

# Incoming Area Optimization for Servers Repair Site

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## Abstract

Continuous flow is a key in organizations with production lines and more than one working shift. The organization chosen for this project is a repair site for servers and server components seeking to optimize their internal processes as part of their lean strategies. It was decided to optimize the incoming area for this organization since improving the starting point on the process will guarantee the line will operate constantly without idle time or capacity loss. Decision was to reduce the incoming cycle time process from 80 minutes to 40 minutes. A kaizen event was conducted with subject matter experts to analyze causes affecting the cycle time. Major contributors were identified and addressed to achieve the desire state. The project took place for eleven weeks and the objective was accomplished. A systematic solution to measure cycle time was developed during the project as requested by management.

## Objective

The purpose of this project is to optimize the incoming area by reducing the cycle time process for every unit received in the organization from 80 minutes to 40 minutes.

## Cycle Time Process

Cycle time is defined as the total time from the beginning to the end of a process. Reducing cycle time is one of the targets of many companies today, especially if they are service oriented. Cycle time reduction eliminates non-value added activities to increase efficiency. By having a lean cycle time, the productivity will be higher, meaning optimal inventory levels. This translates into savings and profits for the company.



## Background

The organization chosen for this project is a repair site for servers' components. It is dedicated to repair defective material received from three regions (Americas, Europe and Asia-Pacific). This material is shipped back to the regions certified as new, providing to the customers continuous support, even on older products.

This organization was established in Puerto Rico on 2009 and it has been successful since then. However, there are always areas of opportunities to improve processes. After some analysis with management, it was identified to work on the incoming area, the place where the material is received and moved to the repair line for processing. A time study indicated that the incoming process cycle time is currently 80 minutes per unit. Also, it was noticed that there were multiple unnecessary movements of inventory around the work area creating delays to the fulfillment process to the repair line. Finally, there was no systematic solution to measure complete cycle time for this area.

