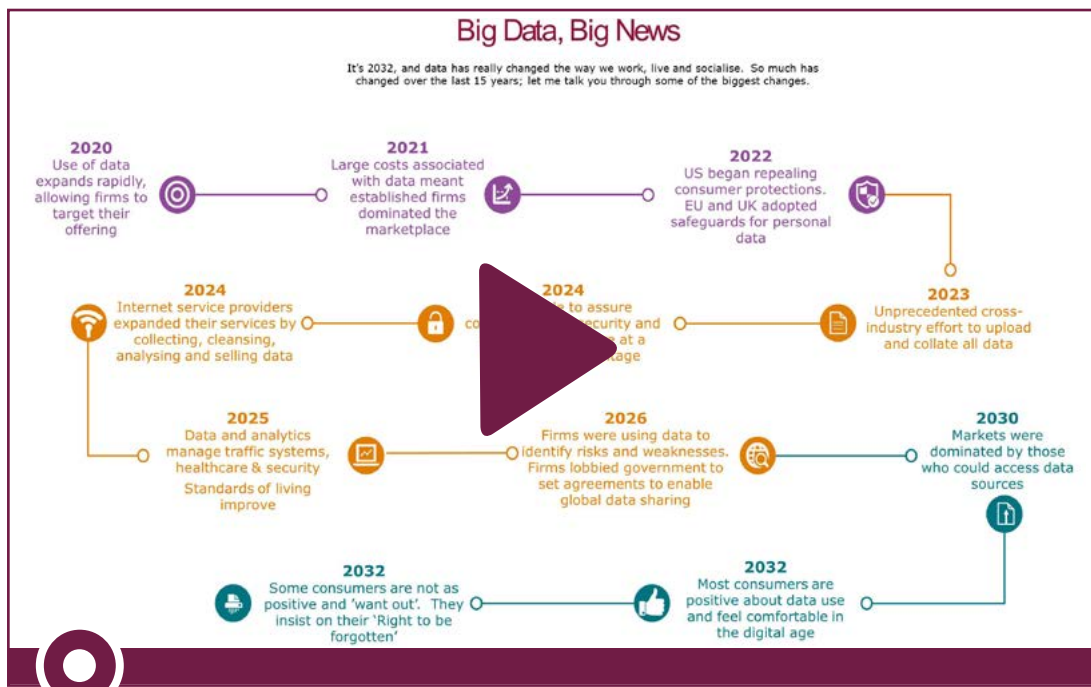
## 2 Big data, big news!

**This story starts 15 years from now where the collection and use of data has exploded across the UK and firms are increasingly collecting and analysing the information about our everyday lives.**

A relatively small number of global businesses hold and collect the majority of the world's data. The large fixed costs associated with compiling, cleaning and analysing large data sets have created a data market which is secure and effective, but not price competitive.

Technological advances mean we can use data to successfully manage the traffic, health, security and environmental problems of mega cities. A wide range of organisations are now using data to identify weaknesses and predict risks, collecting data from consumers and the wider world using the Internet of Things – the concept of connecting any device to other devices and the Internet.

As a result, an increasing number of consumers are enjoying the effects of more specifically tailored products and targeted marketing. Others, meanwhile, are beginning to invoke their 'right to be forgotten', leading to debates on data ownership and the feasibility of 'forgetting' small pieces of what is a global data jigsaw.



### What is driving this story?

Data can potentially transform practices across a number of financial services and some consumers are already seeing the benefits. We explored what big data could mean for financial services and regulation, and what opportunities and challenges this may bring. The 'Big Data, Big News!' scenario was created to allow the conference to explore these themes. It does not seek to make predictions of the future, set out



a likely FCA response or represent FCA policy but it allowed delegates to discuss how advancing technological capabilities and consumer demands for 'bespoke' experiences, products and services could lead to platform businesses developing in financial services.

Platforms are business models which create value by facilitating the exchange between two or more interdependent groups, usually consumers and businesses. For example, people wanting to sell an object with those wanting to buy, or those looking to invest with those wanting investment.

The amount of personal and detailed data consumers share make these platforms possible. Organisations that collect large amounts of data today have major advantages over those that don't, as they have the expertise and infrastructure needed to use these data effectively. Delegates suggested that existing financial services firms could be replaced in the market by these technology firms. Some suggested that much like internet searching, social media, or online shopping, a single provider could emerge to dominate financial services.

Many delegates believe this evolution to data driven platforms and products will be accelerated by the implementation of the second Payments Services Directive (PSD2) in January 2018.

By opening up bank's customer data, PSD2 will enable businesses, such as payment, personal comparison services, account aggregation services and eCommunities, to find new and innovative ways to engage with, and target, consumers.

But how comfortable will society be with the increased use of their data? Delegates highlighted how data use will be shaped by the philosophical and legal debates surrounding data ownership, its monitoring, and unauthorised use.

As part of this, the General Data Protection Regulations (GDPR), to be implemented in May 2018, includes a number of new rights for individuals and strengthens others that currently exist under the Data Protection Act.

A potential driving factor of this future debate is the 'right to forget' – GDPR, Art. 17. However, using this right would mean that consumers would have records that may be incomplete or hold inadequate data. Delegates discussed how this may penalise consumers in a data-based financial system. Others questioned how easy it will be to 'forget' data when it is analysed and stored in multiple places and sold many times over. How successfully this right can be enacted may become an influential driver of how the data landscape is used, regulated and accepted by the public in the future.

Big data is already at the centre of the insurance industry. Mike Holliday-Williams, CEO of Direct Line Group, wrote a paper for our conference exploring a number of 'mega trends'. All these trends are underpinned by the digital revolution, which will determine how the industry meets the challenges of the next two decades. Paul argues that the development of data - in terms of granularity, availability and functionality - is broadly positive for established firms who innovate and invest as this makes pricing more accurate.



## Why the digital revolution needs established insurers

Mike Holliday-Williams – Direct Line Group

The effective understanding and management of data is at the heart of any successful insurance company. And to remain competitive and retain market share, major insurers need to be restless in their quest for new ways to use data to deliver underwriting, claims handling and overall customer service in ways that keep them near the front of the pack. So what is going to change?

The availability of data is growing all the time. This means firms can become either 'data-rich' or find their underwriting models drown in it.

The granularity of data is also evolving fast. As customers become more willing to share highly specific data about themselves and their lives, we can gain insights into behaviours that helps our underwriting become more sophisticated. With this comes a responsibility that insurers will use this data ethically and in line with customer expectations.

Finally, the functionality of data is changing fast too. Processing capacity is exponentially giving us greater ability to use what we have in a range of different ways.

I think there are two main reasons why these developments are broadly positive for market incumbents prepared to innovate and invest:

The more data we have, the more expertise is needed to sift it and separate the valuable from the irrelevant. Yet it is our industry which still possesses a critical mass of actuaries and data analysts able to do this, employing technical skills and highly sophisticated programmes but also judgement, instinct and evolving tried and tested models which have survived real claims cycles. It is easy to identify new sources of data that are predictive of risk on their own, but far harder to establish whether and how they add value to all of the other data used by insurers.

Secondly, we have to remember that some of the core truths of insurance underwriting will not be changed by the greater availability of more granular data that is processed more efficiently. The billions of quotes, hundreds of millions of policy years of cover and the millions of claims we have to model can simply make our pricing more insightful and accurate.

## What could the future look like?

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Mike Holliday-Williams's paper explains that data could make pricing more insightful and more accurate. Delegates noted that big data has already improved the accuracy of pricing in the general insurance market, allowing firms to boost their productivity and target products and services to more tailored groups of consumers. During the conference, we asked delegates what the effects and implications for consumers could be as this big data trend moved more widely across financial services.

Hugh Stickland of Citizens Advice provided a conference paper which explores how consumer's interaction with financial services has changed over the past few decades.



## The changing face and nature of products and services – Do keep up...

### Hugh Stickland – Citizens Advice

We have had credit reference data for a long time, but our online footprint is growing and so are companies who deal in our data, make use of our data, sell our data, and customise products, messages and services because of our data.

We live in an age where we get personalised advertising aimed at us on line. Loan companies are fully aware of your repayment schedule and probably savvy enough to know whether you are likely to extend, roll over or want another loan. Insurers seem to have given up on my renewal dates – I now just get bombarded most weeks with questions about my home and car insurance.

Our data can be worked for good, to help us make the most of our decisions, to help save us time and money. However, as with new innovation and new products, our data can be abused and lead to detriment. It can be used with our consumer biases to push us further into debt, into detriment and into despair.

Delegates agreed that, in a future of big data, the way consumers' data are handled by firms will affect the level of trust in financial services. This handling includes the collection, application, terms of sale and trading of data.

If these elements are managed by an independent third party, it would strengthen the level of trust in the financial system. Consumers would be able to focus their concerns on this body, and by outsourcing data management to it, firms can minimise the risk of data misuse.

A second story used at the conference presented a future where all these new data were managed by an industry of data brokers. The story was named 'Rise of the Data Broker', and talked of a future where smartphones are used by firms to conduct large data trials of consumers' behaviour and lifestyles. These data are managed and cleaned by a new industry of data brokers who appeal to both consumers and firms. They represent a range of consumer groups, providing a cost effective, secure service for firms while being compliant with data protection law.

The importance of trust, security and ownership of data were prominent in delegate's discussions of 'Big Data, Big News!' and 'Rise of the Data Broker'. They recognised that engagements with new technological developments is high when consumers trust the provider, feel confident that their information is secure and will not be misused or passed on to others.

Consumer behaviour is rooted in well-founded concerns around data safety. Last year, Symantec's annual 'Internet Security Threat Report' stated some half a billion records were lost as a result of data breaches. The number of cyber-attacks reported to regulators has escalated over the last few years. In 2014, just five major attacks were reported to the FCA – this rose to 27 in 2015 and over 70 in 2016. In the future, if more of our data are collected and stored, then their safekeeping must become a priority for the industry.

