Jargon Buster

Introduction

Any group of people will develop shorthand ways of talking about things that they are familiar with. This jargon can be confusing to others at best and positively off-putting at worst. I will attempt to de-mystify this jargon from the world of business planning and control, ERP, MRP, JIT, TQ and related areas. Having had my jargon buster in the public domain now for seven years, my view is that if a term or abbreviation to do with MRP, ERP, JIT or TQ is not in this jargon buster you should tell whoever is using the jargon to stop confusing people and stick to words and acronyms that people understand! There will, of course, be new acronyms from time to time but they have to add something to the industry. This may sound arrogant but someone has to say it!

A

ABC Code - Classification of parts by value. "A" class parts are the highest value and "C" parts the lowest. Typically "A" class parts contain 80% of the total stock value (e.g. annual demand or use multiplied by cost) but represent only 20% of the quantity. "A" class plus "B" class parts typically amount to 95% of the stock value. "C" class parts are the remaining parts, there may be many of them but little cost.

ABCD Checklist - A way to benchmark a company's planning and control processes using MRP Ltd's 20 point checklist (see www.bpic.co.uk/abcd.htm). If a company scores 18 out of the 20 points on the checklist it is awarded Class "A" status.

Abnormal Demand Filter - A program feature that automatically detects customer orders that are abnormally large and not forecast. Abnormal Demand Filters are used to avoid abnormal orders unwittingly consuming the forecast for "normal", forecast orders (see also Demand management).

Action Date - Day the next action on a part has to take place.

Activity Based Costing (ABC) - The allocation of indirect costs against the activities that caused them, an accounting technique that can more accurately reflect indirect costs and cost improvements than traditional standard costing.

Advanced Planning and Scheduling (APS) - to qualify as an advanced planning and scheduling system, the software must be a full function ERP or MRP II package and also include finite capacity scheduling and the ability to simulate the effect of changes of schedules by listing the exception messages that the change would produce at every level in the bill of material. Often present in APS is the ability to automatically select alternative material or sources to optimise plans and the ability to optimise where there are multiple constraints, e.g. optimise labour and equipment. Some finite scheduling packages are claiming APS but they do not have full MRPII functionality in which case they must fully integrate with an MRPII package.

Aggregate Inventory Management - see family

Allocation - The process of reserving on hand stock for customer orders or future works orders that have been Released but not yet had their material removed from stock.

Anticipated Delay Report - Formal notification that a work order or purchase order might miss its due date.

Available to promise (ATP) - Stock or planned stock not committed to a firm customer order. ATP is shown on the Master Schedule and is used to make delivery promises to customers. It is calculated by subtracting from each point of supply (master schedule receipt) actual customer's orders up to the next point of supply. The quantity on hand is added to or taken as a point of supply for the first time period. Negative quantities are carried back to earlier weeks. We do not recommend accumulating available to promise.

Available Hours - The multiplication of the shift hours, machine (or operator) hours and working days for a Work Centre.

Available Stock - see stock

B

Backflush - Automatic deduction of the parts used on an assembly from stock triggered by the Release (pre-deduct), progress (synchro deduct) or completion (post deduct) of a works order. Unless there is an exceptionally high level of data accuracy, scrap reporting and stock discipline, backflushing leads to inaccurate stock records so is not recommended except when used in conjunction with kanbans.

Backup - A copy of the computer files kept in a safe place, usually away from the computer, for use in the event of the main files being lost or destroyed.

Back Scheduling - Some programs have an option to base the scheduling of orders on the Dynamic Lead Time rather than the fixed Lead Time in the Item Master File (see Window Scheduling). Back Scheduling is also used to calculate the individual operation start dates based on the work order due date and operation times shown in the routing.

Balanced Scorecard - Performance measure that balances the internal (company) and external (customer) against finances, innovation and learning.

Batch Size - see Order Quantity.

Bench mark - Comparison of a one or more aspect of a Company's performance against the best in its own or other relevant industry sector.

Bill of Material (BOM) - The list of the components necessary to make a part or product and the amount of each component required. In some industries this may be referred to as a recipe or formula but should include everything which is consumed in the manufacture of the part or product.

Bill of Resources - A list of some or all of the Critical Resources necessary to make an end Item. This is usually applied to the Master Schedule quantities for Rough Cut Capacity Planning.

Big Bang - An implementation strategy that cuts over all parts of a planning system at the same time in a company or division, as opposed to a phased implementation module by module. We strongly recommend a big bang (we call it a cut-over) due to the interdependence of all modules. It would be possible, for instance, to draw up a bill of material that is adequate only for either finance, planning, manufacturing or design but not for them all. The challenge is to implement an enterprise wide system that everyone can use from the start.

Blow Through - When a Phantom or Pseudo is found in the preparation of a kit picking list the parts needed to make the phantom or pseudo (less any phantom parts found in stock) are "blown through" to the kit.

Bottom-Up Re-Planning (BURPing) - The process of fixing a material or capacity problem at the lowest possible level by working back up the Bill of Material to the source of the demands.

