FROM HYPE TO REALITY: DEVELOPING A PRAGMATIC APPROACH TO BLOCKCHAIN IN FINANCIAL SERVICES
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A search on any given day for commentary on the subject of blockchain will yield a variety of excited headlines from the world’s media. Take for example this batch from the same day: “Blockchain: Wall Street’s Most Game-Changing Technology Advance Since The Internet”, “Why Blockchain is the Saviour of the Finance Industry”, “Backlash Begins Against Blockchain Project” and “Blockchain is Not Going to Change the World.”

The media excitement is not confined to blockchain in financial services of course, as these stories – also from the same day – indicate: “Forget Privatisation: the Land Registry Needs Blockchain”, “Blocksafe Applies Blockchain Tech to Improve Smart Guns”, “Pink Floyd: Blockchain Technology in Music Could Be ‘Truly Revolutionary’” and – a particular favourite – “Could Hillary Clinton as President Give a Boost to Blockchain Tech?”

Blockchain is clearly being talked about in the most elevated circles. I noted with interest discussions on distributed ledgers during the World Economic Forum’s 10th Annual Meeting of the New Champions last month in Tianjin in China – which concluded that unlocking blockchain will be a game-changer for the future of financial transactions. Pierre Gramegna, Minister of Finance of Luxembourg, said: “Blockchain will revolutionise banking and financial services as we know it. I think it is possible that blockchain will replace the word ‘internet’. By the time our children have children, the only time they will see the word ‘internet’ is in science and history books.”

This is a great claim indeed – but the question is, how are we going to get to this point? Before 2015 most people in the financial services business had not even heard of blockchain, and those that had associated it purely with Bitcoin, a phenomenon considered by many to be both threatening and dangerous. Then, when blockchain
did make it into the mainstream discussions of the industry, it became clear that there were many challenges and issues to be overcome. Could blockchain scale to cope with financial market volumes? Should we be looking at private or public, permissioned or permissionless blockchains? What would blockchain mean for intermediaries? Would it be secure enough for mainstream financial services? What about standards – what would be needed and how could the industry develop them?

In parallel came a rush of experimentation by individual firms, market infrastructures and industry consortia, leading to a plethora of use cases being identified, and contributing to the sense that blockchain was being positioned not only as a game-changer, but, less plausibly, as a solution to every problem facing financial services institutions today.

The hype about the revolutionary power of blockchain clearly remains, as the headlines above indicate. But is it also the case that a more pragmatic approach to distributed ledger technologies is emerging within the financial services sector? Finding an answer to this question was EPAM’s purpose in working with Finextra to carry out the research that has led to this white paper – and I am pleased to report that yes, that pragmatism is strongly in evidence.

As the expert commentators, whose views are shared in the pages that follow reveal, there is growing consensus about the areas of financial services in which blockchain can bring value in solving real problems. Working singly and collectively financial institutions around the world are making progress in evaluating the technology options available, identifying the gaps, and addressing them, as well as developing the standardised approaches required to underpin successful global adoption and interoperability of blockchains. While there are still a range of different views about the role of intermediaries in a blockchain world, the value of market infrastructures in enabling the implementation of solutions – which by definition bring the most value when used by communities rather than single institutions – is also being recognised and exploited.

There are still plenty of predictions about the kind of impact blockchain will have – whether it will be the new internet, whether it will be as disruptive as electronic trading, whether Bitcoin, far from being old hat is actually still integral to the future of blockchain – and the excitements, debates, disagreements and discussions are important as part of the process of reaching clarity and zeroing in on the most significant opportunities for this technology. The good news is that, in the background, genuine progress is being made towards capitalising on those opportunities in the real world.

I hope you find the information in this paper insightful and useful, and I invite you to get in touch if you would like to discuss any of the findings, or any aspect of blockchain and distributed ledgers, in more detail.
During 2015 the hype around blockchain as the answer to all the ills facing the financial services industry reached fever pitch. In 2016, we have seen the evolution of a more measured and sensible approach to assessing the potential of the technology, to establishing what it is good for – and what it is not, and to determining the gaps that need to be filled for it to be ready for prime time use in financial services.

In its last report on blockchain, written in late 2015 and published in early 2016, Finextra recommended readers to “experiment, get your hands dirty, to establish the strengths and weaknesses of the technology and work out how to bring value to your customers” and to “define the right use cases”.

This new paper, produced in association with EPAM, sets out to explore how well industry participants are progressing in road testing the technology, establishing which business problems it can usefully solve, and generally delivering value from their experimentation with blockchain so far.

It aims to offer insights and advice on how financial industry participants can take a pragmatic approach to blockchain, in order to cut through the hype and transform this technology into a reality that delivers value for banks – and their customers.

“It’s the first time in history that we can think about mutualising infrastructure while enhancing security. That’s what blockchain is all about. And what it means to mutualise infrastructure and share financial infrastructure is the opportunity to eliminate very significant components of the cost base – not 5%, but 30, 40 or 50% – which in an environment with depressed ROEs and a range of existential threats is a very interesting proposition.”

BLYTHE MASTERS, CEO, DIGITAL ASSET HOLDINGS
In April 2016, in London, one of the most prominent figures in financial services blockchain, Blythe Masters, CEO of Digital Asset Holdings, made a powerful argument for the adoption of this much-vaunted technology by the investment banking industry. Speaking to a thousand-strong audience at the Swift Business Forum London, Masters made the case that the headwinds in banking are such that the industry has no choice but to take out significant cost.

“It’s easy to characterise the overall environment in one metric – suppressed ROEs,” she told delegates. “Since the financial crisis, this has been more or less consistently the case, and some of the things that used to make up for it like extracting economies, growing by acquisition and proprietary trading are out of fashion. At the same time, costs are high and rising, driven by the need to comply with regulation, and capital requirements have gone up in a more than linear fashion with no abatement likely. Throw in a few unknowns like cyber, and you have a very challenged environment.”

Into this challenged environment, enter blockchain. “It’s the first time in history that we can think about mutualising infrastructure while enhancing security,” Masters continued. “That’s what blockchain is all about. And what it means to mutualise infrastructure and share financial infrastructure is the opportunity to eliminate very significant components of the cost base – not 5%, but 30, 40 or 50% – which, in an environment with depressed ROEs and a range of existential threats, is a very interesting proposition.”

Anticipating the obvious next question, she went on to say: “Why hasn’t it happened already, and why isn’t it happening more quickly? Because legacy systems are gigantic. They are handling trillions of dollars notional daily. And if they fail it’s catastrophic. It would be like changing the wheels on a bus on a fast moving highway.”

Masters’ fellow panellist at the event – Andrew Hauser, Executive Director for Banking, Payments and Financial Resilience at the Bank of England – also offered a comment on blockchain. “What begins as a discussion about technology quickly comes back to a question about what this does to the distribution of risk,” he said. “What will the future of financial intermediation look like?”
Tackling real problems

This exchange reflected a number of key developments in the way that the financial industry has come to view blockchain during 2016 – in the wake of the tremendous hype around the technology that built up during 2015. First, blockchain is no longer – or at least much less – a solution looking for a problem, and market participants have become much better at framing the value of blockchain in the context of genuine industry challenges.

As Jenny Knott, CEO, Post Trade, ICAP, says: “When you understand the problems in financial services, you see that some of the core components of the technology will be very useful. There are so many problems, and blockchain can help us with many of them: providing invaluable elements like immutable record, permissioned access and a golden source of data.”

Her colleague David Thompson, COO of Traiana, adds: “The industry has been looking for new technologies that will solve its problems, and it is looking at these problems from a much broader perspective than before.”

