A people business, led by IT

Ship agents are a critical cog in every dry bulk shipping supply chain. FONASBA, the industry association for port agents has identified more than 130 separate operations that a port agent may potentially be required to undertake during any port call; and to document, communicate and invoice for. Unless more of the administrative processes performed by ship agents are "digitalized, digitized and integrated", many of the operational efficiencies gained by onboard digitization and automation are negated by delays in port, *says Lars Fischer, Managing Director of shipping software provider Softship.*

"It is important to distinguish here that digitization and digitalization are not interchangeable. Digitization is the application of IT to change a paper-based process whereas digitalization is applying IT to transform or disrupt a particular processor system. There is, of course, significant room for both in shipping. In coming years, we will see significant transformation of port-related administration with the help of big data, the Internet of Things (IoT), and possibly, blockchain solutions; but not before ship agents get their IT fundamentals right first", Fischer suggests.

By creating networks of information that seamlessly link vessel, cargo, port and provider, and which focus on real-time and standardized data transfer and intelligence sharing, the benefits that big data, IoT and potentially blockchain can bring to shipping supply chains are limitless, according to Fischer. But he warns, there is a long way to go in transforming the digital infrastructure required in order to benefit from new technologies.

"If our supply chains are to become more intelligent, it is crucial that port agents have IT capabilities that are on a par with that of their principals and the companies they serve, and the supply chain partners and systems they engage with. Currently, we find that there is often a significant divide between the IT capabilities of charterers or ship owners and operators, and the ship agents they appoint.

"Many agents are using data analytics in some way, but they are working from systems that were built for any industry – Microsoft Office packages, for example – and using primarily historical data sets. Without software systems specifically designed to manage administrative processes, which integrate data in real-time from IoT-devices and networks, and which

automatically capture, sanitize and apply data from third-parties, port agents rely on individuals to mine through data, create reports and communicate time-sensitive information," he adds

Making sure that shipping companies have the right software solutions in place to manage their back-office, and to apply big data analytics directly into processes is an essential hurdle that must first be crossed in shipping's digital transformation. There are purpose-built software solutions already available to do this, including Softship's solutions, which can manage all of the essential administrative processes and data exchange through a single suite of software, which connects every department and process to eliminate error, duplication and delay.

Only once such systems are in place, connected and integrated, should any shipping company consider blockchain or IoT applications, according to Fischer.

"Looking further ahead, blockchain technologies have the potential to transform entire supply chains if adopted by the right parties and authorities," he suggests.

A 'blockchain' is a decentralized peer-to-peer ledger system with records distributed across many computers - in IT terms, these are referred to as nodes. Every blockchain system is made up of blocks which contain a set of data – a timestamped record of information. Each block is confirmed with a unique digital fingerprint or hash, which identifies the block and all its contents. Each time an update is made, or a new node enters the chain, a new block is added to the chain instead of overwriting the original. If the information is correct, the new block is accepted and connected to the previous ledger.

Every time this happens, the blockchain is shared across every computer that has ever been involved in the chain; maintaining an accurate, permanent and completely transparent archive of information. If an old record is changed, it will notify the entire network.

Fischer explains: "We can think of this as each new record being appended, rather than amended on a document, such as a Bill of Lading. Taking this example, each time a transaction occurs, the vessel arrives at port, or a cargo is checked, for example, the blockchain allows every node in the chain, each computer ever involved in the transaction, to check the accuracy of the new information. This would allow for

accurate, real-time records of transactions. This will minimize errors and provide traceability, which is currently a big problem in shipping supply chains and create a much more robust system for ensuring accountability for the benefit of all."

Another "game-changer", according to Fischer, is the wider use of IoT in the dry bulk supply chain. The term 'Internet of Things' or 'IoT' refers to physical devices which are connected to the Internet, usually through WiFi or 3 (4 or 5)-G data. These physical devices fitted with digital sensors and controlled remotely are increasingly common in everyday life, and within the maritime industry – particularly in port. We can communicate with these devices over the internet, and these devices can be programmed to automatically communicate with each other, meaning there is a constant flow of data and information in real time

"More widespread use of IoT will allow owners, operators charterers, agents and logistics partners to gather insights which haven't really been possible before. From sensors continuously monitoring and reporting very specific holding tank conditions to predictive maintenance onboard, there is great potential for the dry segment. But these technologies do pose risks.

"Each of these systems is developed by a different manufacturer, and there are significant issues in standardising data management as well as ensuring reliable back-up systems and procedures are in place for when these systems do fail or are interrupted by Internet network issues. There is also the problem of integration between software systems and sensors, and the ongoing update and maintenance of IoT-enabled devices. Hackers can penetrate these systems and cause significant disruption and worse.

"What all of these technologies share is the potential to be truly transformative to shipping supply chains. But rushing to adopt these technologies before parties across the supply chain have adequate IT infrastructure in place is just pointless. Thankfully, this is an easy fix, and the software solutions are already available."

ABOUT SOFTSHIP

Softship provides software solutions and related services to the international liner shipping sector.

Softship is a part of the WiseTech Global group.