BPIC - The Business Performance Improvement Consultancy - the best source of advice to help you improve your business performance through the better planning and control of your manufacturing processes! See http://www.bpic.co.uk.

Brand Name Kanban - Kanban authority to move or produce a specific part number (see Generic Kanban).

Bucket - A time period (e.g. a day or a week) in which all demands or requirements are added together and treated as one

Bucketless - All demands for a part keep their individual date identity and so can be traced back to their original source of demand through a pegging report, essential for bottom up re-planning.

Buffer Stock - see Safety Stock

Bulk Issue - Components that are used in the manufacture of a product but issued in bulk rather than against specific work orders. Bulk issue items should be put on the bill of material for costing, quality, safety and control purposes.

Business Excellence (BE) - The collection of current best practice techniques in manufacturing planning and control including MRPII, ERP, JIT, TQ and lean manufacturing as taught by BPIC. Business Excellence is also the title of the book covering these techniques by Phil Robinson. A number of institutes in Europe have developed the total quality part of current best practice into what is called the "European Business Excellence Model" although as far as I know there is no one "official" definition

Business Plan - The strategic top level plan or budget expressed in financial terms looking forward at least one year, often five years or more. The first year is frequently used for the monthly budget. The business plan should be implemented using Sales and Operations Planning.

Business Process Re-engineering (BPR) - Just in Time techniques applied to administration areas with particular emphasis on laying out the work flow by process and breaking down the traditional functional barriers between sales, planning, manufacturing and accounts. When Business Process Re-engineering is combined with manufacturing Just in Time ideas the result is a Focused Factory.

C

Capable to Promise (CTP) - Used at order entry by an engineer to order company to check resources prior to making a delivery promise.

Capacity Requirements Planning (CRP) - The process which determines the amount of labour and/or equipment resource required each day or week to meet the planned level of business at each Work Centre. The amount of resource is defined in the routings.

Cell Manufacture - see Group Technology.

Class "A" - Award given to a Company that has been assessed as achieving eighteen out of twenty Business Excellence criteria defined by the ABCD Checklist.

Collaborative Planning, Forecasting and Replenishment (CPFR) - Companies in a supply chain getting together to forecast and plan requirements. Don't ask me why such an acronym is needed!

Component - Part needed to make a Parent item as shown on its Bill of Material.

Computer Aided Design (CAD) - Use of a computer to aid in the design and/or production of drawings of parts.

Computer Integrated Manufacturing (CIM) - The use of computers for manufacturing planning and/or computer aided design. The CIM acronym has also been used for "computers in manufacturing" and "continuous improvement methods".

Configurator - Software tool to simplify order entry when a product may be sold with a number of features and options. When used with Planning Bills of Material and two level master scheduling, configurators can significantly improve customer service levels.

Consignment Stock - Stock only paid for when it is used. Consignment stock should change nothing except cash flow. Holding any more stock than is necessary is always inefficient whether it is consignment stock or not.

Control Group Cycle Counting - A sample of parts, usually 100, counted every week usually 20 parts per day, to detect problems with the stock recording process.

Consumable Stock - Stock that is held and often issued in bulk and may not be associated with a specific end product (see also Bulk Issue).

Continuous Improvement - (see Just in Time).

Critical Resource - Any resource that could limit the Company's ability to accept an order from a customer is a Critical Resource. Frequently this is final assembly labour or equipment but could include the capacity of earlier processes or even a supplier's capabilities.

Cumulative Lead Time - The total time required to make a part assuming there is no stock of any of its components including the time to purchased any components required.

Customer Relationship Management (CRM) - In additional to all the usual customer care principles, CRM includes the storing of customer information in a database (or data warehouse) and using the information in a way that improves the customer's "experience". Ideally this information is integrated into operational processes.

Cycle Count - A planned or routine check that the quantity of parts in stock agree with the figures on the computer (see also Process Control Cycle Counting).

Default - Assumed entry in a computer screen field unless or until another entry has

D

been made.

Dekit - Return of parts issued on a work order back to stock when the work order has been cancelled.

Demand Management - A process for managing customer demand by forecasting requirements and either making delivery promises based on the quantity of product available to promise and consuming the forecast for forecasted orders or recognising the demand is abnormal (i.e. not forecast). Abnormal demand has to be referred to the planner who will do the best he or she can to cover the demand without jeopardising forecast orders.

Demonstrated Capacity - The output consistently achieved from a fully loaded Work Centre working normal hours, often, but not necessarily, measured in standard hours. Demonstrated Capacity must be based on output history for a work centre (see Input Output Control).

Dependant Demand - Demand passed down by the MRP process from the parent(s) of the part to a lower level master schedule item in the bill of material (see also Projected Gross Requirements).

Dependant Forecast - A sales forecast passed down from the parent of a part when using Configurators and Planning Bills of Material. The Dependant Forecast is the Available to Promise of the parent multiplied by the popularity of that option set up in the planning bill of material.

