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ANALYZING CONTAINER ACTIVITY REPORT (CAR) FOR IMPROVING OPERATIONAL PERFORMANCE

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ABSTRACT

Liner shipping is one of the vital sectors in the world economy since it handles the efficient carriage of containerized cargo through international business. Container Activity Report (CAR) is one of the important documents in liner shipping operations used for various purposes including container tracking, terminal activities, operational expenses, approvals, and invoicing. Efficient CAR management increases efficiency in shipping operation. The present study aims at assessing operational challenges in handling Container Activity Reports. This particular study concentrates only on operational categories such as Container Terminal Logistics (CTL), Port Terminal Charges (PTC), and Miscellaneous (MSC) activities relating to CAR processing. Descriptive research method was used for the analysis and secondary data were gathered from operational data, approved CARs, shipping documentation, and process observation during the internship. A number of operational challenges were found including errors in data entries, absence of mandatory fields in CAR forms, delay in CAR approvals, inconsistency in cost calculations, human errors in data entry, lack of system integrations in the whole process, and delays in invoice process due to lack of approvals. All these challenges increase operational burden. The study recommends process automation, real-time data validation, system integrations, and automated approval process for better CAR operations in shipping business.

Keywords: *Container Activity Report (CAR), Liner Shipping, Logistics Operations, Container Terminal Logistics (CTL), Port Terminal Charges (PTC), Shipping Management, Operational Efficiency, CAR Automation, Maritime Logistics, Invoice Processing*

INTRODUCTION

The maritime transport industry lies at the heart of global business and economic growth. Throughout history, and especially in today's era, where modern technology has advanced tremendously, maritime transport has always been the most reliable and cost-effective mode of transporting goods over long distances. Due to such developments as globalization, industrialization, and international trade, there is a greater need to have proper logistics and efficient maritime transport systems. Most of the goods used throughout the world today have passed through sea transportation. Amongst the several types of transporting goods by ship, the liner service system is the most important and critical. Liner service involves a schedule of shipping with predetermined routes, freight rates, and services between selected ports. The idea of liner service is to have organized and consumer-friendly services in order to accommodate manufactured and packaged goods. Since liner service is reliable, manufacturers and customers can comfortably plan their production and distribution of goods. Containerization and Development of Liner Service The emergence and development of liner service depend largely on the revolution of containerization within the maritime transport industry. In the past, the loading and unloading of ships was a difficult task as it involved a lot of time, loss of goods, and vulnerability to theft. Introduction of containers has solved many problems since it brings uniformity, efficiency, and safety when it comes to the transport of goods. Through the introduction of containers, it is now possible to load goods at the place of the shipper and deliver it straight to the consignee, hence saving much time. The use of containers has greatly facilitated the transportation of manufactured goods. Modern liner shipping lines not only transport goods but have made an effort to provide complete logistics services. The integration of technology into the process of liner service has seen the increase in efficiency and reliability in the services offered. In the future, liners will try to maximize efficiency, satisfaction among customers, and sustainability.

OBJECTIVES OF THE STUDY

Primary Objective

- To identify the operational difficulties and delays involved in manual CAR processing.

Secondary Objective

- To examine the current patterns of container activity report.
- To identify key factors contributing to CAR.
- To evaluate existing container and port terminal related activities.
- To provide suggestions to improve CAR process into automation

NEED OF THE STUDY

The study on the process of handling CAR operations is significant due to the fact that CAR is one of the critical tools that have a major impact on the management of various container-related operations, costing, authorizations, and invoicing processes in liner shipping organizations. An efficient handling of CAR can enhance operational precision, financial management, and work flow management during shipping processes. However, operational issues like inaccurate data, manual data inputting errors, delayed approvals, non-mandatory information fields, costing errors, and system compatibility problems tend to hamper the efficiency of CAR management. As a result, operational overload, delayed invoicing, and inefficient shipping operations tend to be evident. Consequently, this research will help explore the operational process involved in handling CAR operations and the most common operational issues encountered in liner shipping operations.

SCOPE OF THE STUDY

The research scope is limited to the evaluation of the operational activities and difficulties encountered during the process of CAR processing in liner shipping activities. This research concentrates on the analysis of operational areas such as Container Terminal Logistics (CTL), Port Terminal Charges (PTC), and Miscellaneous (MSC) operational processes in relation to CAR management activities. This research evaluates different operational problems such as data inaccuracy, delayed approval, inconsistency of costs, inaccurate data entry by hand, delays in invoicing, and lack of system integration. Additionally, this research is concerned with evaluating the process of CAR handling and how operational difficulties affect the management of shipping and logistics. This research further gives recommendations to improve operational efficiency through automation, real-time verification, system integration, and improved approval process.

