


Simio User Group Meeting

Real-Time Scheduling with MES Integration

How Simio can link up to Wonderware and other MES systems

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Agenda


- ▶ Simio Key Capabilities
- ▶ Scheduling Project Approaches
- ▶ Where does Simio Fit
- ▶ Simio & MES Scheduling Workflow
- ▶ Building an Integrated Model
- ▶ Simio & MES Real-time Integrated Scheduling
- ▶ Summary

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Simio Key Capabilities

- 1 ▶ Accurately captures **Complexity**
- 2 ▶ Effectively deals with **Variability**
- 3 ▶ Executes **Concurrent** planning and scheduling
- 4 ▶ Provides for **Interoperability** between systems
- 5 ▶ Facilitates **Cloud based** results distribution



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Scheduling - Project Approaches

- ▶ There is no single best way to develop and implement a simulation based scheduling solution.
- ▶ You can follow both a model or data driven approach or a hybrid version.
- ▶ Most scheduling models will rely on transactional data such as the latest orders as well as operational level data such as resource, routings and material availability.
- ▶ It is recommended to start the implementation by developing the facility model based on the available process and transactional data and then extend or enhance the model by:
 - Adding additional information in the data tables
 - Adding model objects and create new columns in the data tables as required
- ▶ The presentation will focus on the approach of using the data to generate a base model and then enhance and expand as required.
- ▶ The presentation will also show the real-time integration to Wonderware MES.

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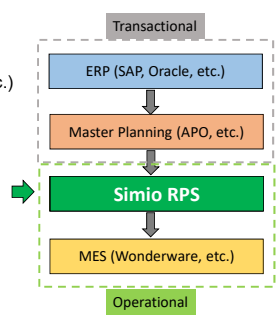
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Where does Simio RPS Fit?

- ▶ Typical Architecture
 - ERP (SAP, Oracle, etc.)
 - Master planning (SAP APO, etc.)
 - Scheduling (Excel, Board, etc.)
 - MES (Wonderware, etc.)
- ▶ Add Simio for Scheduling

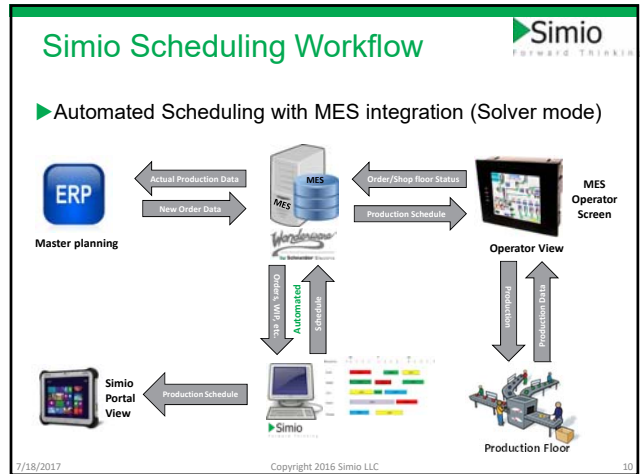
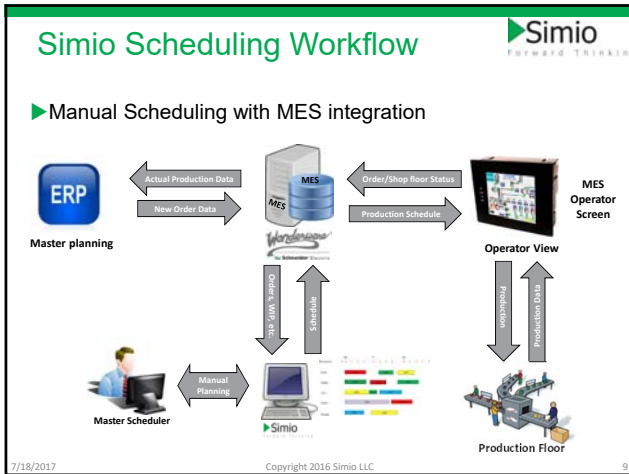


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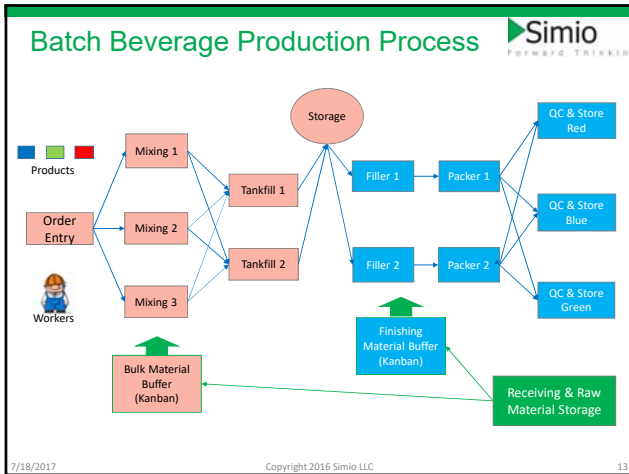
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- ### Batch Beverage Production Process Description
- ▶ Create a scheduling model for a Batch Beverage production process (see the next slide for a graphical view).
 - ▶ The process consists of 2 primary production centers:
 - Bulk material production
 - Mixing operation with 3 mixers
 - Tank filling operation with 2 tank fillers
 - Finishing Operation
 - Bottle filling operations with 2 filling lines
 - Packing operation with 2 packing lines
 - ▶ The model will be shown in two (2) primary steps:
 - Initial data driven model based on the Wonderware MES data
 - Enhanced integrated model to show real-time integration between Simio and Wonderware MES
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- ### Creating the Base Model
- ▶ The base model will be created by importing data matching the data tables created when running the Simio Wonderware MES 'Add-in'
 - ▶ Select the Wonderware MES Add-in and import the data from the Wonderware MES data base.
 - ▶ Configure and run the model.
 - ▶ Generate a schedule and view the results
 - ▶ Switch to the enhanced fully integrated model.
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Demo

- ▶ Let's look at a Real-time Wonderware MES integration example.

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Simio & MES integration



- ▶ Plant configuration in Wonderware MES client.
- ▶ Generate a schedule in Simio and export the results to Wonderware MES.
- ▶ Create equipment Downtime for Mixer 1 in Wonderware MES.
- ▶ Import the downtime into Simio and re-schedule.
- ▶ Export the new schedule to Wonderware MES to account for the equipment downtime.
- ▶ The scheduling process can be fully automated with Simio running as a "Black-box" solver.
- ▶ Orders can be imported from the ERP (such as SAP) also with operational level data coming from the MES.

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Summary



- ▶ Scheduling projects can be executed by creating a base model using the standard data tables created by using the Simio scheduling 'Add-in' (data driven approach).
- ▶ Scheduling models can be expanded in a continuous improvement process to include more detail to improve schedule accuracy.
- ▶ Adding variability allows the scheduler to generate a risk factor for delivering each order on time.
- ▶ Simio provides various mechanism for schedule analysis including interactive dashboards, reports, logs, etc.

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Thank you!



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