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Manufacturing

Integrated real-time control of
manufacturing processes



PRIMAVERA Manufacturing —

— Integrated real-time
control of manufacturing
processes



The PRIMAVERA Manufacturing solution promotes integrated management of the entire production cycle, from purchasing the raw materials, to subcontracting, and all the way through to dispatch of the end product, guaranteeing total control over the production processes.

The performance of organisations operating in the industrial sector depends largely on efficient planning of the production process. In order to help these organisations optimise their operations, combining all the potential of their material and human resources to achieve increasing profitability, PRIMAVERA offers a production management solution geared towards maximising results and creating value.

PRIMAVERA Manufacturing was developed specifically to address the numerous and particular needs of the industrial sector. The programme offers a complete range of mechanisms to assist in the various operations that enable planning, programming, execution and monitoring of the entire manufacturing process, from purchasing raw materials, to subcontracting and cost control. The automatic calculation of production and purchasing requirements is particularly worthy of note. The estimated costs of Manufacturing Orders can be obtained in various ways. To allow companies to set the parameters in the way most suited to their own reality, the solution offers a variety of criteria to help calculate estimated costs. These can be determined by using the standard price, the average cost price and/or the latest purchase price.

This solution is capable of responding to the needs of various types of production: vertical production, discrete production (by order) or continuous production (on the assembly line, intermittent, for stock replenishment, in batches or per project), ensuring full control over the process.

Using advanced, fully integrated technology, this solution promotes deep integration between the manufacturing processes and the Administrative, Logistics and Finance areas, among others, guaranteeing absolute and overall control over internal processes, in addition to solid financial information essential for decision-making. The information provided enables the construction of indicators which make it possible to structure strategies and plan production in the medium term, anticipate demand and consequently maximise the installed production capacity.

In light of its comprehensive characteristics and considerable adaptability to a variety of scenarios due to the robust extensibility tools incorporated in its' design, this production management system responds to the cross-cutting needs of the Industry and its subsectors, including agri-foods, textiles, clothing and footwear; chemicals, plastic and rubber; pharmaceuticals; motor vehicles / shipbuilding, metallurgy and metal products; machinery and equipment manufacture; electrical and electronic equipment; glass and ceramics; and many more.

These criteria form the basis of, and provide greater precision in, the calculation of the theoretical cost of products.

PRIMAVERA Manufacturing is the result of experience spanning more than 20 years of direct contact with industrial organisations operating in a variety of sectors. It is rooted in a series of guidelines intended to assist companies in the production sector, the following being particularly worthy of note:

- Detailed planning of every stage of the production process;
- Deep integration with the Administrative, Logistics and Finance areas;
- Productivity mechanisms that promotes the maximum quality of products to be manufactured, at a lower cost;
- Maximisation of the installed production capacity;
- Increased profitability and cost control;
- Considerable flexibility and adaptability to the specific processes of any organisation;
- Availability of information which makes it possible to anticipate demand.

The Solution's Main Functionalities

Data Sheets

Data Sheets are used to record a variety of information about items, such as their characteristics and possible variants (e.g. colours and sizes), serial numbers, the range of operations to which they will be submitted, and other technical specifications relating to each individual item.

In order to assist with record-keeping, each item is assigned an origin (manufactured, purchased or mixed), thereby simplifying the entire process of creating and executing Data Sheets, Purchase Orders and Manufacturing Orders. Thus, all the processes used to calculate production and/or purchasing requirements are also automatic. This allows for a much easier and immediate adjustment to the needs of a variety of industries.

Associated with the Data Sheet mechanism is a Bill of Materials (BOM), which lists the various alternatives intended for use in the manufacturing of a particular product. The BOM lists all the components of the main product along with the respective quantities, including composition (components and quantities) of the sub-products and intermediate incorporated products.

Each production process may involve alterations in operating ranges and compositions in comparison to the BOM as planned. Based on this premise, PRIMAVERA Manufacturing analyses the effective list of materials associated with a particular production process (BOM as manufactured).

The analysis of operating ranges in the form of a tree diagram; the possibility of grouping ranges in production alternatives, i.e. distinct methods of manufacturing the same product; the processing of derivatives and waste; and the definition of preparation,

waiting and movement times in production planning are some of the operations possible in the Data Sheet area.

The fact that information is made available in a multi-level tree diagram gives users a panoramic view of the defined operations, making it possible to obtain customised print-outs. In other words, users can define their own print-out parameters and are therefore able to extract tree diagrams with differing levels of detail for each item.

As far as Data Sheet maintenance is concerned, the solution provides a series of data sheet management support information, including the following:

