

Specialty Pump Manufacturer

A manufacturer of small pumps used primarily in the food processing industry was experiencing increased product customization while struggling to respond to increasing market pressure and to reduce delivery times. Manufacturing cycle times prevented meeting market requirements, delinquencies were increasing, and in an attempt to improve response to customer demands, inventories were running beyond acceptable levels.

Objectives

Increase throughput by evaluating piece-part flow patterns and inventory queue points. Test alternatives using simulation before purchasing additional equipment or altering factory floor layout .

Approach

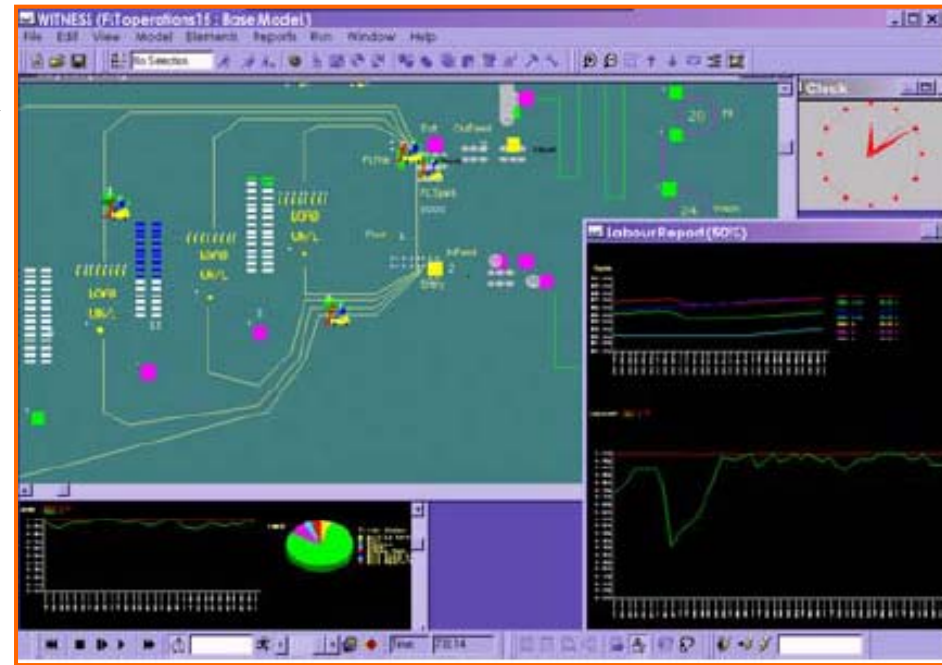
Implementation Services led a team through the process of establishing families of parts and configuring the most appropriate cells, but the question remained as to how to size the cells for anticipated demand, and what type of performance could be expected from the cell.

Building and validating the model: The first step was to establish a model using current operating parameters, run the model, and then test the model's results against that of current operations. (Figure 1)

Establishing a baseline: The next step was to run the validation model at the projected volume of 8,500 pairs of shafts per year to establish a baseline against which to measure alternatives. The base case quickly showed results that were unacceptable.

The team wanted to move from a six-day to a five-day workweek and significantly reduce both the cycle time and inventory level. Recognizing that reducing lot sizes would dramatically reduce both cycle time and inventory requirements, the team set the model assumption at five days per week and began a series of tests at various lot sizes.

Evaluate Scenarios: The first cell simulation run used the current lot sizes of 25 to 100 (mostly 100). It also added the appropriate manufacturing capacity to work a five-day week.



Some scenarios resulted in dramatic improvement in throughput and WIP, but required high expenditures in new equipment (as determined by the simulation output). The team then followed with another series of changes, varying equipment expenditures and lot sizes further until the optimum balance was achieved..

Results

- 20% improvement in productivity
- 75% Inventory reduction
- 75% Reduction in production Cycle Time