
Cloud Computing and Blockchain Technologies: Their Future Use to Support International Trade and Supply Chain Finance



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Introduction

Introduction

Transaction banking is widely cited as a growth business that will provide the levels of return not seen in other areas of commercial banking.

Yet the potential of transaction banking, which involves primarily cash, payments and trade services, is being dogged by increased regulatory concerns, a technology revolution that is removing barriers to entry from numerous disruptors, a reliance on old core technologies not suited to the new technologies in the market place and a customer base which is digitally demanding and requires more integrated solutions from their bank.

The response of many banks has been to break down their individual product silos to try to create a more cohesive business. However, the businesses of cash, payments and trade are quite different in their nature and when the invoice finance and other asset finance units are added into the mix then a whole host of different cultural challenges have to be faced.

Whether the bringing together of such different disciplines, experience and cultures into the melting pot of what is transaction banking will work and create a better customer experience remains to be seen. The banks that will most likely succeed are those that **recognise the specialist skills of each of their product lines and who find ways of ensuring that customers continue to receive the benefit of this approach**. While changing cultures through integration and common identity will take some time, the same cannot be said for the delivery of transaction banking services.

It has taken years and often massive overspends for the banks to develop and launch their commercial banking electronic banking platforms. These platforms still sit alongside legacy platforms, with both still connecting into core general ledger, client account, payment, credit and regulatory reporting systems not originally built to connect to today's technologies.

We now live in a digital age where instant real time experience is becoming a norm. The Fintechs and disrupters are latching on to this and employing the latest technology driven software, platforms and infrastructure to deliver transaction banking solutions more quickly and efficiently with the potential of disintermediation of those banks slow to adapt to the changes taking place.

The commoditisation of payments, a core revenue stream of transaction banking with the advent of Apple Pay, Google Wallet, PayPal and others is testimony to how new technology is forcing disruption in the sector. Banks may have been misguided in believing that their dominance will never be challenged and as such have retained more costly payment solutions and systems that have been in place for many years and as evidenced by highly publicised delivery failures, are creaking at the seams.

At Sibos 2015, discussion was dominated by the coming revolution in payments and how Blockchain or Distributed Ledger Technology would develop and further revolutionise the services being offered to customers. Its advocates suggested that new entrants using this technology would be better placed to disrupt the market and would provide customers with real time solutions at a fraction of the cost levied by the established banks.

Many believe that it is the provision of trade and working capital finance that will provide transaction banking with the growth, income streams and margin required for a successful business.

It is therefore ironic that most electronic banking platforms were designed when the product silos of transaction banking remained entrenched and it was common for trade and working capital finance to be excluded or dropped as the banks struggled to reign in development costs and timescales.

However, funding for technology investment in the banks is limited. Transaction banking divisions faced with growing regulatory scrutiny and mandatory requirements that always take priority in the investment round for funding need to embrace new technology approaches and solutions that will allow them to fulfil their mandatory obligations while keeping up with market developments.

Transaction Banking - The Way Forward with Trade

Chapter Two

Transaction Banking - The Way Forward with Trade

Trade and working capital finance are becoming synonymous in many banks. The previously different disciplines of trade, invoice finance and supply chain finance are being put under the same management. As mentioned previously such integration not only requires a change in culture but also the harmonisation of different platforms and approaches.

The growth in open account trading has been widely publicised. Corporates have embraced open account terms especially when dealing with regular trading partners, in countries regarded as relatively low risk. They are prepared to sacrifice the risk mitigation and control benefits of a traditional trade structure in order to avoid the onerous and costly paper-based nature of transactional trade finance.

With less than 15% of global trade now settled by bank-intermediated, transactional trade finance, it would be easy to conclude that the protection and support given by such structures is increasingly becoming redundant.

However, corporates still value the risk mitigation, finance and settlement provided by a typical Letter of Credit (LC) facility. In a digital and real time world, it is the delivery, execution and management of what is a very paper driven process involving many parties in a transaction that is unappealing and drives up cost.

In an ideal world they wish to retain the simplicity provided by open account but want their banks and funders to find ways of extending the financing across the whole of the trade cycle covering both pre- and post-shipment. Some also wish to retain a level of risk mitigation especially when trading overseas or with major corporates, whose non-payment would damage their business.

Banks also feel more comfortable with the high degree of transactional control, linked to the individual shipment of goods provided by traditional trade. They can identify a clear source of repayment coupled with visibility and control at a transactional level and because it is easier to manage key credit and performance risks, the banks provide both post-shipment and pre-shipment (or 'back-to-back') finance with exceptionally low default rates.

