The impact of private sector participation on enhancing the competitiveness of Aden container terminal using SWOT analysis and Porter model

submitted by

Mr. Ashraf Ali Qardash

Senior Commercial Manager, Aden Ports Development Company

Aden Container Terminal, Port of Aden

ashraf.qardash.com.act@gmail.com

International Journal of Administrative, Economic and Financial Sciences

volume (3), issue (11), october2024

P-ISSN: 2812-6394 E-ISSN: 2812-6408

https://ijaefs.journals.ekb.eg/

Publisher

Association for Scientific Research Technology and the Arts

https://srtaeg.org/

تأثير مشاركة القطاع الخاص على تعزيز القدرة التنافسية لمحطة حاويات عدن باستخدام تحليل SWOT ونموذج بورتر

إعداد

الأستاذ/ أشرف علي قردش
مدير أول تجاري؛ شركة تطوير موانئ عدن -
محطة عدن للحاويات. ميناء عدن

المجلة الدولية للعلوم الإدارية والاقتصادية والمالية
دورية علمية محكمة
المجلد (٣) . العدد (١١) . أكتوبر ٢٠٢٤

P-ISSN: 2812-6394 E-ISSN: 2812-6408
https://ijaefs.journals.ekb.eg/

الناشر

جمعية تكنولوجيا البحث العلمي والفنون

المشهرة برقم ٢٧١١ لسنة ٢٠٢٠، بجمهورية مصر العربية
https://srtaeg.org/

ABSTRACT

This research explores the impact of private sector participation on enhancing the competitiveness of Aden Container Terminal (ACT), a critical maritime gateway in Yemen.

Ports play a central role in national development and international trade; however, inefficiencies in public sector management have prompted many developing countries to pursue Public-Private Partnerships (PPPs) as a strategic alternative. Aden Container Terminal represents a unique case of early PPP implementation in Yemen, initially successful but ultimately short-lived due to political and administrative challenges.

The aim of this study is to assess how PPPs can contribute to the long-term competitiveness of ACT by analyzing both past failures and future opportunities for collaboration. The research adopts a qualitative, analytical, and inductive design, using SWOT analysis and Porter's Diamond Model to examine internal capabilities, external threats, and competitive dynamics. Primary data was gathered through interviews with key stakeholders, and secondary sources included port reports and economic data.

The findings highlight that political and security instability remain the key barriers to effective private sector involvement. Despite ACT's strategic location and potential, a lack of investment, fragmented governance, and weak institutional support have constrained its growth. The study recommends adopting a dual strategy: defensive, to protect current strengths from external threats, and remedial, to address internal weaknesses and capitalize on strategic opportunities. Enhancing private sector collaboration—through clear legislation, modern infrastructure, and unified long-term vision—is essential for ACT to reclaim its regional competitiveness.

Keywords: Private sector participation, competitiveness, Aden container terminal, SWOT analysis, Porter model.

المستخلص

تناولت هذه الدراسة أثر مشاركة القطاع الخاص في تعزيز القدرة التنافسية لمحطة حاويات ميناء عدن، باعتبارها أحد المنافذ البحرية الحيوية في اليمن. تلعب الموانئ دورًا مركزيًا في التنمية الوطنية والتجارة الدولية، إلا أن ضعف الكفاءة في إدارة القطاع العام دفع العديد من الدول النامية إلى تبنّي نموذج الشراكة بين القطاعين العام والخاص (PPP) كخيار استراتيجي. وتُعد محطة عدن حالة فريدة لتجربة مبكرة في تطبيق هذا النموذج في اليمن، حيث بدأت بنجاح لكنها لم تستمر بسبب تحديات سياسية وإدارية.

هدفت الدراسة إلى تقييم مدى قدرة نموذج الشراكة على دعم التنافسية طويلة الأمد لمحطة عدن، من خلال تحليل الإخفاقات السابقة واستكشاف فرص التعاون المستقبلية. اتبعت الدراسة منهجًا نوعيًا تحليليًا استقرائيًا ؛ بالاعتماد على أدوات تحليل استراتيجية مثل تحليل SWOT ونموذج الماسة لبورتر لتقييم القدرات الداخلية، والتهديدات الخارجية، والديناميكيات التنافسية. تم جمع البيانات الأولية من خلال مقابلات مع أصحاب مصلحة رئيسيين، إلى جانب مصادر ثانوية شملت تقارير الموانئ وبيانات اقتصادية.

أظهرت النتائج أن عدم الاستقرار السياسي والأمني لا يزال يمثل العائق الأكبر أمام فاعلية مشاركة القطاع الخاص. فعلى الرغم من الموقع الاستراتيجي للمحطة وما تمتلكه من إمكانيات، إلا أن ضعف الاستثمار، وتعدد الجهات المشرفة، وغياب الدعم المؤسسي، جميعها عوامل حدّت من نموها. توصي الدراسة باعتماد استراتيجية مزدوجة :دفاعية لحماية نقاط القوة من التهديدات، وتصحيحية لمعالجة نقاط الضعف والاستفادة من الفرص الاستراتيجية. كما تؤكد على ضرورة تعزيز التعاون مع القطاع الخاص عبر تشريعات واضحة، وبنية تحتية حديثة، ورؤية موحدة طويلة المدى، من أجل استعادة محطة عدن لمكانتها التنافسية في المنطقة.

الكلمات المفتاحية: مشاركة القطاع الخاص، التنافسية، محطة حاويات عدن، تحليل SWOT، نموذج بورتر.

1. Introduction

Ports had a critical role in national economic development as well as in international trade since the majority of goods in transit between countries have been transported via ocean vessels. However, ports have also faced intense competition, which is evidenced by the increasing number of acquisitions and mergers in the maritime ports industry. Intensified competition has mainly been driven by such factors as increases in globalization trends, containerization, market integration, and global reallocation of capital and labor forces. As a result, these trends have profoundly changed the tactic in ports, particularly in container ports, governed, operated, and compete mechanism (Ismail, 2019).

Many countries especially developing ones are facing the problem of inefficiency in the performance of the public services facilities and infrastructure due to the large loss of output and the lack of the optimal use of labor, and the presence of many other problems encountered by governments in their management of the public utilities, such as administrative pluralism, lack of technical expertise, low levels of wages and lack of independence and the lack of effective anti-corruption mechanisms, in addition to the negative effects of the environmental caused by public utilities, due to negligence and poor maintenance, operation, and management (Chen & Guo, 2020).

In light of financial constraints and the need for efficient state management, many developing countries are increasingly outsourcing public and private infrastructure projects to the private sector. This strategy, inspired by the success of developed countries, allows for better management and operation of these projects. Developed nations have demonstrated the effectiveness of public-private partnerships in providing infrastructure services (Jayasena, et al., 2022).

The reasons and motives for the partnership with the private sector are summarized in the following points (Rashed & Shah, 2021):

1. Weak efficiency of the government administration and its public sector in managing the utility and the public facilities, which was reflected in the high cost of public services with the deterioration. The level and quality of the service provided and thus the dissatisfaction of citizens with what is provided to them public services in the areas of public utilities and infrastructure can be avoided through the participation with the private sector, which can be represented both by the owning, operating and managing of these facilities, that is due to the efficiency of the private sector in one hand, and the existence of competition on the other hand.
2. The paramount importance of the Infrastructure facilities, as they are a major driver of Economic growth and global competition, and due to the huge investments that are required by the Infrastructure facilities, especially in light of the financial resources weakness of the state, in addition to the administrative inadequacy, whereas, improving and increasing the efficiency of essential infrastructure facilities will not come unless through the effective participation with the private sector.
3. Reduction of the financial burden placed on the governments to meet the increasing demand for public utility services and products, by finding additional alternative sources for financing the projects through the private sector, which will contribute to reducing the public expenditure.
4. Participation with the private sector in infrastructure projects is an important direction to attract private investments, either national or foreign.
5. The transfer of advanced technology from abroad through foreign investors and transfer of the modern management methods and techniques, whether from the national or foreign private sector.
6. Time and cost reduction required for the establishment of new facilities, and energies and transferring the risks and burdens of projects to the private sector, which is capable of bearing and managing these risks.