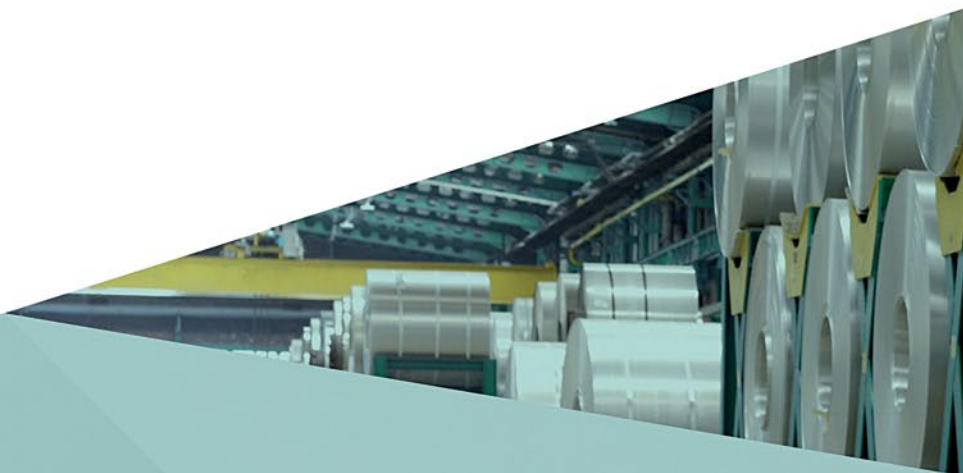
- Characterisation of alternatives, identified by a code, with the possibility of including a description to assist in rapid identification;
- Users will always be able to see the first level of the tree diagram relating to a particular item, in order to facilitate understanding of its construction in the various alternatives;
- Users are able to select what operating information they wish always to remain visible;

- When selecting an item, users will have immediate access to information about that item's stocks (with filters by warehouse/location) and about Average Cost Prices and Latest Price;
- Multiple search criteria are available for Data Sheets and Batch Analysis.

Since Item Data Sheets are sometimes undergoing changes at the same time as the respective Manufacturing Orders are underway, the system sends users a warning about the Data Sheet updating, and this information can be changed whenever necessary.

To make it easier to identify the required item, operators can view a real image of the selected product, a functionality of high added value for companies that work with large numbers of identical items.

The solution also makes it possible to add a value to the production of an item in a Manufacturing Order at Calculated Real Price, in order to more accurately reflect the real production costs in the retail price of the item.



Operations

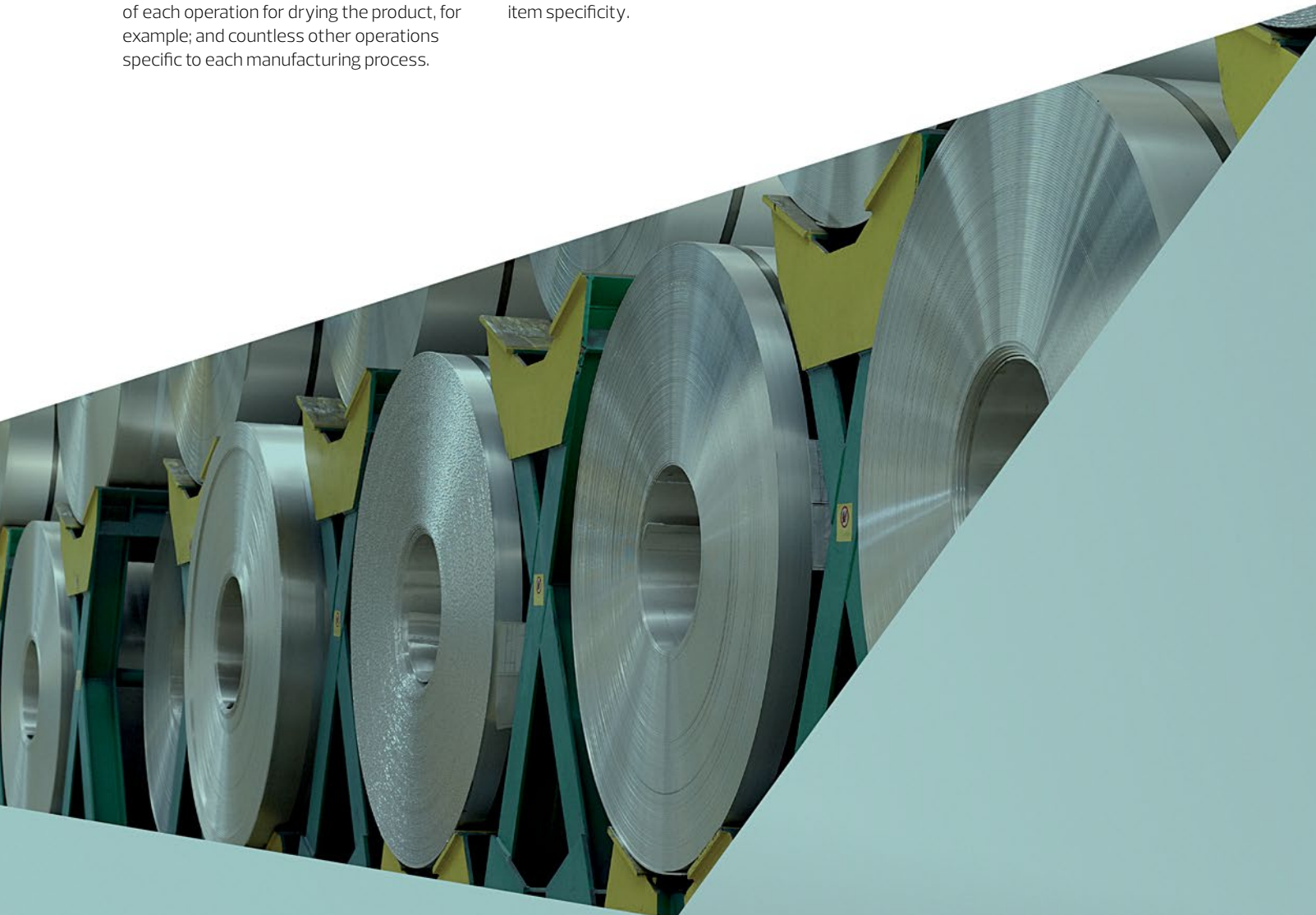
In this area of the solution, it is possible to define Operations and characterise them with information that will serve as support in defining the manufacturing processes associated with each item. This data flow and reuse of information reduces the likelihood of human error and optimises analysis options. In the Operations area, it is also possible to adjust all the preparations and details relating to each Manufacturing Order, such as predefining the preparation time, i.e. the time which must be added at the start of the operation to sharpen the cutting machine blade, for example; defining the waiting time, i.e. the time which must be added at the end of each operation for drying the product, for example; and countless other operations specific to each manufacturing process.