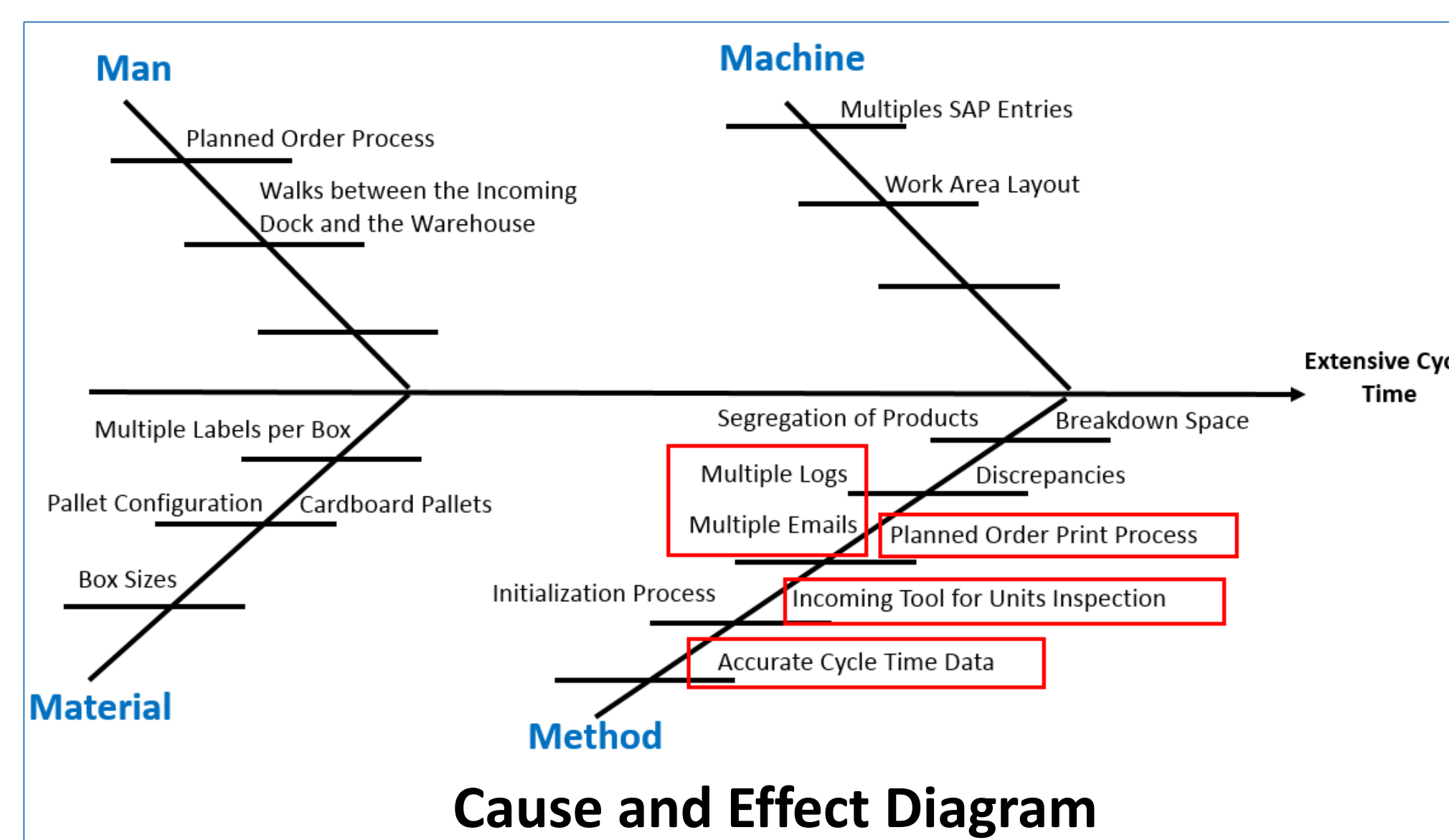
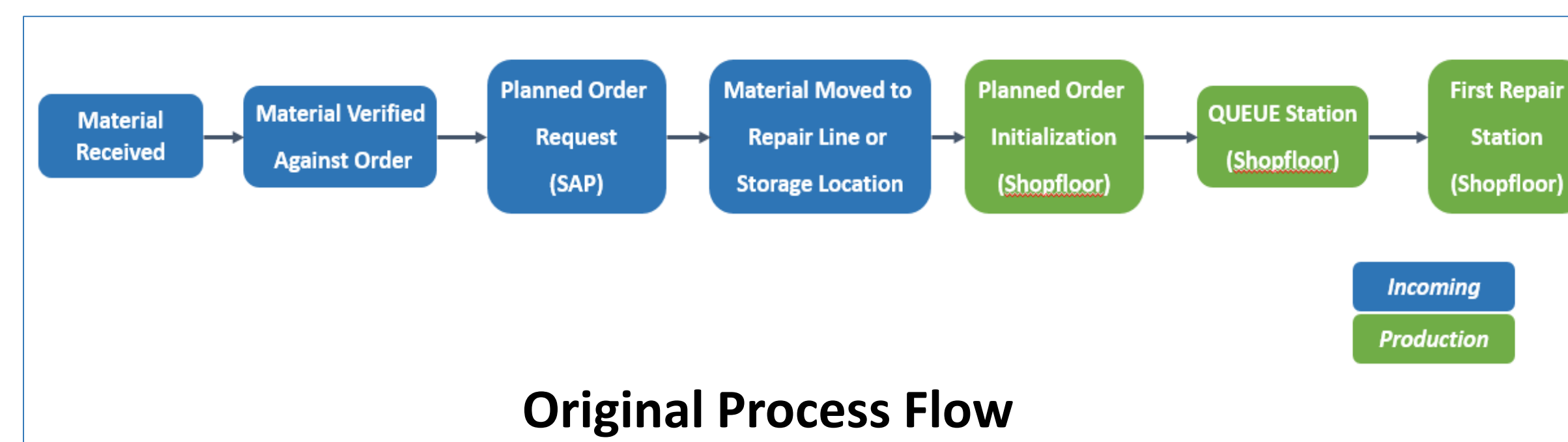


## Methodology

A kaizen event was approved to work with the cycle time reduction. If the cycle time is improved at the beginning of the process, this will increase the material flow to the repair line. Continuous flow is needed to maximize the utilization of the resources, this includes people and equipment.

Management wanted a systematic solution to measure the cycle time for this area, using the shopfloor system. To achieve this, the shopfloor initialization process, currently performed on the repair line, should be moved to the incoming area.