For Hu Liang, Head of State Street’s Emerging Technologies Center, blockchain is among a raft of technologies his bank is marshalling in the context of digitalisation. “A few years ago, we started talking about middle and back office servicing and making it as automated as possible, generating efficiencies, moving towards a digital enterprise, establishing a single source of information. In that context, we also started to focus on some key technologies to help us digitally transform our business, and alongside robo advisors, machine learning and cognitive computing, blockchain is very important among those.”

Robert Palatnick, Chief Technology Architect, DTCC, also counts the technology as a powerful tool with which to tackle the challenges and opportunities financial institutions face today. “We believe blockchain and distributed ledgers represent a valuable new concept and DTCC is actively exploring opportunities for its potential application,” he says.
For those focused on investment banking and capital markets, the “ROE” argument – and the consequent imperative to reduce costs – is often cited. A major part of the excitement about blockchain is driven by the fact that “the financial industry is concerned about low margins and increasing costs”, says Palatnick, while Peter Randall, CEO of SETL, points out that “a 6-7% ROE is what you would expect to see at financial institutions that will get taken over”.

“One of the biggest problems for major banks is that they have a multitude of systems. Any senior bank manager needs to take a long hard look at the true costs of the factory and the back office to get some understanding of the complexities they run,” he adds. “It is perfectly sensible to think through what it is that can help to reduce costs, improve liquidity and improve capital utilisation – and I would say absolutely categorically that’s by a wholesale focus on making the factory better.”

In the cross-border payments world, the argument for blockchain is framed around efficiency, speed and transparency. Speaking to Finextra at EBAday 2016 in Milan, Marcus Treacher, Global Head of Strategic Accounts at Ripple, said: “Blockchain technology enables a payment that goes across borders to be connected in the same way that payments are connected today that move around within a country – and that’s a really big shift in how technology enables payments to happen around the world. What it means is that a lot of the chasing, the reconciliation work, and the lack of clarity that exists today and has existed for years around cross-border payments, is removed by this technology – that’s where the power really resides.

“With PSD2 and the opening of access, the banking world is going to be pressured to create much faster payment delivery and much faster execution internationally than it can do today to provide the feature functionality that these apps require and that designers are going to want to create. The distributed ledger technology world makes that possible, enabling banks to run at the pace the PSD2 changes are demanding they run at.”

Banks including UBS, Santander, CIBC, UniCredit, ReiseBank, National Bank of Abu Dhabi and ATB Financial have signed up to Ripple’s distributed ledger technology for cross-border payments, with the aim of cutting the time and cost of cross-border settlement and enabling new types of high-volume, low-value global transactions. These banks are all planning to deploy Ripple commercially, with most having already moved real money via the network. “Using blockchain technology, ATB Financial became the first financial institution in Canada to complete an overseas payment in a matter of seconds, says Curtis Stange, Chief Strategy and Operations Officer, ATB. “Without blockchain, that transaction would have taken two to six business days.”
Over in the world of trade finance, blockchain holds the promise of at last bringing coherence to a process that it has historically been impossible to unify. Gene Vayngrib, CEO and Co-Founder of blockchain start-up Tradle, told Finextra. TV: “For many, many years we have tried in supply chain to do electronic document presentation, to get all participants on the same page – across different countries, different backgrounds, different businesses. It’s not possible to create one marketplace that will serve them all – which would be probably the most efficient solution. So blockchain would be the second best for efficiency, but would be a neutral solution which would allow people to actually co-operate in their processes, which is what the whole industry is getting excited about. Blockchain is the co-operative solution instead of one marketplace player dominating on top of everyone else.”

Disintermediation: hype...?

Treacher’s commentary also reflects another development in the industry’s thinking about blockchain during 2016. It is broadly accepted that at least in the short and medium terms, the potential of blockchain to underpin a market which operates without intermediation will not be exploited by the financial services industry.

Asked how blockchain will interact with existing payments market infrastructure, Treacher said: “It’s a big complementor to what we have today. Much of the infrastructure is set up for governance, control, standards, oversight, interaction with regulators and anti-money laundering compliance. That’s all required, and that’s all solid. What the distributed ledger technology world brings is a much better delivery layer, so the platform on which everything is running becomes significantly upgraded. We see this as the ultimate ‘Intel Inside’ to the international payments world – providing a turbo charge and a much better engine on which to run.”

As Ron Quaranta, Chairman of the Wall Street Blockchain Alliance (WSBA), points out: “We all look at intermediaries and say they are expensive, but if we look at the spectrum of how technology changes what we do, changes are usually evolutionary. What it means to be an intermediary will change. But that doesn’t mean we don’t want intermediaries, just because we have a technology to make that possible.” Or as Thompson of Traiana, puts it: “Whereas the technology might be stateless, our industry isn’t.”
For Thorsten Peisl, Chief Executive at RISE Financial Technologies, the law is the law. “We live in an environment in which we have regulated entities and laws. We can reuse the concept of distributed systems but we have to start from the ground up. The Bitcoin blockchain wouldn’t work: full transparency is not what’s needed, and we can’t get rid of the law. If CSD-R says this is what CSDs do or EMIR says what CCPs should do, then we can’t change those laws. So as a result, even if in theory technology could render these institutions redundant, in practice, in the short to medium term, it’s a no.”

The predicted complete disintermediation of regulated entities and activities is one aspect of the ‘over-hype’ of blockchain, according to Michele Curtoni, Strategy Manager, Global Technology Innovation, London Stock Exchange Group (LSEG). “Arguing that everything will go to T+0 in five years – to the detriment of a regulated environment that works the way it works – simply because of a distributed database, doesn’t fully recognise the importance of systemically important institutions,” he says. “It also takes into account only one aspect of what a CCP or a CSD does – think about all the collateral activity performed by a CCP, and everything CSDs do above and beyond DVP and reconciliations such as certain asset services. Some of these other activities are not immediately impacted or improved by a shared database.”

... or reality
Of course there are still voices predicting disintermediation. “It is perfectly possible to envisage a time where we issue new assets – say shares in new companies – to a blockchain,” says Randall. “Once you’ve got an effective record of shares being listed on the blockchain, if someone wants to buy and sell, you could effect immediate settlement, and that would change the face of the equity markets.” While some observers question the feasibility of a ‘big bang’ move of existing markets to the blockchain, Randall challenges this. “History is a good guide,” he says. “Cast your mind back to Hong Kong in 1991. Dematerialisation from one day to the next. It is perfectly possible – because it has worked in the past.”

In addition, there are still voices diverging from the current fashionable view that the Bitcoin blockchain has no wider application in financial services. For Coinify CEO and Co-Founder, Mark Højgaard, banks should “start supporting and exploring the real value of the original currency and blockchain before looking into altcoins and side chains”. “If we could regulate the existing blockchain and refine its flaws, there would be no need for other versions,” he says. “There is also only one internet... even though many tried to create a ‘new internet’ in the early days.”
Ferdinando Ametrano, Head of Blockchain and Virtual Currencies, Intesa Sanpaolo, also references the early days of the internet in this context. Speaking to Finextra TV, he said: “It reminds me a lot of the late 1990s trend where corporates wanted to go online but not on the internet, and AOL and MSN were providing such an offer, which we are now aware didn’t make any sense at all, but at the time was reasonable because there were concerns about how regulated the internet was. Today we know the benefits of going online on the internet are greater than the risk, but given this, it’s possible it will be recognised that blockchain with Bitcoin is what we are really looking for.”