7. Improve efficiency in operating projects and respond quickly to the consumers' needs considering the private sector flexibility in moving and the advantage of the opportunities, making decisions, and responding quickly to any sudden problems, all are factors missed in government administration.
8. The Government's high employment for workers in these projects, whether in the construction or operation is reflected in the economic viability of these projects to the state, and the negative effect on the Government's financial revenues through the increase in tax revenue.

2. Research problem

Aden Container Terminal faces a complex set of challenges that have significantly impacted its performance and competitiveness. Since 2011, the ongoing security and political instability—further exacerbated by the summer war of 2015 and its lasting consequences—have cast a shadow over service and commercial activities at the port. The closure of land routes from the port to local markets and population centers has led to a sharp increase in overland transportation costs, particularly to the northern and central regions of Yemen. Additional customs duties imposed by the Houthi group on shipments coming from Aden, along with tolls and levies on trucks traveling to various regions (including those under legitimate government control), have further raised the cost of using the port. Moreover, many industrial activities related to export and re-export have ceased, resulting in higher container transport costs, especially since most inbound containers return empty. Administrative discipline has weakened due to the prolonged effects of war and lack of political and security stability, compounded by an aging workforce and work-related injuries, with no strategic plan in place to modernize or replace the labor force based on competency. The port also suffers from operational limitations, including restricted berth depths, outdated container handling systems, limited equipment, and insufficient storage space and power access for refrigerated containers. Despite its status as the primary seaport in Yemen, the operational system of Aden Container Terminal is considered one of the oldest in the Red Sea and Gulf of Aden region. Notably, the imposition of war risk insurance fees has made the port a relatively attractive option for mother ships, highlighting latent opportunities that could be realized through strategic interventions aimed at addressing these pressing challenges and unlocking the port's full economic and service potential.

The inauguration of Aden Container Terminal was a pioneering example of public-private partnerships, established on the BOT (Build-Operate-Transfer) model, which significantly revitalized the Port of Aden after more than three decades. Equipped with advanced facilities and the latest in maritime port services, the terminal represented a beacon of hope for the bright future of the Port of Aden, especially since the partnership involved one of the world's leading port operators, the Port of Singapore Authority (PSA). However, despite its initial success, this partnership was short-lived. Four years after this promising start, the first private sector partnership in Yemen port sector was terminated. Since then, Aden Container Terminal has adopted different models of cooperation with the private sector, including the Landlord model for its operation and management.

3. Research aims:

This research aims to evaluate the impact of Public-Private Partnerships (PPP) on enhancing the competitiveness of Aden Container Terminal (ACT). It will also investigate the underlying reasons for previous partnership failures with the private sector at ACT, despite the successes observed at neighboring terminals. Furthermore, the study will assess the current status of ACT, propose solutions to eliminate existing drawbacks, and identify the factors contributing to inefficiencies. The findings of this research will provide valuable insights for decision-makers, aiding them in making informed decisions regarding partnerships with the private sector and leveraging successful practices from other ports.

4. Research design and methodology:

This research follows an analytical and non-experimental qualitative design (Kothari, 2004); this research can be classified as an inductive research approach (Polit & Beck, 2010). This classification is supported by the use of exploratory strategic tools such as SWOT analysis and Porter's Diamond model, which aim to derive patterns and insights from observed data rather than testing predetermined hypotheses. These tools facilitate the identification of strategic opportunities, challenges, and competitive positioning, aligning with the inductive logic of building theory from the ground up.

The personal interviews were conducted with a selected group of key stakeholders involved in the port sector, in order to gather qualitative data to support the study. The sample included senior managers and executive officials from the Port of Aden Corporation, as well as decision-makers and technical experts from the container terminal, in addition to representatives from relevant government entities and labor unions. These participants were chosen due to their direct experience in the management and operation of the port and their insights into the challenges and opportunities related to port privatization and improving operational and service efficiency.

5. Literature review:

(Wanis, et al., 2021) Their study has analyzed the effectiveness of the PPP contribution to Maghreb Ports in achieving the United Nations SDGs goals, and it could benefit from their strategic location. Although its ports suffer from lack and or insufficient infrastructure and superstructure this is due to their ownership structure as most of them are public port models, this paper aims to describe sustainability and its dimensions in the ports sector.

(Nezzari, et al., 2021) have examined the partnership with the private sector in the infrastructure projects, with the case study of the Central Port in Algeria. The researchers stated that the infrastructure projects are supportive of sustainable development, and the partnership between the public and private sector is one of its tools, given the existence of a financing gap, to reach a diagnosis of its reality in Algeria, data was used, and the research concluded that the lack of funding and the weakness of the private sector negatively affected that, The research warned of the need to accompany the private sector while providing continuous incentives to the foreign investor to make the partnership in the central port project succeed to support development.

While (Al-Omari & Hamid, 2022) have addressed the impact of the partnership between the public and private sectors on the infrastructure in Iraq, concerning the experience of the General Company for Iraqi ports. Furthermore, the research concentrates on infrastructure financing through effective partnership methods between the public and private sectors in the field of infrastructure. Whereas the study's goal is to develop aβsuccessful solutionβand partnership methods, forβenhancing the infrastructure development from both economic and developmental perspectives.

(Al-Safaani, 2022) This study of theβparticipationβof the private sector and its impact on the performance of ports, a case study was the port of Hodeidah, which is considered one of the most important studies that shed light on the participation of the private sector in Yemeni ports and its role in developing and enhancing the performance of ports, despite the lack of Arab studies that dealt with the participationβof the privateβsector in ports in particular, The study aimed to identify the participation of the private sector and its impact in developing the performance of Yemeni ports. The study methodology depended on the descriptive analytical approach; however, a questionnaire was distributed as the main tool for collecting the data concerning this study. It consisted of (40) items and the tool was applied to (200) Employees from all administrative levels, including (130) Hodeidah Port employees and also (70) private sector investors participating in Hodeidah Port, and by adopting some statistical methods to analyze data through the Statistical Packages Program (SPSS).

The results show that the implementation of these partnerships has led to noticeable improvements in the operational performance of the ports, with an increase in efficiency and greater competitive ability in the international market. It was concluded that the partnership between the public and private sectors is an effective strategy for developing ports by achieving integration between the financial capabilities and technical expertise of both sectors.

Research Gap and Contribution:

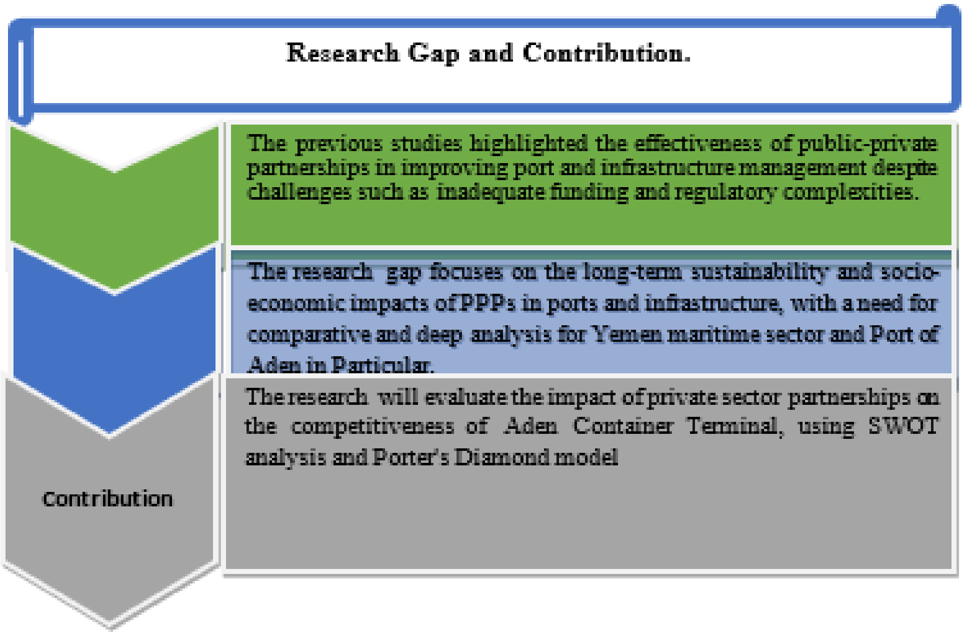

Figure (1) Research Gap and Contribution.

