Priority for Factory Modelling

WHY CHOOSE PRIORITY?

WORLD'S MOST CONFIGURABLE ERP
√ tailor fields, screens, menus, reports, stationery
√ drag and drop workflows
√ business rules, automated data entry, automated repetitive tasks

CHOICE OF HOSTING
√ on-premise or cloud hosted

MIXED PLATFORM
√ any mix of PCs, Macs, tablets and smartphones

MOBILE
√ fast enough to run over cellphone networks

INTEGRATED CRM
√ built-in CRM provides full interaction with ERP
√ full interaction with MS Office and Gmail suites

BREADTH OF MODULES
√ functionality to support many industries in the same system

DEPTH OF FUNCTIONALITY
√ detailed features for the most demanding of users

INTEGRATION/TRACEABILITY
√ interaction between each part of the system
√ drilldown to all related records

EASY TO INTERFACE
√ strong API to connect to other software

EXPERIENCE
√ 30 years of development
√ 7,000 implementations

Revision control at part and BOM level

Raw material requirements can be based on mathematical functions, not just quantities

Define work cells for physical location traceability and planning

Schedule tool usage separately from operations

Finite and infinite capacity planning

Factory modelling encompasses all the definitions required for management of production in general and production planning (finite- and infinite-capacity scheduling) in particular: parts, the operations performed upon them, the work cell in which each operation is carried out, and the routing of each part.

Most of the definitions required for parts can also be specified in the Inventory module, which may be more convenient for users in a non-manufacturing setting. For details, see Section 8.1 – Part Catalogue and Part Management.

Priority distinguishes between the part's bill of materials (BOM) and its routing:

- The BOM mainly refers to quantitative relationships between the parent part and its child parts, as well as the operation in the parent's routing at which the child part is needed. One of *Priority*'s user-friendly features is its enhanced Part Explorer, which graphically displays the BOM for any part: by clicking on a part in the display, its child parts are displayed in a hierarchical format.

- In contrast, the *routing*, which can be shared by several parts, refers to the specific operations executed on the part, as well as the work cells in which these operations are carried out. Required production resources and other parameters can be determined at the level of either the routing or the part.
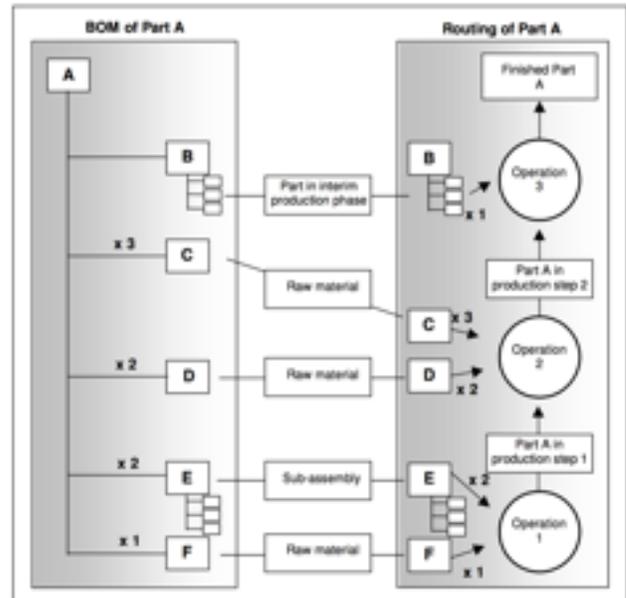
Parts

Priority requires the definition of various attributes for each processed part, including parameters affecting production planning and control:
- **Part type** – raw material, processed part or *other* (a classification primarily reserved for non-standard parts).• Kit components (for issue to a kit).
- **Phantom parts** – The system identifies and skips over phantoms, referring directly to their child parts. No inventory is maintained for phantoms.
- **Alternate parts**, i.e., parts that can substitute for another part. An alternate part can be used (during material requirements planning or production planning) to resolve problems of material shortages. *Priority* provides the tools for precise control of alternate part usage; you can designate Part A as an alternate for Part B only when the parent is Part C.
- **Lead times** for purchased parts; production time (both for machinery and labor) for processed parts.
- **Bill of materials** and **revisions**

