Medical Device Company Must Increase Throughput by 1000% Over the Next 6 Years

Medical Device Manufacturing

Success Story

ProModel Optimization Suite

SITUATION

A leading medical device company needed to understand how they could increase throughput for one of their key product lines by over 1,100% over a 6-year period with increasing production goals during each of those 6 years. They did not know how they would meet these requirements. They had a plan to increase equipment but were not overly confident in that plan, and they were very unsure about how many people they needed.

In addition, they wanted an internal capability to virtually experiment with potential future state scenarios in order to make the best decisions the first time, before investing any resources into implementation. They did not want to play trial-and-error in real life on the plant floor.

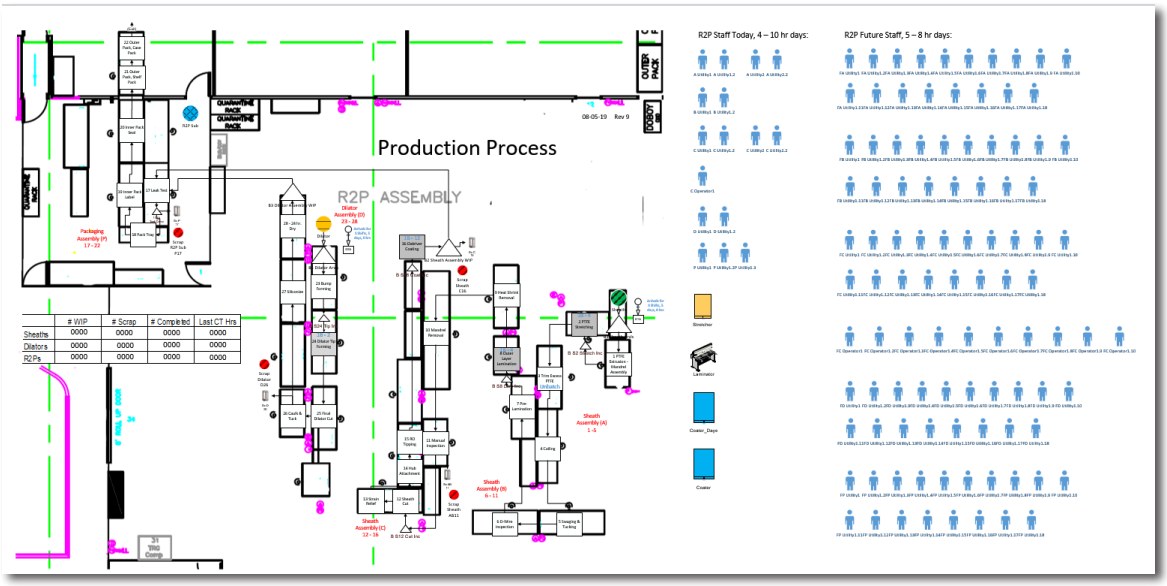
OBJECTIVES

Create a valid simulation model with resource labor and equipment that represents the actual production process.

- Baseline model should reflect the Current State operations today.
- Model should be flexible enough to allow testing of Future State Scenarios to answer “What-if?” questions.

SOLUTION

The solution included a model of the current state with animation as shown below, as well as the flexibility to modify the model in order to study future state scenarios. ProModel also provided consulting services to create this model with the client team, as well as the technology transfer training to use the model.



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The model was used to predict exactly how many people and equipment resources they would need in order to produce their increasing, desired annual production goals. Our consultant confirmed that their equipment plans were mostly on target; however, the model showed them some additional equipment and workstation increases that were needed as well as specifying how many people, which type of workers and how many shifts.

RESULTS / VALUE PROVIDED

The client now has a valid simulation model with resource labor and equipment that represents the actual production process. The approach used for this modeling project can be repeated for other production processes.

- Baseline model reflects the Current State operations today.
  - Model production volumes are close to actual cell production volumes
  - Model production steps, capacities, batching, and process times are all the same as actuals.
  - Model resource labor and equipment amounts are the same as actuals.
  - Model use of shifts with staggered breaks approximates actual production shifts.
  - Model scrap rates are the same as actual scrap rates.

- Model is flexible and has provided answers to "What If?" Future State Scenarios questions.

  Current State:
  - How many devices can we make today if working 3 shifts, 5 days, with coater in use all shifts? What is our Max capacity to make good, completed devices?

  Future State:
  - What resource labor, equipment, and workstations are needed to meet annual production targets for good, completed devices?

Production Targets

Year	Target #	# Monthly
Base	23,200	1,933
1	122,484	10,207
2	152,635	12,720
3	184,626	15,386
4	222,249	18,521
5	238,579	19,882
6	256,394	21,366

- Model can be further modified as needed if/when scrap rates change, new resource labor is added, new equipment is added, or process improvements are implemented, etc.

- The predictive results from this model project can be utilized to make sound production decisions regarding shifts, resource labor, equipment units, and workstation sizing as required production volumes increase over the next several years.

- The featured chart shows the impact that current scrap rates are having on throughput. Reducing the already high scrap rates will greatly improve throughput.