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Integrated solutions in PSI tools incorporating Qualicision®

Optimisation in production and planning

Software systems for intelligent decision support and business process optimisation can be designed more efficiently with intersectoral Qualicision® technology, saving time and money for customers and improving stability and quality. The following example of business processes serves to illustrate the kind of applications that have been implemented in solutions and tools of the PSI Group with the help of Qualicision® technology.

PSIPENTA and F/L/S joined forces to improve the original F/L/S solution for order sequencing, resulting in the development of the PSI*jis* tool. PSI*jis* transfers relevant aspects of sequencing to the needs of automotive suppliers. Other applications for Qualicision® technology include the optimisation of the depot management tool PSI*traffic* from PSI Transcom, the optimisation of maintenance and troubleshooting measures as components of PSI*command* from PSI's Electrical Energy Division and the optimisation of stock transfer logistics between around 300 warehouse branches of a fashion label.

Qualicision® solutions are always based on a standardised, core software library, and integration is also handled for the customer.

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PSI

News tickers

+++ PSI awarded contract for an innovative mining control system from China's leading mining company — PSI*mining* as a comprehensive control and automation system and Manufacturing Execution System (MES) for managing operational activities and maintenance +++ PSIPENTA appointed to provide the new Just-in-Sequence solution — Automotive supplier Spicer Gelenkwellenbau GmbH decides in favour of PSI*jis* +++ PSIPENTA wins contract from the aviation industry — Integrated corporate planning and control for E.I.S. Aircraft GmbH +++ PSI China wins aluminium assignment from the Chinese Alnan Group — Guangxi Alnan Fabrication Co., LTD. decides in favour of PSI*metals* +++ TGW and PSI work hand in hand for HECO — Realisation of the complete warehouse and picking technology including stock management system at HECO +++ PSIPENTA wins a further contract from the automotive industry — Comprehensive software package for chassis technology specialist Goldschmitt +++

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Editorial

Dear readers,

"Everything is becoming" and "You cannot step into the same river twice". These tenets, based on the philosophy of Heraclitus, are around two and a half thousand years old but more topical than ever before. They tell us that today is, at the very most, only similar to yesterday.
If we want to face the conditions of today, we need to consider and adjust our attitudes — even those that were still valid only yesterday. Day in, day out. Otherwise, we will inevitably be overtaken by "what is becoming " every day. "Dynamic business process optimisation" is how we put it in today's language — and it is a simple necessity rather than a heroic feat to be accomplished.
For the past four years, customers of the PSI Group have been able to dynamically optimise business processes and adapt the software on which they are based with the support of Qualicision® technology. This technology is used successfully in many business segments and in an increasing number of PSI software tools.
This edition looks at how Qualicision® helps to dynamically optimise processes and at the PSI solutions into which it is currently integrated. Qualicision® covers a broad spectrum of process optimisations, ranging from production processes to maintenance and the movement of goods. The fact that the software is compatible with PSI software tools is a great benefit for PSI customers.
Other PSI solutions described in this edition also stem from our continuous process optimisation mentality — including solutions from the field of ERP, the metal industry and logistics.

I hope you will enjoy an interesting and inspiring read.

Regards,

Dr. Rudolf Felix
Managing Director,
F/L/S Fuzzy Logik Systeme GmbH,
a PSI Group company

► *Continued from page 1*

Stable production sequencing in automotive production despite the dynamic variety of orders