Weak data security will lead to service interruption, loss of data and data theft or misuse. All three of these present major challenges to financial services users, providers and policy makers.

If financial services are able to overcome these security concerns, we may see the Internet of Things – the concept of connecting any device to other devices and the Internet, and The Quantified Self – the concept of acquiring data on all aspects of daily life - being applied to financial products and services.



These concepts are explored by Paul Flatters, Chief Executive of Trajectory Partnership, whose conference paper analysed the impact of such innovation on each generation's financial needs and interaction with technology.

### **Disruptive Technology and the Future of Financial Services: A Generational Analysis**

#### **Paul Flatters – Trajectory Partnership**

Here we turn to a class of technologies that are not specifically financial services oriented, but will nonetheless have huge implications for the sector. In this context, we believe it is appropriate to combine our analyses of the Internet of Things and The Quantified Self as both technologies have the capacity to add to the personal data that the financial services sector will have about its customers. This could be particularly revolutionary for insurance markets.

The Internet of Things is the development of the internet which sees everyday objects have network connectivity, allowing them to send and receive data. Current market examples tend to focus around home automation and smart homes. However, potential future applications are much wider and might encompass automation in nearly all fields, while also enabling advanced applications like smart grids and the creation of smart cities.

The Quantified Self, is often narrowly defined in health or medical terms as incorporating technology into data acquisition on aspects of a person's daily life in terms of inputs (food consumed, quality of surrounding air), states (mood, arousal, blood oxygen levels), and performance, both mental and physical. Data collection is through wearable sensors and wearable computing (Fitbits and Apple watches being early examples). We believe that this health-related definition could be usefully extended to incorporate wider phenomena such as real time quantification and analyses of leisure patterns, lifestyle and, indeed, finances.

Our generational analysis suggests more widespread generational appeal for both these developments. Yes, the older generations may have some latent concerns about privacy and the how the data being collected by the various devices and monitors is going to be used. However, we believe that these concerns will be trumped by the life enhancing utility that these devices will deliver, especially for older people. Crucially, they will address many of the generational needs around health, isolation, care and monitoring end of life costs identified.

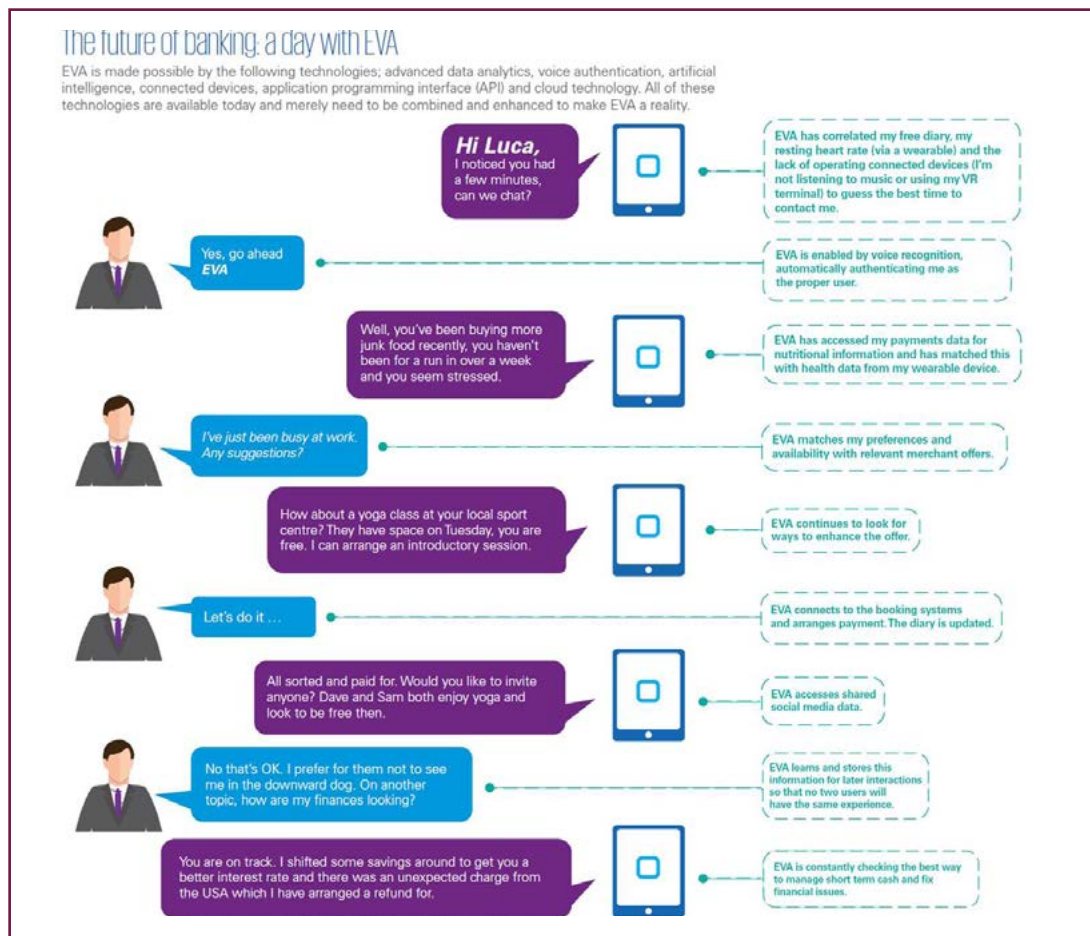
This means that the financial services sector must prepare in the coming five to ten years for an era in which much more data is available about customer health and lifestyles. This offers huge opportunities, for example, to price insurance products more precisely on a customer by customer basis. But it will also present ethical challenges around the potential for financial exclusion and pricing the highest risk customers out of markets.

As Paul Flatters' paper highlights, if we overcome safety concerns around privacy and how the data are being collected, to fully take advantage of data-driven 'disruptive' technology, there may be an explosion of products and services based on this large and connected pool of data.

One such product is explored in a conference paper by Warren Mead, Partner and Global Co-Head for Fintech at KPMG. In the paper he explores the concept of EVA, an Enlightened Virtual Assistant (EVA).

EVA combines banking seamlessly with your everyday routine. It is constantly available, personalised to your needs and helps you live a comfortable, efficient and well-balanced life. An imagined typical interaction with EVA is explained in the inset infographic.





Fundamentally different financial services will present fundamentally different challenges, requiring a different attitude to regulation and a different set of policy tools. For example, if EVA, books and pays for a yoga appointment that Luca didn't want, is that grounds for a complaint? And who is responsible for the error? The platform? The payment agent? The hardware provider?

## Challenges for policy makers

Delegates picked up some of the themes from 'Big Data, Big News!' highlighting a need to prioritise and focus on protecting consumers' data. It was suggested that regulation must help prevent a breach or misuse of data, and establish clear responsibility when data are passed between businesses.

There were also concerns during the conference that data could significantly affect market structure. For example, with an increase in the amount of data used in underwriting insurance, risk pools could shrink so much that some insurance markets can no longer operate. This occurs when there are too few potential consumers to profitably spread the risk.

Delegates discussed how data will present both opportunities and challenges to policy makers and regulators. There are opportunities in areas such as risk management, real-time compliance reporting and enhanced market monitoring. However challenges



include the costs and expertise required to handle the data, and a need for good data exchange standards to ensure the compatibility of data sets.

The danger of financial exclusion was also recognised. Delegates noted that policy makers may need to monitor and explore the implication for consumers' market access when decisions are made by algorithms or artificial intelligence.

Although this scenario was explored from a retail financial services perspective, in the following excerpt David Cook, Head of European Regulatory Affairs at IHS Markit, looked at the regulatory challenges regarding wholesale front office business models.

### IHS Market Scenario on Wholesale Markets

David Cook – IHS Markit

#### The Regulator's challenge

Recent technological innovation has the potential to transform the Capital Market and Investment Banking business but it will also affect the way it is regulated. The global financial crisis triggered an intensive programme of financial regulatory reform that will have significant and long lasting implications. This programme sought to address the risks and weaknesses of the previous regulatory regime. However, regulatory reform has increased reliance on centralised infrastructure (for example central counterparties and regulated trading venues), massively increased the amount of data reported to authorities and created increased regulatory costs to doing business.

This has led to three fundamental changes: 1) increased concentration of systemic nature – including by creating critical points of failure risk; 2) significant risks of detriment to market users due to a lack of effective competition as market entry becomes more difficult; and 3) massively increased burden on industry and regulators as firms struggle to comply with regulation and regulators struggle to, digest, store, analyse and understand the vast amounts of information available to them (for example, through reporting). The global financial system has also become increasingly fragmented as jurisdictions have implemented global commitments to regulatory reform differently and on varying timetables.

