FinTech: technologies to watch in 2020

In the year ahead, we expect the FinTech landscape to be dominated by growing tensions between applications built on emerging technology platforms and policymakers concerned about the levels of trust society places in them.

Like the broader technology industry, FinTech's fortunes depend on the interplay of financial and product cycles. Much is made of the current successes of technology in financial markets, especially in the US and China. However, the product cycle is arguably more important in driving the FinTech industry forward. As we look ahead we see the emergence of five key technology platforms upon which the applications of the future will be built. We also see growing concern among policymakers and regulators about the risks they create for market stability and society.

Blockchains and distributed ledgers

Blockchains and distributed ledgers certainly have their sceptics. But we see things a little differently.

Historically, new technology platforms tend to emerge every 10 to 15 years. We have moved from mainframes in the 1960s to PCs in the late 1970s, the Internet in the early 1990s, cloud computing in the late 1990s and smartphones in the late 2000s.

Each new technology platform enables new classes of applications that build on the particular strengths of that platform. For example, by creating mobile computers with built in GPS and cameras, smartphones have enabled applications like Uber, Instagram and Tiktok.

The unique capability of blockchain and distributed ledger computers is trust. The mathematical and game theory properties of these systems create trust between parties that do not know or do not trust each other. We believe there are exciting possibilities for a platform that can add a layer of trust to the Internet.

However, there remain significant operational and strategic challenges in building successful applications. Indeed, there is growing concern that blockchain and distributed ledger technologies are a poorly understood, inefficient and unnecessary solution in search of a problem.

Nonetheless, our international and cross-practice Blockchain Working Group remains busy advising clients on a wide range of FinTech and other applications. We see most success where the distributed nature of the network and creation of trust between parties that would not otherwise trust each other are critical advantages. We expect to see an increased focus on projects that meet these criteria with other projects (and even companies) where the trust advantages of the technology are less obvious falling by the wayside over the next 12 months. However, projects which leverage the technology for the right reasons will continue to get traction. A good example would be trade finance applications where the technology has manifest advantages to the current processes.

If you would like to know more about the activities of our Blockchain Working Group or the training we can provide on blockchain and distributed ledger technologies, applications and legal issues, please let us know.

Cryptoassets

Bitcoin was the original application for blockchain and distributed ledger computers proposed by Satoshi Nakamoto in 2008. But trust as a new software primitive has many applications beyond digital money. For example, smart contract based platforms enable automated performance, digital property rights, open financial instruments and software based organisations. More recent possibilities include the tokenisation of traditional assets, payment services for the unbanked and stablecoins.

Policymakers have been considering the appropriate response to cryptoassets for some time. Generally speaking, their priorities have been to mitigate risks to consumers and market integrity and to prevent the use of cryptoassets for illicit activity.

However, the announcement last year that Facebook plans to launch Libra, a global permissioned stablecoin, in 2020 appears to have focussed the minds of policymakers around the world.

In the US, the Federal Reserve has set out the legal and regulatory challenges to be overcome, including in relation to money laundering, consumer protection and data privacy. Following a warning by the Senate Banking Committee that financial institutions should expect tougher scrutiny of all their payments activities if they are involved with Libra, five partners exited the Libra project, including Mastercard and Visa.

In the EU, the European Council and European Commission in December issued a joint statement on stablecoins. Striking a cautious tone, they note that where stablecoins have the potential to reach global scale the risks are "amplified and new potential risks to monetary sovereignty, monetary policy, the safety and efficiency of payment systems, financial stability, and fair competition can arise". The statement makes clear that "no global stablecoin arrangement should begin operation in the EU until the legal, regulatory and oversight challenges and risks have been adequately identified and addressed."

Shortly after this statement, the European Commission launched a consultation on an EU wide regulatory framework for markets in cryptoassets. This is a very wide-ranging consultation and represents a crucial opportunity for stakeholders to influence the classification and regulation of cryptoassets both in the EU and internationally. We would encourage all interested parties to make the most of this opportunity as regulation becomes inevitable.

Libra has also prompted central banks to accelerate their thinking about the possibilities for cryptocurrencies. For example, the Bank of England governor has proposed a "synthetic digital currency" to be issued by central banks as a replacement to the US dollar over time. Internationally, the ECB is examining whether to develop its own digital currency and the Bank for International Settlements is producing digital currency models that central banks could adopt. Some commentators believe the People's Bank of China could be the first central bank to launch a digital currency, a point not lost on Mark Zuckerberg in his testimony to US Congress about Libra in October last year.

Elsewhere, cryptoassets have received a boost from a surprising source: the UK legal community. In November last year, the UK Jurisdiction Taskforce published an authoritative statement on the legal status of cryptoassets and smart contracts under English law, clarifying that cryptoassets can be treated as property and that smart contracts are capable of being enforced in the UK. You can find out more about this development here.

Big data and analytics

Big data and analytics are now firmly at the top of the agenda for many FinTech firms. Together, they have the potential to transform how companies operate and to create new commercial opportunities.

In our global survey of more than 350 TMT organisations, we found that to date 20% have limited their application of big data and analytics to data protection compliance and governance issues. This means many companies are not taking advantage of new tools and techniques available to create value and build competitive advantage.