Source: the researcher.

6. Empirical Analysis:

A. SWOT Analysis of Aden Container Terminal for PPPs (Public-Private Partnership) involvement and competitiveness enhancement:

SWOT analysis can be applied to assess the feasibility and potential success of implementing Public-Private Partnerships (PPPs) at Aden Container Terminal. The analysis aims to identify internal and external factors that may influence the decision to pursue PPPs for the terminal:

Table (1): Internal and External Analysis of Aden Container Terminal

	Strength:	**Weakness:**
Internal Factors	1. The geographical location enhances the importance of the port of Aden, especially its proximity to international shipping routes linking key global trade centers between the East and the West. 2. The port is a natural and year-round protected harbor, unaffected by wind seasons or climate disturbances. 3. It was one of the world's major maritime supply centers, which would restore its previous status if other factors were available. 4. It is characterized by a cheap and efficient workforce capable of working with competence and prowess. 5. It houses the largest and only container terminal in the Republic of Yemen equipped with high-efficiency facilities. 6. The container terminal is operated by advanced operational systems (TOS).	1. The security and political instability since 2011 have cast shadows on the service and commercial activities in the port of Aden, followed by the summer war in 2015 and its repercussions until today. 2. The closure of land routes from the port of Aden to local markets and population centers significantly affected the port's activities, doubling the costs of overland transportation for shipments entering the local market from the port of Aden to the northern and central regions of Yemen. 3. The imposition of a second customs duty in areas controlled by the Houthi group on shipments coming from the seaport in the port of Aden doubled the shipping costs through the port. 4. Levying duties and tolls on trucks carrying commercial shipments along the road extending from the port of Aden to population centers in the northern, central, and even eastern

7. The container terminal owns sufficient space to implement development projects, making the port of Aden a regional hub for transshipment trade.
8. The legislative and procedural structure in the container terminal qualifies it for partnership with the private sector, especially as it is built on a basis of collaboration with the private sector.
9. The container terminal at the port of Aden is an attraction for specialized private sector companies, given the mentioned points, as well as the Chinese government's interest in the Silk Road project, which cannot ignore the port of Aden.
10. The proximity of the port of Aden to international navigation routes helps reduce maritime shipping costs in the event of normalization of political and security life in the Republic of Yemen, contributing to the reduction of war risk fees.
11. The container terminal of the port of Aden is exempt from customs and tax restrictions as it is located within the geographical framework of the free zone, distinguishing it from the benefits of free zone laws.
12. The distance of the Aden container terminal from the city regions of the Republic of Yemen, where the eastern regions are under the control of the legitimate government.

5. Many industrial activities related to export and re-export have halted due to the war and political instability, further increasing the costs of container transport, especially since incoming containers generally return empty.
6. Administrative discipline has weakened as a result of the consequences of war and the lack of security and political stability.
7. Many workers have shifted to light work due to work injuries and aging, with no strategic plan for settling the old workforce and accommodating new workers based on competence.
8. Limited navigational depths and berth depth in light of the developments in container activity service worldwide and in the Red Sea region.
9. Equipment limitations, whether it's wharf equipment or yard handling equipment.
10. Limited storage areas and electricity connection points for refrigerated containers.
11. Despite being unique in the Republic of Yemen, the operational system of Aden Container Terminal is considered the oldest in the region

	makes it an ideal location for managing business and service activities independently, which will enhance the private sector's desire to collaborate with the government sector to manage and operate the container terminal if other supporting factors are available.	when compared to leading container terminals in the Red Sea and the Gulf of Aden region. 12. Imposing war risk insurance fees has made the Aden Container Terminal a preferable option for use by mother ships.
	Opportunities	**Threats**
External Factors	1. The location of the port of Aden itself is considered an opportunity that must be exploited if the rest of the factors are available. 2. The announcement of peace in Yemen and power-sharing among conflicting authorities since 2011. 3. Neutralizing the port of Aden from conflicts and government interventions and granting it administrative independence. 4. Drawing up a strategic plan for the governance of Aden to support the city's services and commercial activities and enhance the city's vision for the next twenty-five years. 5. Declaring the city of Aden a free zone with independent management will enhance its commercial activity and possess the Port activities for the imports and re-exports business.	1. The continued security and political instability in the Republic of Yemen threaten to undermine commercial and service activities in the country, especially in the port of Aden. 2. The security instability in the Red Sea region and the increasing intensity of conflicts with the Houthi group, along with a lack of inclination towards peace, will multiply maritime transportation fees to Yemeni ports in general. 3. The existence of advanced and modern container terminals in the ports of neighboring countries encourages many Yemeni importers to deal with them and benefit from their services, competitive prices, and then transport their shipments by land to the Yemeni markets. 4. The ongoing closure of major land routes and the imposition of customs duties by the Houthi group on

6. Opening roads and creating dedicated routes for transporting shipments from the port of Aden to local market centers and enhancing the network of land road connections to reduce time and costs.
7. Activating the role of customs and supporting it to operate on a single-window basis in partnership with the port of Aden and other relevant entities.
8. Eliminating the multiplicity of security entities operating in the port of Aden, especially the container terminal, and integrating them into a specialized and highly trained unified entity.
9. Conducting studies that would work in partnerships with specialized private sector entities and ensuring the injection of funds to implement development projects in the port of Aden.
10. Collaborating with the government to enact legislation that would liberate the port of Aden from government restrictions and bureaucracy in dealing, especially the existing container terminal currently managed by a private company but subject to government procedures and restrictions that have constrained its ability to

shipments coming from the port of Aden to its controlled areas double the shipping costs through the port of Aden.

5. The continued operation of the Hodeidah port without opening land routes from the port of Aden to local markets and population centers increases the cost disparity between the two ports for the sake of Hodeidah.
6. The deterioration of the local currency against the US dollar in areas under the control of the legitimate government mirrors the exchange rate situation in areas controlled by the Houthi group.
7. Non-payment of salaries and the worsening living conditions of Yemeni citizens due to the war and its repercussions, along with the absence of a political settlement among local conflicting parties, will further amplify the recession and reduce demand for goods and other necessities, affecting commercial activities in the city of Aden and its port.
8. The continued security and political instability will complicate forming partnerships with specialized private sectors to ensure the implementation of infrastructure and superstructure development projects in the port of Aden and the container terminal in particular.
9. Declining import activities through the port of Aden, with obstacles such as the

	operate outside the scope of government procedures and bureaucracy. Also, liberating it from the existing laws in the Republic of Yemen through free market legislation. 11. Develop a Private partnership model towards the development of the Aden container terminal and execution of the expansion plans and enhance its competitiveness in the region.	opening of the Hodeidah port, road closures, increased maritime shipping fees, and the instability of the local currency, pose a significant threat to the activities of the port of Aden. 10. Equipment aging, wear and tear, increase of the light duty workers due to illness reason, and the laxity in addressing administrative discipline, coupled with rising operational expenses and declining income, threaten the activities and stability of Aden container terminal. 11. The absence of partnerships with the global and specialized private sector, which could work in collaboration towards the development and activation of the Aden Container Terminal's role and enhance its competitiveness locally and regionally. Working on risk-sharing and addressing challenges collectively would prevent the continuous decline in the performance of the Aden Container Terminal and the widening of the technical and managerial gap between ACT and its counterparts in the region

Source: Author's analysis based on personal interviews with key management at the Port of Aden and Aden Container Terminal.