Manufacturing Roadmaps

In the case of compound items, it is important to sequence and align the Manufacturing Orders in order to streamline production. The Production Roadmaps functionality makes it possible to create groups of operations (Roadmaps) that make it easier to input data when drawing up Data Sheets and Manufacturing Orders. This functionality also allows functions to be divided up. This means that operators working in the technical office can define what operations are to be carried out for each set of items, and this information may be used by other company personnel. Within this structure, it is possible to refine the information associated with the operation by item specificity.

Compositions with Formulas

PRIMAVERA Manufacturing also allows the definition of component quantities based on formulas (mathematical, VBScript, etc.) and, from there, create duplications of basic Data Sheets, attributing and calculating the values of these same formulas. The use of this tool makes it extremely easy to generate Data Sheets for new products based on a standard, reflecting the changes in the range and in the number of components. This scenario is particularly useful for industries offering modular products.



Tool and Mould Management

The PRIMAVERA Manufacturing solution makes it possible to associate tools and moulds to items, as well as stock movement to reserve these objects in production and to analyse their availability for the Manufacturing Orders portfolio.

Quality factors

The solution also provides support tools for quality control, a vital process in the production cycle.

In response to the differing needs of organisations in this respect, the solution allows control parameters to be defined for factors such as temperature, weight, pH and many others. These control factors can be parameterised in accordance with the needs of each industry and for each operation.

It should be noted that parameterisation can include families and sub-families of products as well as specific items, and it is also possible to define masks to represent groups of items.

Paying particular attention to the problems associated with controlling the physical quality of the items produced, it is possible to identify what factors operators want to record during the execution of the process. It is also possible to allocate responsibility for anomalies detected, the type of record to be made for these irregularities (BackOffice or Touchscreen), and if the impact is associated with the total quantity documented or merely with the rejected units.

Results Ranges

Still within the scope of quality control, acceptable values will be defined for each of the factors identified (per family, sub-family and operation), as will the parameters of behaviour in the event that the predefined values are not met. In situations where automatic processing is not desired, impacts can be defined as nil, or observations merely logged. When values outside the established parameters occur, the subsequent automatic processing may imply the deactivation of the item under production – making it impossible to create new documents for this item; the suspension of the manufacturing of a given product; or the entry into stock with data that differs from the production standard.

Work Centres

Production can be organised in a system of Work Centres, i.e. in a production block that combines people and/or machines, and which is intended to be the focus of planning, cost control and assessment of financial and production performance. A Work Centre can thus be a machine, a set of machines or even a group of people belonging to a particular section.

Manufacturing proposals can be grouped by item, irrespective of the client who made the order, i.e. it is possible to generate a single Manufacturing Order for the various proposals relating to each item. Despite responding to different orders, the Manufacturing Order generated continues to list the original documents that were used to create it. This means that users can easily consult information relating to the series of clients for whom a particular job is being done.

In this area of the solution, it is possible to control each Centre's production operations, with the added possibility of defining working times per Work Centre and per day.

The Work Centre mechanism also makes it possible to calculate an amount per hour/machine through the allocation of base costs and annual costs. Additionally, members of staff can be assigned to each Work Centre and the number of people working simultaneously can be defined, making it possible to obtain an amount per hour/employee.

Calculation of Requirements

This mechanism enables the automation of the Calculation of Requirements process by means of the production plans defined and their interconnection to other areas of the ERP, specifically Logistics, whenever the calculation needs such operations.

This operation makes it possible to automatically calculate the production requirements for orders to be filled, as well as the supply requirements so that production can get underway. This calculation is done by the system taking into account the estimated available stock on the date when it will be required, the responsibilities taken on, the company's overall production plan, stock levels in every warehouse and other factors with a bearing on the production process.

The solution makes it possible to carry out a simulated Calculation of Manufacturing and Purchasing Requirements simultaneously. This important management tool enables medium- and long-term manufacturing and purchasing estimates to be made, assisting managers in the decision-making process.

The system can calculate gross or net requirements for specific dates. Net requirements may take into account the minimum stock of each item.

The calculation may relate to existing Manufacturing Orders (for example, orders which are planned, for which a quote has been given or which are already under way), to customer orders or to the production plan.

The calculation mechanism automates the generation of Manufacturing Orders, orders to suppliers and internal requisitions. Various options are offered, including the creation of Manufacturing Orders with quantities that meet the defined economic criteria for production, or grouping by dimension (colours, sizes, etc.), among others.

