ubloquity®

AEROSPACE & DEFENCE

Transforming the aerospace and defence supply chain with blockchain and IoT

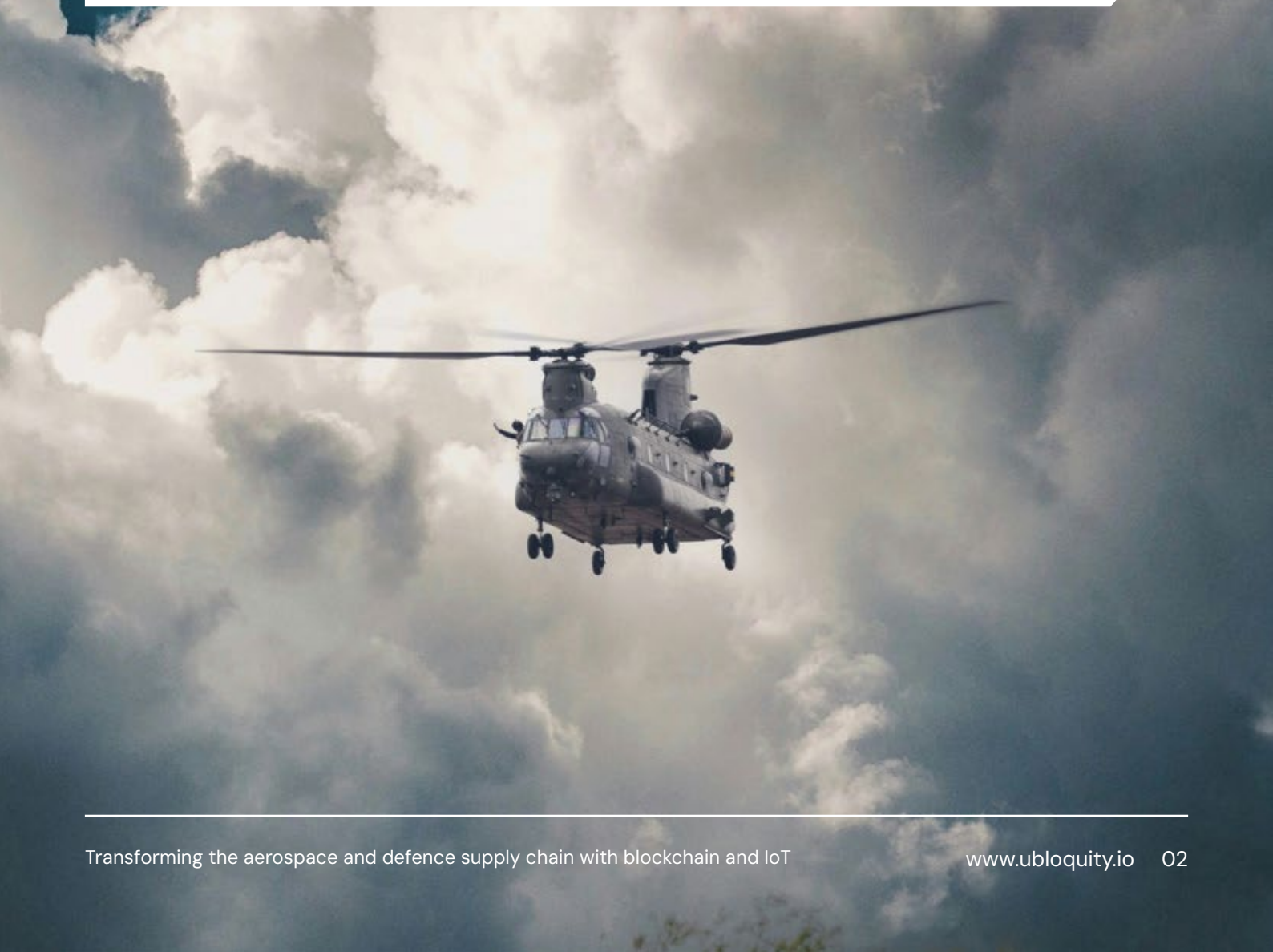
www.ubloquity.io

DEFENCE IN THE DIGITAL ERA

introduction

The aerospace and defence sectors are **critical to global security and technological advancement**. As such, they demand robust, transparent, and efficient supply chains. With the advent of Blockchain, Distributed Ledger Technology (DLT), and the Internet of Things (IoT), we are at the cusp of a transformative era.