- **Engineering Change Orders (ECO)**
- **Part routing**
- **Operations** (steps) executed on the part
- **Work cells**.
- **Tooling** required during production.
- **Bar codes** (which can be input via bar-code readers). These can be printed on labels, using *Priority*'s labeling mechanism.
- **Production planning parameters** – quantities to process, production time, set-ups, scrap.
- **Documentation**: specifications, blueprints, diagrams, procedures, instructions for production.

Bills of Materials and Revisions

Priority supports multi-level bills of materials, with an unlimited number of levels and an unlimited number of child parts at each level.

Bills of material are created by defining each level separately, i.e., defining the relationship of the parent part to its direct children. This allows for the creation of easy-to-manage BOMs with an infinite number of levels. You can even include child parts for informative use, which are not taken into account by the Backflush, MRP or production planning.

The quantitative relationship between a child and parent part can be defined as a constant (e.g., four legs to one table) or as a variable (e.g., the quantity of paint needed for the table is a function of its area).

The parent-child relationship defines the operation (step) in the parent's routing at which the child part is required, as well as the production step at which the child part is used (relevant when the child part is used before it is fully processed).

You can specify the coordinates of each child's physical location in the construction of its parent part (i.e., X, Y, Z), as well as designate the position label or symbol (e.g., C15, R1 in an electronic circuit).

Construction of a bill of material is quick and easy, supported by utilities for copying and revising existing BOMs. *Priority* also provides an easy-to-read graphic representation of the BOM and supports the maintenance of a variety of engineering revisions for it.

You can maintain revisions both of the parts themselves and their BOMs. For each revision, an effect date and procedure for authorizing the revision are designated. MRP (materials requirement planning) and finite capacity scheduling are always run for the revision that is currently in effect. If work orders are created for the part, revisions will be maintained for each work order.

Engineering Change Orders (ECO)

The system allows you to track engineering changes that were made during production of a part. For each change you can document details of the change, the date of the change, parts that have been changed as a result, and the like. You can also link part revisions and BOM revisions to engineering changes. The system tracks those revisions that have been influenced by the change, as well as work orders that have been opened in accordance with these revisions.

Part Routings

Each part has a single routing, i.e., a unique set of operations executed in a predefined order. There are a number of advantages to defining a routing:

- It enables you to link child parts to their parents at a given operation, thereby generating production demands in keeping with the progress of the manufacturing process.

- It facilitates tracking of WIP by allowing you to report each phase of production (operation) separately.

- It precludes the need to create a sequence of part numbers used merely as indicators of the production step.

- The same routing can be assigned to various parts – even if they have different BOMs or other attributes. The system includes a number of predefined routings, such as a fictive routing for a phantom, an issue routing for raw materials, and an assembly routing for warehouse assemblies.

Operations

Each part routing consists of one or more operations. Each operation is executed within a work cell and is contingent upon the availability of production resources that may also be needed for other operations performed at the same work cell.

An operation can be included in the routing of more than one part.

The relationships between a part and the operations executed upon it are determined by a number of parameters taken into consideration during MRP or production planning.

You can define alternate operations, which are often used in production planning to speed up production by relieving the load on the work cell at which the main operations are executed.
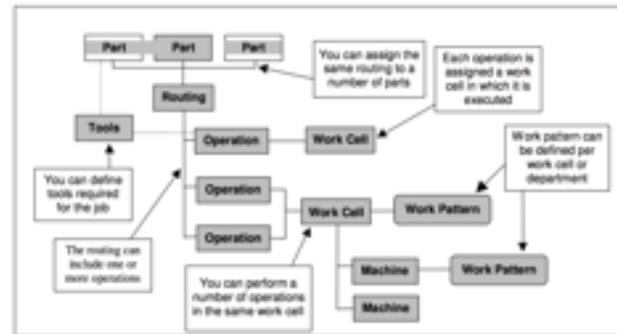
Work Cells

A work cell represents a machine or group of machines that functions as a production resource and belongs to a given department. This resource is constrained by a work pattern – a timetable defined in terms of shifts, work days and work hours – and work exceptions – deviations from that timetable caused by a shut-down of the work cell, holidays, unplanned extra hours and the like. Work patterns and exceptions can be assigned to an entire department or to specific work cells.