Once planning has been carried out, a new Calculation of Requirements on the planned Manufacturing Orders will make it possible to adjust purchases of raw materials or intermediate product production

requirements to the most suitable dates for production, thereby reducing the risk of items either being out of stock or being held in the warehouse for excessive periods of time.

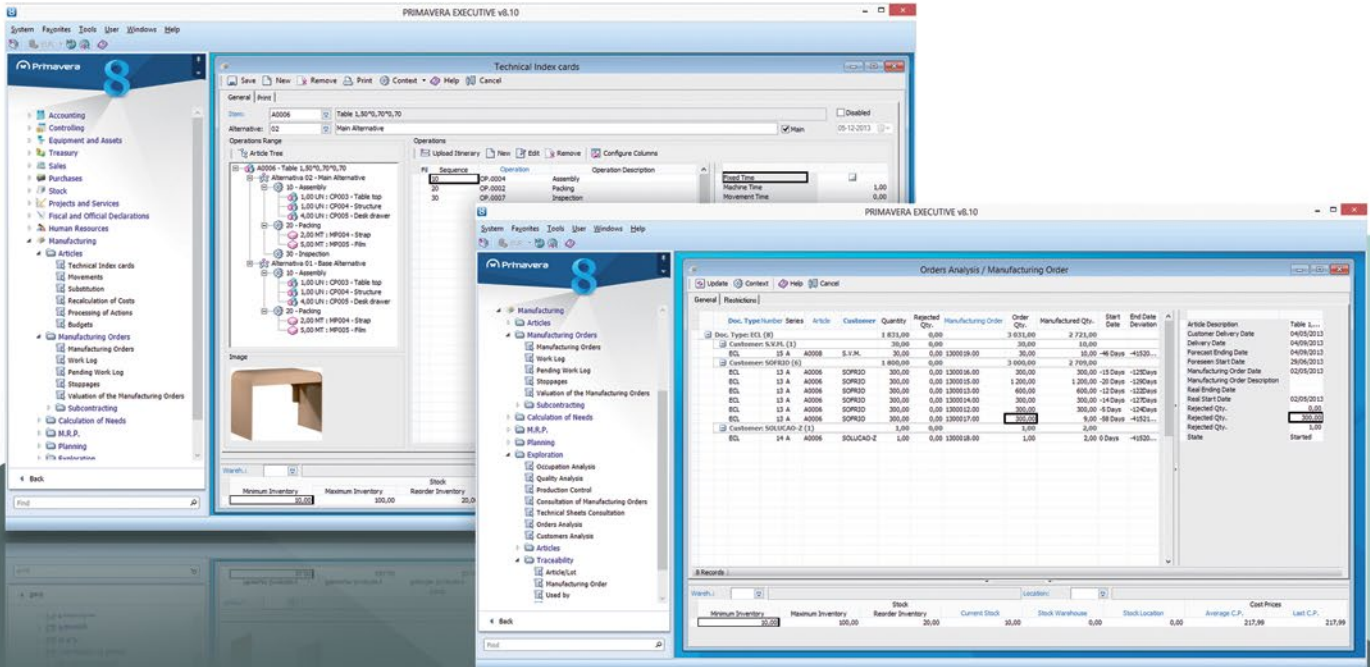
The filters available assist the Calculation of Purchasing Requirements per Manufacturing Order, making it easier to perform calculations and focus production whenever necessary.

This process functions by accessing a variety of information about the products available in the ERP and activates a vast array of calculations based on a variety of data, such as:

- Overall production plan;
- The number of product units which the company has decided to produce in a given period;
- Customer Orders;
- List of Materials
- List of product components;

- Stock levels;
- Purchase Orders sent to Suppliers, taking into account the respective delivery dates.

Using this mechanism ensures that requisitions for materials are cross-referenced with manufacturing and purchasing requirements, making it possible to optimise the amount of stock in the warehouses, increase stock rotation and avoid running out of anything. Consequently, customers are ensured of more reliable delivery dates, advance warning can be given for problems and production failures and there is tighter control over supplier reliability.



View and definition of production Data Sheet tree diagram.

Comparative analysis of quantities manufactured, customer order dates and concerning manufacturing orders status.

Detailed Production Planning

In this area of the solution, it is possible to obtain a detailed view of the availability of resources and delivery deadlines. Simulations can be conducted over various scenarios meaning that the one most suitable to internal and external needs can be validated.

The Detailed Production Planning functionality allows the production process to be monitored and optimised by means of access to a planning graph showing production orders. This enables easy access to the information associated with the operation and Manufacturing Order selected, as well as the materials needed and current stock.

The data can also be viewed on a Gantt chart, using different colours for each status (Ahead of Schedule, On Schedule and Behind Schedule). It is also possible to access orders that will be filled by the Manufacturing Order in question.

Additionally, the Detailed Production Planning functionality allows operations to be handled and their impact to be seen in relation to the other Work Centres, analysing changes of colour and simulating desired "realities".

