

CONSTRUCTION SERVICES COMPANY PURCHASES PROCESS AND WAREHOUSE SYSTEM IMPROVEMENTS



ABSTRACT

In the manufacturing industry, engineers focus on positively impacting all areas related to product output. When the output is tangible, several methodologies and assessments can be implemented to improve the production of this product. But when the output isn't tangible, implementing these methodologies becomes more complex, even more so when all the related variables are different. These situations tend to happen in the service industries, such as the construction industry. As part of this research, the construction industry has been selected due to identified issues affecting the service provided to internal and external customers. Many variables can affect the service provided in this industry but, the variables to be considered in this research impact directly the schedule and cost of a project. This research hopes to find a significant impact that positively changes the quality of the services provided and also seeks to find a positive impact on the scheduling and cost of projects.

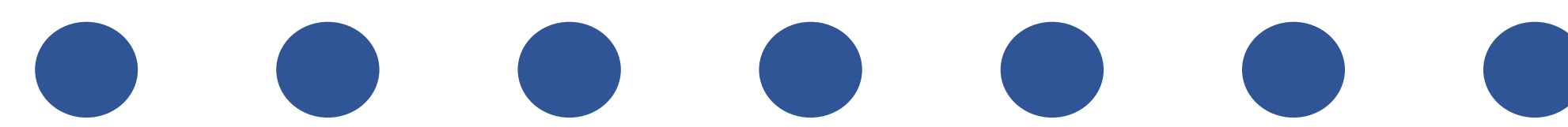
RESEARCH DESCRIPTION

This research will take place in the material and equipment management of the construction services industry. Three areas will be analyzed to improve each of them. These areas consist of (1) the material and equipment purchasing process, (2) the internal warehouse material and equipment management system, and (3) the internal warehouse material and equipment inventory control. These areas have been selected for the study because of existing material and equipment market shortages. These issues have negatively impacted project schedules and costs due to the material and equipment shortage and long lead times for material and equipment deliveries. To improve the three areas mentioned, it is essential to identify the methods, systems, or any other useful tool that helps reach this research's objective.

RESEARCH OBJECTIVES

One of the objectives of this research is to identify how to proceed with the current market system regarding materials and equipment with a robust system that can have the capacity to reduce the time in the material and equipment purchasing process. Also, this system should facilitate the material and equipment purchasing system for all the parties involved. This system will also improve the internal warehouse's material and equipment management easily and effectively. Finally, this system will help the company view, track, and manage the equipment and material inventory easily and in real time.

Through this research and the analysis development of the areas to be studied, the expectation is to improve the processes in the purchase and warehouse departments. Additionally, by enhancing the purchasing department, the projects' schedules and costs are expected to be positively impacted. Improving the warehouse department, their system, and methods, including inventory control, the expectation is that all the parties will be able to use a reliable system that will aid them in viewing, tracking, and ordering what they need easily and effectively.



METHODOLOGY

The method intended to be used in this research is brainstorming. Given that this research is looking at the output of a service, the first thing that must be done is to carry out a questionnaire to all the parties involved in the different areas of study of this research. The data collected from this questionnaire will be used to create brainstorming. Once the brainstorming is completed with all the collected data from the questionnaires, two tools will be used to identify the root cause of the problems identified in the questionnaires. One of the tools is the 5 Whys method, and the other is the Fishbone Diagram or Cause and Effect Diagram. The intention is to identify if the exact root cause will arise through both tools.

The steps of the project methodology are as follows:

1. Conduct a questionnaire to all parties involved in the system(s) to be investigated.
2. Use the collected data from the questionnaires to create the brainstorming.
3. Use the problems identified in brainstorming in both 5 Why's and a Fishbone Diagram tool.
4. Analyze and identify one possible root cause or improvement alternative obtained by both tools.
5. Recommend future research based on the collected data.

CONCLUSION

Several problems were identified in brainstorming after receiving the answers to the questionnaires. This could mean that several root causes will be determined. Still, the tools used reveal that no matter how many problems can be identified in a company, several root causes will be recognized. This research shows that one root cause affects several areas in the same company.

