DEVELOPING ACCOUNTABLE MARITIME TRANSPORT AND PORT ORGANIZATIONAL STRUCTURES IN ARAB COUNTRIES

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ABSTRACT

The absence of specific goals, functions, integrity and a clear chain of command in the maritime transport system organizational structure (OS) in the Arab world may lead to creating trade tensions, increasing export restrictions, increasing economic and social costs, and other obstacles that impede the achievement of the strategic goal of maritime transport. This research aims to propose an integrated organizational structure that shows the relations and dependences of all elements in the maritime transport system and the ports authorities, which helps in creating a stronger internal organizational environment. The proposed OSs are meant to improve maritime activities such as shipbuilding and ship scrapping, and to increase coordination and integration between the maritime transport sector and the authority for maritime safety through identifying the role of each entity within the proposed OSs. It is an exploratory multiple case study research, where a qualitative research method is conducted using interviews. The research approach has taken the following steps: (1) 47 world maritime transport organizational structures (MTOSs) that are selected and criticized according to six criteria; (2) data and information of 47 MTOSs were collected using documentation from official websites of governments; (3) the characteristics and challenges facing current MTOSs are identified; (4) the proposed MTOSs are projected; (5) purposive expert sampling technique is used for the validation of the proposed MTOSs and POS through the conduction of semi structured and unstructured interviews; (6) the proposed model is readjusted and implemented in Egypt according to the experts’ feedback; and (7) external and internal validity were also tested to ensure that generalizability of the research is shown within its scope.

Keywords: accountability, governance, government performance, new public management, organizational structure, reengineering and restructuring.

1 INTRODUCTION

One of the problems facing organizations is the lack of a well-defined organizational structure that helps increases performance and productivity as well as delivering a valuable and quality service/product. The field of transportation and the maritime sectors in governments are not different from this concept. An integrated organizational structure helps in setting a healthier internal organizational environment for the sector and consequently enhancing measuring and managing performance [1]. Performance management is important for governments as it helps in presenting and addressing the issues of accountability and transparency [2], [3], while the more control a government has over public servants, the greater accountability it has [4]. New public management and accountability are strongly related [5], [6]; in addition, accountability is the possibility of holding the public servants responsible for their actions [7].

The government’s initial aim is to reach public accountability that may be achieved through measuring and managing performance [6]. This is emphasized even more through 14 key elements that are essential for governmental performance measurement and management [8]. One of those elements is about precisely knowing the responsibilities of
each person in the government to identify rewards and punishments that consequently build accountability in a country, which helps in maintaining control of public servants [4]. Consequently, this highlights the importance of having a clear organizational structure (OS) for all governmental bodies, departments, and sectors, provided that this OS is characterized by the ability to provide governance.

Accordingly, the governmental OS and planning became important to maintain political, social, and economic stability within a country. Therefore, one of the governmental administrative reform challenges is the lack of governmental OS that can apply the principles of governance and accountability. According to Islam [9], this can be due to the following three main problems: (i) the existence of the “many hands” problem in the various governmental structures, which prevents knowing the responsibilities of each individual in the government. This leads to the inability to fully define the rewards and penalties; (ii) the frequent modification of governmental structures through the addition, transfer, or deletion of different departments, which is followed by amendments and restructuring in the various departments and units. This weakens government construction and reduces the stability of employees and thus affects government performance in general; and (iii) The lack of connection and integration among the different departments and organizational divisions within the same organizational structure, or among the different organizational structures within the same governmental authority, which results in the waste of the state’s economic and social resources.

Among different governmental OSs, maritime transport is considered as one of the most important modes of transport in transporting raw materials, commodities, bulk, packed and containerized goods to meet the needs of operating countries and companies. Maritime transport was responsible for carrying out a massive volume that reached nearly 11.8 billion tons in 2019 and carried out about 811.2 million TEUs that were traded for the same year [10]. In addition, ports represent an important element in the maritime transport industry because of their economic and operational roles that are reflected in the cost and time of loading and unloading of goods. This affects the performance of markets and meeting the needs of countries and companies from the timing of the arrival of goods to the places of demand.

In 2020, the spread of the coronavirus (COVID-19) pandemic imposed new trends in the maritime transport such as the design of a sourcing chain. In 2022, the Russian–Ukraine war imposed more challenges facing global supply chains. Thus, wide-ranging policy implications have been imposed to cope with global disruptions caused by the pandemic and with the consequences of the war, such as restructuring the processes and organizations [11].

Central features of NPM include structural devolution, disaggregation, decentralization, competition management, and privatization. However, the key objectives of all these reforms are to improve government effectiveness and efficiency. An amplified interest in employing indicators that are used in private organizations was evident in the usage of NPM in public administration practices [12].