Bitcoin “is sort of digital gold”, he continued. “If you want to trade any kind of asset on blockchain those assets are really somebody else’s liabilities. If we have learned anything in the last 60 years, it’s that a transactional economy that is based only on liabilities and debt is not promising enough. We do need a native digital asset which can be used as collateral. Today we can’t even imagine what a decentralised application economy based on blockchain could achieve in the future, but what I’m pretty confident about is that whatever will be achievable on blockchain will be on a blockchain with a digital native asset. Blockchain beyond Bitcoin – ok. Blockchain without Bitcoin – I am pretty sceptical.”

In this vein, it was recently announced that BNY Mellon, Deutsche Bank, Icap and Santander have joined with UBS and Clearmatics to advance the Utility Settlement Coin, an asset-backed digital cash instrument implemented on distributed ledger technology. The virtual coin acts as a proxy for physical currency assets held in deposit at the central bank. “Digital cash is a core component of a future financial market fabric based on blockchain technologies,” said Hyder Jaffrey, Head of UBS Strategic Investment & Fintech Innovation, at that time.

Some observers see the dynamics between private and public/permissioned and permissionless differently again. As Vayngrab of Tradle says: “The world is not black and white. In the beginning of the internet – and blockchain is very often compared to the internet in the amount of change it will bring – we also had private networks. There is an advantage in building private solutions on top
of the public network. You can actually build permissioned protocols on top of the permissionless ledger – private protocols on top of the public ledger – and I believe this will be the most interesting area of research and applications.”

**A blockchain for the world we live in**

However, the majority view remains that the flavour of blockchain implemented in financial services will be permissioned and private. As Peter Hiom, Deputy CEO of ASX, told Australia’s Annual Stockbrokers Conference recently: “The claim of some observers (usually not from financial markets) is that the public Bitcoin blockchain could be applied to capital markets to enable transparent, peer-to-peer, real-time settlement without the need for financial intermediaries. But this is not the world we live in – nor should it be. Trust and confidence are cornerstones of our financial markets. It is why they are highly regulated. And for good reason. Investor protection, anti-money laundering, rights of reversal and error correction, privacy, and the operational benefits of net settlement are some of the reasons why it is necessary to have regulated entities that are responsible for the perfection of title to, and legal standing of, financial assets. So when we think of the application of blockchain to Australia’s financial markets, we think about a system that operates on a secure private network, where all participants who have rights to access that system are known, and where they all comply with ongoing and enforceable regulatory obligations.”

One of the ‘grown up’ views of blockchain, far from anticipating it will lead to widespread disintermediation, counts market infrastructures (MIs) among the key entities for ensuring blockchain’s widespread adoption. They are useful because – as Richard Crook, Head of Innovation Engineering, Royal Bank of Scotland, says – “there is only so much fun you can have on your own with distributed ledger technology”. “Blockchain is a challenge because it requires an understanding among market participants that you’ve got to collaborate to make it work,” he continues. “We have found that the majority of the applicable places are at the periphery of the bank – where we need to work with another market participant. They need to be up the maturity curve with you to make collaboration worthwhile. You have also got to think about intellectual property laws which make it more difficult – which is why we are seeing this take much longer than was first thought.”

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With respect to the future success of DLT initiatives, Curtoni echoes these points. “Collaboration is key. One bank can’t do everything by themselves – and they do recognise that. One bank can create and develop smart contracts with some standard setter trade associations, for example, but another bank might never use those smart contracts. There is also an issue around IP. Take the example of index derivatives. In most cases, the ownership of the derivative stays where the open interest is, and the ownership of the index where the index is. There would be a lot of complexities to be worked around in creating DLT solutions based on these instruments.”

One way to tackle the ‘network effect’ problem, suggests Chris Church, Chief Business Development Officer, Digital Asset, is to work with market infrastructures. “Market infrastructures drive market standards; they are regulated, they can roll out technology and they can roll out upgrades. So working with MIs is one of the ways we are overcoming the network effect,” he says.

Angus Scott, Director, Product Strategy and Innovation at Euroclear, agrees MIs can play a central role in taking blockchain mainstream. “A CSD/iCSD is the natural starting point – where the issuance is,” he says. “We are essentially in the registration business, so it’s interesting for us to explore if there are ways to evolve that business, and because of our history and regulated status, many different players approach us about blockchain.”

The likely central role of MIs in taking blockchain mainstream is also suggested by the results of a recent poll by the World Federation of Exchanges (WFE) and IOSCO, which show that more than 84% of the 200 trading venues and clearing counterparties affiliated to the WFE are either investigating or actively pursuing the applicability of distributed ledger technologies in financial markets.

Euroclear recently announced it is exploring the potential of using blockchain technology to create a next generation settlement service for the London gold market. It is working with blockchain infrastructure firm itBit and market participants to evaluate the use of distributed ledgers to remove the risks and reduce the capital charges related to the settlement of unallocated gold – ultimately making the London bullion market more efficient.

Another example of a market infrastructure taking the lead on blockchain is the recent creation by the Dutch Central Bank of a ‘blockchain development campus’

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CHRIS CHURCH, CHIEF BUSINESS DEVELOPMENT OFFICER, DIGITAL ASSET
for banks to congregate and share knowledge on the application of distributed ledger technology in the financial services arena. The new campus is expected to open in September 2016, with the aim of creating a central space for financial participants to collaborate with their peers across the country’s emerging blockchain ecosystem. The initiative was announced by the country’s recently appointed ‘fintech ambassador’, Willem Vermeend, at a conference organised by Holland Fintech and De Nederlandsche Bank. “There is a lot of creativity in the Netherlands,” stated Vermeend. “The problem is that I have spoken to 20 parties who do not know what each other is doing.”

A third example comes from Russia’s CSD National Settlement Depository, which has successfully developed and tested an e-proxy voting system running on blockchain. The prototype is based on the NXT distributed cryptographic platform, and uses ISO 20022 international standard for messaging. NSD has been working on the project together with DSX Technologies and the project’s open-source code is available on GitHub. Eddie Astanin, Chairman of the Executive Board at NSD, has said of the project: “After testing blockchain for bondholder meetings, we can extend the use of this technology to other business areas of NSD.”

Evolutionary not revolutionary

As Masters told the London conference, it will take time to make the transition to blockchain as a mainstream infrastructure solution. Indeed, for the most part, the predicted timeline for the tipping point to blockchain as the predominant underpinning of the financial markets remains in the 5-10-year range – largely because of the complexity of moving markets and integrating business flows. As Randall says: “The technology is available and it works. How long it takes for the technology to be integrated, adopted, regulated – obviously that is the long and short of the timeline at the moment.”

There has been an idealism in the thinking around blockchain, but there is good reason to be more practical. “It will take time for people to develop trust and employ this technology to do real transactions,” says Palatnick. “It is very likely that many financial firms’ books and records will still be around in 20 years’ time. Apart from Bitcoin, no asset has been on blockchain for any significant period of time.”

However, during the course of 2016 there has also been a growing emphasis on the need to show value in relatively short order. “It is important that distributed ledger technologies find an application that is a strong application before the crowd becomes disillusioned,” says Crook.

The good news is, though the technology is still immature, it is developing quickly enough to make early wins possible. Says Arjan van Os, Head of ABN AMRO’s Innovation Centre: “We have often experienced the technology
developing itself at almost the same pace as our experiment learnings. The blockchain and its capabilities are still at an early stage, for example smart contracts and the trade-off between transparency and privacy or payments and processing scalability. Another challenge is the promise of a radical different infrastructure versus the road ahead with numerous adoptability and interface challenges. Of course there are gaps, a lot of solutions are not ready to scale and there’s a need for standardisation – and every day we see more ‘blockchains’ popping-up. So we have reason to consider blockchain barely an adolescent – but one that is growing up pretty fast.”

