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A STUDY ON ENHANCEMENT OF CONTAINER CARGO HANDLING PRODUCTIVITY FOR A PSU ORGANISATION IN TAMILNADU

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ABSTRACT

Container cargo handling is a decisive factor in determining the port productivity and the effective container handling has become an issue due to the increase in the containerization. The purpose of this study is to identify the factors impacting more to the container handling of PSU organization. The primary objective of the paper is to find out those impacting factors which are significant in enhancing the productivity of the container cargo handling. The researcher has made the analysis on the Secondary data obtained from the company over the key performance indicators for the entire financial year 2015-16. From the identified factors, the analysis is made for these factors in order to find out the original factors to be enhanced for improving the container handling productivity. The collected data have been analyzed using appropriate statistical tools.

KEYWORDS

container cargo handling, productivity, public sector performance.

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INTRODUCTION

Material handling involves short-distance movement within the confines of a building or between buildings and a transportation vehicle. It utilizes a wide range of manual, semi-automated, and automated equipment and includes consideration of the protection, storage, and control of materials throughout their manufacturing, warehousing, distribution, consumption, and disposal. Material handling can be used to create time and place utility through the handling, storage, and control of material, as distinct from manufacturing, which creates form utility by changing the shape, form, and makeup of material. Containerized cargo carrying is being increasingly popular worldwide. The container cargo handling mainly concerns with the container stowage and safe handling in port, care at sea, stacking weights, cargo securing prior departure port, Lashing Strength, Dangerous Cargo Stowage & Segregation, handling Reefer units, Special Container Stowage, Irregular Stowage of Containers, Over-stow of Containers, safety of navigation, Hull strength & stability, stevedores injury and reporting, Hatch Cover Clearance (High cube containers Under Deck), & Other matters regarding cargo stowage as necessary and many more detail topics related with containership operation and business.

LITERATURE REVIEW

Akincilar, (2013) explains that study was to design an in-house container handling system that could be efficient for the production it serves by identifying the problems and evaluating them with statistical tools.

Bahale, (2014) says that the material handling cannot be avoided in logistics, but can certainly be reduced to minimum levels.

Beamon, (2005) says that the container handling system in any manufacturing setting plays an important part in the performance indicator in the port.

Chen, (2009) states that the management of container terminal operations is essentially the allocation and scheduling of the expensive resources such as berths, quay cranes, storage space, yard cranes, and container carriers.

Dongre, (2015) In his paper the author states that it is an attempt made to review the considerations for material flow design

Jager, (2008) states that the increasing in demand of the container cargo needs to be addressed periodically as the availability of resources has to be improved in order to sustain the profitability.

Sie, (2006) says that the transfer of material safely within the organization is very important by reducing the damages caused and minimizing the travel time of the material movement.

Tranberg, (2009) in his paper deals with the objective of the container positioning problem (CPP) to minimize the total handling time in the block, i.e. the time required for storage and reshuffling of containers.

Vieira, (2011) states that the Materials handling has direct influence on transit time, resources usage, and service levels.

NEED FOR THE STUDY

The study relating to the enhancement of the container cargo handling is very much required in order to improve the efficiency of the logistics operations of the containers. The containerization has wide spread usage and most of the transportation of goods in ports takes place through the containers. Therefore, this study is very important to explore the different ways of enhancing the productivity of container cargo handling.

STATEMENT OF THE PROBLEM

The container cargo contributes more to the overall productivity and the profit generated through the container cargo is comparably higher. The port which is having such a huge demand is facing an important problem with regard to storage space of the container cargo. The total ground storage capacity available for the container storage and handling is only 3.60 Million Total Equivalent Units whereas the berth handling capacity is 4.62 Million Total Equivalent Units. The capacity of the organisation in container handling is limited by the storage space available with them. The other major problem is the limitations in the material handling methods and lack of advancement of modern technologies. This capacity constrain would limit the organization's operations which ultimately affects their profit margin and productivity. This study suggests the ways to enhance the cargo container handling which results in improved productivity.