The analysis given above in table identifies weaknesses that need to be addressed, as well as threats that could diminish the effectiveness of opportunities and weaken sources of strength. This situation obstructs the potential for development opportunities for Aden Container Terminal. However, these opportunities can be enhanced, and sources of strength supported, by fostering partnerships with specialized private sector entities, contingent upon achieving internal alignment among the various Yemeni political parties and their differing orientations. Such partnerships with the private sector will ensure sufficient capital is injected to complete stalled development projects and provide the necessary expertise to support strategic and marketing plans. This approach will enhance development projects and strengthen the competitiveness of Aden Container Terminal.

Therefore, from the researcher's perspective, the management of the Port of Aden should adopt the necessary strategies to support competitiveness. According to the researcher, two crucial strategies need to be implemented: a defensive strategy and a remedial strategy simultaneously. The defensive strategy will leverage strengths against threats, while the remedial strategy will address weaknesses and capitalize on available opportunities to support and enhance the position of Aden Container Terminal both domestically and internationally.

B. Porter's Diamond Model:

By applying Porter's Diamond Model to the Aden Container Terminal and conducting a comprehensive analysis based on Porter's perspective to assess the environmental factors surrounding the terminal, which influence its competitiveness and its active role in the region. We will delve into the six factors of Porter's Diamond, focusing on the Public private partnership role in Aden Container Terminal as follows:

- **Bargaining Power of Suppliers (Suppliers Power):**

Bargaining power (production conditions) are one of the pillars of Porter's Diamond Model, applicable to any entity, whether governmental or private. These conditions are fundamental in nature and refer to the quality of the workforce, its qualifications, natural resources, and infrastructure. However, Porter argued in his theory that advanced production conditions, such as skilled and specialized knowledge, along with capital, were crucial for competitive advantage.

Applying this factor to Aden Container Terminal, focusing on its infrastructure, location, and proximity to local and global markets, in addition to the Private sector participation in the development of Aden container terminal, it can be categorized as follows:

1. The strategic location proximity of Aden Container Terminal, which located just four nautical miles from major international shipping lanes in the Port of Aden, is ideally positioned near essential routes through the Gulf of Aden, the Red Sea, and the Arabian Sea. This proximity enhances the terminal's accessibility and appeal for vessels on these vital maritime paths.
2. The competitive arrival advantage and the close distance to key shipping lanes translates to reduced arrival times for vessels, a distinct advantage in minimizing maritime transport costs. By maximizing operational standards, the terminal can further leverage this location to compete effectively with other regional container hubs.
3. Despite its advantageous location, Aden Container Terminal ranks lower than many competing container terminals in the Red Sea and Gulf of Aden region. This positioning is influenced by both internal and external factors, with internal challenges including an underdeveloped superstructure and lower performance indicators relative to regional competitors. The table (2) hereunder provides a comparison of production rates for Vessel rates

measured by the (Berth Move per Hour) and Port stay measured in (Hours) between Aden Container Terminal and its key counterparts in the region.

Table (2): Performance indicator's comparison between Aden container terminal and its prominent counterparts in the region.

Terminal / Port	Vessel Rate (VR) In BMPH	Port Stay Time (Average in Hours)
ACT/ Port of Aden	25	18
Salalah/ Port of Salalah	87	35
DP World/ Jeddah Islamic Port	73	37
RSGT/ Jeddah Islamic Port	103	35
DCT/ Port of Djibouti	53	48
KAP/ King Abdullah Port	78	35

Source: Aden Ports Development Company Marketing Plan, and World Bank's The Container Ports Performance Index 2022 (WorldBank, 2021).

Table 5-5 indicates that Aden Container Terminal ranks last among other container terminals in the region concerning productivity rates, measured in Berth Move per Hour (BMPH). Although the Port of Aden has higher port stay times than Djibouti Port, the latter's extended port stay can be justified by the significant volume of containers handled at its terminal, particularly due to current shipment diversions to Djibouti due the ongoing security unrest in the Red Sea region.

4. Both superstructure and infrastructure differences have widened the gap between Aden Container Terminal and other regional terminals. Investment in Aden Container Terminal remains comparatively low, particularly when compared to neighboring terminals. The table (3) below offers a detailed

comparison of the capabilities of Aden Container Terminal and its regional competitors

Table (3): Superstructure and infrastructure comparison for the Aden Container Terminal and its Key Competitors in the Region.

Terminal	Year of Operation	Storage Capacity (Million TEUs)	Quay Depth (meters)	Quay Length (meters)	Number of Gantry Cranes
Aden Container Terminal	1999	1	16	700	6
Salalah Port Container Terminal	1998	6	18	2400	25
Jeddah Islamic Port Container Terminals	1999	8	15 - 18	4645	36
Doraleh Container Terminal	2009	1.5	18	1050	12

Source: Author research from the official website of the competitor terminals

5. Aden Container Terminal stands out in Yemen as the only facility equipped with high-efficiency gantry cranes capable of servicing container ships. However, Yemen's current security situation presents challenges, as many land routes connecting the terminal to key population centers—such as Taiz, Sanaa, and Ibb—are disrupted by ongoing civil unrest.
6. Aden Container Terminal relies on local staff for its operations and management, benefiting from a skilled and cost-effective workforce. However, the lack of robust training and qualification programs, coupled with administrative discipline issues, attributed to political and security instability hinders optimal utilization of this aspect.

7. Aden Container Terminal lacks strategic projects that could significantly boost trade and service activity, reducing maritime transport costs. This is reflected in the absence of direct production lines, where cargo entering the local market is directed to the Port of Aden.
8. Due to security concerns and the imposed war risks on visiting ships to Yemeni ports, including Aden, major shipping lines mother ships have avoided passing through the Port of Aden, opting for smaller vessels dedicated to transporting Yemeni market shipments only to the Port of Aden. This has increased maritime transport costs.

In summary, these production factors provide a comprehensive overview of Aden Container Terminal's strengths, weaknesses, and opportunities within the framework of Porter's Diamond Model. The analysis highlights the need for strategic investments, improved security conditions, and enhanced workforce training to leverage the terminal's competitive advantages effectively.

- **Bargaining Power of Buyers (Buyers Power):**

Buyers power (demand conditions) are one of the cornerstones of Porter's Diamond Model, which determines demand conditions primarily based on local demand for industry products. An increase in demand significantly influences competitiveness. Porter suggests that a growing and large local market encourages producers to enhance their technologies and efficiency. According to Michael Porter, this can be a competitive advantage for a nation. Conversely, small local markets with low economic growth rates encourage companies to explore export opportunities (Sunde, 2017). Analyzing the demand factor in the context of Aden Container Terminal and the influence of the private sector in enhancing the demand on Aden container terminal, the following points can be observed:

1. Demand for the Aden Container Terminal increased since 2016, coinciding with the civil war and the Houthi rebels' control over the Hodeidah port, affecting its readiness to serve container ships. This has strengthened Aden's position as the preferred choice for customers, that are traders and relief organizations.
2. The ongoing security and political instability in Yemen, road closures, and the imposition of additional tariffs by Houthi rebels on shipment coming from the port of Aden had a significant impact. Many traders opted for alternative shipping routes through neighboring countries, bypassing Aden.
3. The opening of Hodeidah port in early 2023 further impacted Aden's container terminal activities. Although Hodeidah has basic facilities, it managed to redirect a significant portion of imported goods to Yemeni markets. The political settlement that opened Hodeidah port did not ensure the opening of land routes connecting Aden to major population centers.
4. The local market is vital for the activities of Aden's container terminal, particularly in the current context of Yemen. Around 80% of Aden's clientele originates from the densely populated northern and central regions, which are characterized by significant purchasing power. These areas are currently under pressure from Houthi groups to redirect their port preferences to Hodeidah, which could escalate costs for importers. Figure 2. illustrates the distribution of the population across Yemen.