Accordingly, NPM mechanisms and elements are what a maritime sector needs in order to launch an administrative reform based on “strategy performance” which enhances public accountability and good governance. The NPM mechanisms and central features cannot be present during the absence of a solid organizational structure [13], [14] which should be reevaluated by any government that is due for an administrative reform as their starting point.

In designing an organizational structure of project, the organizational structure was divided by De Paula et al. [15] into levels, including (i) strategic level that is responsible for planning and the identification of the executives; (ii) direction level that is responsible for driving within the rules and limitations; and (iii) management and delivery levels that is
responsible to establish the front conduction of the project. It was clarified by Zighan et al. [1] that adjusting an organizational structures requires collaboration, flexible work flows, decentralized decision-making, control, and governance. It can be claimed that the suitable organization structure supports the management of both information technology and innovation [16].

In the maritime literature, the organizational structures are not widely discussed; on the contrary, the focus was on different aspects, including the assessment of the organizational effectiveness [17], the evaluation of the corporate governance effectiveness on financial performance [18], studying the correlation between the organizational culture and strategy [19], the adoption of big data analytics in maritime organizations [20], examining the relationship between the human resources management practices and the employees performance [21], and the relationship between organizational structure and knowledge management [22]. It could be presumed that an OS depends on the division of exercises to accomplish the execution of recently arranged exercises, where the capacities, commitments, and authority of the individuals are resolved [23]. There is no particular type of OS design. It is imperative to plan OS dependent on a few elements including artifact, size, innovation, culture, climate, property, and force.

It was argued by Güler [24] that ports’ structures should consider the comprehensive maritime policy, safety measures, and ecological, environmental and physical matters. Also Tagowa [25] claimed that the maritime transport organizational structure in Nigeria should have a relationship with other private and public bodies such as culture, tourism and maritime transport. It was discussed by Rocha [26] how a transport should be organized in Portugal through three levels: (i) local transport authorities that are responsible for regional transport planning, (ii) regional transport authorities that are responsible for connecting local transport authorities and mobility of a population, and (iii) national transport authority that is responsible for the development and management of national transport projects.

Both Free and Hecimovic [27] and Akpınar and Ozer-Caylan [28] argued that those reforms can be due to the need for managing their operations under harsh competitive regulations in an ever-changing business climate with unpredictable future prospects. The maritime industry exhibits unpredictable market dynamics that are influenced by even minor global developments. For example, the introduction of “Industry 4.0” presented a new “environmental change” trend for the wide range of maritime transport. On the other hand, ports can enhance their performance and competitiveness through developing laboratories and related-research activities in their structures [29].

To deal with all of these newly introduced issues in the 21st century, corporate strategies that apply a generic hypothetical context of “performance strategy” to the profitability of maritime transport are becoming increasingly relevant [30]. This further demonstrates that the marine industry has evolved into a more “business-like” environment, necessitating the development of maritime-specific strategic theories and frameworks.

The maritime transport industry is facing dynamic changes that require a new organization of work and management [31]. Thus, introducing reform in the maritime sector; need to be regarded as a part of the holistic strategic governmental administrative reform.

Thereof, the motivation of this research is to introduce an integrated maritime transport organizational structure (MTOS), and a port authority organizational structure (PAOS). A well-developed and sustainable OS is considered one of the most important factors of administrative reform and development where it can clarify tasks, relationships, and methods of communication. The proposed MTSO and PAOS help to provide the necessary planning and organizing administration of the maritime transport industry and to ensure the ability of
public accountability and governmental governance introducing a better environment for service introduced and higher customer satisfaction.

The upcoming sections of this paper are organised as: Section 2 is about the scope of this research, while the research questions are shown in Section 3. The research methodology used in this paper and research validity will be explained in Section 4. In Section 5 the characteristics and challenges facing current MTOSs and PAOS will be discussed. Section 6 presents the proposed maritime transport organizational structure in addition to the criticisms of experts and academics about the newly proposed model. The final model and its criticisms will be presented in Section 7. Finally, Section 8 presents the conclusion, research validity, and the future research take place.

2 RESEARCH SCOPE
This research conducts a case study in one Arab country aiming to assess the proposed OS in a country that shares common history, similar religious background, similar beliefs and similar political conditions with other countries within the same geographical area. This can be one step towards future generalizability.

3 RESEARCH QUESTIONS
According to the discussion in Section 1, research questions have been addressed as follows: (1) What are the most appropriate elements needed in a maritime transport organizational structure in Arab countries? (2) What are the most appropriate elements needed in a port organizational structure in Arab countries? And, (3) How can these elements integrate to show an organizational structure that can help in creating a high performing organizational environment?

