

Legal aspect of Governing Electronic Transport Document in Indonesian Port

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Abstract

This paper aims to discover an appropriate port management model so that Indonesian ports can export technology while also supporting managerial and functionally international trade. The blockchain chain model can help Indonesian ports compete with ports in neighboring countries. The study also explores whether managing shipping workflows and documents can adopt the Blockchain of existing maritime ports. This study employs qualitative research methods. The research used secondary data from international regulations and conventions while supporting information with depth interview data; Current studies build a conceptual framework through a systematic project review conducted in conjunction with scientific literature published in journals and conference processes, random sampling, and observation over the past decade. The results showed that the project under review could be compiled into three main conceptual areas: document workflow management, financial processes, and device connectivity. However, having a clear linkage, no project under review considered all three places at once. Concepts related to maritime document workflows receive broad support among the projects under consideration. In addition, the project under review inadvertently followed similar goals set out in the port management scientific project before the introduction of blockchain technology.

I. Introduction

Digitalization has been the biggest driver of development, coordination, process optimization, and efficiency in the maritime industry. Conversely, Indonesia has problems with delays in ports (congestion) caused by winding document completion procedures as a maritime country. The administrative completion process takes about 4-7 days in several large ports, such as Tanjung Priok.

Therefore, a ship must wait for days to queue in a dwelling time that is longer than the time of sailing in the domestic sea (Achmad Ridwan, T Subarsyah, & Roely, 2016).

Conventional approaches are considered inefficient and are often burdened by risk-based business systems, thus hindering port activities (Rachmawati & SH, 2020). The research results showed that delays that cause damaged goods, theft, dismantling of terminals, and lack of cooperation between logistics service operators, local authorities, and recipients of goods are urgent problems to overcome. This situation has left the Port of Indonesia unable to compete with Indonesia's international ports, already lagging behind some of the world's port countries, such as Singapore, the Netherlands, and France, which have used Blockchain-based systems in optimizing costs, documentation management, time, administrative processing, streamlining, and automating payments along the supply chain (Vieira & Fransoo, 2015).

Another problem is the Indonesian legal system that is not designed for Blockchain But more targets cryptocurrencies (Vieira & Fransoo, 2015). In comparison, the international nature of maritime trade law requires certainty of legal aspects. Blockchain meets these needs and is believed to solve problems. Nevertheless, Blockchain requires regulation to protect data, anti-trust, decentralization, and the concept of legal responsibility if the system fails.

This dwelling time problem needs to be addressed so that ports in Indonesia can serve as transit activity points from various transportation facilities and guarantee commercial ships' "quick dispatch." (Rachmawati & SH, 2019). The renewal of maritime law in the Internet of Things (IoT) becomes an inevitability as Mochtar Kusumaatmadaja developed the concept of development law. It is said that: "... The law is necessary for change, including the rapid change that is usually expected by the building community if the change is to be carried out in an orderly and orderly manner" (Umar, 2001). The Indonesian Government must harmonize and comply with maritime law with the provisions of IoT. Harmonization and compliance are defined as an effort to adjust the principles and legal system to realize legal simplicity, legal certainty, expediency, and justice.

2. Research Method

This study employs qualitative research methods. The research used secondary data from international regulations and conventions while supporting information with depth interview data; Current studies build a conceptual framework through a systematic project review conducted in conjunction with scientific literature published in journals and conference processes, random sampling, and observation over the past decade.

3. Results and Discussion

Maritime Trade Document is a series of trading processes starting with documents submitted to the harbormaster office, verified by officers, including news of events during the voyage harbormaster inspected and tested the physical condition of the shipbuilding, letter documents, and ship certificates (Hald & Kinra, 2019). The harbormaster carries out inspections of incoming ships, including examination and testing of the physical condition of the ship's building and letter documents, and ship certificate. Thus the task of a harbormaster is vast in determining ship travel. Sea transportation (Baatz, 2020) Sea transportation requires complex documents, many parties involved, and many interests that often cross each other to allow a conflict of interest.

