Distributed Ledger Technology: Clearing Away the Debris?

An exploration of the benefits of a distributed ledger technology approach to improve the operational effectiveness of payment systems and associated processes in the collaborative space.

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Whitechapel Think Tank

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1 THE REPORT

1.1 Introduction

The hypothesis:

Given the current wave of new requirements in the payments ecosystem in the UK, the operational efficiency of specific, collaborative parts of the payment systems and related processes could be significantly improved through the appropriate application of Distributed Ledger Technology (DLT).

The payments industry is a complex and multifaceted ecosystem. Under commercial and regulatory pressure, the industry is seeking opportunities to reduce costs as well as to improve the operational effectiveness of both systems and the associated processes. The complexity of this undertaking is compounded by a wide-ranging change agenda required to meet regulatory requirements together with rapid technological advancement and changing customer expectations. The UK payment systems are held in high regard internationally and function well; they are scalable, secure and resilient with complex automated capability. However, the payment industry does face challenges to support the shift to an end-to-end digital-on-demand economy with an increasing range of participants and a growing need for flexibility, whilst protecting and enhancing the safety and efficiency of current operations.

The mathematics and architectural underpinnings of DLT have existed for some time and provided a technology solution to applications across a number of industries, including financial services. The technology has potentially very useful capabilities and characteristics that address issues of secure and trusted data management and exchange. The technologies of DLT are developing rapidly and a wide range of initiatives are already underway both within individual institutions and in collaborative forums such as Hyperledger and R3 CEV. **DLT has been described as a "technology looking for a problem"; conversely this report sets out the view of the challenges faced by the industry in order to assess whether DLT would have relevant and useful capabilities.**

The report explores where there are existing operational pain points (OPP) in the payments industry. These include areas of known inefficiencies, frictions in the process, duplication of functions, and/or simply slow, cumbersome functionality. The report aims to be inclusive of most aspects of the UK payments ecosystem; identifying OPPs both at in-house bank and external clearing/settlement level. However, the majority of focus has been on the interbank and collaborative opportunities in UK payments and not on the competitive services offered to end users. It notes, however, that the testing and use of DLT in payments has so far been in the competitive space and by individual banks. This report extends this thinking into the collaborative space for UK payments.

This report identifies the areas of focus where improvements could be made to create a more efficient, cost-effective and productive payment industry. It does so in a way that is considerate of the current and emerging payments landscape; including particular aspects of strategic thinking and forthcoming regulations. It assesses the size of the prize and feasibility of addressing these inefficiencies with DLT, aligning it with an objective to recommend further work that would be addressed through collaborative design and implementation, with common benefit to the payments industry and its end users.

The payments industry has always been at the forefront of the adoption of new technologies and DLT is no exception. This report seeks to identify opportunities where the group believe DLT could provide significant benefit across the industry to a wide range of participants including consumers, government, service providers and regulators.

1.2 Objectives

The primary objective of the report is to test the hypothesis:

Given the current wave of new requirements in the payments ecosystem in the UK, the operational efficiency of specific, collaborative parts of the payment systems and related processes could be significantly improved through the appropriate application of DLT. More specifically:

- To identify specific OPPs within the current payments systems where there are opportunities to improve efficiency and to identify the extent to which DLT could reduce the friction.
- To identify which of these OPPs could be addressed by DLT through collaborative design and implementation, with common benefit to the payment industry, its participants and end users.
- To identify which of these OPPs can be addressed in the near future and which could be addressed in line with the wider forthcoming change agenda. In connection with the latter, it will specifically look at the draft Strategy set out by the Payments Strategy Forum[1] and the Payment Systems Regulator's Infrastructure Review[2].

This report does not endorse or refute any strategic industry or regulatory work, such as that by the Payments Strategy Forum. Instead, it endeavours to align its thinking with work that is currently ongoing in the industry and specifically aligning thinking to improve the

[1] The Payment Systems Regulator (PSR) set up and provides the secretary for the Payments Strategy Forum (PSF). The PSF is comprised of individuals from industry who have are writing a Strategy to identify and prioritise where the payment industry needs to work together for the benefit of those who use payment systems. The Strategy is in draft and is due to be finalised in October 2016.
[2] See: PSR Market Review into the Ownership and Competitiveness of Infrastructure Provision, which sets out how it aims to address competition in the provision of UK payments retail infrastructure.

payments industry in the UK. In the future this work could be extended to look at other pieces of industry or regulatory work, such as the Bank of England RTGS Strategy Review[3].

