Blockchain-Based Aircraft Asset Lifecycle Management

Overview

An aircraft has several owners, and different parts replaced over its lifetime. Are those parts original and in good shape?

Damage events are something an organization wants to know about over time. Trust along the supply chain is assumed unless there are signs of physical tampering, a delivery truck is stolen, or transport delayed.

Applicable Industries

- Aerospace

Applicable Functions

- Environmental Health & Safety
- Maintenance
- Quality Assurance

Market Size

Estimate A

According to Gartner, the global value add of the blockchain technology will grow to

USD 176 billion by 2025, and will exceed USD 3.1 trillion by 2030.

Source: Gartner

User Viewpoint

Business Value

How does this use case impact an organization's performance?

Using a combination of IoT, instrumentation and device authentication, every part that is used in a complex piece of equipment has an indisputable provenance and history in an unalterable record on the blockchain.

For the buyer, and more importantly, the passenger of the aircraft, the safety and reliability of that aircraft is traceable.

Key Performance Indicators

How is the success of the system measured for users and for the business?

Reduced number of counterfeit parts

Number of previously undetected hard landings

System Capabilities & Requirements

What are the typical capabilities in this use case?

Blockchain minimizes reliance on blind trust, while enabling real-time visibility into supply and demand – across the entire ecosystem.

Deployment Environment

Where is the 'edge' of the solution deployed?

The Blockchain solution is deployed at all nodes of the network of either owners of the entire aircraft over its lifecycle, or suppliers of single parts.

Stakeholder Viewpoint

Investment Decision Makers & Influencers

Which organizations, departments, or individuals typically makes an investment decision and allocates budget?

CIOs

CTOs

System Operators

Which organizations, departments, or individuals are responsible for operating and maintaining the system?

All participants sharing a network node.

System End Users

Who are the regular users of the system?

Airlines

Aircraft manufacturers

Aerospace subsuppliers

External Data Users

Which external stakeholders are provided with limited access to the data?

Airport management service providers

Technology Viewpoint

Sensors

What sensors are typically used to provide data into the IoT system, and which factors define their deployment?

Bar Code Scanners

Position Trackers

RFID Tags

Cybersecurity

What factors define the trustworthiness of the solution?

No one party can modify, delete or even append any record without the consensus from others on the network

Data Viewpoint

Data Requirements

What other requirements define data behavior?

Data loaded into the blockchain will be encrypted by an algorithm; common is the SHA-256.

Private and public keas will have to be maintained from each participant within the supply chain to decipher the data maintained in the blockchain. A loss of these keys will result in the permament loss of the data.

Implementation Viewpoint

Business & Organizational Challenges

What business challenges could impact deployment?

Total transparency in the process and business environment challenges business models that were built on assymetric information.

The decentralized nature of the blockchain challenges organizations and management practices which were built on hierarchical structures.

IoT ONE Use Case

Accelerating the Industrial Internet of Things

IoT ONE is widely recognized as a leading Industrial IoT research firm, opinion influencer, and go-to-market channel.

1. Create a **free account** to view and download hundreds of IoT case studies and supplier profiles.

2. Already have an account? **Feature** your case studies, and your hardware and software solutions.

3. You can connect with us via email at **team@iotone.com**.

www.iotone.com