



Reduction of Demurrages Expenses During the Container Traffic Process

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Abstract

The project aims to reduce demurrage expenses by addressing delays in container returns to suppliers, improving cost-effectiveness and financial performance in container traffic logistics. Through detailed analysis using tools like flowcharts, time series plots, Pareto charts, fishbone diagrams, and the 5 Whys method, key factors causing delays are identified, such as poor communication and lack of planning. In the Improve phase, solutions are implemented, including the Priorities tool developed using Excel and Power BI, resulting in a 95% success rate in reducing delays. The Control phase focuses on sustaining improvements through clear metrics and validation processes. Overall, the project ensures long-term success in optimizing container traffic management.

Introduction

Currently, the company is incurring expenses due to delays in the delivery of containers to the supplier. These expenses increase operating expenses and therefore reduce operating profits. During 2023, the company incurred expenses of more than \$450,000 in fines from one of their suppliers due to delays in the delivery of containers. During this research, the DMAIC tool was used to identify possible failures within the company's traffic process.

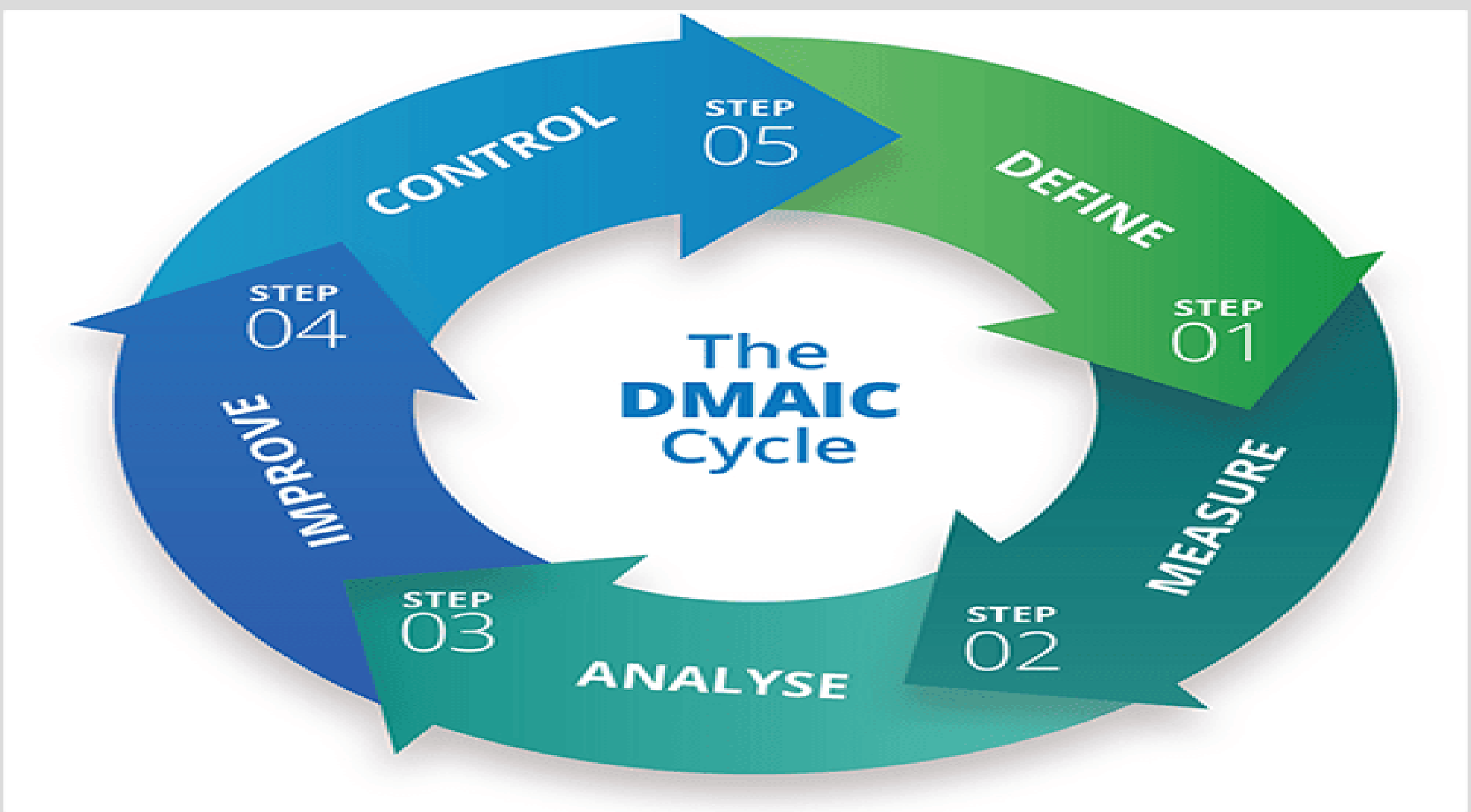
Problem

This project will analyze in depth the traffic process of one of the largest companies in the distribution of consumer goods in Puerto Rico. The company is experiencing significant expenses associated with demurrages during the container traffic process. Demurrages occur due to delays in the delivery of containers to the supplier. These expenses not only increase operating costs but also disrupt the supply chain, affecting the timely delivery of goods to customers.