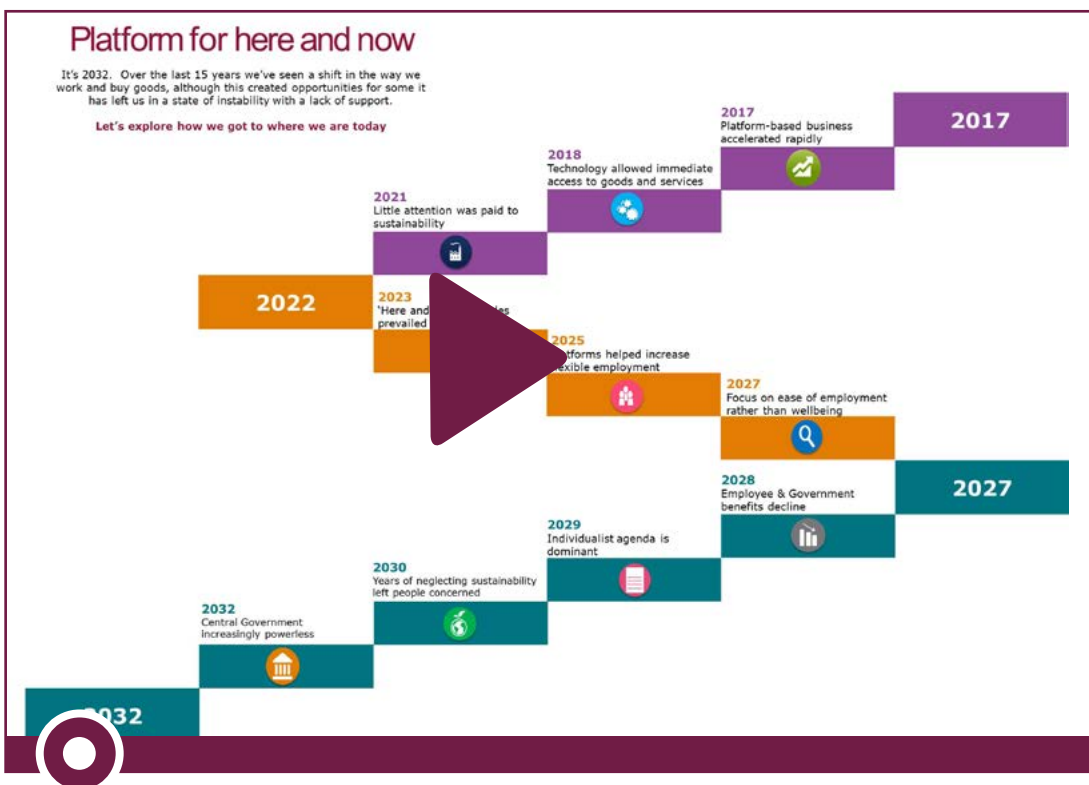
These trends directly challenge the FCA's ability to meet its objectives of protecting consumers, ensuring market integrity, and promoting effective competition. Other authorities, particularly governments are also increasingly concerned about faltering economic growth and may look at issues of regulatory burden and lack of competition as factors contributing to this. Technological innovation in the form of RegTech offers a way forward by potentially lowering compliance burdens and making regulators more effective without rolling back regulatory reform and reintroducing or increasing the risks of crises.

One thing that is certain is that change is coming. Technology might make whole elements of the front office redundant. Automated personal assistants already exist but could artificial intelligence replace sales people and account managers? Algorithms with access to massive amounts of data could be used to decide business strategy and spot opportunities. Artificial marketing departments could be sending specific advertising to potential clients through automated social media. In fact we may see automated sales functions speaking to automated business strategy functions to buy things through the financial internet of things. Markets may develop and operate with very minimal human input. Will we then see supervisors being replaced within automated regulators operating with regulation written by artificial intelligence?

### 3 Platform for here and now

**This story starts two decades on from the global financial crisis, where social norms surrounding employment and entrepreneurship have evolved. In place of the gig economy is a platform based system where consumers have direct access to goods at a fraction of their previous cost.**

Business focus is on 'the now' and platforms mirror this with an ability to quickly respond to demands, enabling consumers to access what they want, when they want. There has also been a growing focus on the ability to be adaptable rather than environmentally sustainable.



#### What is driving this story?

Platforms are business models which create value by facilitating the exchange between two or more interdependent groups, usually consumers and businesses. For example, people wanting to sell an object with those wanting to buy, or those looking to invest with those wanting investment. These businesses harness and create scalable networks of users and resources that can be accessed on demand.

They are estimated to grow 30% per year over the next decade and facilitate about £140bn worth of transactions per year by 2025. The UK has helped this strong development, with rapid take-up of on-demand business models.

The 'Platform for Here and Now' scenario was created to explore how a Platform business model could be applied to financial services, and what this would mean to



existing financial services providers and consumers. The reason for this story is that technology has allowed platform-based business models and strategies to emerge in many sectors. This story, as with all the stories, does not aim to predict the future or provide an FCA view but to facilitate debate and discussion.

Platform businesses such as Airbnb, Zipcar and Deliveroo have expanded massively over the past half-decade. They create value by facilitating exchanges between providers and suppliers, reducing cost, and by meeting user needs. They also change the role of the intermediary and industry incumbents must adapt to meet changing consumer demand. Imran Gulamhuseinwala explores the concept of platforms in financial services and highlights the impact that platforms are having on society.

### From pipes to platforms: imagining an Uber moment in the financial services sector

Imran Gulamhuseinwala – Ernst & Young

In 2009 Uber exploded onto the scene. In a little over eight years, it has assembled a platform of 160,000 cars and 40 million users across 500 cities, and raised over \$8.8 billion of capital. It is a prime example of a new kind of business model commonly referred to as a “platform”. Uber, like Airbnb, Facebook, Youtube, Amazon and Apple’s iPhone, uses connectivity to bring together consumers and producers in an open ecosystem. Platform businesses are reinventing and then dominating industry sectors, as well as taking opportunities from under the noses of incumbent providers. In 2009, text messaging was the high growth product for telcos, accounting for c.15% of revenues and yet WhatsApp, a start-up with only a handful of engineers, snatched this market away from them. WhatsApp now has more than a billion users, processes more messages than the entire telco industry, and provides voice and video services over its open platform. In the e-commerce sector, Amazon became the world’s largest retailer in 2017, connecting over 304 million consumers and 2 million merchants on its open platform.

The conventional wisdom is that financial services is unique and somehow immune to its own Uber moment. Conventional wisdom is that financial services is protected from wholesale disruption by complex regulation, low customer engagement, the brand and franchise strength of incumbents and the stickiness of the Personal Current Account (PCA). Conventional wisdom is that the financial services sector, like the utilities sector, is fundamentally a pipes business in which products are manufactured and then pushed to consumers.

In our “Uber scenario”, we seek to challenge this viewpoint. We take the view that financial services is not fundamentally different to the transport or telco sectors (or indeed the media, music, hotel, travel and e-commerce sectors). We will make the case that financial services actually lends itself well to a platform-based architecture in which consumers can conveniently and confidently acquire financial services, and producers can seamlessly access consumers. In this scenario, we believe a platform-based structure offers significant utility to consumers and to the real economy (and could indeed be integral to the growth and sustainability of the emerging digital economy).

However, in order for this scenario to become plausible, we hypothesise that certain components of enabling infrastructure are necessary. These components include ultra-cheap, universal and real-time payments; open banking and zero-cost Know Your Customer (KYC). We also speculate on possible implications of this scenario, the most far-reaching of which may include a gradual fall into irrelevance of the PCA, and the opportunity for policy makers to liberalise Central Bank money to cover zero notice deposits. Finally, we provide a counterargument to the view that all platform models inevitably tend towards “winner takes all” market structures by highlighting the role government sponsored standards and utilities could play in facilitating open competition.

Conventional wisdom is that the financial services sector is a ‘pipes’ business – products are manufactured and then pushed down the pipe to consumers. Yet platforms have the ability to dramatically change the front-end of many financial services.

Peter Smith, Head of Policy and Strategy at the Dubai Financial Services Authority, explored platforms further, challenging how they might change retail lending such as peer-to-peer lending and crowd funding. In his paper ‘Whatever happened to



crowdfunding?' he highlights the stresses and strains for these platforms and reminds us there will be challenges to a platforms based future.

### What happened to crowdfunding?

Peter Smith – Dubai Financial Services Authority

One way to think of P2P lending platforms is as brokers: they make introductions between parties, some of whom want to lend and some of whom want to borrow. Often, the P2P platform will perform due diligence (to varying extents) on the potential borrowers, to confirm that the business exists, that the key individuals are not criminals, and – often – to give their own view on the relative creditworthiness of the potential borrower. If the borrower gets their loan, the platform takes a cut; there is usually also a charge to the lender for the ongoing administration of their account. After a period of time, the loan is repaid and rolls off.

Equity crowdfunding platforms act in a similar matchmaking capacity. But there are two substantial differences. Firstly, businesses seeking equity investors are usually earlier-stage businesses than those seeking loans through P2P platforms. So they have less of a track record of operations, if any; there is less on which a platform can do due diligence; less information for an investor, or the crowd, to analyse and debate. Secondly, the investment is, by definition, open-ended. Unlike a P2P loan, there is no maturity date. There are the two main factors that explain the greater risk of equity crowdfunding as an asset class, in comparison to P2P lending. But the equity platform gets paid in the same way – it takes a cut of a successful investment round into a company. It may also charge the equity investors a fee for the administration of their account, in the same way that a broker might.

The key challenge for any crowdfunding business is to achieve sufficient scale to become profitable. With platforms taking a small cut of each successful transaction, and nothing for unsuccessful transactions, there is a clear incentive to get transactions completed. This creates a number of tensions and potential conflicts of interests. A P2P platform may start off with the aim of only allowing companies of a certain minimum quality (however defined) to seek funds through the platform. But what if there aren't enough of those companies? There is pressure to reduce the quality thresholds. While increasing upfront fee income for the platform, this will run the risk of a greater level of defaults for lenders, which is not in the platform's long-run interests. Internet businesses can die very quickly if user sentiment turns against them.

The same issues arise for equity crowdfunding platforms. Are there enough companies, of sufficient quality, for the platform to be able to reach its breakeven point and, eventually, make a profit?

Similarly, can crowdfunding platforms achieve enough scale while focusing on the crowd (i.e., individuals) as investors? Or will it be necessary to bring in institutional money so that, for example, larger loans can be contemplated? The introduction of institutional money in a number of markets has made it easier for P2P platforms, which initially did straight lending, to move into other credit-related areas such as factoring.

### What could the future look like?

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Platforms are already changing the way we consume financial services. Non-financial firms are increasingly using payments platforms to offer personal payment products, such as apps and digital wallets, to support their core business. This type of innovation is expected to accelerate through the implementation of PSD2.

These platforms offer benefits for customers, as products and services can be produced at lower cost. This is particularly true when technology replaces a human process. In the future we may see platforms performing more intermediary roles, such as allowing consumers easy access to financial products or providing specialist, expert advice.