Our survey also revealed that 80% of TMT businesses do not currently have a data commercialisation strategy. We found that many senior managers are simply unsure how to proceed. We recommend starting by creating a strategic plan. We discovered that leading companies also hire people with the right skills, update key data privacy and compliance technologies in a timely manner, invest in infrastructure, implement strong data governance and focus on building a culture of collaboration.

In the year ahead we expect to see an increased focus among many financial services firms looking to create value and build competitive advantage by making the most of their data.

Open banking will continue to make new data sources available in order to improve the customer experience.

Financial institutions will look more closely at how they can make their products and services more sophisticated and personalised by using big data and analytics. For example, in the insurance sector we are seeing traditional insurance quotation input data combined with mobile network data to determine typical travel patterns and accurately price risk.

Financial institutions will also look at how data can be used to drive efficiencies and manage risk. For example, they can verify transactions with mobile phone location data to be sure that it is the customer making the card transaction.

Elsewhere, we will see increased adoption of RegTech solutions as regulatory reporting comes under increased scrutiny by regulators. We will also see greater adoption of cloud computing and continued investment in cybersecurity.

If you would like to learn more about the results of our survey, The Big Data Race, please let us know.

AI

There are at least two ways to view the recent progress made with machine learning and artificial intelligence more generally. One view is that AI is a feature that can be added to every product. In this world, existing applications will simply evolve to become better. The alternative view is that AI will become a new technology platform. In this world, everything sitting above it in the technology stack has to be rebuilt. This would have significant implications for both incumbents and start-ups. On balance, we favour the second view.

In the year ahead we will see many exciting examples of the enormous potential of AI. We will also see greater focus on the risks associated with AI. Some of these risks are inherent in the way the technology works. For example, machine learning models tend to be complex and lack transparency. Other risks depend on how the technology is used. For example, they can result in greater distance between humans and actions.

Within financial services, the risks associated with the use of AI create significant ethical, legal and regulatory challenges. These include difficult questions relating to privacy, data security, bias, opacity and agency. Ultimately, many of these questions are issues of trust.

This year, we expect policymakers to pay more attention to the risks of AI and for the US, EU and China to adopt different approaches.

Indeed, this is already happening. On 7 January the White House announced proposals for 10 regulatory principles designed to "ensure public engagement, limit regulatory overreach and promote trustworthy technology." These regulatory principles promote a light-touch regulatory approach with the White House keen to avoid "rules that would needlessly hamper AI innovation and growth".

By contrast, last month an Expert Group submitted its Final Report to the European Commission setting out 30 recommendations on FinTech. These recommendations reveal real concerns about the impact of AI, with a special emphasis on the rights of individuals to data privacy and control and the ability to explain and interpret AI technologies. You can learn more about the Final Report here.

In China, the government has emphasised its ambitions to be the global leader in AI by calling for greater "international cooperation in AI governance including laws and regulations, ethical norms and international rules".

Meanwhile, we continue to help clients navigate the legal and regulatory risks and maximise the benefits of utilising AI within the FinTech sector and beyond. The increasing volume of this work led us last year to form an AI Working Group. Our AI Working Group is an international and cross-practice group of lawyers with a deep interest and expertise in the legal and regulatory issues created by the commercial application of machine learning and other AI.

If you would like to know more about the activities of our AI Working Group or the training we can provide on AI technologies, applications and legal issues, please let us know.

Quantum computing

Like AI and other technologies that promise exciting practical applications in the future, quantum computing has been through cycles of excitement and disappointment. But there is

now renewed cause for optimism. In October last year in an article published in Nature, researchers at Google claimed they had built a quantum computer that solved a problem in 200 seconds that would have taken IBM's Summit, the world's most powerful supercomputer, around 10,000 years.

But what is quantum computing? Leveraging the unique properties of matter at nanoscale, quantum computers differ from classical computers in two ways. First, unlike classical computers which are built on bits that are either zero or one, quantum computers are built on qubits that can be part zero and part one at the same time. Second, qubits interact with each other to become entangled and act as a group. As a result of these characteristics, qubits can have exponentially higher information density than classical computers.

Despite recent advances, there remain significant technical and engineering challenges to overcome. Some researchers claim that it may take more than 10 years to build a full-sized quantum computer and we should not expect quantum computers to quickly overtake classical computers.

However, some benefits may be realised more quickly. Many governments and companies are now increasing their investment into quantum technologies. Leading companies are believed to include Google, IBM, Microsoft, Amazon, Alibaba and Intel. It was recently reported in the Financial Times that Goldman Sachs, JPMorgan and Citigroup have also now stepped up their research efforts.

We expect to see more companies moving to secure intellectual property rights and develop products in this market in the years ahead. We see use cases across all sectors, including high-tech, industrials, healthcare and energy. Within financial services, use cases cover trading strategies, portfolio optimisation, asset pricing, risk analysis, fraud detection and market simulation, among others.

We also expect to see policymakers take action to assess the risks that quantum computing could pose to financial services. This follows advice to the European Commission from the Expert Group on FinTech referred to above that quantum computing could pose significant risks to existing cryptographic systems used by the industry and to the international financial system as a whole. The Expert Group was clear that "Regulators need to be aware of and take appropriate action in advance of such solutions coming to market."

There are clear parallels here with the way in which regulators and policymakers have focussed on blockchain and cryptoassets in recent years. Going forward, we expect to see a slow but increasing interest in quantum computing.