ORACLE SHOP FLOOR MANAGEMENT (OSFM)

LOT OR LOT/SERIAL BASED MANUFACTURING

ADVANCED SHOP FLOOR MODELLING:

- User Configurations
- Dispatch Lists
- User Defined Attributes Management
- Electronic Lot Travelers
- User defined alerts management

COMPLEX SHOP FLOOR TRANSACTIONS:

- Splits and Merges
- Update of Lot Name, Product, Routing, Quantity
- Combined Split and Update Product
- Combined Move and Scrap
- Bonus Lot Creation

LOT/SERIAL GENEALOGY:

- Graphical User Interface
- Product Tracking all the way back to raw material
- Forward and backward genealogy 'surfing'
- Operations and material transactions details for every manufacturing step
- Integrated genealogy with Oracle Warehouse Management System (WMS)
- Search and display of user defined attributes for Lot/Serials

DYNAMIC ROUTINGS

- Routing determined dynamically
- Routing movements enforced based on allowable next operations and effective operation dates
- Jumps allowed to any operation (super-user

The rapid growth of the Internet and voice/data communications is exerting significant pressures on manufacturing operations across all industries. In addition to the typical challenges relating to shorter product life cycles, complex product designs and global supply chains, manufacturers require real time shop floor information to improve customer service and for appropriate corrective actions on the shop floor. These key changes are redefining the way manufacturing operations are managed. Oracle Shop Floor Management (OSFM) is a web-based solution designed to specifically to meet these requirements by improving the availability of information generated on the production shop floor in a 24x7 environment. OSFM is a part of the Oracle E-Business Suite, an integrated set of applications, which is designed to transform your business to an e-business.

Advanced Shop Floor Execution with or without ERP/MES integration with a single repository for all transaction activities

Oracle is a single vendor solution for lot/serial based manufacturing that not only provides comprehensive shop floor functionality but also enables the integration of third party Manufacturing Execution Systems (MES), if required. By extending Oracle Manufacturing's core functionality through OSFM, Oracle empowers the enterprise through a powerful and integrated ERP/MES environment. All shop floor transactions are captured in a single data repository, which integrates the supply chain across the enterprise with no redundant data. OSFM is a standard Software package, supporting dispatch lists, user configurations, lot travelers, move in / move outs, lot splits/merges and genealogy etc thereby eliminating an additional need for most custom built MES solutions in many business situations. However, if some Manufacturing operations still require third-party MES product, OSFM can also provide integration via open interfaces, which can mirror MES shop floor transactions into Oracle Manufacturing.

Lot/Serial Based Manufacturing

OSFM is a shop floor solution specifically designed for those manufacturers where in the end products produced have lot numbers or lot as well serial numbers. Through a strict control on lot integrity across the entire manufacturing process, OSFM helps manufacturers in linking all material issues and manufacturing transactions to an end item lot or lot/serial number, which in turn is of tremendous use for accurate customer response and compliance requirements and cost control etc.

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function)
- Support for standard as well as non-standard operations

INTEGRATION WITH PLANNING/ APS:
- Support for lot and lot/serial based jobs
- Support for Operation yields
- Scheduling of orders with network routings
- View and change planning recommendations at job level
- Co-Product Planning

YIELD-BASED OPERATIONAL COSTING:
- Operation level yields
- Yielded cost of product
- Cost variance at operations
- Supports standard costing methods

CO-PRODUCTS/ BOM:
- Modeling of co-products
- Modeling of Phantoms

Complete visibility on the "shop floor" across the supply chain

By integrating shop floor data into Oracle ERP, OSFM provides enterprise-wide supply chain transparency of all work orders. For example, in a typical contract manufacturing business scenario, OSFM provides complete visibility of all work orders across different manufacturing plants irrespective of their location, by tracking a product's lot activities from raw material to finished goods. Also, shop floor events impacting lots and material such as scrap can be communicated to the ERP system, thereby providing the input data for corrective action or even customized notifications to concerned personnel.