The transport of goods by sea is vast and structured; about 90% of freight transport in global trade is managed by the shipping industry, which has the most potent bureaucracy (Goldby, 2013) This condition slows down the process due to the complexity and volume of point-to-point communication between land transportation service providers, freight forwarders, customs agents, and port management In contrast, only a few subjects are involved in international shipping on sea transportation Shipping good port work, all these individuals must certainly know quickly a series of logistic information, including various safety provisions, especially relevant contract information about the delivery of goods, including purchase documents and sales contracts, including commercial invoices, delivery notes, certificates of origin, bill of lading, letters of credit, transportation documents, insurance policies, and payment notices Transportation logistics of this size require many documents, especially paper documents, which can account for more than 50% of transportation costs (Davies, 2020)

The Internet of Things (IoT) is a development in maritime trade, although the use of electronic data is not new This trading concept was first regulated in the ICC 1990 with an electronic bill of lading (e-B/L) Under this regulation, it is determined that the right to supervise the goods and transfer them to others is required private fundamental rights that will be handed over to the shipper by the carrier after the goods are received (Tyagi, Ghosh, Rana, & Kansal, 2020) In 1996, UNCITRAL developed a legal model for e-commerce containing regulations for e-B/L and the procurement of documents In 2000, the Bolero System was developed This system is different from e-BL The bolero system involves using a Third Party as an intermediary party (TTP) and a payment system held by the Society for Worldwide Interbank Financial Telecommunication (SWIFT) (Umar, 2001) In the ICC Incoterm 2000, almost all regimes of handover of goods that initially used paper were replaced with electronic documents The same situation was strengthened by Incoterm 2010 and 2020 All such Incoterms refer to the circumstances in which the seller and buyer agree to engage electronically If approved, ordinary paper documents can be replaced by EDI's electronic data communication methods (Electronic Data Interchange) (Gutiérrez, 2010) However, these electronic communications and

documents are only carried out on the payment of import duty taxes, import taxes, filling out import notification forms, and post audits to match the types of goods and documents. In addition, the issue of payments, taxes, and electronic instruments is a must in terms of navigation as recommended by the International Maritime Organization (IMO) and the Safety Of Life at Sea (SOLAS) Convention.

Blockchain is a solution to overcome the weaknesses of conventional port document management systems. The use of Blockchain will build trust among various stakeholders (Tsiulin, Reinau, Hilmola, Goryaev, & Karam, 2020).

Internet of Things and overall device connectivity are among the device concepts addressed by the whole review projects. The entire transportation and supply chain process gradually shift towards transparency and traceability to demonstrate the quality of the product and its origins. Ports might apply Such detailed transportation history in dispute resolution between certain parties. Internet of Things functionality, once embedded, provides a broader list of trackable real-time characteristics: location, temperature, capacity, movement, and damage (Minoli and Occhiogrosso, 2018).

Blockchain, in this regard, can play a role of a database, updated in real-time by multiple actors. Goods transportation records are automatically sent to Blockchain as timestamps once the agreed checkpoints are passed (Tradelens, 2019; Tallysticks, 2018; Provenance, 2018). It allows precise monitoring of location, condition, and other needed parameters to monitor goods on the way. Apart from that, the embedded logic can define whether parameters taken from sensors go beyond the required level and create a report accordingly (Skwarek, 2017). In this case, the information is stored automatically without any manual user input, visible to prior-agreed parties in the network. Such an approach helps to spend less time resolving disputes and preventing fraud, knowing precisely "when and where" each action will occur (Casino *et al.*, 2019; Kshetri, 2018). The usage of intelligent contracts promotes the utilization of automatic logic to create self-made reports and notifications not only for the sender but also for all parties involved. The result will reduce the average time spent on resolving disputes and transparency improvements and help achieve better trust from the final customer.

In law, contracts are where Blockchain shines. The best-known implementation of blockchain-based contracts is Ethereum's smart contracts. Smart contracts are contracts that automatically execute when the requirements are met. No matter what form it takes, a contract must have certain key elements to be legally binding: Offer; Acceptance; Agreement; Consideration; Capacity; Legality: And the possibility of performance. If a blockchain-based smart contract meets these requirements, it will be valid.

Legal challenges to smart contracts, intelligent practice, and innovative con intelligence face additional challenges. First, not all countries accept electronic documents. In addition, a smart contract is a computer program. Any errors in coding will lead to issues with the contract. After the programmed conditions are met, the contract will self-execute.

If a party loses money through a programming error, they have an action against the other party and the programmer. In some countries, sharing pricing information in public affects competition, while putting data on a private blockchain is anti-competitive. Even worse, not all countries recognize electronic contracts, digital signatures, and digital transactions. Those that are likely to recognize smart contract.

4. Conclusion

The main aim of the paper develop literature reviewed were on Blockchain in shipping and supply chains. The sample selection of literature source and locations follows a goal of building a conceptual building the same review how Blockchain affects communication between involved stakeholders, information flow, data confidentiality concern and related processes to shipping and port management.

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