

Financial Technology (FinTech)

Summary

The disruption of traditional financial models and structures caused by the integration of finance and technology is evident in the vast range of new innovative products and services now available to consumers and businesses. Embracing the FinTech sector has the potential to transform financial services, which if harnessed correctly could help rebuild wider consumer trust in the financial sector – as technology will provide financial services firms with new ways of offering products driven by user experience. However, the corollary to this is a threat to the public interest. Change on this scale presents a financial future with both considerable benefits and risks.

This policy briefing reviews a selection of emerging FinTech areas and anticipates some of the opportunities and challenges presented by this new FinTech landscape.

Definition

“FinTech or Financial Technology describes the application of digital technology to financial services.”

Where has FinTech appeared from?

Research commissioned by UK Trade & Investment (UKTI) highlighted three key changes in the UK financial services market which has created an environment for FinTech companies to develop:

- the manner in which smartphones and the internet - particularly improved digital connectivity - has revolutionised consumer behaviour through raising expectations of being able to manage finances via mobile devices. Firms need to be more in tune with how increasingly tech-savvy customers want to experience financial services.
- the decline in consumer confidence in traditional financial services firms following the financial crisis
- a tougher regulatory environment which has created demand for new product providers

FinTech in the UK

Internet of Things

The Internet of Things is a description of a world in which inanimate objects are connected to a network of sensors so that data produced by them is shared with other connected devices. Of the emerging technologies described in this briefing, IoT is the broad concept that underpins them, and the one that will have the widest reach into daily life.

Today there are more connected objects than there are people on the planet, and industry analysts estimate the number of connected devices could be anywhere from 20 billion to 100 billion by 2020. In theory, almost any device could be fitted with a sensor to relay real time information to a wider network, meaning that the power and scale of IoT has implications for every aspect of society and the economy. In relation to insurance, IoT will necessitate a fundamental shift from restitution to prevention as risk determination based on individual customers' characteristics and behaviours becomes more commonplace and advice-led customer interactions more frequent and real-time.

'Big Data' and Data Analytics

'Big data' refers to the ever increasing amount of digital information being generated and stored with the widespread adoption of digital devices, and data analytics describes the advanced procedures which are being developed to help make sense of this data.

The volume of big data or consumer data in the form of the IoT has grown exponentially, and is already beginning to revolutionise the relationship between financial services and the consumer by providing businesses with the means by which to personalise products offers. Predictive, statistical modelling is required to work out what will happen in the future by measuring and understanding as much as possible about what has happened in the past. Models are then built which show what is likely to happen in the future, based on the relationships between variables which are known to exist from examining the collected data from the past.

Big data has already reshaped traditional operating models in a number of different industries, but many of the ways in which insurance will be transformed by big data are yet to emerge.

Risk Assessment

Data collected about an individual can be used by businesses to calculate personalised and more accurate risk assessments, and has the potential to bring previously underserved groups into insurance through the use of additional data sources and analytics. An example of the fine tailoring of products includes the installation of telematics or 'black box' devices in cars to record speed, distance travelled and the time of day or night that a customer is on the road in order to calculate driver centered premiums which could, in theory, offer the driver a cheaper alternative to a premium calculated by pooling risk across large groups of people.

Robo-advice

Through the use of automated software (typically websites) to collect data such as income, financial advice or guidance is offered to customers without (or with very limited) human intervention. Automation has the potential to widen the access of consumers to financial advice through provision at lower cost and the delivery of a highly consistent consumer experience. On the other hand, without the benefit of a human advisor to support the advice process, consumers could misunderstand the advice provided for them, while errors in automated tools may not be easily identifiable for consumers or financial institutions. How this can be utilised into new models is at the heart of the new Financial Advice Market Review recommendations.

Blockchain technology

The virtual currency Bitcoin is underpinned by a technology called the blockchain, where all transactions are recorded on a publically held and publically available register. This ‘distributed ledger’ is simultaneously stored on millions of computers which updates transactions in real time. The use of such a database has implications beyond FinTech as it provides a way of creating securely shared records for any asset or transaction across a network through entirely transparent updates of information. The key features of the ledger are:

- Distributed storage, which removes central points of failure to allow the ledger to be recovered if a copy is corrupted
- Mathematical security, where cryptography allows information to be time stamped and securely coded – meaning that the transfer of information between different parties can be verified.

Alternative Finance

Recent research suggests that 2015 witnessed an 84% rise in transaction volume of a range of investing and donating services facilitated by online platforms – otherwise referred to as ‘alternative finance’. This dramatic increase can be attributed to a demand from consumers and businesses for new funding, a perceived drought of investment opportunities, and the speed of online services. The main areas of the market can be separated into:

- **Peer-to-Peer Lending:** which directly connects lenders and borrowers, often with more competitive interest rates and increased access to finance than that offered by traditional banks.
- **Crowdfunding:** where finance can be raised typically for a business or venture through multiple funders, and in return provides them with access to new markets, in addition to either shares (equity crowdfunding) or a non-financial reward (rewards crowdfunding). Donation crowdfunding describes funding where no material reward is received in return.