Banks are beginning to adopt some digitisation in their traditional trade offerings but the dilemma for banks today is how to replicate the low risk attributes and intermediation given by traditional trade, in an environment where customers want the simplicity and low cost efficiency of open account with the choice of taking finance on a transactional or portfolio basis.

As seen in *Figure 1*, there are numerous parties involved in a trade all of whom contribute and support the transaction between buyer and seller.

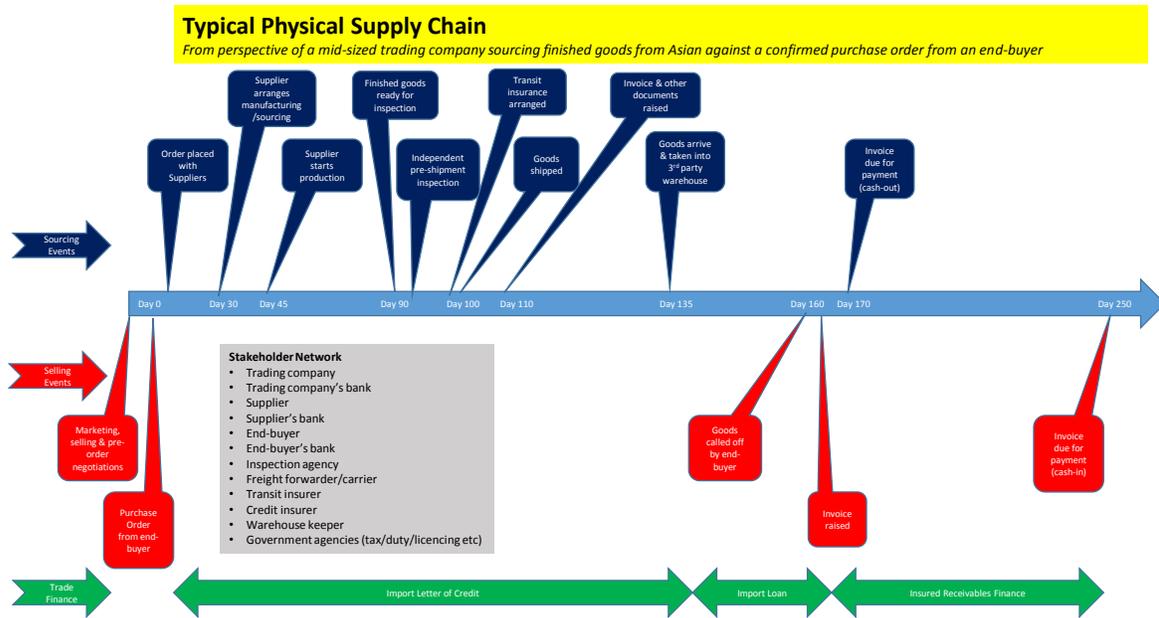


Figure 1.

The communications and associated documentation produced by all these parties are interconnected and very relevant to the bank of the funder that is controlling the documentation as part of their transactional control in support of the documentary trade facility.

As shown in Figure 2, the distribution and collation is costly, time consuming and prone to discrepancies.

Network Data-flow – Paper-based

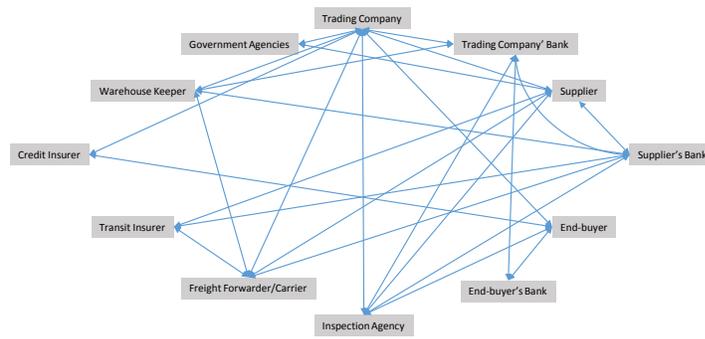


Figure 2.

Cloud and Blockchain technologies by their nature are more inclusive and enable better interaction by multiple parties. Capturing and storing data on distributed basis (everyone involved has access to a single version of the truth) via a Blockchain, creates the potential to manage performance risk and crystallise obligations on an irrefutable basis using smart contracts.

The application of this technology is still in its infancy and aspects such as the principle of irrefutability, the concept of a smart contract and the enforceability of electronic default instruments need to be legally covered.