These technologies offer unparalleled opportunities to **enhance transparency, component authentication, traceability, and efficiency across the supply chain**. This white paper explores how integrating these technologies can revolutionise the aerospace and defence sectors.



The current supply chain landscape

The supply chain in aerospace and defence is complex, involving numerous stakeholders, from component manufacturers to assembly plants and from logistics providers to regulatory bodies. Traditional supply chain management faces challenges such as:

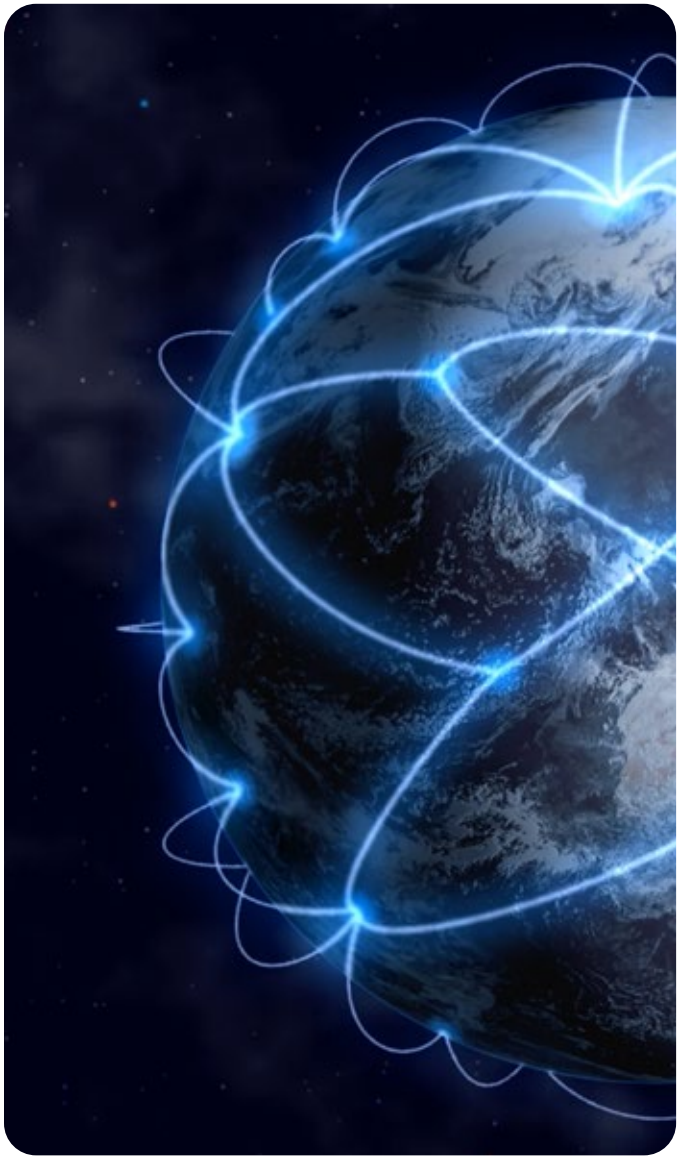
- Lack of transparency and real-time tracking
- Difficulty in authenticating components
- Inefficiencies in lean manufacturing and just-in-time assembly
- Complex customs and logistics processes

Blockchain and DLT: enhancing transparency and traceability

Transparency

Blockchain and DLT enable a decentralised, immutable ledger where all transactions and data entries are recorded.

This transparency ensures that all stakeholders can access real-time data, reducing the risk of fraud and errors. Every transaction or change in the supply chain is visible and verifiable by all parties involved.



