

Manufacturing

Intelligent, digital and
integrated PRODUCTION
management



The new era of intelligent and digital production

Connectivity, mobility and data analysis in real time are the propositions of the new intelligent production model.

We have all heard mention, on various occasions, of industry 4.0 or the 4th digital revolution. These are buzzwords which are repeated again and again, and the reason is simple: production models are changing. And anyone who has not yet grasped this change is facing added challenges.

The need to streamline production processes is due to trends that are growing at lightning speed, particularly: the customisation of products (mass customisation); high volatility in demand and the value given to experiences afforded by products (consumer experience); local production for the global market (glocalisation); and the demand for “green” products, associated with the circular economy concept (sustainability).

The new industry model, which enables a response to these emerging challenges, is supported by a set of cutting-edge technologies that promote communication between machines, people and processes.

Technology: the driving force behind Industry 4.0

The main technological trends cutting across the various sub-sectors of industry, and with already proven results, are, essentially, the following:

Internet of Things (IOT) – the use of sensors allows various devices to be connected to each other;

Embedded Computational Capacity – microcontrollers embedded in the products make it possible to develop smart products and to have smart equipment, capable of making decisions without human intervention;

Cloud Computing – the ability to access data through the internet means that information is always available wherever you happen to be, thus responding to mobility requirements;

Impressão 3D – enables easier, more competitive prototype production, boosting additive manufacturing;

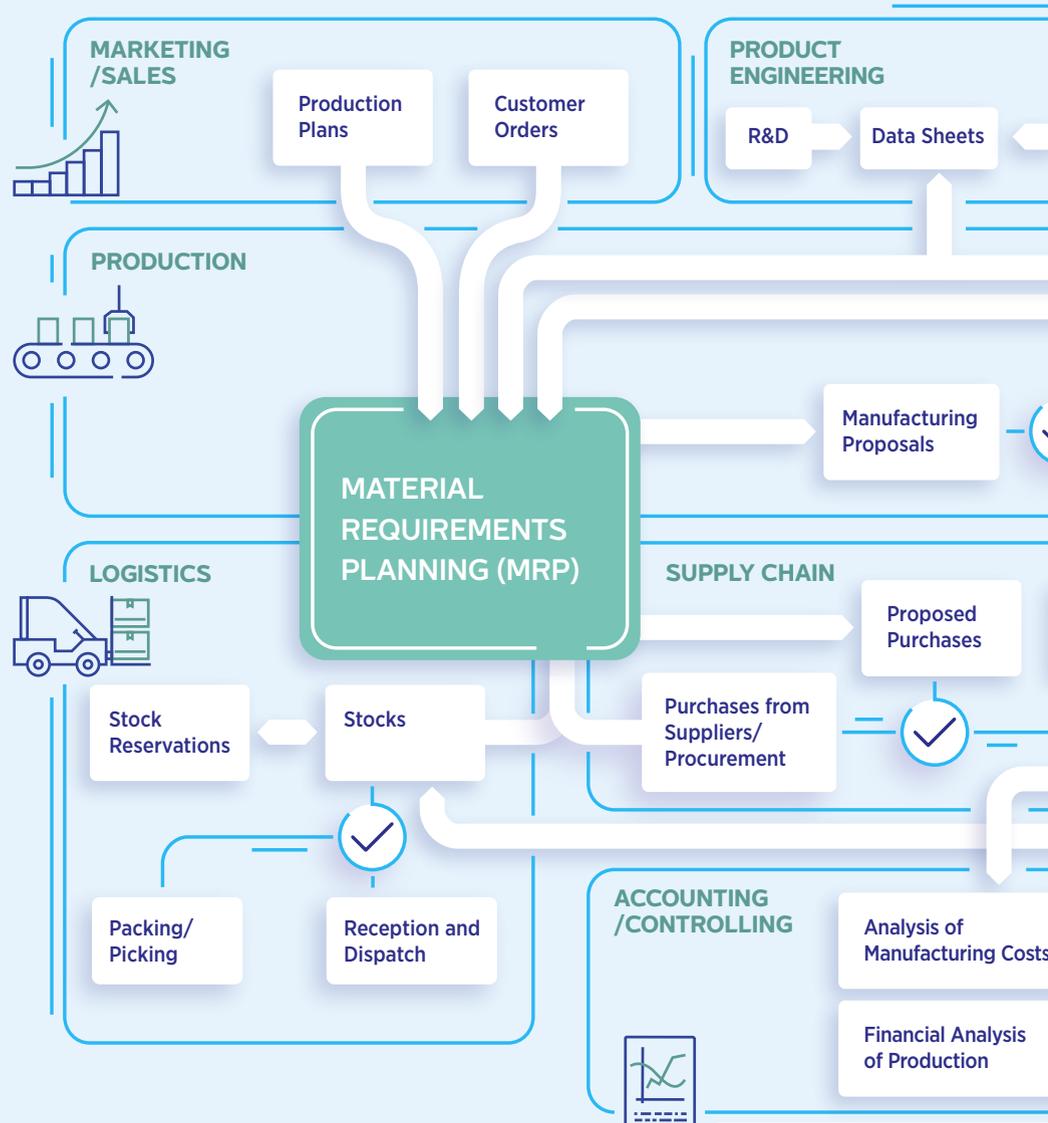
Artificial Intelligence – associated with analytical tools, AI allows data to be processed and aids decision-making through predictive information.

ERP and Manufacturing Execution System (MES), the secret of intelligent production

Technology is the great driving force behind the digital transformation that the Industry 4.0 model advocates. Technologies such as the ERP (Enterprise Resource Planning) and MES (Manufacturing Execution System) information systems let you digitally connect the “Shop Floor” to the “Top Floor”, building a sort of “control tower” from which you can centrally manage the entire supply chain.

A production management system (Manufacturing Execution System – MES) incorporated in an ERP ensures natural integration between the shop floor and the top floor, resulting in overall, cohesive and streamlined management throughout the value chain.