1.3 Scope, Approach and Considerations

1.3.1 Scope

The analysis for this report focused predominantly on the central payment systems in the UK. However it is expected that the outcomes of this report may be equally valid in many other jurisdictions, markets or industry sectors.

More specifically, the report has focused on the end-to-end payment process within the banking industry i.e. both the external ecosystem and internal bank operations. This has included: the different payments market infrastructures; data transmission; interactions with external databases; and regulatory/reporting requirements that form part of a payment. Alongside this, the report has considered international systems that influence or impact UK payment processing. A number of these operations are common to payment processing and are generic. Therefore our conclusions may be applicable to other industries or domestic environments outside the UK.

The report makes recommendations for further work based on identified OPPs that require collaborative effort across the industry, and which offer benefits to all payment system users.

1.3.2 Approach

This report was derived following collaboration and face-to-face meetings and workshops between contributors over a number of months. The contributors collaborated to bring together extensive experience and insight from the banking, consultancy, payments and technology industries.

The contributors to this report are self-selected individuals who agreed to go away and look at this together. While under the auspices of the WTT, it is a distinctly separate undertaking to the ongoing work of WTT.

The approach has been underpinned by a number of shared principles:

[3] See: Bank of England Real Time Gross Settlement Strategy Review.

- To look at the payments industry holistically and focus on OPPs that would benefit from a collaborative approach delivering benefits across end users and payment service providers.
- To ensure the analysis is based on known requirements and challenges in the industry rather than simply presenting DLT as the solution to everything. The group believes that DLT is not a panacea addressing all the inefficiencies of the payment industry. We do believe it is a technology that has a number of capabilities that could address known requirements of the payment industry.
- There is no intention to duplicate existing work and, in particular, any collaborative work. Instead the report aims to assess the practicalities of applying DLT to aspects of the payment industry in the UK.
- To consider and accommodate the current payment change agenda, including other technological developments, consumer expectations, industry initiatives and regulatory drivers.
- The working group operated within the constraints of competition law[4].

The contributors are from the organisations listed on the front. In addition, the report notes: Thank you to KPMG in the UK for their contributions in the development of this paper, namely providing industry and subject matter insight through discussion and commentary.

1.3.3 Considerations for the Report

The payments landscape is changing and, while stable and efficient, it is in a state of flux. Financial institutions have to navigate a complex regulatory environment from a variety of different regulatory and supervisory bodies and legislatures, domestically, within the EU and globally. There are a number of ongoing legal and operational developments that will significantly impact and disrupt the industry: the way consumers and businesses make payments; how banks receive and process payments; and how the various parties interact with one another. All the while the payments industry has to maintain low levels of risk and high levels of stability. During this change process customers are choosing to use payment systems in different ways more seamlessly integrated with their daily lives and with ever evolving expectations about the speed and efficiency of sending and receiving data.

The Payments Strategy Forum has published a draft Strategy to address a series of recognised detriments in the industry. Some of these challenges to established practices are also identified as OPPs. The draft Strategy includes proposals for new trust models, provisions for easier access to payment systems, enhanced anti-fraud measures and a longer term-proposal for a new payment systems architecture in the UK. It notes that 'widespread adoption of DLT and the associated impact on central, and globally, regulated

[4] Before each meeting a competition statement was read out and agreed to by all participants at that meeting.

banking systems warrants further consideration'. In parallel, the Payment Systems Regulator has been assessing how the payment systems in the UK operate and have been taking steps to promote competition, innovation and customer needs. Notably, the Market Review into the Ownership and Competitiveness of Infrastructure Provision will make significant changes to the UK payments infrastructure.

New technology presents new opportunities to meet requirements for secure identity and data management and these requirements need to be considered as part of ongoing wider industry change. These changes (whether current or prospective) to processes and architecture provide an ideal window of opportunity for emerging technology to meet these requirements. While still relatively new in terms of cross-industry implementation, the potential capabilities of DLT to address a range of challenges is being widely discussed and assessed to test and prove that it can meet changing needs.

2 OBSERVATIONS AND FINDINGS

2.1 Key findings

In testing the hypothesis: *Given the current wave of new requirements in the payments ecosystem in the UK, the operational efficiency of specific, collaborative parts of the payment systems and related processes could be significantly improved through the appropriate application of DLT, the* analysis has concluded that:

- The characteristics of DLT provide useful capabilities that could provide opportunities to transform the efficiency of specific OPPs within payment processing.
- In reviewing the priority of OPPs, the group found that the majority are too large or complex to fully investigate or address within the confines of this report. Further, a number of known inefficiencies within the payment industry could also be addressed using more conventional technologies.
- Significantly, we found that there are specific, shared databases within payment processing systems that could benefit from adoption of a DLT model.
- These are OPPs that require a collaborative approach and will deliver benefits to users. Moreover this report argues that such recommendations fit within the timescales of current strategic thinking in the UK's payment industry, such as that of the Payments Strategy Forum.