Design for Manufacturability (DFM or DFMA) - The systematic evaluation of a new product design that minimises critical manufacturing operations. Positive feedback of manufacturing problems is an essential element of Design for Manufacture.

Distribution Resource Planning (DRP) - Planning of stock at distribution centres by a central location based on the forecast requirements of the individual centres exploded by MRP logic down to the centre.

Due Date - The date held on the computer for when an open purchase order or works order is due into stock.

Dynamic Lead Time - The lead time for a part calculated by the computer based on the operation times in the routing.

E

Economic Order Quantity (EOQ) - The theoretical optimum Order Quantity assuming throughput, Set up Time and stock holding cost are known and fixed (which they seldom are).

Efficient consumer response (ECR) - Improving product introduction, promotion, replenishment and storage of goods throughout the supply chain to increase customer service. Mainly applied to fast moving consumer goods.

Electronic Data Interchange (EDI) - An electronic data transfer protocol for data transferred from computer to computer normally via the national telephone system.

Emergency Time Fence - see Time Fence.

End Item - A finished product that can be sold to a customer. Often called a Stock Keeping Unit (SKU) in fast moving consumer goods (FMCG) industries.

Enterprise Resource Planning (ERP) - Manufacturing Resource Planning (MRPII) plus resource planning for the non-manufacturing areas such as plant maintenance, human resource planning etc.

European Business Excellence Model - see Business Excellence

European Framework for Quality Management (EFQM) - A Brussles based "not for profit" organisation to help European businesses make better products and deliver better service. The organisation works along the lines of the USA Baldridge model and the Japanese Deming award promoting Total Quality principles.

Exception Message - Message from the planning system to highlight the need to take action such as release an order or to draw the planners attention to a problem with stock level or due dates on firm planned or released works orders.

Excess Stock - Stock in excess of all actual plus forecast demand.

Expedite - To manually check the status of a released purchase order or works order usually to try to influence priorities. The necessity for expediting indicates the need to improve the planning process.

Explosion - Computer calculation of the requirement for the components of a part based on its bill of material.

External Set-up Time - Time needed to change a tool or fixture from one job to another that can be carried out whilst the machine is still in production (see also Internal Set-up Time).

F

Failure Mode and Effect Analysis (FMEA) - The systematic examination of the way a product could fail and the effect of such failures to enable the risk and cost of failures to be reduced.

Family - The highest level aggregation of End Items where all end items within the Family require similar Critical Resources, can be forecast and make a similar contribution to profit. Dividing the product range into no more than 20 families is an essential part of Sales and Operations Planning. If no division of the product can satisfy all three of the above criterion, sub-families may be used to forecast, check critical resources or monetarise the plan.

Fences - see Time Fences.

Field - A piece of information held in the computer or a space on an input screen.

Fill Rate - The percentage of orders that can be met by available stock at the time the order was placed. Used for items that are planned to be made to stock.

Filter - A way for the computer to check for unusual or particular entries. Filters can be used to check what is entered in a particular field (e.g. ensure that only numeric values or dates are entered), to print reports if pre-set conditions have been met (e.g. to highlight Abnormal Demand, print Exception messages only in particular cases etc.). Any filtering of exception messages is a bad practice; the causes of the exception messages should be fixed not the symptoms.

Finite Capacity Planning - Computer controlled re-scheduling of works orders based on pre-set capacity resource levels and fixed scheduling rules. Any automated, computer based re-scheduling is a bad practice as customer service could suffer (see infinite capacity planning).

Finite Capacity Scheduling - Computer assisted way to schedule work in a defined sequence. Finite Capacity Scheduling is often used to group similar materials, schedule colours, e.g. from light to dark, to minimise change-over times. Instead of holding only one set-up time for a job, the software holds a table of set-up times between jobs. This technique is only of value to companies where the sequence jobs are run in is important and subject to rapid change. The alternative is good master scheduling.

Firm Planned Order (FPO) - An order which is treated as a planned order for the MRP calculation but one that will not be changed, either in date or quantity, by the computer. Firm Planned Orders are raised manually and used for master production scheduling and to override the computer settings of order quantity, lead times and safety stock, usually to overcome material or capacity problems.

Firm Time Fence - see Time Fence.

First-in, First-out (FIFO) - Stock rotation that issues the material which has been in stock the longest. Stock should be valued on the same basis.

First Pick Ratio see fill rate

Fishbone Diagram - A problem solving tool using a diagram to illustrates the problem. The head of the fish is the problem and the “bones” of the fish represent symptoms divided into different categories typically methods, materials, machines and people.

Fixed Order Quantity - see Order Quantity

Flexibility - A measure of the ability of a Company to respond to changes in demand. Direct labour Flexibility is the number of direct operators multiplied by the number of families of products each is trained to work on divided by the number of direct operators multiplied by the number of families. The Flexibility of an indirect department is measured in the same way except substituting the jobs in the department for the families in the above calculation. Increasing Flexibility is the key to increasing customer responsiveness where demand is variable.