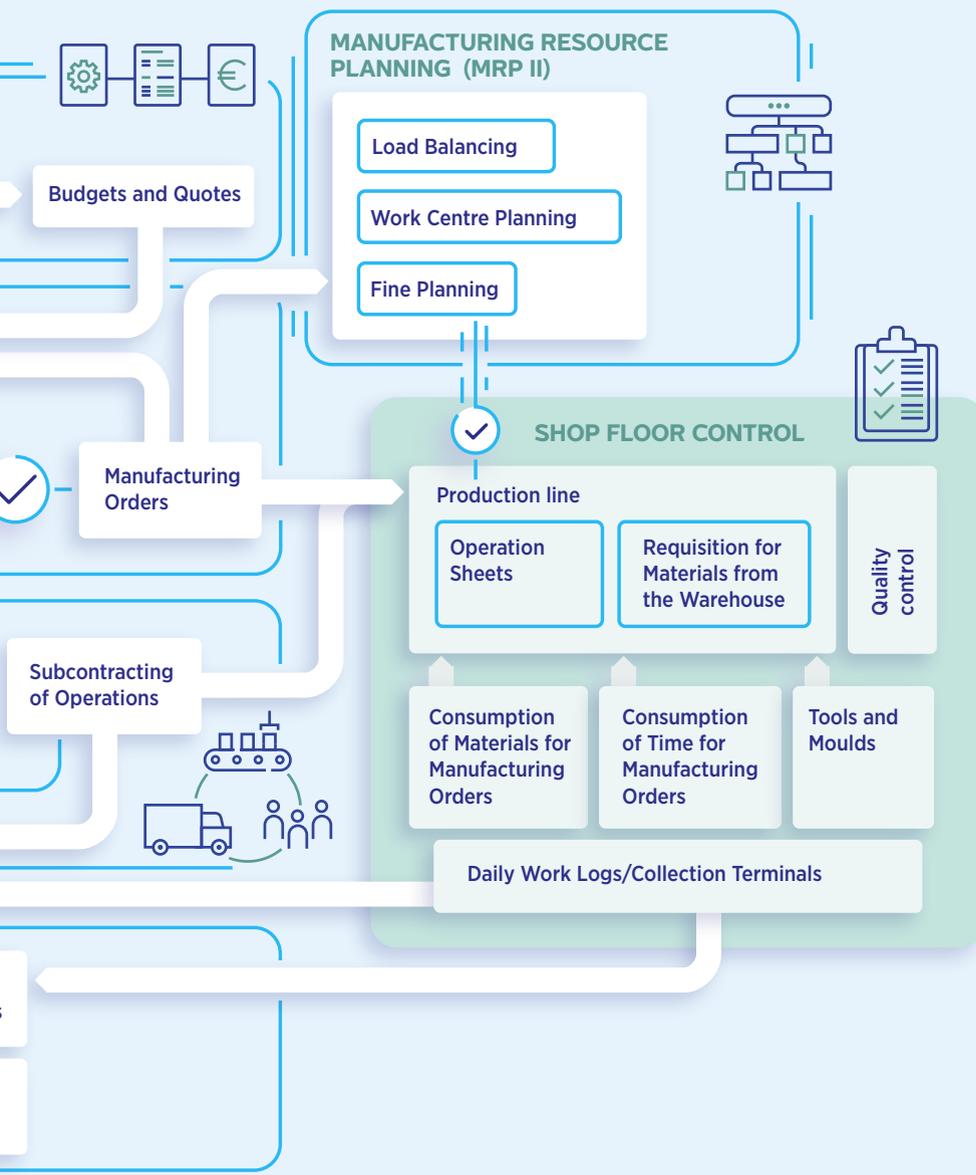
The PRIMAVERA Manufacturing production management solution ensures smooth integration of data all along the value chain.



Horizontal and vertical integration between systems.

Thanks to these two systems, you integrate, coordinate and monitor information coming from various devices, equipment, machines and products, generating considerable planning capacity and production control.

If you connect these systems to equipment linked via IOT, Mobile Apps to manage equipment, interactive component location maps, analytical systems capable of analysing data production in real time and systems supporting the preventative maintenance of equipment, you will benefit from horizontal and vertical integration and make the most of the technology supporting the new industrial era.



Perfectly aligned productive and administrative processes

The capacity for smooth communication between various systems is the cornerstone of intelligent production or smart manufacturing. There is no point in having a range of applications and platforms if they won't talk to each other. Instead, you would have invested heavily in systems, spending large amounts of money on resources that carry out operations which generate no value and have a time to market that is not very, or not at all, competitive.

An integrated production model is needed to address current market dynamics and increasingly demanding customers. This is the only way to get maximum profitability from the available resources.

Enjoy the benefits of integrated management

The PRIMAVERA Manufacturing production management solution guarantees you vertical integration between the areas of marketing and sales, purchasing, production, inventory, human resources and financial and accounting management.

Now it will be easy to get analyses and reports. Since the data is shared across all areas of the solution, there are no inconsistencies when you cross-reference information from inventory, open orders, quantities supplied to fill orders, stock reserves for manufacturing orders, raw materials used or the calculation of the real cost of the end product.

This connection gives you greater efficiency in supplies, production cost calculations and profitability analyses for each order.

Enter the Industry 4.0 era with a system that digitalises processes, integrates them in a cross-organisational flow and extracts analytical information to support decision-making.

In the sales and marketing area, you will find everything you need to streamline relationships with existing and potential customers, speeding up sales and over-the-counter processes, customer loyalty and the provision of high-quality after-sales service.

Integrated management of marketing, sales and material and human resources

The human resource functionalities speed up the administrative processes of payroll and personnel management, as well as providing an online staff management platform that makes all of the bureaucratic work as simple as could be.

And there are also powerful automated functions to support inventory and orders, ensuring you buy or produce exactly what you need to fill orders, as well as getting tools that allow you to manage existing stock and transfers of products between warehouses with the utmost precision.

A network of integrated solutions can ensure the efficient management of the entire value chain



