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Identifying factors affecting value creation in maritime transportation through government smart services

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Abstract

The aim of this research was to identify factors affecting value creation in the field of maritime transportation with a focus on smart government services. The present research was conducted using a qualitative method, which is an applicable research according to its purpose. Research information and data were collected through in-depth interviews with 14 experts and scholars in the field of information technology or maritime and port operations related to the maritime transportation industry, including experts and managers of the Central Headquarters of the Ports and Maritime Organization and Bushehr Port. The sampling method in this research is purposive; achieved after 12 interviews. Thematic analysis method was used for qualitative analysis, and data coding was first done manually and then through coding in MAXQDA 2020 software. Data analysis resulted in the identification of 33 central themes and 12 main themes. Based on the results of this research, the themes of: technical and communication infrastructure, data sharing, intelligent and integrated information systems, uninterrupted support services, electronic information exchange, single window for smart government services, business processes, data security, human resource management, laws and regulations, government supervision and control, and the use of new technologies were identified as important factors affecting value creation in the field of maritime transportation through smart government services.

Keywords:
Value,
value creation,
maritime transportation,
smart port,
smart government services.

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Extended Abstract

Introduction

Information technology and the provision of electronic services have been used by investors and managers in various organizations and businesses for many years, and managers have made it their model and policy, but what makes a difference in performance and better results is value creation in the provision of these services. Value creation can generate wealth, improve business conditions, expand the technologies used, and create employment (Mengcheng & Tuure, 2022). Government organizations are generally financed from public sources. Creating value in these organizations means optimizing resource consumption, reducing waste, improving the efficiency of financial, human, and technical resources, achieving specific goals such as improving the standard of living of citizens, reducing poverty and unemployment, and improving the level of education and public health. Achieving economic goals creates high value because improving the performance of government organizations contributes to the economic growth and development of the country (Meijerink & Bondarouk, 2023).

Maritime transport is an important mode of transport in international trade (Gren et al., 2020), which is moving towards digitalization at different speeds in different areas (Sanchez-Gonzalez et al., 2019). In the port community, in order to meet the increasing expectations of customers and stay ahead of competitors, it is essential to invest in appropriate technologies, as port services can be improved by smartening and reorganizing the manual process of document exchange between members of the port community (Attia, 2016). Currently, there is very little research focused on digital transformation in the maritime transport sector and value creation in this area. Existing studies do not provide a comprehensive overview of the current status and success factors or barriers to digital transformation in the maritime transport sector (Tijan et al., 2021). There are also challenges and barriers to digital transformation and the provision of smart government services in the maritime transport sector, including heterogeneous organizational structures, lack of organizational cultural integration, and weak intra-organizational cultural integration that affects the performance of the organization (Tedla, 2016) and (Gausdal et al., 2018).

Currently, there are also challenges in the provision of smart government services in the maritime transport sector of the country. Given the importance and role of the maritime transport sector in ensuring the smooth flow of goods and the economic growth and development of the country, it is necessary to provide solutions to overcome the challenges that exist in the path of value creation through smart services in this area. Also, theoretical studies in this field have not been conducted in the country so far. Therefore, in order to fill these gaps and provide solutions to overcome the challenges listed, this research seeks to identify the factors affecting value creation in maritime transportation services through smart government services in order to provide useful and practical information to government managers and policymakers and, by helping managers in this field make informed decisions, and provide the basis for the country's economic growth and progress. This research attempts to answer the question: what factors are effective in creating value in the maritime transportation sector with a focus on smart government services?

Theoretical Framework

Value Creation

Organizations must look at their employees, processes, and decisions through the eyes of customers in order to align themselves with customer expectations. Organizations need to develop and implement a value creation plan from the perspective of stakeholders, including customers (Gregory et al, 2021). Value creation for customers is achieved by strengthening

organizational capabilities and individual abilities. Value creation is a sort of effectiveness. Customer-centricity is a type of value creation that is more about doing the right thing for the customer than doing the right thing (Maya, 2024).