Production planning is run per work cell, taking into account its work calendar, the number of (identical) machines it includes, required set-up operations, whether it has finite or infinite capacity, and so forth. Work cells are also included in the work plan you can generate by MRP.

You can designate alternate work cells, which serve to relieve workloads (by replacing or supplementing the main work cell) during production planning. An alternate work cell consists of the same machines performing the same operations, but with independent work calendars.

When production is carried out by a subcontractor, the latter is assigned a work cell that is treated like all others, including the designation of operations executed by the subcontractor.

Tools

A tool is a production resource lacking a specific work schedule that is required to execute an operation. Production planning schedules the use of tools whenever necessary, provided the tool is not out-of-service (e.g., undergoing repair), is available for use (its manufacture is complete or it has been received from the vendor), and is not in use on another job.

Tooling constraints are defined when there are more work cells than available tools. When there are multiple quantities of the same tool, one is defined as the main tool and the rest are defined as alternates.

Production Planning Parameters

A number of parameters are defined for use by the production planning utility (finite- and infinite-capacity scheduling). These may be defined not only by a factory-wide constant, but also per work cell, operation and/or part (depending on the context). They include:
- Production Quantities
- Process batch quantity (in units of the part)
- Work order size (in process batches)
- Campaign size (in number of work orders)
- Minimum production size (in process batches)
- Transfer batch quantity (in process batches)
- Excess inventory (rounding quantities to the nearest process batch, work

order size, campaign size or minimum production size).
- Production Time (in minutes)
- Standard time of execution
- Employee time
- Waiting time
- Load and unload time (for non-conditional set-ups)
- Conditional set-ups before and after operations (mount and dismount)
- Dictated by the work cell
- Operation-dependent
- Part-dependent
- Required by a change in lot
- Required by a change in raw materials
- Tool-dependent
- Scrap (a percentage)
- When a given operation is performed on the part
- When a child part is joined to its parent.

Factory Modelling Reports

Part Reports
- Parts
- Part Parameters
- Part List with Purchasing Specs
- Parts per Work Cell
- Parts per Operation
- Alternate Parts
- Part Routing
- Purchasing Specs per Part
- Parts in Families
- Remarks per Part

Bill of Materials Reports
- Part Explorer
- Single-level Bill of Materials
- Single-level BOM w/Designations
- Where Used
- Where Used–Top-level Assembly
- Bill of Materials with Routing
- Multi-level Bill of Materials
- Multi-level BOM Graph

- Indented Bill of Materials
- Indented BOM w/Engineering Data
- Full Indented BOM w/Eng. Data
- Comparison of BOM Revisions

Process Parameters and Set-up Reports
- Processing Parameters per Part
- Set-ups per Part
- Part Specifications per Set-up

Tool Reports
- Tools
- Tool Usage
- Tools for the Part
- Alternate Tools

Work Cell Reports
- Work Cells in Department
- Set-ups per Work Cell
- Alternate Work Cells
- Operations per Work Cell
- Parts per Work Cell
- Work Pattern Timetable
- Work Exception Timetable
- Work Cells Exceptions
- Work Cell Exceptions (Detailed)
- Work Cells per Work Exception
- Department Exceptions (Detailed)

Operation and Routing Reports
- Operations
- Operations per Work Cell
- Routines per Operation
- Parts per Operation
- Processing Param. per Operation
- Set-ups per Operation
- Oper. Specifications per Set-up
- Alternate Operations
- Skilled Labor per Operation
- Operations in Routing
- Parts per Routing