PROBLEM STATEMENT

The processing of Container Activity Report (CAR) is very important in liner shipping because it provides information for container tracking, cost management, approval process, and invoicing process. However, various operational challenges affect the efficiency and effectiveness of CAR management. Challenges like data inaccuracy, data entry error, delays in approval process, no mandatory fields, inconsistent costs, delay in invoicing, and poor integration affect the efficiency and effectiveness of CAR management processes. Heavy reliance on manual processes leads to increased workload and consumption of more time, which also affects accuracy of operational and financial reporting. Time delay in verification and approval processes negatively affects billing and workflow processes as well. Lack of consistency in operational data and delays in updating also lower the credibility of CAR data when used in decision-making processes.

The lack of automated validation systems leads to the risk of making duplicate entries and inaccurate reporting of operations. The above operational constraints affect efficiency, coordination, and financial efficiency in liner shipping operations.

RESEARCH GAP

Previous studies conducted on liner shipping and logistics management have predominantly dealt with cargo container movement, port activities, supply chain activities, and shipping documentation system. Most research works have emphasized on operational efficiency, automation, and cost management in the maritime logistics area. Yet there is insufficient research work on the operational aspects of CAR activities and problems faced during CAR management in liner shipping operations. The current literature has only given general insights regarding the shipping process but not specific details pertaining to data inconsistencies, authorization delays, manual verification, invoice delay, cost inconsistencies, and system isolation in CAR management. In addition, most of the previous studies have not addressed workflow analyses and process improvements in CAR activities. Thus, this study aims to address the research gap by analyzing the operational problems related to CAR management and proposing solutions to enhance the efficiency and effectiveness of liner shipping operations.

REVIEW OF LITERATURE

Claudia Caballini (2025) examined machine learning clustering techniques in ocean freight transport flows as means to identify logistics inefficiencies. Specifically, the researcher concentrated on analysis of warehousing days, time delays, and aging stock risks in international logistics. In particular, Caballini (2025) considered K-Means and DBSCAN clustering techniques to be helpful in increasing logistics effectiveness.

Ahmed G. Elkafas, Massimo Rivarolo, and Aristide F. Massardo studied the effects of reducing ship speed on energy efficiency, sustainability, and operational performance in container ships logistics operations. The authors' research showed that optimal ship speeds could improve fuel efficiency, minimize greenhouse gas emissions and improve performance.

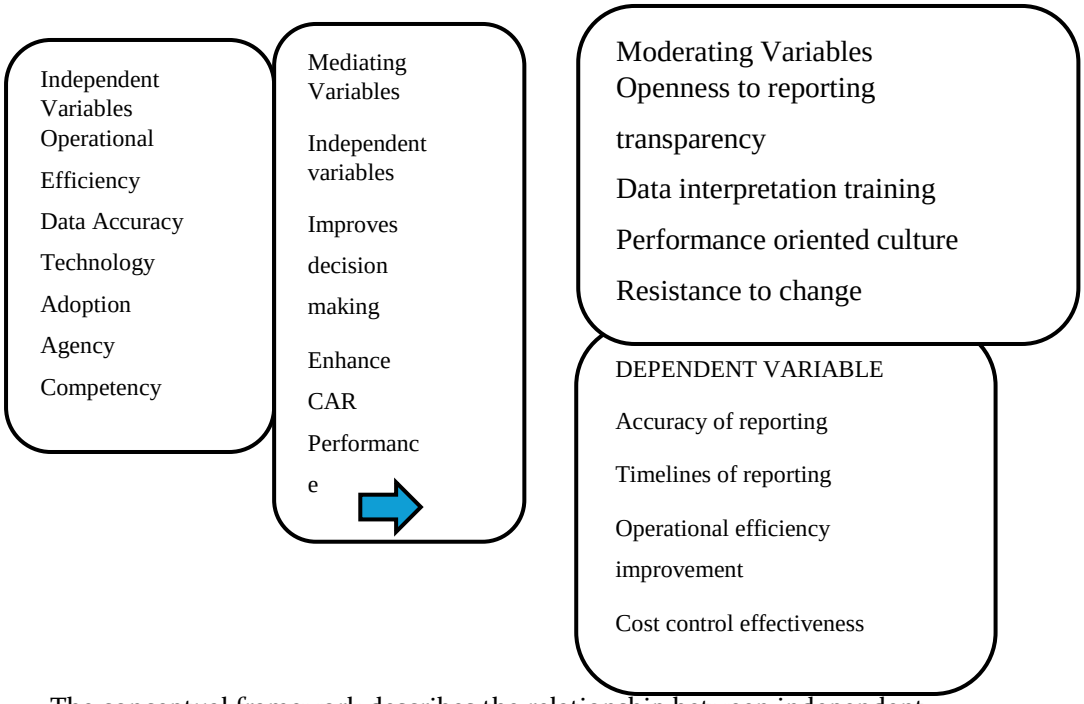
Soltan Bouhachi, Fatima Ouzayd, and Hamid Ech-Cheikh (2025) researched container terminals processes and importance of such terminals for global trade. Particularly, the researchers identified some of the operational constraints and problems related to coordination in container terminals operations. Process optimization and workflows improvement were seen as solutions.Seyedeh Azadeh Alavi-Borazjani, Alberto Antonio Bengue, Valentina Chkoniya, and Muhammad Noman Shafique (2022) studied Digital Shipping Corridors (DSCs) for increasing transparency, efficiency, and sustainability in maritime logistics. It was shown how digital