Payments

Considered to have the highest adoption rate of all FinTech products in 2015, emerging models of payment services include:

- **Mobile payments:** where smart phones are increasingly used to complete ‘contactless transactions’, online payments or purchases via an app.
- **Cross-border payments:** Fin-Tech firms are replacing traditional banks in enabling low-cost overseas transfers by matching individuals wanting to send money in opposite directions overseas.
- **Tokenisation:** where a trusted intermediary converts sensitive consumer information into a non-sensitive ‘token’ before reaching the vendor – eliminating the need to hand over details such as credit numbers. Apple Pay is an example of where tokenisation is currently in use.

Opportunities

The table below lists some of the opportunities and challenges that the growth of the FinTech sector presents to the consumer, business, and the regulator:

	Opportunities
Consumer	<ul style="list-style-type: none"> • Reduced costs of financial services and interest rates passed onto the consumer and investors from FinTech start-ups and enhanced competition among businesses. • Increased convenience through rapid technological innovation. • FinTech offers potential solutions to financial illiteracy. Mobile payments, for example, permit more

	<p>efficient self-monitoring of spending and help householders to manage household finances.</p> <ul style="list-style-type: none"> • The use of non-traditional data sources to assess data risk has the potential to open up access to finance for borrowers or customers more widely that have not been catered for by traditional banks and services. • New markets are opened up to funders . • The potential for a reduction in fraud: Physical biometric data is one tool that has been experimented with to restrict access to the latest iPhone model for example, however many within the industry have called for a cross service digital ID scheme.
Business	<ul style="list-style-type: none"> • Reduced set up costs for FinTech start up firms allows new entrants to challenge existing players which improves competition. • Opening up of new investment channels via incubators set up by established banks and through new forms of alternative finance (described above). • New and innovative business models are entering the financial services driven by greater availability of data and analysis tools. • More accurate risk management for companies will be made possible through the collection of new types of data.
Regulator	<ul style="list-style-type: none"> • There is the opportunity to improve, simplify and ‘capture’ regulatory oversight by adapting to and facilitating innovation and competition between firms.

Challenges

	Challenges
Consumer	<ul style="list-style-type: none"> • The main risk to the consumer, as with any start-up, is whether the company in question will survive. Havard Business School research has shown that 75% of all start-up businesses ultimately fail. • The proliferation of digital financial services is dependent upon secure platforms for consumers to complete transactions, and to mitigate against identity crime such as fraud. • The greater use of personal data raises issues for privacy and data security and could lead to unintended discrimination. Consumers may also be unaware of how their data is being used. • Regulation and consumer protection varies between sub-sector. For instance, peer-to-peer lending is not covered by the Financial Services Compensation Scheme which protects consumers from institutional bankruptcy. In addition, some companies handling personal finances are not protected by policies such as a bank deposit scheme. Is the public aware of these risks? • FinTech could aggravate financial and social exclusion if digital financial services are not equally accessible across society. The benefits of technology may be less likely to reach those on lower incomes due to constituting a less profitable segment of the market. • Consumers and investors may not be aware of the exposure to risk involved in crowdfunding as opposed to more traditional forms of investment, for example, as the FCA has raised concerns that equity crowdfunding is being used by investors with no previous experience.
Business	<ul style="list-style-type: none"> • The emergence of FinTech start-ups challenges the hegemony and market share of established institutions. Large firms face a choice of whether to commit to developing their own innovations in-house, buying up innovative start-ups to ‘import’ innovation, or a combination of the two. • There is yet no consistent approach to confirming a person’s identity online in the UK.
Regulator	<ul style="list-style-type: none"> • The rapid increase in the adoption of different forms of FinTech poses questions over how to ensure the protection and privacy of consumers, including their data security, while encouraging innovation and competition. • In a fast moving digital financial services environment, regulators will find it difficult to anticipate

consumer detriment.

- There is the additional dilemma facing authorities to ensure that this expected digital disruption will increase, not restrict, the accessibility of financial services across society. A reduction in the number of high street branches brought about by the more widespread use of digital financial services would be of greatest inconvenience to, for instance, the 34% of UK adults according to Ofcom that did not have access to a smartphone in 2015. The emerging FinTech sector will have a responsibility to provide the tools and education to broaden access to those who would otherwise be digitally excluded.
- Very few technologies reach 100% penetration, as there will always be a proportion of the population who do not use the service in question – either through choice or circumstance. Equally there are limitations to financial services that mean they are unsuitable for certain groups of people. This is particularly evident in automated financial advice.

Links

For further reading on FINTEch:

Disruptive Influences: Technology, politics and change in the financial sector, Cicero and the CII:

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

FinTech Futures, a report by the UK Government Chief Scientific Advisor:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/413095/gs-15-3-fintech-futures.pdf

Financial Technology (FinTech) POSTNOTE from Parliamentary Office of Science and Technology:

<http://researchbriefings.parliament.uk/ResearchBriefing/Summary/POST-PN-0525#fullreport>

Enabling the FinTech transformation: Revolution, Restoration, or Reformation? Mark Carney, Governor of the Bank of England speech (16 June 2016):

<http://www.bankofengland.co.uk/publications/Documents/speeches/2016/speech914.pdf>

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