Focused Factory - Manufacturing carried out in self-contained production process focused groups, usually including some administrative functions such as order entry. A Focused Factories is sometimes called a "factory within a factory"

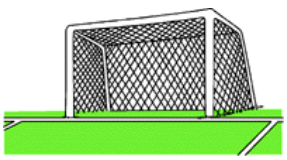
Forecast - see Sales Forecast.

Free Stock - Stock on hand not allocated to a future shop or customer order.

G

General Ledger No. (G/L No.) - A reference number to enable cost information to be allocated.

Generic Kanban - Kanban authorisation to move or produce, where what to start or move is determined by a non-kanban method such as a work to List (see Brand Name Kanban).



Global - Values (or Parameters) that apply to the whole system.

Goal - Statement of intent for the direction of the business.

Goods Received Note (GRN) - A document produced when goods are received into the factory. It will usually accompany goods to any inspection and is used to check against invoices before payment.

Gross Requirements - The summation of all dependant (MRP generated) and independent (customer generated) requirements.

Group Technology (GT) - A cell or group of people with a high level of cross training so that they are able to produce a complete product or assembly. The cell is considered as one Work Centre for capacity planning purposes.

GUS classification - A classification of products where "G" (general) parts are used on several products and purchased in bulk or against a schedule, "U" (Unique) parts are likely to be used once only. "S" (Specific) parts are purchased against specific higher level demand.

Independent Demand - Demand for a part not generated by the MRP explosion. Typically it will be actual or forecast customer orders or spares requirements.

I

Infinite Capacity Planning - Material and capacity planning which is not constrained by any theoretical capacity restraints. Action to overcome any over-capacity situations is under the manual control of the planner using Bottom Up Re-Planning.

Input Output Control - A scheduling and capacity monitoring technique where the required load (input) is compared with the historical production (output) using the same basis for comparison, the essential feedback of Demonstrated Capacity.

Internal Set-up Time - The average time lost changing equipment from the last component of the previous works to the first good part of the next works order. Time spent on change over that can be carried out when the equipment is in production is called External Set-up Time

Inventory - see Stock.

Inventory Turns see Stock Turns

Issue List - (see Kit list).

Item Master File - The computer's record of all fixed information about a part number. It must include the lead time, order quantity and safety stock as well as the part's description, cost, type of part and sorting codes. The file may have a different name such as Material Master File in different systems.

J

Just in Time (JIT) - The progressive reduction of wasteful activities i.e. anything that adds cost but not value to the end product. Examples of this waste include any production or delivery in excess of requirements, movement of parts and inspection that is not integrated into the process. JIT is a large component of Lean Manufacturing.

K

Kaizen - Continuous improvement by small changes. Kaizen also implies the sharing of the improvements with others. (Kaizen is a Japanese word which is composed of the characters 'kai' to alter, renew, reform and 'zen' good; so together they mean "reforming to make better" or "improvement").

Kanban - Authority to move or produce a part based on its usage in the next stage of the supply chain. The authority is typically in the form of an allocated space on the floor, bench or rack, an empty container or a card (Kanban is a Japanese word meaning Signpost).

Kitting - The act of extracting (or "picking") parts from stock that are required for a released works order.

Kit Picking List - Computer generated list or kit of the parts needed for a works order. Parts will have been allocated to the works order by the act of Releasing the order.

Lead Time - The uninterrupted time needed to manufacture a part under normal circumstances, or the time

L

required by a vendor to supply an item to their customer. The manufacturing Lead Time should be the same as or similar to the sum of the times for the process steps in the routing for the most usual order quantity.

Lead Time Offset - The normal logic of Material Requirements Planning assumes that all the components of a part are required at the release date for any planned or firm planned orders of the parent. The need date for a component may be delayed by adding a Lead Time Offset to the component part in its bill of material. This is useful where parts are bulky, expensive or delicate but does mean that, when the Lead Time of the parent is changed, the Lead Time Offset must be checked. A Lead Time Offset also means that when a works order is released it will not be possible to check the availability of any parts with a Lead Time Offset. Lead Time Offset may also be used to offset capacity requirements for Rough Cut Capacity Planning.

Lean Manufacturing - Amalgamation of Just in Time, Kaizen and Total Quality ideas leading towards zero paper, zero inventory, zero downtime, zero defects, and zero delays in design, manufacture and distribution.

Leeway - Some systems will not re-schedule planned orders when the difference between the need date and the due date is less than the Leeway (we do not recommend you use the leeway function).

Level Codes - Each level in a bill of material is given a level code usually starting from level 0 as the top level end Item. Thus a single level bill of material consists of a parent and purchased components only. The setting of these Level Codes by the computer prior to each MRP run is referred to as "levelling".

Load Factor - The conversion of the available hours at a work centre into the work centre's capacity. It is calculated by dividing the demonstrated capacity by available hours. Some systems confusingly call this figure “efficiency”.

Location - the location reference for stock in multiple stock location systems.

Logical Device Number - The "address" used by the computer to identify a piece of equipment (e.g. printer, terminal etc.).

Lot size - see Order Quantity.

Lot for Lot - An order policy that tells the computer to plan the exact quantity needed in each time period.

