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A Study On The Transshipment Of Container At Terminal Operations In PSA Chennai

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Abstract

The study in on effective container vessel handling in the container terminal with reference to PSA, Chennai port. This project study analyses the ways and means to improve the container vessel traffic handling to enhance profitability and customer satisfaction in PSA port in accordance with the response from the customer container vessel operator.

This study focuses on the factors like turnaround time, pre berthing detention, yard capacity management and provide suggestions to improve the container vessel and container handling. Turnaround time and pre berthing detention alone with dwell time and output per ship day are the important criteria which help in analyzing the container vessel traffic handling. It gives an insight into the various techniques adopted in PSA port to enhance the container vessel handling services.

This study also provides an insight into the various cranes used in the port for handling container vessels. Upon the completion of the study the reader can able to draw a conclusion on the impact of turnaround time, per-berthing detention, yard capacity management on the container vessel handling. The data are collected from various customer through questionnaire which is the primary data collection method used in this research. The study is analyzed by percentage analysis and the finding, suggestion, and conclusion are given purely based on the values obtained from the calculations.

Key words: container, standard and vessels

INTRODUCTION

Trade is essential for the development of a country. Each and every country needs to interact with others through trade. Export of surplus and import of deficits are the basic factors of the trade. The International Sea borne trade has been revolutionized by containerization, as time and cost are the main factors, in sea trade. Now trade pattern has been changed to a great extent

The adoption of containerization was initially met with resistance from

traditional cargo handlers, who feared that the new system would lead to job losses and disrupt established trade routes. However, the benefits of containerization soon became apparent, and the system rapidly gained acceptance, leading to the development of specialized container ships and the expansion of container services worldwide.

Container vessels are cargo ships that carry all their load in truck size intermodal container, in a technique called containerization. They are a common means of commercial intermodal freight transport and now carry most seagoing non-bulk cargo. Container ship capacity is measured in twenty-feet-equivalent units (TEU). Typical load are a mix of 20-feet and 40-feet (2-TEU) ISO-standard container, with the late predominant.

Containerization has increased the efficiency of moving traditional break-bulk cargoes significantly, reducing shipping time by 84% and cost by 35%. Today, approximately 90% of non-bulk cargo worldwide is transport by container, and modern container ship can carry up to 16,020 twenty-feet-equivalent units (TEU). As a class, container ship non rival crude oil tankers and bulk carriers as the largest commercial vessels on the ocean.

Container vessel traffic handling refers to the handling of container cargo. Container vessel traffic handling play a crucial role in attracting the vessel operator and thereby increasing the trade volume and revenue to the port. The port should have the necessary infrastructure facilities to handle container vessel and container cargo. Container vessel traffic handling require equipment especially cranes, tug boat in good working conditions to enhance their service level. The container parking yard should have sufficient space and equipment to handle the container cargo efficiently.

RESEARCH METHODOLOGY

The process used to collect information and data for the purpose of making business decisions. The methodology may include publication, research, interview, survey and other research techniques, and could include both present and historical information.

Methodology is the systematic, theoretical analysis of the methods applied to a field of study. It comprises

the theoretical analysis of the body of methods and principles associated with a branch of knowledge. Typically, it encompasses concepts such as philosophical or theoretical frameworks, theoretical model, phases and quantitative or qualitative techniques.

A methodology does not set out to provide solutions - it is, therefore, not the same as a method. Instead, a methodology offers the theoretical underpinning for understanding which method, set of methods, or best practices can be applied to specific case, for example, to calculate a specific result.

This chapter aims to understand the research methodology establishing a framework of evaluation and revaluation of primary and secondary research. The techniques and concepts used during primary research in order to arrive at findings; which are also dealt with and lead to a logical deduction towards the analysis and results

Primary Data:

The most and major of the data of the project is based on the observation that was done during the Summer Internship Programme (SIP) in the PSA, Chennai. The primary data is being collected on the basis of the observation on the working process of the terminal operations in regard to transshipment , interaction among the members of the company and questionnaire was developed focusing various aspect.

Secondary Data:

In studying transshipment of containers in terminal operations at PSA Chennai, the following sources of secondary data were useful:

Previous research studies on container transshipment and terminal operations in India and around the world.

Reports and publications from PSA Chennai and other port authorities and terminal operators.