Nevertheless, a combination of Cloud and Blockchain will potentially transform the current paper-based trade finance approach for the processing and management of trade transactions into a more inclusive digital and efficient platform. All parties connected to the transaction will have easier access and greater visibility, timescales will be reduced and the financing bank will retain the transaction control, coupled with a security interest in and, where appropriate, actual control of the underlying physical goods.

Network Data-Flow – Cloud-based Blockchain Technology

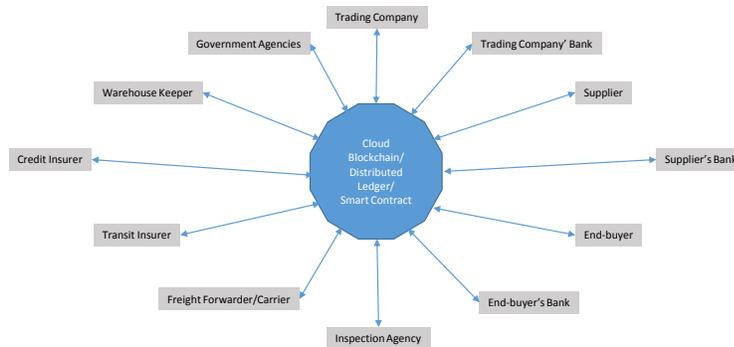


Figure 3.

Cloud and Blockchain also have the potential to expand the intermediation of a bank's involvement in open account transactions. Currently they do not have the data, visibility or control that is provided in traditional trade and are therefore restricted to financing the post invoice phase in the trade cycle with invoice finance, receivables purchase and approved payables solutions, most of which are provided on a program basis.

The intention is to facilitate an end-to-end supply chain finance solution. Such a solution could involve a network of banks working together covering both the seller and buyer end.

The data capture and matching processes are similar to a transactional approach. Rather than financing on a transactional basis, however, the matching of data at all points in the supply chain from purchase order to acceptance of goods, should drive an algorithm that sets the level of 'availability' relative to the value outstanding at various points in the trade cycle.

A funder would have a view of the risk profile in the portfolio at any one time based on the data captured and stored in the Blockchain. The legal agreement would preserve a measure of recourse to the supplier until performance risk is eliminated by an approved payable with the risk then changing to the payment risk on the buyer.

In either case, a successful claim will be assured due to the characteristics of Blockchain. If data evidences contractual fulfillment, but the buyer does not pay, a claim is automatic and irrefutable. Equally, if there were a matching failure prior to approved payable, this would indicate a failure of the supplier to deliver as per contract and would trigger an automatic and irrefutable claim under the default instrument posted by the supplier's bank. Default instruments would be digital and held within the smart contract.

The Cloud

The Cloud

Cloud Computing has been a topic of major discussion for some years now. Much has been written about the increased IT efficiency, accessibility to software upgrades, reduction in operating costs, improved speed to market, innovative client experience and greater effective collaboration that a “Cloud” approach offers to a banking organisation.

In its simplest form the Cloud can be defined as a delivered service using remote internet hosted servers which replace the use of a local server to provide IT services and to store and manage data.

The US-based National Institute of Standards and Technology “NIST” further defines Cloud-based models as follows:

Cloud Service Models*

Infrastructure as a Service (IaaS)

- provides users with processing, storage, networks and other computing infrastructure resources. The user does not manage or control the infrastructure, but has control over operating systems, applications and programming frameworks.

Platform as a Service (PaaS)

- enables users to deploy applications developed using specified programming languages or frameworks and tools on the cloud infrastructure. The user does not manage or control the underlying infrastructure but has control over deployed applications.

Software as a Service (SaaS)

- enables users to access applications running on a cloud infrastructure from various end-user devices. The user does not manage or control the underlying cloud infrastructure or individual application capabilities other than through limited user specific application settings.

Cloud Deployment Models*

Private Clouds

- operated solely for one organisation. They are managed by the organisation itself or by a third party. They may exist on or off premises.

Public Clouds

- are open to the general public or to a large industry group and are owned and managed by a cloud service provider.

Hybrid Clouds

- combine two or more clouds (private or public) that remain as unique entities but are bound together by technology that enables data and application portability.

Community Clouds

- feature infrastructure shared by several organisations and supports a specific community. They are managed by the organisations or a third party and may exist on or off premises.

As the descriptions of the above models show, the adoption of Cloud computing by a financial institution will represent a major change to its existing technology management, resource and policies.

Banks recognise the need for change and investment into new systems and platforms. However, many banks have embedded operational processes and interfaces built around legacy platforms and any adoption of Cloud based platforms and software will still need to be interfaced with their existing core infrastructure. They also employ IT and/or change functions that normally front the decision regarding vendor selection and will normally stick to solutions that fit their current architecture. Supporting a Cloud based approach will be a departure from their normal approach and strong business leadership is required to force through such an adoption.

