Building blocks to manage the supply chain

Most people, if they have heard of Blockchain at all, will have heard of it in relation to cryptocurrency. However, Blockchain has more to offer than just bitcoin, with solutions that can be put to good use in logistics and supply chain management. As an incorruptible digital ledger of economic transactions, the technology can potentially resolve many of the challenges created by the complexity of fragmented, globalised supply chains.

Supply chains are changeable by nature – they quickly incorporate and adapt to new technologies, from rail to air freight to the Internet. For supply chain managers, Internet technology in particular has changed their task from being a matter of keeping the machines fed and dispatching the finished product to something entirely more complex.

Standards and norms

Managing today's supply chains involves controlling a tangled logistics nexus spanning multiple locations with hundreds of stages and various actors, requiring different payments and invoices spread out over several months. This presents a serious challenge for supply chain managers. For consumers too it is important to know that all of the elements in the products that they purchase have been ethically sourced with respect for environmental and labour standards and norms.

It is difficult for managers and consumers alike to accurately trace the provenance of elements all along the supply chain, and to quickly react to problems that arise related to quality or even illegality, because there is a significant lack of transparency in the current system.

Increasing transparency

As one of the technologies that enabled the globalisation of manufacturing, it is fitting that computer networks should also offer a solution to manage this complexity. Blockchain, which sees information held on a distributed database that is simultaneously hosted by multiple computers, can provide efficient solutions that are both verifiable and permanent.

With every transaction recorded across numerous copies of the digital ledger and distributed over multiple computers, Blockchain is highly transparent. It is also highly secure, as every block in the chain is linked to the preceding block. Information is distributed across the network, so there is no centralised hub that is vulnerable to cyber-attacks by hackers.

By enabling smart contracts, Blockchain helps make supply chain management more efficient and cost effective than current solutions because the contracts are trackable, they execute actions automatically and they do not require the involvement of third parties.

"Despite the current tendency to overhype its use, Blockchain will become an increasingly important element in the digital transformation of transportation logistics. Its potential to support this transformation will be measurably enhanced when architected with forthcoming advances in IoT, low-power wide-area networks (LPWAN), 5G and network edge processing," said Jim Beveridge from ERTICO

– ITS Europe, a private-public partnership that regards Blockchain as an alternative for smart contracts and transactions in mobility and logistics, complementing advanced data exchange networks (such as AEOLIX).

ITS World Congress 2018

Given the benefits of Blockchain, it is no surprise that it will be a key topic for discussion at the 25th ITS World Congress in Copenhagen this September. The ITS World Congress is the world's biggest event, solely focused on the digitalisation of transport and smart mobility.

Experts in the field will present a number of sessions that cover Blockchain and cyber-security including:

ES11 Enhancing Cybersecurity & Resilience of Transport Infrastructure
SIS60 Cybersecurity for Public-Facing ITS Systems
SIS10 Assessing Next Generation Technologies for Emerging Future Transportation Environments
SIS47 Blockchain and Distributed Ledger Technologies for Transport and Mobility

For the full Congress programme please click here, and for more information about the ITS World Congress 2018, please visit www.itsworldcongress.com.