OBJECTIVES OF THE RESEARCH

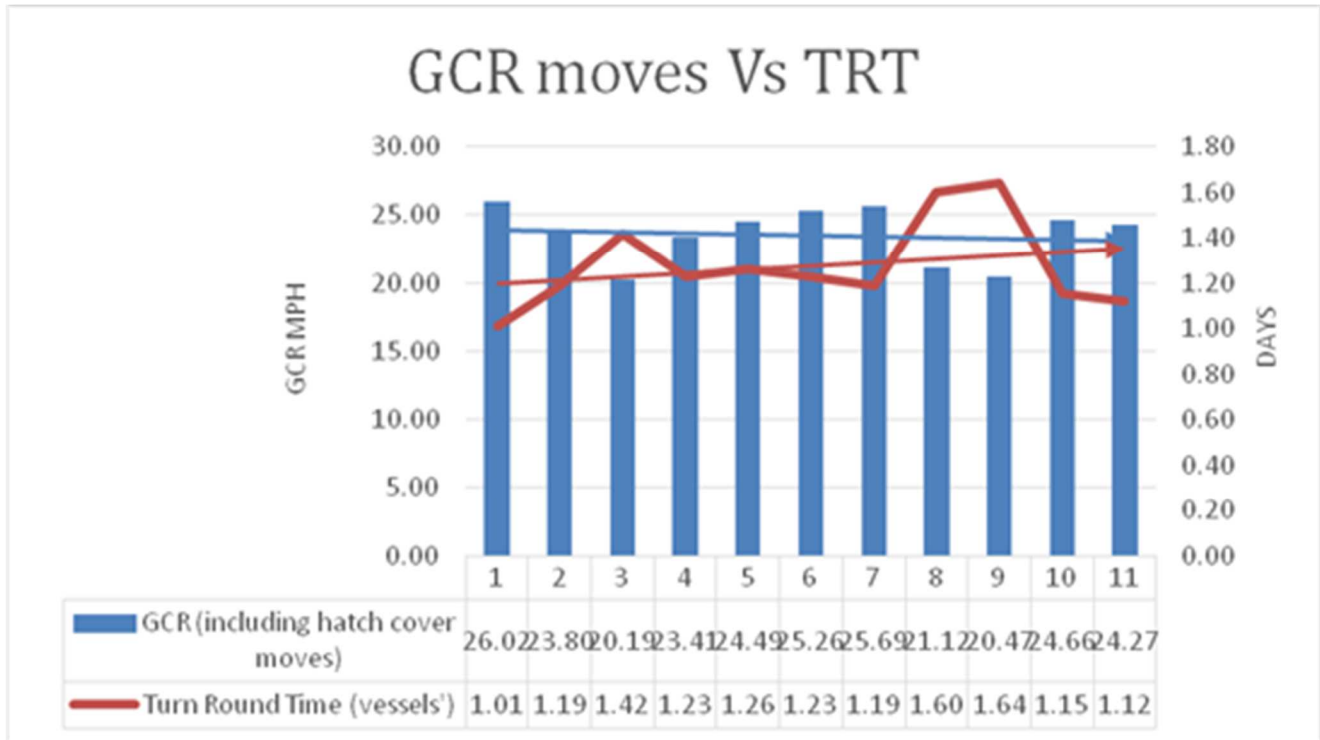
1. To determine the ways to minimize the Turn Round Time (TRT).
2. To optimize the yard management operations
3. To identify the methods for enhancing the container movement and handling technique.

RESEARCH METHODOLOGY

The study output is mainly determined by the analysis made from the secondary data obtained from the organization. Methodology of this research aims to determine the factors for enhancing the container cargo handling in the port. The key performance indicators impacting the container handling is identified by analyzing the secondary data and the relationship between some factors and key performance indicators are identified. Then the results of the analysis are considered to suggest solution for better container handling.

