FinTech Accelerator Proof of Concept

Distributed Ledger Technology

The Bank has recently set up a FinTech Accelerator to work with innovative firms and new technologies. This case study summarises one of these projects.

With an increasing number of theoretical applications proposed for Blockchain and distributed ledger technology ('DLT'), and the potential for a transformation of the financial sector, the Bank wanted to understand the technology in more depth. The Bank therefore chose to undertake a Proof of Concept (POC) to look at the current capability of DLT. Our partner in this work was PwC.

The outcomes of this work are described in more detail below.

The Proof of Concept

The intention of the POC was one of exploration, rather than commercial application, and, as such, the Bank's desire was to use an open source protocol.

The use case for the POC design was for transfer of ownership of a fictional asset among several participants including a central authority that could establish the supply of the asset and permissions to access and use the ledger. The POC was built to demonstrate basic concepts seen in real world scenarios of gross settlement and transfer of value.

Our objectives were to assess the potential of the technology, its maturity for this application, and to develop our in-house capabilities and knowledge of DLT to supplement our theoretical understanding.

The Bank's technology teams built and deployed a multi-node scalable distributed ledger environment on the Ethereum protocol. Key features of distributed ledger that were tested in our POC included consensus via a proof of work mechanism, resilience, transparency, smart contracts and data integrity.

Reflections and next steps

The POC has helped us to understand the technology in greater detail and also brought to life the core features of distributed ledgers.

While the technology is still relatively immature, it could provide benefits in the future, and also be complementary to existing systems by, for example, removing the single point of failure of a system, considerably increasing its resilience.

Our view is that it is important to gain further experience in this area. In particular, we would like to explore the following areas:

- Scalability - we would need assurance that a system could be scaled in such a way that it operates with total data integrity, and reliably at the high speeds and volumes required by central bank infrastructure;

- Security – we will need certainty that the privacy of the data in distributed ledgers cannot be compromised by cyberattack, now and in the future;

- Privacy - current protocols require a trade-off between privacy and resilience – for DLT to be used in any central bank application, a high standard of both would be required;

- Interoperability - we would like to understand how existing data standards and infrastructure might interact with distributed ledgers; and

- Sustainability – DLT systems typically use more energy and require more data storage than traditional ledgers for equivalent transaction flows. An important consideration therefore is how these can be minimised as systems increase in scale.

Given our experience in this POC, we are open to working with other firms/providers to consider how these challenges may be overcome and would propose to do so via the FinTech Accelerator against some clearly established criteria