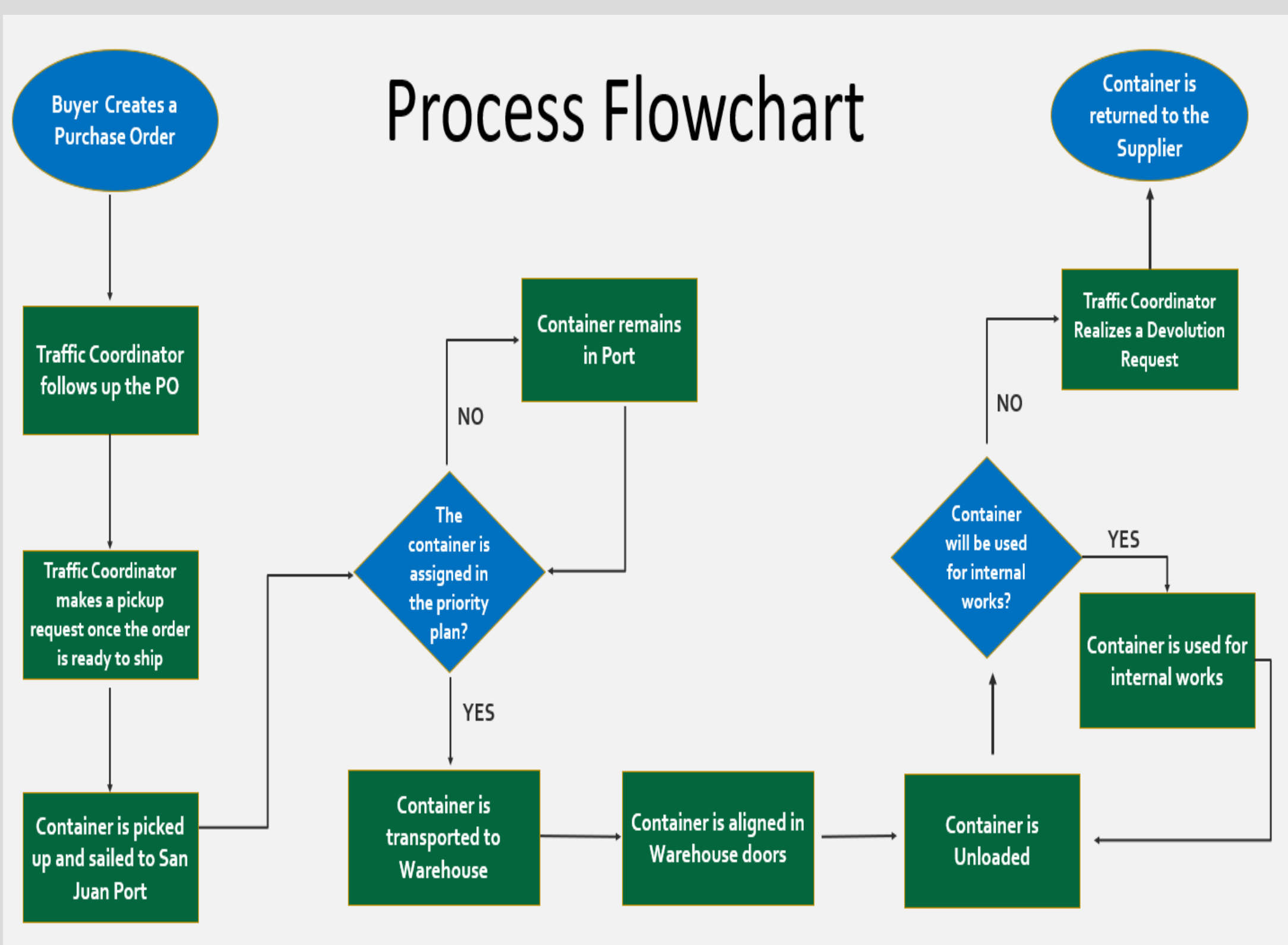
Objective

The objective is to streamline the container traffic process to mitigate demurrage expenses from 10% to 15%, thereby enhancing operational efficiency, reducing costs, and improving customer satisfaction.