- This report recommends further work to explore two reference data related OPPs:
    - the UK's Extended Industry Sort Code Database (EISCD) payments reference data database; and
    - a central sanctions register database.

- Establishing the applicability of DLT for these two specific OPPs would also provide validation for related uses, potentially for other forms of reference data, as well as other uses outside payments in the UK and for analogous uses in payments in other geographies.

2.2 The Analysis

Table 1: Identified OPPs assessed against utility criteria[5]

		DLT feasibility	Benefits	Time-frame (years)	Collaborative Co-operative Competitive	Risk and compliance	Enables access and reach	Traditional technology able?
		H/M/L	H/M/L	0-5 5-10 10+		H/M/L	H/M/L	Y/N
1	**Reference Data**							
a	Central Sanctions Register	H	H	0-5	Collaborative	H	L	Y
b	EISCD	H	H	0-5	Collaborative	M	H	Y
c	PSD2 TPP Register	H	L	0-5	Collaborative	H	H	Y
2	**Identity Management**							
a	KYC & KYCC	M	H	10 +	Collaborative	H	H	Y
3	**Settlement**							
a	Market Settlement	H	H	5-10	Co-operative	H	H/ L	N
b	CBDC	M	H	5-10	N/A	H	H	N
c	Correspondent banking	H	H	5-10	Competitive	H	H	Y
4	**Internal Bank**							
a	In-house bank	M	M/ L	0-5	Competitive	M	L	Y

Table 1 sets out the OPPs that the group has identified. These are assessed against a number of qualification criteria that align with this report's objectives and which form the basis for the recommendations. It is worth being clear that the recommendations and further analysis contained within this report are confined to the limitations of the working

[5] **Key:** H = High; M = Medium; L = Low; Timeframe = years; Y = Yes; N = No.

Table 1 criteria: **DLT feasibility:** How likely is it that one can reasonably expect DLT to be applied to remedy this OPP?; **Benefits:** How big is the potential size of the prize of applying DLT to remedy the OPP? ; **Timeframe:** What would be the timeframe for the implementation of DLT as a remedy to this OPP?; **Collaborative/Co-opetive/Competitive – Is the remedy to this OPP Collaborative; Coopetive; Competitive:** Is it a solution that could be developed by the banking community or is the nature of the pain point such that it can only be developed in isolation? Or is it a combination of both?; **Risk and compliance**: How positive will the impact be on risk?; **Access and reach:** To what extent does that remedy for this OPP have a wide reaching outcome for users? **Traditional Technology Able**?: Can traditional technology achieve the solution?

group. We are clear that all of these OPPs could potentially utilise DLT in some form or another. The recommendations for further work are based on our assessment of the criteria set out in the table, in line with our objective to identify potential applications within the current landscape and which could be addressed in line with the wider forthcoming change agenda.

The OPPs are based on the group's assessment of the payment industry and do not aim to exhaust all possible applications of DLT. Instead, it aims to illustrate useful applications of the technology that can be progressed addressing known challenges and given the current change environment. The group found that each OPP was within one of four categories: reference data, identity management, settlement and internal bank processes. Each specific OPP is defined in Appendix A.

The table looks at the size of the potential gain against risk and feasibility. It assesses the extent to which the OPPs can be addressed by DLT through collaborative design and implementation, delivering benefit across the payment industry. Central to the assessment, and subsequent recommendations, is whether the capabilities of DLT are likely to be better than existing technologies within a timescale in line with current industry developments. Table 1 sets out the opportunity to explore the application of DLT to an industry-wide problem in the context of the current change agenda.

The table illustrates our conclusion that two OPPs we have identified would benefit from further analysis: 1a and 1b, under Reference Data. This report argues that these two OPPs show a high level of feasibility, with a high level of potential benefits within a short time frame. Moreover, the issue is clearly collaborative, has the potential to reduce risk and to enable access and reach. Although these two OPPs exist on traditional technology, this report argues that the benefits of DLT could result in improved outcomes for users and providers and therefore justifies further exploration.

