

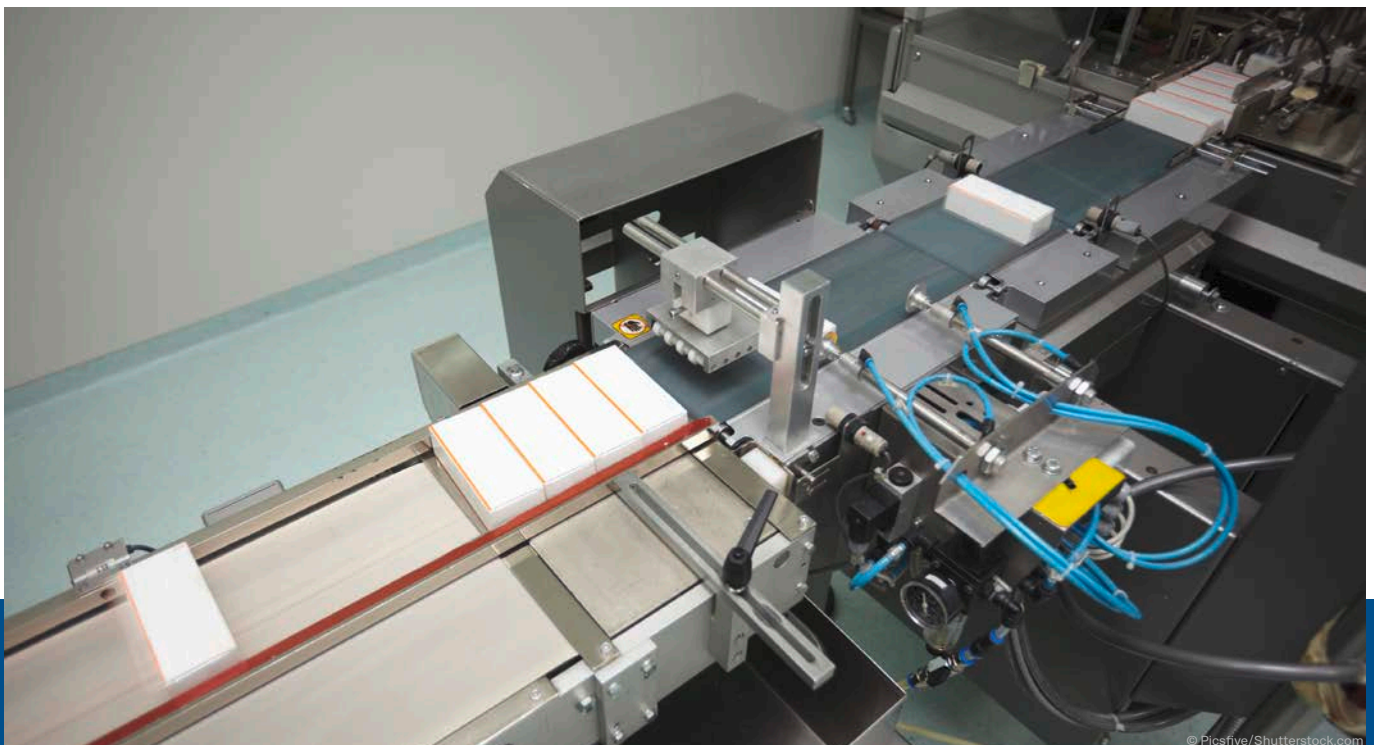
SOFTWARE-AIDED OPTIMISATION OF PACKAGING LOGISTICS FOR EFFICIENTLY DESIGNING END-TO-END PACKAGING SUPPLY CHAINS

Disruptive and volatile supply chains with rising world market prices for raw materials on the one hand, increasingly complex customer requirements and regulatory aspects on the other – Packaging supply chains are complex and require increasingly precise planning.