Methodology



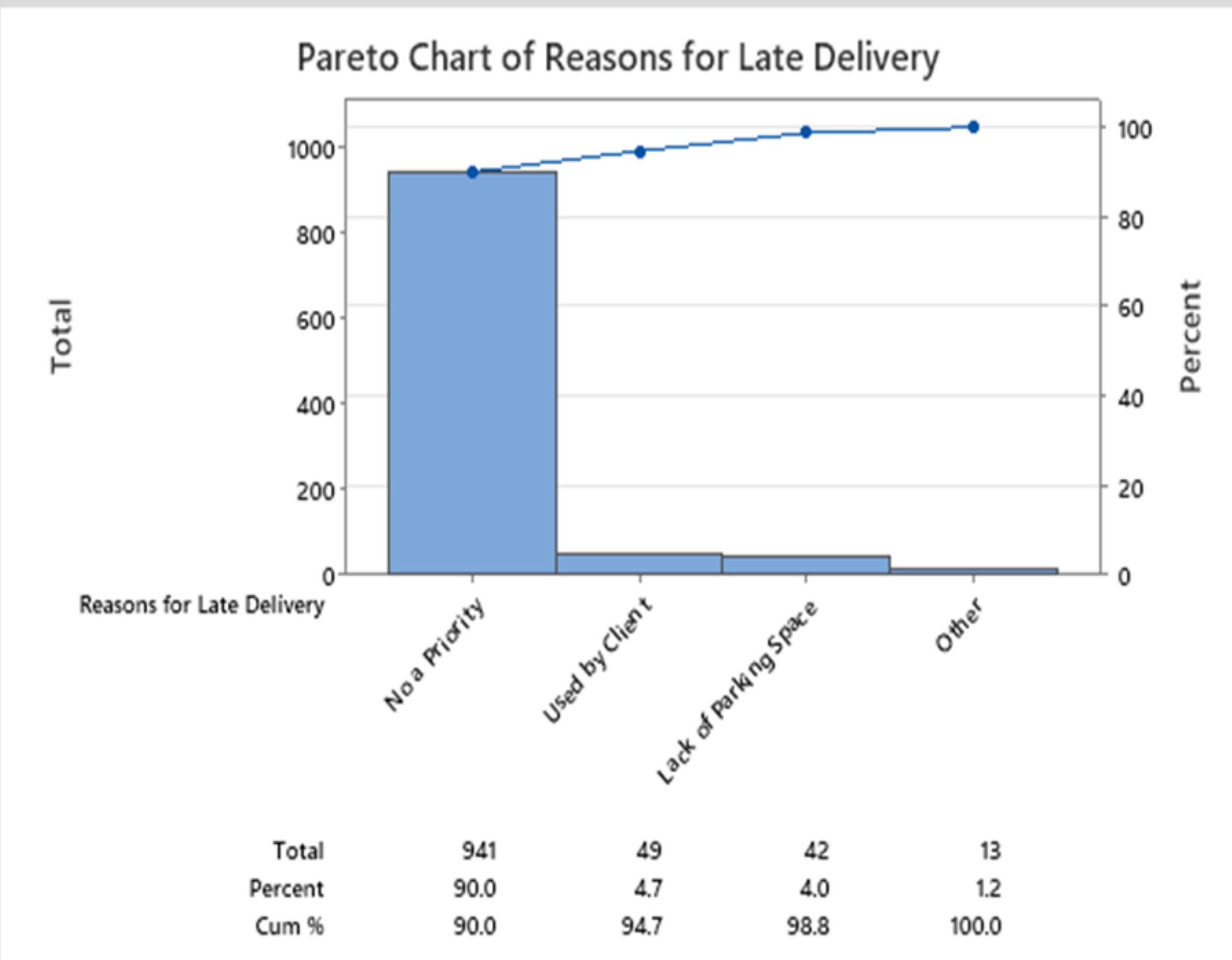
Define



Measure

2023				
Month	Containers Unloaded	Containers Returned Late	Late Fee Charges	Not a Priority
January	674	93	\$ 41,295.00	71
February	354	49	\$ 19,250.00	41
March	596	67	\$ 25,105.00	58
April	432	127	\$ 44,200.00	118
May	360	141	\$ 61,925.00	124
June	566	164	\$ 74,150.00	138
July	460	64	\$ 26,900.00	64
August	591	88	\$ 52,900.00	80
September	387	57	\$ 22,035.00	52
October	410	51	\$ 19,150.00	49
November	482	78	\$ 36,575.00	78
December	635	71	\$ 29,700.00	68
Total	5947	1050	\$ 453,185.00	941

Analyze



Improve

The objective of the Priorities tool is to optimize the container unloading process by providing clear priorities based on daily inventory data. By ensuring that containers are unloaded in the order of priority, the tool aims to minimize delays and prevent demurrage charges.

An Excel file was designed to leverage daily inventory data, which was obtained and processed using the Power BI tool. This data was used to generate a list of download priorities for containers, filtered daily by lost sales associated with pending orders.

The Excel file serves as a centralized platform for managing and communicating priorities to the warehouse team responsible for container unloading.



Control

Once the design was implemented, a long-term sustainability plan for the new process must be created to guarantee its success and permanence, making the necessary adjustments over time.

Results

A testing phase was conducted over a period of 15 days to assess the effectiveness of the Priorities tool. During this period, the tool successfully achieved a 95% success rate in ensuring that containers at the dock and warehouse were unloaded within the stipulated timeframes set by suppliers. The