Improving Worker Utilization and Flow of Defective Material Through the Analysis Line

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Abstract

Due to a reduction in build volume at the Motorola Solutions Elgin Facility, the worker headcount at the defect analysis line requires re-evaluation. However, due to a lack of available data, making decisions on headcount is difficult. We conducted time studies and used other analytical tools to develop a better understand the current state and requirements of the Analysis Line. A capacity model was created to determine optimal headcounts. We suggested additional improvements to the Analysis processes themselves so that the goal of improving worker utilization may be better realized.

Introduction

Motorola Solutions provides communications and security solutions to a variety of customers both in the public and private sector. Two of the major products produced at the Elgin facility are “Portables” (categorized as VS1 products) and “Mobiles” or VS2 products. VS1 and VS2 products are either assembled in build lines (utilizing proprietary parts) or in customization lines (utilizing parts from external suppliers). Due to reductions in build line volume, the influx of products into the Analysis Line has also decreased. The goal of the project is collect time studies for VS1 and VS2 analysis products, identify areas of waste and determine the optimal headcount for the Analysis Line. The time studies and observations will be helpful for Motorola Solutions to use for future projects related to the Analysis Line.

Methods

In order to investigate potential areas of improvement within the analysis process and to ultimately establish an accurate headcount, several analytical tools were utilized: Time Studies, Spaghetti diagrams, Process Maps and Capacity analysis.

Results

Based on Time Studies of the processes, boxplots were created for both VS1 and VS2 Analysis. Boxplots results for VS1 and VS2 below in Figures 1 and 2. The Capacity Analysis tool is shown in Figures 3 and 4 below. The information is hidden for confidentiality reasons.

Recommendations

Both VS1 and VS2 analysis exhibited large variation in cycle times as the analysis process differs greatly depending on the product model and the nature of the defect.

Utilizing Motorola’s proprietary capacity model for the customization lines, a capacity analysis was completed for the Analysis Line.

Future projects should be considered to investigate the storage and disposition of defective materials throughout the facility after analysis has been completed.

Acknowledgements

The team would like to give special thanks to Dr. Christine Nguyen for her continuous support throughout the term. We would also like to thank Motorola Solutions for sponsoring the Senior Design Project. Special thanks for our company mentors, Hannah Leuhrs and Christina Stich, for dedicating their time and effort throughout the term to support the team. Finally, thanks must be extended to Jorge Montalvo and Jim Companik at Motorola Solutions.