RESULTS AND DISCUSSIONS

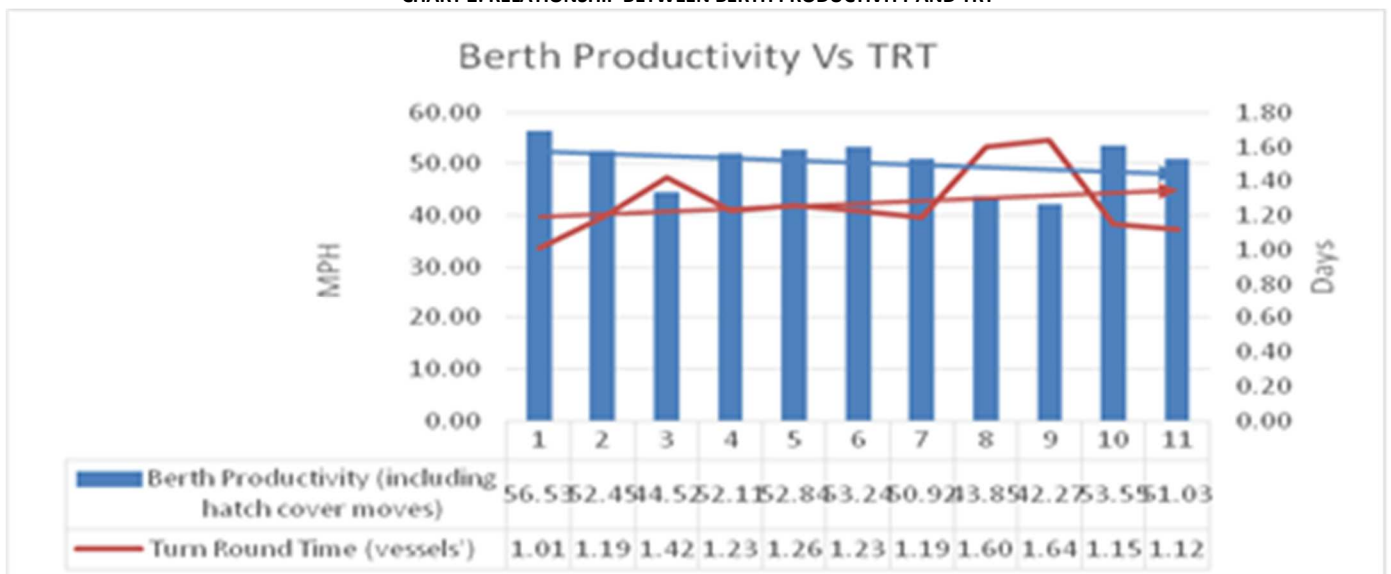
CHART 1: RELATIONSHIP BETWEEN GCR MOVES AND TRT



(Source: Secondary source)

From the chart 1, it is inferred that Turn Round Time is gradually increasing as the productivity of the crane movements is decreasing. This indicates that the crane productivity and TRT time has a relationship and the improvement is required in the crane movements.

