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FROM BITCOIN TO BLOCKCHAIN, AND BACK AGAIN

Is the genie out of the innovation lab?

By Danielle Szetho and Rene Michau

The subject of innovation, as it pertains to strategy and change management, has long been a staple for discussions in business management. We are familiar with the story of Kodak failing to capitalise on its digital photography patents, or Fuji's successful diversification from the photo film industry, and the perfect storm of technologies that have since disrupted it. But where do we stand on banking and finance? Is it another industry on the brink?

Many believe the industry's disruption began in earnest well over a decade ago in the form of the Financial Technology (FinTech) revolution, driven by the same underlying catalysts that underpinned disruption in other industries. The proliferation of ubiquitous high-speed Internet and cheap, smart personal devices have eliminated much of the time and friction involved in transferring data securely to one or many. The convergence of these technologies has disrupted various parts of the industry as evidenced by the steady increase in the number of peer-to-peer business models. In addition, a foundational shift in the instruments, mechanisms and technologies that underpin global trade has driven the cost of making small individual transactions down towards zero. Even the most challenging area of payments—cross-border remittances—has seen a steady decline in cost, from almost 11 percent commission on the transmitted amount in 2008 to under 7 percent in 2019.¹ Of course, this assumes you are sending money on traditional financial rails; the transaction cost of a cross-border wallet-to-wallet payment in a cryptocurrency such as Bitcoin or Ether is almost nil.²

The rapid rise of e-commerce has also pressured traditional banks to scale up their capability to support the very steep growth in economic activity, presenting a significant challenge to incumbents as they work to respond to technological disruption.³ The companies and innovations driving this growth don't always play by the same rules and are not constrained by legacy technology, organisational structures and the bank branch-based culture of working to end-of-day, end-of-month and end-of-year balances. Incumbent organisations seeking to stay relevant, and provide structured and stable financial services to this new, dynamic market must undertake a complete rethink of their business models in order to deliver effectively.

Banking is already highly regulated and financial regulators have struggled as much as incumbents to identify, understand and regulate these new technologies as they rapidly change the industry. Since the launch of the first Regulatory Sandbox by the U.K.'s Financial Conduct Authority in November 2015, there are now almost 30 other Regulatory Sandboxes (live or proposed) in other markets, including Australia, Singapore, Russia and even Sierra Leone.⁴ These Sandboxes have been effective in allowing regulators, industry and innovators to experiment and learn about new technologies together while carefully balancing the requisite need for consumer protection. However, though it is easy to design experiments to see how new technology can improve a compliance process or customer experience, it is far less simple to explore wholly new and disruptive technology-driven business models. Blockchains and digital or cryptographic assets (crypto-assets) present this exact challenge, particularly as they disrupt core banking business models and are rapidly reaching scale with customers.

The early days

In October 2008, the pseudonymous Satoshi Nakamoto published the now-infamous paper describing 'a peer-to-peer electronic cash system' that gave birth to Bitcoin and its underlying Blockchain ledger. It was originally intended to create a means of online payment that bypassed the need for traditional financial institutions by using technology to solve the double-spending problem.⁵ Bundles of Bitcoin transaction information (blocks) were cryptographically secured and appended to a public ledger (Blockchain), and distributed across a peer-to-peer network. It had incentive mechanisms (consensus algorithms showing proof-of-work) designed to shift transaction and ledger validation to peers (nodes) in the network of a trusted central third party—the role traditionally played by a central bank or commercial bank. Removing the need for the trusted financial intermediary meant Bitcoin could proliferate as an alternative payment method and store of value for several years outside of the traditional finance industry's purview, largely in the domain of cypher-punks, hackers and other technologists. Bitcoin's relative anonymity also made it popular in the Darknet, earning it early associations with drug trafficking and cyber-crime that made it impossible for traditional banks to work with.⁶

Over time, a near-Cambrian explosion of other Blockchain protocols and distributed ledger projects, as well as the testing of different consensus incentive models

such as proof-of-stake (Ethereum) or proof-of-importance (NEM) produced variants of the original Bitcoin concept. There were also countermoves away from some of the anti-establishment, anarchic concepts behind many public Blockchains toward centralised models. Between 2013 and 2015, a new wave of 'private' or 'permissioned' Blockchain-based platforms evolved, including Ripple, R3 and Digital Asset Holdings, with designs that were less reliant on cryptocurrencies but focused on the creation and transfer of digitised traditional financial assets. Data related to the transfer of these digital assets was validated by a consortium of approved institutions providing consensus instead of cryptographic proofs, with clear rules governing who could join and who had permission to do what.

