



WECI Inventory Reduction and Just-In-Time Implementation

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Abstract

The organization studied showed substantially high levels of inventory, thus a reduction was in need. Given the little information available to implement this in a service environment, a new approach was needed. A mix of common sales tools and a Lean Six Sigma approach allowed the study to take place. Measuring the Product Aging, Weeks on Hands, and Days-to-Sell, establishing a trend through a Product Histogram, developing a Pareto chart, and analyzing the process through a Value Stream Map verified that the levels of inventory are too high. A test was performed and the Just-in-Time approach allowed the organization to reduce the inventory levels while avoiding creating new inventory. Though the project is still being considered for implementation, the test proved to be successful in eliminating the need for inventory, reducing the issues related to inventory, and increasing the profit margin

Introduction

WECI is a manufacturer representative specialized in the water and wastewater market, focused on the transport and process of the fluids. There is a substantial amount of inventory that seems to be growing without any signs of decreasing. Recent losses in inventory have caused a high level concern about the size and items in their warehouse. Given the organization's process and operations, the inventory levels can be reduced to the most essential products and implement a Just-In-Time approach to the rest of the inventory. There are enough delays in the system to allow the Just-in-Time approach to be highly successful.

The motivation of this study is to present the benefit of an inventory reduction and the implementation of a Just-In-Time approach to a service organization. The objectives of this project are to:

- Reduce inventory no less than 35%
- Decrease cycle time no less than 25%
- Decrease holding cost by at least 45%.
- Decrease Weeks on Hands by 6 weeks.
- Decrease Days-to-Sell by 30 days.

Methodology

The data collection was performed during the annual inventory verification. This process was followed by the selection of five random products in the list. The aging of the product was identified. Once the aging was completed, the Weeks on Hand and Days to Sell were calculated. The trend was analyzed by reviewing the historical data of the past years in different quarters.

A Product Histogram was built to identify a pattern. This provided the feedback needed for the improvements of the process. A test of the Just-In-Time approach was performed utilizing the same process. The outcome of the test was verified against a control product. Finally, a compilation of recent issues was reviewed and the information was entered into a Pareto diagram. The results were then extrapolated to the other products.

Results

Most of the products are exceeding the expected 60 days of aging and a good average will be 45 days. Four of the five items selected are exceeding the threshold and the reason is the amount of the inventory. All of the selected items exceed the expected 12 Weeks on Hand. The Days-to-Sell of the five-item selected are the most frequent items sold by the organization and they are running close to the margin and when the output is extrapolated to the other slow-moving items it can be expected the items to be over the 90 DSI. The Pareto chart showed the most common issues and they can be mitigated with the Just-In-Time approach. The Just-In-Time test prove the model is highly successful and the need for inventory is reduced substantially.

