

Kanban

Supermarket Management

Average Demand Calculations

Safety Stock Calculations

Every-Part-Every Interval Calculations

Flow Scheduling

Traditionally, MFG/PRO functionality has supported production, using work orders and repetitive schedules, either separately or together, in a mixed-mode manufacturing environment. Today, many customers are re-examining their manufacturing philosophies in response to factors such as increasingly uncertain demand, more complex variations in product mix and growing variability in customer ordering patterns. As a result, many companies are moving toward more streamlined manufacturing approaches and implementing continuous flow and pull techniques to make their plants and entire value stream more effective.



Enables users to set up basic loop information, including supermarket item detail and source master data. Optionally, the system can automatically calculate detailed data and update the values for the kanban loop.

Compatible with MFG/PRO eB2 and eB2.1

QAD SOLUTIONS

ADAPTERS AND TOOLS

MANUFACTURING COMMUNITY

EXTENDED ENTERPRISE

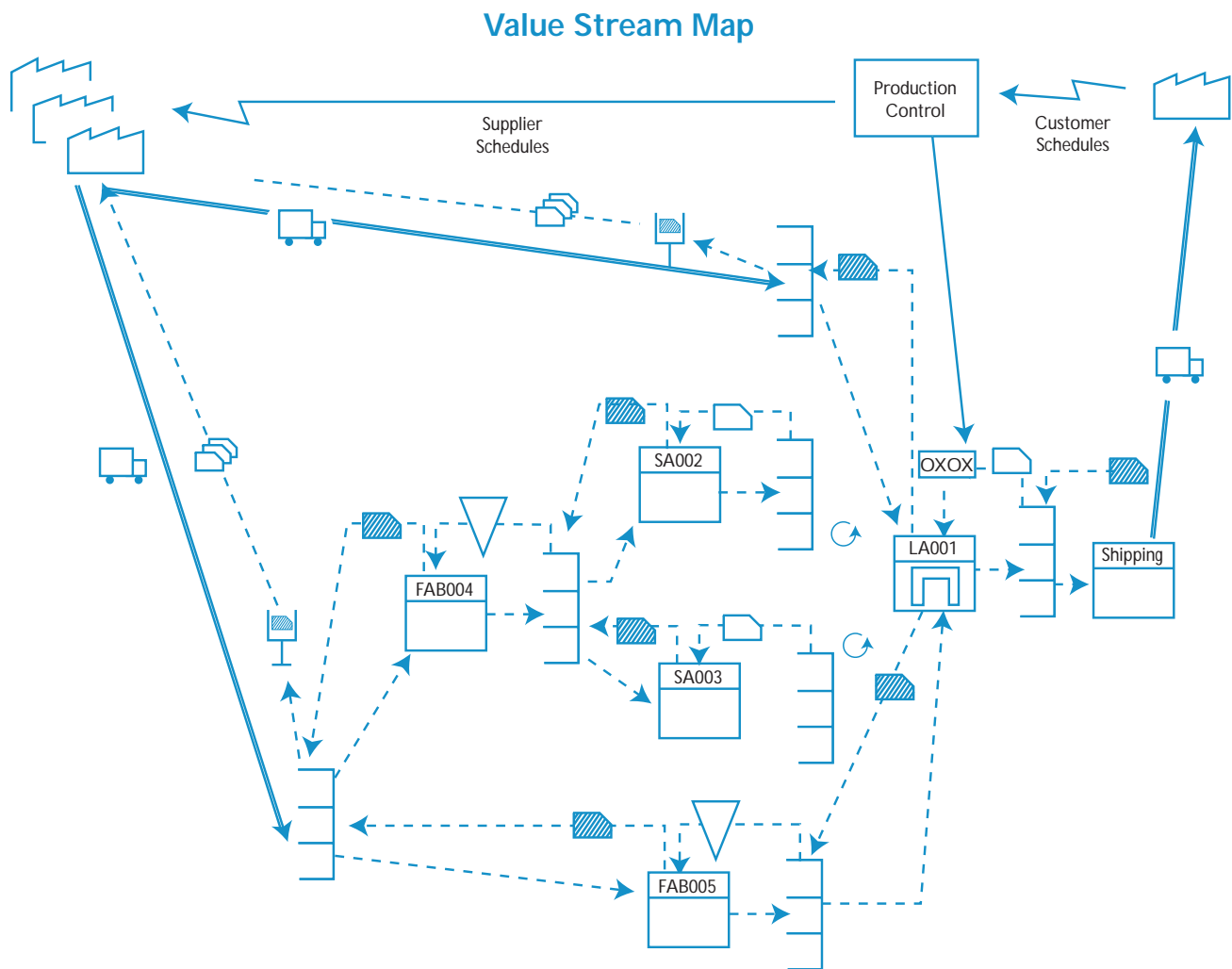
ENTERPRISE APPLICATIONS

FEATURES

- Communicate kanban status through the supply chain
- Enable enhanced lean manufacturing techniques:
 - Dynamic average demand calculations
 - Advanced methods for establishing inventory buffer quantities
 - Dynamic safety stock calculations
- Manage inventory buffer (supermarket)
- Enhanced kanban transaction processing:
 - Allow for multiple "states" for individual kanban cards
- Provides advanced logic for every-part-every-interval (EPEI) calculations
- Facilitate Workbench simulations:
 - Sizing inventory buffers
 - Determining kanbans and kanban quantities for each loop
 - Analyzing product mix
 - Developing leveled schedule at the pacemaker process
 - Real time visibility into electronic kanban signals
- Produce lean schedule orders for finished goods or capacity constrained resources