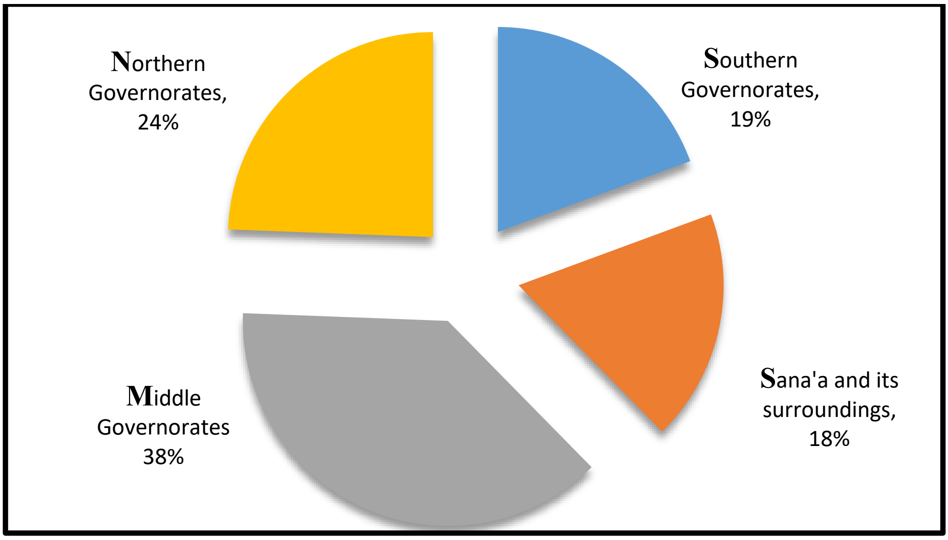

Figure (2): Demographic Distribution of the Yemeni Population

Source: Ministry of Statistics and Planning – 2015

5. Market segmentation reveals that the southern and eastern regions constitute approximately 19% of the current market for the Port of Aden. The remaining 81% represents the market segment that Aden Port aims to capture, despite intense competition from the Port of Hodeidah and land routes such as the Wadia and Shahn border crossings.
6. The rising rate at which local market shipments are handled is crucial for the development of the container terminal and encourages shipping lines to engage in transshipment activities. However, Aden confronts obstacles, such as war risk insurance required by shipping companies. This requirement leads to the preference for feeder ships over mother ships, thereby affecting its strategic role.

7. The partnership with the private sector can play a prominent role in enhancing demand conditions by connecting Aden container terminal to key transit ports by receiving ships directly from loading ports to the port of Aden. This will shorten the duration of the maritime journey, subsequently reflecting on the cost of maritime transportation through the port of Aden. Consequently, this advantage will tilt the balance in favor of the port of Aden when compared to competing ports in neighboring countries, including the port of Hodeidah. The effective reduction of maritime transportation costs will play a significant role in ensuring the attraction of a larger share of the local market imports through the port of Aden.

All the aforementioned factors have financial repercussions, increasing maritime transport costs to Aden compared to neighboring ports. This, in turn, reinforces the role of land transport from neighboring ports to Yemen through border crossings with Oman and Saudi Arabia.

- **Firm Strategy, Structure and Rivalry:**

Competition stands out as the primary driving force propelling companies within a country to strive for a competitive advantage. Porter suggests that local competition compels companies to engage in endeavors such as cost reduction, quality enhancement, and innovation. Consequently, companies find themselves participating in global competition, where a nation's national competitiveness shapes the global competitive advantage for its companies. The strategies and organizational structures adopted by companies wield a significant influence in bolstering their competitive prowess. The interplay between organizational structure and strategy plays a pivotal role in determining competitiveness, thereby influencing a company's overall competitive capability. As a result, the strategies and organizational frameworks employed for managing a company or industry have a direct impact on performance and competitive prowess. Consequently, achieving local competitiveness necessitates an extra impetus for companies to transition from local to international competition (Tasevska, 2006).

Using this factor from Porter, Aden Container Terminal will be analyzed along with the interactions of the private sector and their impact on the organization's structure, strategies, and competitiveness as follows:

1. Aden Container Terminal possesses an organizational structure that outlines its administrative and operational systems, allowing for some autonomy from the constraints and bureaucracy typically associated with the public sector. However, the terminal is still subject to the influence of the surrounding community, which affects both its performance and day-to-day operations.
2. Despite being a crucial asset within the Port of Aden, Aden Container Terminal lacks a long-term strategic vision to bolster its competitiveness over the next twenty-five years. The terminal is currently without a strategic framework to guide its present operations toward achieving its future vision objectives and medium to long-term strategic plans.
3. Aden Container Terminal has been managed by various companies over the past two decades, each bringing its own vision and development plans based on its unique approach to operating the terminal. These differing strategies from past operators have resulted in the lack of a unified strategic plan, officially endorsed by the relevant government authorities,

to guide the future of the terminal. This is further complicated by the relatively short management periods of each company. The following table outlines the successive management periods of the companies overseeing the Aden Container Terminal.

Table (4): Consecutive Management Periods of Aden Container Terminal

Operator	Period	Years
Singapore Port Authority - PSA	1999 - 2003	4
Overseas Port Management - OPM	2003 - 2007	4
Dubai Ports World - DP World	2008 - 2012	4
Aden Ports Development Company	2012 - 2024	12

Source: Commercial Department - Aden Container Terminal, Port of Aden

4. Aden Container Terminal has not benefited from substantial investments aimed at reinforcing its competitive position since its establishment in 1999. This lack of strategic investments has hindered the terminal's development despite its favorable location and the initiation of operations. The table below shows the container terminal in the region based on its inauguration date.

Table (5): Container terminal operation commencement date.

Port	Terminal	Start Date
Port of Aden	Aden Container Terminal	1999
Port of Salalah	Port of Salalah	1998
Port of Sohar	Oman International Container Terminal (OICT)	2007
Doraleh Port	Doraleh C T	2009
Jeddah Islamic Port	Red Sea Gate Way	2009
	North C T	2000

Port	Terminal	Start Date
	South C T	1999
King Abdullah Port	King Abdulla Terminal	2013
Aqaba Port	Aqaba Container Terminal	2004
Port of Sudan	South Container Terminal	2011
Sokhna Port	Sokhna Container Terminal	2002

Source: Author from the websites of the regional container terminals

The above table (5) shows that three container terminals existed in 1999 as marked different color, the exponential growth in the number of container terminals since 1999 onwards have reflected the increase of the competition in this region based on many factors whereas the competency of the container terminal is one of the major factors to attract business.

5. The Coastal and maritime-bordering countries have recognized the importance of maritime transportation and have prepared conditions to attract transshipment container activities in the region. Instead of the three container terminals that existed in the year 1999, we now have more than 10 container terminals whereas most of these container terminals are operated by Private companies.

