Major Medical Technology Firm Avoids Costly Decisions

Gregg Warnick

Yeah, yeah. We've heard that before." Is that the response you receive from your superiors when you attempt to present a new way of saving the company time and money?

Often upper management personnel get excited about presentations that sound great, but experience disappointment when the actual plans are implemented and then fall short of expectations. They eventually become skeptical of new ideas.

Becton Dickinson has taken a step beyond the normal presentation and approval process by using simulation to test ideas before they are implemented. Everyone involved in the process can see the results of the proposed changes.

Becton Dickinson, one of the world's largest medical technology companies, manufactures and sells a wide range of medical supplies, devices and diagnostic systems. Annual revenues top 3.0 billion. Employing approximately 19,000 people, Becton Dickinson enjoys worldwide presence in over 135 locations in more than 40 countries. When they make a decision there are a lot of key people involved.

Becton Dickinson decided it needed to increase production of one of its medical devices. The plant in North Carolina manufactures pipets that are used for fluid transfer in many different lab environments.

The Problem

The company was faced with a significant demand for additional product (a 15% increase). This created a backorder situation for the plant, as its capacity was not able to meet customer demand.

Management felt that the best option was to purchase additional equipment to create another 5ml pipet line at a cost of $1 million. Implementation time for the new line was between 12 and 18 months. A project team was chartered to evaluate the situation, present solutions, and implement the most appropriate options. Their goal was to meet production demand with minimal costs. Since machines were running faster than design, the team's purpose was to

maximize production capacity with minimum cost, yet improving safety factors for workers.

At a Glance

Problem: *The company was faced with a significant demand for additional product (a 15% increase). This created a back-order situation for the plant, as its capacity was not able to meet customer demand.*

Solution: *Detailed production information was gathered and a ProcessModel simulation model was created. The team identified the extrusion area as the bottleneck and created different model scenarios to determine the most appropriate actions to improve capacity.*

Results: *Through simulation modeling it was decided that additional capacity was required at the beginning of the product run, and this was where the "bottleneck" occurred. The team recommended sharing production with another line to increase capacity at extrusion (beginning of product run).*

The model demonstrated that a new production line was not required for 2 years if the increased capacity and other small line improvements were implemented. Average shift production for different model scenarios was determined.

During the course of the model study, downstream operations were discovered to be imbalanced. Improvements were made to downstream operations to increase machine uptime and improve product flow.

"Simulation modeling demonstrated a potential production output increase by 13.85%, while reducing safety risk factors in major production areas.

It showed that sales revenue could increase by $2.1 million per year, with a cost avoidance of $1 million for at least 2 years or until it is absolutely necessary to build another production line."

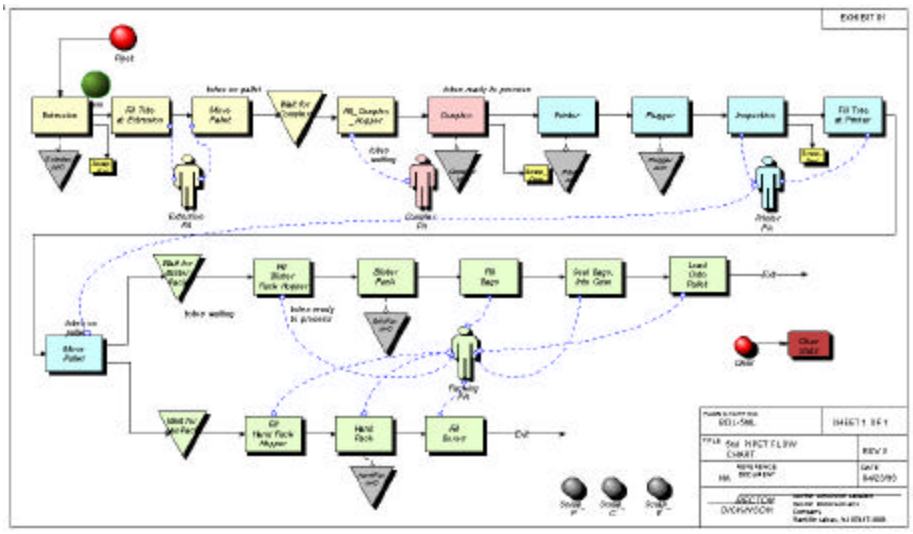
The Solution

Detailed production information was gathered and a ProcessModel simulation model was created. The team identified the extrusion area as the bottleneck and created different model scenarios to determine the most appropriate actions to improve capacity.

The team made recommendations to increase capacity in extrusion by sharing production with another line. Improvements were made to downstream operations to increase machine uptime and improve product flow. Conveyors and ergonomic workstations were installed to reduce ergonomic risk factors.

The Results

Using ProcessModel®, we loaded input data gathered from production sheets and video analysis. The project team reviewed the model and all agreed that it was a good representation of reality. Through simulation modeling it was decided that additional capacity was required at the beginning of the product run, and this was where the "bottleneck" occurred. The team recommended



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During the course of the model study, downstream operations were discovered to be imbalanced. Improvements were made to downstream operations to increase machine uptime and improve product flow. Conveyors and ergonomic workstations were installed to reduce safety risk factors. The Becton Dickinson project team learned through simulation modeling that small improvements can lead to big results. They also agreed that benchmarking production using a simulation model can help avoid costly decisions.

The results of the project have the potential to increase production by 13.85%, increase sales revenue by $2.1 million per year, and delay $1 million in capital spending by 2 years.

Future Application

This project is still in progress, but the implementation costs are estimated at $180,000 with the largest portion of the cost directed to safety risk factor reduction in major production areas.

Becton Dickinson's company goal is to "become the organization most known for eliminating unnecessary suffering and death from disease, and in doing so, become one of the best performing companies in the world."

FIND OUT MORE

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