Many delegates said that while platforms may be able to provide the intermediary service, the majority of their client's prize face-to-face contact. They also disregarded the idea that platforms would replace intermediaries, citing the 'demise of the independent financial adviser which has been predicted for 20 years', but hasn't occurred. Consumers and businesses may purposefully shun platforms, keeping branches open to provide a human face to their business, for example Metro Bank.

Platforms are likely to significantly increase the number of providers a consumer can access, as well as the number of providers in any particular market. For example Airbnb have encouraged more people to use hosted accommodation, as well increased the number of people providing accommodation.

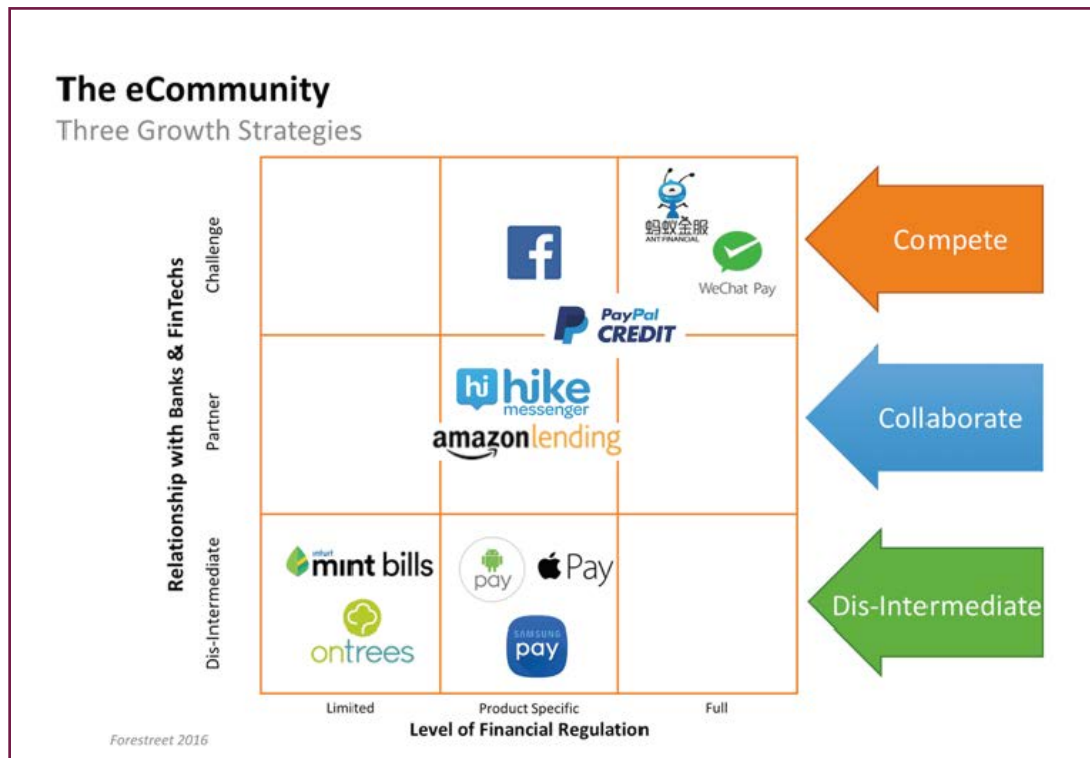
In financial services the development of crowdfunding and P2P lending has increased the number of active lenders and borrowers - P2P lending in China alone was valued at approximately USD \$117bn in 2015. If platforms are able to successfully expand into other retail financial services, we may see an increase in the number of financial service providers.

For this to happen, consumers need to trust the providers they interact with. Platforms can enable this trust by offering peer feedback. This is a scoring system which is increasingly central in consumer decisions; it is common online, for example while buying products or renting a hotel room. Feedback mechanisms like this are increasingly built into the platforms we use today and could be easily extended to financial service providers.

Delegates broadly agreed with the benefits of direct peer feedback as a way of significantly increasing consumer power and competition in financial services. However, there were concerns over biased or overzealous reviews which could lead to consumers making poor financial choices or could encourage fraudulent schemes.

One way to audit this feedback could be through eCommunity platforms that own, manage and interact with their own customer base. Alessandro Hatami, co-founding Partner at Forestreet, discussed in his conference paper how eCommunities challenge incumbents and help redefine the existing bank-customer relationship.

The diagram below from Alessandro's paper shows examples of developing eCommunities and three different operational objectives. 1) Competing with existing banks. 2) Collaborating with financial services providers in the market to provide banking services. 3) Dis-intermediating financial services, allowing consumers to engage directly with providers in the market.



The success of these eCommunities will depend on consumers' willingness to use them to access financial services, their return on investment and the level of support for innovation in financial services.

However, if successful, eCommunities have the potential to shape the banking and financial services landscape considerably and become the main way that consumers access these services. This may lead to consumers being able to influence the ethical or social agendas of certain organisations.

This was explored by Nick Robins, Co-Director at the United Nations Environment Inquiry, who discusses below how the effects of climate change could result in firms changing behaviours and targeting ethical values and sustainability as a unique selling point. ECommunities could act as a springboard for these views being recognised and listened to.



## Financing the transition: How Climate Change Could Impact the Financial System

### Nick Robins – UN Environmental Inquiry

Ultimately, responses to climate change are based on social norms –the importance we place on correcting market failures, protecting vulnerable communities, respecting future generations and sustaining the environment itself. In the case of climate change, the interplay of these norms has combined with policy and technological shifts to generate profound changes in financial behaviour. Divestment from high carbon assets such as coal is a case in point. In 2011, Carbon Tracker highlighted that 80% of fossil fuel reserves could not be commercialised if the 2°C goal was to be achieved, pinpointing the need to reallocate capital to avoid 'stranded assets'. Civil society campaigners used this evidence to press investors to divest of their fossil fuel assets.

A growing number of values-based investors, such as churches and universities, have taken action. But so have mainstream institutions such as AXA and the Norwegian Pension Fund, who saw the threat of a 'carbon bubble' fusing with other factors such as tightening local air pollution standards and slowing demand in China, to create a material risk to the coal sector. In January 2016, the Insurance Commissioner of California took divestment into the regulatory arena when he made a request to insurance companies to divest from thermal coal on the basis of his 'statutory responsibility to make sure that insurance companies address potential financial risks in the reserves they hold to pay future claims'. Over the coming years, one can expect other examples of social norms evolving in light of climate change, shifting the balance of investor preferences as well as regulatory expectations.

Nick Robins highlights how value-based and social norms may become a key selling point for investors. Platforms may well be able to provide a faster, better, cheaper, and more engaging service to retail customers this with, or without, regulatory intervention could better link value-based investors to investment opportunities. However, delegates questioned whether platforms would just evolve into a new front-end to a bank-based financial system.

If this happened, traditional banks may lose some income but would keep most transactional deposits, and their business models would remain broadly unchanged. However, these front-end changes, just like more radical changes, will create a number of challenges for both policy makers and regulators alike.

### Challenges for policy makers

Platforms have the potential to transform the financial services sector, reducing costs and speeding up access. Making it easier to access financial services through platforms, and other new ways of using technology, could raise public policy questions and challenges, particularly around the speed of access they allow. The current sales process for many products is intentionally slow, allowing time for consumers to think and providing cooling-off periods.

Would it be in the public interest for major financial decisions to be made in seconds? For example, delegates discussed the potential scenario of push notifications for car loans when a consumer walked past a car showroom. Would this lead to the consumer purchasing costly car finance from a garage? Or encourage the consumer to purchase a car, through a credit agreement, without fully considering the financial costs?



Platforms have also changed employment practices. Delegates raised concerns about how financial services will adapt to changes such as the increase in self-employed workers and zero-hours contracts as part of the 'gig' or platform economy. These developments may mean that many current financial products and protections will need to change to be suitable for consumers in the future. One example highlighted in Baroness Jeannie Drake's paper is the entitlement to National Insurance benefits.

## Pensions

### Baroness Jeannie Drake

Developments in the UK labour market have seen the growth of low paid non-guaranteed hours, minimal hours and casual work contracts. A worker has to earn £112 per week (just over 15 hours at the national minimum wage) in any one job to reach the qualifying threshold for entitlement to contributory NI benefits. Income from more than one job cannot be aggregated in order to reach that threshold. Workers with one or more jobs each with earnings below that threshold can be excluded from the NI system, including state pension accrual.

Similarly, shifting social norms could also have a dramatic effect on financial markets driven by the power and reach of eCommunity backed platforms. It was noted at the conference that climate change is currently not a high priority for some in finance, largely because its impact lies beyond the current business and political cycle. In fifteen years, it may no longer be possible to ignore it. Policy makers may need to understand the implications and ensure that the transition to a low-carbon and resilient economy is as orderly, timely and efficient as possible. They may also have to recognise the indirect impacts, such as parts of the world being uninsurable.

This could be achieved by 'nudging' capital into ethical businesses. For example, while individuals currently have choice and oversight over their pension pots, they could be automatically enrolled into ethical investments. Social norms could therefore become increasingly important in financial markets and services if platforms provide them with a loud enough voice.

It was discussed that a challenge for Standard Setting Boards and regulators will be how to regulate platforms with global reach. There are also questions over how customer protection and preventing financial crime will apply to platforms. As one delegate noted, rootless businesses are harder to prosecute. Encouraging competition and innovation is an important part of regulation, and policy makers need to remain alert to creating and implementing a regulatory regime that both stimulates competition and protects the consumer. Over time, regulation has been built and developed with established players in mind. Platforms have the ability to change the face of financial services, so a balance needs to be found that gives both existing and new business models a fair chance to compete to the benefit of consumers and firms.