4 RESEARCH METHODOLOGY
This research adopts the qualitative, descriptive, and exploratory constructive research that explores the phenomenon of organizational structures in ports and maritime systems in order to describe the problem in the MTOSs. The methodology is shown through the following steps:

i. The research is a qualitative one that depends on exploring literature of governance, governmental performance and accountability; in addition to exploring several elements in 47 world MTOSs that are selected according to six criteria shown in Section 6.1.

ii. The data collection method used will be through interviewing (semi-structured/unstructured) academic international maritime experts with not less than 15 years of experience in addition to governmental officials of not less than 5 years of experience in the governmental practical field. Furthermore, data and information of 47 MTOSs will be collected using documentation from official websites of 47 governments;

iii. In accordance to the data collected from both literature and interviews, the authors will be able to describe the number of departments needed, the activities, roles and responsibilities in addition to characteristics and challenges facing current MTOSs. Consequently they can propose the intended MTOS.

iv. The proposed structure will be introduced through the purposive expert sampling technique to academics and experts (as shown in Section 6.3) for validation.

v. After validations and amendments, the final OSs will be implemented as a pilot study in one Arab country in order to examine the constructive applied research of the paper (Section 7).

vi. Evaluation of quality of research according to Yin [32] will be discussed in Section 8.
5 CHARACTERISTICS AND CHALLENGES FACING THE MTOS

This section introduces the characteristics and challenges facing the MTOSs in Section 5.1 and the characteristics of the international MTOSs in Section 5.2 in order to be able to construct a new OS.

5.1 Characteristics and challenges facing current maritime OS

The discussion in Section 1 shows that various maritime transport organizational structures have a set of challenges. Some MTOSs have lack of clarity of the organizational structures where there is conflict in some specialties between departments and entities. In addition, there is a separation between the maritime administration and the maritime authority, non-integration with specialized seaports, and absence of some important departments and sections that enhances the maritime transport industry.

Other MTOSs are suffering from lack of clarity in the departments concerned with training workers, developing their capabilities, and raising their efficiency. Also, other challenges appear in the absence of value-added logistics activities, lack of integration with the economic and free trade zones, and challenge to keep up to date with international agreements and conventions, either in terms of implementation or continuous follow up on their amendments for full and continuous implementation.

The above challenges affect the MTOSs where there is limited ability to attract the required volume of seaborne trade, or the expansion of re-export trade and the benefit from their distinguished geographical locations, as well as the navigation services that can be provided. Moreover, the challenge of following up the technological development in the maritime field, like digitization, IoT, Big Data, etc., that affects the efficiency of the performance of maritime transport components.

5.2 International MTOSs characteristics

Evaluating a number of the international maritime transport organizational structures show that there is a great variation between OSs. Some international MTOSs have entities that have similar missions and activities with others reinforces, which introduce the idea of the “multiple hands problem”. Also, some central departments in the structure follow public administrations, the chain of operations flow is not clear in the current organizational structures, and the Authority for Maritime Safety is not represented in some OSs.

In addition, the presence of a large number of central administrations in the structures is not consistent with the principles of modern administration in the decentralization approach. The Department of International Treaties and Agreements is not clear in some OSs. And, the data bank, the central statistics department, and the accounting agency report analysis unit are not represented in some OSs.

6 PROPOSED MARITIME TRANSPORT AND SEA PORT AUTHORITY ORGANIZATIONAL STRUCTURES

This section reviews the international maritime organizational structures. This is to analyse the main common functional areas that will be used in developing the proposed OSs as shown in Sections 6.1 and 6.2

6.1 International maritime organizational structures

MTOSs for 47 countries were selected by the authors to review their organizational structures they were selected from all continents and regions of the world such as China, Singapore,
Japan, UAE, Qatar, India, USA, Canada, UK, Russia, Spain, Belgium, Greece, Romania, Turkey, Mexico, Peru, Ecuador, Morocco, South Africa, etc. The selection of the MTOSs was based on nine criteria which are: top LSCI, last 10 LSCI, handling rates, time at ports, regional connectivity, ship building, ship ownership, ship registration, and ship scrap. It becomes obvious that some OSs have many maritime-related activities and functions while another OSs have a limited focus on certain activities. This is due to the strategic maritime policy of the country, trade mechanism, and the availability of the industry requirements such as infrastructure. China and South Korea, for example, have OSs that comprise most of the maritime-related activities and functions while other countries such as Panama are specialized in a specific activity like ship registration.

The number and type of functional areas differ from one OS to another. The analysis of the selected OSs shows that some functional areas are frequent in most of the OS. Safety, security and marine services have the highest priority in the selected OSs as shown in Fig. 1, followed by legal issues and international relations.

![Figure 1: The functional areas of the selected organizational structures.](image)

Strategy and policy, engineering services, and finance and procurement receive adequate consideration in the OSs. However, statistics and data analysis and project management received the less reflection in the OSs. On the other hand, the most OSs are located in Asia, where the majority of the maritime-related functional areas, like Japan, China, Singapore and South Korea, exist.