By using **ORSOFT Enterprise Workbench** for strategic/tactical and **ORSOFT Manufacturing Workbench** in the case of operational planning, packaging supply chain relationships can be optimised in an all-encompassing way:

- **Efficient packaging supply chain management** in the light of demand/supply planning and operational production scheduling on the manufacturer's side
- **Planning of packaging as a bottleneck** impacting subsequent links in the value added chain such as in the chemical, pharmaceutical or food industry
- **Collaborative control** of packaging logistics as part of an end-to-end approach across value chains

ORSOFT applies a wide range of advanced analytics methods such as heuristics, mathematical solver-based optimisation methods, artificial intelligence (AI) and machine learning (ML) to optimize packaging supply chains.



ORSOFT Enterprise Workbench

Real-time monitoring and management of global value chains through simulation of SAP ERP or SAP S/4HANA master and transaction data and end-to-end supply chain optimization

Tailored production, including all its challenges, predominates the packaging industry. The resulting combination of make-to-order (MTO) and make-to-stock (MTS) manufacturing intensifies the pressure to optimise these processes, whereas both strategic/tactical and operational planning tools provide digital support.

The ORSOFT Enterprise Workbench in-memory solution supports sales & operations planning (S&OP), demand planning as well as inventory optimization, and enables strategic raw material and capacity simulations including statements on optimal floor layouts – also with regard to decision processes about relocations to other lines or plants, “make or buy” or considering seasonal effects – as well as a reliable capacity alignment. The various planning scenarios can be selected and prioritized using further indicators such as customer segmentation, product contribution margin or potential contractual penalties in the event of non-fulfilment.

In ORSOFT Enterprise Workbench, sales forecast planning can be optimized through AI- and machine learning-generated historical data. Thus, demand planning can be fed by significantly enhanced data to assist a consensual decision-taking process based on an improved forecast quality. Instead of S&OP in fixed cycles, planning can now be executed at any time and delivers reliable results that can be directly implemented in detailed planning operations within very short response times.

A tool specially adapted to the requirements of cross-company and collaborative optimisation of packaging supply chains is vendor managed inventory (VMI). Software-controlled VMI enables customers to inform their suppliers

about stocks and planned consumption at regular intervals through their ERP systems. Following this, disposition is initiated with the supplier. Within the framework of VMI, minimum and maximum delivery quantities, minimum and maximum stocks or assured storage ranges are also agreed.

ORSOFT Enterprise Workbench is based on the production logistics model of SAP ERP or SAP S/4HANA and enables the bidirectional real-time data exchange of master and transaction data from the modules PP, PP/PI, PM, PS, QM, MM and SD. The extracted data is transformed into an internal data structure - the so called digital twin.

The advantages of the “ORSOFT Enterprise Workbench” at a glance:

- Platform for medium and long term SCM processes
- Simulation and planning in real time
- Certified integration with SAP ERP and SAP S/4HANA
- Machine learning and artificial intelligence to improve planning algorithms
- Collaborative control of packaging logistics as part of an end-to-end approach across value chains



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ORSOFT Manufacturing Workbench

APS software for short- and medium-term material and (multi-)resource planning and interactive conflict simulation tools for use as an add-on to SAP ERP and SAP S/4HANA

Ever-shorter go-to-market and product life cycles, thus resulting in decreasing batch sizes of individual orders, an increasing variety of articles as well as customer and country-specific adaptations of packaging and shorter order intervals, require for operational optimization of packing supply chains as well. Advanced planning and scheduling (APS) provides appropriate tools of detailed planning to process these optimisation tasks.

ORSOFT Manufacturing Workbench, follows the principles of advanced planning and scheduling and provides interactive simulations on material, (multi-)resource and sequence planning while considering finite capacities. This makes the software solution the right complement for production and logistics planning in ERP systems such as SAP, Oracle or Infor, as those are transaction-oriented and require an explicit separation of material and capacity planning.