2.3 The Case for the Migration of Reference Data Databases to DLT

The report argues that there would be benefits to migrating specific industry databases on to a DLT architecture. In order to explore this in more detail, the report has built on the Payments Strategy Forum's draft Strategy to bring to life the benefits and to align with current industry thinking and direction. This report addresses the overlaps between the identified OPPs recommended for further exploration and those addressed in the draft Strategy document. The report acknowledges that DLT may usefully address other detriments or solutions identified by the draft Strategy. We note that that the findings could be extended to other related use cases. The focus is on the opportunity to use DLT as a potential solution to recognised issues and not on the validity of the draft Strategy.

The report also acknowledges that the new payment architecture proposed in the draft Strategy (the Simplified Payments Platform) requires further detail and justification. Specifically, the level of distribution and the role of the core and layered components are yet to be fully defined. This report does not attempt to make any claim that the proposed new payment architecture should be built on a single or a number of distributed ledgers. Instead, the report articulates that there are OPPs identified in this paper that overlap with the draft Strategy and that, as the Payments Strategy Forum continues its work, it should seriously consider using DLT to meet specific requirements set out in the draft paper.

2.3.1 Central Sanctions Register: Financial Crime Intelligence Sharing

The Payments Strategy Forum's draft Strategy identifies financial crime intelligence sharing and Know Your Customer (KYC) verification as problematic areas.

- On the former, it notes that there is currently limited opportunity to work collectively to safeguard customers; noting that the more intelligence that is shared, the higher the chance that PSPs can detect, deter and prevent criminal activity in the payments systems. It notes that shared data could include flagging of prosecuted fraudsters. It proposes that the industry agrees an enhanced intelligence sharing approach, involving human intervention to decide how the data should be used to identify trends. Moreover, it proposes that the industry builds a single shared view of confirmed, suspected and attempted fraud data and other financial crime data.
- On the latter, it proposes that industry creates a central KYC utility that could improve compliance with AML policies, reduce delays for customers and result in higher success rates in identifying high-risk customers and transactions.

The findings in the draft Strategy align with those in this paper; where we argue that DLT should be considered to develop provisions to address OPPs in the AML process.

Specifically, anti-money laundering regulations require UK financial institutions and other regulated entities to identify and report transactions of a suspicious nature to the National Crime Agency (NCA), with similar requirements in other countries. Under Know Your Customer" Requirements, a bank must establish the identity of the customer and understand the transactions the customer is likely to use in the normal course of their business. Financial institutions have widely varying arrangements for managing these AML obligations and ensuring that their externally-sourced "blacklists" are up-to-date: Some banks download updates direct from organisations such as OFAC, while in other cases, third party vendors aggregate and normalise "blacklists" and on-sell this data to financial institutions.

In general, there is a risk of information not being kept up-to-date and there is sometimes poor visibility and co-ordination across banking groups with disparate silos, divisions and legal entities. This can result in errors, failure to identify money laundering (AML) activities, as well as high administrative costs and unnecessary repetition of processes and the associated impact on customer service provision.

DLT could help this process in a number of ways. Organisations responsible for the production and maintenance of blacklists could ensure that such blacklists are recorded and updated directly onto a permissioned distributed ledger. This could greatly improve visibility of blacklists, the latest version of which would be immediately visible to all parties entitled to this information. This would enable banks to ensure that the blacklists they use are the latest version available, reducing risk of errors. Overall, this measure could improve controls and efficiency at relatively low cost, resulting in a more efficient and effective AML process.

As an additional initiative, banks could share with trusted counterparties in-house records and ongoing analysis of suspicious activity monitoring using DLT. This sharing of intelligence could improve and accelerate the identification of suspicious activities and potentially result in a reduction in money laundering and financial crime.

The group acknowledges that there are a number of legal considerations in data sharing and around the AML and KYC processes. This is particularly for the financial crime intelligence sharing proposal in the draft Strategy, and possible legal issues resulting from the immutable nature of distributed ledgers and emerging data protection law. This has previously been explored between industry and government and we note that the draft Strategy is considering whether legislative changes would be required to enable implementation of fraud data sharing measures. However, based on the utility and potential benefits set out in this report:

> There is merit in onboarding a central sanctions register on to DLT. This would be in line with current industry thinking in the Payments Strategy Forum. This report recommends further work is undertaken to establish feasibility and a cost benefit case.

2.3.2 Extended Industry Sort-Code Data base (EISCD) - The new architecture for payments

Consistent payments routing reference data is needed across many organisations and systems to ensure efficient and error-free transaction routing.

