

**AN INSIGHT INTO THE APPLICATION OF BLOCKCHAIN  
TECHNOLOGIES IN THE MARITIME AND SHIPPING INDUSTRY**

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**ABSTRACT**

This Article focuses on the manner in which blockchain technologies can be applied to the Maritime and Shipping industry, in particular taking a look at Malta's perspective. With the increase of the use of blockchain technologies across the globe, it is evident that it has the potential of impacting one's life in numerous ways. This Article seeks to identify how blockchain may be applied in the field of Shipping and Maritime Law, including logistical, contractual and traceability aspects. Its potential in this field of law is an extensive one, which could completely revolutionise the way in which things are currently being done.

**KEYWORDS:** BLOCKCHAIN TECHNOLOGIES – MARITIME INDUSTRY – SHIPPING – BILLS OF LADING – RAISING FINANCE - DIGITALISATION

## AN INSIGHT INTO THE APPLICATION OF BLOCKCHAIN TECHNOLOGIES IN THE MARITIME AND SHIPPING INDUSTRY

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### 1. Introduction

By definition, a blockchain is a system, within which transactions made in a cryptocurrency are recorded and maintained across several computers, which are linked in a peer-to-peer network. These records are referred to as ‘blocks’ and are linked using cryptography. Each ‘block’ contains a cryptographic hash of the previous block and transaction data and once recorded, the data in a block cannot be changed without affecting and changing the subsequent blocks. Thus, this quality ensures that a blockchain is secure and is based on decentralisation, eliminating any risks associated with the reliance on one central authority to transact with other users. A blockchain is ‘*an open distributed ledger that can record transactions between two parties efficiently and in a verifiable and permanent way*’.<sup>531</sup> This phenomenon was invented by Satoshi Nakamoto back in 2008, in order to serve as the public transaction ledger of a particular cryptocurrency, Bitcoin. In simple terms, blockchain is a digital platform which is used for recording and verifying transactions which cannot be reversed at a later stage; it serves as an anonymous peer-to-peer system which is based on cryptography.

When understanding blockchain, it is also important to define the terms ‘cryptography’ and ‘cryptocurrency’. Cryptography refers to the practice of techniques used in secure communication networks, in the presence of adversaries. This deals with the construction and analysis of protocols which prevent adversaries (third parties) from accessing private communication. Modern cryptography consists of data integrity, authentication and confidentiality, and is involved in various disciplines such as computer and communication science and engineering.<sup>532</sup> A cryptocurrency on the other hand, is a digital asset used as a means of exchange, which uses cryptography to secure financial transactions and verify the transfer of an asset. Cryptocurrencies are based on a decentralised concept, through the use of distributed ledger technology

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<sup>531</sup> The Truth About Blockchain", Harvard Business Review <<https://hbr.org/2017/01/the-truth-aboutblockchain>> [Accessed 24 Feb. 2019].

<sup>532</sup> DeMuro, J. (2019). *What is cryptography?* [online] TechRadar. Available at: <https://www.techradar.com/news/what-is-cryptography>> [Accessed 24 Feb. 2019].

which serves as a database for financial transactions.<sup>533</sup> ‘Bitcoin’ is the original cryptocurrency, which was released in 2009 as the first decentralised cryptocurrency. It is the most widely used cryptocurrency which has experienced immense growth; however, critics often discuss the potential limit to its growth due to its slow speeds, energy usage and high transaction fees. Following the release of bitcoin, various alternative cryptocurrencies were created. These include ‘litecoin’, ‘dogecoin’, ‘ethereum’, ‘BAT’, ‘NEO’, ‘Stellar (XLM)’ and ‘Cardano (ADA)’.<sup>534</sup> This Article intends on analysing the legislative framework which has been adopted in Malta in terms of blockchain and cryptocurrencies, whilst also considering some possible applications and uses in the Maritime Law Industry. Noticeably, the application of blockchain technologies in the field of Shipping and Maritime Law, could truly revolutionise a number of aspects including logistical, contractual and traceability elements. This Article will be focusing on a number of these, including discussions on claims handling, raising finance, risk assessment and Bills of Lading.

