

JD EDWARDS ENTERPRISEONE DEMAND FLOW[®] MANUFACTURING

ORACLE

JD EDWARDS ENTERPRISEONE

PRODUCT HIGHLIGHTS

- Designed to DemandPoint's (formerly JCIT International) principles of Demand Flow[®] Technology (DFT). See: www.demandpointinc.com
- "Pull" production rather than traditional "push"
- Integrated mixed-model flow manufacturing
- Faster response times to demand volatility
- Improved production planning and sequencing
- Seven lines of Kanban management
- Perform daily planning and sequencing
- Detailed resource management
- Complete line design capabilities
- Utilize Total Quality Check (TQC) information
- Determine In-Process Kanban (IPK)
- Calculate Takt time and divide tasks into operations across the shop floor
- Resource simulations include required labor and machine calculations by process as well as required total labor to produce daily demand
- Supports full dual-card Kanban driven activities at machine cells
- Multiple reporting formats

The only enterprise software that delivers pull-based flow manufacturing solutions endorsed and trademarked by the industry thought leader, DemandPoint (formerly JCIT International – the organization that literally wrote the book on flow manufacturing).

The Issue: Lack of Comprehensive Software to Help Implement, Integrate, and Adapt Flow Manufacturing Processes

Demand-driven manufacturers have been deploying lean strategies inside their plants for years, but the business software systems to support flow manufacturing on a sustainable scale have been either nonexistent or inadequate. This has resulted in pockets of improvements spread across multiple plants (and often countries), which have been difficult to replicate consistently. Additionally, the flow solutions that do exist are typically standalone applications that are not integrated to core enterprise resource planning (ERP) data.

Lean manufacturers in the past had to rely on manual methods or outside experts to design a flow production line because no standardized line design software tools were commercially available. Moreover, traditional material replenishment processes proved ineffective in keeping pace with rapid changes in demand and rising customer expectations. Integrated manufacturing software that provided effective and efficient ways to manage and size Kanbans often lacked key lean manufacturing features.

A primary goal of demand-driven manufacturing is to produce families of similar products. A mixed-model flow line has the ability to build a range of volumes of any product, any day, based on the direction of actual customer demand. The inability to easily sequence demand to a mixed-model production line has long been one of the toughest problems in manufacturing. Excessive manufacturing cycle times often compound the problem. A tool to plan and sequence production to meet daily demand and compress cycle times is at the very top of many manufacturers' wish lists.

The Solution: An Integrated, Formalized, Sustainable, and Scalable Flow Manufacturing Foundation

Oracle's JD Edwards EnterpriseOne Demand Flow[®] Manufacturing provides a formalized, sustain-able, scalable, and integrated application foundation to fully support your lean manufacturing processes. It is completely integrated to all core JD Edwards EnterpriseOne ERP applications. The power of a totally integrated solution means that your flow production line operates on the same database and same application framework as your accounting, engineering, materials management, purchasing, sales, and human resources departments, so all constituents are operating off a single version of the truth.

Formalize Design of a Flow Production Line

The heart of the JD Edwards EnterpriseOne Demand Flow[®] Manufacturing module is line design. The line design process starts by identifying all active items and bills of materials to ensure that obsolete and redundant items are eliminated and bills of materials are flattened or turned into phantoms. Then, product synchronizations define all of the processes required to build active products. Our graphical product synchronization tool enables you to document feeder lines and option and rework paths, as well as identify scrap and rework that may affect production volumes.

The mixed-model process map permits you to assign products to mixed-model families based on shared processes, materials, machines, labor, and time. This productivity tool enables you to quickly and accurately group items into families, so you can plan and execute production at a more manageable level, instead of keeping track of the details for each and every stock-keeping unit (SKU).

The line design application assigns demand volumes to items or families, takes independent demand into account, and then ties the overall volume, or demand at capacity (D_c), to a product synchronization diagram. Calculations include:

- Takt time (targeted work content for people and machines to meet demand).
- Actual machine and labor time.
- Total product cycle time (longest path of a flow process as measured from the time the item was started to the time of completion at the end of the line).

Create an Effective Material Replenishment Process

In addition to increasing the velocity of moving and procuring materials, this Kanban management functionality helps you improve the material replenishment process by reducing the number of transactions required to procure and move materials. Kanban pull chains are defined and Kanban sizes are calculated and approved within JD Edwards EnterpriseOne Demand Flow[®] Manufacturing. Material procurement, replenishment, and consumption can all be executed through Kanbans and backflushing, which greatly reduces the number of inventory transactions necessary to complete an item.