Manufacturing Resource Planning (MRP II) - The integrated planning of a company's material, equipment and people to meet the Business Plan. The integration requires that the same information (sales forecast, bill of material, actual orders etc.) is used throughout the Company.

M

Mask - The automatic formatting of an entry into a computer screen field.

Master Production Scheduling (MPS) - The planning of production (usually End Item production) to satisfy current and forecast orders. The sum of all Family MPS items must equal the agreed Sales and Operations Plan for that family over each planning period (normally a month or 4 week period). The MPS report includes an Available to Promise figure to enable realistic, achievable delivery promises to be made to customers. Items planned at the MPS level are exploded by MRP to produce the detail material and capacity requirements. Orders should be Firm Planned Orders at least as far as the Cumulative Lead Time.

Material Requirements Planning (MRP) - The time phased explosion of the material requirements based on the Bill of Materials, lead times, Order Quantities and Safety Stocks to determine what to make or buy and when. MRP should be driven by the master production schedule. The same calculation drives the capacity requirements plan.

Maximum Capacity - The maximum capacity that can be loaded onto a Work Centre based on one or more agreed courses of action (e.g. overtime, additional shifts etc.).

Milestones - Achievable short term Targets at which it is possible to evaluate progress towards a final Objective.

Mouse - Hand control device to position the cursor or pointer on the computer screen.

Multiple - see Order Quantity.

N

Need Date - The date the planning system calculates a purchase or works order is required to be received into stock.

Nettable Location - Any location where the parts can be counted as part of the available stock for MRP calculations. (Non-Nettable locations are ignored in MRP calculations).

Nominal Group Technique - A particular form of brainstorming that helps team participation. Stages in the technique include problem clarification, silent idea generation, round robin idea collection, grouping and ranking.

Number of Days Supply - Used to determine the number of days of future requirements used in the Period Order Quantity calculation.

Objectives - A set of specific intentions that fully describe the Business Goal.

O

On Hand - See Stock.

Operation Number - A sequential reference number given to each process step on a Routing.

Optimised Production Technique (OPT) - the management and planning of manufacturing based principally on the capacity of the bottlenecks, useful when there is a single bottleneck that does not change.

Order Point - see Re-order Point

Order Policy - The rule that the material requirements planning program uses to decide the quantity of a part to produce when the Projected Available Balance for the part goes below zero or the safety stock if there is one. The most popular and simplest order policies are Lot for Lot, a fixed Order Quantity or a Period Order Quantity.

Order Quantity - The batch quantity of a part that the computer will plan to be made at one time whenever the projected available balance for that part falls below zero or the safety stock if there is one. If more than the order quantity is required the computer will plan in multiples of the order quantity.

Over-Planning - A technique to maintain lead time for a wider variation of features and option when using a Planning Bill of Materials. The master schedule is deliberately overstated for the option parts between the emergency time fence and the planning time fence by up to the amount of the unconsumed sales forecast.

Overall Equipment Effectiveness (OEE)- OEE is a formula to give the overall performance of a single piece of equipment, or even an entire factory, governed by the cumulative impact of 3 factors, the equipment's availability

(percent of scheduled production time available), performance rate (percent of parts produced compared to standard) and quality (percent of sellable parts produced compared to parts started). As the formula is complicated it may be better in some cases to use the simple, easily understood elements of OEE as the performance measures.

Parameter - A value used to determine the way the computer operates. Examples are the number of digits that

P

can be entered into a field and the size of the time intervals.

Parent - A manufactured part with components shown on its bill of material.

Pareto Principle- the use of the fact that in many cases the majority (typically 80%) of results are due to a minority (typically 20%) of contributors. For example 80% of orders come from 20% of customers, 20% of parts have 80% of the value.

Part Number - Unique identifier for each and every part with the same form, fit and function. Current best practice, when using a software planning system, is to have a non-significant, all numeric part number that is as short as possible.

Past Due - Orders with a due date earlier than today. All past due orders on a planning system must be re-scheduled or they will give rise in wrong information on related and dependant parts.

Pegging - The name given to the facility to trace a demand for a part back to the source of that demand (works orders, sales forecast etc.). Also referred to as Drill Down.

Period Order Quantity - The determining of the Order Quantity based on the requirements for the part over a pre-determined number of days supply ahead, starting with bringing the first or current period to zero, or the safety stock if there is one.

Perpetual Stock Control- Stock records are updated and cycle counted at least daily.

Phantom - A sub-assembly not planned to be held in stock. A Phantom will appear on a bill of material but the kit picking list will show the parts needed to make the phantom (less any phantom parts that may be in stock) rather than the phantom itself. The software will not expect or need works orders to be raised for phantom parts. Phantoms are also called non-returnable assemblies and blow-throughs.

Picking - see Kitting.

Plan-Do-Check-Act (PDCA) - Scientific problem solving technique pioneered by Dr. Edwards W. Deming, the Total Quality consultant.