These permissioned networks proved more palatable amongst traditional financial institutions and regulators, offering a contained, collegiate and seemingly more controllable experience than their open, public counterparts. Some public Blockchains struggled to manage technical upgrades or governance disputes in their communities, such as the Bitcoin code-base split or 'fork' in August 2017.⁷ From late 2014, various banks globally examined various Blockchain and Distributed Ledger Technology (DLT) use-cases, particularly in cross-border and inter-bank payments with platforms built by Ripple and R3.⁸ The Australian Securities Exchange (ASX) and NASDAQ explored DLT to replace their ageing back-end systems, with the ASX eventually announcing that Digital Asset's DLT platform would replace its CHES settlement network.⁹ Even the Monetary Authority of Singapore (MAS) launched the first of several proof-of-concept phases exploring Central Bank Digital Currencies (CBDC) and the use of DLT for Central Bank settlements, codenamed Project Ubin.¹⁰

As the Bitcoin price rose exponentially and finally peaked in December 2017, financial regulators, incumbents and FinTech innovators came to appreciate the disruptive threat that Bitcoin and other cryptocurrencies posed to the existing financial system, as the masses became alive to the speculative opportunity they represented and piled in. Regulators around the world began implementing or updating digital currency laws to bring cryptocurrencies back into their regulatory purview, in view of risks arising particularly from money laundering, terrorist financing, and tax evasion perspectives. Some jurisdictions like India, South Korea and China even imposed outright bans on cryptocurrency trading, fearing consumer losses, capital flight or loss of monetary control. Even so, the financial industry's slow but



steady experimentation with DLT had shown the potential for efficiency gains through a reduction in manual, human-error-prone back-office processes. Even in China, limited testing was permitted by the People's Bank of China (PBOC) to explore how Blockchain could be used within regulated markets like trade finance. The mantra "it's all about Blockchain, not Bitcoin!" was touted by all but the true believers as a 'safe' way to experiment in the risk-conscious banking culture.

Yet even as some markets banned consumer trading in speculative and often fraudulent Initial Coin Offering (ICO) tokens, others such as the U.K., Japan, Singapore, and Australia cautiously embraced the use of digital currencies and crypto-assets by consumers as they judiciously established and clarified their regulatory guardrails. The use of cryptocurrencies for everyday payments slowly spread in Japan, the U.K. and Australia after each implemented

regulatory clarifications on the use of digital currency as money, and its subsequent tax treatment. Central bank consideration of CBDCs became widespread after MAS' Project Ubin, culminating in a report by the Bank of International Settlements examining the implications of CBDCs on financial stability and monetary policy.¹¹ The PBOC went one step further, launching a Blockchain Trade Finance platform with China's commercial banks in late 2018, which it plans to connect to the Hong Kong Monetary Authority's counterpart platform, ETrade Connect.¹² The active involvement of regulators in CBDCs also served to legitimise industry experimentation in this space.

Eventually, the Blockchain industry shifted its focus from ICOs to Security Tokens, a type of digital asset representing other traditional assets, similar to securitisation, which could be managed and traded with smart contracts on a

Distributed Ledger. As regulatory clarity emerged, clever banks and asset managers began to see these digital assets as an opportunity to diversify their source of funds and their investments, reduce costs, and increase returns during a period of stagnating global growth. In late 2018, the World Bank successfully raised A\$110 million (US\$79 million) from government and institutional investors with the world's first global Blockchain bond, almost entirely managed using DLT.¹³ By early 2019, over 20 percent of U.S. institutional investors had exposure to digital assets,¹⁴ and hundreds of millions worth of institutional money went into crypto funds and investment products each month. These were run by the likes of Andreessen Horowitz, Fidelity and Grayscale, whose assets under management stretched into billions.¹⁵ Banks that had cautiously gained experience with these technologies are now seizing the opportunity to custody digital assets for these fund managers and investors, given their preference to custody with trusted regulated institutions.¹⁶