   The following chart (3) illustrates the stages of establishing container terminals in the region as follows:

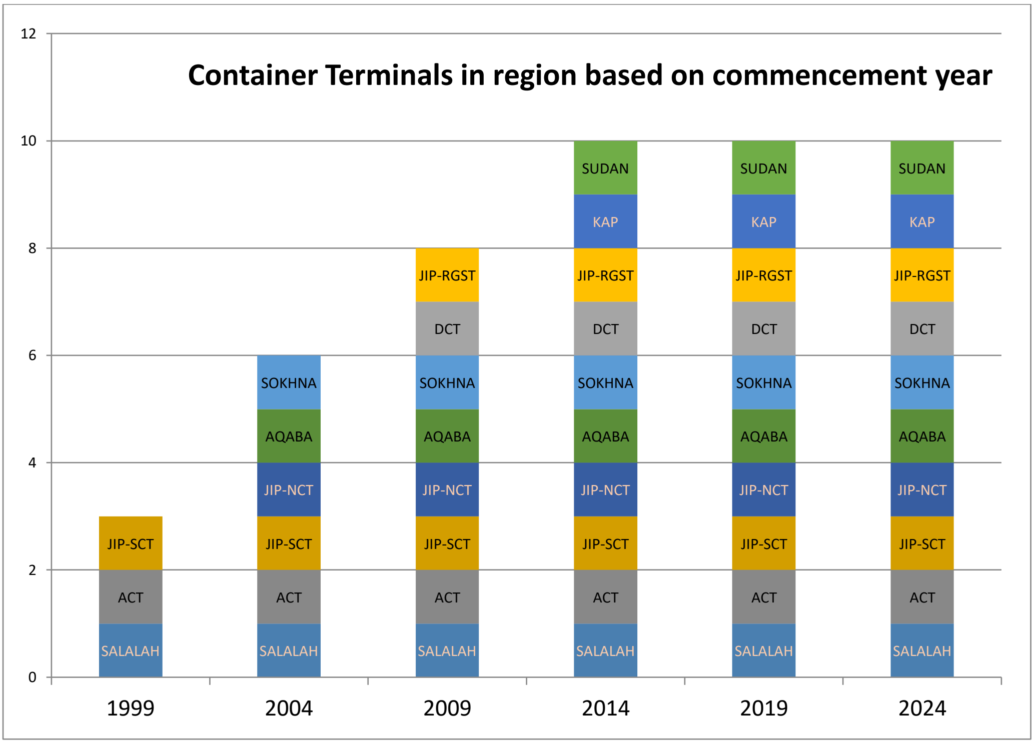

Chart no. (3): Comparison of Container Terminals in the region between 1999 and 2024

Source: Aden Container Terminal Competitors Report.

The chart above (3) shows that container terminals in the Red Sea and Gulf of Aden region, including the Horn of Africa along the Gulf of Aden, have expanded rapidly as governments recognize the area's importance as a vital trade route for goods moving from Southeast Asia to Europe through the Red Sea. In 1999, there were only three container terminals in the region. However, within five years, three additional terminals were established: Aqaba Terminal, Port of Sokhna, and the North Container Terminal at Jeddah Islamic Port. Five years later, in 2009, the Djibouti Container Terminal and the Red Sea Gateway

Container Terminal at Jeddah Islamic Port were opened, increasing the number of terminals at Jeddah Islamic Port to three. From 2014 to the present, the region has seen the development of the largest container terminal in the area at King Abdullah Port, north of Jeddah, Saudi Arabia, and the South Container Terminal in Sudan.

6. The absence of long-term strategic plans and the lack of a stable security and political environment have undermined the development of long-term plans. Additionally, the lack of real investments to support the terminal's competitive position has hindered the enhancement of its competitive ability and its repositioning on the competitive regional ports map. This is despite its geographical and strategic importance in one of the most vital maritime navigation corridors.
7. Partnerships with the private sector in neighboring ports have played a significant role in shaping the marketing policies and strategies that have successfully attracted transshipment activities in the Red Sea region, transforming them into transit and re-export trade centers. They have become hubs for many ports, including Aden Port, which can be attributed to the political and security stability in those countries. This stability has facilitated the continuation of effective partnership programs based on contractual agreements that ensure rights for both sectors and contribute to risk-sharing, thereby creating a conducive environment for transforming neighboring ports into regional centers. An example of this is the Islamic Port of Jeddah and Salalah Port in Oman.

- **Threats of Substitutes and services:**

The threats from substitutes and competing services to the maritime gateway of Aden Port have been a persistent concern, exacerbated over the past decade due to the Arab revolutions and their impact on Yemen's situation.

A multitude of options has arisen for Yemeni importers, shown by overland ports. The 2022 marketing plan for Aden Container Terminal reveals that nautical ports represented a significant volume of products entering via the terminal, suggesting that the overland route has emerged as a formidable rival, offering alternative possibilities. This analysis examines the circumstances surrounding Aden Container Terminal and the influence of substitutes and ancillary services in drawing a substantial portion of business to the terminal.

1 Following the closure of Hodeidah Port in 2015 and the subsequent transfer of operations to Aden Port, new options have arisen due to the many obstacles related to the ongoing conflict in Middle and North Governorates. The overland ports rule has increased as another option for most of the northern governorates, whereas the overland ports now are representing 42% of the total cargo activity entering the Yemeni local market (APDC-SMP, 2019).

2 The significance of overland ports as an alternative option has been enhanced by various causes, notably customs evasion, which is increasingly prevalent at remote border customs points situated along the borders of Yemen, Oman, and Saudi Arabia.

3 The disparity in maritime shipping prices relative to ports in other nations is a further challenge, prompting numerous importers to utilize these neighboring

ports whose shipping costs are cheaper than those at Aden Port. The table below presents a comparison of shipping rates:

Table Number (6): Comparative Analysis of Freight Rates for the Port of Aden and Yemen's neighboring countries.

Port of Load	Port of Discharge	Rate (USD)
China - XIAMING	YEMEN - Aden	5000
China - XIAMING	OMAN - Salalah	2500
China - XIAMING	Saudi - Jeddah	3800

Source: APDC SMP, 2024

4 The problem of road closures linking Aden to other provinces, coupled with the customs tariffs levied by the Houthi group on goods arriving from Aden Port, has imposed an additional burden on importers, hence increasing the significance of alternate routes such as overland ports.

5 The 2022 reopening of Hodeidah Port for commercial shipping provided an alternative in response to Houthi efforts compelling importers to utilize the port to evade penalties on Yemeni importers.

6 The Red sea security challenges imposed by the Houthi group have caused to the cessation of main vessel operations (Mother ships) between loading ports and Aden Port, coupled with their substitution by feeder ships, further amplifies the significance of alternative ports in the neighboring countries, thereby diminishing transportation expenses and abbreviating maritime transit duration.

7 The absence of security on the routes connecting Aden Port with regions in eastern and northern Yemen presents a difficulty that amplifies the significance

of alternate routes and neighboring ports, subsequently necessitating overland transport to the Yemeni market.

- **Threats of the New Entrance:**

The Port of Aden, historically a vital marine conduit in Yemen, has renewed threats from emerging competitors chiefly due to geopolitical shifts and economic transformations in the region. The development of new ports and improved functionalities at current overland routes present considerable competitive threats to the Port of Aden, particularly the Aden Container Terminal. Below are many threats:

1 Development of neighboring Ports: The newly developed and enhanced port facilities in neighboring countries, like Oman's Salalah Port and Saudi Arabia's Jeddah Port, pose considerable risks. These ports provide more competitive shipping rates and with superior facilities, successfully attracting maritime traffic from Aden.

2 Overland Transportation Options: Due to the persistent instability and conflicts, overland transportation routes via Oman and Saudi Arabia have emerged as feasible alternatives for importers and exporters. The efficacy and economic viability of these networks have drawn trade flows intended for Yemeni markets.

3 Political and Economic Instability: The prevailing political and economic instability in Yemen, exacerbated by Houthi control and foreign conflicts, has prompted new entrants to develop alternate logistical and transport channels that entirely circumvent Yemeni ports. This transition may result in a sustained decrease in cargo quantities at Aden.

4 Competitors' Rapid Adoption of Technological Advancements and Aggressive Service Expansion: Competitors have swiftly embraced new technologies and expanded their service offerings with greater intensity. The incorporation of digital logistics platforms and blockchain for tracking has rendered competing ports more attractive to multinational enterprises.