Statistical data and reports from relevant government agencies such as the Ministry of Shipping, the Directorate General of Shipping, and the Indian Ports Association.

Industry reports and publications from organizations such as the World Shipping Council, International Association of Ports and Harbors, and the Containerization International.

Academic and professional journals in the fields of transportation, logistics, and supply chain management.

Publicly available information on the websites and social media channels of shipping lines, freight forwarders, and other relevant organizations.

LIMITATIONS OF THE STUDY:

This study focuses only on the transshipment aspect in the terminal operation and factors influencing the efficiency of transhipment.in PSA Chennai.

This research study was constrained by time, which limited the ability to collect and analyse data thoroughly and to conduct follow-up studies.

The following are the limitations I came across while interning in PSA, Chennai:

As an intern I had limited access to data related to the operations and financial performance of the company due to confidentiality.

There was lack of orientation in regard to the planning and controlling in the PSA terminal operations.

I was exposed to QC and RTG but weren't allowed to enter the premise due to safety concerns.

OBJECTIVES OF THE STUDY:

To study the container vessel traffic handling with reference to the container terminal in Chennai port.

To analysis the ways and means to improve the container vessel traffic handling.

To identify the factors influencing the turn round time [TRT] of vessels.

To find out the factors influencing the pre-berthing-detention [PBD] on the port side.

To find out the satisfaction level about the equipment and method used for container yard capacity management.

SCOPE OF THE STUDY:

The study will provide insights into the transhipment operations at PSA Chennai and strategies for enhancing operational efficiency

It will also be useful to identify the challenges and opportunities for improvement in transhipment operations, including capacity constraints, infrastructure limitations,

and operational inefficiencies in PSA Chennai

The study will contribute to the academic literature and provide practical guidance to industry practitioners and policymakers..

DATA ANALYSIS AND INTERPRETETION

TABLE NO: 1

5.1Clearance of container from terminal at the right time will improve port statistics.

OPTION	NUMBER OF RESPONDENTS	PERCENTAGE
Strongly agree	5	12.5
Agree	28	70
Neutral	7	17.5
Disagree		
Strongly disagree		
Total	40	100

From the above table 1 it can be inferred that 70% of agree that clearance of container from terminal at the right time will improve port statistics and none of the respondents disagreed. It might be because when containers are cleared from the terminal promptly, it reduces congestion at the terminal, which improves the overall efficiency of the port. This reduces the time that vessels spend at the port, which can lead to increased vessel turnaround time and improved productivity

TABLE NO:2

5.2 EFFECTIVE USAGE OF CONTAINER HANDLING EQUIPMENT CAN INCREASE THE OPERATIONAL EFFICIENCY OF CONTAINER VESSEL HANDLING.

OPTION	NUMBER OF RESPONDENTS	PERCENTAGE
Strongly agree	6	15
Agree	26	65
Neutral	7	17.5
Disagree	1	2.5
Strongly disagree		
Total	40	100

From the above table 2 it can be inferred that majority of the respondents agreed that effective usage of container handling equipment can increase the operational efficiency of container vessel handling. Overall, the effective usage of container handling equipment is critical to increase productivity, reduce labor costs, increase safety, and increase vessel turnaround time.

TABLE NO :3

5.3 THE PRESENT OF CONTAINER YARD CLOSER TO THE BERTH CAN OPTIMIZE THE TRT VALUE

OPTION	NUMBER OF RESPONDENTS	PERCENTAGE
Strongly agree	6	15
Agree	22	55
Neutral	10	25
Disagree	2	5
Strongly disagree		
Total	40	100

From table 3 we can infer that majority of the respondents agreed and very few disagreed that the presence of container yard closer to berth can optimize TRT value. This will reduce transportation time, improve yard operations, reduce congestion, increase vessel productivity, and improve customer satisfaction.