Component authentication and traceability

Blockchain can store detailed records of each component's journey through the supply chain. From the point of manufacture, including lab and material results, to final assembly, each step is documented, ensuring that components are authentic and have not been tampered with. This traceability is crucial in aerospace and defence, where component integrity is vital for safety and performance.

IoT & Digital DNA Integration: Real-time data and monitoring

IoT devices and Digital DNA markers can be embedded in components and machinery to provide real-time data on their condition and location. This data can be continuously fed into the blockchain, ensuring up-to-date and accurate records.

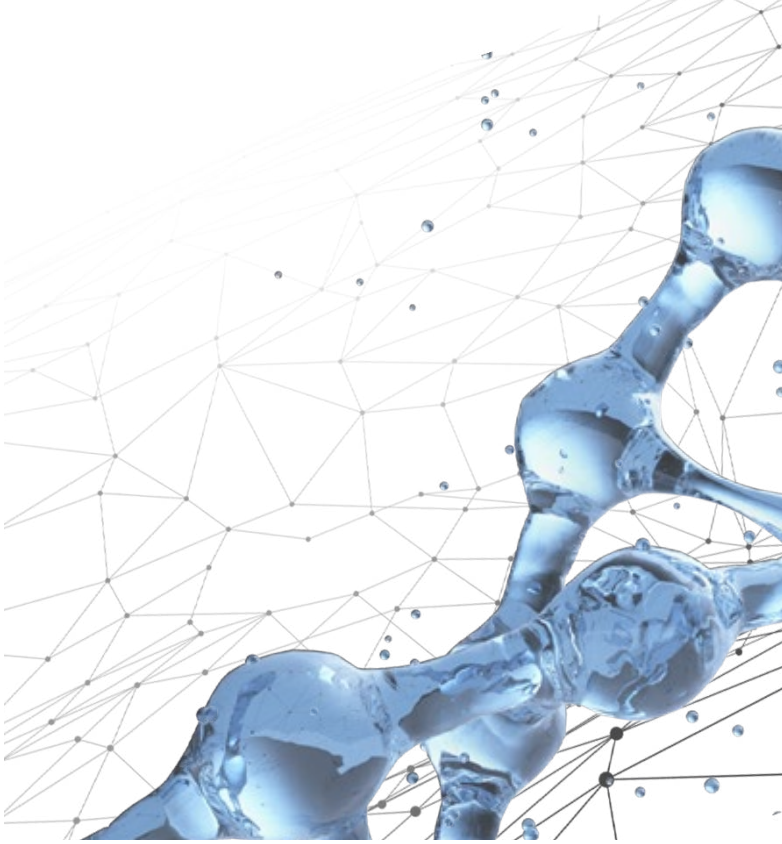
The integration of IoT enhances the ability to monitor components, predict failures, and schedule maintenance proactively, thus supporting lean manufacturing and just-in-time assembly processes.

Lean manufacturing and just-in-time assembly

Efficiency gains

Blockchain's transparency and IoT's real-time data capabilities streamline lean manufacturing and just-in-time assembly. With precise data on component status and location, manufacturers can optimise inventory levels, reduce waste, and enhance production efficiency.

This results in cost savings and improved production timelines. ubloquity has helped customers save circa 30% in time and efficiency savings and noted that in some



cases, a 1% cost saving in production could equate to £100K in savings.

Reduced downtime

Predictive maintenance enabled by IoT data ensures that components are serviced before they fail, reducing unexpected downtime and maintaining production flow. Blockchain ensures that maintenance records are transparent and tamper-proof, adding another layer of reliability.

Distributed benefits: Actor and company validation

Actor and company validation

ubloquity's platform can be used to validate the credentials and trustworthiness of all

actors and companies within the supply chain. Each entity's identity, certifications, and compliance records can be stored on the blockchain, ensuring that only verified and compliant parties are involved in the supply chain.