5 Strategic partnerships with Private sector: New entrants have established strategic partnerships with private sectors represented by the shipping companies and cargo handlers, providing bundled services at discounted rates, potentially undermining the competitive standing of Aden Container Terminal.

6 Organizational changes and trade policies: The amendments to trade policies and regulatory frameworks that favor alternative ports have had a significant impact on trade dynamics in Aden. These changes include Aden Port's commitment to restrictions on the import of certain shipments entering through Aden Port, while easing procedures at other overland ports and allowing the easy and simple entry of the same shipments via land routes. Additionally, customs and tax evasion at land ports have become attractive factors for local importers to deal with land ports instead of Aden Port.

In addition to the factors mentioned above, Porter introduced additional complementary determinants, namely the roles of government and happenstance. Porter argues that the government's role comes through influencing the functioning of the four fundamental determinants of competitive advantage. These determinants include legislation related to capital markets, tax policies, antitrust laws, or exchange rate policy and market management.

Moreover, chance refers to unforeseen events or matters that occur outside the control and governance of companies. These unexpected events play a significant role in the competitiveness and success of various industries.

- **Government:**

In relation to the Aden Container Terminal, the governmental role has not played a substantial part in elevating the terminal's competitiveness through fostering collaborative opportunities with specialized private sector entities. This could be achieved by establishing effective mechanisms, legislation, and incentivizing measures to encourage partnerships with the private sector. Such collaborations, in turn, would contribute to enhancing the competitiveness of the Port of Aden and Aden Container Terminal.

The following factors will collaborate in analyzing the governmental position and its role in stimulating the private sector to enhance the competitive capabilities of Aden Container Terminal:

1. The successive Yemeni governments have not implemented legislation and regulatory procedures to govern collaboration with the private sector in strategic projects, particularly at the port of Aden. Furthermore, they have not reviewed the reasons for previous failures in partnerships related to the management of the Aden Container Terminal since 1999.
2. The successive Yemeni governments have not embraced private capital and encouraged export and re-export activities. On the contrary, the ongoing dispute between the port of Aden and the Free Zones Authority has persisted for a long time without resolution. Due to the absence of a unified strategic

plan for the city of Aden as a whole, the Free Zones Authority allocated a significant portion of the areas and lands, known as 'adjacent areas,' to the port, to residential projects that do not serve the port's activities and re-export endeavors.

3. The Yemeni government has not taken steps to integrate the Port of Aden with local markets or lift restrictions within Aden City's framework, which once aimed to establish it as a fully free zone. No dedicated market links or main roads for goods have been developed to support supply chains from Aden container terminal. In contrast, the Islamic Port of Jeddah has a large internal area to manage incoming shipments, provide storage, facilitate re-exports, and deliver goods to the local market via a fast, advanced road network. Additionally, Port of Jeddah's is part of a cargo train project linking the kingdom's eastern and western regions and the Gulf Cooperation Council countries (Alshiban, 2023). Similarly, the Djiboutian government has connected Doraleh port to Ethiopian markets through a direct train line funded by China, allowing efficient, rapid, and lower-cost transportation from Djibouti to Ethiopia (GIH, 2020).
4. The successive Yemeni governments have not prioritized container terminal projects or ports within their strategic plans or even in the overall state budget. These projects, if optimally utilized, would contribute to supporting the country's economy and providing direct and indirect employment opportunities. This support extends from enhancing commercial and service activities, starting with port operations and extending to businesses such as restaurants and cafes that cater to the active commercial movement.

5. The Yemeni governments have not introduced specific legislation for port activities or encouraged private sector investments in the maritime transport sector, especially considering that container shipping represents the future of maritime transport due to its speed and cost-effectiveness. There is no specific legislation for the container terminal that could exempt it from local laws to enable broader operations. Currently, the container terminal only benefits from the Free Zone Law due to its geographical location within the Free Zone areas, which constitute the port's hinterland areas to exempt it from local laws.
6. Government interference prevents the container terminal from utilizing hinterland areas needed for future port expansion. This hampers clear authority boundaries between Aden Port's Free Zones and the terminal. Significant coastal areas have been designated for residential use, resulting in missed opportunities to expand the terminal and establish storage facilities that support port activities.

- **Chance:**

  The role of chance had a significant impact on Aden Container Terminal, manifested in the outbreak of the civil war in Yemen due to the Houthi rebellion in 2015. This war resulted in the closure of the Hodeidah Port, especially since it fell under the control of the Houthi rebels. Consequently, all shipments directly entered the Yemeni local market through Aden Container Terminal. This led to a sudden increase in the number of containers between the end of 2015 and 2016 and thereafter.

  The table below illustrates the comparison of the number of containers handled at the Aden Container Terminal from 2012 to 2023:

Table (٧): Aden container terminal throughput comparison for the period from 2012 to 2023.

Year	Number of Containers (TEU)
2012	262,666
2013	290,011
2014	296,035
2015	178,101
2016	268,206
2017	334,894
2018	398,999
2019	464,952
2020	423,393
2021	418,711
2022	368,498
2023	282,652

Source: Commercial Department – Aden Container Terminal

1. The sudden increase in container numbers at Aden Container Terminal from 2016 to 2022, reaching unprecedented levels since the outbreak of war, played a role in challenging the terminal management's expectations for container handling and the expected increase in the terminal's budget and future.
2. Despite a rise in container volumes until 2021, the increase was below expectations, positioning Aden Container Terminal as Yemen's only container facility capable of handling container ships. However, challenges remain due

to factors such as security concerns, freight costs, road safety, and the uninterrupted flow of goods to local markets.

3. The security instability in the city of Aden and its surroundings hindered the optimal utilization of the opportunity granted to Aden Container Terminal to become a central hub for the flow of all imports and exports in the local market. However, despite the challenges posed by local competitors with land ports playing a prominent role in the flow of local market needs, the container terminal achieved the highest handling rates since its establishment in 1999. This was due to the opportunities created during the war, with Aden Container Terminal standing out as the Houthi rebels controlled the Hodeidah Port, turning it into a launching pad for Houthi militia operations to disrupt stability and security.
4. The opening of the Hodeidah Port to commercial ship calls has been the main reason for the decline in container arrival rates through Aden Container Terminal as outlined in the above table for 2023 statistics. This is due to measures imposed by the Houthi group, including additional customs duties on imports to the local market through the Port of Aden, coupled with the rising prices of land transport, now competing with sea freight. However, the opportunity remains open, particularly given the developments in the Red Sea region and the Houthi threats, which may enhance the use of the Port of Aden compared to the currently unsafe Hodeidah Port.
5. The classification of the Houthi group as a terrorist organization by the US administration is an additional opportunity to avoid dealing with seaports under Houthi control, thereby enhancing job opportunities at the Port of Aden

and Aden Airport as reliable alternatives. Especially since they are under the authority of the internationally recognized legitimate government.

6. The Yemeni government and the Port of Aden administration should capitalize on this opportunity to establish partnerships with the private sector and humanitarian organizations operating in Yemen. This would transform the Aden Port into a hub for service and relief operations, seizing an opportunity that may not be compensated for later if left untapped.

7. Important Results:

- The Port of Aden enjoys several internal strengths that position it for regional leadership. Its strategic location near international shipping routes, and its status as a natural, all-season harbor, enhances its logistical advantage. The port has a large, cost-effective workforce, and hosts Yemen's only advanced container terminal, equipped with a modern Terminal Operating System (TOS).
- Despite its strengths, the port faces internal challenges. Prolonged instability since 2011 has disrupted services, worsened by the closure of key inland routes and duplicate customs fees, increasing shipping costs. Industrial activity has declined, and many containers return empty, raising transport inefficiencies.
- Despite its strategic advantages, the Port of Aden faces a wide range of threats that significantly hinder its performance and long-term sustainability. The continuing political and security instability in Yemen poses an overarching challenge, affecting not only operational efficiency but also investor confidence. The volatile situation in the Red Sea region, particularly with

intensified conflict involving the Houthi group, threatens to raise maritime insurance and transportation costs, making Yemeni ports less attractive to international shippers. Additionally, modern, well-equipped container terminals in neighboring countries offer better services and pricing, drawing many Yemeni importers away from Aden and resulting in growing competition.

