



Company

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Abstract

When it comes to delivering an ideal service based on quickness and effectiveness, the main or only focus does not only depend on customer service, but also, what, when, where, why and how background operations work to ensure the availability to provide a service of excellence. In some cases, service problems might arise due to misuse of warehouse space, a lack of an inventory control system, and a blurred vision of an opportunity for material handling improvements. Executing a complete analysis where concepts of lean manufacturing, and six sigma are implemented to facilitate the performance of the warehouse and inventory logistics with the appropriate equipment to improve the service offered. From identifying and organizing inventory, to designating areas in the warehouse floor space, to appropriate equipment for handling materials, everything is for a continuous and consistent business where the values of reliability, security, and efficiency are pillars in the company's vision.

Introduction

In the world of Vertical Transportation, like in any other work area such as Security Cameras, Electrical Stairs, Industrial Doors, there is a service that is provided where usually they involve the installation, repair, and maintenance of such equipment that operates this type of machinery. These types of services require the presence of mechanical and/or electrical items, or parts, which are kept in the warehouse as inventory for the availability in case of equipment malfunctioning, maintenance routine, and new installations. But also, this works hand to hand with the procedure for material handling equipment to be distributed to numerous projects. The performance of an organization in any service as a whole not only depends on the sales, and marketing, but nevertheless, the operations, and logistics as well, play a key role in the success of any type of service.

