Linen Distribution System Redesign

Hadid Huque, Gordon Taylor Walker

Introduction

Client: Plant Engineering at Bombardier Aerospace
Problem: Expensive and inefficient employee linen program
Facts: ~13,500 uniforms among ~1,700 employees,
Weekly cycle turnovers by 3rd party supplier

Objectives

1. Reduce the program cost
   How? → Improve the current processes → Increase the linen quality → Boost employee morale
2. Endorse a PPE recommendation

Analysis

- Application of workflow modeling and lean analysis to identify sources of waste and inefficiency
- Contribution to the Ordering, Billing and Distribution processes

Finding the Lean sources of waste:
- Where; T-Transportation, I-Inventory, M-Motion, W-Wait, Op-Overprocessing, D-Defect

Problem Visualization

Example of a workflow used to find lean sources of waste

Alternative Brainstorming and Evaluation

1. Improve the current state
2. Washing Facility + New Uniforms
3. Washing Facility + Rental Uniforms
4. New Uniforms + Home Washing
5. Decrease Inventory & Cycle Time

Cost ($)

Overprocessing Waste

- Scale: Larger the Better (1-5)

Decision Matrix

Alternatives 1 and 4 are ideal.

Recommendation

- Purchase, new, high-quality uniforms for employees with washing at home
  Vs.
  - Old Uniform - 65% Polyester - 35% Cotton
  - New Uniform - 100% Cotton Twill - Nanotex Fibre
  - Not colour coded - Fast drying fabric

Outcome

- Leads to reduction and elimination of waste found with the current processes
- Retain supplier at a reduced cost for specialty linens
- Establishment of incentives and gamification to encourage PPE use among employees
- Colour-coding of PPE based on job classification for easy identification, using Velcro markers
- Increased Employee safety and morale
- Substantial reduction in program cost

Future Work

- Sensitivity analysis to determine uncertainty in the cost analysis inputs
- Detailed preview of the estimated payback period
- Establishment of reordering and repair processes for employees
- Central database with employee sizes and distributions

Conclusions

- Application of workflow modeling and lean analysis to deliver a cost reduction, improved linen quality and increased program usage.
- Reduction of various sources of waste → Defects, Transportation, Over Processing

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