Manufacturing Orders

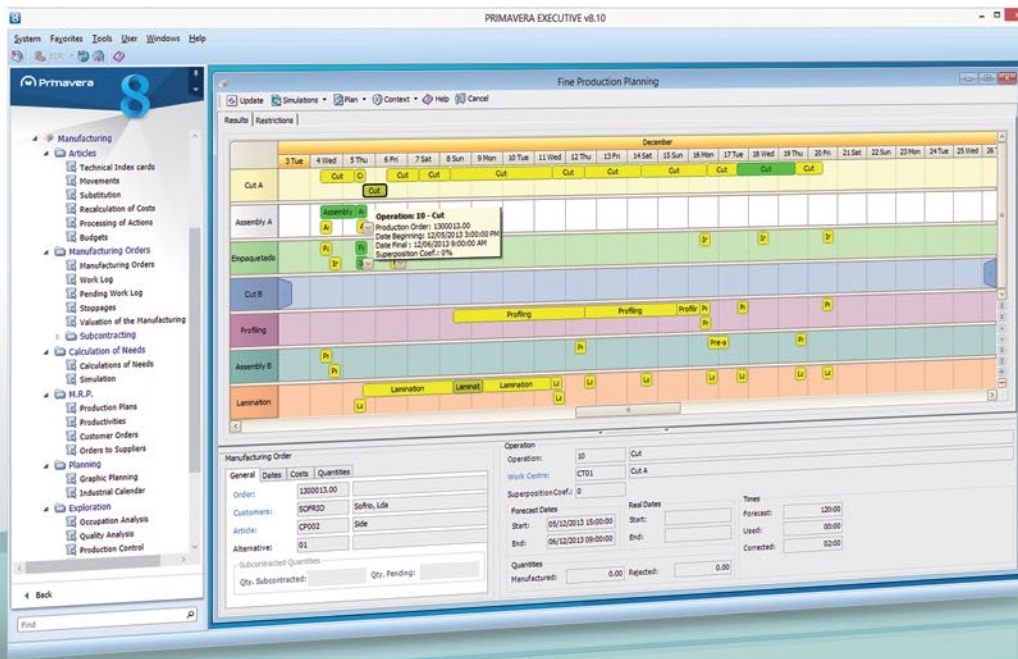
The Manufacturing Orders area allows the management of all the information associated with a manufacturing process, such as: estimates material and operation consumptions; stock management (stock in and stock out); definition of statuses (Simulated, Not Yet Started, Started, Interrupted, Closed, Reopened, Quoted); gathering of production data and cost analysis.

Generated from either the Calculation of Requirements or the extensibility mechanisms, Manufacturing Orders arise from the definition of operations, raw materials,

intermediate products, labour, operating times, amounts and other data, all of which are defined in the Data Sheet for the product and at the Work Centres. Once they have been generated, Manufacturing Orders automatically incorporate estimates of cost, time and amounts, enabling the integration of values in general and analytical Accounts and cost centres.

Any operation, composition (component and quantity), resource, etc., predefined in the Manufacturing Order can be adjusted to any particular circumstances of a process or specific product.

The possibility of incorporating specific business logic through VBA events, and including new fields throughout the entire process, ensures total flexibility for companies with very particular production processes.



Gantt chart that reflects the production planning of manufacturing orders by work centre.

Subcontracting

Increasingly, there is a pressing need for industries to subcontract manufacturing operations in order to minimise internal costs and to transfer these operations to other more specialised suppliers, thereby taking advantage of their expertise.

The PRIMAVERA Manufacturing solution supports operations connected with Subcontracting, generating mechanisms that allow greater control over the entire external contracting process, from order support to dispatch and receipt of the materials.

All the operations conducted in this scope can be directly integrated in the Logistics module, facilitating the management and logistics control processes associated with Subcontracting. This means that the information on materials which have been received at, or dispatched from, warehouses for use in subcontracted work is immediately

reflected in stock movements.

In line with the central goal of increasing the level of automation, thereby reducing operating times, the solution automatically suggests the warehouse associated with the relevant Work Centre as the one to be used for any subcontracted jobs.

The solution also enables partial and phased dispatches of raw materials to be sent to subcontractors, depending on the needs chart for the manufacturing of the end product, making the subcontracting process more streamlined and comprehensive and, consequently, suitable to a greater number of use scenarios.

The screenshot shows the PRIMAVERA EXECUTIVE v8.10 software interface. The main window is titled 'Generation of Subcontracts' and contains a table with the following data:

Manufacturing Order	Operation	Description Operation	Service	Service Description	Qty. Sub.	Order	Transfer	Waybill	Creation Date
1300003.00	10	Manufacture of caps - subcontracting	CHPTANPAS	Purchase manufacture lds			TRS A/1	6TS A/1	15/02/2013
1300004.00	10	Manufacture of caps - subcontracting	CHPTANPAS	Purchase manufacture lds	1000,00	ECS A/1			15/02/2013
1300004.00	10	Manufacture of caps - subcontracting	CHPTANPAS	Purchase manufacture lds	30,00	ECS A/2			03/04/2013
							TRS A/2	6TS A/2	03/04/2013

The 'Reception of Subcontracts' window displays a table with the following data:

Article	Description	Creation Date	Service	Service Description	Unit	Warehouse	Loc.	Lot	Qty. Subcontracted	Qty. Received	Qty. to Receive
1300003.00	Subcontracted Caps 001	15/02/2013	CHPTANPAS	Purchase manufacture lds	UN	A1	A1	032/451-00	1000,00	500,00	500,00
1300004.00	Caps (DE 80 Gb-White)	03/04/2013	CHPTANPAS	Purchase manufacture lds	UN	A1	A1		10,00	0,00	10,00
1300004.00	Caps (DE 80 Gb-Brown)	03/04/2013	CHPTANPAS	Purchase manufacture lds	UN	A1	A1		10,00	0,00	10,00
1300004.00	Caps (DE 80 Gb-Black)	03/04/2013	CHPTANPAS	Purchase manufacture lds	UN	A1	A1		10,00	0,00	10,00