On reference data, the Payments Strategy Forum's draft Strategy suggests a short-term proposal to improve the efficacy of operation in the UK. It also proposes a new simplified architecture for payments in the UK, providing an opportunity for the efficiency of payments reference data in the UK to be further improved.

We acknowledge that payments reference data is of international significance and application. The banking and payment industries are network businesses. Whether domestic or international, specific to the banking industry or used more widely, payments reference data shares a number of characteristics. Update responsibility for specific records is widely distributed across participants and frequently lies with the customer's bank or financial services provider. Changes in reference data for any specific organisation are relatively infrequent.

For users of payments reference data, the responsibility update data is also widely distributed both within and between organisations. The confidentiality and risk needs of specific reference data services vary according to the risk profile of the business supported but, in general, there needs to be, at least:

- proof that the change was made by an authorised entity;
- assurance that the collected records are from the authorised provider(s);
- confirmation that the records have not been altered or corrupted; and
- ability to ensure that up-to-date versions are being used everywhere.

There is a growing need across financial services to provide automated real-time services and to improve visibility and transparency. The industry's focus on improving speed and efficiency drives the need for improved accuracy, distribution and usage of reference data across increasingly widely distributed networks of users and participants.

The potential for DLT to improve the accuracy, distribution and use of reference data services is considered high across the industry. This is because the technology can enable secure update of specific reference data records by the responsible entity, provide assurance that each "copy" is identical and ensure that all users have the most recent version. In addition such an approach:

- could provide more frequent and more timely updates, versus the weekly updates today;
- enable the wider use of such shared data, with a greater level of transparency;
- support automation of scheme rules, which could be encoded into 'smart contracts';
- reduce the need for central technology infrastructure and hence result in very low/zero run cost, which could result in significantly lower charges for accessing the data; and

- could reduce the barriers to entry to the UK payment systems and increase competition[6].

Payments reference data is a strong candidate for a DLT based service and that successful validation of the capabilities of DLT would have a collective benefit across banking service providers and user communities. The report finds that the Payments Strategy Forum's draft Strategy provides – at the least – an opportunity to consider migrating the UK's payments routing reference data capabilities, such as the EISCD, onto DLT. On this basis the report argues:

> There is merit in onboarding the EISCD on to DLT and this would be in line with current industry thinking with the Payments Strategy Forum. On this basis, this report recommends further work is undertaken to explore this.

3 NEXT STEPS AND INVITATION FOR FURTHER WORK

The report's approach has been to kick-start discussion on OPPs facing the payment industry and how DLT can be used to address these areas of friction. Given the recommendations of this report are to explore further work, this report welcomes engagement, discussion and comment on the report. More specifically, there is a case to explore these findings in further detail. For example, a proof of concept would be able to identify outstanding challenges and legal, regulatory, technological practical considerations.

The report will be shared with the Whitechapel Think Tank and relevant stakeholders of the participants. The group welcomes the report being shared further.

If you wish to comment on the report or engage in further work, all parties are requested to contact the secretariat of the Whitechapel Think Tank: tom.dunbar@paymentsuk.org.uk

[6] Current EISCD licence starts at £1680 +VAT per year

4 APPENDIX A: DETAILS OF TABLE 1'S OPPS

These Appendixes detail and set out the definitions of analysis in Table 1's column 1.

Reference Data

Central Sanctions Register

A central Sanctions Register would entail HM Treasury (HMT) uploading its Sanctions List to a permissioned distributed ledger. This would have the advantage of being a single, immutable golden copy of the Black List on which any updates by HMT could be tracked against earlier versions. The List would be accessible by banks and technology providers with appropriate permissions. This would ensure wide access to an up-to-date and accurate version of the HMT Sanctions Black List and should therefore reduce errors and improve the fight against crime.

Extended Industry Sort Code Database (EISCD)

EISCD is a consolidated list of all UK sort-codes used as the definitive source for payments routing for all UK non-card based schemes. The EISCD is effectively a distributed database, since it is updated by banks who maintain their own subset of sortcodes. Today, it is based on a central database infrastructure. Each bank feeds their updates in on a batch basis. On a weekly basis the latest consolidated EISCD file is made available to subscribers.

PSD2 TPP Register

The revised Payment Services Directive (PSD2) updates the rules governing the processing of payments in the European Union. It also requires the European Banking Authority (EBA) to develop, operate and maintain a publicly available electronic central register containing information drawn from the public registers in each Member State. These will identify the payment services for which each payment institution is authorised or for which a bank is registered. The register on the EBA's website is to be publicly available and free of charge, should allow for easy access and be easy to search.