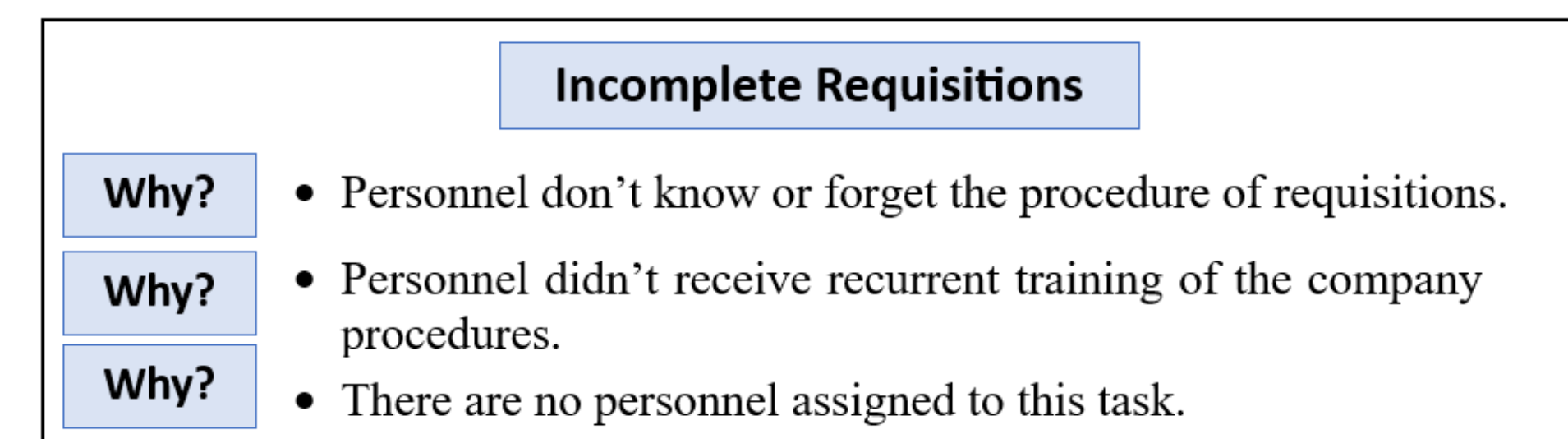
In conclusion, the recommendations of this research may be simple or bring the perception of no effective or positive results. For example, one of the most essential things in a company is the economic impact, and the recommendations provided will not provide an immediate economic impact. But, if these recommendations are implemented effectively, they may considerably change the company's performance and give it a competitive position within the industry. So, these recommendations can be implemented with minimal effort and economic investment, and the results may be considered positive for the company.

RESULTS

The issues identified in each area of study are:

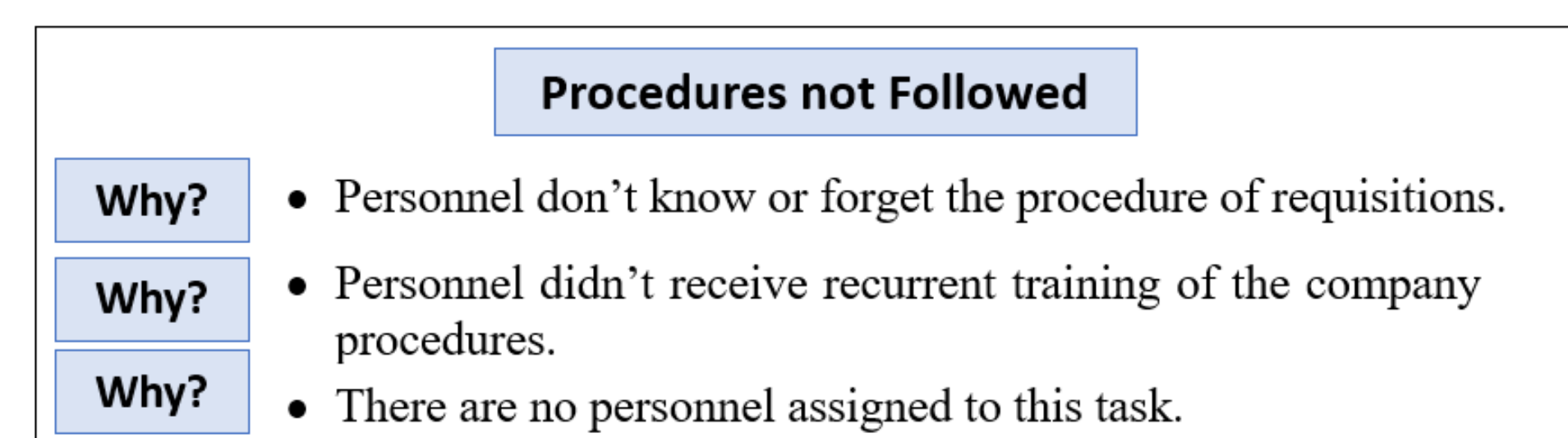
A. Purchasing Process

1. Incomplete requisitions
2. Requisitions without explicit or complete material or equipment specifications
3. Received material with incorrect specifications.