- The Port of Aden holds significant potential that, if properly leveraged, could restore its position as a major player in regional maritime trade. Its strategic location near international shipping lanes remains one of its strongest natural assets, offering a vital opportunity if political and security conditions stabilize. The prospects for peace in Yemen and a potential power-sharing agreement among conflicting factions since 2011 offer a pathway to normalize operations and commercial activities. Furthermore, neutralizing the port from political conflicts and granting it administrative autonomy could dramatically enhance its governance and attract investment. The development of a comprehensive strategic plan for the city of Aden would also support long-term growth in logistics, trade, and infrastructure, especially if the city is formally declared a free zone under independent management, which would enable it to lead import and re-export activity nationally.

8. Recommendations:

- To enhance the competitiveness of ACT, the priority is to develop a unified 25-year strategic master plan that aligns port operations with Aden city's urban, logistical, and trade development goals. This plan should be formulated collaboratively by the Ministry of Transport, ACT management, and urban planning authorities and endorsed by the central government to ensure consistency and sustainability.

- A key step is to establish ACT as an autonomous port authority with administrative and financial independence. Granting the port this autonomy would protect it from political interference and bureaucratic delays, enabling it to operate with a more commercial and efficient mindset.
- In parallel, the government must introduce a comprehensive legal framework specifically designed to regulate and encourage Public-Private Partnerships (PPPs) in the port sector. This framework should clearly define models such as Build-Operate-Transfer (BOT), Concession, and Landlord schemes while including risk-sharing mechanisms and guarantees to attract international investment. Furthermore, a dedicated Port Investment Law should be enacted to exempt ACT from restrictive national laws by officially placing it under Free Zone governance.
- Upgrading the port's infrastructure and superstructure is crucial. This includes deepening the berths to accommodate larger vessels, acquiring modern gantry cranes and yard equipment, expanding reefer connections, and increasing container storage areas. At the same time, the port should adopt smart technologies such as a Port Community System (PCS) that digitally connects customs, logistics operators, and port users for improved efficiency and transparency.

- In the area of human resource development, ACT should establish a Port Skills Training Academy in collaboration with international maritime training institutions. This academy would provide training in modern terminal operations, safety, and logistics, addressing the lack of skilled labor. Additionally, a phased succession plan should be implemented to replace the aging workforce with a new generation of qualified professionals.
- To strengthen ACT's market position, a targeted marketing campaign should be launched to reposition it as a regional transshipment hub. This includes signing Memoranda of Understanding (MOUs) with major shipping lines, participating in global logistics conferences, and offering incentives such as discounted tariffs and priority berth. These efforts will help ACT attract both cargo and investment.
- Improving logistics and hinterland connectivity is another critical element. The government should prioritize the rehabilitation and security of transport corridors linking Aden to major cities like Sana'a, Taiz, and Ibb. At the same time, the establishment of dry ports and inland container depots in central and northern governorates would extend ACT's reach and efficiency.
- Furthermore, the city of Aden should be formally declared a Free Trade Zone with independent management. Strategic coastal and hinterland areas must be reallocated exclusively for port-related expansion and logistics infrastructure, while preventing residential encroachment that limits growth potential. Logistics clusters and bonded warehouses should be developed to support import, export, and re-export activity.

- Given current regional instabilities, ACT should be promoted as a secure humanitarian logistics hub for organizations. The recent U.S. designation of the Houthi group as a terrorist organization presents a unique opportunity to redirect commercial and relief shipping traffic away from Houthi-controlled ports to Aden.
- To coordinate these reforms effectively, a National Ports Reform Council should be established, comprising representatives from the public sector, private companies, and international development partners. Regular stakeholder forums should also be held between ACT management, customs, truckers, and local authorities to ensure alignment, problem-solving, and continuous improvement.
- Finally, the success of this action plan will depend on several critical enablers: a strong political will, coordination across ministries, transparent PPP procurement procedures, and the active involvement of donors and international financial institutions. Enhancing security in and around the port is also essential to encourage investment and long-term planning.

References:

Al-Omari, M. M. A. & Hamid, B. A., 2022. *The impact of the partnership between the public and private sectors on the infrastructure in Iraq, with reference to the experience of the General Company for Iraqi ports,* Baghdad: Materials Today Proceeding.

Alshiban, I., 2023. *Completion of the GCC freight and passengers train connectivity in 2023..* [Online] Available at: https://www.alriyadh.com/2044860 [Accessed 24 1 2024].

APDC, 2024. *2023 Statistics ,* Aden: Aden Ports Develoment Company, ACT.

APDC-SMP, 2019. *STRATIGIC MARKETING PLAN ,* ADEN: ADEN PORTS DEVELOPMENT COMPANY .

Al-Safaani, E. E. A., 2022. *Participation of the Private Sector and Its Influence on Developing The erformance of Yemeni Seaports - Case Study: Hodeidah Port,* Sana'a: A thesis submitted to the Department of Business Administration-College of Graduate Studies in to complete the requirements for obtaining a Master's Degree in Business Administration.

Chen, B. & Guo, X., 2020. Public-Private Partnership and transport infrastructure investment efficiency: Evidence from countries along the 21st-Century Maritime Silk Road. *Journal of Coastal Research,* 112(SI), pp. 269-274.

GIH, 2020. *Addis Ababa – Djibouti Railway.* [Online] Available at: https://www.gihub.org/connectivity-across-borders/case-studies/addis-ababa-djibouti-railway/ [Accessed 19 1 2023].

Ismail, A., 2019. *Benchmarking the Efficiency of the Egyptian Container Terminals,* Alexandria: Unpublished PhD Thesis, Arab Academy for Science Technology and Maritime Transport.

Ismail, A. & Elgazzar, S., 2018. *Measuring the Egyptian container ports' efficiency: a FUZZY AHP framework..* Alexandria, Egypt, In 23rd Annual Conference of the Chartered Institute of Logistics and Transport, Logistics Research Network (LRN).

Jayasena, N., Chan, D. & Kumaraswamy, M., 2022. Is public–private partnership (PPP) a preferred strategy for procuring smart infrastructure in developed countries: an empirical study of the perceived benefits, barriers and recommended strategies. *Sustainability,* 14(11), p. 6421.

Kothari, C., 2004. *Research methodology.* Second ed. Jaipur, India: New Age International Publishers.

Nezzari, R., Sabrina, M. & Mayouf, H., 2021. Partnership between the public and private sector in the field of infrastructure With reference to a project Central Port in Algeria. *Jouranl of Economic and Administartive Researches,* 15(2), pp. 137-155.

Polit, D. & Beck, C., 2010. *Essentials of nursing research: Appraising evidence for nursing practice..* s.l.:Lippincott Williams & Wilkins.

Sunde, T., 2017. *Foreign direct investment, exports and economic growth: ADRL and casuality analysis for South Africa,* Namibia: International Business and Finance.

Tasevska, G., 2006. *An Economic Analysis of the Macedonian Viticulture - A Competitive View of the Grape and Wine Sector,* Business Admin. Thesis no. 445: Deprtment of Economic .

Wanis, A., Hlali, A. & Twati, H., 2021. *The desired role of Private sector and Seaports Governance within SDGs: Case of Maghreb Region,* Alexandria, Egypt: Malaysian Journal of Industrial Technology.