6.2 The proposed MTOS

The proposed MTOS (Fig. 2) is considered to be a restructuring of the current most common MTOSs as revealed from the analysis of data from Section 6.1, where the work undertook re-arrangement of the departments and sections in the various public bodies and departments in addition to trying to adhere to the requirements of the International Maritime Organization (IMO) and adding some new departments and sections to support the activity of national MTOS.
6.3 Purposive expert sampling technique validation of the proposed MTOS

This section is about validating the proposed OS. The proposed MTOS was validated by maritime officials and senior academic staff members in the maritime field as mentioned in Section 4. They ensured that a complete reengineering is crucial for better accountability and governance of maritime transport in Arab countries and that the proposed OS does not introduce the needed reengineering.

They stated the importance of having a general authority for each central task according to the IMO which are (1) maritime safety; (2) maritime excellence; and (3) ports. Accordingly, the authors made the needed amendments and introduced the final MTOS to the same validation committee that reviewed the first proposal. They approved of it (Sections 7.1 and 7.2) and recommended implementation in at least one port in the Arab countries for more validation.

7 FINAL PROPOSED MARITIME TRANSPORT AND SEA PORT AUTHORITY ORGANIZATIONAL STRUCTURES

The proposed MTOS (Fig. 3) is considered to be a reengineering of the selected MTOSs, where it radically redesigns the processes, departments, and divisions to achieve the necessary development in performance measures.
7.1 The final proposed MTOS

From this standpoint, the final proposed OS contained the following key elements introduced in Fig. 3:

1. The General Authority of Ports: proposed to ensure the decentralization between several port authorities within a state and to give freedom to each port authority manager to deal with the inputs and conditions of his/her authority.
2. General Authority for Maritime Excellence: proposed due to the growing importance of the institutional excellence in the world, especially with the increasing risks and changes in the environment surrounding business.
3. General Authority for Maritime Safety: works in cooperation and coordination with the General Authority for Ports which has the safety of ports as one of its responsibilities. As well as the management and development of any manufacturing or business-related activities conducted by the maritime transport system.

7.2 The proposed general authority of ports OS

The term “port authority” is widely used to refer to any of the terms responsible for the functions of construction, management, and operation of port facilities. The proposed General Authority of Ports OS shown in Fig. 4 is the validated final version after applying...
all amendments, comments and modifications recommended by the interviewees as discussed in Section 6.3.

The General Authority of Ports has different forms that differ from one country to another, and from one port to another within the same country.

7.3 Implementation of proposed model

The proposed OSs have been submitted and presented to the Egyptian Public Authority for Transport Planning Administration in the Ministry of Transport, for review and validation. After several meetings with maritime officials and experts in the Ministry, the proposed OSs have been approved and escalated to the Minister for consideration in the future. Furthermore, the researchers received an official letter from the Egyptian Public Authority for Transport Planning Administration in the Egyptian Ministry of Transport regarding the start of implementation of the final proposed OS and the predicted effectiveness when fully implemented.

8 CONCLUSION, RESEARCH VALIDITY, AND THE FUTURE RESEARCH

This research aims at studying and analysing the organizational structures of several maritime transport bodies in different countries, identifying the current challenges, and in turn, proposing a validated MTOS and one PAOS.

Hence, this research highlighted the trend towards decentralization in decision-making encouraging decision-making at various administrative levels. This can be achieved by establishing detailed and clear organizational structures for all the main bodies operating in maritime transport to ensure the smooth flow of orders and the absence of conflicts of jurisdiction or duplication of work. The proposed OS was validated and approved through
interviews with both experts and academic staff in the field of maritime transport the validation of the proposed OSs as discussed in Sections 6 and 7.

A number of criteria were set by Yin [32] according to which the quality of a case study can be evaluated. These criteria are discussed in relation to this research as follows:

- **Construct validity**: A number of researches and theories were extracted from literature and various references presented in Sections 1 and 5. They were used to identify the importance of research and the problem faced by Maritime Transport authorities in several countries. This ensures the existence of the construct validity in the research.
- **Internal validity**: This is not applicable as the research is an exploratory one.
- **External validity**: Arab countries share similar history, similar religious background, similar beliefs and similar political conditions [33]–[35]. The implementation of the proposed model in one Arab country with promised effectiveness as discussed in Section 7.3. This gives a probability of existence of the external validity in the research.
- **Reliability**: The research is a single case study; and to approve reliability it will need to be repeated using the same steps as those used in this research in other Arab countries.

For future works, it is recommended to develop a clear and detailed plan for change management before implementing any administrative reform that would disturb employees such as changing the organizational structure or amending job description while adhering to full transparency about any suggested alternation to avoid resistance to change and the accompanying problems.

**REFERENCES**