This module supports seven Kanban types:

- | | |
|---------------------------------|---------------------------------------------------------|
| • Production | • Multi-tier |
| • Inventory | • Raw in-process (RIP) with signal only, no transaction |
| • Suppliers | • Dual-card |
| • Interbranch (transfer orders) | |

An RIP Kanban is a good example of an electronic Kanban. Within RIP, a material handler receives a signal that a location needs to be replenished without having to physically see the empty Kanban. As completions are reported, inventory is backflushed from the first location within RIP for the item's pull chain.

You can change Kanban sizes by percentages as needed and can take into account independent demand for end items, and both independent and dependent demand for raw materials, subassemblies, and component parts. You also have the flexibility to override a recommended Kanban size when appropriate. The supplying and consuming locations for an item make up its Kanban pull chain, which can be defined and changed based on process requirements.

Improve Production Sequencing to the Line

With JD Edwards EnterpriseOne Demand Flow[®] Manufacturing, demand on the shop floor is driven directly from sales orders. The daily planning application enables you to define the production plan and sequence by loading demand from sales orders by recommended start dates. The recommended start dates are calculated by the system based on shipment preparation times, total product cycle time, and takt time. You may either automatically load all demand recommended for build each day (or other designated time period) or simply select individual orders ad hoc. When the production quantities are displayed on the planning screen, you can spread the load over multiple dates.

Once a plan has been built with consideration of capacity, you may generate a build sequence based on full quantities for each order, minimum or maximum quantities to flow down the line together, or another quantity you define. After the appropriate sequence is generated, you are able to manipulate it for order priorities and product characteristics as needed. Four different user-defined codes (UDC) help refine production sequencing.

For example, you may define one code as “paint color” if you want to minimize paint booth cleaning and setup by sequencing orders from lighter to darker colors. There are multiple sort criteria that may be used to facilitate the grouping of like products that will run together down the flow line.

Calculate Resource Requirements to Meet True Demand

Resource simulations can be run on a line to understand the required number and type of people and machines needed to satisfy daily demand for each manufacturing process. Resource profiles are created with effective dates, as well as resource efficiency and productivity factors, to ensure that simulations are valid. You have the flexibility to revise resources and demand in order to run what-if scenarios. For example, in the case of a plant ramp-up, effective dates on materials are critical as new materials and component parts are being introduced. When you are training new operators, however, productivity and efficiency factors may need to be adjusted downward until the operators can get up to speed.

Achieve Faster Response Times and Higher Quality with Less Inventory

Demand-driven processes foster an environment of continuous improvement, higher quality, and faster manufacturing cycle times. JD Edwards EnterpriseOne Demand Flow[®] Manufacturing provides a set of tools you can use to create a formalized, sustainable, scalable, and integrated framework for your lean processes.

Fast and accurate data visibility is guaranteed because JD Edwards EnterpriseOne Demand Flow[®] Manufacturing is fully integrated with the entire suite of JD Edwards EnterpriseOne products—one toolset, one database, and one single version of the truth. By helping to eliminate wasteful queue, move, and setup times, this solution drives waste out of your business and enables you to vastly improve working capital utilization and cash flow. And most importantly, JD Edwards EnterpriseOne Demand Flow[®] Manufacturing gives you the power to improve your manufacturing operation to the point where you consistently add value to your customers everywhere, every time.

Feature/Function Highlights

- Line design
- Generates graphical product synchronization
- Stores detailed sequence of events
- Differentiates between value-added and non-value-added work
- Provides mixed-model process mapping
- Calculates operational definitions
- Stores multiple line design simulations
- Allows for operational method sheet viewing
- Generates standard bill of material (BOM) and routing from line design data
- Kanban management
- Defines pull chains for Kanban material movement
- Calculates Kanban sizing
- Provides threshold-based approval of Kanban sizes
- Allows for raw in-process (RIP) Kanban with no underlying transaction
- Daily planning and sequencing
- Plans daily mixed-model production
- Compares designed daily rate to firm demand
- Sequences sales orders onto the production line
- Creates a specific starting sequence for the production line
- Resource management
- Performs daily simulations for the flow lines within the factory
- Simulates demand on the line and determines resource requirements
- Highlights operations that have excess or insufficient resources
- Calculates both labor and machine resource requirements
- Generates a daily staffing report to meet firm demand
- Provides electronic Kanban signals
- Generates Kanban labels

Solution Integration

This module is designed to be integrated with these JD Edwards EnterpriseOne products and families across your operations using common tools and a Pure Internet Architecture:

- JD Edwards EnterpriseOne Manufacturing
 - Manufacturing – ETO Foundation
 - Manufacturing – PDM
 - Manufacturing – Shop Floor
- JD Edwards EnterpriseOne Supply Chain Execution (Logistics)
 - Inventory Management
 - Transportation Management
 - Warehouse Management
- JD Edwards EnterpriseOne Supply Chain Planning
- JD Edwards EnterpriseOne Order Management
 - Order Promising

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