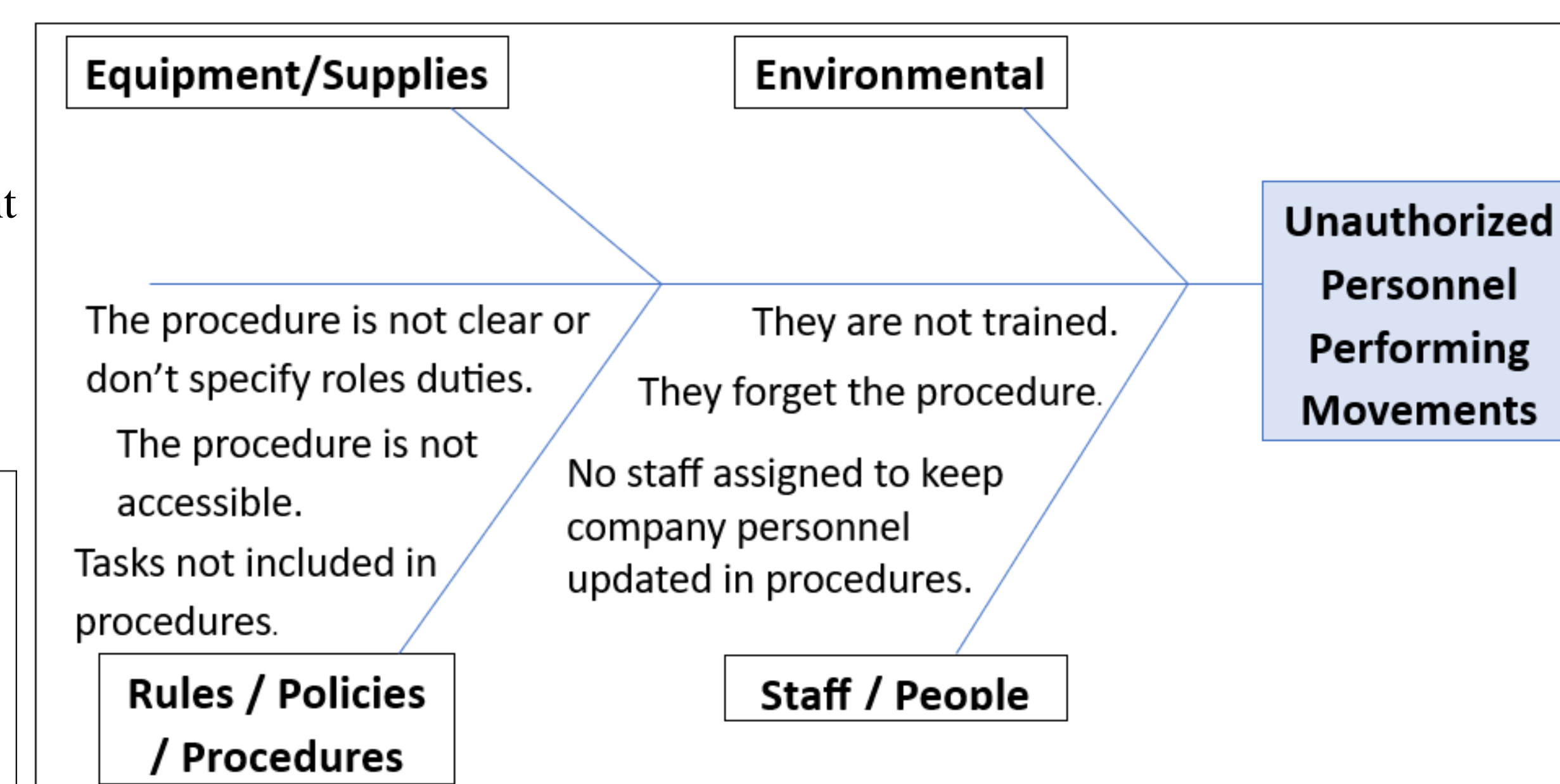
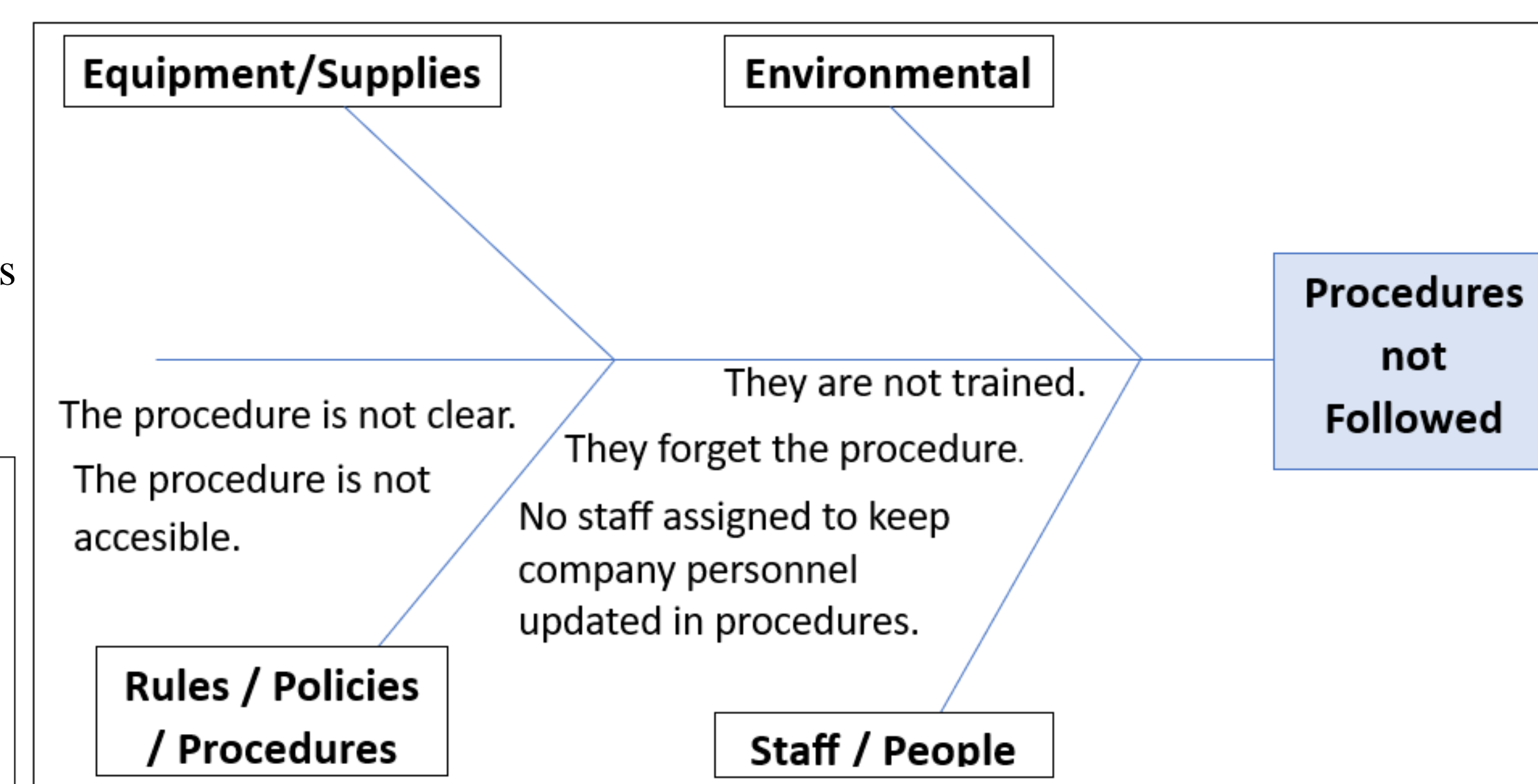
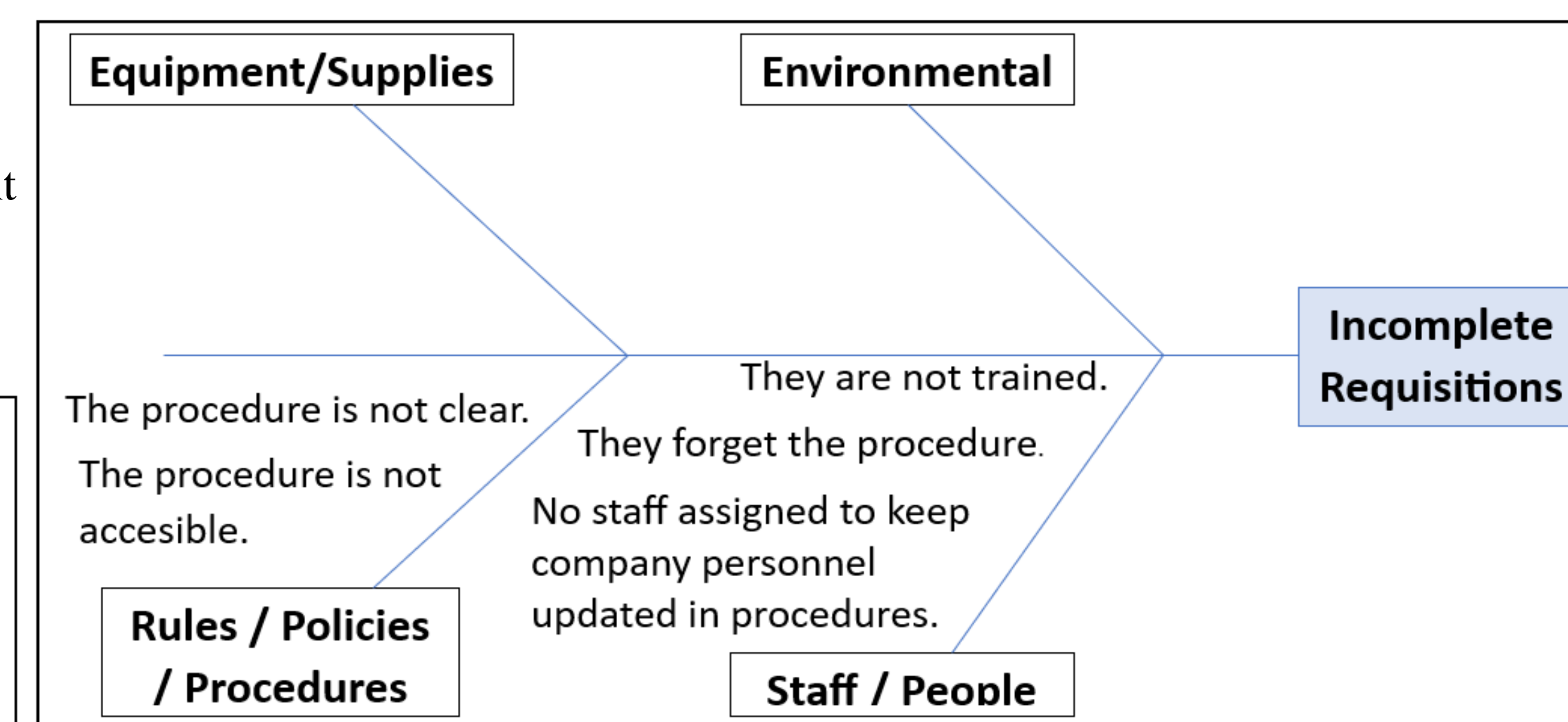
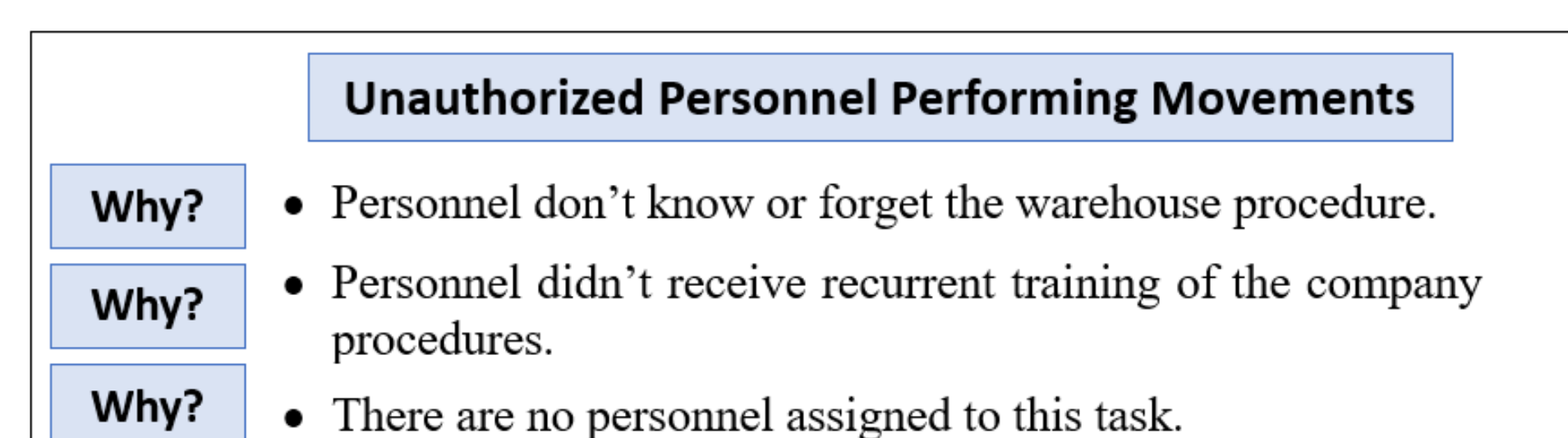
B. Warehouse Material and Equipment Management

1. Procedures are not followed correctly.
2. Defective equipment received on projects from the warehouse.
3. Incomplete requisitions of material or equipment movements between projects and warehouse.



C. Warehouse Inventory Control

1. Little or no training for warehouse personnel.
2. Unauthorized personnel performing material and equipment movements in the warehouse.
3. Equipment cannot be tracked effectively or easily.



ANALYSIS

Both tools used for this research's three areas of study show a possible root cause of the identified problem in each area. This likely root cause is the same for all the analyzed problems of the three areas of study. This probable cause is that the company doesn't have someone accountable to update all the staff on the company procedures. Based on this, a possible recommendation and a potential improvement shall be to standardize all the processes in this research's three areas of study. Then, update the procedures and retrain all the company staff to ensure that everybody knows the right way to perform all the activities in the company. Another recommendation is to complete recurrent training (e.g., annually) on the company procedures to keep all the staff updated. These recommendations will improve the company's performance with internal and external customers. The economic impact may not be reflected immediately but at the end of the projects due to the reduction or elimination of delays of equipment and or materials purchases and management. These recommendations also allow the project managers to prepare more accurate project schedules and bring reliability to the company processes and procedures.



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