This reduces the risk of fraud and ensures adherence to industry standards and regulations.

Streamlined customs and logistics

When combined with customs and logistics data, ubloquity's platform has revolutionised the movement of goods across the global supply chain.

By providing a single source of truth for all shipment data, customs processes can be expedited, and the risk of delays and errors is significantly reduced.

Real-time tracking and immutable records ensure that goods are transported efficiently and securely.

Secondary and third-party benefits

Asset authentication

ubloquity's ability to provide an immutable record of a component's history is invaluable in the secondary and third-party markets. Buyers can verify the components' authenticity and history, ensuring they purchase genuine and reliable parts.

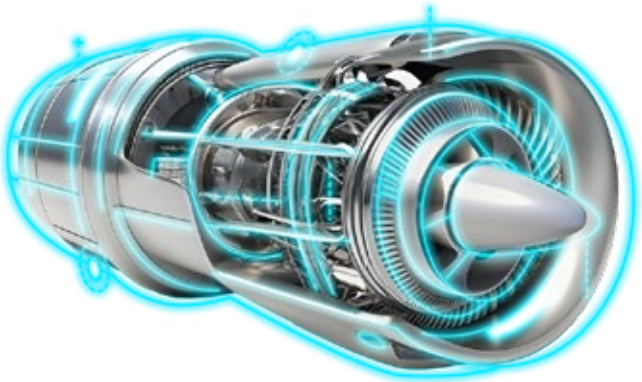
Component history and warranty benefits

The detailed records on the blockchain include information such as the mean time to failure (MTTF) and warranty status of components. This information is critical for buyers and sellers in the secondary market, providing insights into the component's reliability and remaining useful life.

Asset financing, assurance, and insurance

Blockchain can also revolutionise asset financing, assurance, and insurance:

- **Asset Financing:** Lenders can verify the history and condition of assets, reducing the risk associated with financing.
- **Asset Assurance:** Detailed records assure buyers of the quality and reliability of components.
- **Asset Insurance:** Insurers can access accurate data on the history and condition of assets, leading to more accurate risk assessments and fairer premiums.



TRANSPARENT, EFFICIENT & RELIABLE

conclusion

Integrating Blockchain, DLT, Digital DNA and IoT into the aerospace and defence supply chain promises **unprecedented transparency, efficiency, and reliability**. From enhancing lean manufacturing and just-in-time assembly to revolutionising customs and logistics processes, these technologies are set to transform the sector.

The benefits extend beyond primary supply chain operations, offering significant advantages in the secondary and third-party markets through improved asset authentication, financing, assurance, and insurance. As the aerospace and defence sectors continue to evolve, **embracing these technologies will be crucial to maintaining a competitive edge and ensuring the highest quality and safety standards**.

INNOVATION THROUGH AUTHENTICATION

about ubloquity

ubloquity leverages cutting-edge blockchain and AI technology to provide secure, transparent, and efficient digital asset identification, authentication, and traceability solutions across various supply chains, including freight, pharma, aerospace, and provenance.

By enabling real-time visibility and compliance through a centralized platform, ubloquity empowers businesses to enhance security, streamline operations, and build trust with their customers. Trusted by industry leaders, ubloquity's innovative solutions ensure the seamless and frictionless movement of goods while maintaining the highest standards of product integrity and customer satisfaction.

