

THE IMPACT OF DLT ON FINANCIAL MARKET INFRASTRUCTURES

Distributed Ledger Technology (DLT) has obvious appeal to financial market infrastructures looking to contain risks and costs and increase efficiency. Members of the Sibos Geneva 2016 panel on “Innovation in CSD Space: What about distributed ledger technology?” agreed that DLT was more opportunity than threat, but advised market infrastructures to test applications in non-core services first, and to collaborate on the development of standards and best practices, inter-operability between systems, cyber-security and governance.

Distributed Ledger Technology (DLT) is being tested by central securities depositories (CSDs). Increasingly, their senior management senses that DLT could reduce costs. At a time when operating expenses and regulatory overheads have risen significantly, this has obvious appeal.

“DLT is a new technology tool, which could be used to address risks and costs in select portions of the post-trade process, and it is a natural progression for our business,” said Robert Palatnick, Managing Director and Chief Technology Architect at the Depository Trust and Clearing Corporation (DTTC). “Volumes, margins, costs and regulations are all converging with innovations from the Fintech sector, creating a perfect storm of conditions for the industry to evolve from a technology perspective.”

Others see DLT as threat rather than cost-cutting opportunity. They argue that the current role of CSDs, and of central counterparty clearing houses (CCPs) and custodian banks, could be disintermediated by the new technology.

This almost certainly exaggerates the likely impact of DLT, since critical market infrastructures (CMLs) such as CSDs will continue to play a governance role at least in any DLT-based services that are developed. Indeed, CMLs are in practice likely to play a role that extends beyond far beyond governance alone, especially in areas such as operational risk management and the provision of credit.

Sceptics doubt DLT will have even these limited effects on CMLs. They argue the technology has the potential to streamline internal business processes, but believe widespread adoption –through, say, the provision of openly accessible public distributed ledger networks – is unlikely.

The truth probably lies somewhere between the views of the enthusiasts and the sceptics. Considered collectively, the purpose of the multiple panels on DLT at Sibos in Geneva this year was to establish where that golden mean lies. In other words, how is DLT going to change the way in which CSDs and other CMLs actually operate?

“DLT is a new technology tool, which could be used to address risks and costs in select portions of the post-trade process, and it is a natural progression for our business.”

- Robert Palatnick, Managing Director and Chief Technology Architect at the Depository Trust and Clearing Corporation (DTTC)

“There are enough business leaders who have seen, first-hand, waves of disruption, and the impact this has had. ”

- Cliff Richards, General Manager, Equity Post Trade Services, at ASX Limited

This was the question addressed directly by members of the panel entitled “Innovation in CSD Space: What about distributed ledger technology?”

Market infrastructures are testing DLT in limited areas, not core services

Members of the panel argued managers of CMLs are mindful that DLT is going to play some role in their businesses in the future, but do not see it any longer as an existential threat.

“There are enough business leaders who have seen, first-hand, waves of disruption, and the impact this has had,” said Cliff Richards, General Manager, Equity Post Trade Services, at ASX Limited. “These individuals are all too aware of the case studies of organizations and businesses that have been disintermediated. Initial fears that sections of the post-trade space would be disintermediated have receded, and the focus is now on understanding the benefits that are implicit with DLT.”

ASX is a DLT proponent of longstanding. It has partnered with Digital Asset LLC to implement a DLT-enabled solution for its post-trade clearing and settlement services in the Australian equity markets. It expects the new solution eventually to replace its existing Clearing House Electronic Sub-register System (CHES) settlement platform.

Other CMLs are testing applications of DLT. The DTCC, for example, is trialling DLT in the post-trade processing of transactions in the United States Treasury repo and credit default swap (CDS) markets. Artem Duvanov, Director of Innovations at the National Settlement Depository (NSD) in Moscow, added that the Russian CSD is exploring the contribution DLT can make to improve efficiency in corporate actions processing and the voting of proxies.