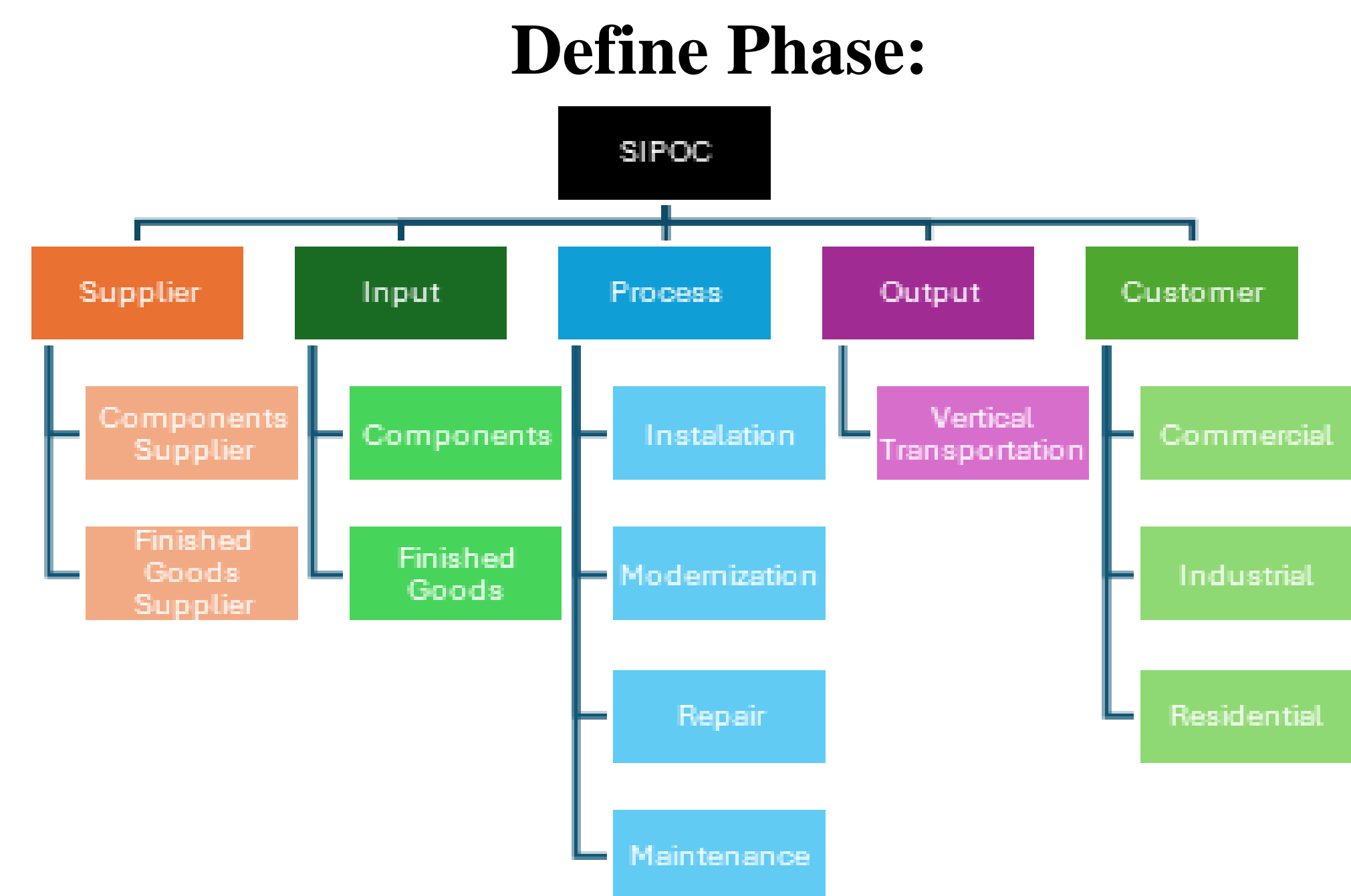
Background

Some steps should be considered to be able to successfully achieve a Lean Production or Lean Process. The DMAIC Process stands for Define, Measure, Analyze, Improve, and Control. It is a valuable tool used in today's industry to optimized operation processes and logistics through the utilization of Six Sigma. This analysis purpose is to find the most appropriate logistics for the company's interest encompassing the Warehouse Design and Usage, implementation of an Inventory Control System, and incorporation of Material Handling Logistics to further enhance operations for an improved service that will translate to growth in profit, customer service, and optimization of internal operations. By using philosophies such as Kaizen, and JIT, conduct a research that centralizes on how internal operations affect external services.

Problem

An analysis of an innovative design of the warehouse will be conducted, including the incorporation of an inventory control system, and the implementation of adequate material handling equipment for the specific labor at hand. With these modifications, it is expected to see a notable change in downtime for repair, and maintenance labors, reduce time spent on buying materials due to inadequate inventory control system, increase in accessibility to localizing, and dispatching materials, and equipment in the warehouse, and an overall decrease on work fatigue on the personnel leading to an improvement on labor efficiency and productivity. These interactions for optimizing the operations will lead to better performance from the personnel, a service of higher quality, reliability, and security, and the superior understanding of how operations can be enhanced for a more profitable, and consistent workflow.

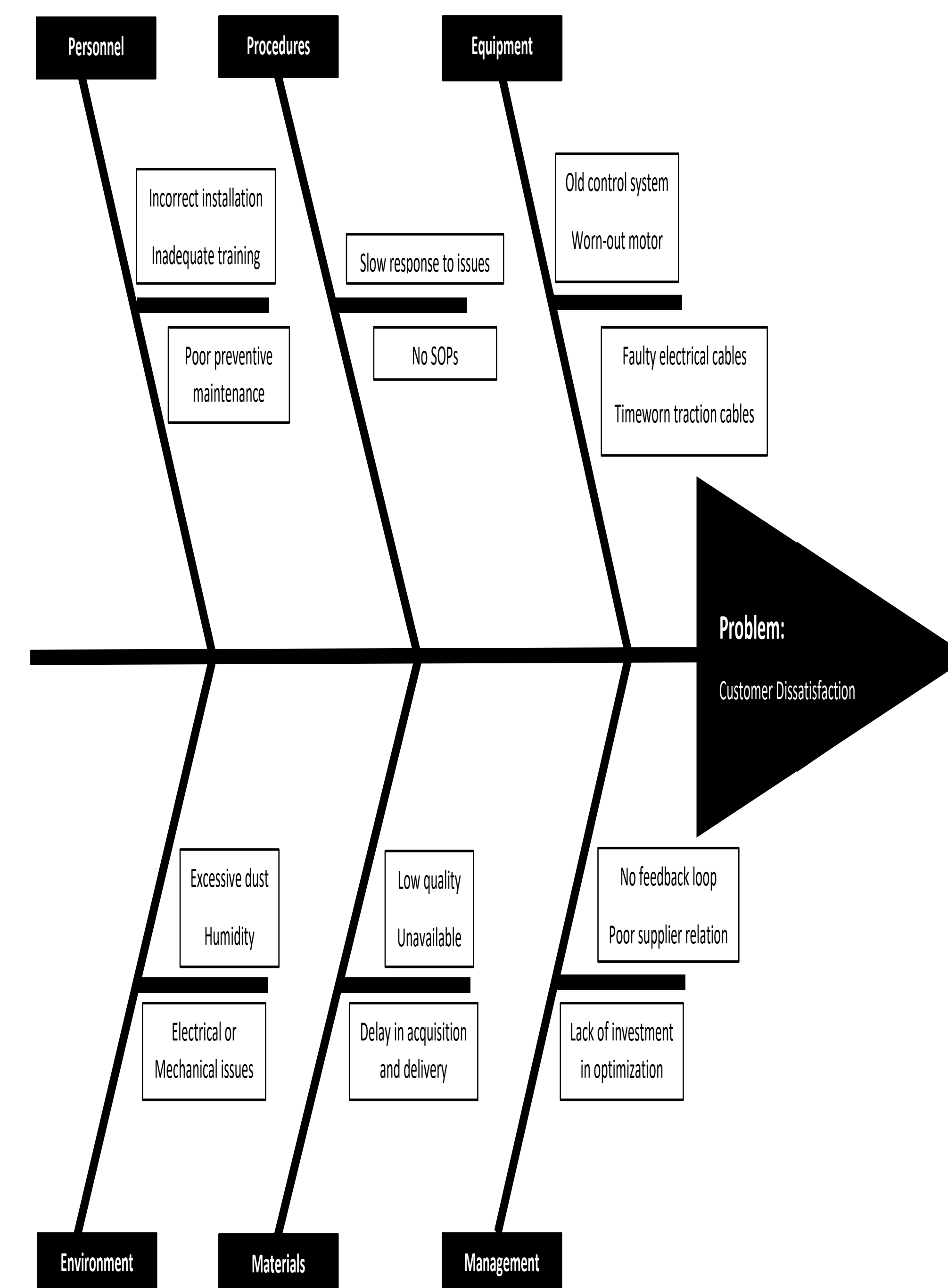
Methodology



Measure Phase:

