

Blockchain-based electronic exchange of freight transport information (eFTI)

Rachaniotis N., Dasaklis T. and Kopanaki E.

IPIC 2023

9th International
Physical Internet Conference

June 13-15, 2023
Athens, Greece



INTRODUCTION

Electronic Freight Transport Information (eFTI) refers to the electronic exchange of information between different parties involved in freight transport chains. It aims at the efficiency and transparency of freight transport by allowing the quick and accurate exchange of information between all parties involved.

EXISTING SITUATION

Most transactions related to the transport of goods are still paper-based, due to:

- The **fragmented legal framework** forming inconsistent requirements of electronic documents acceptance by different authorities.
- The **fragmented IT environment** comprising non-interoperable systems and varied standards of electronic messages and documents.
- The **low level of electronic documents' acceptance** by different stakeholders.

REGULATORY FRAMEWORK

The European Commission formed a **Regulation** aiming to enhance the trust of businesses and authorities in Member States and ensure that eFTI platforms and service providers meet the required functional standards.

BLOCKCHAIN

Blockchain technology can be used to create a *decentralized, tamper-proof* and *immutable* ledger to store and share eFTI data.

- It may improve the **transparency, security** and **traceability** of transport information.
- The **data** stored on the blockchain is **immutable** and can be used as evidence in case of disputes.
- **Smart contract capabilities** can automate payment processes and transfer of ownership.

REQUIREMENTS

Blockchain-enabled pan-European eFTI infrastructure operational requirements:

- *Interoperability*: seamless communication and data sharing between all parties involved.
- *Common standards* widely accepted across Europe
- *Scalability*: To support increased volume of transactions.
- *Smart contract development and execution* to automate processes and enable real-time tracking of information
- *Technical support*: To ensure smooth operation
- *Legal and regulatory compliance* including EU data protection and regulations.

CHALLENGES

- Lack of *awareness* and *business readiness*
- *Technical architecture* under consideration
- Varied technical solutions considered
- Lack of unified messaging/document *standards*
- Many *small companies* (e.g., truck owners) involved, unable to make changes or investments

CONCLUSIONS

Blockchain technology has the potential to revolutionize the way eFTI systems work, by offering reliability, transparency, traceability and data security. However, alternative technical solutions are still considered in the European Union, while legal and business are not yet resolved.

ACKNOWLEDGEMENTS

This work is partly supported by the University of Piraeus Research Center and is implemented as part of the project and Innovation Community for the Blue Economy in (KICs)

IPIC 2023

9th International
Physical Internet Conference

June 13-15, 2023
Athens, Greece

alice

Alliance for
Logistics Innovation
through Collaboration
in Europe



-SENSE
GROUP