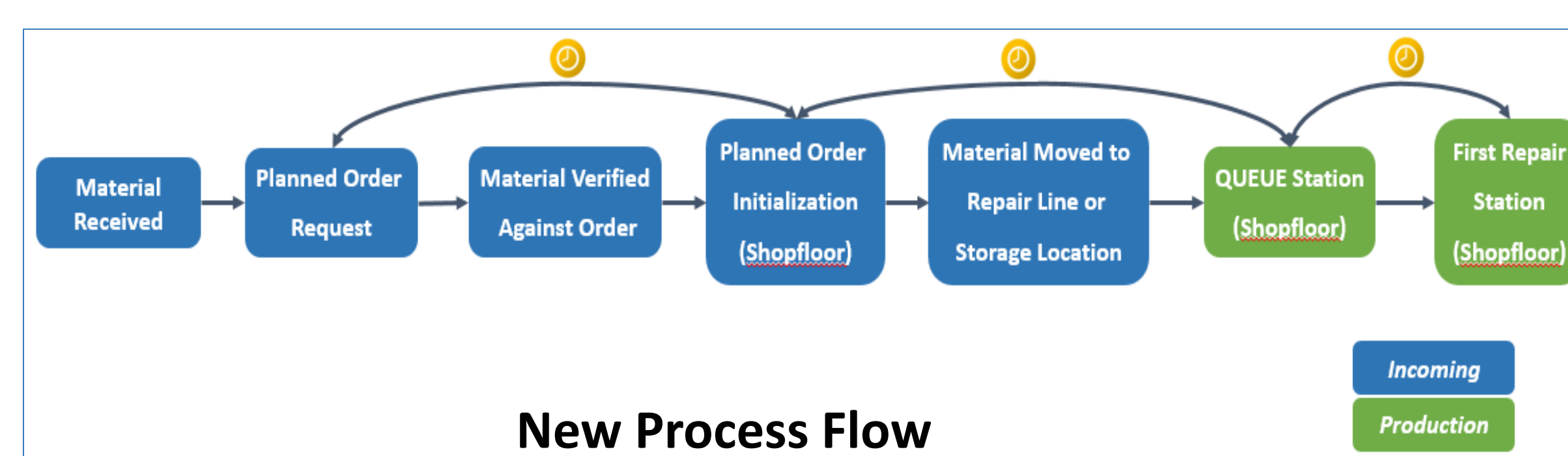
Analysis was started with the original process flow. A cause and effect diagram tool was used during the kaizen, which shows that method is the category with the most issues to solve.



The team agreed to analyze and give ranking to the causes associated with the method category to develop the action plan. Four major causes were identified with their respective target. A new process flow was developed with changes on the process to reduce cycle time and to achieve the systematic solution for measurement.

### Causes to Address

Deliverable	Baseline	Target	% Δ
Planned Orders	60 min	20 min	66%
Multiple Logs/Emails	12	8	33%
Tools Consolidation	2	1	50%
Systematic Metric	N/A	1	100%



## Discussion

Adjustments were needed on the process to achieve the project objective:

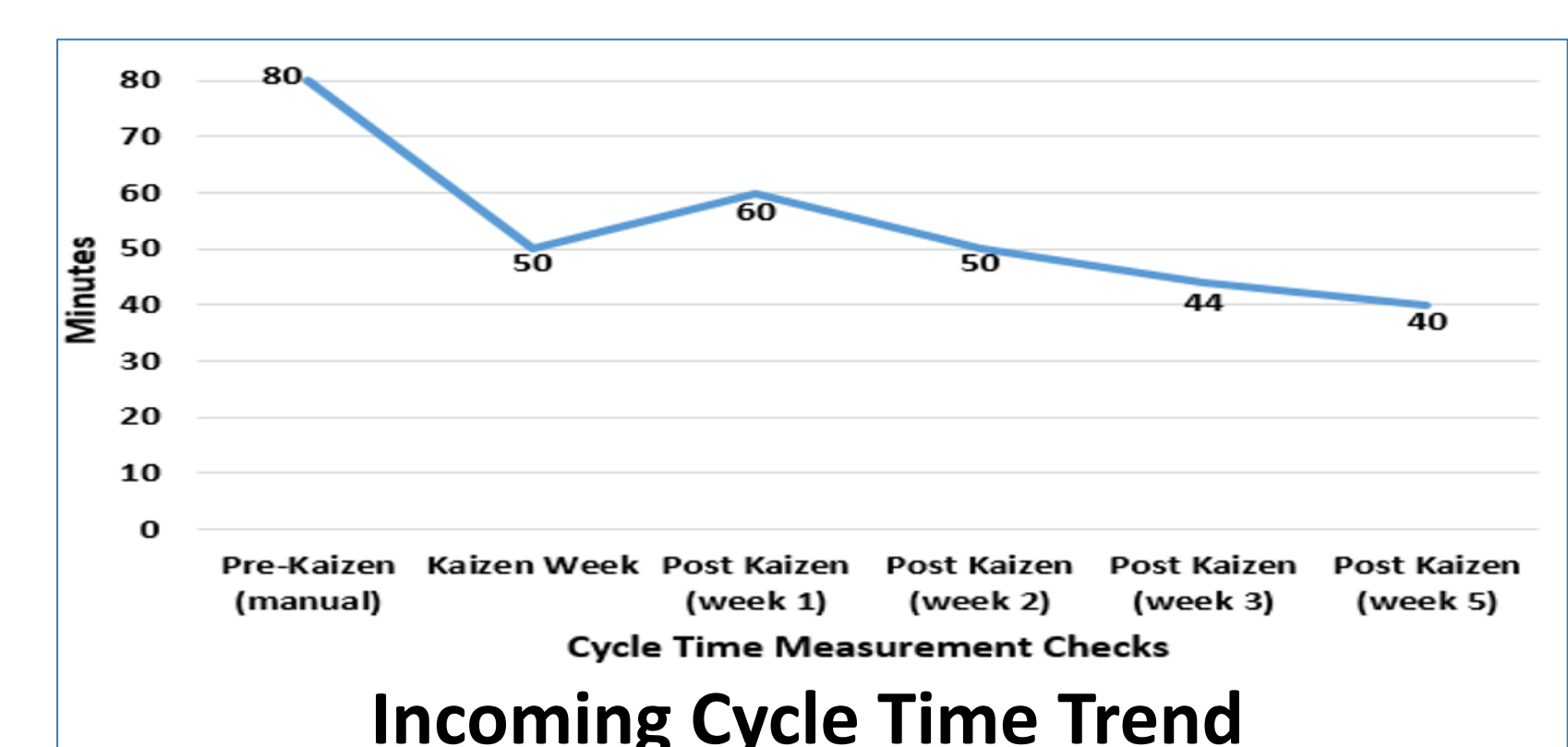
- Planned order process:** Planned order request will now occur at carrier delivery time (dock). Two resources were assigned for this task. If they are not available, the planners from the regions will be the responsible for this task as well.
- Multiple logs/emails:** Target for reduction on logs and emails was exceeded. Total reduction was from 12 to 6, meaning a 50% improvement.
- Tools consolidation:** All products data was consolidated into the newest inspection tool. This tool was also modified to free space in the display window to consolidate all the information in the same window.
- Systematic solution:** Initialization process at incoming will allow the systematic solution requested by management. Planned orders should be created first, at the moment of units' arrival. This will allow three different time checks between incoming and production.
- Hybrids shifts:** No hybrid shifts, continuous support on both shifts.
- Carriers delivery issues:** Organization dock was identified for correct material delivery.

## Results

During the kaizen week the cycle time was improved to 50 minutes. Then, on week number one post kaizen, the cycle time increased by 10 minutes. Adjustments were done on the process and by week number two post kaizen, the cycle time was again at 50 minutes. Additional adjustments were completed by week number three post kaizen showing improvements almost close to the goal, 44 minutes. Final verification performed on week number five post kaizen showed a cycle time of 40 minutes.

### Incoming Cycle Time Results

Run	Total Incoming Area Process Cycle Time	Planned Order Cycle Time	Total Incoming Process Cycle Time
Pre-Kaizen (manual)	20 min	60 min	80 min
Kaizen Week	30 min	20 min	50 min
Post Kaizen (week 1)	35 min	25 min	60 min
Post Kaizen (week 2)	30 min	20 min	50 min
Post Kaizen (week 3)	24 min	20 min	44 min
Post Kaizen (week 5)	20 min	20 min	40 min



## Conclusion

The objective for the project, which was to reduce the incoming cycle time from 80 to 40 minutes, was accomplished. Project was completed on time and although there were problems during the implementation, the adjustments performed on the process were successful. Also, the request from management to create a systematic solution to measure the incoming cycle time was completed.