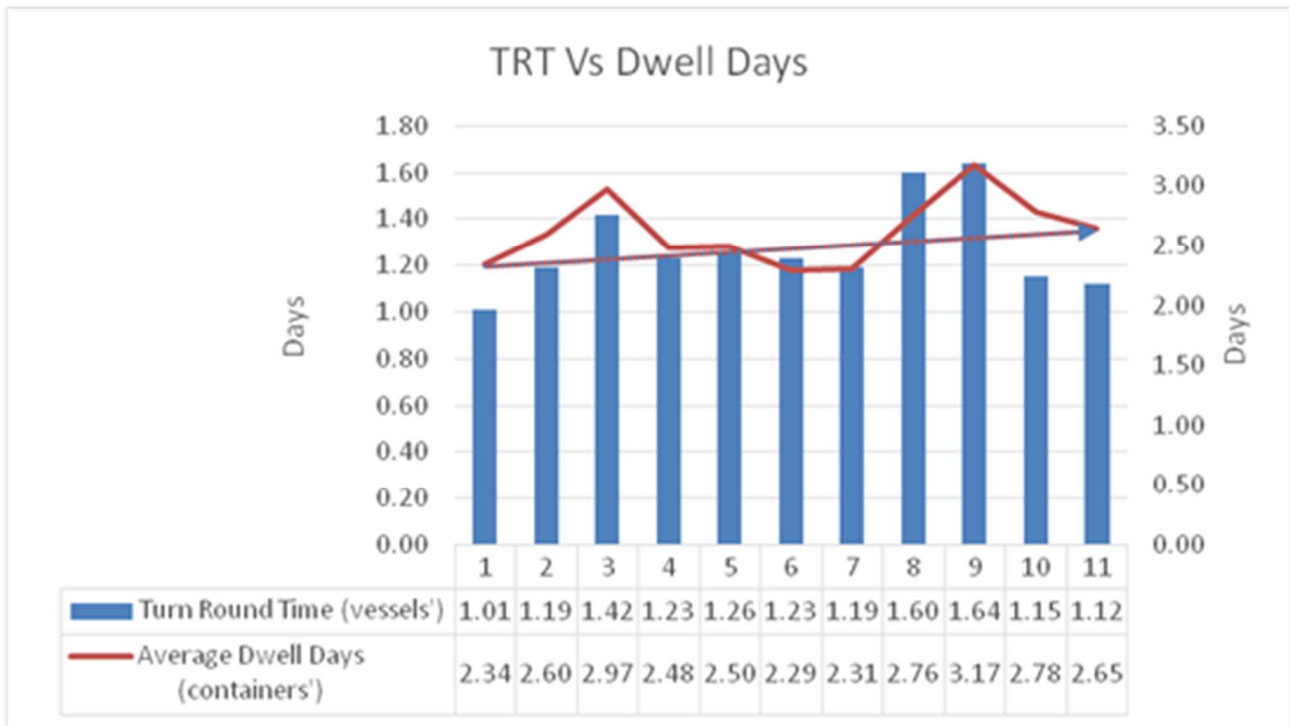
CHART 2: RELATIONSHIP BETWEEN BERTH PRODUCTIVITY AND TRT



(Source: Secondary source)

From the chart 2, it is inferred that the TRT is being increased as the berth productivity of the port is being reduced. The continuous and quick berthing activity is required for the improvement in the productivity of the berth which in turn reduces the TRT.

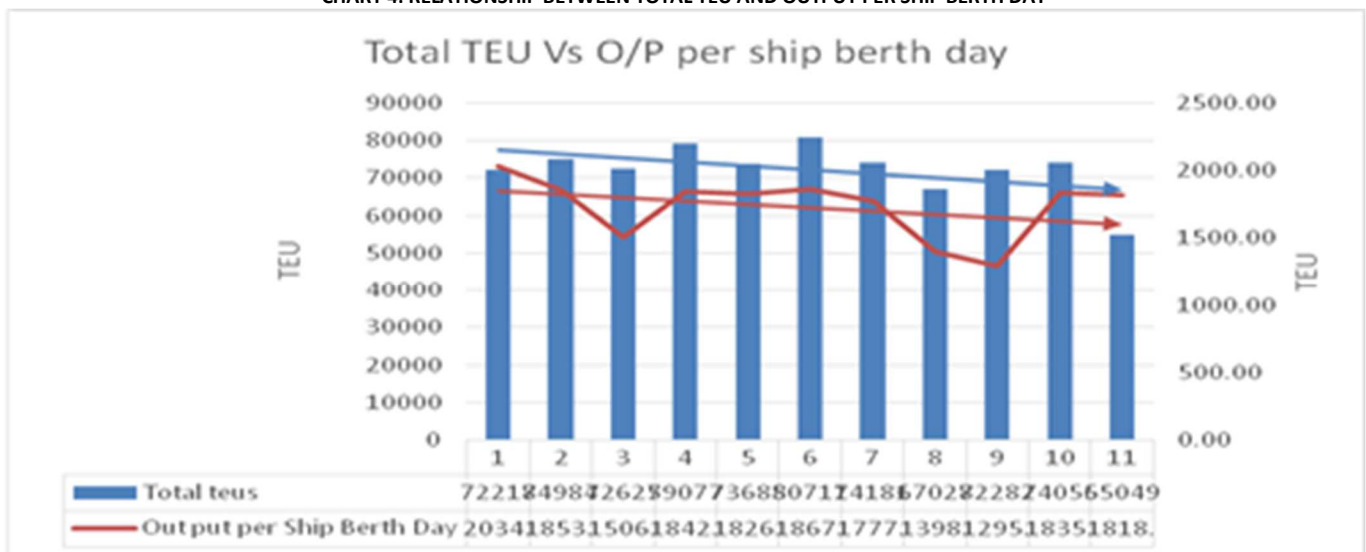
CHART 3: RELATIONSHIP BETWEEN TRT AND DWELL DAYS



(Source: Secondary source)

From the chart 3, the dwell time of the vessel gradually increases so as the TRT time. It indicates that the TRT time of the vessel and Dwell time of the containers inside the port have mutual relationship and in order to reduce the TRT, the dwell time needs to be improved.