Item	Metric	Relevance	Measurability	Frequency	Actionability	Weighted Score
Measurement Assessment Matrix						
1	Elevator Downtime	5	4	5	5	4.8
2	Customer Satisfaction	5	3	4	5	4.3
3	Preventive Maintenance	4	4	4	4	4.0
4	Safety Incidents	5	4	3	5	4.3
5	Installation Time	5	4	4	3	4.0
6	First-Time Fix Rate	4	3	4	4	3.8

Analyze Phase:



Results and Discussion

Improve Phase:

Item	Issue	Risk	Cause	Effect	Likelihood	Severity	Mitigation
Service Risks							
1	Spare Parts	Availability	Insufficient Inventory	Downtime	3	2	Alternate Suppliers Increase Inventory
2	Repair Error	Downtime	Lack of Experience	Customer Dissatisfaction	2	4	Provide Training Checklists and QA Inspections
3	Out of Service	Person trapped	Electrical Failure	Downtime	3	5	Rapid Service Response
4	Installation Errors	Performance Safety	Lack of Experience	Customer Dissatisfaction	2	4	Installation Guidelines Supervisor Oversight
5	Customer Injury	Injury Death	System Malfunctioning Installation Error	Demands Reputation	1	5	Safety Protocols Sensor Technology
6	Regulatory Non-Compliance	Inspection Failure	Product Ordering Mistake	Contract Termination	3	4	Compliance Audits Employee Training
7	Response Time	Downtime	Disorganization Lack of Employees	Customer Dissatisfaction	4	3	Dispatch System Service Technicians

Control Phase:

Standard Operating Procedure (SOP)		
Process Name:	Author (Date):	Approver (Date):
Elevator Breakdown Response SOP		
Responsible Audience		
Management, Technicians		
Purpose/Goal		
Outline step-by-step the procedure to be followed by technicians for emergency.		
Standard Operation Procedure:		
1. Breakdown Notification:		
1.1 Date, time, and location of breakdown.		
1.2 Gather information from the customer.		
2. Technician Dispatch:		
2.1 Nearest available technician near location.		
2.2 Essential tools, spare parts, and safety equipment.		
2.3 Verify brakes, ensuring proper function.		
3. On-Site Protocol:		
3.1 Assess passengers for rescue.		
3.2 Shut off elevator power supply and secure the area.		
3.3 If injury present, contact emergency authorities.		
4. Diagnose Issue:		
4.1 Verify control system for recent activity.		
4.2 Verify motor and mechanical systems.		
4.3 Troubleshooting for electrical problems.		
5. Repair Process:		
5.1 Conduct repairs if needed based on the diagnosis.		
5.2 Trial run with and without passengers.		
6. Post-Repair:		
6.1 Record findings and repairs conducted.		
6.2 Inform the issue and the repairs to the building management.		
6.3 Make suggestions to minimize breakdown occurrence.		

Conclusions

For a company dedicated to the service, repair, maintenance, and installation of Vertical Transportation, appropriate material handling equipment, an effective design of the warehouse logistics, and a user friendly but efficient inventory control system produces improved performance output from personnel, increment in capital, increase customer satisfaction, potential expansion of customers, and an overall growth that translates to all parts of the company. An inventory control system is crucial for the service of the company by ensuring that the components for repair, maintenance, installation and modernization services are available at any moment needed due to a well-defined warehouse logistics and design that renders into a greater customer satisfaction with the correct and proper acquisition and use of the material handling equipment required to dispatch, deliver, transport and receive any equipment, material or component for the services provided by the company. By optimizing the warehouse design and usage, incorporating an inventory control system, and implementing material handling equipment logistics, the company will enhance productivity and performance of services, create a consistent operational workflow internally and externally and increase customer satisfaction leading to growth in knowledge, financial growth, the opportunity for expansion of service reachability, and an overall growth for the company.

Future Work

The impact of using the DMAIC method not only could it be applied to just one type service but also, on other services provided by the Vertical Transportation company to enhance performance and productivity in other areas that could be beneficial and potential for future service reachability. Be able to implement Lean Thinking as a tool for reducing waste, disposing of materials for recycling, and creating a company that takes responsibility and contributes to the wellness of the environment.

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