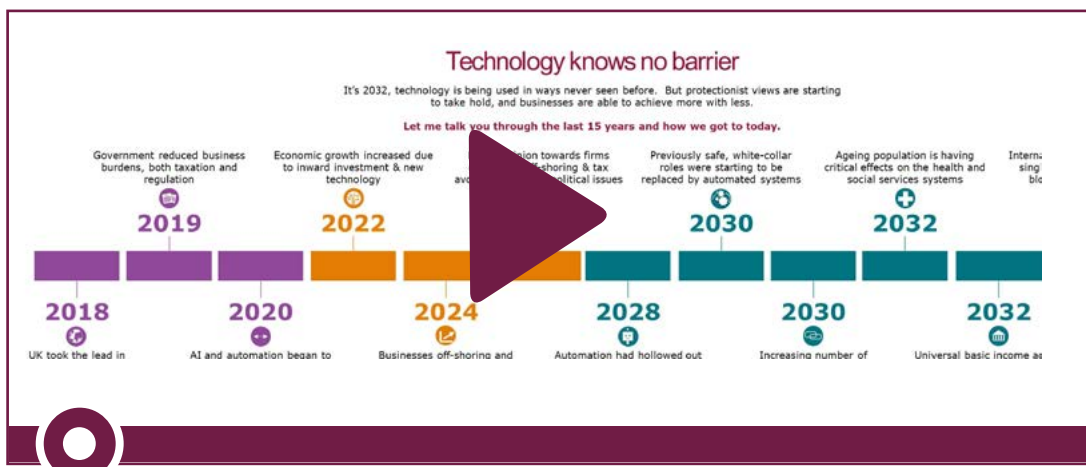


## 4 Technology knows no barrier

**This story explored a world where the UK has taken the lead in setting global standards to establish more connected markets, this has led to businesses increasing off-shoring and to differing national tax regulations.**

The rise of artificial intelligence and automation has caused major shifts in the nature of employment, and has allowed for further off-shoring of business operations. Technology and globalised markets have allowed corporates to set up complex, far-reaching, and aggressively managed business models. These business models require partnerships with technology firms in order to overcome expensive infrastructure changes and consumer inertia.

The impact of the shift in the employment structure and off-shoring of business operations has also created a rise in protectionist views and the proposal of universal basic income.



### What is driving this story?

'Technology Knows No Barrier' looks wider than data and platforms, exploring the impact of technology on cross-border transaction, regulation and society in general.

This story does not try to predict the future, but we were interested in exploring how delegates at our Conference and experts who provided us with papers saw changes in technology and connected markets as effecting regulators, consumers and financial services firms. Professor's Emily Jones and Peter Knaack of the University of Oxford identify three important shifts in global financial services: 1) The emergence of new markets: 2) The increasing interconnection of financial markets. 3) The rise of financial innovation in developing countries. These shifts will bring important changes to global financial services, standard setters, and global financial regulation.

## The Future of Global Financial Regulation

Emily Jones and Peter Knaack – Blavatnik School of Government, University of Oxford

While a relatively small number of countries still accounts for the bulk of the global finance, we are seeing three important shifts.

First, the financial sectors of the world's largest and fastest-growing developing countries are sufficiently important that they are now part of the core. While foreign banks were overwhelmingly headquartered in OECD countries in the 1990s in the past decade we have seen the cross-border expansion of banks headquartered in developing countries. China for instance is the home jurisdiction for 4 of the 10 largest banks on earth, with operations in over 40 countries. Emerging market economies account for a 12% share of the global shadow banking sector, for example.

The second, and less recognized shift is that developing countries are far more interconnected to the financial core and to each other than 40 years ago. Following a wave of privatization and liberalization in the 1980s and 1990s, foreign bank presence increased and by 2007 accounted for more than half of the market share in 63 developing countries. Developing countries now have a higher level of foreign bank presence than industrialized countries, making them particularly vulnerable to financial crises and regulatory changes in other jurisdictions. This heightened interconnectedness was powerfully illustrated during the 2007-8 global financial crisis which, unlike previous crises, it affected all types of countries around the world. Although the majority of foreign banks remain headquartered in North America and Western Europe, banks from emerging markets and developing countries are playing an increasingly important role, accounting for 26% of foreign banks in 2007. There are strong regional patterns at play. In sub-Saharan Africa for instance, pan-African banks are now systemically important in 36 countries and play a more important role on the continent than long-established European and US banks.

Third, OECD countries are no longer the only hub of financial innovation. Especially in the retail financial sector, disruptive technologies are being invented in developing countries. While consumers in OECD countries still rely on credit and debit cards as their primary payment platform, consumers in China use their cell phones for a wide range of quotidian payments and even investment services. China's AliPay digital payment service currently has 450 million users, several times the amount of PayPal worldwide. In 2015, AliPay reached a peak processing volume of 85,900 transactions/second, compared to 14,000 for Visa. The largest American peer-to-peer lending company, Lending Club, issued around \$16bn in loans over the last five years, a small sum when compared with over \$100bn in loans issued by its Chinese equivalent Ant Financial in the same period. In Kenya, the invention of mobile money has had a transformative impact on financial inclusion. Mobile payments platforms are being used as a vehicle for micro-savings and micro-investments and, increasingly, cross-border money transfers. M-PESA and related products are being emulated in many other developing countries.

These shifts are reliant on technology as a way of connecting and empowering the developed and developing financial world. If these trends continue what will happen to financial services? How will these global products and services be regulated in a fashion that is fair and effective? What might it mean for those in society that do not engage with this technology?

### What could the future look like?

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Technology has enabled organisations and transactions to cross borders seamlessly. Yet it has led to a global network of fraudsters and cyber criminals emerging. They target bank accounts, investments, pensions and can fraudulently apply for credit products from anywhere in the world.

Technology has also allowed a faceless underground economy to develop. It was discussed that in the future the global reach of fraudsters and cyber criminals, engaging in activities such as boiler rooms, phishing and money laundering, could dramatically increase.



These themes are explored in David Kirk's paper looking at the challenges for regulators in countering financial crime over the next two decades. He argues that although it is impossible to predict the upcoming future challenges, it is likely there will be a mix of both old and new types of fraudulent activity and increasingly subtle ways of subverting financial regulation.

### **Challenges in Countering Fraud, Money Laundering and Bribery in the Financial Sector between 2020 and 2030**

**David Kirk – McGuireWoods London LLP**

New banking arrangements, crowd funding and other forms of alternative finance, new currency models and many other developments in financial markets will create ever increasing fraud opportunities. The margin between authorised and unauthorised business will become ever harder to define. The regulator's capacity both to assess the integrity of the new products, and to police them when they are introduced, will be challenged. At the same time, the level of understanding of more complex financial media will be a mystery to a large section of the population, creating ever increasing opportunities for fraudsters.

The universal use of smartphones offers a mass digital target for criminals, and as more non-traditional financial businesses move into the market could offer new opportunities for theft. Technology can also be used to commit market abuse and less obvious, harder-to-trace financial crimes.

A paper published alongside this report by Andrew Procter, Partner, Herbert Smith Freehills, explores the challenges and opportunities in detecting and preventing market abuse in the future. In his paper, Andrew describes a scenario where drone technology, among other things, is used to gather information on secret trials of a prototype and gain access to its systems. This information is then used to gain pre-market access to price sensitive information and manipulate price changes. Although a fictional example, it offers a plausible example of how technology could be used in the future.

But technology can also help crime prevention agencies and help trace funds. While cash is generally considered anonymous and untraceable, over the past few decades it has been increasingly replaced for low value transactions. Chip and pin technology, contactless, and mobile payments are now more popular with consumers as they are often quicker and more convenient than cash.

Another alternative payment method is cryptocurrencies. Paul Flatters explores the concept of cryptocurrencies in his paper on 'disruptive technology and the future of financial services: a generational analysis.' He reiterates the benefit of using cryptocurrencies to store and access assets in an electronic wallet.



## Disruptive technology and the future of financial services: a generational analysis

### Paul Flatters – Trajectory

The concept of cryptocurrency, that exists solely online may be too 'alien' for older generations. Ironically, of course, one of the purported benefits of cryptocurrencies is the security they are meant to provide compared to conventional online transactions. The revolutionaries driving cryptocurrencies imagine benefits of increased privacy for their users too. But at this stage we imagine that privacy argument will be hard to win.

However, here we can also imagine a scenario in which the use of cryptocurrencies is accelerated. There are currently plans to evolve cryptocurrencies so that it is possible to store other assets such as gold in your electronic wallet that could be accessed via your mobile phone or computer. Furthermore, in theory this would allow you to spend your gold wherever you liked or transfer it to a third party in a fast, reliable and secure manner. One of the criticisms of gold as a safe asset during a crisis, is that you "can't buy a cup of coffee". This could be the answer. And, by providing older consumers with two familiar elements – gold and a credit card – might overcome resistance to more alien cryptocurrency concepts for the older generation.

Further, we imagine that the two younger generational cohorts will enthusiastically embrace cryptocurrencies. The issue here is that (generationally speaking) they do not have the wealth to invest in them. When that time comes, we may not see the apocalyptic 'Death of Banking' predicted by some commentators, but conventional banking will have a big new competitor on its hands.

Paul Flatter's paper also highlights the way different generations use technology. In the future this could create a polarisation of products, users and of views based on consumers' ability to use and engage with technology. Aside from creating polarising views within society, technology and the pace of technological change can financially exclude those who do not, or cannot, keep up to speed.

A delegate said, "historically, you had time to adjust and see the change. Today, the pace of technology is such that older people do not have this luxury. But people's capacity to digitally engage is absolutely defining".

This is something Hilary Cooper explores in her paper on 'the ageing population and financial services.'



## The Ageing Population and Financial Services

Hilary Cooper – The Finance Foundation

With over half of all UK bank branches lost in the last 25 years this trend is, therefore, only set to continue. This will of course disproportionately affect those such as the older old who will find themselves not only digitally excluded, but also potentially unable to access the physical infrastructure that they rely on for routine financial transactions.