At the frontier: Stablecoins

Certain types of digital assets still remained well outside the risk appetite of traditional custodial banks, despite the increasingly sizeable baskets of traditional fiat currencies they represented. One example is Stablecoins, a type of cryptocurrency the Blockchain industry has become increasingly reliant on, which is designed to minimise price volatility and used as a store of value within public Blockchain networks. Whilst some smaller Stablecoins are non-backed and algorithmically driven through control of supply and demand, the most successful have been those backed by traditional fiat currencies, such as Tether, Gemini Dollar and USD Coin, all in turn backed by the US Dollar. By early 2019, the market value of all Stablecoins was estimated to be over US\$3 billion, or 1.5 percent of the total cryptocurrency market (generally seen as all the crypto-assets associated with public Blockchains), with Tether alone representing over 80 percent of that value.¹⁷ Yet Stablecoins have been plagued with transparency issues due to the lack of an appropriate and consistent audit framework. A recent scandal found Tether's coins were not backed one-to-one by the US Dollar as claimed but were in fact a mix of US Dollar and "other assets and receivables", including a significant and controversial loan to its sister company, Bitfinex.¹⁸

This scenario is likely to change as technology companies, and particularly regulators, accelerate the pace of their experimentation, bringing the industry deeper into the world

of DLT and digital assets. The recent announcement by Facebook about its intentions to launch a new type of Stablecoin for retail consumer payments called Libra has catalysed a global race in digital assets, and pushed banks and regulators to quickly decide whether to align themselves with the ambitious project, or accelerate work on competing initiatives of their own.¹⁹ Facebook proposed that Libra be a global digital currency backed by a basket of traditional fiat currencies and government bonds, managed by an independent consortium called the Libra Association. Its intent for Libra from the outset is to be a "global currency and financial infrastructure that empowers billions of people", particularly those who are currently unable to access the traditional banking system.²⁰ In essence, the Libra project is envisioned as a digital corporate currency that can be used anywhere by anyone in place of sovereign fiat currencies.

Responding to Facebook's Libra in August 2019, the PBOC announced plans for the forthcoming launch of its own crypto-currency-inspired sovereign digital currency or CBDC, to be rolled out via China's commercial banks and technology giants as a digital alternative to the country's MO or cash money in circulation.²¹ Like Libra, it aims to improve access to financial services in a transparent, compliant manner. In contrast, the specific objective of the PBOC's CBDC is to "restrain the public's demands for crypto-assets and strengthen the country's sovereign currency."²² The Bank for International Settlements also echoed some of these points in what seemed to be an about-face in its position on CBDCs, indicating that "many central banks are working on it; we are working on it, supporting them", which suggests that market conditions may drive a need for it sooner than initially thought.²³

CBDC adoption will continue to accelerate as various jurisdictions seek to protect and preserve the strength of their own national currencies against an increasingly assertive China, and the lofty aspirations of Facebook and other technology giants. Experimentation by incumbent banks is

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also driving digital asset adoption toward mainstream; a collective of 14 banks including UBS, Lloyds and MUFG announced further funding for Fidelity International (formerly USC) to launch its own set of commercial bank Stablecoins, representing digital versions of the US Dollar, British Pound, Euro, Canadian Dollar, and Japanese Yen.²⁴ Together, these developments create a watershed moment for commercial banks as digitised fiat currencies and their associated technologies challenge the fundamental viability of the commercial banking business model. Are incumbent organisations truly ready to respond to these challenges?