Planned Capacity - The load planned for a work centre. The Planned Capacity should be the same as the Demonstrated Capacity unless there is an approved plan of action in place (e.g. a change in the working hours or transfer of labour). Planned Capacity is the input for Input Output Control.

Planned Maintenance - see Total Preventative Maintenance

Planned Order - A work order or purchase order suggested by the computer to restore the projected available balance to zero or the safety stock level if there is one. Planned orders for manufactured parts are offset by the lead time and passed down to the projected gross requirements of all its component parts shown on the bill of material.

Planning Bill of Material - An artificial (Pseudo) bill of material used, for instance, to forecast the options of a family of products. The Planning Bill generally shows the common parts (as a pseudo part) and the forecasted mix of the available options, the forecast percentage popularity of each option being shown as a ratio on the planning bill of material. For example, an option that is forecast to be specified 35% of the time is shown as having a quantity per of 0.35 on the planning bill of material.

Planning Time Fence - see Time Fence.

Poka-Yoke - The design of equipment that will reduce or, if possible, eliminate the chance of mistakes (a Japanese word meaning fool proofing).

Process Control Cycle Counting - Cycle counting by location only those parts that are easy to count or obviously incorrect.

Production Control - see MRP

Projected Available Balance - The future calculated stock left after adding expected receipts (planned, firm planned and released purchase and works orders) and subtracting forecast and actual requirements (dependant and independent). Some systems call this available or projected stock.

Projected Gross Requirements - The future, expected demand for a part that originates from a higher level in the bill of material. Used in Material Requirements Planning.

Pseudo - A part number whose bill of material is a convenient collection of parts which can be used to simplify drawing or forecasting (see Planning Bills of Material). A Pseudo cannot be made on its own or held in stock. It is treated in the same way as a Phantom by the planning software. Different software packages give different names to this item such as sales bill, configured bill etc.

Pull Scheduling - Production scheduling based on the use or sale of the part. Usually used to describe a Kanban system.

Purchase Order - Request for the supply of a specific part from a supplier including a due date and quantity.

Push Scheduling - Production scheduled to meet forecasted and/or planned use or sale of a part. Usually used to describe “traditional” MRP scheduling.

Quality - see Total Quality

Quantity on Hand - Total of all Nettable stock for a part.

Q

Quality Function Deployment (QFD) - Product design and development technique that compares the fit between customer needs and product features.

Quarantine Stock - Stock shown as on hand but not available for use, frequently awaiting or failed inspection. Quarantine stock must be reviewed daily to avoid unexpected shortages.

Queue - Work-in-progress not being worked on but waiting for equipment or a process to be available.

Queue Compression - When the sum of the time required calculated from a routing (dynamic lead time) is not the same as the lead time on the item master file, the planning software should compress the queues to make the lead time the same for planning and tracking if window scheduling is being used.

Radio Frequency Identification (RFID) - When applied to a warehouse management system, RFID is the attachment of transponders to stock to automatically record stock movement.

Release - The act of releasing an order converts the order from a planned or firm planned order into a scheduled receipt. When a planned order is released the parts required are allocated against the order prior to kitting.

R

Re-order Point (ROP) - When the on hand stock falls below the re-order point a message is generated to prompt a replacement order to be raised. The re-order point is calculated using the time needed to replenish the stock based on historical usage and replacement lead times. Re-order points should not be used for material that is consumed in the manufacture of the product, MRP (Material Requirements Planning) is the correct technique.

Required Capacity - The computer calculated resources required at a work centre for a given time period based on the routing. The unit of measure, often standard hours, is defined in the routing.

Residual Forecast - see sales forecast.

Resource - The Company's available equipment or labour usually, but not always, measured in standard hours. For equipment the resource hours available must include the time needed both to set-up and run the equipment.

Resources in Progress (RIP) - The combination of work in progress and stock for a part. RIP can be used when a part is Backflushed and/or some part of the stock is held at the point of use.

Reverse Logistics - The logistics associated with the management of waste or used products. Reverse Logistics has become more important recently as governments have introduced legislation to reduce the dumping of waste so that companies have set up to re-use, re-cycle, repair, refurbish and/or re-manufacture what would previously have been dumped. Most of standard MRP II logic applies to reverse logistics although there is more emphasis on quality and variability issues.

Revision Level - The issue date or letter of engineering drawings.

Rough Cut Capacity Planning (RCCP) - The summation of the Critical Resources needed either for a Family in the Sales and Operations Plan or an end item in the master schedule. The required capacity should be compared with the demonstrated capacity to validate the plan.

Routable -see Phantom.

Routing by Walking About (RBWA) - A method of flow charting a process by walking the course taken to ensure what is charted is what actually happens.

Routing - A sequenced list of the operations needed to manufacture a part. A routing should include the amount of resource required at each work centre the part passes through. Tooling should also be included in a part's routing. Routing information must be held on the planning system for every manufactured part and used for capacity planning and costing.

Run Time - The Standard Hours needed to produce one item at an operation in the order quantity held on the part's item master file.

Runners - The term used for products produced most frequently ordered and manufactured.