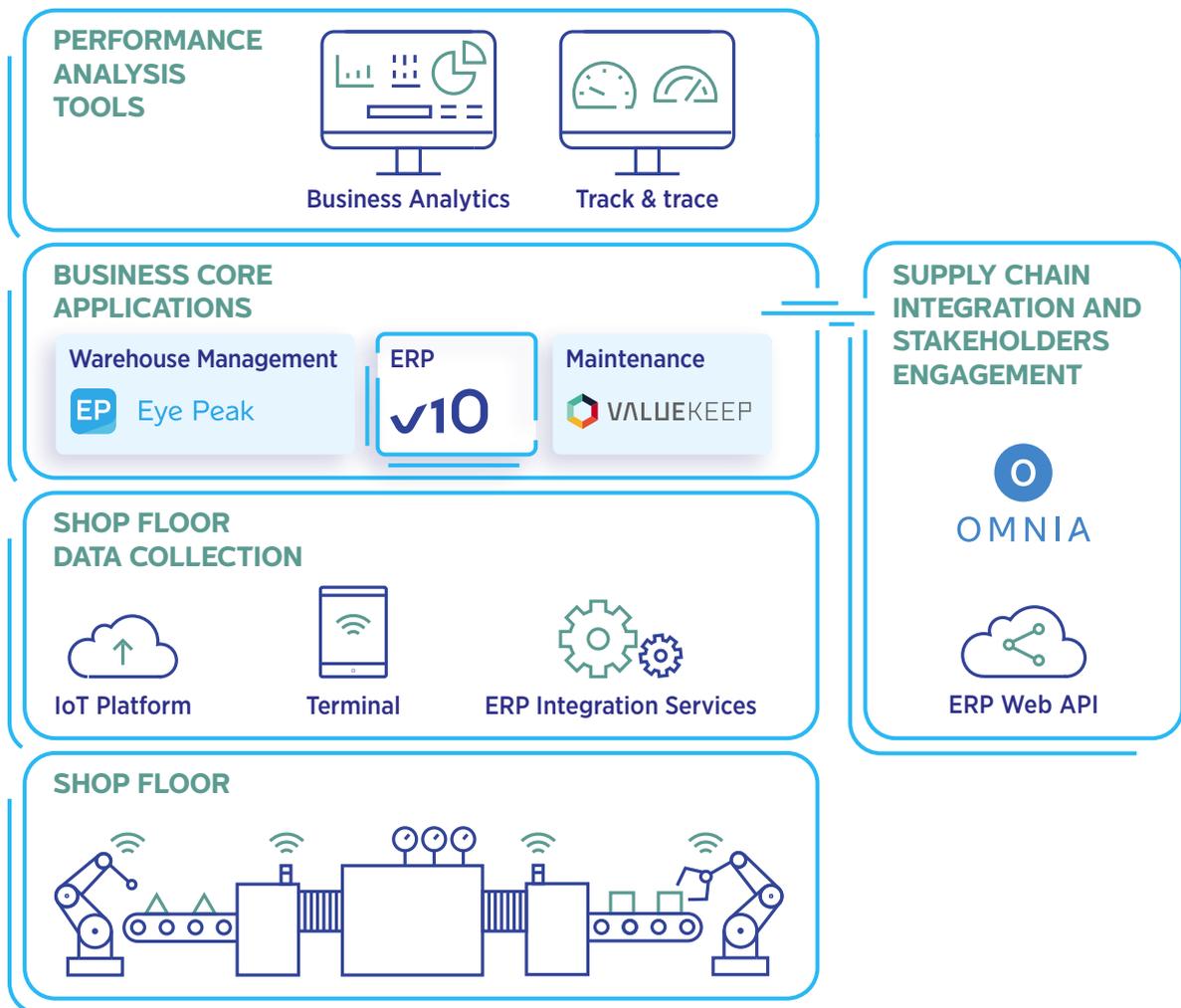
Monitor your sales figures from anywhere

The robustness of the financial area makes it easy to work out production costs and immediately calculate profitability.

Keep tabs on your operational performance and how it impacts your finances. With this solution, all of the organisation's structures will be geared towards the company's financial function, providing rigorous cost-control, from the purchasing of raw materials through to the margins left all along the production chain.

The automatic integration of production costs in the accounting area speeds up cash flow and keeps treasury risks to a minimum. Additionally, the automated management of current accounts ensures fewer errors in banking communications, as well as in the amounts to be paid or received and the respective deadlines, more efficient payment collection, automated inputs and maximum efficiency in terms of checking amounts.

You get full control over performance, along with rigorous financial management and speedy fulfilment of tax obligations in various markets. This combination of production support mechanisms and financial control tools provides a solid base for your business's sustainability.



The various department heads can access a single system containing the technical, operational, performance and financial information needed to be able to plan, execute and control production across the company, with no inconsistency or incongruence in the data.

Enjoy the benefits of an integrated network of solutions for faster production management

There's no longer any need to invest in specific developments to integrate solutions. PRIMAVERA provides all the systems you need to transform your business and adapt it to the digital era. And all of these solutions can be perfectly integrated with each other to make a robust network of management systems.

- › **Assets with maximum operating capacity**
 - Get the best return on your investment in equipment and machinery with an asset management solution that increases operability, cuts maintenance costs, boosts your technical teams' productivity and simplifies compliance with international maintenance standards.
- › **Practical organisation and fast distribution of merchandise** – Optimise your warehousing space and order deliveries with a solution that helps identify the most suitable storage locations depending on the characteristics and dispatch dates of the merchandise.
- › **Analysis and strategic forecasting capability** – Simplify the reporting of results with a solution that lets you quickly create dynamic management charts that are tailored to your needs and always up-to-date. And you can also enjoy the benefits of an analytical system that aggregates all of your company's data and develops dashboards containing vital information for strategic and operational alignment.
- › **Access information from anywhere**
 - Check sales results and customer information on your smartphone, or approve documents from anywhere. Now the information that drives your business goes wherever you go.

Production that's ready for the future

Enjoy the benefits of cutting-edge technology such as Machine Learning or IoT.

When choosing a production management system, it's important to be sure you're investing in a solution that's ready for the future. The PRIMAVERA Manufacturing solution guarantees robust back-office operations and solid, smooth integration with cloud-based applications and equipment connected through the Internet of Things (IoT), among others.

Mobility and easy access to information are guaranteed. With this solution, your business also gets the benefits of artificial intelligence. Machine Learning, Big Data Processing and Gamification ensure that your system is used intelligently, thanks to a virtual assistant that promotes accuracy of information and unprecedented operational speed.

Machine Learning and Big Data technology, as well as a monitored link to equipment via IoT mechanisms, are the foundations for your entry into the era of smart manufacturing.

Tailor-made and easy to customise

Everyone can adapt the solution as they see fit. You can adjust the work environment in line with your preferences or even request new customised functionalities. The considerable extensibility of the platform means it can be easily adapted to your business.

WEB API to integrate everything you want

As this is an open platform, integration between systems is smooth and easy. And this integration is made even simpler with the help of a Web API that lets you easily integrate any application or system in the central management core.

Connect to equipment with IoT

Connecting equipment, machines and people is easier with the PRIMAVERA Manufacturing solution. A vast set of certified solutions, developed by PRIMAVERA partners, integrate solidly with this solution, ensuring an integrated response to today's various technical challenges, namely the Internet Of Things (IoT).

Greater streamlining throughout the productive process

Simplify product engineering processes with streamlined article characterisation mechanisms, ensuring quality standards and rigorous budgeting.

Boost productivity even in the most time-consuming and finicky tasks of filling in technical data sheets. This solution gives you mechanisms that simplify the logging of items in accordance with the technical specifications of each order. And it also provides automated processes that speed up the manufacturing schedules to continuously optimise the installed production capacity.

The PRIMAVERA Manufacturing solution streamlines all operations – from order management to sourcing raw materials, subcontracting, production planning, quality control, equipment maintenance, budgeting, management of stocks and dispatch, to the overall strategic and financial management.

