

MarTREC UTC Project Information Form
USDOT Tier 1 University Transportation Center
Agency ID or Contract Number 69A3551747130

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| Project Title: Analysis of Blockchain's Impacts on and Applicability to Maritime Industry |
| Project Abstract (Brief Description): It is unclear how relevant or critical the use of blockchain is for maritime business. A recent survey by Deloitte interviewed U.S.-based executives in the shipping sector and found that 39% of them have little or no knowledge about blockchain. Still 55% of them believe that failure to implement blockchain will put their company at a disadvantage; and 25% of them said that their companies viewed blockchain as a critical top 5 priority. These are critical numbers within the maritime sector and in comparison with other sectors, possibly indicating that the maritime industry is (again) catching up on technology. This is the central problem on which this research project focuses. It is clear to maritime shipping industry members that cargo tracking is an important function for customer satisfaction as it ties the physical movement of goods with payments, inventory management, and accountability. In this sense, blockchain might be of higher relevance than initially thought. However, our initial investigation finds that different blockchain protocols do not communicate with each other, lacking interoperability. Since it is new to an industry that is international, fragmented, and complex in nature, we explore several research questions arising from the application of blockchain to maritime supply chains and logistics, in particular the possible integration with existing technologies, such as automatic identification and data capture (AIDC) technologies. |
| Describe Implementation of Research Outcomes (or why not implemented): This research will be presented at industry and academic conferences specific to the maritime business and freight sectors. It will also be incorporated into curriculum of existing and/or new classes at Maritime Administration studies at Texas A&M Galveston. |
| Impacts/Benefits of Implementation (actual, not anticipated): The research will benefit three specific groups. It will benefit academia because it will create expertise for research on a trendy topic for both ports and shipping companies. This expertise can be also used for educational purposes in maritime business studies. Second, the research will provide information to industry stakeholders about best practices that can be considered in operations. Third, it will provide analysis that supports policy makers in the development of policy recommendations and regulatory framework in the port and shipping sectors. Finally, the results help to provide a framework of analysis assisting commercial maritime companies to make better decisions about blockchain implementation and in monitoring their AIS data flow as part of their cyber risk management strategy in at least three fronts: the operational characteristics; the level and detail of information; and the user relationship with cyber technologies. Based on our preliminary results, this research will assist how maritime shipping companies will be better off socially, legally, and economically as far as well as far as their cyber risk is concerned enabling them to take actions in the long- and short-terms; and whether blockchain implementation reduces risk |
| Web Links: martrec.uark.edu |
| Budget (Funding) Amounts & Source(s) (US DOT +Match(s) =Total Costs): MarTREC funds \$46,035 + cost share of \$46,125 = \$92,160 |

Project Start and End Dates: May 2019 to August 2020. Completed project

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