## 2. Discussion

Blockchain has the potential of impacting various aspects of one’s life, both in personal and professional terms. The use of blockchain has increased in recent years, and this may be due to a number of factors. Primarily, blockchain provides greater transparency for transactions. Due to the fact that it is a type of distributed ledger, all participants share the same documentation, and everyone must agree on that shared version. Data which is saved on a blockchain is accurate, consistent and transparent and once a block is linked, it cannot be reversed. Additionally, the use of blockchain provides a more secure system, whereby transactions are agreed upon and then are recorded through encryption. Blockchain also provides a faster and more efficient manner of completing transactions, and this is done at a reduced cost, without the need for third parties and other intermediaries. Furthermore, blockchain improves traceability, making it easier to identify the item’s origin and historical transaction data.<sup>535</sup> Ultimately, blockchain

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<sup>533</sup> CoinTelegraph. (2019). *What is Cryptocurrency? Guide for Beginners*. [online] Available at: <<https://cointelegraph.com/bitcoin-for-beginners/what-are-cryptocurrencies>> [Accessed 24 Feb. 2019].

<sup>534</sup> The Telegraph. (2019). *What are the top 10 cryptocurrencies?* [online] Available at: <<https://www.telegraph.co.uk/technology/digital-money/top-10-popular-cryptocurrencies-2018/>> [Accessed 24 Feb. 2019].

<sup>535</sup> Hooper, M. and Hooper, M. (2019). *Top five blockchain benefits transforming your industry - Blockchain Pulse: IBM Blockchain Blog*. [online] Blockchain Pulse: IBM Blockchain Blog. Available at: <<https://www.ibm.com/blogs/blockchain/2018/02/top-five-blockchain-benefits-transformingyour-industry/>> [Accessed 24 Feb. 2019].

provides a practically instant and borderless transfer of value or information in a secure manner.

Distributed ledger technology, commonly referred to as DLT, is a digital system whereby the transaction of assets is recorded in multiple places at the same time. Each party has access to the whole database, and each party can verify the records of its transaction partners, without the involvement of any intermediaries. Each transaction would be linked to the previous block, thus, forming the ‘chain’. This ensures that once a transaction is completed and the blocks are linked, then it cannot be altered or erased. A blockchain is a type of DLT, that is a decentralised database which is managed by various different participants.<sup>536</sup>

Under Maltese Law, DLT means ‘*a database system in which information is recorded, consensually shared, and synchronised across a network of multiple nodes*’. Similar definitions have been adopted by other jurisdictions. DLT assets refer to virtual tokens (means a form of digital medium recordation whose utility, value or application is restricted solely to the acquisition of goods or services, either solely within the DLT platform on or in relation to which it was issued or within a limited network of DLT platforms), virtual financial assets, electronic money or financial instruments.

In Malta, the legislative framework of blockchain has been divided into three acts, the Virtual Financial Assets Act (VFA Act, Chapter 590 of the Laws of Malta),<sup>537</sup> the Malta Digital Innovation Authority Act (MDIA Act, Chapter 591 of the Laws of Malta),<sup>538</sup> and the Innovative Technology Arrangements and Services Act (ITAS Act, Chapter 592 of the Laws of Malta<sup>539</sup>). The VFA Act seems to be the primary act which regulates the field of initial virtual financial asset offerings and virtual financial assets, whilst making the relevant provisions for matters ancillary or incidental thereto. The VFA Act defines the term ‘initial virtual financial asset offering’ or ‘initial VFA offering’ as ‘*a method of raising funds whereby an issuer is issuing virtual financial assets and is offering them in exchange for funds*’. The VFA Act also sets out the necessary regulatory framework for ICOs and VFAs, and regulates the type of VFAs which may be issued. Additionally, the Act provides a set of general guidelines on the

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<sup>536</sup> NEWS BBVA. (2019). *What is the difference between DLT and blockchain?* [online] Available at: <<https://www.bbva.com/en/difference-dlt-blockchain/>> [Accessed 24 Feb. 2019].