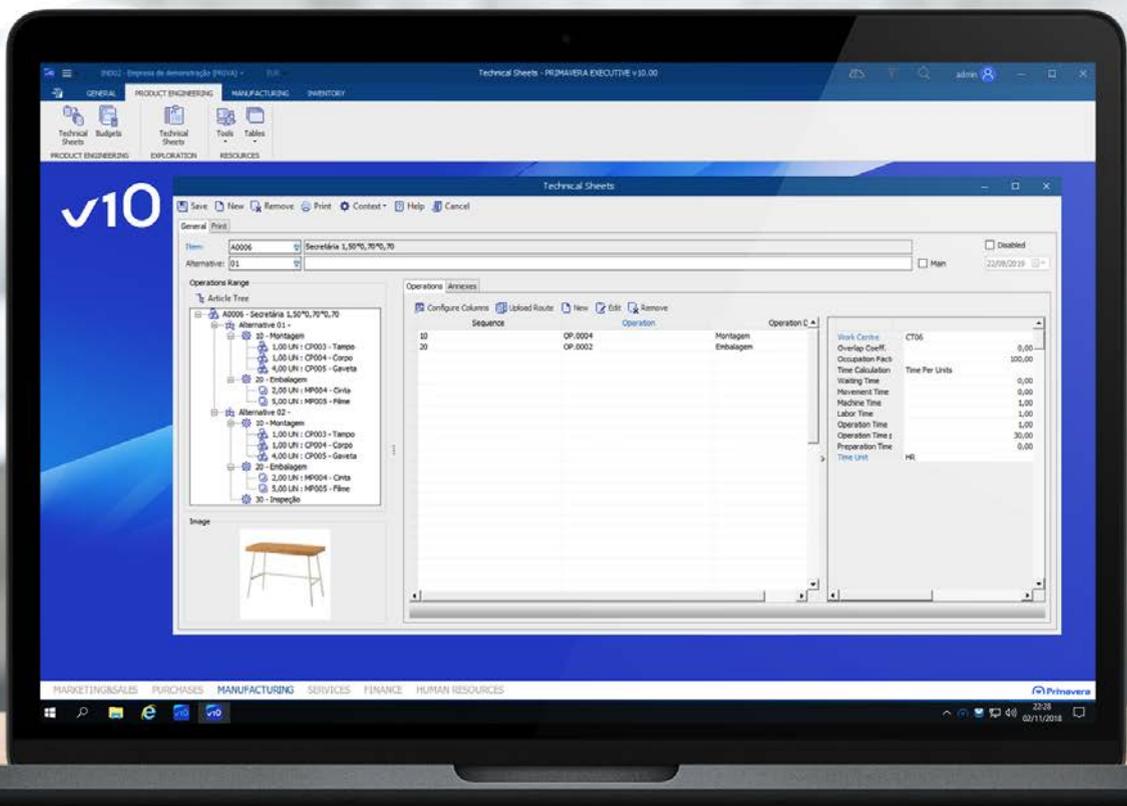
Flexibility and speed in the preparation of manufacturing orders

A new dynamic awaits you in terms of production preparation. Easy-to-create technical data sheets, including all of the necessary information: lists of materials, operations for each manufacturing order (Bill of Materials), main product components and respective compositions, quantities, sub-products and intermediate products.

The automated functions available speed up the entire process of preparing manufacturing orders, ensuring the various operations are streamlined. For example:

- › **Simple management of production alternatives**
- › **Streamlined creation of manufacturing schedules**
- › **Fast updating of technical data sheets**
- › **Automatic reservation of stocks for articles**
- › **Creation of composite articles based on formulas**
- › **Association of tools and moulds with articles**
- › **Movement of stocks and reservation for production**
- › **Location of articles associated with manufacturing orders**
- › **Integrated processing of derivatives and waste**

A mechanism that automatically calculates purchasing requirements informs you exactly how much to buy.



Improve purchasing precision thanks to the automatic calculation of requirements

The more efficient your stock management, the more profitable your company. With this solution, waste and running out of stock are things of the past. Supply management is absolutely meticulous.

By analysing the data available on the manufacturing orders, the order book, the list of components to be produced for the articles, the production plans and the availability of stock, the solution is able to recommend the quantities to be ordered.

And since everything is integrated, the purchasing management area and all of the order support mechanisms are triggered, ensuring the utmost rigour in the supply management and the fulfilling of your customers' orders within the expected deadlines.

This automated function boosts productivity. Here's why:

- › **It calculates your needs for the required date**
- › **It automatically generates manufacturing orders**
- › **It triggers the placing of orders with suppliers and internal requisitions**

The ability to view a real image of the selected item avoids production errors and flaws

Detailed stock status in an instant

No more headaches caused by inventory management. This solution provides support in the most demanding scenarios. It supports multidimensional management of items, serial number management, multi-units, substitute and associated items, batch processing, manufacturing and validity dates, formulas, sequencing formulas (FIFO, LIFO, etc.) and perishability.

The management of operations in the warehouse is also simplified. It offers support mechanisms for receptions and shipments, transfers, recodes, compositions and decompositions and transfer of articles and stocks.

Guarantee the availability of materials by reserving stocks

This solution lets you reserve stocks for a particular recipient, a customer order or a manufacturing order. The reservation is made immediately or straight after receipt of the goods.

For better management, you can classify stocks in accordance with their status: expected, available, blocked, quarantined, reserved, in transit, etc.

Reserving stock ensures you have the right stock at the right time.