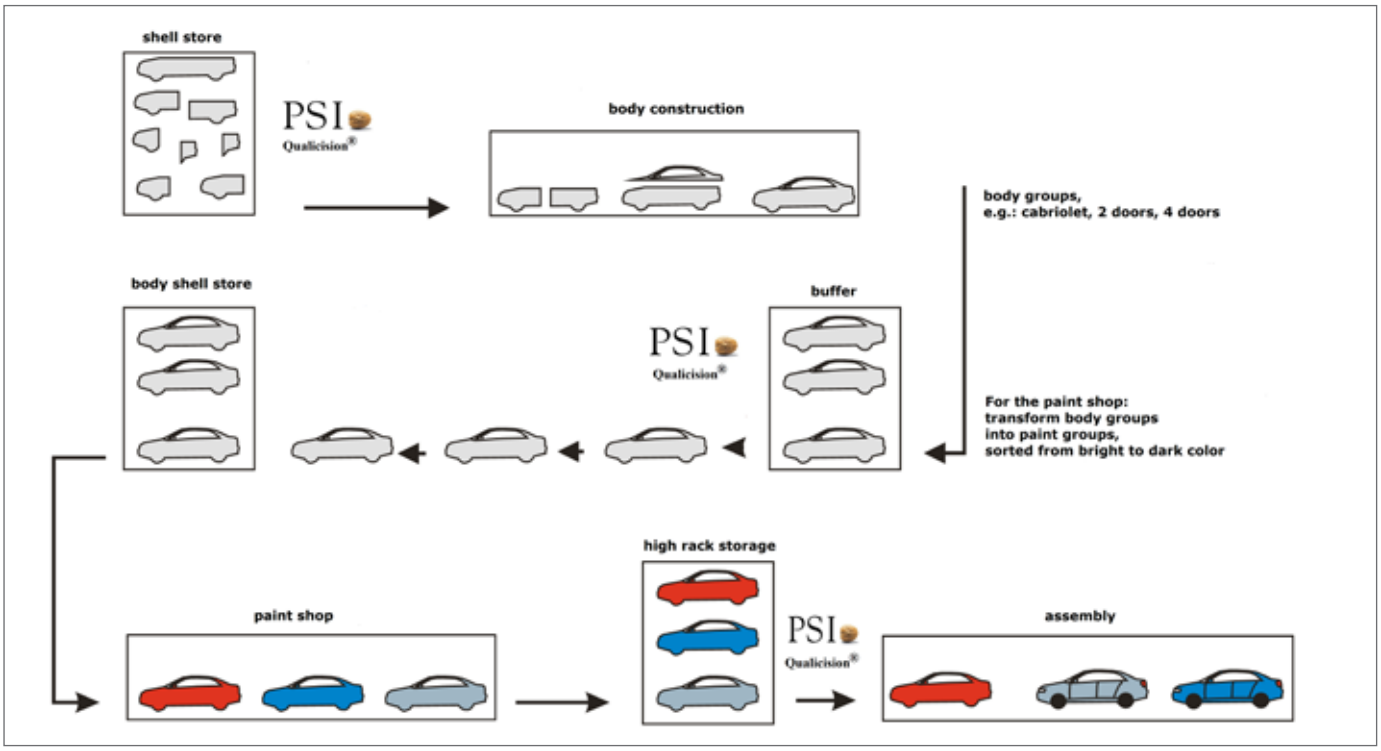
Production and logistics processes in the automotive industry need to be designed efficiently to ensure the shortest possible throughput and delivery times. One key characteristic of the car market is that customers usually want to customise the configuration of their vehicle and take possession of it as soon as possible. The diversity of car configuration variants is therefore enormous. Generally speaking, no more than two to three identical vehicles will leave the plant each year.

The consequence for vehicle production schedule planning and logistics is that the actual configuration of each vehicle is not known until shortly before production begins. This means that daily planning, internal scheduling and supplier co-ordination need to be harmonised and, where necessary, retrospectively optimised during assembly.

Schedulers need little more than 30 minutes to complete a daily plan. Real-time optimisation has to occur in the cycle. This efficiency has only become possible by dynamically adapting the human method of weighing up decisions and incorporating it in the Qualicision® logic. The logic of the Qualicision® software acts in a human way but is much more capable of handling the variety of process data.

