



Materials
Processing
Institute



Application of Blockchain Technology

Lewis Carter

8th December 2021



PRISM

Funded by
Innovate UK

PRISM – A Programme of Research and Innovation for the UK Steel and Metals Sector



PRISM

What is Blockchain?

- Immutable
- Commonly decentralised
- Records are referred to as blocks
- Each record has a cryptographic hash which is generated based upon the data of previous records
- Allows for easy identification of changes to the database
- Works well for sequential data such as transactions

How does it work?

- Different ways of verifying data in a blockchain is correct
- Public networks such as Bitcoin use proof-of-work or proof-of-stake
- Proof-of-work has attracted controversy due to environmental impacts
- Private networks use systems such as a lottery
- Most networks are decentralised
- If one machine is compromised, the database is safe on the rest of the network
- Some networks are centralised
- These are usually reserved for private networks and have a lot of redundancies in place

What are we doing with it?



INVESTIGATING BLOCKCHAIN
BASED SUPPLY CHAIN PRODUCTS



WILL BUY A PRODUCT AND
IMPLEMENT ON ONE OF OUR
OWN SUPPLY CHAINS

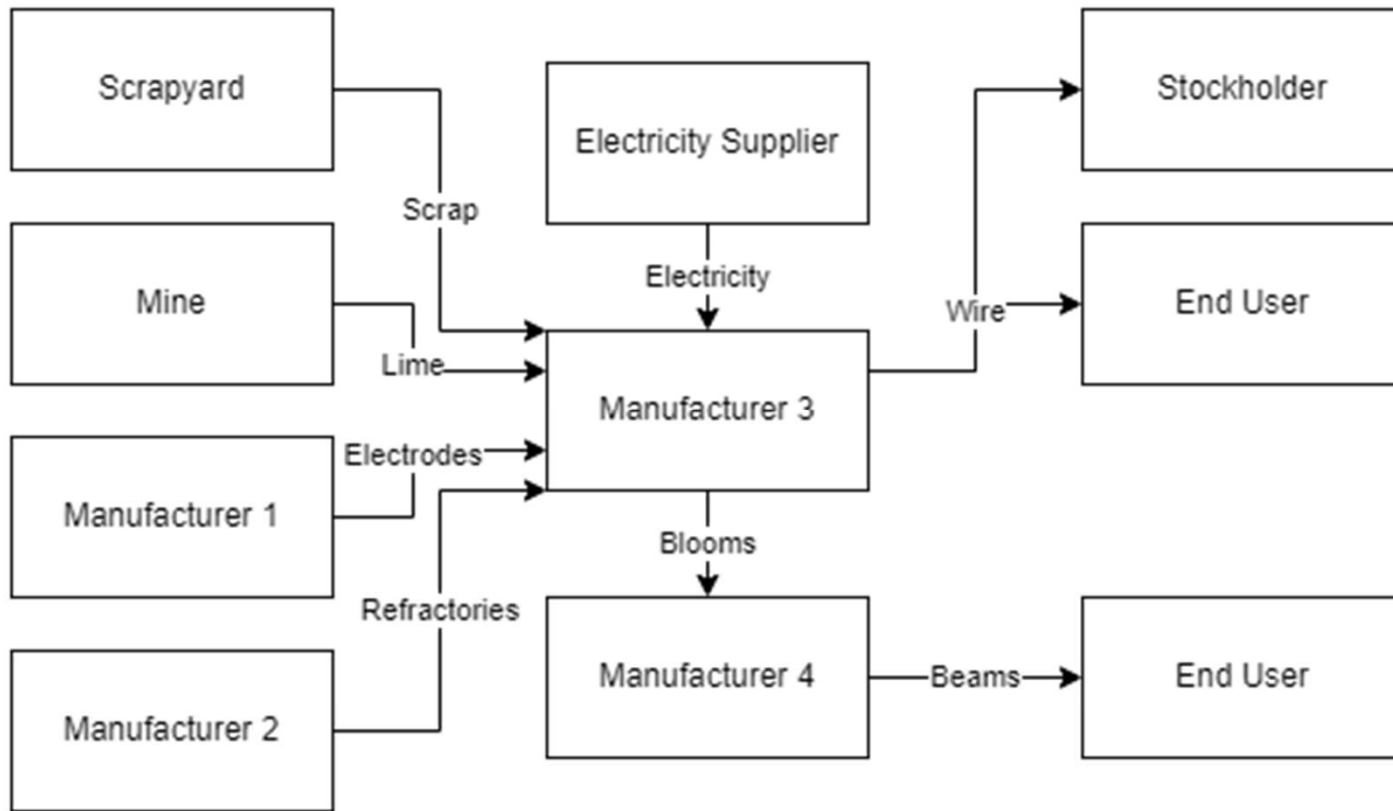


WILL USE THE PRODUCT TO
TRACK ASSETS AS THEY COME
AND GO ON THIS SUPPLY CHAIN



THIS WILL DEMONSTRATE THE
VALUE OF SUCH A SYSTEM

How might it work?



Who have we approached?

Mavennet

- Working with American and Canadian governments
- Focusing on the tracking of steel assets across borders
- Not available till next year

ChainPoint

- Modular product
- Focus on improving transparency
- Work in many different industries such as minerals, timber, apparel and more

Circular

- Focus on improving the circular economy
- Work with companies such as Volvo, Jaguar

Valuechain

- Focus on manufacturing industries
- Provides several products to improve supply chain transparency

What will this achieve?

Can automate the input of data for orders and transactions

Will improve the transparency on the supply chain we demonstrate on

Greater control for users of the supply chain

Will improve the knowledge of our current assets moving in and out of the supply chain

An improved awareness of inbound assets

Secure due to the blockchain technology behind the software

May be able to identify outliers in outputs with machine learning

Tracking of emissions during transport and processes

If successful we can recommend a software to the rest of the industry and help with the integration of such systems.

Any questions?



Funded by
Innovate UK

© Materials Processing Institute 2021



Materials Processing Institute
Eston Road
Middlesbrough
TS6 6US
United Kingdom

+44 (0)1642 382000
enquiries@mpiuk.com

www.mpiuk.com



Funded by
Innovate UK

© Materials Processing Institute 2021

