



Blockchain – uses and challenges

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In the last year there has been an explosion of announcements and press releases about new applications of blockchain in the commodities and trade finance sectors. The article explores blockchain technology and its potential uses.



1. WHAT IS BLOCKCHAIN?

Blockchain applications can be for different purposes and they come in many forms. Blockchain is an uncorruptable digital ledger or database for recording transactions. The ledger is shared ("**distributed**") amongst a number of parties ("**nodes**") and there are verification rules for new data recorded on the ledger. The data is recorded and confirmed in blocks which are chronologically linked to each other. With everyone agreeing to the new blocks of information ("**consensus**") there is only ever one version of the transaction. Other code ("**smart contracts**") can be written into the blockchain to execute the terms of a contract between the parties.

2. USES IN COMMODITIES AND TRADE FINANCE

The possible uses of blockchain technology are numerous. Whilst full end to end systems may not be immediately available there are potential applications to cover most parts if not the entire trade cycle. Announcements are not always clear as to what has been demonstrated and what is aspiration. However, the following are a few examples of blockchain announcements in the commodities and trade finance space:

- (i) *AML/KYC* - companies such as Accuity and Tradle are KYC and AML specialists offering blockchain solutions in this area.
- (ii) *Tracking and Tracing* - companies such as Everledger (for diamonds) and DORÆ (for other raw materials) are offering blockchain enabled traceability and accountability systems.
- (iii) *Trading Platforms* - in January 2018 ABN Amro, Louis Dreyfus Company, Shandong Bohai Industry Co Ltd, ING and Societe Generale announced the successful completion of their first full agricultural commodity transaction using an enhanced Easy Trading Connect (ECT) blockchain trading platform, reported to reduce time spent on processing documents and data "fivefold".
- (iv) *Trade Finance* - IBM and a team of nine banks has been developing a blockchain

trade finance platform called We.trade for SMEs to increase the number of financings these banks can offer for SME transactions.

- (v) *Insurance* - recently launched in May 2018, Insurwave claims to be the first blockchain platform for marine insurance. Currently being used for marine hull insurance, the promoters (EY and Guardtime) plan to expand the system's use to marine cargo insurance, global logistics, aviation and energy.

Most of the above systems are "**permissioned**" systems meaning (unlike Bitcoin which is public) a party joining the network needs permission often from an entity or a consortium that plays the role of gatekeeper.

3. COMMERCIAL AND LEGAL CHALLENGES

In order for these blockchain systems to thrive they depend on uptake in all classes of the intended blockchain ecosystem. In some cases there will be a need for consolidation of different systems designed for the same application because there may be too many choices to achieve the necessary critical mass.

For some of the players joining these trading systems it will involve reconciling behaviour normally done in commercial self-interest with the opportunity, for example, to dramatically reduce the operational costs of the trade. Parties will be cautious about putting their data on a shared platform with their competitors, irrespective of assurances by software developers that data will remain confidential. The gains to be had will not always have universal appeal. Savings in costs may be a major concern for bigger traders based in Europe but this will not always be of paramount concern to every trader.

It seems likely that at least in the short term there will be a move towards standardisation of contracts. The goal of blockchain systems with smart contracts to promote efficiencies by choreographing transactions in a supply chain will mean giving up flexibility in the way in which trades are carried out.

There are the inevitable technological challenges in ensuring cyber security and designing automated systems with smart contracts which need little or no human intervention. Smart contracts are written in code and involve converting and in some cases changing legal constructs to suit the technological limits of codification. This will involve close cooperation between lawyers, code writers and the entities trying to set down the terms of the transaction.

The rules for permissioned systems governing the ability of parties to participate, how behaviour is regulated within the ecosystems and how consensus will be reached will be important to the success of these systems. Particularly in the short term there will be issues with the interface between the law of the ecosystem and the law outside. Unless the uptake is such that everyone who could possibly have an interest in the transaction will be within the ecosystem, advice will be needed as to, for example, how the code's approach to ownership rights against sellers, carriers or others will interface with national and international laws which are largely predicated on bills of lading. There may be a need to transact with a party who is not part of the ecosystem at all and operates on paper based systems.

Regulation such as GDPR may cause concerns for a system which is supposed to create a permanent immutable record which may be shared with parties in other jurisdictions. New sanctions regulations may create problems in a blockchain system which is designed to be unstoppable once the transaction starts.

Finally, dispute resolution as between parties in the transaction and the ecosystem generally needs careful consideration. The applicable law and a forum or a particular way of resolving disputes may well be part of the ecosystem rules. Access to justice is one area which may be looked at by a blockchain designer to bring users a better way of resolving disputes. This is all very well providing the risks are understood and accepted.

Andrew Hutcheon was due to speak at the Gafta blockchain seminar in Geneva on 28 June as Gaftaworld went to press.