

# Building confidence in the steel sector through Distributed Ledger Technology

*Steel is fundamental to many industries and is essential for economic development, from automation to construction and beyond. However, pressure from society and from governments has meant that the steel industry must think of new ways to decrease its carbon footprint, to ensure it is meeting regulatory and consumer demands, and importantly not contributing further towards climate change.*

*One of the ways the steel industry can improve its efficiency, save time and money, and reduce its environmental footprint, is through improved traceability. However, the environmental footprint of steel production is not the only factor contributing to lack of efficiency. The sector's reliance on paper documentation also makes it incredibly hard to store and share information securely, further adding to the issues around efficiency, privacy and market access.*

*Advanced technologies like Distributed Ledger Technology (DLT) can provide a secure and transparent platform for businesses to build trusted data networks that allow those with specific permissions, to access, input and validate information across a supply chain.*

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## WHAT IS BLOCKCHAIN TECHNOLOGY?

When most people hear of blockchain, their mind will turn to cryptocurrencies. These new investment and transaction-enabling products have garnered lots of media attention in the past few years. They work using blockchain, a decentralised network where data is recorded in blocks linked through cryptography – making it near to impossible to manipulate or counterfeit.

The foundation on which blockchain is built is Distributed Ledger Technology (DLT), an infrastructure that lets users simultaneously work on and access data across a networked, decentralised database. The invention and deployment of DLT has led to rapid expansion in applications, and the potential for solving real-world problems using this technology is immense.

Any situation that requires trusted and secure records of events, or transactions, with complete traceability, presents an ideal environment for DLT and blockchain to be applied. The wide range of potential applications for this technology means that iov42 works with many different organisations, companies and governments to create trusted

and secure transactions. iov42 has also forged a partnership with Tata Steel UK, to develop solutions for traceability in the steel sector.

## DESIGN ASPECTS OF IOV42 TECHNOLOGY

There are various aspects of the technology that has been developed by iov42, which is particularly suitable for application in industry. Some of the key features are explained below. These features are distinctively different from the set-up of most blockchains, but are essential for the steel sector, where the application of DLT can become a key element of product assurance.

- **Private network** Unlike most blockchains that don't require permission or explicit authentication, iov42 has a permission-based approach, meaning that the company applying the system can control who has access to their data.
- **It is not a cryptocurrency!** The iov42 platform can be applied to financial transactions, but it has not been designed exclusively for this purpose and so is not limited as such. It has been designed

specifically to represent physical and digital assets. This application-driven approach designs in stability and quite deliberately avoids the volatility that can be associated with systems designed primarily for financial benefit.

- **It is geographical centred** Many blockchain networks rely on utilising globally located data centers to store digital information. However, for commercial businesses, such as those in the steel industry, knowing precisely where your proprietary data is stored is an essential part of good business practice. For this reason, the iov42 system is designed to give companies the knowledge of precisely where their data is stored, instead of being randomly distributed around the world.
- **Energy and climate efficiency** The huge expansion globally in data centre infrastructure, and the associated energy burden, is a concern for many organisations utilising digital technology, particularly where such organisations place climate responsibility high on their agenda. iov42 recognises the importance of the climate transition in the steel industry and that is why the algorithm we have developed has been designed with energy efficiency in mind, placing it ahead of many other commercial DLT technologies.

### **REVOLUTIONISING STEEL SUPPLY CHAINS WITH DLT: A PARTNERSHIP BETWEEN IOV42 AND TATA STEEL UK**

In an era where transparency, security, and efficiency define the competitive edge, iov42 has embarked on a partnership with Tata Steel UK to redefine the steel industry's supply chain management. Through the deployment of DLT, a significant stride has been made towards establishing a more transparent, secure, and efficient framework for managing the lifecycle of steel products. This collaboration has led to the development of an innovative Electronic Proof of Delivery (ePOD) and Digital Product Passports (DPPs) prototype, setting new standards for the industry.

### **ENHANCED TRACEABILITY AND SECURITY WITH EPOD AND DPP**

The ePOD system introduced by iov42 leverages the immutable nature of DLT to securely capture

and log every exchange and receipt of goods as they move through various stages of the supply chain. This not only ensures a transparent track of transactions but also accommodates for human errors, allowing for corrections while keeping all stakeholders informed.

Meanwhile, the DPPs offer a comprehensive view of a product's journey, encapsulating critical information such as its origin, the transfer of custody, environmental impact, and any modifications it undergoes. This level of detail is pivotal for companies aiming to monitor their products' life cycle closely and meet the increasing demands for social responsibility and environmental stewardship.

### **A PERMISSIONED APPROACH TO DATA PRIVACY**

Recognising the industry's apprehension towards DLT, and more specifically blockchain, due to the risk of exposing sensitive commercial information, iov42's solution employs a permissioned framework. This approach enables organisations to manage vast amounts of data securely, sharing and tracking it exclusively with authorised stakeholders. This selective transparency ensures that businesses can maintain confidentiality while benefiting from the advantages of DLT.

### **THE BENEFITS OF DIGITAL PRODUCT PASSPORTS (DPPS)**

DPPs facilitate a transparent and efficient product tracing system within the steel ecosystem. By enabling real-time access to shared product data, ensuring data integrity through an identity-centric approach, and enhancing ESG reporting with third-party verification. DPPs prepare organisations for regulatory compliance and improve data quality. The integration of technologies such as IoT devices and RFID tags with DPPs ensures that all relevant information is collected and stored on a secure, immutable ledger, streamlining compliance processes and fostering trust among stakeholders.

### **TRANSFORMING STEEL DISTRIBUTION WITH EPOD**

The ePOD system addresses the steel industry's challenges with manual operations and insecure paper-based systems by digitising delivery information and providing →

indisputable evidence of transactions. This innovation not only streamlines administrative processes but also enhances the authenticity and security of product deliveries, significantly improving operational efficiency and customer satisfaction.

### **A SUSTAINABLE FUTURE FOR STEEL AND BEYOND**

The collaboration between iov42 and Tata Steel UK exemplifies the transformative potential of DLT across the steel industry and beyond. By facilitating more efficient, secure,

and environmentally conscious supply chain practices, this technology holds the promise of driving significant improvements across various sectors, from retail to manufacturing. The success of iov42's solutions in enhancing traceability and sustainability in the steel industry heralds a new era of innovation and environmental responsibility. **MS**

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