<sup>537</sup> *Virtual Financial Assets Act*, Chapter 590 of the Laws of Malta.

<sup>538</sup> *Malta Digital Innovation Authority Act*, Chapter 591 of the Laws of Malta.

<sup>539</sup> *Innovative Technology Arrangements and Services Act*, Chapter 592 of the Laws of Malta.

structure of white papers, the process of due diligence and the use of collected funds.<sup>540</sup> The second Act, the MDIA Act establishes the Malta Digital Innovation Authority, defining its role, objectives, composition and powers. This Authority aims at developing the sector of innovative technology in Malta, whilst increasing the promotion of transparency in the use of innovative technology arrangements.<sup>541</sup> Lastly, the ITAS Act provides for the recognition or certification of an arrangement which would be awarded according to a number of criteria.<sup>542</sup>

The use of blockchain technologies may be applied to a number of different legal spheres. When it comes to Maritime and Shipping Law, Malta is a key player in this field, due to its strategic position and maritime diversity. Noticeably, Malta has one of the deepest natural harbours in the world, together with the largest shipping register in Europe and the 6th largest in the World. Furthermore, the Malta Freeport is one of the most successful transshipment centres in Europe.

When analysing the application of blockchain in the field of Shipping and Maritime Law, it is evident that it could impact a large number of aspects, including logistical, contractual and traceability aspects. It could also impact the manner in which ships are registered, and the way in which documentation is stored. Effectively, it could impact the entire process involved in transactions, making each transaction more efficient and possibly even cheaper. Its potential in the field of Shipping and Maritime Law is an extensive one, which could completely revolutionise the way in which things are currently being done and would provide a more secure and tamperproof platform for transactions to take place. A bill of lading, for example, is a document which is issued by the master of the ship and given to the person consigning the goods, entailing a detailed list of the ship's cargo. This proves that the cargo has been loaded and creates a 'contract of carriage' between the carrier and shipper.

Very often, due to the delay of bank procedures and postal services, the cargo is often delivered to the port, before the Bill of Lading arrives and therefore, the cargo remains on board unnecessarily, until the Bill of Lading is delivered. In this case, the use of

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<sup>540</sup> Grant Thornton Malta. (2019). *The Malta Virtual Financial Assets Act*. [online] Available at: <<https://www.granthornton.com.mt/industry/fintech-and-innovation/The-Malta-Virtual-FinancialAsset-Act/>> [Accessed 24 Feb. 2019].

<sup>541</sup> GANADO Advocates. (2019). *An overview of the Malta Digital Innovation Authority Bill*. [online] Available at: <https://www.ganadoadvocates.com/practice-news/an-overview-of-the-malta-digitalinnovation-authority-bill/> [Accessed 24 Feb. 2019].

<sup>542</sup> GANADO Advocates. (2019). *Snapshot Summary Of Three Bills Related to Blockchain 12 Technology*. [online] Available at: <<https://www.ganadoadvocates.com/practice-news/snapshotsummary-of-three-bills-related-to-blockchain-technology/>> [Accessed 24 Feb. 2019].

cryptographic signatures and smart contracts could be used in order to eliminate distrust and improve the overall efficiency, transparency and security of such a transaction. This area of application to the maritime industry has been somewhat researched, due to its potential in revolutionising the process. ‘Wave’, an Israeli start-up company, focused on the concept of paper trade in the shipping industry, by applying blockchain to create and to track Bills of Lading.<sup>543</sup>