5 Ss - Housekeeping improvement process based on the Japanese ideas of Seir (clear out unwanted material), Seiton (locate material correctly), Seiso (ensure workplace is thoroughly clean), Seiketso (arrange clean ups), Shitsuke (standardise first 4 Ss to ensure continuity).

S

Safety Stock - The level of Projected Available Balance that will trigger a planned order. Safety Stock enables you to offer shorter lead times to customers than the cumulative lead time or to provide more reliable supply where there are uncertainties in demand. Safety stock can also be used to cover uncertainty in supply such as unreliable machines, fluctuating yields, absence and poor suppliers.

Sales and Operations Planning (SOP or S&OP) - An agreed summary of the production level required for a product Family to meet the sales forecast and financial targets with the known Critical Resources. It is normally shown by month with three months of history and a forward projection beyond the longest period required to increase the critical resources. The level of production agreed is the authority for the level of production in the Master Production Schedule.

Sales Forecast - The best estimate by sales and/or marketing of future requirements used as the input to the Sales and Operations plan at the family level and/or as input to the Master Production Schedule at the Item level. All forecast orders received should be subtracted from the forecast to leave a residual forecast in the master schedule so that total demand is always calculated as orders plus residual forecast for each time period. Consuming the forecast in this way is an essential element of Demand Management.

Supervision Control and Data Acquisition (SCADA) - Software and/or equipment that collects information from a production unit either by monitoring devices on equipment or by manual input via bar codes and keyboards. Also known as shop floor data collection.

Scheduled Receipt - An open purchase order or a released works order for a part, with a due date and quantity.

Scrap - The unexpected loss of a completed part for any reason. In a true total quality environment there should not be an allowance for Scrap in the computer explosion of requirements as such an allowance "turns off the warning bells". If scrap is allowed for, some systems hold the information in the item master file, some in the bill of material. The projected gross requirements should be inflated by the Scrap allowance. If there are yield losses or shrinkage due to the nature of the manufacturing process, these losses should be allowed for in the explosion (see Yield).

Set-up Time - See Internal Set-up Time

Shop Order - see Works order

Shortage - A part not available for a released works order. Jobs should not be released with shortages without the approval of the appropriate operational manager.

Shrinkage Factor - the percentage of a part lost as a result of the process. A Shrinkage Factor is generally applied to all usage of a part and so is entered into the item master file. Yield, on the other hand, is generally applied to one use of a part and so is entered on the bill of material.

Silver Bullet - A 'one time' Kanban card or token that authorises a part to be made but which is not returned from the user back to the maker. Silver Bullets are used to inject a temporary increase in production into a kanban loop ahead of a shut down or a short term drop in requirements. Silver Bullets may also be used to 'plug a gap' whilst a problem is being investigated.

Six Sigma - A measurement of process quality. Sigma is the mathematical symbol for standard deviation. As an example, about 93% of all results from a normal population (i.e. results are equally distributed above and below the mean) fall within 3 standard deviations. The use of six sigma in a manufacturing situation means that the company uses all the total quality tools to improve a process so that the tolerances for the process is at or better than six standard deviations of the process spread. This would result in no more than 3.4 failures in 1 million units of production.

Standard Hours - The most usual unit of measure for capacity planning. Standard Hours can be converted into 'clock hours' using the load factor calculation.

Statistical Process Control (SPC) - The continuous monitoring and charting of a process while it is operating, to warn when the process is moving away from predetermined limits. Typically the upper and lower control limits will be three standard deviations away from the mean. All points outside the control limits should be investigated and corrected.

Stock - Part not being worked on, held at one or more specified locations. Stock is increased by receipts or returns and reduced by issues. Every stock item must have a unique part number.

Stock Keeping Unit (SKU) - see End Item.

Stock Turns - The rate of consumption of stock, measured by the number of days of forward stock cover, divided into the number of working days in the year. The most usual calculation is the value of raw material, work in progress, intermediate product and finished goods divided by the material value of the next year's sales forecast. A prerequisite is therefore accurate stock and work in progress data (98%), accurate bills of material (98%) and an agreed sales forecast used for manufacturing planning.

Strangers - The term used to describe parts or end Items that are not produced on a regular basis.

Structure - The name given to the way the bills of materials are drawn up. The bill of material structure includes the number of bill of material Levels and the use of Pseudos and Phantoms.

Supplier Managed Stock - Storage of material, generally held at the point of use, replenished by the supplier or vendor either at agreed intervals or monitored remotely. Supplier Managed Stock is the ideal way to manage the supply chain but it must be supported by a supplier schedule to maximise supply chain efficiency.

Supplier Schedules - A formal agreement for a supplier or vendor to supply parts over a period of time. A Supplier Schedule would normally include a period where the requirement is frozen, a period where some change is allowed and a period that is just for the supplier's planning purposes. All direct material should be on a supplier schedule, including material on Kanban and Supplier Managed stock, to improve the efficiency of the supply chain and so the minimise costs for suppliers and customers.