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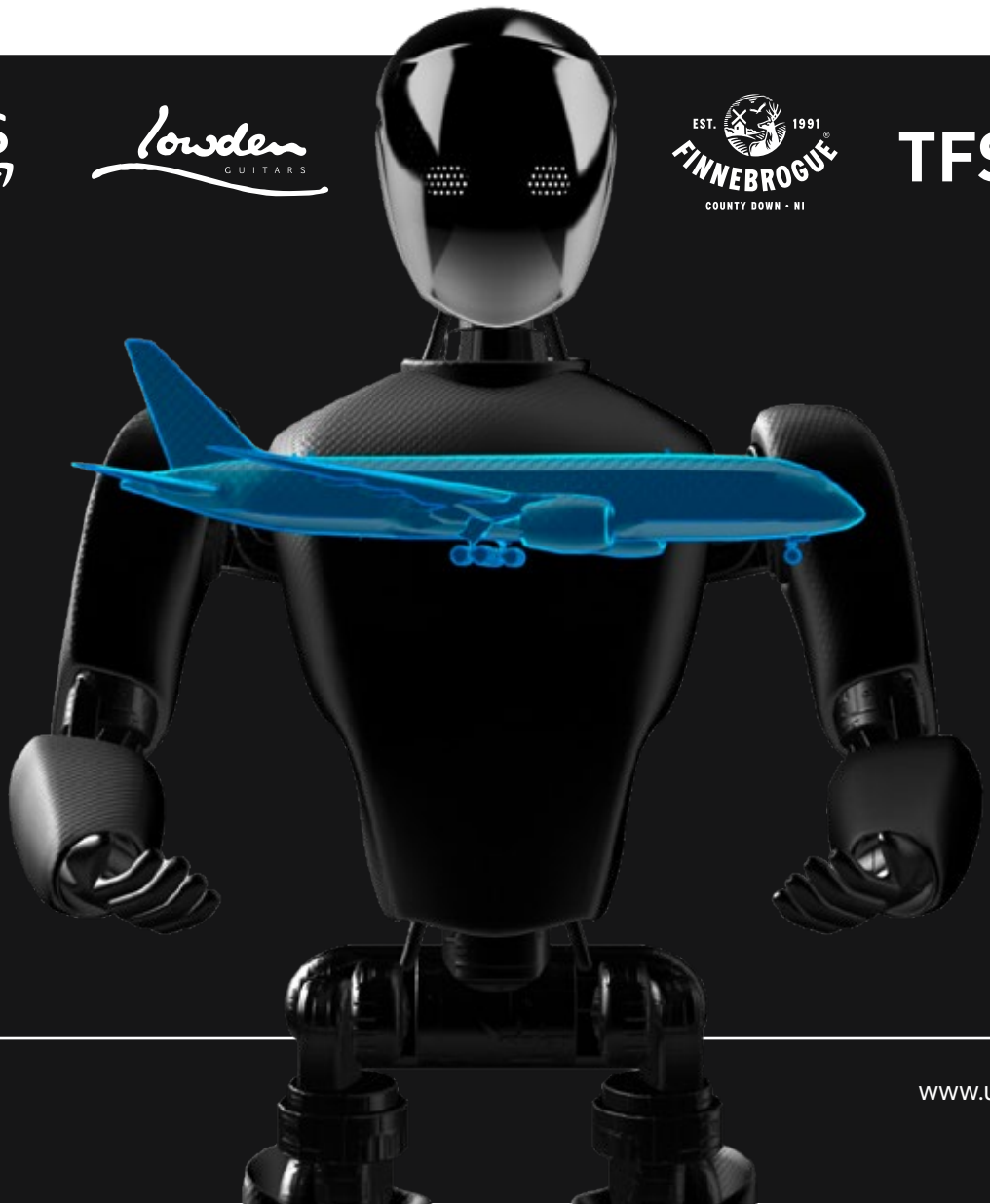

APPENDIX 1

Total transparency example

A global leader in food and seasoning needed a robust solution to enhance transparency and streamline its complex supply chain operations. The company sought to ensure product authenticity and compliance with Environmental, Social, and Governance (ESG) standards while optimizing cost and efficiency.

To meet these needs, we developed a comprehensive platform that integrated various supply chain components, from suppliers and lab results to logistics and regulatory requirements.

When integrated with the ubloquity paVe platform, this global and complex supply chain not only streamlined operations to support transparency and product authentication but provided insights to unlock cost and efficiency savings while providing assurances against ESG statements.

Integration with customs, shipping, and logistics platforms further enhanced the frictionless movement of goods across the global supply chain.