In terms of Bills of Lading, blockchain technology can improve the process involved in registering and transferring the ownership of goods, facilitating the process of trade for all parties involved, increasing efficiency, reducing costs and reducing paperwork. CargoX, is an independent supplier of blockchain technologies used for logistical purposes, in order to impact and change the global supply chain industry. One of their projects has been that of the ‘CargoX Smart Bill of Lading’, which replaces the traditional paper-based Bills of Lading. In terms of the carrier, this would entail the creation of a draft Bill of Lading, the signing of the Bill and its issuance on the blockchain, the transfer of such to a shipper and the proof of ownership. On the other hand, in terms of the shipper, this process would entail the listing of documents, the transfer of the required documents and arranging payment guarantees with the carrier. CargoX identify four main benefits which would arise from the use of this technology in Bills of Lading. Firstly, it would provide a secure trading platform with no central storage system. Secondly, it would also make the entire process faster and more efficient, as it would create an instant and immediate transaction, without any couriers or middle-men. Moreover, Smart Bills of Lading would create a paperless system, whilst also reducing the costs of couriers.<sup>544</sup>

There have been a number of recent developments in the blockchain-Maritime law industry. Certain shipping platforms have started opting to use blockchain when carrying out the sale and registration of a vessel. One such example is in the case of the ‘British Maritime Society’<sup>545</sup> which has developed a blockchain tool to be used in the registration of vessels. The immutable and secure qualities of blockchain have shown immense potential in this field, allowing for more efficient transactions. Another

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<sup>543</sup> Fenechlaw.com. (2019). *Fenech and Fenech Advocates | Maritime Malta – Legal Perspective*. [online] Available at: <<https://fenechlaw.com/maritime-malta-legal-perspective/>> [Accessed 6 Mar. 2019].

<sup>544</sup> Wavebl.com. (2019). Wave. [online] Available at: <<http://wavebl.com/#about>> [Accessed 10 Mar. 2019].

<sup>545</sup> Cargox.io. (2019). CargoX | *Reshaping the Future of Global Trade with the World’s First Blockchain Bill of Lading*. [online] Available at: <<https://cargox.io/welcome/>> [Accessed 10 Mar. 2019].

example is in the case of '*shipowner.io*',<sup>546</sup> which is said to be the first DLT platform which allows for the financing of assets in the shipping industry. This platform aims at breaking down investments to smaller amounts, and thus, increasing the possibilities of a wider range of ship-owners.<sup>547</sup> Another network, the 'ZIM Shipping Line Network' has also opted to convert its processes from using the traditional Bills of Lading to blockchain technology when transporting containers from China to Canada.<sup>548</sup>

Another example is in the case of 'A.P. Moller-Maersk' who have recently teamed up with IBM in order to establish a DLT system, 'TradeLens'. TradeLens is a blockchain based shipping system, aimed at promoting more efficient and secure trade, establishing digital supply chains and empowering traders to trade in real-time.<sup>549</sup> IBM is currently also in collaboration with MOL (Mitsui OSK Lines),<sup>550</sup> in order to set up a blockchain system providing for cross-border trade.<sup>551</sup> Furthermore, such developments have also been taken up by the Danish Maritime Authority, aiming at digitising the ship trade and registration processes in Denmark. This is said to be one of the first projects based on blockchain in the Danish public sector.<sup>552</sup> The majority of the Maritime-blockchain initiatives have been based on information-sharing, however, a particular start-up company in Hong Kong, '300Cubits', aims at removing

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<sup>546</sup> Home | Anyone Anywhere Anytime Can Be A Shipowner | Ship Owner Yet? (*Shipowner.io*, 2019) accessed 3 July 2019.

<sup>547</sup> Hand, M. (2019). *Finance your ship with blockchain via Shipowner.io*. [online] Seatrademaritime.com. Available at: <<http://www.seatrademaritime.com/news/europe/shipowner-iolaunching-blockchain-financing-platform-to-open-shipment-investment-to-anyone.html>> [Accessed 6 Mar. 2019].

<sup>548</sup> International Shipping Lines, C. (2019). *International Shipping Lines, Container Shipping, Cargo Services*. [online] ZIM. Available at: <<https://www.zim.com>> [Accessed 6 Mar. 2019].