It may be argued that the largely uniform organisational structure of commercial banks today is a product of management consulting engagements since the 1960s. These set out to organise banks along product and segment lines instead of the traditional bank-branch organisational structure, centralising control under the CEO and executive teams. This also saw technology teams evolve largely separately from product and sales. It sets the basis for siloed technology investment in larger organisations, resulting in the commercial banks we see today, and the centralised

processes underlying many domestic payments infrastructures and the Society for the Worldwide Interbank Financial Telecommunication (SWIFT) network in 1979. This business model and organisational design has remained largely unchanged, driving significant growth in resourcing for internal IT, operations and compliance. Despite over US\$1 trillion being invested by banks globally on digital transformation, the industry continues to lag behind well-funded start-ups with highly agile workforces in innovation.²⁵

The mindset transformation

So what can industry leaders do to address this? True digital transformation is as much about changing the mindset and behaviour of the most senior leaders as their operational teams. It is not just a matter of improving user experience to create smooth apps; it is about deep transformation of the business models that underpin the delivery of value to customers and shareholders. This can only be done by fostering a mindset that focuses on technology adoption and gaining a deep understanding of how technology is changing data flows, and how digital



assets and DLT impact data and service delivery. It requires a clear signal from the C-Suite that it is no longer acceptable to leave technology to the technologists. Understanding technical and financial tools is as much a part of the new economy as using a ride-sharing app, and the CEO and senior leaders of a bank are responsible for understanding and demonstrating this.

This also leads to the siloed talent question. Banks traditionally hire employees with over 10 years' of experience in the role's specific domain, and it is rare to see employees crossing organisational silos. To re-engineer the organisation to deal with digital currencies, banks need employees with a broad skillset and learning agility who understand the technology. They can effectively be employed in serving customers across different market segments and affect different parts of the overall banking business model.²⁶ Attracting and retaining talent are both challenging and critical for banks looking for opportunities in a world where corporate or sovereign digital currencies are the norm. There is plenty of untapped crypto talent available to banks, but currently the industry lacks the wherewithal and suitable organisational structures to create an attractive environment for this talent to thrive amid the development of new product and system capabilities.

Whilst it is unrealistic to think that every employee should or could be reskilled for the digital economy, it is critical that the learning agenda is completely aligned with the organisation's digital objectives and the learning programmes are relevant and engaging. Too often, learning is considered a luxury add-on or only essential for technical or regulated roles, when in reality having space to learn is one of the most fundamental strategic assets banks have.²⁷ Not only should all staff be competent in the basic technologies used to run a financial institution today, each employee should fundamentally understand how the organisation creates value

for customers and shareholders. This can only happen when training is made part of employees' regular routine.

Organisational structure and execution ability are inextricably linked to competitive advantage for organisations that are intent on winning in the new economy. The management consultant matrix/silo structure of today's banks hampers innovation rather than assists it, with far too many disconnected projects taking place in lieu of a unified approach to rapidly test new business opportunities that could lead to a re-designed operating model. In order to keep pace with today's fundamental shifts, it is critical to break down organisational silos and empower the right cross-functional team to invest sparingly and take action rapidly in a transparent manner against agreed directional goals and hypotheses. This team should report to the senior executives responsible for driving change, who should be led by the CEO, and they should together

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aim to holistically solve the challenges faced by the organisation as it strives to serve its customers.²⁸ Some organisations, such as J.P. Morgan's JPM Coin²⁹ or the Fidelity consortia mentioned previously, are already making a visible start. However, organisational and talent challenges often hinder the scaling of successful experiments in response to initiatives by Facebook, PBOC and MAS. It is imperative that leaders and practitioners act to drive the needed change.

In less than a decade, the banking industry has gone full circle as it has first carefully explored Blockchain and DLT, then rushed to defend itself against the rising tide of crypto- and digital-assets that, in the hands of competitors or even regulators or technology players, now seemingly threaten aspects of the very existence of banks. Yet, like the cautionary tale of Kodak and Fuji, whilst many in the industry have accumulated a wealth of knowledge about these new technologies and business models, it remains to be seen how effectively and efficiently they can apply this knowledge, drive the change, and embrace the new economy to avoid disintermediation, and seize the new opportunities being created in the vast and fast-paced world of digital and crypto-assets.

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