As the ORSOFT Manufacturing Workbench takes a multi-dimensional view on capacities, the software can map the effects of short-term production plan changes and thus enable optimized sequence planning. In the case of scheduling “plain” dispositive process orders, it is still possible to intervene regulatively, e.g. by changing the planned production quantity and/or the planned production date. The software can thus support both manual and automat-ed planning regimes. Therefore, all modules for short- and medium-term planning are not only used as an APS system or digital control tower, but affect the way in which existing SAP processes are directly replaced from SAP transactions at the touch of a button. This would ensure, for example, that ATP and CTP checks can be processed online and in real time.

A tool specially adapted to the needs of the packaging industry is heuristic sequence planning including set-up optimisation. Heuristic sequence planning is supported by an algorithm that determines an optimal sequence for a set of orders for a certain workstation, whereas the method of processing keeps the industry-specific need to combine make-to-order (MTO) and make-to-stock (MTS) production. The sequence planning is determined – in addition to the basic dates of the order – by technological parameters that are selected and weighted depending on the technology applied (for example, extruding, printing, laminating, etc.). Other specific applications are production campaign planning as well as shift and staff scheduling.

The advantages of the “ORSOFT Manufacturing Workbench” at a glance:

- Flexible detailed planning solution with the possibility of customization and automation
- 100% integrated with SAP: processing of existing SAP ERP and SAP S/4HANA PP/DS data using SAP user authentication
- Proven industry solutions such as heuristic sequence planning including set-up optimisation, production campaign planning as well as shift and staff scheduling
- High-performance response through local RAM database with the ability to plan in real time
- Minimal project risk during implementation due to piloting on customer data



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ORSOFT Digital Factory Scheduling

Benefit quickly and effortlessly from the advantages of operational production (fine) planning by applying the cloud- and SaaS-enabled software solution

In medium-sized companies or in smaller plant sections of large corporate entities, detailed production planning is often managed through individual stand-alone solutions such as those based on Excel files. Hence, the information is often only available asynchronously and not in real time and is neither horizontally nor vertically integrated into the central ERP system.

Based on the PaaS platform Edge.One, the ORSOFT Digital Factory Scheduling offers a cloud/Software-as-a-Service (SaaS)-enabled planning tool that is open to all ERP system interfaces. The application creates transparency about the current planning situation and can run through AI-driven optimization scenarios for material, capacity, time and demand conflicts on which the software provides automatic planning suggestions.

By implementing the software, the production planning teams can benefit from the expertise of numerous customization projects for the ORSOFT Manufacturing Workbench, while the system itself is easy to integrate and to operate due to intelligent standardizations.

The advantages of “ORSOFT Digital Factory Scheduling” at a glance:

- Standardized planning board for easy implementation
- SaaS-enabled web application based on Edge.One, the platform-as-a-service (PaaS) solution from the Germanedge Group
- Open interfaces to all ERP systems including certified integration with SAP ERP / SAP S/4HANA
- Use of artificial intelligence enables to choose from different options for resolving planning conflicts
- Intuitive user interface through UI/UX-optimized menu navigation and dashboard functionalities
- Partner-ready due to an open platform strategy



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About ORSOFT

As an internationally acting software and consulting company, ORSOFT develops and implements innovative and reliable solutions in the field of supply chain management (SCM), sales & operations planning (S&OP) and advanced planning & scheduling (APS). With its affiliate companies, ORSOFT is part of the Germanedge Group which incorporates a focus on digital production 4.0. ORSOFT has successfully implemented projects at Boehringer Ingelheim Pharma GmbH & Co. KG, Clariant Plastics & Coatings, Danone Group, Edelmann GmbH, ELCO AG, FRUTAROM Production GmbH, HACO AG, IDT Biologika GmbH, Intersnack Knabber-Gebäck GmbH & Co. KG, Lonza AG, Mondi Gronau GmbH, NMC SA, Sachsenmilch AG (Unternehmensgruppe Theo Müller), Sanofi-Aventis Group and Zentis GmbH & Co. KG, among others.