<sup>549</sup> Wagner, S. and Linnet, M. (2018). *Maersk and IBM Introduce TradeLens Blockchain Shipping Solution*. [online] Available at: <<https://www.maersk.com/news/2018/06/29/maersk-and-ibmintroduce-tradelens-blockchain-shipment-solution>> [Accessed 6 Mar. 2019].

<sup>550</sup> Mitsui O.S.K. Lines' (*Mitsui O.S.K. Lines*, 2019) accessed 3 July 2019.

<sup>551</sup> Kang, T. (2019). *MOL joins IBM for blockchain cross-border trade operations test - Lloyd's Loading List*. [online] Lloydsloadinglist.com. Available at: <<https://www.lloydsloadinglist.com/freight-directory/news/MOL-joins-IBM-for-blockchain-cross-border-trade-operations-test/70955.htm#.XlArfS2ZPs0>> [Accessed 6 Mar. 2019].

<sup>552</sup> Dma.dk. (2019). *Blockchain technology set to renew and ease ship registration*. [online] Available at: <<https://www.dma.dk/Presse/Nyheder/Sider/Blockchain-technology-set-to-renewand-ease-ship-registration.aspx>> [Accessed 6 Mar. 2019].

the lack of contractual discipline between ship-owners and carriers, with the launch of a cryptocurrency for the shipping industry.<sup>553</sup>

Another aspect of the Maritime field which may be heavily impacted by the use of blockchain is in terms of raising finance. By applying the use of blockchain in crowd funding for example, this decentralises the process and increases the opportunities for growth. An ICO, or Initial Coin Offering, is generally said to be the most popular way of raising funds within the blockchain field. This concept is becoming increasingly popular and provides a number of advantages in this regard. One of the benefits of using blockchain is that it is borderless and thus, facilitates cross-border trade, creating a global platform for trade. Additionally, through methods such as crowdfunding, blockchain has the potential to make the process of raising finance much easier, particularly for start-up companies<sup>554</sup>. In terms of financing methods, blockchain also has the potential of removing the need for traditional banking and financial institutions, by replacing this with a P2P (peer-to-peer) network. 'Securitize' is a new start-up which is providing a platform for running an ICO within the required legal framework. One of the projects being carried out by 'Securitize' is referred to as '22X', which is a fund which offers tokenised equity in 30 start-ups. The aim of 22X is to raise approximately \$35 million, where \$1 million would be distributed to each start-up, with the remaining funds being used to cover the costs related to the ICO. 22X is also allowing the start-ups to gain access to foreign capital without the need of establishing direct contact with foreign individuals.<sup>555</sup>

In terms of the marine insurance industry, the application of blockchain technologies could impact both claims handling, and also risk assessment. When it comes to claims handling, blockchain would enable all parties to have access to the data (for example bills of lading), which would make the process more efficient and would also reduce the risk of human errors. In terms of risk assessment, blockchain could streamline processes by connecting brokers, insurers and 3rd parties to DLT platforms, and integrate this information with insurance contracts. This would reduce the need of administrative processes, and would also reduce the costs incurred. It is important to

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<sup>553</sup> TEU Tokens - Bitcoin for the shipping industry. (2019). *Hong Kong fast developing as a cryptocurrency centre - TEU Tokens - Bitcoin for the shipping industry*. [online] Available at: <<https://www.300cubits.tech/hong-kong-fast-developing-cryptocurrency-centre/>> [Accessed 6 Mar. 2019].

<sup>554</sup> Blockchain-council.org. (2019). *How can Blockchain help you raise to money?*. [online] Available at: <<https://www.blockchain-council.org/blockchain/how-can-blockchain-help-you-raise-money/>> [Accessed 6 Mar. 2019].