*‘They always say that the old people are going to die and it won’t be a problem, but there’s always new ones coming up’*

A key unanswered question is how far future generations of the older old – the ‘new ones coming up’ – will be different from those of today. Will the skills they will have acquired earlier in life in internet and mobile banking and their lifelong familiarity with ATMs, contactless and cashback technology make their experience of old age different? Or are there issues that mean that their needs from the banking sector in carrying out day-to-day financial transactions will always differ from the needs of younger age groups due to the nature of the ageing process itself?

There are already encouraging signs of increasing take up of technology by those in the very oldest age groups. For instance our report found that 77% of 80-84 year olds used ATMs, compared with the 53% of those aged 85 and older who were prepared to use them, a pretty steep increase. Similarly Ofcom data on internet use show a gradual rise in both use of the internet and in online banking among younger age groups. While only a little over a third - 38% - of those currently aged 75 and over use the internet, with far fewer – approximately 11% - actually using it for internet banking as opposed to general social or leisure purposes, these figures are higher in younger cohorts. Around a third of 65-74 year olds use internet banking and approaching half of 55-64 year olds do so.

Technology clearly carries enormous potential to transform later life for those who are comfortable and able to use it. However it is clear from the figures above that the pace of change is slow – an evolution not a revolution – suggesting that the industry can’t rely on increased take up of digital banking by those in later old age to offer a sufficiently universal solution within the 5-15 year time span of this scenario. While attitudes are changing, Ofcom data show that only 3% of those aged 75 or over who don’t already have the internet at home intend to change this situation.

Indeed in thinking about the implications for the sector it is salutary to consider that the one million people who will be over the age of ninety in 2030 are already at least 75. Certainly in relation to how they manage their financial affairs, where people have reached their mid to late 70s with a lack of familiarity with the digital world as a tool for conducting financial transactions and a mindset in which they view the technology as expensive, often unreliable and above all fundamentally insecure when it comes to money, it is unlikely that they will be persuaded to change in any great numbers.

The demands of different generations could lead to some financial services providers differentiating themselves by offering services tailored to different generations. For example, either a face-to-face or a faceless service, or a biotechnology-based or traditionally protected-based bank account.

Technology could change not just products and services, but also how businesses meet their regulatory requirements. To see what the future may look like, delegates at our Conference pointed to financial innovations in countries like China and India. In his conference paper, Imran Gulamhuseinwala explores an example of how technology is revolutionising Know Your Customer (KYC) technology in India.

## From pipes to platforms: Imagining an Uber moment in the financial services sector

Imran Gulamhuseinwala – Ernst & Young

Policy makers could step in and provide standards, or even utilities, that provide identity and KYC on an open architecture basis. India is a leading example of a country that is building this infrastructure, in particular through the Aadhaar and e-KYC programs. The Aadhaar and e-KYC programs have created centralised databases of smartphone, biometric and basic KYC markers for 100's of millions of citizens that can be used for commercial third party authorization. Both of these programs remove basic switching costs and are likely to create a more level playing field between platforms.

This technology raises questions about whether and when e-KYC programs could be readily adopted in the UK and who would be responsible if something went wrong.

### Challenges for policy makers

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A number of conference delegates saw the UK as less adaptive and agile than China, which has widely adopted mobile payments for remittances and mobile payments to street vendors. Others pointed out that the Indian government has chosen to support digital identity technology as a way of allowing customers to switch to different providers more easily. Japan was also widely cited as providing a lesson more generally for the UK, as a mature economy that has gone through a sustained period of little or no growth.

For the UK to keep pace and adapt to the upcoming challenges and opportunities we must look to others who have already faced challenges or have developed relevant technology, systems, or policies. We will also learn to work together with experts and those able to fully exploit new technology.

Policy makers need to acknowledge that the pace of the change will far outstrip regulatory powers and remit. They also need to recognise that the FCA and financial services will need to work together effectively to counter threats and ensure adequate standards to minimise damage to consumers, firms, and markets. This may mean re-balancing the role of both public and private bodies, each of which has unique responsibilities, resources, and challenges.

It will also be necessary to recognise that consumers with unique challenges, for example those with physical or cognitive challenges, may not be able to keep pace with technology change or use self-operated technology. Policy makers need to consider whether continuous and fast technological and front-end financial services change may cause some consumers to become financially excluded.

Delegates at the conference suggested that approaches to regulation and regulations themselves will need to be more innovative and less burdensome to avoid creating unnecessary barriers while still protecting consumers and markets through expected major technological change.

The challenges to regulators are explored in Juan Pablo Pardo-Guerra's paper which looks at the speeches delivered by the Securities and Exchange Commission to show changes in the regulator's focus.



## A Novel and Quantitative Perspective of the SEC

Juan Pablo Pardo-Guerra – University of California, San Diego

Firstly, in an age of great uncertainty, understanding the constraints of regulatory action is important for designing novel strategies that secure the stability, fairness and efficiency of the market. Ours is not a time to reduce regulation on ideological grounds but rather a historical moment to rethink how regulatory institutions might guarantee the long-term sustainability of the marketplace, particularly in the context of a fast pace of innovation.

Secondly, financial markets are considerably more complex now than when current regulatory institutions were established. This is in part due to changes in the architecture and design of markets such as the proliferation of trading venues, changes in market participants and the development of new trading strategies. Yet, regulators have not adequately focused on these changes but instead prioritized corporate governance. Were regulators better able to keep up with those essential changes in markets, participants could have greater confidence in both the markets and those that police them.

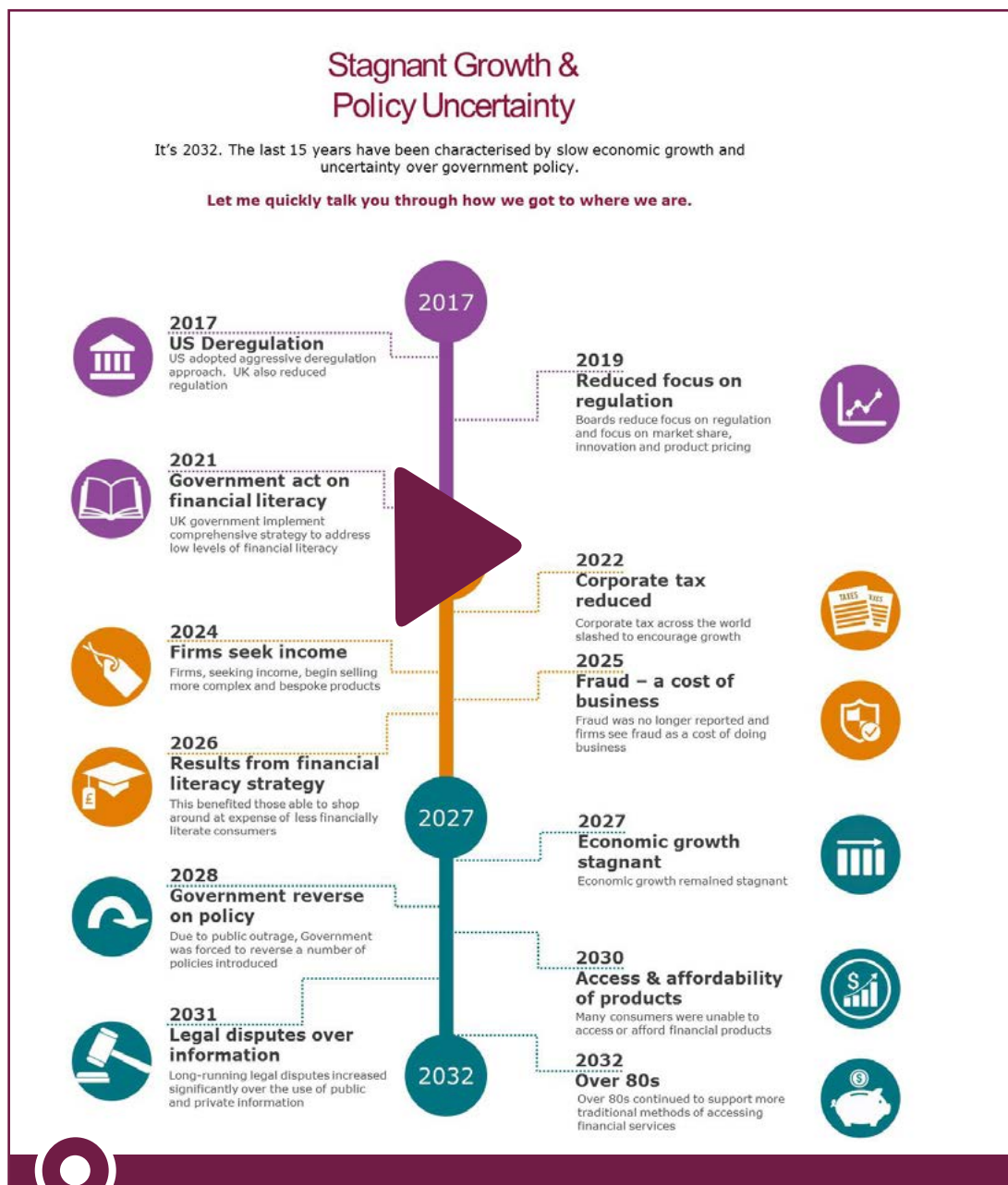
The argument I present in this article is the following: Regulators have faced such relative complications dealing with innovation because of how regulatory organizations were constituted historically. In particular, financial regulators are disproportionately populated by lawyers and accountants who share a specific understanding of what matters for regulating markets (namely compliance, disclosure, and enforcement). This leads to a limited perspective that regulators have for dealing with changes in the technological fabric of the marketplace, as well as delays in how they respond to surprises.



## 5 Stagnant growth and policy uncertainty

This story explored a world where uncertainty, instability, and slow economic growth leads to a lack of trust, discontent, and confusion among consumers.