All of these trials are at the proof-of-concept stage only. CMLs will not rush decisions to implement DLT solutions if there remains any concern that risks will increase or remain unaddressed. “There will always

be risk in change, and project risk must be carefully managed,” explained Cliff Richards of ASX. “ASX is carefully monitoring all developments in this area. However, we have ensured that different business lines, such as technology, operations and product experts, are collaborating in our DLT implementation project.”

This cautious approach by CMLs means that DLT is unlikely to disintermediate current market infrastructures, at least in the near future. On the other hand, a poll of the audience conducted during the panel session found a majority of attendees expect DLT to be adopted wholesale within the next five to ten years.

However, there remains a high degree of uncertainty over how DLT will develop as a technology, and as an architecture, and in terms of the services it could support. This means any predictions about timeframes are unusually bold.

“Discussions around the potential of DLT in the CSD realm are important, but the practicality of replacing a core system with the new technology is almost like requiring the digging up and re-laying of roads before launching Uber,” said Virginie O’Shea, Research Director at Aite Group. “It will not be rapid, it will not be painless, and you have to be sure it is a worthwhile endeavour in the first place.”

Meeting the challenge of developing best practices and communication standards for DLT

This uncertainty, over the benefits as well as the timescales, makes it more difficult for market participants to invest in developing best practices and communication standards to support inter-operability between different applications of DLT in different countries, and between the various components of the post-trade process.

Indeed, the uncertainty creates a classic chicken-and-egg dilemma. Should firms launch DLT services before developing standards? Or should they make standards an essential prerequisite to the launch of

DLT services? Without standards, there is a risk that DLT services will develop briskly, but in un-coordinated ways that increase operational risk in an area where existing practices and proposed developments are already worryingly unstructured.

The absence of workable communication standards, or agreement on best practices, could spur unwanted regulatory intervention – especially if sub-standard DLT service providers come to market, or there is a damaging market failure.

Moreover, development of best practices and communication standards which do not provide sufficient flexibility to allow material changes to DLT services to be effected painlessly is potentially problematic. Their absence could result in the technology failing to get off the ground at all, let alone meet its full potential. A middle way - between allowing the freedom for standards to evolve, and the risks of developing no standards at all - needs to be identified.

“Our industry is dealing with a lot of uncertainties and nobody quite knows how it will pan out,” said Angus Scott, Head of Product Strategy and Innovation at Euroclear. “Will DLT offer us a service as a new platform, or will the overall fabric of finance change? Having spent a lot of time working on change in finance, I know the industry is not structured in the best way, and we are all striving to make data flows more efficient and easier to operate. However, although we should not enforce any one model on the industry, I also worry about standards. It is crucial that we do not pre-define standards but let them flower, and allow the industry to evolve accordingly. The issue with DLT is that nobody knows what they are going to do with it, or how they will use it, so that makes it incredibly difficult to come up with common standards.”

Fortunately, the post-trade sector has a well-founded reputation for creating effective standards that facilitate the smooth operation of financial markets. The engagement by all organisations affected by the emergence and development of the ISO 20022 messaging format and the structure of Legal Entity Identifiers (LEIs), for example, both illustrate what can be achieved by spontaneous collaboration. As a

collaborative challenge, DLT is no different. A number of industry groups, including R3 and the Hyperledger Project, have already received invaluable input from parties interested in the development of DLT.

“We are working on a number of projects and the DTCC has invested heavily – in terms of people and budget – into the Hyperledger Project,” said Robert Palatnick of DTCC. “We saw opportunities to collaborate with our peers in order to explore opportunities to create an inter-connected ledger fabric based on open source.”

If best practices and communications standards need room to evolve and time for collaboration to do its work, it appears equally premature to agree on governance standards for DLT services. So far, it is technologists at private firms which have driven the development of DLT. However, it is likely that individuals in public roles will play a greater role in future, though it is hard to predict what their conclusions will be. While regulators are engaged with DLT, they have yet to reach a consensus on the way forward.