The 'Records' window displays a table with the following data:

Manufacturing Ord.	Operation	Description Operation	Component	Description	Unit	Storage Warehouse	Loc. Dest.	Dest. Batch	Finc. Qc	Used Qty.	Qty. to	Qty. Sent
1300004.00	10	Manufacture of caps - subcontracting	PEAD-485	PEAD-485	KG	A3	A3	LOT01	25,00	25,00	25,00	25,00
1300004.00	10	Manufacture of caps - subcontracting	TUKOC-485	T.U.V.A.K-K20047 (Art. C-6)	KG	A3	A3	LOT01	10,00	0,00	10,00	10,00
1300004.00	10	Manufacture of caps - subcontracting	TUKOC-485	T.U.V.A.K-K20047 (Art. C-6)	KG	A3	A3	LOT01	10,00	0,00	10,00	10,00
1300004.00	10	Manufacture of caps - subcontracting	TUKOC-485	T.U.V.A.K-K20047 (Art. C-6)	KG	A3	A3	LOT01	10,00	0,00	10,00	10,00

Management of operations concerning material dispatch to subcontracting and the reception of these material reflected in the addition of stocks.

Work Log

Production data can be gathered by means of terminals offering batch or online data acquisition systems. The PRIMAVERA ERP Production area includes a touchscreen interface for gathering data at the production plant.

Data management and reports are done in the production area of the ERP, which functions as a BackOffice. In this area, daily production figures can also be input manually, in the case of industries that do not collect data at the plants.

Stoppages

Stoppage logs showing the classification of the reasons for, and types of stoppages, enable a meticulous downtime record to be kept. This record allows a variety of analyses and statistics to be drawn up. Using the warning and indicator mechanisms available in the ERP Platform, warnings can be programmed to occur automatically whenever specific circumstances arise.

Traceability

The traceability of Manufacturing Orders makes it possible to identify individual raw materials, subproducts, intermediate products, finished products and others throughout the various stages of the production process. This mechanism makes it possible to search across the entire history of components and operations used to manufacture a particular product, from the raw materials through to the end product, so that it is very easy to identify their current location or status.

Budgets and Quotes

With Budgets and Quotes it is possible to calculate the value assigned to a new product, based on the operations that will have to be carried out to manufacture it, the components required and the operating data contained in the system. This functionality also allows new items to be created and budgets and quotes to be saved for reuse at a later date. Additionally, sales margins can be defined in order to obtain the final cost.

Totally Adaptable to Any Production Process

The extensibility mechanisms offered by the solution enable the specific business logic of any organisation to be incorporated.

In response to the countless particularities and specificities of production processes, PRIMAVERA Manufacturing is intended as a production management system based on a highly flexible technological platform.

This means that, at the time of implementation, the application's behaviour can be adjusted to suit the particular requirements of any company.

Creating new mechanisms, automating processes, adding new fields and tables, incorporating the organisation's specific logic,

and creating charts and analyses are just a few examples of the extensibility options offered by the solution, giving it the versatility needed for companies operating in the industrial sector.

Listed below are some of the many ways in which the solution can adapt to the internal functions of any organisation:

- Adding specific logic through VBA to all production master tables;
- Adding specific logic through VBA to Manufacturing Orders, Calculation of Requirements and Stock Editor;
- Creating new fields (attributes) in all production master tables and in all entities (Manufacturing Orders, Work Log, Stoppages, Data Sheets, Calculation of Requirements, Components, etc.);

- Creating new tables and associating them with the described fields;
- Creating new charts and statistics;
- Adding or changing business logic through the extensibility events in Touchscreen operations.

These characteristics ensure that the solution can be fully adapted to suit any company's specific processes without the need for further developments. These system features, supported by a solid and comprehensive functional base, take advantage of the economy of scale visible in all the operations included in the base of the solution.



Deep Integration with the Central Management System

The total fluidity of data between PRIMAVERA's Manufacturing solution and an organisation's administrative and financial areas affords a high level of overall control of processes, this being one of the solution's main differentiating factors. The integration mechanisms encompass the entire system thus providing far-reaching optimisation of an organisation's material and human resources, making it possible to take advantage of the economy of scale visible in every operation included in the base of the solution.

The solution was designed from a perspective of integration that enables fluidity of data between areas such as Logistics, Accounts and Human Resources, promoting the optimisation of resources, elimination of duplicated tasks and a high level of transparency in processes. This connection between the various areas also makes it possible to provide a series of high added value analyses for companies' financial and strategic management.

Integration with Logistics

The integration of data with the Logistics area is one of the solution's most significant features insofar as it allows a high level of stock control, automation of the Calculation of Requirements and warehouse management. To this end, there are a great many contact points between the solution and this module, starting, at the outset, by Purchases triggered to fill orders.

In order to respond to requests, the system takes into consideration existing

stocks of materials and intermediate products, automatically processing the Calculation of Requirements to fill the orders or to get the programmed Production Plans underway. If necessary, it automatically triggers the creation of requisitions or order documents to be sent to suppliers, as well as moving stock to reserve it for production.