A lack of growth and a regulatory landscape which encourages innovation results in a range of new products being sold to consumers. Continued slow economic growth results in changes to corporate tax rates to encourage investment. However, as technology develops there is more off-shoring and automation. This creates stagnating national growth and underemployment - typically of white-collar jobs. As technology's impact and reach increases, underemployment becomes entrenched and public discontent grows and previous policies are changed - creating uncertainty among consumers and firms alike.





## What is driving this story?

We were interested in exploring this scenario to understand how conference delegates and experts imagined continued uncertainty and slow economic growth would affect financial services. Throughout, discussions centred on limits this would put on firms' abilities to serve and engage with consumers, and on regulators' abilities to actively and successfully tackle international issues such as market abuse.

When considering uncertainty, the 'elephant in the room' for both policy makers and financial services firms is the impact of Brexit. A prolonged period of uncertainty over the terms of Brexit is likely to complicate operational and strategic decision making in financial services firms based in the UK and Europe. There is uncertainty both in the scale of the impact and in its long-term ramifications.

However, participants thought that uncertainty and slow growth could be a driving factor for creating attractive initiatives from governments and policy makers. This could create new opportunities for existing and new financial services firms. But for this potential to be realised, customers would need to trust their providers.

Making trust and culture central to financial services, and more specifically retail banking, is a theme which is explored by Jayne-Anne Gadhia, CEO of Virgin Money, in one of our conference papers. Jayne-Anne explores how the origins of banking were built on openness, trust and culture and how, in the 21st century, these will once again be integral to retail banking's success.

### A banking renaissance – making trust and culture central to 21st century retail banking

#### Jayne-Anne Gadhia – Virgin Money

On my first visit to Florence, I sat on a stone bench outside the office of the first-ever bank. There, in the fifteenth century, business had been transacted outside so that everyone could see that deals were being done fairly – and could shout if there were unknown risks on either side. This system supported trust between the bank, its customers and the wider local community.

Moving on to the nineteenth century, some local men met in a pub near Swindon. Each of them needed to buy a house, but none of them could do so on their own. They collectively chipped in for the first house, which was allocated to one of them. They did this again and again until each of them owned a house. The forerunner of the present Nationwide Building Society was formed. Trust between the members was a core element of the mutual model.

Northern Rock grew from similar roots. It helped people in the North East to save in order to finance houses for as many people as possible. It also made a broader contribution to society in the North East. For example, when many borrowers were in the grip of the miners' strike, it forgave them their mortgage payments until the strike was over. Northern Rock and its members trusted each other.

In recent years, various reports have pointed to low trust in banks. This is hardly surprising. Complex and opaque pricing structures make it difficult for customers to trust banks and often lead to poor outcomes for consumers. As well as reducing trust, these pricing structures also inhibit competition.

In addition, there is a perception that banks and bankers are more interested in looking after their own interests than those of their customers. For banks to be trusted, they need to have cultures which lead to good outcomes for consumers and to banks making appropriate contributions to the communities in which they operate.

The importance of trust is critical when exploring this story, and underlines the other stories in this report.



## What could the future look like?

During a period of slow growth, trust becomes an important element for financial services, especially credit markets. Following the Global Financial Crisis, small and medium-sized enterprises (SME) saw a decline in the amount of lending by traditional UK banks. SMEs overcame this gap in trust from banks, and lack of credit, by finding alternative types of lending such as peer-to-peer and crowdfunding. Ross Brown and Neil Lee, from the Centre for Responsible Banking & Finance, explore how SME lending has changed since the crisis, and how this may have limited the subsequent amount of economic growth.

### The Future of Funding for Small and Medium-Sized Enterprise in the UK

Ross Brown and Neil Lee – Centre for Responsible Banking & Finance

Since the Global Financial Crisis (GFC) the market for small business finance has changed markedly. Since 2008 UK SMEs have witnessed a marked decline in lending to small businesses by UK banks who traditionally dominate this market. Due to the impact of the GFC, lending to small firms by the main banks evaporated as many of the banks desperately started to rebuild their balance sheets and minimised any high-risk lending.

However, since 2008 there have been significant changes to the market for small business funding which has led to increased levels of new entrants coupled with the emergence of alternative forms of small business lending such as peer-to-peer lending and crowdfunding. These new entrants are beginning to offer new forms of finance whilst simultaneously offering more competition within the sector. In a relatively short space of time the market for small business lending has undergone a systematic transformation. In fact, the banking sector is now very different from the situation in days before the GFC.

Since the GFC, the funding landscape for SMEs has undergone significant transformation. Up until 2015 there was a pervasive contraction of credit to the extent problems accessing funding have become the “new normal” for many SMEs. These problems have been particularly acute for innovative SMEs and those located in peripheral parts of the UK. Despite the fact that only one in seven SMEs seek external bank lending, these firms typically are the most growth-oriented firms who generate the majority of new employment. Added to the problems of accessing bank finance is the complex issue of “discouragement” which can often dissuade strong businesses from seeking bank credit for fear of being declined. Therefore, the lack of funding for growth-oriented SMEs coupled with the reluctance to seek external funding may have impeded economic growth within the UK economy since the GFC. Owing to this some observers commented that the so-called “funding escalator” for SMEs had broken.

The number of SMEs and their role in the UK economy make them important. Given their appetite for credit to grow and develop and the decline in lending to SMEs by traditional UK banks, the future could according to delegates see the emergence and growing strength of alternative sources of lending. This would fundamentally change the lending landscape. In the example above, SMEs were forced to look for alternative lending as previous routes became more difficult. An important factor is that different generations have different attitudes towards technology and debt, and it is important to understand these. Finding ways to enhance and promote trust in financial institutions is crucial in overcoming these differences. Paul Flatters, Chief Executive of Trajectory Partnership, explores the size and patterns of the generations and how they interact with technology.



## Disruptive Technology and the Future of Financial Services: A Generational Analysis

### Paul Flatters – Trajectory Partnership

The current size of the generations is as follows:

- Pre-War (aged 70+yrs.): 7.5 million people or 11.5% of the population
- Baby Boomers (52 to 69 yrs.): 14.5 million people or 22% of the population
- Generation X (37 to 51 yrs.): 13.1 million people or 20% of the population
- Generation Y (22 to 36 yrs.): 13.3 million people or 20% of the population
- Generation Z (6 to 21 yrs.): 12.2 million people or 19% of the population

These distinctive patterns of current technology use give us some useful clues to the likely take up and use of new disruptive technologies:

- The two older generations are more suspicious and less trusting of new digital technologies than the three younger ones
- Concerns about privacy and 'computer error' are inhibitors of technology use among the two older generations. Trajectory's own Global Foresight surveys show that 42% of those in the Pre War generation say that concerns about privacy limit their use of the internet. This figure falls gradually for each generational cohort with a low of 19% among Generation Z.
- The two older generations are less confident in their use of new technology, and need more support and guidance, even if they come to trust it. This is particularly true for using the internet for creative things rather than finding information. Ofcom data suggests that only 25% of the Pre War generation are confident in using the internet for creative things. This figure rises through each generational cohort and peaks at 82% for Gen Z.
- Generation X is a pivotal generation, to this point it has had more in common with the younger generations in embracing new technology in terms of access, but they use it less instinctively and are less confident in their use
- Generations Y and Z are largely separated by the latter's instinctive use of mobile technology and all that means for 'always on' and 'real time' interactions as consumers

In order to have trust, consumers must also be able to understand what is being offered, how much the product or service will cost, how to use it and be confident it will do what it promises. For financial markets to work effectively and efficiently for consumers, delegates noted policy makers will need to learn from early adopters and challengers to identify the barriers and enablers, and assess what regulatory interventions may be needed to create a safe and frictionless market where consumers can engage.

Consumer demand for easily accessed products, rather than price or suitability, could become the crucial selling point. This includes products that, partly because of their regulation and complexity, have traditionally involved a long sales process, such as mortgages, and complex investment products. Firms recognise this. They are investing heavily in next generation technology, including biometrics, artificial intelligence and big data analytics to prevent, detect and protect both their internal assets and online customer services. This will bring a certain level of automation to financial services, and may lead to self-service financial services in the future.

Over the last decade, there has been a clear decrease in the amount of face-to-face contact between businesses and their customers across many sectors, including financial services. As explored in 'A Platform For Here and Now', and 'Big Data, Big News!', artificial intelligence and algorithms could provide financial recommendations and advice. It is likely that automation will further reduce face-to-face contact between businesses and their customers over the next 15 years, as customers increasingly rely on technology to advise, recommend, and manage their finances.

Today, consumers trust budget tools that enable them to manage their money and make them aware of useful products and services. If firms increasingly provide this



automated advice, it was discussed that consumers could benefit from the automatic selling of products, selected for them based on their previous behaviour. Integrated with current accounts, this could allow firms to offer frictionless and automated advanced money management. These kinds of products and services will become attractive to consumers if low growth reduces how far their income stretches.

Technology has been rapidly adopted into wholesale financial services in recent decades, bringing an abrupt end to traditions like open outcry and affecting active trading. The notion of the 'ultra-intelligent machine' – or one that can surpass human thinking on any subject – is not the remote prospect it was when predicted in the 1960s.

As a number of delegates noted, this has prompted a lot of soul searching in global markets. Sterling's 2016 'flash crash', - when the pound depreciated by 9% against the dollar - was held up as an example by one participant. While machine learning has the potential to significantly improve the economic efficiency of financial markets, it also poses risks. The potential for abuse and market disorder may weaken trust in the financial system.

With the extension of machine learning into retail financial markets, consumers may become exposed to a wide-range of sophisticated products and services.

These will go beyond consumers current levels of financial literacy. Jose Linarse-Zegarra and John Wilson, Centre for Responsible Banking & Finance, discuss what this could mean for consumers and for the unsecured credit market.