<sup>555</sup> Inc.com. (2019). *There's a New Way to Fund Startups: Selling Equity on the Blockchain*. [online] Available at: <<https://www.inc.com/sonya-mann/securitize-x-cryptocurrency-startup-fund.html>> [Accessed 6 Mar. 2019]



note however, that from a legal point of view, there are still some issues which need to be clarified in terms of the use of blockchain technologies across the globe. Due to the fact that blockchain ledgers do not have a specific location, one issue which may arise would be that it would be difficult to identify the legal jurisdiction of any given node in the network, which is also due to the lack of physical connection to any given jurisdiction.<sup>556</sup>

When discussing the application of blockchain technologies to the Shipping sphere in Malta, it would also be necessary to analyse whether there is the willingness of the authorities to actually shift from using traditional methods of carrying out transactions, to the use of blockchain platforms. Although blockchain has a number of benefits, there are also certain risks which may discourage authorities and individuals (such as ship-owners) from wanting to convert from traditional methods, to blockchain technologies. First of all, decentralisation is sometimes difficult to guarantee, and is often expensive due to the large amount of electricity which is required. Users of the blockchain use a cryptographic key in order to define their identity, however, this key could easily be copied, which could lead to the impersonation of the user. Furthermore, if the key is lost, then all the other users would also lose control over the assets on the blockchain<sup>557</sup>. According to Prakash Santhana, a Managing Director at Deloitte, and a US Blockchain Leader, the risks of blockchain could be classified into 3 categories. Primarily, there are ‘standard risks’, which refer to those common risks which are similar to those associated with current business processes. The second category of risks is referred to as ‘value transfer risks’, which refers to those risks which the interacting parties in the blockchain transaction are exposed to, which used to be managed by central intermediaries. The final category of risks is referred to as ‘smart contract risks’, which focus on those risks which arise when shifting from the physical to the digital framework.<sup>558</sup>

In the Maritime and Shipping industry, all transactions are still being made through intermediaries. If blockchain technology were to start being applied in Malta’s shipping

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<sup>556</sup> Mavrias, N. and Lin, M. (2019). *Blockchain: some potential implications for marine insurance - SAFETY4SEA*. [online] SAFETY4SEA. Available at: <<https://safety4sea.com/blockchain-somepotential-implications-for-marine-insurance/>> [Accessed 6 Mar. 2019].

<sup>557</sup> TechBeacon. (2019). *The hidden dangers of blockchain: An essential guide for enterprise use / TechBeacon*. [online] Available at: <<https://techbeacon.com/security/hidden-dangers-blockchainessential-guide-enterprise-use>> [Accessed 7 Mar. 2019].

<sup>558</sup> Deloitte United States. (2019). *Blockchain Security Risks for Financial Organizations | Deloitte 28 US*. [online] Available at: <<https://www2.deloitte.com/us/en/pages/risk/articles/blockchain-securityrisks.html>> [Accessed 7 Mar. 2019].

industry, this would allow firms to transact directly between each other, without the need of using intermediaries, and still ensuring secure transactions. Furthermore, the industry in Malta is currently very paper-heavy, which also involves more administrative work. All this could be avoided with the application of smart contracts, which would not only reduce the amount of paperwork, but would also make the process faster and more efficient. Additionally, digitalisation also has the potential of changing the manner in which environmental conservation is traditionally being done. It is often said that Maritime transport activities are very polluting in nature, however through the process of digitalisation, this could provide for more sustainable development in the industry. This is still a very controversial issue since there are researchers stating that shipping is one of the cleanest means of transport. Blockchain technology is a highly-researched and frequently discussed topic at the moment, however when it comes to the application of blockchain technology in the maritime sector, there is a lot which is yet to be done.

When it comes to the concept of digitalisation in the shipping industry, the main focus has been on maritime transport and logistics in the application of data-driven technologies. Another area in which blockchain technologies could be applied in the Maritime industry is in relation to port operations. In the port of Hamburg for example, the data-sharing problem has been solved by requiring all parties to connect to a single data system. Back in 2017, the shift to digitalisation already began appearing in certain countries. In Singapore for example, the Maritime and Port Authority (MPA) launched the 'Smart Port Challenge 2017', in order to encourage start-ups and organisations to begin collaborating in order to promote the concept of digital transformation in the industry. In the case of one particular start-up, 'Onboard', the Internet of Things (IoT) was introduced to the maritime industry, whereby an open platform linked to other internal systems was provided, allowing full insight of vessels and operations.<sup>559</sup>