Orders logged in the Logistics area are made available as inputs for production with no need for intervention. Analyses of their status are also presented (production process, stocks, status, etc.), providing high levels of control and a rapid response to customers' requests.

With regard to Sales, the integration between the two areas makes it possible to comprehensively manage the dispatch of orders as well as assisting in the quoting process.

This integration is also particularly significant for the Quality Control process, since it prevents both new documents from being created for items which have been identified as substandard and the entry into stock of products with characteristics which differ from the production standard.

All stock movements (stock in and stock out) are shared by the Production and Logistics areas, thus ensuring the reliability and integrity of information. Additionally, the result of production is automatically available for all the other logistics processes, promoting a cohesive, overall view of the business.

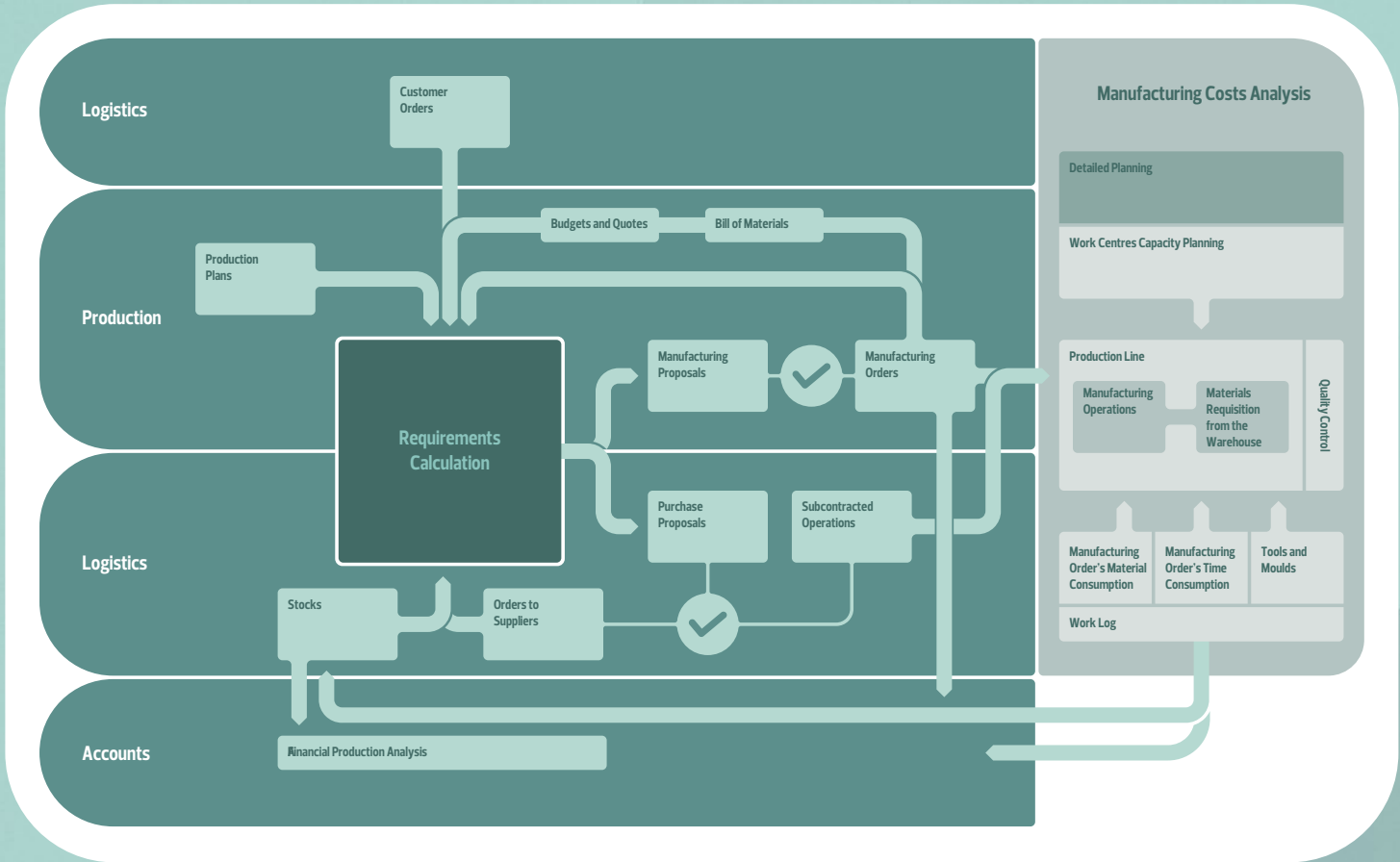
Direct Integration into Accounts

The Production and Accounts areas are closely connected through the sharing of data relating to Manufacturing Orders. Once they have been generated, Manufacturing Orders automatically incorporate estimates of cost, time and amounts, and these values are integrated directly into general and analytical Accounts and cost centres. In turn, the Accounts area is also connected to Logistics, allowing a vast array of analysis perspectives to be defined in line with the strategy a particular organisation might wish to implement.

Thanks to its direct integration with Accounts, PRIMAVERA Manufacturing guarantees comprehensive financial monitoring from the Accounts area.

Other Integration Features

The production solution also enables staff to be assigned to specific Work Centres, by assessing availability in the Human Resources module. Also based on this connection, the system can calculate the estimated costs for a given Manufacturing Order, gathering information such as the cost and hours associated with the various categories of personnel.



