INTRODUCTION

- **Operations:** Strong foothold of defense and commercial aerospace sectors of the global industry, in US & Canada
- **Mission:** Manufacture helicopter and aircraft parts
- **Products & Services:** Rotorcraft drive systems, machine parts, and repair, & overhaul of aircraft transmission components
- **Customers:** Boeing, Bell Helicopter, GE & Rolls Royce

PROBLEM STATEMENT

Develop visual controls to analyze variation of production processes throughout the plant, allowing for further analysis and improvements.

Background:

NSA has a high-mix low-volume manufacturing plant. With many manufacturing processes and machines, there is a lot of room for bottlenecks. The processes are divided up into 3 main sections; Shop A, Shop B, and Shop C.

SYSTEM MODEL

**Assumptions:**
- Parts pass through “milestones” (operations) as they go through the manufacturing process
- There are 23 milestones included in the 3 Shops
- Parts are split up into 5 part types

**Current Support**

- Shop B

**Updated Support**

- Shop A
- Shop B
- Shop C

**R-Script:**
- Given historical dates on when parts complete each milestone, the R-script calculates the amount of time the parts spend in each milestone

RESULTS

**Box Plots of Variability:**

- Part A
- Part B
- Part C
- Part D

IMPACT

- Future and existing shops can be analyzed provided data is put into excel document
- Outputs give data distribution, timelines and schedules to help the client plan their future operations more efficiently
- Creates a foundation for future data analytics within the factory

FUTURE STEPS

- Connect R script with new/current ERP system to update with live data on manufacturing facility displays
- Apply to different datasets and part families within manufacturing facility

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