When it comes to identifying the different possible manners in which blockchain can be used to change and enhance the processes involved in the maritime industry, it is also important to take a look at the response of the authorities and whether they would be willing to adopt this technology or not. In 2018, a study was carried out in Norway, in order to analyse whether Norwegian maritime companies would be willing to adopt the blockchain technology, or whether they would prefer to stick to the 'traditional' methods. The results of the study indicated that there is a need for innovation in the maritime industry, and that there is also a need for a reduction in costs. However, there were also a number of hesitant responses, since this would lead to the need for further consultants and 3rd parties, and also due to the fact that there is a lack of training in

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<sup>559</sup> Onboard. (2019). *The IOT platform - Onboard*. [online] Available at: <https://contactonboard.com> [Accessed 10 Mar. 2019].

this field.<sup>560</sup> An important factor to note is that the shipping industry is in fact a global, and not a national industry, and therefore it is highly standardised. Thus, if a DLT system were to be put in place in the shipping industry, it would need to be a global system, which would allow for more efficient and cheaper trade mechanisms, reflecting the global industrial model. In this regard, a commercial blockchain alliance has been set up, known as ‘Blockchain in Transport Alliance’, which establishes certain standards for the application of DLT in the shipping industry.<sup>561</sup>

### 3. Conclusion

The future of blockchain is definitely an uncertain one, with many opposing views on the matter. Although it is currently very topical, and its application seems to be on the rise in a number of countries and also in Malta, certain critics and high-profile individuals do not see a positive future in this regard. Noticeable, Jeff Schumacher, the founder of BCG Digital Ventures, said that blockchain is ‘*a great technology but [he doesn’t] believe it’s a currency. It’s not based on anything*’.<sup>562</sup> On the other hand, there are also a number of individuals who believe in the potential of blockchain, and the many opportunities in which this technology can revolutionise and impact a number of industries and processes.

As mentioned earlier, this Article intended to analyse the Maltese legislative framework which is currently in place, in terms of blockchain and cryptocurrencies, together with focusing on its application in the Shipping and Maritime Law sphere. One of the findings of this Article was that with the correct application of blockchain technologies, this could have a deep impact on the Maritime Industry and completely revolutionise the manner in which things are currently being done. Furthermore, the use of blockchain could provide a great amount of transparency of transactions occurring in the Maritime industry, together with providing a faster and more efficient manner of completing transactions. Various advantages were discussed in the Article, including the reduction in costs, improved traceability, instantaneous nature of transactions and the borderless transfer of value and information in a secure manner. A discussion on Smart Bills of Lading highlights the manner in which a paperless system could be adopted in this field, by providing a secure trading platform with no central

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<sup>560</sup> Czachorowski, K., Kondratenko, Y. and Solesvik, M. (2019). The Application of Blockchain Technology in the Maritime Industry

<sup>561</sup> BiTA: Blockchain in Transport Alliance. (2019). Standards — BiTA: *Blockchain in Transport Alliance*. [online] Available at: <https://www.bitastudio.com/standards> [Accessed 6 Mar. 2019].

<sup>562</sup> Chepicap.com. (2019). “Bitcoin will go to zero” says prominent investor Jeff Schumacher. [online] Available at: <https://www.chepicap.com/en/news/6849/bitcoin-will-go-to-zero-saysprominent-investor-jeff-schumacher.html> [Accessed 11 Mar. 2019].

storage system and improving the overall process, by providing for faster and more efficient transactions.

Another discussion focused on the manner in which the Maritime Law field may be heavily impacted by the use of blockchain, when it comes to raising finance. One such example which was discussed above includes the application of blockchain in crowd funding initiatives, which would in turn, decentralise the process and increase the opportunities for growth. Blockchain has a great amount of potential and could truly impact various aspects of one's life, both in personal and professional terms. With the increase of the use of such technologies in recent years, it is evident that various legal fields, such as that of Maritime Law, will also be affected.