As Scott at Euroclear, says: “In the first year of the disruptive technology movement, there were outlandish claims about moving from T+3 to T+0 and a fundamental change in the financial services industry. However, market participants have worked out the practical barriers are substantial. These sorts of fundamental market changes will take a long time. But I believe we will see some real systems emerge.” Adds Church: “We are up to 10 years from the tipping point where this technology is mainstream. However, if you look around almost every major financial institution is evaluating this technology, so within the next two years we will see deployments which have a material impact in financial services.”

Vayngrib at Tradle agrees: “I am amazed how fast blockchain captured the imagination of the whole industry, so this to me is an indicator that it’s going to go faster. And after some experimentation last year and continued experimentation this year we are seeing pilots with live customers coming down the pipeline.”

The prevailing view now seems to be that blockchain is no cause for panic – but should be taken seriously. As Patrick Lemmens, portfolio manager of Robeco New World Financial Equities, puts it in an article recently published by Robeco: “Let’s all calm down a bit. It is a very promising technology that could really shake up the financial sector. But blockchain is more likely to be evolutionary than revolutionary and to have an innovative impact rather than a destructive one.”

Scott at Euroclear makes a similar point: “In the first year of the disruptive technology movement, there were outlandish claims about moving from T+3 to T+0 and a fundamental change in the financial services industry. However, market participants have worked out the practical barriers are substantial. These sorts of fundamental market changes will take a long time. But I believe we will see some real systems emerge.”

Adds Church: “We are up to 10 years from the tipping point where this technology is mainstream. However, if you look around almost every major financial institution is evaluating this technology, so within the next two years we will see deployments which have a material impact in financial services.”
The industry hasn’t completely answered this question yet. “There is not consensus on how the financial industry will best use blockchain,” says Scott. “The basic premise is that financial operations in the wider sense are data management operations. Today, agreeing on this data is costly and time intensive. Blockchain will reduce the cost and time. The ledger is distributed more widely, enabling more control and there is immutability, so you can trust it better — in theory. In practice, getting to this point requires re-engineering of business processes around the different ways in which transactions could be done.”

That said, thanks in large part to the many use cases that have been investigated in recent months, we have some pretty clear indications of the business areas in which the first major implementations are likely to happen. “The biggest opportunities are around relevant use cases, for example in trade finance, clearing and settlement, asset and transaction recording and digital identity,” says ARJAN VAN OS, HEAD OF THE INNOVATION CENTRE, ABN AMRO.

Indeed, Credit Mutuel Arkea recently completed a pilot of an operational permissioned blockchain network to verify customer bona fides in compliance with Know Your Customer (KYC) requirements. The French bank currently serves 3.6 million customers and operates multiple systems to manage customer identity for different parts of the business. Using the open-source Hyperledger Project fabric, the software tapped into all valid existing evidence already stored in the bank’s multiple systems of record such as from mortgage applications, life insurance enrolment and bank account opening. Frédéric Laurent, COO Innovation & Operations, Crédit Mutuel Arkéa, said following the success of the initial pilot, it plans to federate the different silos of customer data across the bank to create a single ID data chain that can be used across all business processes.
Edward Budd, Managing Director and Chief Digital Officer, Global Transaction Banking, Deutsche Bank, told Finextra TV: “In 2016, blockchain has certainly come to the fore across cash, trade and securities, and we hear about it a lot, especially the use cases. There are certainly very credible use cases across almost all transaction banking lines.”

Fabian Vandenreydt, Global Head of Securities Markets, Innotribe and the Swift Institute at Swift, highlights two: “Trade finance is a good case, because it is so document intensive, and there is also a lot of interest in post-trade securities clearing and settlement. That has gone past hype, and is a real topic now.”

Trade finance and securities are indeed two areas on which blockchain efforts have been focused. Both leading blockchain industry consortia, Hyperledger and R3, have claimed success in demonstrating the value of distributed ledgers in trade finance transactions – Hyperledger with Bank of America Merrill Lynch, HSBC and the Infocomm Development Authority of Singapore, and R3 with banks including Barclays, BBVA, BNP Paribas, Commonwealth Bank of Australia, Danske, ING, Intesa Sanpaolo, Natixis, Nordea, Scotiabank, UBS, UniCredit, U.S. Bank and Wells Fargo.

Meanwhile among many announcements related to trials and proofs of concept in the capital markets arena, Japan Exchange group has recently talked up the transformation potential of blockchain after two pieces of work, one applying the technology to decentralise information and resist data tampering when managing stockholders’ accounts and the second in low volume markets. In a report on the outcomes, JPX said: “We have concluded that DLT has the potential to transform capital market structure by encouraging new business development, improving operational efficiency and contributing to cost reduction.” The exchange did however point out that a number of technical issues need to be resolved, including data privacy control and throughput capacity in high volume markets.

For Crook at RBS it is important to recognise the commonalities between the use cases which have the most potential to be addressed by blockchain. “Broadly, we see the potential in the periphery of the bank,” he says. “The three we would look at are the securities market, alongside our investment banking business, domestic and international payments, and in our corporate bank for trade finance, for example. These three use cases all have a common theme of needing a shared ledger – which no one needs to own. The benefits of operational efficiency, improved customer experience, improved speed and reduced costs are also relevant to all three.”
Højgaard at Coinify – which has recently partnered with Danish payments company NETS for development of distributed ledger-based products and services – also identifies payments as a blockchain sweetspot. “I hope that we can make the cheapest and fastest money remittance solution someday, enabling hardworking people to send money home to feed their families without paying ridiculously high amounts in fees to the money industry’s many middlemen,” he says.

Indeed, speed of blockchain adoption in payments does seem to be gathering pace. Visa Europe recently announced it is looking for banking partners to participate in a pilot project exploring the application of blockchain technology in domestic and cross-border funds transfers. The project will be run by Visa’s innovation unit, Visa Europe Collab, in conjunction with Vancouver-based blockchain outfit BTL. Separately, a consortium of 15 Japanese banks are to work with blockchain joint venture SBI Ripple Asia to build a new payments platform promising round-the-clock real-time settlement for cross-border and domestic funds transfers.

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PATRICK LEMMENS, PORTFOLIO MANAGER, ROBECO NEW WORLD FINANCIAL EQUITIES
Given the energy being poured into blockchain experimentation by banks and other financial institutions both collectively and individually, it is unsurprising to find no shortage of possible use cases for the technology in the financial industry. In fact, a number of observers suggest there have been too many and that there is a requirement to focus on the cases where there is real need and potential.

Since joining Digital Asset (he was previously CEO Americas and Global Head of Securities at Swift), Church has helped focus the number of use cases which Digital Asset is working on, he says. “People come to us to looking to solve a broad range of projects on a blockchain, and often it’s the best choice, but sometimes we advise that traditional technologies are the better option,” he says. “Distributed ledger technology is great if you need a shared, immutable, single version of the truth. We will always encourage customers to think about why and whether blockchain is the best technology for their use case and if there is a real business need that leverages the benefits of distributed ledger technology.”

**Internal first?**
The appropriateness of blockchain as a solution is an important consideration when it comes to deriving true value, observers agree. One way in which it has been envisaged that financial institutions will first extract that value is through internal applications. As Liang at State Street points out: “When you are a financial services company as big as State Street, you can pilot internal applications – moving some internal systems to an internal distributed ledger, spanning buy and sell sides.”