Identity Management

Know Your Customer (KYC) and Know Your Customer Compliance (KYCC)

Know Your Customer (KYC) is the due-diligence performed by banks to verify the identity of their clients. It is based on The Money Laundering Regulations 2007, in the UK. Institutions are required to ascertain relevant information from their clients to validate the nature of their businesses for the purpose of preventing identity fraud and the banks being used, intentionally or unintentionally, for money laundering and terrorist financing.

Settlement

Market Settlement

Market Settlement is the business process whereby a financial asset, such as a corporate bond, stocks, shares, etc. is exchanged between two parties with a corresponding payment of money. Market Settlement is one of the most documented applications of DLT in the financial services industry.

Central Bank Digital Currency

CBDC is a digital fiat currency issued by a central bank. In this instance, the central bank would continue to act as the trusted third party, as it does with currency issued today. For example, according to the Bank of England, "in principle, one could introduce the technology and preserve the current arrangements, under which it is commercial banks that hold central bank deposits; it's also possible to increase the number of counterparties without it. But the distributed ledger would probably make it easier to do so. That might mean adding only a narrow set of counterparties – perhaps a wide range of non-bank financial companies, say. It might mean something more dramatic: in the limiting case, everyone – including individuals – would be able to hold such balances. So although they might share the same technology, and the same name, the private and central-bank versions of a digital currency are actually rather different. The one would expand what the other seeks to replace."[7]

Correspondent banking

Correspondent banking is the practice whereby a foreign bank opens an account with a national bank in order to settle payments in the local currency. It has traditionally been the main route for settling cross border payments, and in many ways, performs a valuable function well. However, for smaller banks in particular it can be a very expensive option especially where they have a wide range of currencies to settle as a correspondent bank account may need to be held in each currency.

DLT offers a potential opportunity to reduce both the pain and the cost of correspondent banking. Instead of maintaining balances with multiple nostro agents, a group of banks could hold a common digital asset on their balance sheets and use it as a basis for trading as well as settling currency transactions between each other. Providing that the digital asset can always be redeemed for a fiat currency, banks could make payments to each other.

Internal Bank Processing

In-house bank

[7] See Central banks and digital currencies – speech by Ben Broadbent

The payments eco-system begins with a payment instruction being issued by a remitter to his/her bank. This instruction can come via a variety of channels including a physical branch or an electronic channel such as via internet banking. The moment that the instruction enters the bank, it begins a journey through a potential plethora of systems, platforms and applications any of which can halt the payment. Typically payment messages face a range of checks in areas such as funding, AML sanctions and formatting, all of which could result in them requiring further manual exception processing. All this can make it hard to track the progress of a payment, especially in a larger bank. By setting up a DLT, a bank could link all applications so that a payment could be tracked in real time. Copies of the ledger could be distributed to all interested parties in the bank so that anyone can view the progress of a particular payment in real time.

Bank customers could also benefit from DLT by being able to check progress on all of their business flows. Customers very often have a range of products from their banks which are usually delivered from different parts of the bank (eg current accounts, securities, foreign exchange, trade finance). A DLT which is available to all relevant users in their organisations will give customers a holistic business view enabling better strategy in areas such as cash and working capital management.

5 APPENDIX B - WHITECHAPEL THINK TANK

The Whitechapel Think Tank is focused on disruptive innovation in financial services and is a forum to build an understanding of the opportunities and challenges presented by DLT and consensus systems. Open to stakeholders interested in the safe and efficient introduction of DLT, it is a neutral and transparent forum to explore this technology opportunity and provides for a non-competitive environment to progress the advantages of the collaborative agenda. The Whitechapel Think Tank first convened in December 2014 with a handful of participants, it now has growing membership base of forty plus organisations and over fifty active participants, including from academia, regulators, and UK Government to leading large and small private sector organisations.

It was agreed in February 2016, that there was a need to look more closely at the potential benefits and challenges to the implementation of DLT in the payment industry's architecture and processes. This was agreed on the basis that, since the advent of DLT, there has been a lot of discussion about the benefits of DLT on payments architecture and the associated processes, particularly in relation to clearing and settlement. Moreover, there were a number of unanswered questions, such as whether it could improve end-to-end processes. The proposal, brought forward by Jim Ford (HSBC), was to establish a sub-group to develop this White Paper looking at these issues.