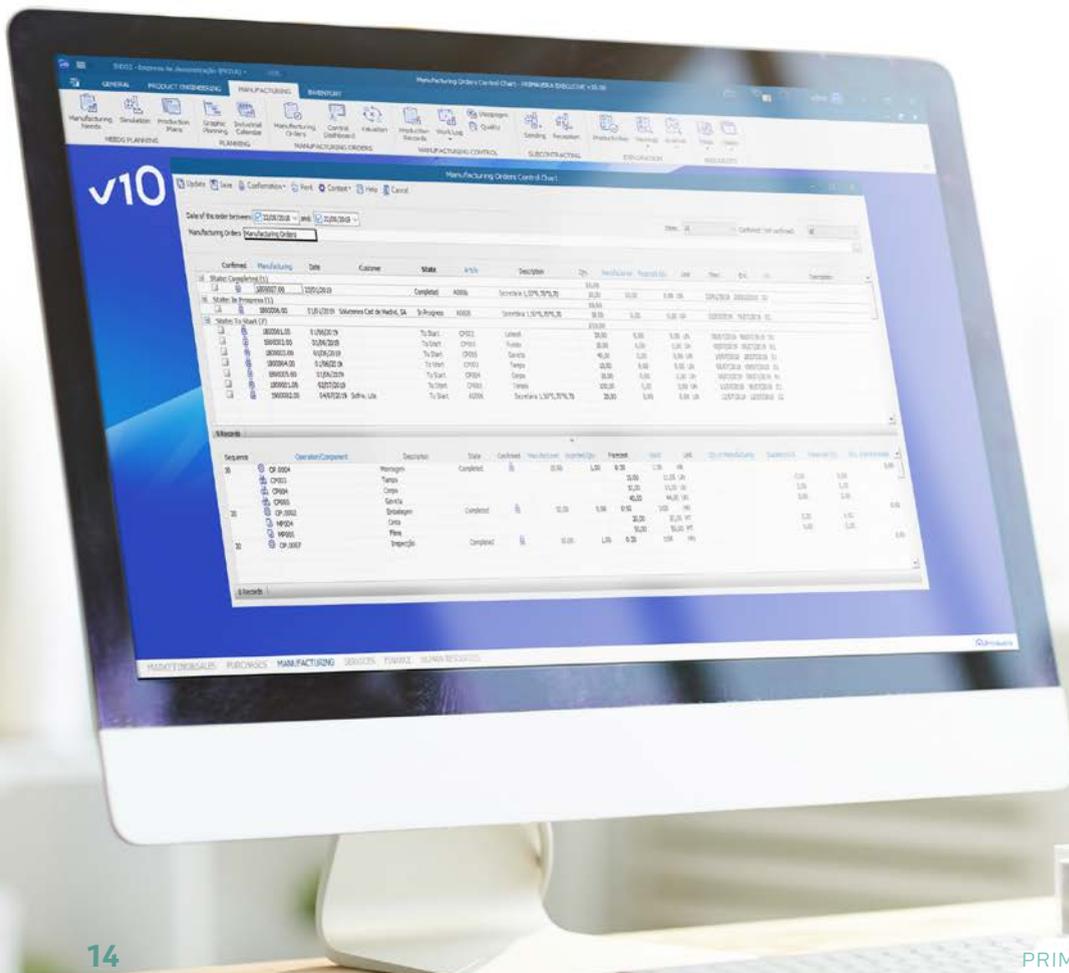
Simplify order-to-order management

By associating customer orders and orders placed with suppliers, you can keep track of purchasing and fulfil your customers' orders. You can even reserve stock and it will automatically be set aside as soon as it arrives at the warehouse.

Receive and dispatch goods faster

Give your warehouse managers a solution they will love to work with! The dispatch and reception of merchandise area keeps everything as simple as possible. It also offers support mechanisms for the picking and packing processes.

A dynamic control panel lets you analyse the status of every order in light of the expected delivery dates



A planning algorithm suggests the best production plan on the basis of the available resources and the delivery schedules.

Precision in costing and accounting

With this solution you can count on a cost calculation model that is extremely reliable. The calculation infrastructure is based on a centralised algorithm that implements cutting-edge concepts, enabling the effective implementation of permanent inventory and total consistency in accounting.

With these mechanisms, retail prices can be set with greater rigour and profit margins can be defined more easily too.

And setting the prices of new products is simplified by the solution as well. To do so, it bases its calculations on the operations involved in the manufacturing process, the components needed and other operational data contained in the system.

Costing in a range of currencies

If you need to do financial reporting in two currencies, the costing infrastructure calculates the prices in different currencies, ensuring that the reporting currency is reliable across all of the various analyses, management charts and controls.

Profitability of equipment and manpower

Meeting the deadlines agreed with your customers is much easier with this solution. The planning tools help the planner make the best decisions regarding the programming/scheduling of manufacturing order operations, depending on the availability and capacities of the work centres.

Using a system of graphic planning, it distributes the operations in time and across the various work centres easily and in streamlined fashion. If you prefer, you can use the planning algorithm which suggests the best scheduling alternative for the operations. You can record simulations of the various options and conduct diagnostic analyses to help you decide on the best option at any given moment.

This organisation simplifies the planning and controlling of execution, making it easy to distribute the team by work centre, set working hours by manufacturing order, calculate costs per man or machine and carry out other profitability analyses essential for strategic planning.

Graphic tool for production planning

Boost efficiency in the planning of production orders in different factories, sections or business units. You can manage various planning scenarios with different programming from a single place and in a short space of time.

The support mechanisms for production planning ensure you get the best results, essentially for two reasons:

1. Meeting Delivery Deadlines

Cut order delivery times thanks to an algorithm that uses your defined criteria to ensure proactive management of manufacturing order priorities, bringing forward the ones that are most important for your business portfolio.

2. Maximisation of the installed production capacity

Get a return on your investment in machinery. With these planning tools, you can reduce the cost of inactive equipment by planning the maximum load for the machines whenever there is work to be done, thereby ensuring the efficient use of resources.

Alternative production scenarios

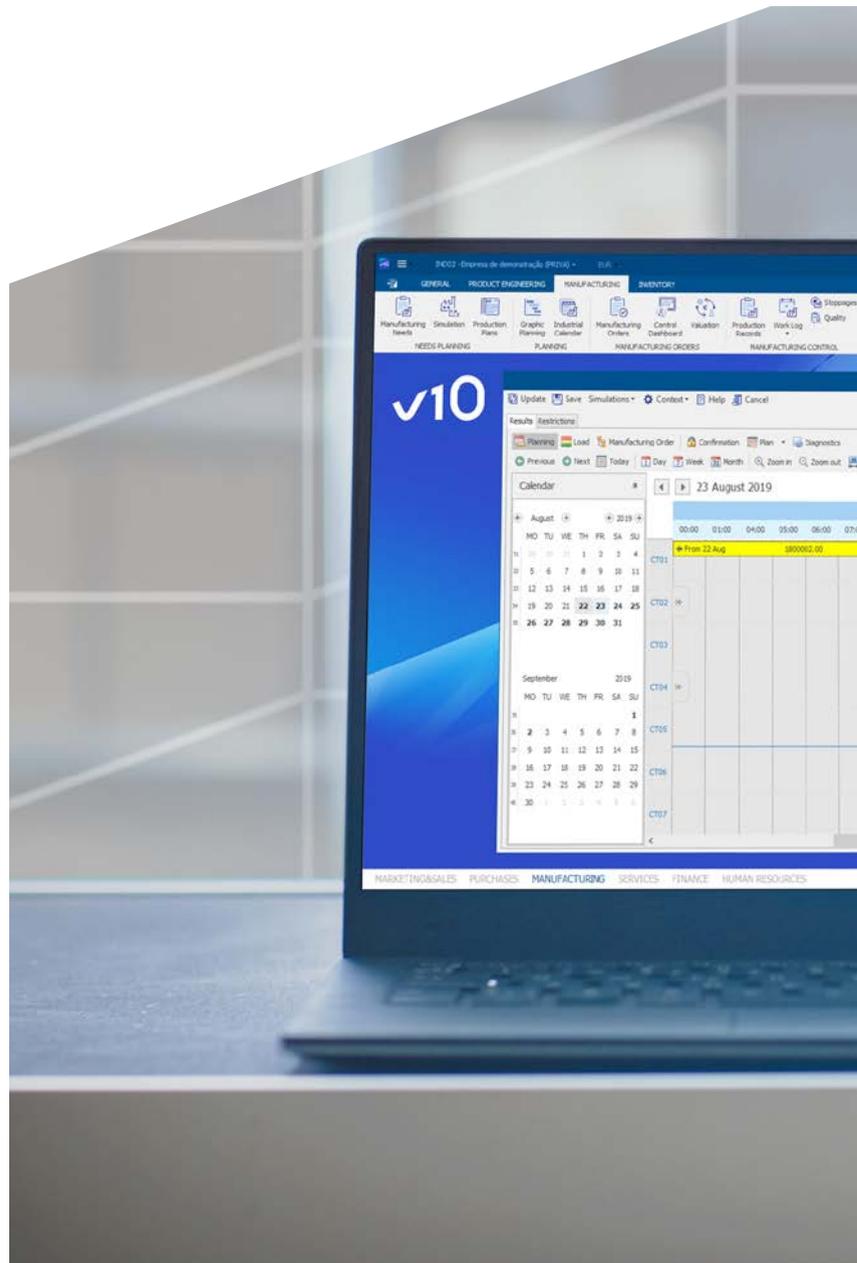
Simulate various plans in order to get as much return on your investment as possible and satisfy orders in timely fashion. The solution lets you try out different production plan scenarios.