Randall at SETL sees use by a single bank as a perfectly valid blockchain implementation. “Say one bank currently keeps Excel spreadsheets of its various private equity investments – just its own positions in private equity start-ups. Currently there is no way, or at least no easy way, to efficiently record this in a standard way across the bank. This could be one example of a bite-sized blockchain project.”
Crook agrees that from a “road testing perspective”, using distributed ledger technology internally would “be a perfectly normal way of field-testing a technology before releasing it into the world”. Given how large and distributed some banks are, this type of use of blockchain could also make sense both politically and socially, he adds – but perhaps not economically. “We would question whether distributed ledger is a good technology to use internally,” he says. “If you have the ability in your organisation to reach someone further up with control over both sides of a business, you wouldn’t need a distributed ledger – you would need a database, so the applicability of the technology becomes a concern.”

**External forces...**

When it comes to blockchain’s journey from experimental use cases to mainstream deployment, financial institutions may not call all the shots. As Teri Fisher, Scouting & Research, RBS, points out: “Although we are absolutely seeing collaboration among banks, with technology companies joining the collaboration, we are also seeing governing bodies getting involved, like the Isle of Man for KYC, and the Estonian government for health records. These developments could be significant in taking distributed ledger into the mainstream.”

Budd at Deutsche Bank also highlights the importance of this trend. “The part that is slightly outside my expectation in 2016 is the amount of momentum blockchain is getting outside financial products – in government, in automotive, in utilities, in pharmaceuticals – and this ultimately may define the actual financial products that we are looking to deliver to our customers,” he told Finextra TV.

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“We would question whether distributed ledger is a good technology to use internally. If you have the ability in your organisation to reach someone further up with control over both sides of a business, you wouldn’t need a distributed ledger – you would need a database, so the applicability of the technology becomes a concern.”

RICHARD CROOK, HEAD OF INNOVATION ENGINEERING, ROYAL BANK OF SCOTLAND
The journey to scale
The impact of these variables notwithstanding, there is some agreement among observers as to how we are likely to see blockchain implemented at scale. One route could be for blockchain to be deployed to underpin processes in new markets – Randall’s idea of new shares issued directly to the blockchain. Another could be for the technology to be used to automate niches which are ‘under-serviced’ today, as Scott describes the opportunity – “for example, areas of the capital markets that are bilateral”. “This is the mobile phones in Africa example – skipping a generation of technology,” he says. Randall cites something similar – suggesting a group of banks in a given market that have been swapping assets and liabilities between them outside the banking system could very well put this activity on the blockchain, for example.

In this vein, a seven-strong consortium in France has formed to investigate the development of a post-trade blockchain infrastructure for SMEs in Europe. BNP Paribas Securities Services, Euronext, Société Générale, Caisse des Dépôts, Euroclear, S2iEM and Paris Europlace are combining their money and expertise in the hope of harnessing distributed ledger technology to improve SMEs’ access to capital markets, reducing transaction costs and making raising funds easier. “By pooling our strengths in this ground-breaking area, we are focusing on new solutions that will give small and mid-sized companies – key actors for growth in Europe – easier access to the financing they need. With this project, we are securing the means to seize opportunities that blockchain distribution can offer: speed of execution, low cost and security,” the consortium said in a statement.

Scott sees another route as the use of blockchain to improve management of data for specific processes in the market – so, for example, a blockchain accounting system for assets, for mobilising collateral or addressing the challenge of asset segregation, he says.

The most direct route of all would be “whole market re-engineering”, as Scott points out. This opportunity is related of course to the role of MIs in proliferating blockchain use, and the most high-profile example of this in the works currently is the project under way at ASX, involving Digital Asset Holdings, to investigate the potential to replace the Chess securities settlement system with a blockchain-based solution. The replacement of CSD systems could prove a rich seam for blockchain, Scott says. “A lot of these were built in the 1990s, and getting to 20 years old. Their life is probably 25-30 years, so these entities will need to start moving to new platforms in the next 5-10 years. Blockchain could be very relevant here, especially if it can bring wider benefits in terms of more services or much reduced costs.”
Two of the initiatives DTCC is involved in around blockchain reflect the opportunity types outlined above. As Palatnick explains, one is a partnership with Digital Asset Holdings focused on repo processing. “We saw that blockchain could provide a way for all parties included in a repo trade to agree on trade terms more quickly,” he says. “Clearing and settlement using distributed ledger technology could also present an opportunity for risk and capital reduction.” DTCC is currently working to prove the technology internally in this capacity, before rolling out the second phase involving market participants.

DTCC is also exploring the possibility of using blockchain as a replacement for its Trade Warehouse, a system that is more than 10 years old, built to record credit default swaps (CDSs) transactions. “We believe that blockchain has the potential to enable cost reduction in this area. We have successfully tested blockchain to manage post-trade lifecycle events for CDSs with Axoni and a number of global banks, and we are now working with the industry on an RFP phase.”

The combination of an MI driving the process and the cutting over of an existing group of users to a new version of a system they are already using (to tackle the network effect challenge) could prove a powerful lever for mainstream blockchain adoption.

ICAP, for example, has performed a POT blockchain use case replicating its Traiana Harmony network, which carries the majority of prime broker flows for OTC spot FX, creating a node for each participating bank. In this context, ICAP has successfully digitised contracts, created a golden source of data, and proved that data can be read and written on a permissioned basis and persisted out to a distributed ledger. The POT will continue, moving on from using post-match data to doing the match in the new environment, and the concept ultimately would be to “run the blockchain-based service in parallel, with a view to switching the banks over from one service to the other”, says Thompson of Traiana.

“We saw that blockchain could provide a way for all parties included in a repo trade to agree on trade terms more quickly. Clearing and settlement using distributed ledger technology could also present an opportunity for risk and capital reduction.”

ROBERT PALATNICK, CHIEF TECHNOLOGY ARCHITECT, DTCC
“This would not be a significant leap. Harmony is already a trusted network. Blockchain is just a different technology. So it would not be that difficult to transition. We believe we can play a role as a network already interacting with banks – and the unique success factor is that the banks already trust our data. Today we tell them via messages. In the future they will see it in the distributed ledger.”

Keep it simple
One reaction to the plethora of use case investigation that has characterised the 2016 approach to blockchain in financial services, is a call to focus on ensuring a strong foundation for future innovation in this area. Said Budd from Deutsche Bank: “I think there is consensus that blockchain needs to be applied to more simple steps, so that we start to move forward in a practical sense.”

Crook echoes this view. “We are seeing a tremendous amount of exploration into very complex higher order use cases and applications,” he says. “If there were a call to arms, it would be to focus on the original use cases of the technology – such as domestic and international payments and clearing and settlement, well-understood and well-recognised as areas in which blockchain is applicable – to solve those first to prove the technology, and give ourselves a credible base, before then moving on to the harder, higher order use cases.”

This is a timely reminder that for all its great potential, outside the Bitcoin blockchain, the technology is unproven in a mainstream financial services application. As Curtoni at LSEG says: “Blockchain does give us a new option to improve resilience, security and redundancy of financial transactions, and it does present the opportunity for efficiencies to be increased. We are convinced of blockchain’s value – but we still have to prove it. As a trusted global infrastructure provider, we must be convinced that it does improve services for the market – and that it doesn’t introduce risks that are not fully understood.”