Smart Port

The concept of smart ports generally refers to the digital transformation in ports. The goals of a smart port are: performing port operations in a shorter time, eliminating time wasted due to planning errors and inconsistencies, requiring fewer workers, reducing costs, effectively using information and resources, and creating a safe and secure system that reduces environmental pollution (Solmaz, 2021). Molavi et al., (2020) defines a smart port as a port that brings together educated people, a skilled workforce, smart infrastructure, and automation; which facilitates the development and sharing of information, optimizes port operations, increases port flexibility, and leads to sustainable development and a safe and secure environment.

Dolati & Deyhimpuor (2020) conducted a study entitled "Investigating the Key Success Factors of Maritime Transportation (Case Study: Bandar Abbas Port and Shipping)", with the aim of investigating the key success factors in the growth and development of the maritime transportation industry. Their research method is mixed, and research is applicable in terms of purpose. The data collection tool in the qualitative section was conducted through the study of documents and texts, as well as interviews with 10 experts using the Delphi technique. The analysis method in the qualitative section was through content analysis, and in the quantitative section through a researcher-made questionnaire. The statistical population of the study in the quantitative section was selected using a cluster sampling method, 150 employees of the General Directorate of Ports and Maritime Affairs of Bandar Abbas were selected by which. The research findings showed that planning, management, human resources, unloading and maintenance, technology, coordination, supply chain and security are key factors for success in the maritime industry.

Tijan et al., (2021) in a study titled "Digital Transformation in the Maritime Transport Sector", consider cost reduction as one of the benefits of digital transformation in the maritime transport sector, which is mainly focused on reducing the costs of information exchange. The results of this research have shown that simplifying operations and improving processes (improving resource planning and information flow) are directly related to lower time delays, simplifying operations, processing large volumes of data, improving stakeholder collaboration and data transparency, and overcome the problems caused by a large number of uncoordinated stakeholders, opaque data, transactions and multiple documentation processes (mainly paper-based) in the maritime transport sector.

Research Methodology

The present research is an applicable research conducted with a qualitative method and a thematic analysis approach. Research data was collected by studying upstream documents in the country's information technology sector and internal documents of the Ports and Maritime Organization, as well as by conducting in-depth interviews with 14 experts of the Ports and Maritime Organization. The sampling method in this study is purposive.

Research findings

The analysis of indicators is done using the theme analysis method. First, the interview texts were analyzed and coded manually and then in the 2020 MAXQDA software, which identified 33 central themes and 12 main themes, which are "technical and communication infrastructure, data sharing, intelligent and integrated information systems, uninterrupted support services, electronic exchange of information, single window for intelligent services,

business processes, data security, human resource management, laws and regulations, government supervision and control, and the use of new technologies."

Conclusion

The necessity of conducting this research is based on the lack of theoretical richness in the factors affecting value creation in the field of maritime transport through smart government services and the need to improve current knowledge by discovering and identifying these factors. The findings are consistent with the results of research by Philipp (2020), Heilig & Voß (2017), Heilig et al., (2017b), Tijan et al, (2021) and Sanchez-Gonzalez et al., (2019). Considering that the field of information technology is a common field in government organizations, and the government's macro policies in the field of information technology are aimed at integrating and governing government data and seeking a unified approach for all government organizations (such as: the national license portal, the single service gateway, the single government services window, etc.); the factors effective in creating value through smart services in the field of maritime transportation have much in common with other fields, and its results are to some extent generalizable to government organizations, especially organizations in the field of transportation.

In light of this research, it is suggested that future research examine and analyze the relationships between the categories that affect value creation in the maritime transportation sector and their impact on each other. Also, factors that affect value creation in other modes of transportation (rail, air, and road) should be examined so that by integrating its results with this research, the factors that affect value creation in the entire transportation sector of the country can be identified. The present research has focused on smart government services, and it is suggested that the role of other dimensions of the information and communication technology sector on value creation in this sector be examined in order to complete and generalize the results of this research in other government organizations and enrich the literature in this field.