While some security issues will need to be resolved around the management, control and security of data, for a bank that recognises the need to become more agile or is newly established and therefore not saddled with legacy processes and systems, the adoption of Cloud computing represents major opportunities:

- A delivery model that better manages scarce IT resources and eliminates any constraint as to where physical IT resources are located thereby provides those with an overseas footprint more flexibility to cater for local needs.
- Reduces the need to manage IT within the bank with no maintenance or upgrades to worry about and access to the latest technology.
- Reduces a bank's operating costs and improves its competitiveness.

- Greater agility to react to market changes and to launch new customer solutions and delivery platforms, leapfrogging the established banks that retain legacy systems and solutions.

*Source: NIST

Blockchain

Blockchain

Blockchain or Distributed Ledger Technology, initially developed to support Bitcoin, creates a single ledger of transactions on the internet that is secure, tamper-proof and easily accessible.

It is a shared record of transactions distributed over a network of users and is made up of a series of blocks of data, each of which records a batch of transactions. The blocks are electronically chained together and locked up with advanced cryptography in order to create a permanent and public record of every transaction that cannot be altered once created.

Banks are taking a great interest in Blockchain as a potential way of unblocking complex processes that involve different third party touch points.

Summary

Summary

Spurred on by the consequences of the financial crash, low interest rates creating a gush of liquidity searching for higher yields and the ongoing march of technological advances, the evolution of banking continues at a rapid rate.

There is no doubt that the pressure caused by increased new bank and non-bank competition means that the established banks cannot rest upon their laurels. Global banking platforms are under strain as the cost of running such vast infrastructures is coming under increased scrutiny by shareholders, a scrutiny shared by many of the financial regulators questioning as to whether a bank can be deemed “too big” to control.

Local and regional banks face pressure in their home markets to compete for a customer base that living in a digital age is becoming ever more demanding.

Banks and non-banks that will succeed in this new age will be those that have the agility to easily adapt to this changing world and who can embrace technology to not only keep in line with market developments and customer needs but also to use technology to create greater operational efficiencies.

As mentioned in this paper, the increased focus by some on trade and working capital solutions is seen as a way of adding value which will in turn bring attractive returns and customer loyalty. Yet as noted, the different solutions have previously operated in their own distinct silos with unconnected systems and platforms. Many were excluded from the development of the electronic banking platforms employed in banks today with such integration deemed too costly.

Also, a good number of the trade and working capital platforms themselves have been starved of investment as the businesses have in the past failed to prove the business case to win investment. They now seek to play catch up in an environment where it is accepted that their solutions are becoming the most relevant but where the required investment is still prioritised behind mandatory and regulatory demands.

It is not uncommon for many of the trade and receivables finance businesses to only upgrade their systems when the need becomes mandatory often following notice that they are no longer in scope for further support. Such lack of investment has led to the widespread use of Excel spreadsheets to manage structured type loans. Such practices are both inefficient and unsafe as often funding formulas are corrupted leading to under- or over-exposure.

In a climate where investment for trade and working capital platforms is hard to come by and where the cost of upgrading is exacerbated by high internal cost additions, the move to the Cloud is inevitable for many of those businesses looking for a quicker and more cost-effective system. For those new entrants, the Cloud offers a well-positioned quicker route to market.

Technology providers are also faced with challenges as they are expected to provide the support and upgrades required to maintain existing licences but are also being faced by more digitally and Cloud-aware clients who expect more choice and dialogue with the technology providers.

A technology provider that fails to develop its approach to Cloud and to the Blockchain developments mentioned in this paper may find that existing clients move away from them at time of renewal and that they are disqualified from RFIs as Cloud- and Blockchain- based solutions become critical selection criteria.

It is therefore incumbent on technology providers to have a two-track approach to their future developments by on one hand continuing to cater for those clients wishing to retain their infrastructure and systems in-house, and on the other hand creating Cloud-based options for those clients choosing to travel down this route.

A major concern that will need to be addressed by technology vendors contemplating on offering a Cloud-based service, as already mentioned in this paper, is regarding the use and security of client data in a hosted environment. Technology providers need to face such objectives head on. They must also take a leap of faith recognising that the days of annual licenses may be replaced by rental type agreements with clients finding it easier to make the move to other providers.

Embracing the Cloud provides its own challenges and opportunities for both the technology provider and its clients. However, for those that welcome and plan for the new technologies they will be better placed to retain and grow their client base and achieve sustainable revenues.