I1.03 – Toyota Simulation

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Problem Statement

Due to the launch of new models, the current bumper paint line is experiencing bottlenecks

- Sequoia parts take 2 carriers, where Tundra parts fit on 1
- Throughput capacity has been reduced due to production ratio
- Lack method to understand current throughput capacity

Project Purpose

What are Toyota's current throughput capabilities?

Create simulation model to gain understanding of bottlenecks.

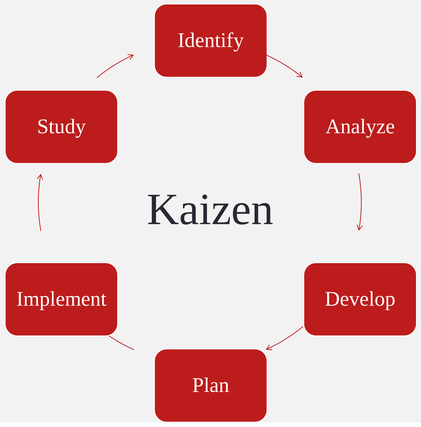
Test "what-ifs".

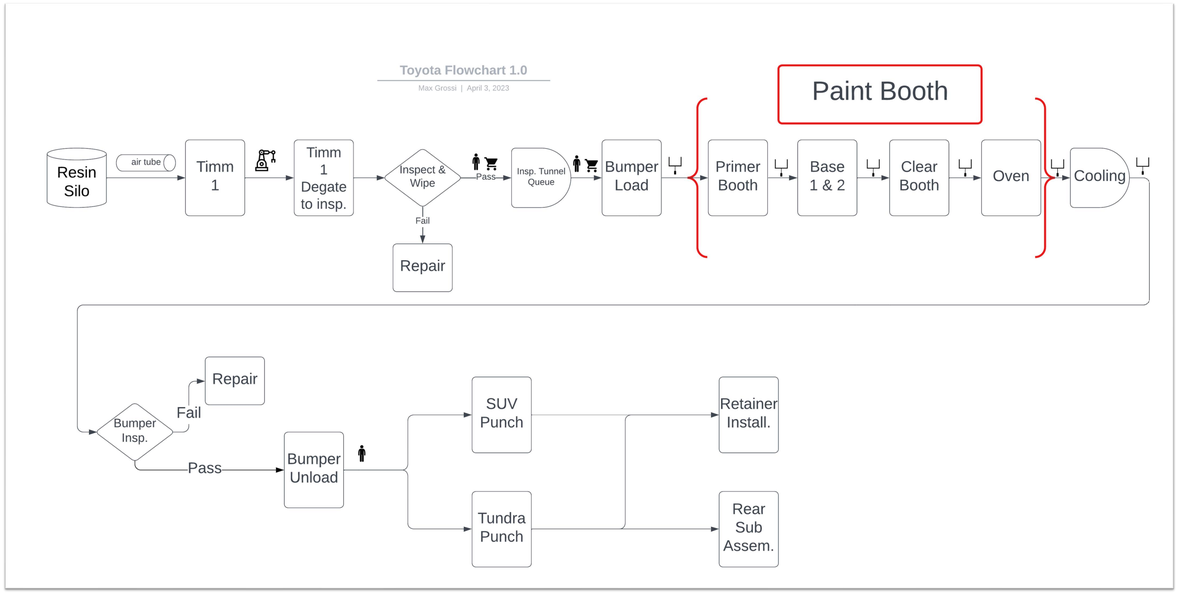
Collect data during Spring 2023 and finalize simulation during Fall 2023

Tools and Methods

Data collected will be analyzed using

- Power BI
- Excel
- Arena





Objectives

Evaluate

Evaluate Tundra/Sequoia Process to determine the best approach to optimize performance.

Present

Present system performance such as throughput, cycle times, equipment utilization and resource availability

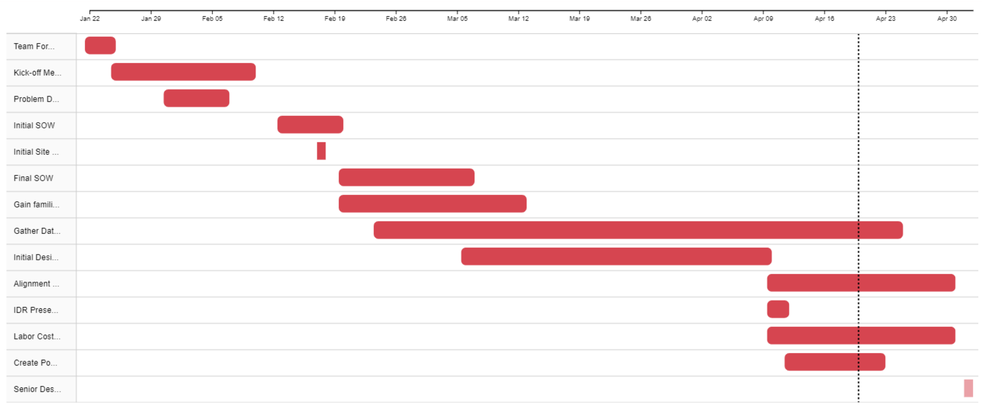
Visualize

Visualize results with 2D and 3D Animation via simulation using Arena

Determine

Determine the impact of uncertainty and variability on system performance. Run "what-if" scenarios to evaluate effect of proposed process change on ratio of Tundra/Sequoia

Current Progress



We are on track and have currently completed our problem formulation and our preliminary data collection.

Human Factors

Maintain safety standards
Cycle time: 55 sec (goal of 49)

- Team members run through breaks to meet demand
- Reduce burden

Future Plans

Future tasks include:

- Creating simulation in Arena
- Running "What-If" scenarios
- Identifying areas of improvement
- Proposing solutions

Team Members

From left to right:
Reagan Chojnacki- Project Manager
Jason Ponce- Process Data Analysis
Max Grossi-Simulation Technical Expert

Acknowledgements

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