To do this, it offers a graphic planning system that lets you quickly pinpoint the availability of resources, delivery deadlines, necessary materials, stock availability, order statuses, new manufacturing order reflections in the work centres, and all of the detailed information about the fine planning of production.

Quickly locate a product, raw material or component

Get an in-depth view of manufacturing orders. The solution's traceability lets you quickly pinpoint a raw material, sub-product, intermediate or finished product anywhere along the productive process. This streamlines your response whenever a replacement is needed.

Accelerate the various stages of the manufacturing process with this solution. With it, you can easily plan, schedule, execute and control all manufacturing operations.



Make sure you are providing your customers with very high quality products.

Simple subcontracting with no loss of logistics or financial control

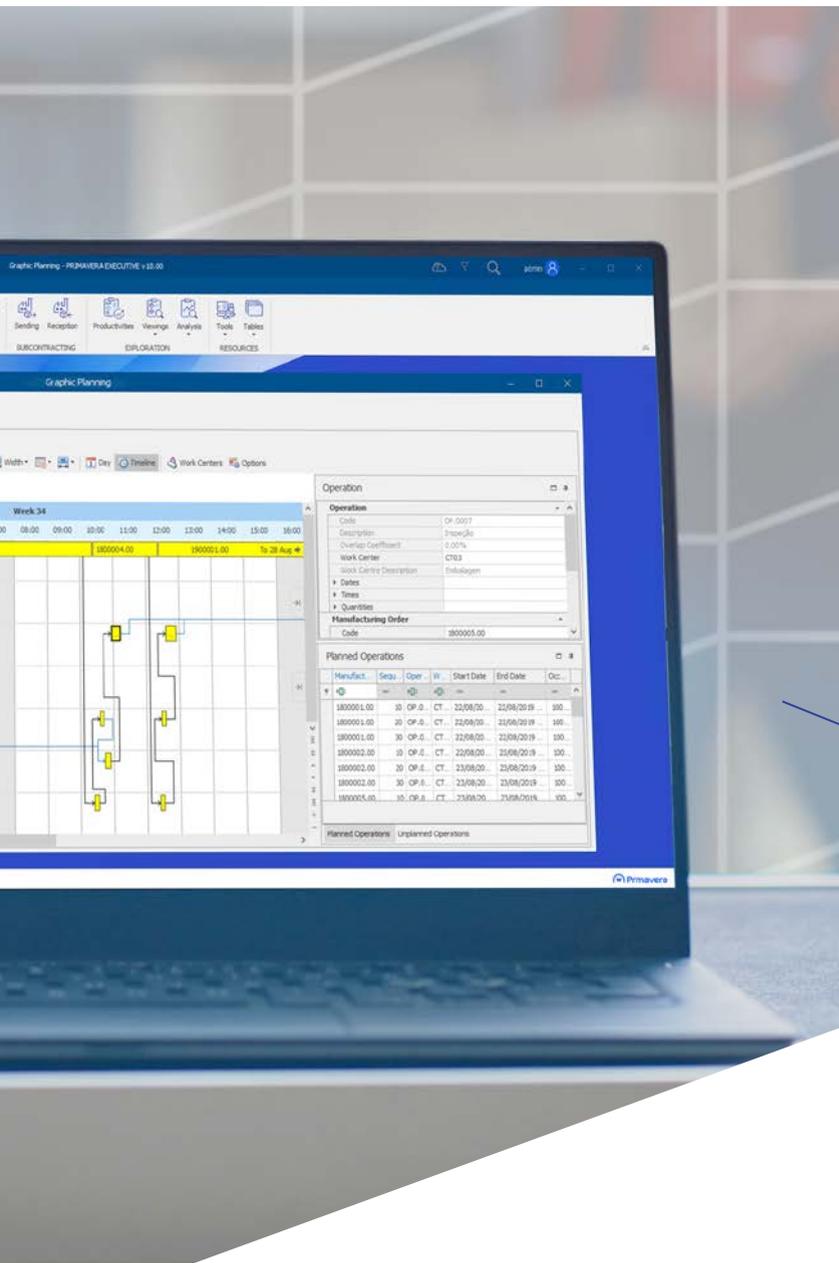
Keep a tighter grip on subcontracting operations. Even when production is outsourced and with partial and phased deliveries of raw materials, know exactly what steps have been taken.

The solution speeds up the process and ensures you keep full control, from the time the order is placed, to shipment and the impact on stocks, all the way to receipt of the materials at precisely the warehouse assigned to the work centre where the order will be produced.