#### Future issues in unsecured consumer debt

Jose Linarse-Zegarra and John O.S Wilson – Centre for Responsible Banking & Finance

Consumers are now exposed to a wide-range of choice when making decisions regarding the myriad of financial services and products. Simultaneously, more banks and non-bank lenders (along with peer-to-peer lending platforms) have entered into the market as providers of new and more sophisticated and complex financial products which in some cases go way beyond the knowledge of ordinary consumers. The results from a number of research studies suggest that individuals lack the requisite levels of financial literacy for effective financial decision making. For example, Disney and Gathergood (2013) use survey data from a sample of UK households to show that individuals with poor financial literacy are more likely to lack confidence when interpreting credit terms, and are more likely to exhibit confusion over basic financial concepts.

The changes described above force consumers to assess the prices and advantages of the financial products offered in the marketplace. Understanding the new market conditions and products and services available require skills and rely on the ability of consumers to manage and evaluate risk. Financial literacy is in general poor and consumers lack the necessary financial knowledge to make financial decisions. Debates around whether and how financial education can improve debt management are likely to continue. Well designed, resourced and functioning affordable advice is crucial to help consumers make informed financial decisions. Nevertheless, private financial advice needs to be implemented in a cautious way as recent research suggests that advisors can act to maximize their own personal benefit, regardless of the actual needs of clients. In this regard, the role of the government as a provider of unbiased information and advice is crucial for market transparency.

Regulation will continue to play an important role in increasing transparency in financial promotions, disclosures, and consumer education. The educational system is challenged to teach financial literacy more extensively and effectively to consumers. Consumers are likely to continue to make some financial decisions in settings where automatic features may be infeasible. Lander (2008) points out some methods for altering the conduct of lenders to benefit consumers. For example, eliminating teaser rates on credit cards. Others have suggested the possibility of imposing a "distress" tax on the lender profits derived from sub-prime borrowers.



Although an increase in financial literacy could change how consumers view debt, the amount of unsecured debt that consumers have taken on has increased. This has been partially attributed to a desire to smooth income due to slow wage growth since the financial crisis.

It was also discussed that higher degrees of regulatory sovereignty may lead to financial protectionism, where regulatory barriers become tools to prevent foreign competition from entering domestic markets. In such a fragmented system, greater national autonomy would allow jurisdictions to balance financial stability with inclusive growth. However, this could create opportunities for firms to profit from different levels of regulation between countries. This could drive regulators to create barriers for foreign firms looking to operate within their jurisdiction. This would undermine growth and the expansion of financial services.

Fragmentation also creates problems for international regulatory regimes such as the Market Abuse Regime. Martyn Hopper, Partner at Linklaters, explores the challenges posed by fragmentation of financial markets, the rise of high-frequency and algorithmic-trading, and a succession of market conduct scandals. In his paper, he argues that the regime is under considerable strain and, in the future the underlying policy rationale for why we regulate the use of insider information in modern financial markets and what should be the preserve of market manipulation offences, rather than structural market regulation, may require a re-think.

## The EU Market Abuse Regime – is it fit for purpose?

Martyn Hopper – Linklaters

Market structures are changing and becoming more fragmented. Technological innovation has quickly transformed financial markets where a substantial proportion of trading is now driven by algorithmic trading. These include both algorithms designed to pursue institutional investors' proprietary trading strategies and those designed by intermediaries/liquidity providers to deliver best execution to investors.

The challenge in applying market abuse regulation in this environment arises not from technological innovation but from a lack of clarity and certainty that has, deliberately to a large extent, been embedded in the market abuse regime. Uncertainty arises not only from a lack of prescription, which is justifiable in order to enable the regime to respond to changing market structures and practices. It arises from a lack of clarity even as to the broad principles and underlying policy rationale for prohibitions on use of inside information and market manipulation. The result is that when faced with new market structures and technological innovation, the principles by which it should be determined whether or not information advantages may or may not legitimately be exploited are unclear. The basis on which the impact of a trading strategy on market prices should be determined to be a function of the legitimate forces of supply and demand (and the periods of volatility which inevitably come with those) or, conversely, illegitimate distortion or disruption of the price formation process, lacks any principled rationale.

This has practical implications for compliance and for market surveillance and enforcement. Technological advances seem likely to continue apace. The potential applications of machine learning in the context of algorithmic trading suggests that the sophistication with which trading systems can respond to and potentially influence intraday market trends, or make use of insight gleaned from analysis of order flow information or other data sources, will continue to increase. Such developments have the potential significantly to improve the economic efficiency of financial markets but also pose risks in terms of potential for abuse and market disorder. The absence of a clear and coherent set of principles against which to design, test and monitor such systems for market conduct risks is a growing challenge. New skills will be required of compliance professionals and those who advise them in applying the requirements of the market abuse regime to such systems. Traditional methods of monitoring trading for suspicion will change – the traditional focus on monitoring trading around significant price movements and electronic and voice communications by traders makes little sense in relation to trading that is being effected through an algorithm with limited realtime human intervention.

It could well be argued that there is no realistic prospect that market abuse regulation could seek to anticipate all the market conduct risks that may emerge and that therefore retaining intentional and strategic ambiguity in the definitions of inside information and market manipulation is prudent and incentivises market participants and trading venues to develop detailed controls to avoid such risks. However, the potential downside with such an approach is that it potentially inhibits market innovations which may enhance the efficiency, integrity and stability of financial markets, and may impair the efficiency of the price formation process.

The focus of compliance efforts may move towards avoiding regulatory scrutiny by reducing or managing market impact, itself distorting the legitimate forces of supply and demand. The debate that has raged over the supposed evils of short selling as a potentially manipulative act, particularly during the height of the financial crisis, is a now classic illustration of the problem: Were those shorting financial stocks corrupt speculators seeking to exploit weakness in banks' shares, forcing prices into steeper and deeper falls in order to reap profits. Or were they simply reflecting the realisation that market values were too high in the light of new information and increased uncertainty concerning the value of their assets and liabilities? Without principle to guide such debate there is a real risk that market abuse enforcement becomes an unpredictable regulatory response to public or political concern over the impact of trading in financial markets on the fortunes of high profile issuers.

Although Martyn considers a potential regulatory response to public or political concern, it is also important to consider the potential for a protectionist response which 'rewards' or incentivises firms when there is a concern they may leave the regulatory regime, leading to loss of fees, taxes and employment.



## Challenges for policy makers

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As more financial services firms turn to technology in order to gain a competitive advantage, it is important to realise that these developments will also assist those committing criminal activity.

The possibility that technological developments will give a bigger advantage to criminals than to those who work to stop them was discussed during the conference. Cybercrime will develop new capacities to take advantage of increased digital activity, and our reliance on the internet for banking and shopping. Already tracking down those responsible for this type of criminal activity is becoming more difficult. This presents a considerable challenge to policy makers, one that will need to be addressed by all parties involved.

International uncertainty may force a difficult balancing act between international cooperation and domestic comparative advantage, as the integrity and future of international initiatives are drawn into question. If this undermines economic growth it can lead to regulatory failures, such as higher financial crime and market abuse. This in turn could erode the public's trust in financial services.

Continued slow growth and a rising inequality may result in national challenges. Deborah Hardoon and Kaori Shigiya of Oxfam, consider what it might mean if we continue with 'business as usual' for the next decade.

### Financing inequality

Deborah Hardoon and Kaori Shigiya – Oxfam

Inequality coupled with economic volatility creates tensions in society and mistrust in the elites and those in government, leading to political instability which comes back to hit the financial markets.

Even where there have been signs of economic growth, as the benefits of such growth are not felt by most of the population, there is a rising sentiment of injustice and inequality. This effect has recently been witnessed by the UK's unexpected EU referendum result and the subsequent political and financial market turmoil; it is also demonstrated by the rise in populism around Europe, and in the USA with the election of Donald Trump. Social uprising can manifest in protests that could turn violent, or can be expressed through democratic means.

Technical experts and advisers no longer determine policy. Tina Fordham, Chief Global Political Analyst at Citigroup opined last year that, '2016 and beyond may prove to be the era in which politics rather than economics comes to the fore', and 'these changes are structural, we may be entering a new paradigm, where policy-makers, including Central Banks, have less power to mitigate risks. This suggests a whole host of previously assured assumptions could be in the process of becoming obsolete'.





## 6 Conclusion

Unsurprisingly, much uncertainty remains over what financial services will look like in 15 years. However, there is widespread agreement that the customer experience will fundamentally change because of developments in technology, demographics and data.

Although there is no certainty of what financial services will look or feel like, we can be certain that there will be challenges and opportunities along the way for policy makers, firms and consumers.

Delegates from our Future Horizon's conference saw great opportunities for customers through technology and globalisation, but recognised that trust is an integral part of realising these. They were concerned about the potential impact of continued polarisation and trends in areas like data and machine learning. There was also concern over how to regulate the growing volume of data, and the machines and algorithms that rely on it. It was also noted that the future of globalised financial markets is at a tipping point, and the next few years will be instrumental to how the future will play out.

This short report does not cover all the perspectives made, make predictions, or represent all of the futures explored, but does introduce some of the questions, challenges and opportunities the future might present. While we cannot know what will happen in the future and how firms will be structured or the services that individuals, businesses and the wider economy will need, exploring potential futures can help us prepare for a range of possible outcomes.

As a regulator, thinking about the future in this way highlights the importance of having meaningful dialogue with the firms we regulate outside of our normal relationship. It also demonstrates an important step for the FCA in understanding the potential future issues that the industry may face.

The UK is a significant net exporter of financial services, but it may need to become more adaptive and agile to continue this leadership role in global financial services. As policy makers, discussing and learning from each other is an integral part of what we do; it enables us to regulate efficiently and effectively. This learning, combined with our on-going discussions with leading figures in financial services, help us to understand and explore potential challenges and opportunities.

The FCA is extremely grateful to all contributors, particularly those who submitted papers. We have included excerpts from the 23 papers in this paper but the full papers and other conference materials are published on our website here: [www.fca.org.uk/events/future-horizons-conference](http://www.fca.org.uk/events/future-horizons-conference).

We would like to thank everyone who has supported our work.