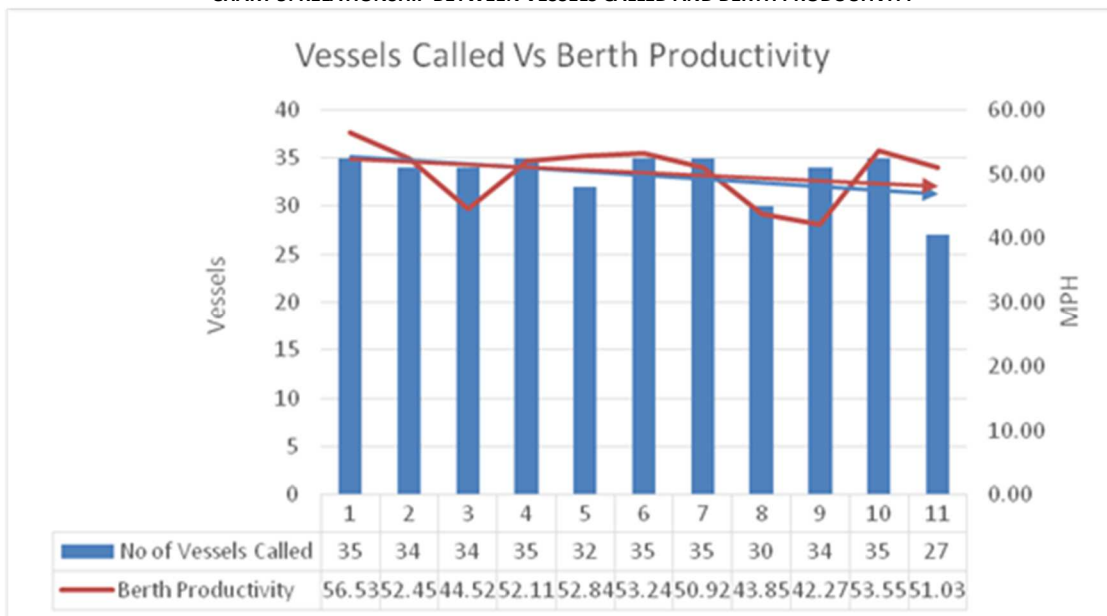
CHART 4: RELATIONSHIP BETWEEN TOTAL TEU AND OUTPUT PER SHIP BERTH DAY



(Source: Secondary source)

From the chart 4, the total TEU handled in the port is decreased as the output per ship berth day is decreased. The total capacity of the port is being reduced due to the reduced output per ship berth day.