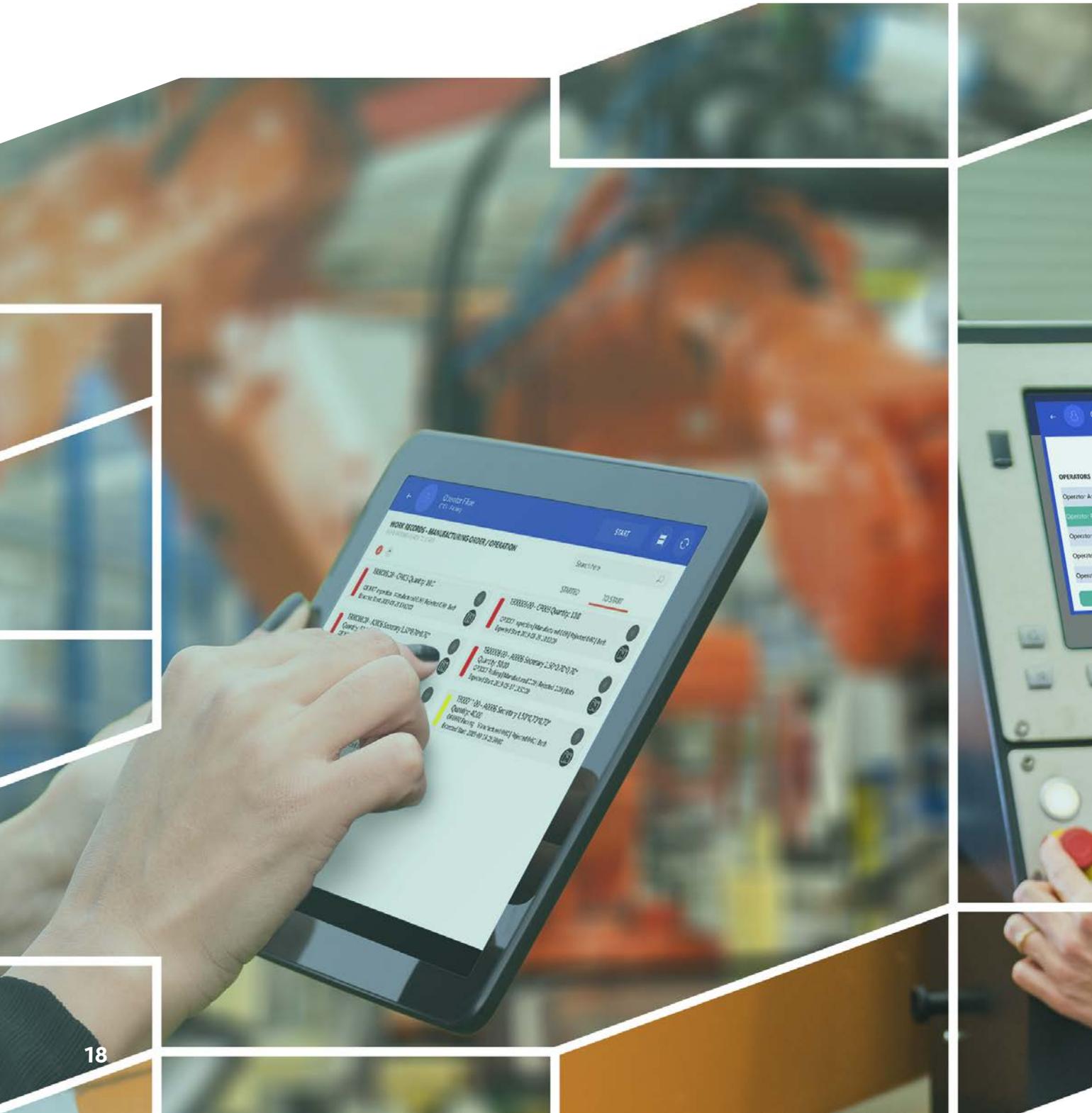
Track the status of manufacturing orders in real time

A dynamic, simple and intuitive control panel lets you analyse the status of every operation in light of the expected delivery dates and quantities produced; check the status of orders for raw materials from suppliers, the status of intermediate manufacturing orders or the status of subcontracted operations.

Make sure delivery deadlines are met by using tools that optimise planning



A mobile, touch-screen data-gathering terminal lets you keep track of what is happening on the factory floor in real time.



Configure parameters and get a high level of quality control

These days, there is increasing demand for products that stand out for their quality, so don't put your business at risk on account of factors you can easily control.

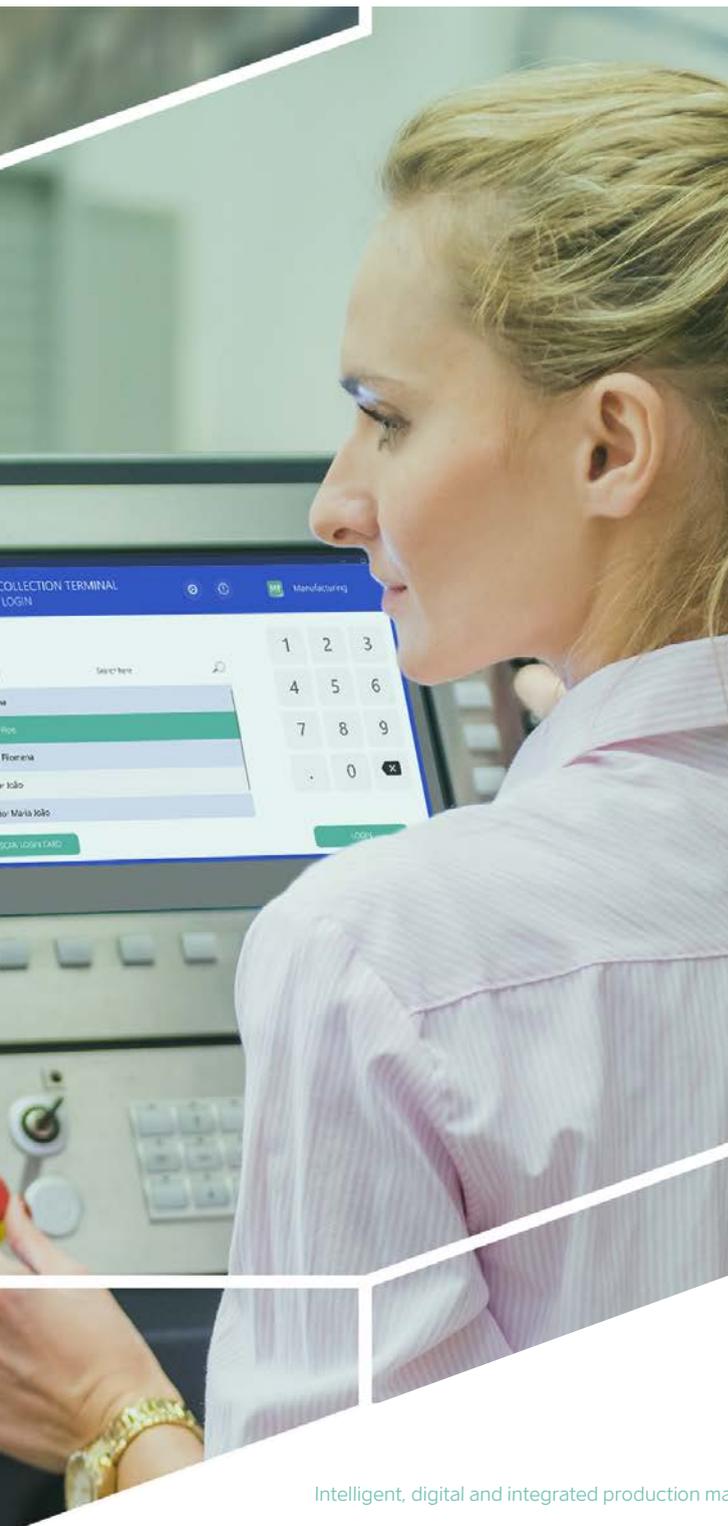
In the PRIMAVERA Manufacturing solution, you can define the quality parameters you want to associate with each manufacturing order. This means that whenever an item fails to meet the standards, the problem is quickly identified, along with the affected products and the impact of the flaws in question.