technologies, stakeholder cooperation and integration could be used to optimize shipping operations.

In the research paper Abebe Ejigu Alemu, Amer H. Alhabsi, Faiza Kiran, and Khalid Salim Said Al Kalbani (2022) the importance of Artificial Intelligence (AI) for maritime logistics was considered. Specifically, the researchers showed how AI could increase transparency, analytical capabilities and cargo flows optimization in logistics.

Serdar Alnıpak (2022) investigated the role of Terminal Operating Systems (TOS) in container terminal operations. Particularly, it was found out how important it is for a container terminal to have integrated operational systems and digital transformation technology.

CONCEPTUAL FRAMEWORK



The conceptual framework describes the relationship between independent, mediational, moderator, and dependent variables in making the CAR processing process more efficient in liner companies. The independent variables include efficiency, accuracy, technology use, and agency collaboration that affect the CAR processing process. The mediator variables assist in decision-making and improve the CAR performance. The moderator variables are reporting openness, training, and company culture, which impact the effectiveness of process improvement. The dependent variables refer to the results obtained from the efforts made, which include accurate reporting, efficiency in processing, operational efficiency, and cost effectiveness. Generally, the conceptual framework indicates that

automation, data accuracy, and organizational factors can make the CAR process more efficient.

RESEARCH METHODOLOGY

The current research uses a descriptive research methodology to assess the activities and issues related to the handling of Container Activity Report (CAR). The primary emphasis is laid upon studying the operational processes and finding out how different operational issues have affected the efficiency of the liner shipping industry and its logistics. The research relies on the use of a case study research design. It will help in assessing the operational processes, the approval process, invoicing process, and container-related operational process during the handling of CAR. This will be done through considering different operational processes such as Container Terminal Logistics (CTL), Port Terminal Charges (PTC), and Miscellaneous (MSC). In terms of data collection, secondary data sources will be used in the research. The data collection will be done from the records of the operational process, CAR report, shipping documents, observations on the operational process, internal files of the operational process, and logistics process reports. Different issues related to operational inefficiency such as inaccurate information, delayed approval, wrong data entries, costs inaccuracy, delayed invoices, and systems integration will be identified during the analysis of the data. For data analysis, tools like tabulation, descriptive analysis, and techniques in Microsoft Excel, including charting, tabling, and data categorization, will be used.

ANALYSIS AND INTERPRETATION

The analysis centers around understanding the operational problems that hinder the CAR processing in liner shipping operations. The main emphasis of the analysis was made on understanding the inefficiencies involved in the process through examining operational records, approval, billing procedures, and container operational process. From the analysis, one of the most important operational problems that were encountered during the study was found to be related to the manual operational procedures. There are numerous instances when operational data is manually entered. This leads to potential typing error, duplicated entries, and operational reporting errors. Thus, the reliability of the operational records can be reduced, as well as the speed of the process due to additional verification activities. Delay of approvals is another operational problem detected during the analysis. It is related to the fact that multiple levels of verification and approvals require time, thus hindering the process of invoicing. One of the key operational problems that were found in the course of the analysis is related to the cost discrepancies between operational records and port charges. Without an automated validation process, there is a high chance that there will be multiple verification activities required. The other

problem with the process is that CAR entries lack mandatory fields, which means the information may be incomplete. Poor integration of the operational systems was another major problem found during the analysis, which leads to coordination and data mismatches. This, in turn, negatively affects operational process.

FINDINGS

In terms of Container Activity Report (CAR) processing, the research identifies a number of issues affecting liner shipping operation. One of the findings indicates that excessive dependency on manual procedures adversely affects the effectiveness and accuracy of Container Activity Report processing. The process of entering CAR details manually can result in errors such as duplication of entries, mistakes, and inaccuracies when generating reports for operational purposes.