Dynamic routing for building and managing flexible manufacturing operations

OSFM provides the ability to determine routings dynamically, responding to process needs or resource availability. Users can specify operation relationships (for example going from operation A to either B or F), which are subsequently enforced by OSFM as routings and executed by the operator on the factory floor. It also provides the ability to "jump" to any operation. OSFM also enforces intraoperation steps, collects engineering data, and specifies resources used.
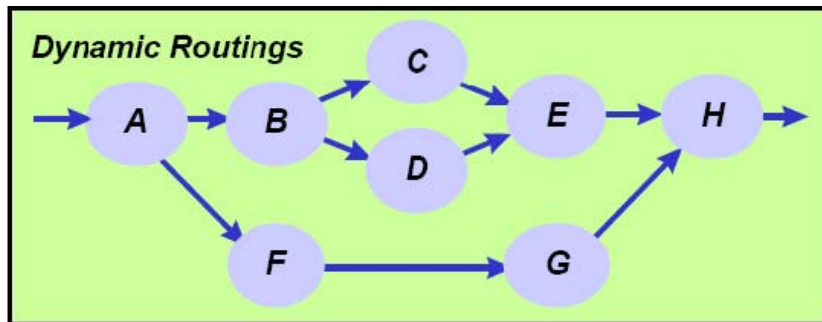

Figure: 1 Dynamic Routing

Co-product Definitions

OSFM extends the standard Oracle BOM definitions by providing the ability define an item as the primary component of several end items as well as the expected distribution of the primary component across all end items. When this information is defined through the co-products form, the Bill of material for the end items are automatically created.

Complex Shop Floor Modeling and Transactions

OSFM provides extensive support for complex shop floor modeling as well as transactions. From a modeling perspective, it provides powerful support for user configurations based on large number of parameters, dispatch lists based on a configurable criteria and ability to generate electronic lot travelers at any time. Users can also define their own attributes for end items and capture them throughout the manufacturing process.

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Figure: 2 Dispatch List

From an execution perspective, OSFM expands an enterprise's capabilities through the following functions:

- Maintain lot names when part numbers change

- Split and merge lots

- Update lot names, routings and quantity

- Manage bonus lots

- Model co-products

Depending on business models, OSFM can be used in automated shop floor environments as well as in interactive systems that require manual interventions. Leveraging the Oracle Applications Internet computing architecture, OSFM provides user friendly, browser based interfaces.

Figure: 3 Manage Complex Lot Transactions

Collaborative Manufacturing

OSFM allows outsourcing of manufacturing operations by providing the ability to ship partially finished chips for outside processing to other vendors. Embedded workflows in outside processing allow automatically transmitted notifications to key personnel at important predefined events via email. A typical example of this could be a notification to a shipping manager, as soon as partially finished goods are ready

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to be shipped. The notification could also include data, which helps a shipping manager in organizing a suitable mode of transport.

The outside processing workflows also provide a real time, enhanced graphical view of the entire notification and approval process showing how far the business process has progressed.

Capturing and acting on Quality data

OSFM along with Oracle Quality provides the ability define quality collection plans and collect quality data. It provides collection triggers with collection plans, allowing the collection of general or specific quality data during the manufacturing process. By using quality actions such as "place a job on hold" or "launch a workflow" in collection plans, problems are detected early and can be acted upon them immediately.