Supply Chain Management (SCM) There is no fundamental difference in principle between Supply Chain Management and Manufacturing Resource Planning. SCM is also used to refer to short cycle manufacturing, which is the manufacturing elements of Just in Time.

Target - A measurable event at a point in time that contributes to the achievement of an Objective.

Theory of Constraints (TOC) - Eli Goldratt's extension of his simple Optimised Production Technique where you manage just the bottleneck (described in his novel called "The Goal") to the management of all manufacturing

T

constraints.

Throughput Ratio - A key performance measure for a Company based on the ratio of Added Value (sales less material costs) divided by the sum of operating expense and the cost of holding stock.

Time Fence - A point in time where the planning rules change. An example is the Emergency Time Fence after which orders should only be changed in an emergency. In master production scheduling, the Planning or Firm Time Fence is the point before which the planning system will not raise planned orders, so that the planner is in control.

Total Preventative Maintenance (TPM) - The maximisation of equipment effectiveness by minimising unplanned stoppages. Maintenance is carried out to a pre-planned schedule, rather than waiting for the equipment to break down. Sometimes called Total Productive Maintenance particularly when production staff carry out the maintenance.

Total Quality (TQ) or Total Quality Management (TQM) - The culture of an organisation where continuous improvement is integrated into all activities with the objective of improving the quality of all business processes. Total quality tools include process charts, Pareto analysis, cause and effect diagrams, histograms, run diagrams, check sheets and statistical process control.

Tracking - The process of monitoring the progress of works orders through the operations shown on a routing. A culture of Anticipated Delay Reporting eliminates the need for time wasting tracking.

Transaction Log - The computer record of all MRP material movements. The better Transaction Logs also show changes to the data base with the name of the person who made the change.

Uniform Plant Load - Manufacturing planned to repeat a cycle of parts in the optimum sequence sometimes also called a campaign. The quantity of each of part in the sequence is adjusted to satisfy requirements.

U

Unit of Measure - The way stock is measured throughout the MRP system. A company should ideally only use 5 units of measure: each, a length (e.g. meters), area (e.g. square meters), volume (e.g. litres) and weight (e.g.kilograms). Additional Units of Measure (e.g. millimetres, centimetres, hundreds, boxes etc.) can lead to mistakes. It is important that a part's usage on the bill of material uses the same Unit of Measure as is used in the stock calculations. Some systems allow a different Unit of Measure for purchase orders and convert the quantity into the standard Unit of Measure for the MRP calculations but this can also lead to errors and confusion so is not recommended.

Variance - Difference between two figures, typically used to show the difference between actual costs and budget or "standard" costs.

V

Velocity - A measure of material flow time. An example of a velocity is longest time that elapses between a vendor being notified of a requirement for a part (or when a requirement for a part on a supplier schedule passes into the frozen portion of a supplier schedule) to the use of that part. Velocity can also be used the show the time that elapses between a part arriving at goods-in and leaving on a shipment to a customer.

Vendor Managed Inventory - see Supplier Managed Stock

Vendor Schedule - see Supplier Schedules

Water Beetle - The name given to the process of distributing parts to and between Kanban locations around a site on a regular basis.

Window Scheduling - The calculation of work order start and due dates based on the fixed lead time held in the item master file. Window Scheduling is used rather than Back Scheduling, which calculated the Dynamic Lead

W

Time from the routing for each works order, when batches of work will flow around the production area more or less in the same sequence so with approximately the same lead time. Back scheduling will result in different lead times depending on the quantity on the works order.

Work Centre - People or equipment (resources) which may be treated as one resource for capacity planning purposes. The capacity of the Work Centre should not normally be affected by the mix of work.

Work in Progress (WIP) - Parts being or about to be worked on. Work in Progress is increased by issues and decreased by the completion of works orders, the return of parts to stock or scrapping parts.

Work to List - The list of works orders that are either at or coming shortly to a work centre. The Work to List is used to decide the priorities according to the operation due date. As a minimum, the list shows the part number, the quantity required and the operation at that work centre in the date order they are required to leave the work centre.

Works Order - The authority to produce a part using the components specified on the bill of material and the process specified on the routing. The progress of requirements in an MRP system is as follows:

1. Planned order - controlled by the computer.
2. Firm Planned order - used only when manual control is needed.
3. Released order & then kitted.
4. Scheduled receipt.
5. Closed orders.

World Class - The recognition of an organisation as a benchmark by its industry sector and, for some aspects, by other industry sectors. World Class organisations consistently deliver exceptional performance, frequently in excess of expectations. The final essential characteristic of a World Class organisation is that it is continuously improving its performance.

Yield - The percentage of the starting quantity expected to be usable. The term Yield should be used when the loss is due to the nature of the manufacturing process. If the loss is significant enough to affect the material or capacity plans, the yield should be entered into the bill of material so that the computer will inflate the works order quantities to allow for this loss (see also Shrinkage and Scrap).

Y

Zero Defects - The principle that everything must be 100% correct. In practice this means tracking the cause of every error found with the intention of stopping the error happening again.

Zero Inventory - (see Lean Manufacturing).

Z