The delays caused by the approval process have been identified to have negative implications on work efficiency as well as processing invoices. Multiple steps in the verification of information slow down the process and result in inefficiency in shipping operation.

Another finding of the research indicates that incomplete entry of information in container activity reports caused by inadequate validation fields results in delays in obtaining approvals and conducting reporting activities. ne other finding shows that there is an inconsistency in information recorded in operational and costs relating to operations at ports. The lack of automatic validation of information leads to multiple processes of verification and consequently increases the burden of the job.

Poor coordination and integration of operational system have been identified as contributing factors to mismatches in information and process transparency. Thus, the conclusion drawn from the research indicates that automation and integration of systems is essential for operational excellence.

SUGGESTIONS

Some suggestions from this study are that an automated CAR management system should be used for decreasing workload, avoiding mistakes during data entry, and improving operational efficiency. Real-time data validation and field validation could play a role in making sure that data is accurate and there are no delays in the approval process. An automatic approval process might speed up the processing and management of approvals. Another suggestion is the integration of various systems to ensure that there are no duplicates and for better coordination between departments. The use of dashboard monitoring systems can help monitor approvals and operational issues such as delayed invoicing. Proper training and operation

procedures could also ensure efficient system usage and improved performance.

AUTOMATION AND OPERATIONAL EFFICIENCY ENHANCEMENT

1. DATA INACCURACY AND MISMATCH

The implementation of automation and validation techniques for ensuring operational efficiency and accuracy while entering Container Activity Reports (CAR). Such a system interface allows for efficient management of operations such as CAR entries that contain operational details such as container activity, voyages, charges at terminals, quantity details, etc. The problem associated with a mismatch in the actual and entered quantity. The situation leads to the generation of three different error messages from the system related to the quantity inconsistency, lack of remarks, and incorrect calculation of the amount in question.

It exemplifies how automation could be used to ensure more efficient control over the entered data and reduce potential errors in operations performed by the user. Real-time validation messages make it possible to identify any discrepancies right away and correct them to improve data accuracy. Furthermore, checking whether mandatory fields (e.g., quantity or remarks) were entered is important for making sure that the entry process can be continued. Thus, automation can help improve operational efficiency through more efficient work and less reliance on human supervision. The described technique makes it easier to approve the data, perform accurate billing activities, coordinate with other operation-related departments, etc.

2. LACK OF MANDATORY FIELDS

The critical problem of the lack of mandatory information when submitting a CAR. Error messages that appear on the right side suggest that there are no remarks entered for all activities and that there are some blanks in the mandatory fields. It is worth noting that the system does not allow submission of incomplete CAR forms to ensure accurate operation and prevent incorrect operation reports.

3. COST VARIATIONS

The operational problem of cost differences that arise during the process of preparing the Container Activity Report due to manual data input and comparison with the port cost sheets. Typically, in liner shipping operations, there is a need to verify the operational costs incurred, including terminal handling fees, seal fees, port fees, and documentation fees. However, manual input of operational amounts and rates while preparing the CAR may result in differences between the values in the CAR and the approved values of the port tariff. Any inaccuracies in the quantity input and inadequate information on the operational amounts will

adversely impact the computation of the total amount while invoice the CAR. Differences between the values input manually and the standard port cost sheet increase the frequency of verification and approval. These factors create inefficiencies, increase the volume of manual work, and have implications for invoicing in shipping operations. Without an automated mechanism to validate the cost differences, the risk of incorrect operation costs and repeated validation processes increases. Manual verification of the values in the CAR against those in the port cost sheets takes more time in processing. Automated cost validation systems and tariff databases could address these problems in CAR processing.

OUTCOME OF THE PROJECT

This study underscores the need for better operations in Container Activity Report (CAR) by adopting automation, real-time validation, and system integration. From the analysis carried out, it was noted that streamlining the manual operations can be useful in improving the accuracy of the data, approvals, billing processes, and overall workflow management in liner shipping operations. Additionally, the results of this study show that by adopting automated approval processes and monitoring systems, there will be minimized operational challenges, fewer errors, and better coordination among the operational units.

CONCLUSION

From the conclusions drawn above, it can be observed that operations in Container Activity Report (CAR) are critical to ensuring efficient liner shipping and logistics operations. From the results presented, a number of operational problems have been revealed to exist, including manual data input errors, delayed approvals, inaccurate costs, invoicing errors, and lack of integration between the systems, among others. From the results presented, too much reliance on manual operational processes is found to lower the accuracy of data processing. From the results presented in the paper, it can be concluded that automation of the processing of Container Activity Report (CAR) activities is critical to ensuring efficiency in the processes. In essence, through automation and real-time validation, the operational inefficiencies will be addressed to facilitate efficient processing and management.

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