“\[quote\]
“I think there is a consensus that blockchain needs to be applied to more simple steps, so that we start to move forward in a practical sense.\""
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Curtoni: We are convinced of blockchain’s value – but we still have to prove it

Edward Budd, Managing Director and Chief Digital Officer, Global Transaction Banking, Deutsche Bank
One observer tells an interesting anecdote about presenting on blockchain to the members of a trade association for syndicated lenders. As everyone who follows blockchain will know, syndicated lending has been the subject of quite a high profile POC of distributed ledger technology. However, the first question from the group of syndicated lenders was, what is blockchain?

For Liang at State Street, this is proof that blockchain is a “disruptive not sustaining” change. “Sustaining is where customers say what they want and this leads to incremental improvements being made,” he says. “Disruptive is where customers don’t see the change coming, it’s so far under cover and hidden – and we have to do more experimentation.”

Another view could be that a critical community – the practitioners within industries set to be revolutionised by blockchain – are seriously behind the curve in terms of knowledge and understanding. Indeed, State Street recently carried out some research among asset managers and owners specifically to find out what its customers understood about the technology, says Liang.

“The interest level is high, but the understanding of what it could mean is very low,” he says. “One of the aspects they were most worried about was security, which is really interesting because the technology is specifically designed with security in mind – immutable data, non-repudiable transactions et cetera. This is probably because they hear about incidents like the Ethereum DAO hack and don’t understand that the blockchain as it is likely to be implemented in financial services is similar but different. There is clearly a need for education about blockchain still.”

Consistent with this, a new report from Greenwich Associates showed that of the 134 market participants it surveyed, 63% remain concerned about distributed ledger technology security, with 56% citing transaction confidentiality as a major security worry.
Quaranta at the WSBA says “the biggest challenge is education”. “Our members are running into the realisation that they don’t have the expertise – the product expertise at scale – to do what they need to do,” he says. “Over the past two to three years there has been a lot of self-education – some entities have popped up to teach people blockchain 101 – but what the industry needs is a formal certification framework.” The WSBA is launching such a framework built around online and in-classroom training, he adds.

ABN AMRO’s van Os agrees more education is needed. “We’re still in the very early stages but already education is required to increase understanding, both from a business model and a technological viewpoint. There is not much proof out there of working blockchain applications yet, so ‘learning by using’ is not happening today,” he says, adding: “We have so far been able to access enough developer expertise, but we need to be creative in accessing more given the increasing demand for blockchain experiments. Sometimes an experiment is run together with a partner and we will continue this approach to grow available expertise and learn faster by co-creating.”

What is critical here is financial services context, believes Thompson at Traiana. “What we need to do – and what we need our partners to do – is bring together the technology with a good understanding of the financial industry,” he says.

Alexander Yakovlev, Head of Distributed Settlement Systems at Russia’s CSD National Settlement Depository, agrees. “Blockchain is quite well understood among IT developers. The challenge is finding people who can apply blockchain to a business case in our industry.”

There are some inherently new features of distributed ledger technology which present a challenge from a knowledge perspective, points out DTCC’s Palatnick. “There’s no history of financial firms integrating with general distributed ledger systems,” he says. “Today, firms rely on the fact that they can modify and customise systems they use. The idea of a distributed ledger is built upon the idea that everyone is using the same type of system. Integrating with a general distributed ledger system would therefore mean that every firm uses the exact same ledger system, including all its pre-existing definitions and tools, and that’s new.”

If securing and maturing the right levels of technical understanding within an organisation are one challenge, then gaining and keeping business buy-in can be another. There is a need to build internal support, says Curtoni at LSEG. “We started with the technology, sponsored by the COO, and then we quickly moved on to securing business support. We created an internal working group across all relevant business entities and we shared what the technology could do and what other players in the market were doing. We have got buy in and we are working well with the business. Obviously
specific asset classes and areas of the business are more prone than others to test and prove emerging technologies. The key is to bridge the gap between technical and business knowledge, and create a ‘fil rouge’ that encompasses all the key stakeholders.”

**Does the business case stack up?**

The enabling of significant structural cost savings is key to the business case for blockchain, as so plausibly argued by Masters at Digital Asset Holdings among others. The estimated $1 billion invested in blockchain so far (and even the $1 billion Greenwich Associates says financial services firms and technology providers will spend this year alone in bringing blockchain to the capital markets) pales by comparison with the predicted savings: $6 billion a year globally in clearing and settlement according to Goldman Sachs; $15-20 billion a year in infrastructural costs by 2022 according to Santander InnoVentures.

But how accurate can these numbers be, given the significant unknowns around blockchain? And are these estimates taking into consideration all the necessary factors? As Palatnick at DTCC says: “Cost is enigmatic. We have read a number of white papers about the notion of cost reduction of leveraging distributed ledger technology in the post trade space, but there are not any existing use cases to validate those notions and not a lot about the cost of conversion and cost of ongoing support.”

Vandenreydt at Swift echoes this. “It is important to remember the true cost of interoperability and co-existence – and transitioning between current and future states,” he says. “When they do the business case for something new, people tend to over-inflate the benefits and under-estimate the costs. They calculate the business case as if everybody were going to adopt the same thing in the same way tomorrow. In fact, there is the cost of building, deconstructing and interoperability – which can be for an unknown period of time.”

Building an accurate business case is made more complex by the lack of a track record for blockchain on which to draw, adds Palatnick. “Blockchain can help to reduce costs and improve operational efficiency, but there currently is no solid business case which could be used as a reference point,” he says. “What is more, implementing a replacement system has clear cost implications.”

There is also a potential mismatch in timings between the ROE challenge banks face today, and the timeframe during which blockchain is likely to yield the structural cost savings that will help. As Scott at Euroclear says: “If you have a P&L problem today, blockchain is not the answer.” That said, we should keep a sense of perspective, says one observer. “Yes, ROEs are depressed, but the banks aren’t going anywhere right now. Distributed ledgers don’t have to be delivered next Thursday to deliver value here.”
Are scalability and performance still a problem?
Views on the fitness for purpose of the technology in the financial markets still vary. For Knott at ICAP, “the single largest challenge is scalability”. “For certain activities we need a very low latency environment that has yet to be proved,” she adds. “We can work around it at the moment, but if blockchain is going to be a golden source for everyone it would be a challenge we need to solve.”

Randall at SETL on the other hand insists the speed and capacity issues of blockchain have been solved. Key to this is operating a permissioned blockchain, he explains. “When you operate in a permissioned system the big assist you get is you can use very light, very quick consensus algorithms. A blockchain that can do 60 transactions a second with steam coming out of the sides is pretty useless in a financial markets environment – 60 transactions is a cash machine network for a very small bank. Even Swift’s 15-25m messages a day are trivial in contrast to the number of derivatives messages generated every day. Because we have solved scale, capacity and speed we can support markets like that. We have also demonstrated the ability to send assets from one chain to another. Once you can do that, you can run chains in parallel, and then there is no end to the scale – if you want more capacity, you add another chain.”

Whether blockchain is production ready today or not, there is certainly widespread confidence that it will be in good time for when it’s needed. “We are seeing a focus on security, performance, scalability and resilience which will make it ready for the financial services industry,” says Crook at RBS.

“What we have seen over the past year is that the industry has developed a better understanding of blockchain. We have seen expert technologists begin to unpick the blockchain offerings, finding out how they work and where they could be strengthened – and there is a realism beginning to show through.”
DOUGIE MCNEILL, HEAD OF RESEARCH, ROYAL BANK OF SCOTLAND
“There is a broad family of distributed ledger technologies – at one end, distributed databases and at the other end, tokenisation. Each of the applications requires different technologies and we would expect to see the broad family of technologies start to come apart as we recognise we should fit the technology to the problem, not the problem to the technology. The technology itself will continue to grow and mature and will reach a point where it’s safe to use.”