An Extensive Range of Management Support Tools

When it comes to reporting, the solution provides a vast array of detailed information about the production process. All the data related to the traceability of items/batches, the use of components, the order portfolio and its status, deviations from plans, etc., are provided in real time. The effective productivity per worker and per Work Centre, in comparison to expectations, affords a series of interesting analysis perspectives by Manufacturing Order and time period, to mention just two.

Using PRIMAVERA's Business Intelligence tools, a series of management indicators can be configured to suit each company's specific needs, allowing the production cycle to be monitored.

Customer Analysis Chart by Manufacturing Orders

This management tool affords high added value insofar as it enables the status of orders under production to be monitored for each client, i.e. it makes it possible to see whether production is running according to schedule or behind schedule. Using the information provided, the commercial department can, for example, rapidly define a strategy to address the issue of delays in filling an order.

The customer analysis chart by Manufacturing Order enables information to be consulted on: delivery deadlines; quantity ordered; quantity delivered; manufacturing order associated with the order; quantity already produced; number of days of deviation between the start date shown on the Manufacturing Order and the actual start date; etc. In addition to the standard information covered, users can also group the data for analysis by other attributes, as well as implementing a variety of additional filters.

Simulated Calculation of Requirements

At certain times, it can be extremely important for company managers to have tools at their disposal that allow them to anticipate potential medium- or long-term manufacturing or purchasing requirements. Circumstances such as the fluctuating costs of raw materials on the international markets; the possibility of discounted raw materials; a drop in orders in the short-term leading to over-staffing; optimisation of production to obtain the best possible return from machinery and moulds, etc., can lead managers to decide to stock up on raw materials in advance or even manufacture goods to keep in stock.

PRIMAVERA Manufacturing offers a tool that enables the simulated Calculation of Requirements, thereby anticipating potential requirements, by consulting purchasing and manufacturing requirements in a single operation. Since this is a simulation, it does not affect the Production Plan already underway, i.e. it does not suggest the creation of new manufacturing orders or orders to suppliers.

Exploitation of Data Sheets and Manufacturing Orders

The solution offers search mechanisms that assist in the Data Sheet maintenance process, allowing customised filters to be set in accordance with the information that is most relevant to the user in question; information groupings to be defined; contextual information to be input about current stock by warehouse/location of the item associated with the manufacturing order; and information relating to average and latest cost prices.

The Manufacturing Orders area also offers search and analysis mechanisms covering the entire history of Manufacturing Orders that are either complete or underway. It is possible to view the various manufacturing orders on a single grid, regardless of their status, consult contextual information about the operations of each manufacturing order, the batches already produced or current stock by warehouse/location of the item associated with the manufacturing order, and information relating to average and latest cost prices.

Graphic Production Planning

Graphic Planning affords a more comprehensive view of the Manufacturing Orders, making it possible to analyse planning over various time scales: year, quarter, month, week and day; views by day or by timeline, etc. can also be defined.

Parameterisation of the calculation of the Manufacturing Order's estimated costs

The solution automates operations to calculate the estimated costs of Manufacturing Orders. A variety of calculation formulas are offered based on Standard Price, Average Cost Price and Latest Purchase Price. These operations can be parameterised to suit the requirements of any company, and assist in the definition of Retail Prices and the allocation of a profit margin for each Manufacturing Order.

The Solution's Advantages

Centralised Production Management

The PRIMAVERA Manufacturing solution makes it possible to plan, programme, execute and monitor the entire manufacturing process, from the purchase of raw materials, to subcontracting, cost control and dispatch.

Optimisation of the installed production capacity

The Detailed Production Planning functionality affords a detailed view of the availability of resources and delivery deadlines, making it possible to simulate different scenarios and validate the most suitable one to achieve the goals of the strategy being used.

High levels of control over processes

Thanks to the many analysis mechanisms offered, users have access, in real time, to all the information relating to each manufacturing process, from the effective productivity of each worker to the distribution of orders by Work Centres, the number of days' delay in filling orders, and the orders in hand, among a comprehensive range of information that affords high levels of control over the business.

Adaptable to any production process

The extensibility mechanisms offered by the solution enable the specific business logic of any organisation to be incorporated. This solution is capable of responding to the needs of various types of production: vertical production, discrete production (by order) or continuous production (on the assembly line, intermittent, for stock replenishment, in batches or per project), affording all the versatility required for businesses in the industrial sector.

Traceability along the production chain

The solution makes it easy to identify and locate a raw material, subproduct, intermediate product, finished product and others anywhere along the production chain. The traceability mechanism affords comprehensive access across the history of components and operations, making it very easy to identify the current location/status of a Manufacturing Order.

Quality control

The solution also offers quality control support tools that enable control parameters to be defined for multiple factors with an automatic response in the event of any non-conformities being detected.

Rapid response to customer requests

The availability, in real time, of charts showing order status affords a high level of control and enables a rapid response to customer requests.

Deep integration with the entire management system

Using advanced, fully integrated technology, this solution promotes deep integration between the manufacturing processes and the Administrative, Logistics and Finance areas, among others, guaranteeing absolute and overall control over internal processes, in addition to solid financial information essential for decision-making. The indicators provided also make it possible to structure strategies and plan production in the medium-term, by means of a variety of analyses that enable the anticipation of demand and consequent maximisation of the installed production capacity.

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