Inter-operability, public versus private networks and cyber-security remain issues

There are, however, some obvious issues that need to be addressed. Proof-of-concept projects at banks as well as market infrastructures have confirmed that DLT can handle sizeable and complex transactions. The principal unresolved issue is inter-operability.

To be widely adopted quickly, DLT-based services must be able to connect to legacy technologies and a wide variety of market infrastructures. If DLT fails to be inter-operable, it will create an unstructured new system. This would replicate many of the problems facing the industry in its current technological medium.

Inevitably, this risk argues for caution. Recalibrating legacy software or removing antiquated systems to accommodate new technologies is not risk-free, and can add significantly to short-term operating costs. However, while the initial risks and costs can be daunting, the investment can also translate into long-term savings.

“Building a bank from scratch is an expensive project when one takes into account creating the systems and technology,” said Angus Scott of Euroclear. “Look at how the Cloud has made technology far cheaper. It has removed a major barrier for market entrants, and this should be welcomed. If DLT can push the cost of business down, then that is obviously a positive outcome.”

Inter-operability is not the only issue the industry needs to resolve. Another is whether distributed ledgers should be private or public. An advantage of public ledgers is that they create centralised and harmonised repositories of multiple data sets. Clearly, they would need oversight by a trusted market authority to ensure they fulfilled their regulatory obligations.

However, some continue to question the notion of public networks altogether. “We would be uncomfortable with a public ledger holding our data at this stage, as would our shareholders,” said Cliff Richards of ASX.

A third recurring issue in discussions about DLT is cyber-security. Cyber-security is a growing problem for financial institutions, and market infrastructures are not alone in finding their systems compromised by cyber-criminals. While cyber-security measures can protect against most potential cyber-breaches, they cannot prevent sophisticated attacks altogether.

Naturally, the successful hacking of smart contracts at Ethereum has led to renewed concerns about the cyber-security of DLT-based services. Although experts point out that it was the smart contracts which were compromised, and not the technology underpinning them, the episode has undermined confidence in the cyber-defences of DLT in some quarters.

Supporters of DLT need to explain the events at Ethereum more coherently to a marketplace which remains nervous of the technology in general, and anxious about potential weaknesses in its cyber-security defences in particular.

Caution, co-ordination and application to non-core services are the way forward

On the cyber-security issue, as on other challenges posed by DLT, the panel advocated a measured approach to the development and adoption of the technology. Its members agreed that market infrastructures need to work in tandem to agree some form of principles-based standards applicable to DLT.

They argued that co-ordination of this work is crucial if even a semblance of uniformity in the adoption and application of the new technology is to emerge. Equally, the panellists cautioned the industry against a rushed implementation or incorporation of DLT into legacy systems.

The evidence suggests they are acting on their own advice. At present, market infrastructures are looking at DLT in specific areas - notably issuance, corporate actions and proxy voting – while conceding that the technology is unlikely to be adopted rapidly in their core business operations.

“We are not going to replace the riskiest core applications with DLT first,” concluded Robert Palatnick of DTCC. “But we will trial DLT sensibly in certain aspects of our business that provide the best business case opportunity for success.”

Editor

Dominic Hobson
dominichobson@dominichobson.com

Head of Market Infrastructures, SWIFT

Juliette Kennel
juliette.kennel@swift.com

Design

Bim Hjortronsteen
bimhjortronsteen@gmail.com

Publisher

SWIFT
Avenue Adèle 1
B-1310 La Hulpe
Tel: +32 2 655 31 11
Fax: +32 2 655 32 26
SWIFT BIC: SWHQ BE BB
<http://www.swift.com/>

Disclaimer

SWIFT publishes MI Forum Magazine for information purposes only. Any personal views expressed in MI Forum Magazine are the contributors' own and do not necessarily reflect the views of SWIFT or its members.
SWIFT © 2016. All rights reserved.