Anomalies can be addressed automatically by triggering the deactivation of the product for production, the suspension of production or the entry into stock with different data from the standardised production.

Get a full daily work log from the factory floor

Keep track of everything that's happening in production in real time. Get daily manufacturing reports directly from the production plant thanks to mobile touch-screen terminals compatible with Android and Windows devices that are very easy for any operator to use.

And you will also be able to see charts showing records of stoppages and downtime, along with the causes and costs; consult the effective productivity of each worker by work centre; analyse the distribution of orders by work centre; and estimate delivery deadlines and various other statistics essential for controlling execution and assessing operational performance.



Find out how to maximize
your resources

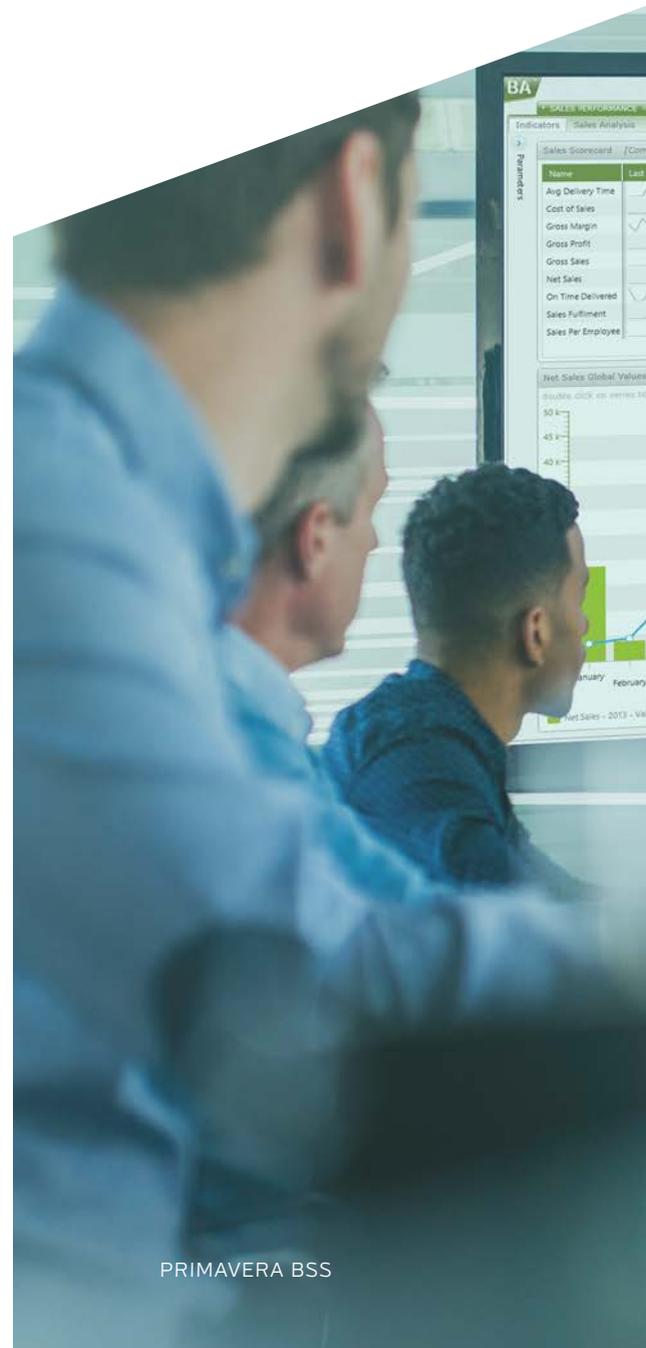
Get access to dashboards showing analyses that optimise decision-making

Find a true ally for timely, spot-on decision-making. The PRIMAVERA Business Analytics solution provides you with data on production performance so that you can keep track, in real time, of a set of indicators such as: productivity, defect rate, deviation of quantities, times, costs and stoppages, quantities produced versus quantities planned and ordered, and analysis of estimated costs versus actual costs.

With this solution, it is possible to get a global view of each project and easily check what the overall billing volume is. Also, assessing profitability and controlling budget deviations becomes much easier.

The access to this information optimizes priority management, simplifies implementation, and maximizes results. PRIMAVERA's analytical Solution - the PRIMAVERA Business Analytics - provides data on production performance. Thus, it is possible to monitor, in real time, a set of indicators such as: defect rate, deviations of quantities, times, costs and stops or analysis of predicted costs versus effective costs.

Full analytics on sales results
will let you know all about your
business performance in a
single dashboard



Learn, in real time, all about the financial and operational performance of your company



Benefits for the whole organisation

Product designer and industrial engineer

- › Streamlined creation of technical data sheets
- › Easy designing of composite items based on formulas
- › Simple budgeting

Quality Controller

- › Easy detection of non-conformance with the quality standards
- › Immediate assessment of the causes and consequences of the deviations
- › Fast identification of the products affected and respective treatment

Production Manager and Head of Production Line

- › Fast and assertive calculation of requirements
- › Reserving of stocks for production
- › Streamlined production planning
- › Easy monitoring of performance on the factory floor
- › Utilisation of the maximum installed production capacity
- › Preparation and waiting times kept to a minimum
- › Fast detection and correction of anomalies
- › Speed and control of subcontracting processes

Industrial Manager

- › Easy analysis of performance in the control environment
- › Fast assessment of the statuses of orders and deviations from the plans

Machine operators

- › Easy consultation of information about work orders
- › Simple and practical logging of activity using touch-screen devices

Purchasing Manager

- › Speedy logging of orders placed with suppliers
- › Rigorous cost control of the supply process

Controller

- › Easy preparation of plans and budgets
- › Support tools for tax planning
- › Robust treasury management that complies with Group standards
- › Tools to analyse deviations and support the revision of the forecast results

Warehouse Manager

- › Simplified management of stocks for production
- › Precision in the sending and receiving of subcontracting materials
- › High level of control over stock movements

Chartered Accountant

- › Compliance with accounting standards and procedures
- › Rigorous and transparent accounting and financial records
- › Efficient management of day-to-day treasury operations and banking relations
- › Fast fulfilment of tax obligations

Financial Director

- › Consistency in monthly, quarterly and annual reporting
- › Continuous performance monitoring throughout the financial year
- › Greater management control
- › Straightforward dashboard layout

Administrative Team

- › Fast inputting of documents
- › Fast and efficient operations
- › Numerous operations in batches and mechanisms for automatic execution

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