Scott at Euroclear agrees. “Could a firm build a production-ready blockchain CSD tomorrow? Probably not, but the project itself would take a few years to complete. The technological hurdles are yet to be solved, but given the big names and money involved in building this technology, it will evolve. It’s not a constraint.”

While the hype about and levels of investment in blockchain may seem to mark it out as extraordinary, in fact observers suggest it is following a fairly standard pattern. “Traditionally the first phase of any new technology development involves academic discussions in a number of technical journals. Thereafter, financial services firms begin to test it in a lab environment,” says Palatnick. “We have seen this happen with the evolution of databases, client servers, the original internet, Java, and Linux. As they evolved, different versions of these technologies emerged, with various companies entering the space, eventually proving the technologies’ resiliency and security.”

Crook agrees. “What we are seeing is the normal progression of technology. The expectation begins by outrunning reality, then we see a realism coming in,” he says. His colleague at RBS, Dougie McNeill, Head of Research, adds: “What we have seen over the past year is that the industry has developed a better understanding of blockchain. We have seen expert technologists begin to unpick the blockchain offerings, finding out how they work and where they could be strengthened – and there is a realism beginning to show through. We are seeing people working on constructively finding out where it needs to be strengthened, and positioning the different technology offerings relative to each other.”
Will we have the standards we need to implement blockchain industry-wide?

The fact that there are different technology offerings to compare could be viewed as a challenge in itself, of course. Indeed, for van Os at ABN AMRO, one of the biggest challenges for blockchain in the next 18 months is to achieve “a consolidation of technologies, requirements and ecosystems”.

Again, some position this initial diversity as perfectly normal. “When a new technology first emerges, new improved versions of it come out very quickly,” says Palatnick. “The velocity at the beginning is tremendous, and everything that’s created early on ends up being rapidly replaced. Typically, technology can be considered stabilised only after the first few versions following its launch.”

Others echo the view that the picture is already becoming clearer. “The way we started on this journey was by playing with the technology because that’s how it came out, through Bitcoin and virtual currencies. We had – and still have – internal capabilities from an engineering perspective, and once we had tested the various technology approaches – Bitcoin, Ethereum, open assets protocol, and various proprietary solutions – we understood that the way to go was open source, through the Linux Foundation, and that’s where we are now with the Hyperledger Project.” The way the output of the Hyperledger project will be deployed will be similar to Linux, Curtoni says. “Hyperledger won’t give us everything. We will take as much of the stack as we need, and deploy it in a way we are comfortable with.”

While it is tempting to see a potentially problematic tension between the various blockchain ‘fabrics’ – Ethereum, Hyperledger, Corda – observers caution against making too much of the likely impact of this on the technology’s future progress. Again, some position the current situation as being well within expected norms. “At the beginning of the internet there was no Google – and you couldn’t have seen at the outset that Google would dominate,” says Knott at ICAP. Palatnick adds: “For example, when databases were introduced there was no standard query language: that only evolved over a number of years.”

Church of Digital Asset – which has contributed code and the brand name to the Linux Foundation’s Hyperledger Project – acknowledges that one of the barriers to blockchain’s further development could be “coalescing around a standard fabric”. However, he says, open source initiatives like Hyperledger could solve this. “Hyperledger is focused on financial services, it involves the big MIs, the big technology providers, the banks and the blockchain companies: it has all the ingredients needed to get a 360-degree view of what’s required for financial services,” he says. “It’s leveraging the insights of the blockchain world, and the insights of the financial services companies, and we think it’s got a very good chance of being the standard.”
Be that as it may – and notwithstanding the overlaps between the groupings in play already – the fact remains that more consortia are appearing all the time. Notably a group of Russian banks recently banded together to create a national blockchain consortium to engage in joint development and testing of prototypes, information sharing and standardisation. The group comprises QIWI Group, Accenture, BINBANK, MDM Bank, Tinkoff Bank and Bank Otkritie – and the latter’s Director of Innovations, Alexey Blagirev, commented: “Collaboration with major players in the banking sector and the participation of the regulator will allow us to create and test new approaches, such as joint settlements, simplifying the customer identification procedures.”

Meanwhile, 31 institutions have united under the umbrella of the Financial Blockchain Shenzhen Consortium (FBSC), which held its founding conference in May this year. FBSC aims “to integrate and co-ordinate research resources in financial blockchain technology to create synergy and co-ordination mechanisms for financial blockchain technology research and development; improve member companies’ research ability in financial blockchain technology, and to explore, develop, and realise applicable financial blockchain for financial institutions and application scenarios based on blockchain.”

Scott at Euroclear says if there is no single, unified version of blockchain, and if there are interoperability challenges, “it’ll be an issue when it happens, and it will have to be dealt with”. It would be better to avoid this – but it would not be the end of the world to resolve it. And, as Peisl at RISE points out: “The risk of fragmentation and incompatible blockchains? We already have a big mess: would we be making more of a mess? No. Because as soon as one asset is moved on to a blockchain, you’ve simplified a process and made things easier. With every asset moved over to a distributed ledger technology, we improve the industry. Overall we can only improve the situation.”

“The risk of fragmentation and incompatible blockchains? We already have a big mess: would we be making more of a mess? No. Because as soon as one asset is moved on to a blockchain, you’ve simplified a process and made things easier.”
THORSTEN PEISL, CHIEF EXECUTIVE AT RISE FINANCIAL TECHNOLOGIES
There is some discussion about whether an overt attempt to create a standard is the best way to achieve the standardisation goal. As Randall says: “Do we really think a bunch of people sitting out in the West Coast building standards around blockchain will pass muster with the banks? Standards get created when the industry takes something that works and converges on it – as we saw with FIX.”

The ‘get going’ (versus the ‘purist’ view) of standards certainly could prevail, suggests one industry expert. “My personal view is that the technology on which we converge won’t necessarily be the best. It’ll be the technology that is embraced by the early movers,” he says. “It might be 80–90% right, but will get the majority on board.” Vandenreydt at Swift agrees. “Look at the VHS/Betamax case: it’s not necessarily technology superiority that wins out.” Scott cites the example of Bloomberg, which “didn’t wait for the industry” to agree on a standard, but rather pursued its business, and as a consequence became the de facto standard for financial information”. In a similar vein, the blockchain fabric that gets the real-life customers will be the one that wins, reckons Liang at State Street. “The first company to get customers will be real. It’s a race,” he says. “Perhaps more like a marathon than a sprint, but we have to start running nevertheless.”

Rushing too soon to standardise around blockchain could be a mistake, warns Budd from Deutsche Bank. “There are some great initiatives, both within commercial consortia and traditional industry bodies, that are making sure that standards are explicitly part of the journey and even some open source projects,” he told Finextra TV.

“But it is important that we get the full opportunity of this innovation, that we don’t stifle it before it has fully emerged,” he cautioned. “What will help us here

“The first company to get customers will be real. It’s a race. Perhaps more like a marathon than a sprint, but we have to start running nevertheless.”

HU LIANG, HEAD OF STATE STREET’S EMERGING TECHNOLOGIES CENTER
is to focus on the areas where we really need standard approaches. For example, how do we transfer assets between ledgers, to get some interoperability and to deliver processes like DVP? Or, probably most importantly, how do we minimise the cost of adoption, how do we make sure this is inclusive by setting standards around data ramps on and off ledgers?”