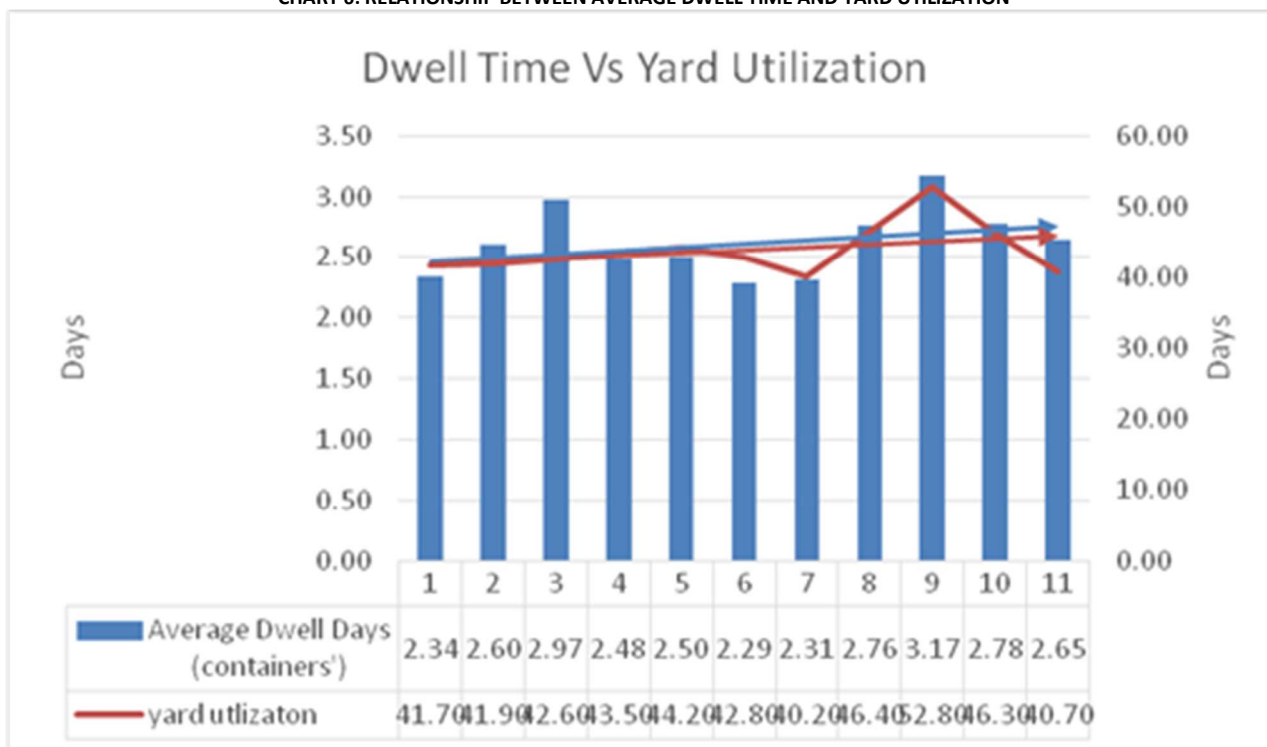
CHART 5: RELATIONSHIP BETWEEN VESSELS CALLED AND BERTH PRODUCTIVITY



(Source: Secondary source)

From the chart 5, it is inferred the vessels called in the port is being reduced over the period of months due to the low berthing productivity. The berthing facility, equipment and technology can be updated to enhance the berthing productivity.

CHART 6: RELATIONSHIP BETWEEN AVERAGE DWELL TIME AND YARD UTILIZATION



(Source: Secondary source)

From the chart 6, it is inferred that the increase in the dwell time of the containers leads to the increase in the yard utilization. This indicates that the dwell time of the containers needs to be decreased for the optimum and effective utilization of the yard for the container cargo handling.

MAJOR FINDINGS

The crane productivity and berth productivity has an inverse relationship towards the Turn Round Time (TRT) indicating that the these factors to be concentrated in performing for the reduction the TRT.

The dwell time of the containers has a direct relationship with the yard utilization indicating that the poor facility in container handling leads to the increase in dwell time.

Number of vessels called to the port is directly related to the productivity indicating the inability in handling the vessel due to poor facility.

The total TEU’s handled has been reducing due to the poor crane productivity in the berthing terminal.

RECOMMENDATIONS

From the data analysis, the following recommendations are forwarded:

- Facilities like container handling equipment, crane spares inventory management, purchasing of new and automatic machineries should be improved.

- Increase in the length and depth of berthing terminal would enable to operate the cranes simultaneously so that there will be better utilization of the equipment's.
- Installation of automated container terminal, increasing the road connectivity to reduce the Truck Turn Round time, adopting systematic process for yard management, and introducing of advanced IT solutions are suggested to enhance the productivity of the container cargo handling in the PSU organization.

CONCLUSION

The study was conducted to determine the factors for enhancing the productivity of the container cargo handling inside the PSU organization by analyzing the secondary information from the port. It can be concluded that there are seven key factors for enhancing the productivity of the container handling such as crane and yard facilities, container cargo handling, logistics operations, increasing the terminal gates, connectivity of the port, container arrangement in yard and vessel, unproductive moves in yard, yard management technique, introducing advanced technology and installation of Automated Container Terminal. These factors are determined from the secondary data analysis and hence, the company is recommended on improving these factors in the container handling operations for the enhancement in overall productivity in the container cargo handling.

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