positive outcome of the test validates the efficacy of the Priorities tool in addressing delays and optimizing container unloading processes. Results and Impact: As a result of implementing the Priorities tool, delays in the container unloading process have been significantly reduced. Containers are now unloaded according to priority, minimizing the risk of demurrage charges and ensuring timely delivery to customers. The successful implementation of the tool has led to improved efficiency, operational performance, and cost savings for the company.

Recommendations

- Conduct a comprehensive validation exercise 6 to 12 months after the implementation of the new process to assess its effectiveness and impact on business performance.
- Evaluate the financial results, operational efficiencies, and customer satisfaction metrics to determine the success of the new process in achieving its intended objectives.
- Improve and ensure the continued sustainability and success of the new process.

Conclusion

This project was focused on the reduction of demurrage expenses stemming from delays in container returns, crucial for enhancing cost-effectiveness within the organization. Through rigorous analysis and targeted interventions, identify and mitigate root causes of delays in the container traffic process. By leveraging data-driven insights and implementing strategies to minimize demurrage charges, the project seeks to streamline operations and improve overall efficiency. An Excel file integrated with Power BI provided daily inventory data analysis, aiding in prioritizing container downloads, and optimizing resource allocation. These efforts were geared towards achieving significant cost savings and maintaining a competitive edge in the marketplace.