There is also a risk that an early win by a less functional technology solution could ultimately undermine the effectiveness of blockchain going forward, as one observer says. “An initial bet might undermine future technology, if a superior blockchain solution comes up and the big players have already made their strategic investments,” he points out.

But observers suggest the bigger standardisation and implementation challenges around blockchain relate to business process aspects rather than technology. As Ametrano of Intesa Sanpaolo told Finextra: “Blockchain will require us to restructure some legacy processes. If you think about algorithmic trading, we can trade equities in two or three seconds. If our settlement then takes two or three days, this is not because of a technology deficit – it is because of checks and balances we want to have and have relied upon. So we might have to revise this kind of process.”

Knott from ICAP also emphasises the necessity of rethinking business processes to enable the power of blockchain to be exploited. “Technology is only an enabler when you have a completely re-engineered business process,” she says. “We have to learn from 30 years of mistakes and start with the business process – and use technology as an enabler.” Scott from Euroclear agrees that the real challenge will be “realising the technology into a viable business process”. “How blockchain interfaces into business models, how you iterate between what you need to do business and what the technology offers – that is time-consuming,” he says.

“How blockchain interfaces into business models, how you iterate between what you need to do business and what the technology offers – that is time-consuming.”

ANGUS SCOTT, DIRECTOR, PRODUCT STRATEGY AND INNOVATION, EUROCLEAR
**07**

**WHAT IS THE PRAGMATIC APPROACH TO BLOCKCHAIN FOR FINANCIAL MARKET PARTICIPANTS?**

**Take your time...**

The ASX’s possible project to replace Chess with blockchain is the focus of a great deal of attention. It will be a significant development, putting a blockchain at the heart of a major mainstream financial market and likely putting some stakes in the ground around blockchain fabric and implementation standards.

It is worth noting though that ASX’s Hiom emphasised in his recent speech that the exchange is in no hurry. “For our part, we believe the potential of the technology to improve post-trade efficiency and reduce costs is genuine,” he said, adding: “Our market is a complex organism, and there is a terrific opportunity for us to simplify how it works. In doing so, we can unlock a new era of collaboration and innovation. We also know that proving it – and doing it – will take time, resources and hard work. We do not underestimate the substantial task of replacing Chess. It is a functionally rich platform on which our customers have ‘barnacled’ their own processes and bespoke technologies. Its replacement will take several years to complete – whatever technology we use. Our first aim must be to fully assess the technology. There are important questions regarding scalability, security and performance that must be answered. And we must ensure that the current processes of our equity market can be performed by the new platform.”

While we have clearly seen a desire not to be left behind by blockchain developments, now that a more realistic approach is setting in, it is a viable approach for some firms to take a step back. As Curtoni at LSEG says: “You need to understand whether blockchain has an application in your business. Not everyone has to invest in this, and sometimes you don’t have to be the one to do it. I would say, think about your business processes, create collaborations around solutions to your business needs, and let go of the technology work where appropriate once you understand what this technology does.”

Hiom: Blockchain can unlock a new era of collaboration and innovation but it will take time
In short, there is time, and if, as seems likely, much of the implementation of blockchain will be market infrastructure led, the pressure on individual firms is somewhat alleviated.

“We are never going to see this Big Bang change because of blockchain – and all wake up one day in 2017 to find everything running in distributed ledgers,” says Quaranta of WSBA. “I believe it will begin to seep into the fabric of how the financial markets work, first for the cost savings, and over time evolving so that we will see new instruments, processes and assets based on smart contracts, digital currencies and digital assets in the various functions we all play.”

... but don’t waste time – or money

Though the total investment in blockchain may be tipping the $1 billion mark, spread across the industry and all its consortia this doesn’t represent huge spend per firm. However, in this area – as in all areas – firms should beware spending unnecessary money – and time – on blockchain investments that go nowhere. For a start, as Curtoni at LSEG, says, “there are many ways to understand what the technology entails without spending money”. Adds Scott: “A lab with five people doesn’t cost much. But that said, in a market environment in which discretionary budgets have been cut to the bone, a firm at some point will ask, why are five people doing experiments and not working on keeping customers happy? Firms are not going to run these projects indefinitely. There is not a blank cheque for blockchain.”

Delivering value from investments in blockchain in the short term as a basis to build on for the future will be important.

“I believe blockchain will begin to seep into the fabric of how the financial markets work, first for the cost savings, and over time evolving so that we will see new instruments, processes and assets based on smart contracts, digital currencies and digital assets in the various functions we all play.”

RON QUARANTA, CHAIRMAN, WALL STREET BLOCKCHAIN ALLIANCE
Accept small victories...
While it will take time for blockchain to deliver its full promise, it is important to remember that there are steps on the journey that will yield value in themselves. As Knott at ICAP says: “Creating a digitally binding contract is very helpful. It’s a great step on from managing messaging flows, and that’s already new for banking and has a hugely positive benefit, whether we distribute it through email, file upload or blockchain.”

In a similar vein, Church says some of the first implementations will be incremental – rather than moving to a fully decentralised system on day one. “You can phase in this technology and gain many of the benefits of distributed ledgers which use more robust technologies and sophisticated cryptography without rushing to a fully decentralised architecture,” he says. “This is all very doable, while the fabric and consensus mechanisms continue to mature and become more enterprise grade ready.”

... and anticipate and evolve for significant change
The hype around blockchain is certainly settling into a more measured discussion about how to extract real benefits from the technology. Nonetheless it’s a topic that continues to inspire some exuberant analogies – which not only add colour to the debate, but also serve to effectively elucidate the likely ways in which distributed ledger technologies will impact the financial industry.

For Coinify’s Højgaard, there is a parallel to be drawn with the car industry. “We have traditional cars (banks) with tons of components in their engines, which are expensive to maintain and dependent on gasoline (the price of which is influenced by governments). Then we have Tesla (blockchain). Suddenly you have a car that is faster, better, cleaner, made with far fewer components and not dependent on the same fuel. The gas and engine industries are initially terrified, and ask how they make money in this new world. Now, almost all car manufacturers produce hybrids and are slowly adapting to a new way of building cars, and building a new business model around it. In the future, we will all drive in 100% electric cars,” he says, adding: “Banks are in the early stage now of building the first hybrid version.”

Observers also frequently make parallels with the development of electronic trading. Randall at SETL clearly believes that blockchain can do to post-trade what alternative trading systems and ECNs did to the trading environment – and warns against complacency around the likelihood of major change. “In 2005-2007 when we started Chi-X nothing was preventing the established exchanges from taking matching systems off the shelf and building communities around them. People will say things will never work – but they do.”
Scott at Euroclear also references the development of electronic trading. When the ATS/ECN debate was happening, there was a view that it would fundamentally change the industry. At one level, this didn’t happen: the major exchanges are all still here, and still have all the significant broker dealers using them.

“But on the other hand, equities trading looks completely different. The economics have fundamentally changed. Equities trading is now a low margin, commoditised business because of the electronification of exchanges and the growth of algorithmic and high frequency trading. We have seen the front office transformed, but the back office is still the same.”

In short, though it will not be immediate, history tells us that in the medium to longer term, the prospect of blockchain heralding a fundamental change in the financial services industry, not just at the technology level but at the business level as well, is very real.

In this context, a pragmatic approach to leveraging the technology in ways that make the most sense for each individual institution’s business is a sensible strategy, to avoid the excesses of hype, and to maximise the opportunity to generate genuine value from this much talked-about development.

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MARK HØJGAARD, CEO AND CO-FOUNDER, COINIFY
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