LEAN MANUFACTURING



Kanban

The Lean Manufacturing module provides the ability to post receipts and inventory movement transactions in response to filled kanbans. In order to automate the transaction process associated with Kanban Management, MFG/PRO executes kanban signals for three types of transactions:

- Purchase receipts
- Item movement
- Production receipts

The Kanban functionality provides features that support creating kanban loops, defining production processes to supply them, recording kanban signals and automatically generating inventory transactions. Tools are also provided to analyze kanban and buffer sizes to determine the most efficient quantities.

Kanban Transactions capability includes:

- Individual "states" for each kanban card with menu-level programs that track kanban post/consume, authorize, acknowledge, ship, and fill/receive actions. It also provides the ability to define time parameters to prevent users from inadvertently recording the wrong cards during transaction processing.
- Accumulators. Optionally, the ability to set up kanban loops with automatic accumulators based on the order quantity or specified time intervals. A background process monitors kanbans as they are used. When the accumulation criteria are met, the system automatically authorizes production.
- Transact kanban cards via bar code scan or direct entry.

Supermarket Management

Supermarket Management enables you to tightly manage the amount of inventory within the value-stream to allow for a pull system. Supermarkets are also referred to as inventory buffers and can contain either finished items or work in process.

Lean Manufacturing provides for multiple methods of calculating and setting supermarket quantities based on either manual data entry or system calculations that include a variety of flexible, user defined parameters.

Average Demand Calculations

Average Demand Calculations provide help in automatically determining recommended supermarket size, number of kanbans and the quantity of a kanban in a loop and safety stock. In addition, average demand calculation methods are flexible and can be determined by using various combinations of actual historical and projected future demand.

Safety Stock Calculations

Lean Manufacturing provides a variety of ways to specify safety stock, including:

- The quantity and number of days that the system uses in combination with average demand calculations to determine a number
- The ability to specify an automatic calculation based on a desired service level and the calculated demand variability (standard deviation)
- On the peak demand during a user-specified period.

Every-Part-Every-Interval (EPEI) Calculations

EPE Interval helps to determine the manufacturing lot size and supermarket quantities for each part produced in a particular manufacturing process, as well as the number of kanban cards in the replenishment loop. Several mechanisms are provided, including a comprehensive Kanban Workbench for calculating the EPE interval.

Simulated Kanban Calculations

Using a workbench program, users work with the EPE Interval, packaging or logistics constraints to receive preliminary kanban quantities. Based on real-world experience with actual kanbans, users can set an appropriate kanban size. Users can rerun Kanban Workbench using updated historical demand data and revise the number of cards, inactivate or reactivate cards as needed.

Mix Analysis and Load Leveling

Level Mix Workbench can be used to perform five major functions for your pacemaker processes, including:

- Calculate the volume of all parts that must be run each day
- Determine the mix of various items produced in the process
- Calculate a suggested daily level schedule by shift for each item based on the established process volume, mix, pitch, EPEI and the product wheel
- Evaluate schedule and buffer performance for each item using the Supermarket Evaluation
- Update the master production schedule

Takt Time Calculation

Takt time calculation represents the customer demand rate and is used to synchronize the rate of production with the rate of sales. Takt time is a key input to operator loading and balancing calculations.

Flow Scheduling

Flow Scheduling provides the ability to generate time-phased sequence statements of production requirement for production lines in a flow manufacturing environment. Users have the ability to decrease inventory, lot sizes and cumulative product lead times, reduce non-value add activities and increase customer satisfaction levels. In addition, Flow Schedule Maintenance provides additional scheduling and capacity planning capabilities.

Communicate Kanban Status Throughout the Supply Chain with Supply Visualization

Supply Visualization with kanban functionality provides real-time visibility into electronic kanban signals inside the customer's facility and to selected suppliers. It allows internal production lines and suppliers to closely monitor how items are being consumed and respond to replenishment signals.

Supply Visualization with kanban functionality is available through the MFGx.net manufacturing community. A small poller is installed to obtain data from the Lean Manufacturing module to display kanban information to the supplier through a browser (either Internet Explorer or Netscape). Customers do not need to make any modifications to the existing corporate firewall; if it is possible to browse the Internet from within the company, it is possible to use Supply Visualization with kanban functionality.

Supply Visualization supports the Lean Manufacturing module in MFG/PRO eB2 and does not yet support the Lean Module for MFG/PRO eB2.1.



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