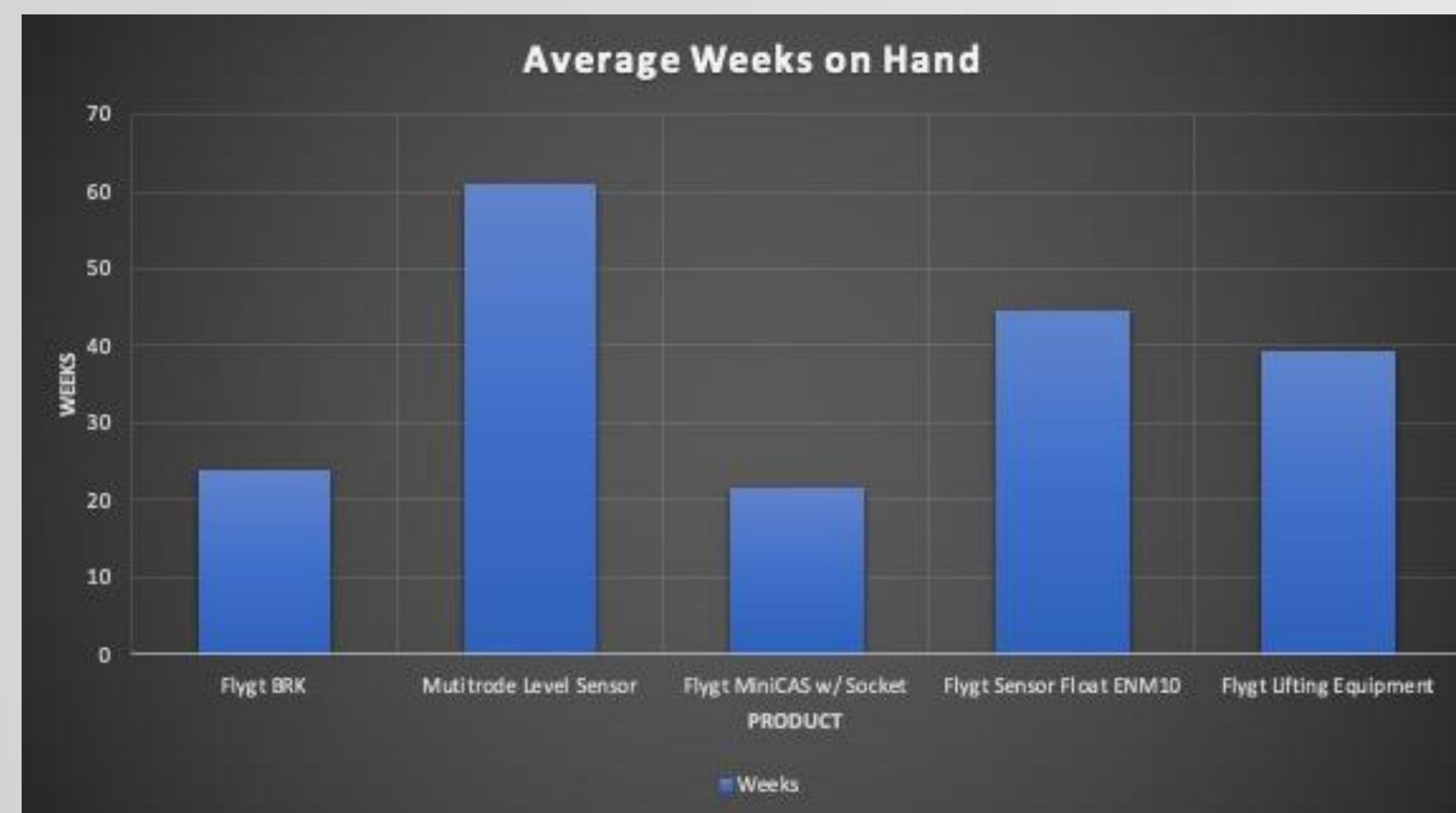


Figure 1 - Average Weeks on Hand

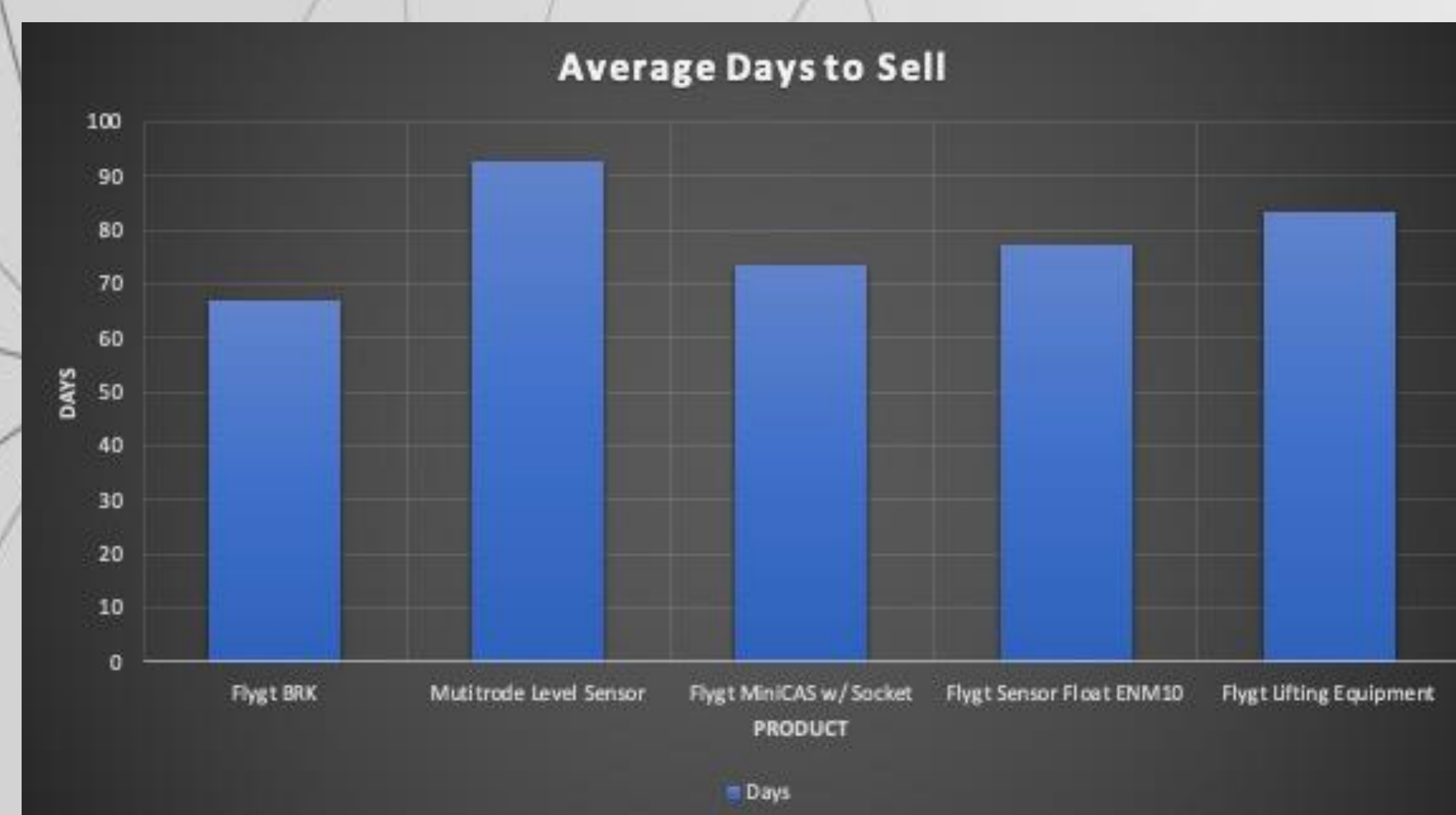


Figure 2 - Average Days to Sell

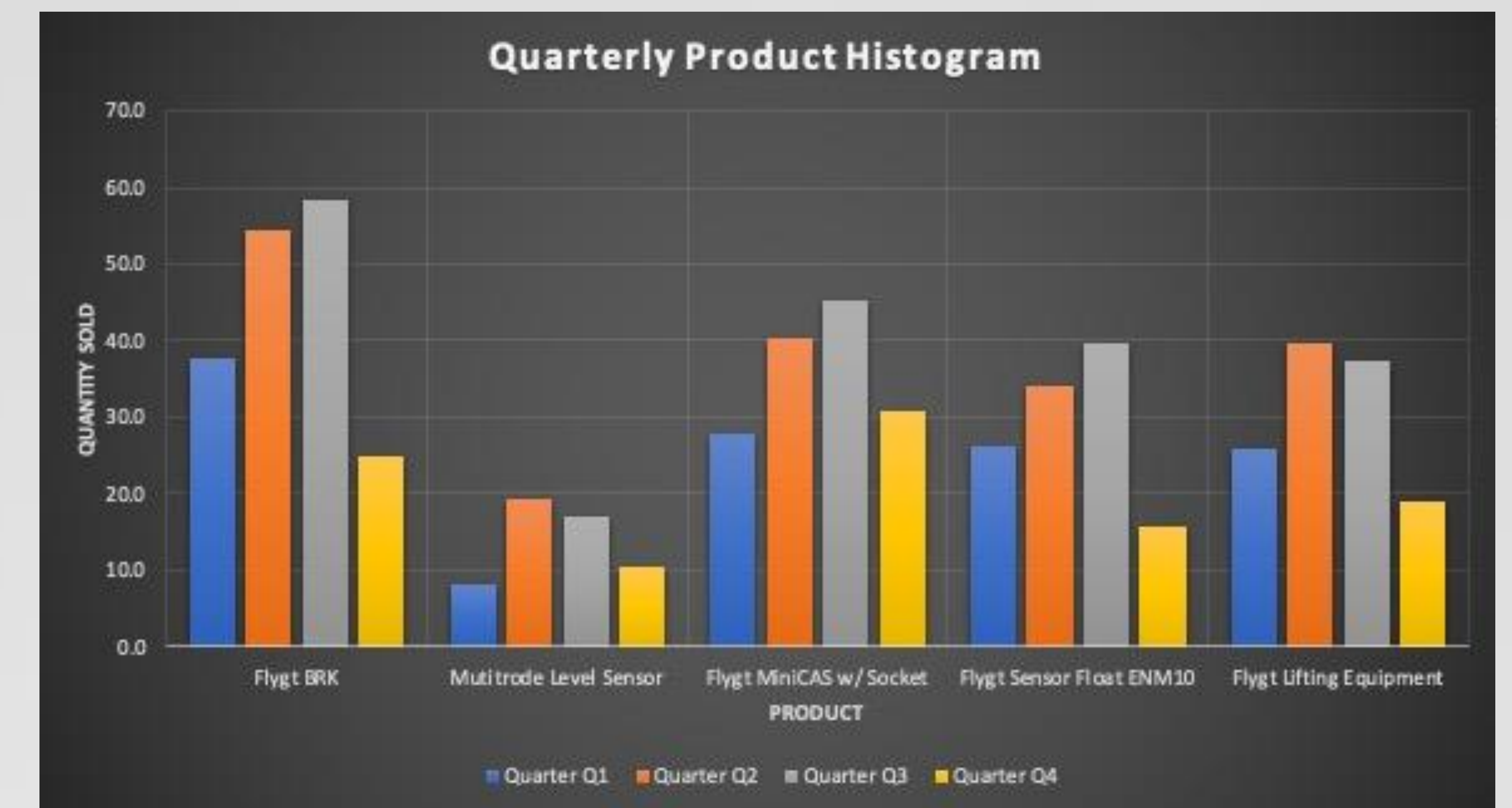


Figure 3 - Quarterly Product Trend



Figure 4 - Inventory Accumulation Issues

Conclusion

The organization will benefit from implementing an inventory reduction and changing the model to a Just-In-Time. The data provides a bleak outlook of what the inventory is like. Reducing the inventory levels will allow the organization to free up capital, increase liquidity, liberate the real estate, and reduce its footprint. Though generally speaking, the Just-In-Time approach is associated with the manufacturing environment, this proves to be highly beneficial to the service environment. Based on the projected objectives, most of them are within reach. However, the extrapolation of the test proved that the project is successful given Just-In-Time approach eliminates the need for high levels of inventory.

Future Work

The organization is considering the implementation of the inventory reduction and changing the model to a Just-In-Time. However, the reduction of inventory levels will prove to be difficult as the products are price-locked and the organization needs to look into alternatives.