BANK OF ENGLAND

Speech

Bridging the gap between institution and innovation

Remarks given by

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Introduction

Thank you very much for inviting me to take part in today's session. It's a pleasure to be here.

When the Bank of England asked me to take charge of its FinTech work, Coco Chanel's take on innovation sprang to mind:

"Innovation! One cannot be forever innovating! I want to create classics"

The Bank of England, where I am Chief Operating Officer, is certainly a classic. Founded in 1694 to promote the good of the people of the United Kingdom, initially by acting as the Government's banker and debt manager, the Bank has long been a bastion of the financial system. And a bastion sounds rather slow moving. I'd argue that is not the case.

Our mission is to promote the good of the people of the United Kingdom through maintaining monetary and financial stability. To fulfil our mission we have had to adapt, and we have adapted significantly over the past 322 years. As the world changes and new technologies emerge, we seek to use them to do our job better. You could think of the Bank as the trench coat of the UK financial system – adapting season after season, but remaining a classic.

The current swell of development in financial technologies, Fintech, is in some ways no different from past waves of innovation, and the Bank has positioned itself to adapt again. We watch, think, learn and form a judgement on the impact of developing technologies. When necessary we act.

There are two main ways in which we look to gain knowledge of the emerging technologies: research and experience.

Central banks are typically known primarily for the first. And research has remained a key way in which we have gained knowledge of Fintech,[1] striving for analytical excellence.

Just over the past six months we have met or researched over 130 start-ups, participated in around 25 conferences, and held roundtables with more than 80 organisations. In listening and learning, we are able to begin forming a judgement about the impact of these technologies.

[1] For an overview, see Remarks by Victoria Cleland Fintech: Opportunities for all, September 2016. For current research interests, see One Bank Research Agenda, February 2015, and Bank of England Digital Currencies research questions, July 2016.

Experience is important too, however. Our approach is to complement analytical excellence with outstanding execution. We need to work with these new technologies as well as think about them: theory without practice lacks power.

The desire to combine research with experience is not new. For example, the Bank studied developments in mechanisation in the 1920s, with detailed documentation of early ledger posting by machines contained in our archives, likewise the machine companies kept the Bank informed of developments. The Bank was then an early adopter of machines in the 1930s to assist with accounting, and the processing of registration, transfer and dividend payments on government stocks.[2] These mechanised ledgers no doubt felt as innovative then as distributed ledgers did recently.

In the 1980s and 90s, the Bank again harnessed the latest technologies, this time to drive fundamental reform in the infrastructure for sterling payments and settlements. Starting with the Central Gilts Office in 1986, and moving on through the Central Moneymarkets Office, the Real-Time Gross Settlement System (RTGS), and finally CREST in the mid-1990s, slow and unsafe paper-based systems for completing billions of pounds worth of business were transformed into real-time, electronic book-entry processes against risk-free central bank money.[3]

So then, as now, our approach is both to research and also to experience Fintech.

Experiencing Fintech

We set up the Bank's Fintech Accelerator in the Bank, launched in June this year,[4] precisely to develop our practical experience of Fintech. In the Accelerator, we seek to engage with a large number of Fintech firms and technologies, and to run a series of targeted, rapid proof of concepts (POCs) with a number of them. All POCs are work on problems or challenges that are important to us, and the firms are carefully chosen through an open process based on our published criteria.[5] At the end, we write up case studies and, where we believe the value justifies it, we proceed to an open procurement. Recent POCs have covered three main areas – data analytics, information security, and some work exploring distributed ledgers.

Data is a key thread that runs through nearly all our work, and so technologies relating to data analytics and visualisation have the potential to develop our capabilities significantly. The evolution has already been remarkable – from efforts to begin collecting macroeconomic data consistently from around the 1920s to big data in the 1990s, with machine learning and application of artificial intelligence (AI) now moving into mainstream economic and financial analysis. Recently, developments have been stimulated by the move to

[2] See Hennessy, Elizabeth (1992) "A domestic history of the Bank of England 1930-1960", Cambridge University Press.
[3] Speech by Andrew Hauser, Building the market infrastructure of tomorrow: CREST, RTGS and the Bank of England, 20 years on, September 2016.
[4] Speech by Mark Carney, Enabling the FinTech transformation: Revolution, Restoration, or Reformation? June 2016.
[5] See: http://www.bankofengland.co.uk/Pages/fintech/default.aspx

an open source approach and by cheaper computing power including through cloud computing. A recent addition to the FinTech Accelerator is a POC with BMLL Technologies that uses a machine learning platform, applied to historic limit order book data, to spot anomalies and facilitate the use of new tools in our analytical capabilities. A second new POC, with Enforcd, uses an analytic platform designed specifically to share public information on regulatory enforcement action.

Data visualisation and communication similarly has the power to transform. A good policy not understood is worthless. The Bank has come a long way since the days when we used to announce changes in Bank Rate by holding up a board in the Front Hall – messengers used to then run from the Bank to give the news as quickly as possible. You can now access content in a range of ways; for example, the recent launch of the polymer £5 note was publicised through Twitter, YouTube and Instagram as well as more traditional channels. You can even now follow the Fintech Accelerator on LinkedIn.

While increased computing power and reduced barriers to information flow have stimulated the provision of new goods and services, they have also facilitated new ways to put those at risk through cyber-attack. Threats have diversified and accelerated at a broadly similar rate to the defences built to protect. The Bank's twin focus has been on protecting the critical national infrastructures we provide, and working with other authorities to encourage financial sector firms to improve their own cyber defences. Fintech tools designed to identify, protect, detect and respond to cyber threats have therefore been of keen interest to us. For example, we ran a POC with Bitsight using publically available bulk data to assess our own resilience. We have also partnered with two firms – Anomali and ThreatConnect – that provide innovative technologies to collect, correlate, categorise and integrate cyber security intelligence data. Most network defence models and technology solutions in use today continue to focus overwhelmingly on aggregation of tactical indicators which, when collected and processed in isolation, provide limited value to security teams seeking to prioritise detection and remediation efforts. The work will help to assess how tactical threat information can be enriched to provide relevant operational and strategic context in order to prioritise monitoring and mitigation efforts against given threats.

The Fintech Accelerator isn't just about new tools and technology. It's about cultural change and how we adapt. For an institution to endure it needs to change with the times; as human beings who are living longer we need to adapt how we work as well. Recognising the importance of cultural change, in all our POCs we seek to learn from the fresh approach and skills of start-up colleagues to adapt our approaches. For example, our recent POC on a simple distributed ledger trialled non-traditional ways of technology development including through co-located cross-discipline working, taking a continuous approach to build and integration of the technology, and automating testing built in from the outset.

Conclusion

New technologies present opportunities and risks and we need to assess both.

Just as adaptations to the classic trench coat can work beautifully, there can also be (fashion) disasters. I've highlighted some of the positives above. Let me also note some of the questions.

For Fintech, I think there remain real questions around the potential risks and as yet unknown ramifications. As we have seen before, not least during the financial crisis, even the tools considered the most advanced analytically at the time may be flawed – and how would we know, if the AI techniques make the approach all but impossible to unpick. How should one govern or regulate financial services provisioned using AI? In cyber, for example, how would we judge the balance between protecting core infrastructure from insider risk whilst ensuring acceptable levels of privacy?

Again, experience will help us to understand those questions and ultimately contribute to a debate that we need to have. Not just as regulators or the central bank, but as societies, as part of our mission to promote the public good. Today, we've opened our next call for applications as we seek to further our research and work, continuing to bridge the gap between institution and innovation.