Novolex: Factory Film Balancing Simulation

Overview
The facility’s production rate is so high that any form of testing on their system can create a lot production loss, if it causes the line to shut down. Since the risk of live experimenting is so high they cannot perform them, and see how they can make changes to their systems. The way this will be done is by creating a validated discrete simulation model.

Objectives
• Accurately simulate the bag making process from extrusion of the film to finished product.
• Use this initial model to replicate the variations in the additional bag machines.

Approach
• Data Collection
  o Collect machine characterization information: Process times, Downtimes and MTTR
  o Process flows
  o Demand/Arrival Rates
• Develop Process Flow Diagrams
  o Develop process flow diagrams
  o Determine units of measure
• Build Discrete Event Model (Simio ©)
  o Use Process Flow Diagrams to construct the simulation model
  o Analyze process and downtime information and fit distributions
• Validate Model
  o Demonstrate model to project stakeholders to gain face validity
  o Perform preliminary experimentation and compare model results with actual performance
• Develop Transition Report
  o Develop model user manual that includes guidelines on how to use and extend the model

Outcomes
By completing this project the Novolex production engineers will be able to experiment with their current bag making processes to test for efficiencies to see if there are any areas that could see improvement. The software package for SIMIO is fairly expensive. However, the amount of production that could be increased could make that cost in a matter of days, and the rate of return is high.