TABLE NO:4

5.4 YARD CAPACITY AND THE TUG BOATS AVAILABILITY CAN HELP TO OBTAIN OPTIMUM TRT.

OPTION	NUMBER OF RESPONDENTS	PERCENTAGE
Strongly agree	2	5
Agree	27	67.5
Neutral	9	22.5
Disagree	2	5
Strongly disagree		
Total	40	100

From the above table it is clear that majority of the respondents agree that yard capacity and the tug boats availability can help to obtain optimum TRT. Sufficient yard capacity will reduce the congestion and increased availability of tug Boats will reduce the wait time for container vessels

TABLE NO:5

BERTH AVAILABILITY IS CONSIDERED TO BE MAIN TO OPTIMIZE THE PBD AT PORT

OPTION	NUMBER OF RESPONDENTS	PERCENTAGE
Strongly agree	11	27.5
Agree	20	50
Neutral	8	20
Disagree	1	2.5
Strongly disagree		
Total	40	100

From the above table 5 it is seen than half of the respondents agreed that Berth availability is considered to be main to optimize the PBD at port. By ensuring that berths are available when required, ports can maximize the utilization of resources, increase their capacity, improve the efficiency of operations, enhance customer satisfaction, and achieve economic benefits.

TABLE NO:6

AVAILABILITY OR THE MAINTENANCE OF TUG BOAT HAS A DIRECT IMPACT ON PBD

OPTION	NUMBER OF RESPONDENTS	PERCENTAGE
Strongly agree	1	2.5
Agree	25	62.5
Neutral	10	25
Disagree	4	10
Strongly disagree		
Total	40	100

From the above table 6 it can be inferred that the majority of them agreed that availability or the maintenance of tug boat has a direct impact on PBD. About 25% of the respondents neither agreed or disagreed to the statement.

TABLE NO: 7

PERIODIC MAINTENANCE OF YARD CRANES ARE HELPFUL IN OPTIMUM YARD MANAGEMENT

OPTION	NUMBER OF RESPONDENTS	PERCENTAGE
Strongly agree	5	12.5
Agree	21	52.5
Neutral	8	20
Disagree	6	15
Strongly disagree		
Total	40	100

From the above table 7 it can be observed that half of the respondents agreed that periodic maintenance of yard cranes are helpful in optimum yard management. It can increase reliability, improve safety, extend the lifespan of equipment, improve performance, and result in cost savings

TABLE NO: 8

INCREASING THE NUMBER OF YARD CRANES OR OTHER MATERIAL HANDLING EQUIPMENT CAN OPTIMISE THE YARD CAPACITY MANAGEMENT.

OPTION	NUMBER OF RESPONDENTS	PERCENTAGE
Strongly agree	4	10
Agree	15	37.5
Neutral	10	25
Disagree	11	27.5
Strongly disagree		
Total	40	100

From the above table it can be inferred that majority of them agreed that increasing the number of yard cranes or other material handling equipment can optimize the yard capacity management but almost 28% of the respondents disagreed to the statement because it can lead to higher capital expenditure, maintenance costs, and more significant space requirements

CONCLUSION AND SUGGESTION:

During the internship in PSA Chennai I have learned about various departments working in a port. I was also exposed to various equipment and how does it work such as QC and RTG. I also understood the terminal operations such as yard planning, crane operations and container handling. The internship helped me to gain valuable insights into the container shipping and logistics industry, including trends, challenges, and best practices

From the survey it is clear that TRT value can be influenced by various factors such as clearance of container

from the terminal at right time, container yard closer to the berth, availability of tug boats and yard capacity. These can reduce the port congestion and increase the customer satisfaction. Through this study it is clear that the Turn Round Time and Pre-Berthing Detention are the important criteria in container vessel traffic handling and these has to be made lesser to have an effective container traffic handling and to attract more vessel operators call to the port. Yard cranes availability helps in the reduction of the container vessels Turn Round Time to a significant amount. The Berth Reservation Scheme (BRS) will ensure lesser Pre-Berthing Detention time from the port side. The periodic maintenance to yard cranes is essential to handle the container and to evacuate them quickly as possible to optimize the yard capacity management. Rubber tired gantry cranes helps in achieving the effective yard management.

The port can complete the mega container terminal project as soon as possible for more container traffic handling. It is recommended to construct a multi-purpose container terminal as it would be a profitable option for the future. Volume based discount can be given to the port user for increasing trade volume. The container handling equipment can be upgrade to meet the international standards. Container freight station can be expanded inside the port area. Steps has to be taken to reduce the turn round time and pre-berthing detention. Container parking yard needs to expanded for handling large container. The draft length can be increased to handle large container vessels. Rubber tired gantry can be increased in number to optimize the container yard operations. Periodic maintenance of yard cranes should be done to optimize the Pre-berthing detention of the container vessels. The evacuation of import and export containers from the container parking yard.

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