Complete traceability of shipped product through lot/Serial genealogy

Proactive customer responsiveness to product quality issues is a function of tracing raw materials and lots through manufacturing processes. Unlike traditional manufacturing environments that have limited capabilities of tracing finished goods from raw material at the ERP level, OSFM provides complete lot/serial genealogy for backward and forward visibility across the enterprise. A user-friendly graphical genealogy interface not only provides the linkages between the parent and the child lots but also provide details of all the manufacturing operations and material transactions done during the manufacturing process. Product defects therefore can be quickly traced to lots and processes. OSFM also helps in the identification of affected lots (forward explosion) so that customers can be proactively notified. By leveraging OSFM generated information, processes can also be improved across a multi-location-manufacturing environment.
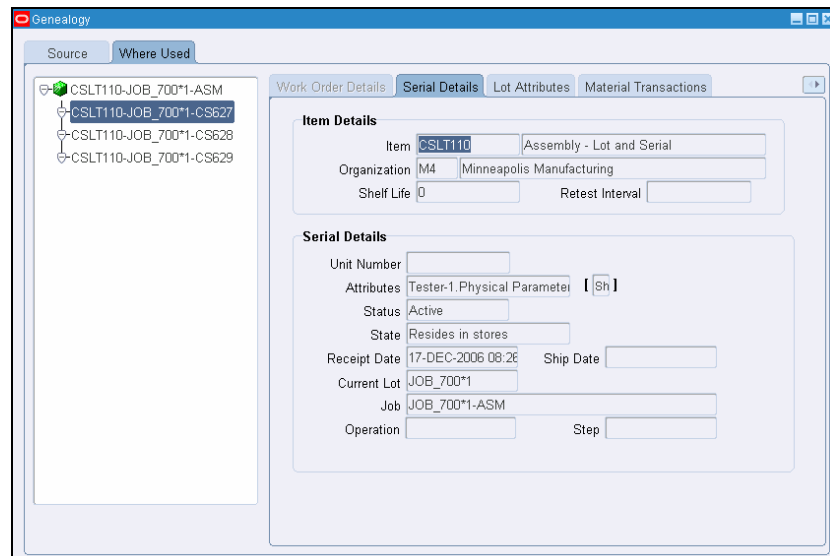

Figure: 4 Lot and Serial Genealogy

Driving product profitability by visibility into yielded cost and costs at operational points

Product and customer profitability are difficult to measure as cost drivers and

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Deploying OSFM helps you
to achieve the following:

- Improved productivity and
  efficiency
- Increased shop floor
  visibility
- Comprehensive Flexibility
  in manufacturing
  execution

RELATED PRODUCTS:

- Discrete Manufacturing
  - Work in Process
  - Quality Management
  - Inventory
  - Bills of Material
  - Cost Management
- Advanced Planning and
  Scheduling
- Procurement
- Order Management

relevant costs are hidden in existing systems. Business planning and evaluation of performance against plan are complex because cost data is not available at the right level, at the right time with the appropriate level of accuracy. Existing profitability and performance measurement systems do not take into account the cost of scrapped material. OSFM allows users to specify expected product yield at an operation determining the "true" yielded cost of a product. By capturing actual scrap at operations, OSFM provides critical variance data at an operation level. The resulting cost visibility enables competitive pricing driven by accurate margin analysis.

Scalability

OSFM satisfies the unique requirements of a large spectrum of manufacturers across the manufacturing industry. Its users could range from large established manufacturers with multiple sites across the globe to rapidly growing start- ups with products still in the prototype stage. OSFM also meets the requirements for companies who outsource 100% or part of their manufacturing operations.

Conclusion

OSFM is a comprehensive web-based solution which manages dispatch lists, complex shop floor lot/serial transactions, generates electronic lot travelers, enables dynamic routings, provides 'end to end' genealogy of products, and models/ tracks operation yield costs. As a part of Oracle E-Business Suite, OSFM bridges the gap between Oracle Manufacturing and third party MES systems by leveraging critical shop floor information for enterprise wide activities. It enables comprehensive flexibility in manufacturing execution and visibility for each lot or lot/serial end item on the shop floor combining manufacturing excellence with customer responsiveness. Vertically integrated industries and virtual factories, characterized by product liability issues, high value added manufacturing cycles, manufacturing yield and profitability focus, can benefit significantly from OSFM.

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