

**TECH OFFER**

## Blockchain-Enabled Material Traceability And Greenhouse Gas Emissions Tracking Platform



### KEY INFORMATION

TECHNOLOGY CATEGORY:

Sustainability - Low Carbon Economy

Sustainability - Sustainable Living

Sustainability - Circular Economy

Infocomm - Blockchain & Other Distributed Ledgers

TECHNOLOGY READINESS LEVEL (TRL): **TRL9**

COUNTRY: **SINGAPORE**

ID NUMBER: **TO174750**

### OVERVIEW

Majority of global greenhouse gas emissions stems from industrial activities, over 70% of which can be attributed to manufacturing, energy, and transportation. Companies are under increasing regulatory, investor and public pressure to demonstrate responsible sourcing, recycling and reduce carbon footprint across their supply chains, but many do not know where to start due to a lack of usable data and visibility across their supply chains.

This technology offer enables the organisation to achieve end-to-end visibility of supply chains that provides actionable and reliable data to make informed decisions and meet compliance requirements. The solution also dynamically tracks emissions at each supply chain step based on the actual flow of materials for their Scope 1, Scope 2 and Scope 3 emissions. By using blockchain, each component of the supply chain can be made immutable, and possibly be used for carbon credits generation, offsetting and trading.

The technology owner is seeking partners and collaborators especially those in mining, battery recycling and electric vehicles (EVs) industries to test bed their solution.

## TECHNOLOGY FEATURES & SPECIFICATIONS

This technology offer is an enterprise grade Software as a Service (SaaS) platform which includes all the required user interfaces, business logic, dependencies and supports the blockchain network components. Features and specifications includes:

- Hyperledger Fabric blockchain
- Provides provenance of end-product to the upstream source, to ensure trusted supply
- Sophisticated anomaly detection including machine learning for facial recognition, anti-GPS spoofing, mass balance and time duration monitoring
- Dashboards and analytics tools to generate customisable reports for further investigation of data and anomalies
- Dynamically tracks emissions at each supply chain step based on the actual flow of materials, for their Scope 1, Scope 2 and Scope 3 emissions
- Perform environmental social governance (ESG) benchmarking between suppliers to support ESG and decarbonisation initiatives

## POTENTIAL APPLICATIONS

This technology would be most applicable to industries with complex supply chains and stringent compliance requirements on responsible sourcing and decarbonisation, this includes:

- Electric vehicle manufacturing
- Battery cell manufacturing and recycling
- Construction
- Mining and metals
- Electronics and chip Manufacturing

## MARKET TRENDS & OPPORTUNITIES

The circular economy presents a \$4.5 Trillion economic opportunity by 2030. The EU has adopted an ambitious circular economy package, which includes concrete measures to promote re-use, and economic incentives for producers to put greener products on the market

Businesses can gain the economic advantage of circular economies and build stronger and more stable economies for the customers they serve. Traceability enables a whole new realm of decision making and product innovation, enabling businesses to have full visibility of materials and facilitates collaboration across diverse suppliers. In addition, being able to prove sustainable claim will boost brand reputation and customer relationship. According to Nielsen study, 85% of millennials globally say that it is “extremely” or “very” important that companies work to improve the environment.

## UNIQUE VALUE PROPOSITION

Differentiation: Demonstrate and prove sustainability using this as a competitive lever to drive top line growth.

Risk Reduction: Rapidly identify areas of concern or non-conformance within your supply chain

Cost Reduction: Significantly reduce costs of auditing provenance and compliance in your supply chain