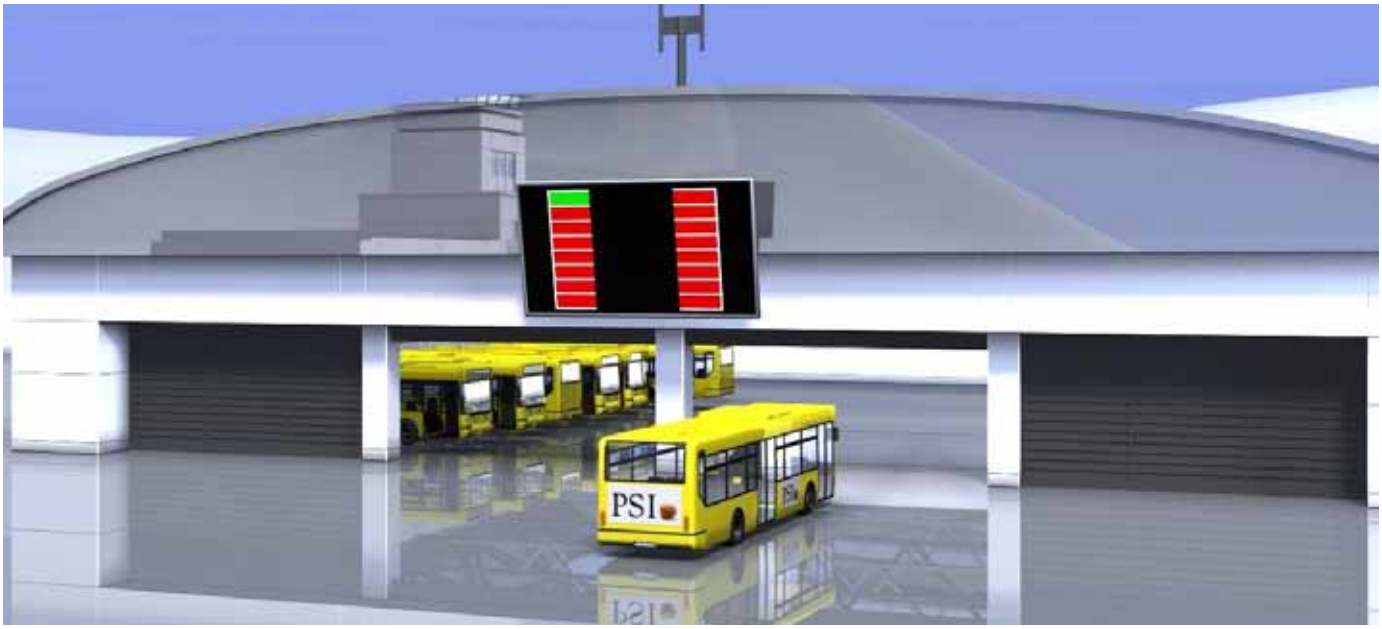
Optimisation of Just-in-Sequence production for suppliers

Automotive manufacturers (OEMs) are outsourcing increasingly large sections of their assembly process to suppliers. Within the added-value chain, apart from final assembly, they often only focus on the production of components, which are particularly important in differentiating their brand. The increased dynamics resulting from time and flexibility demands therefore also affect suppliers in the same way. PSIPENTA and F/L/S have developed the PSI*jis* software tool on the basis of Qualicision® technology with PSIPENTA industry expertise know-how to optimise the interface between OEMs and suppliers and to support the latter in particular. Just-in-Sequence PSI*jis* is designed specifically for these conditions and supports highly automated, sequence-optimised and sequence-synchronous production from supplier to car manufacturer. PSI*jis* is designed to function as a standard system and has a standardised interface to an Enterprise Resource Planning (ERP) system, for instance PSI*penta*.



Optimisations are important for two reasons: firstly, to achieve high output numbers and reliable delivery with limited production capacities and, secondly, to guarantee a stable and consistent utilisation of production capacities.

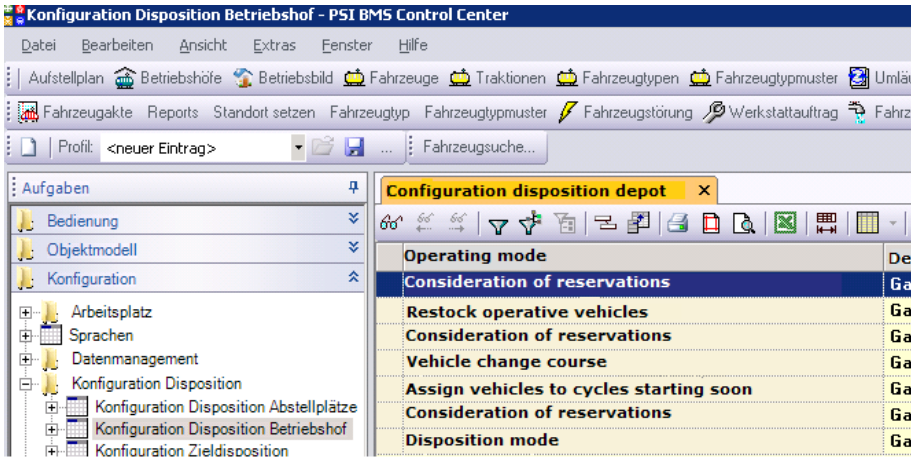
Source: F/L/S



Qualicision®-based sequence optimisation of incoming and outgoing vehicles based on the timetable and an optimised management of routes to parking bays in synchronisation with all depot processes is a component of PSItraffic.
Source: PSI Transcom

Balanced process dynamics in the bus depot guarantees optimum depot management system (DMS)

The DMS controls all internal processes at bus and tram depots. Automatic parking place scheduling is an integral component of the DMS. Vehicles must be parked in spaces and halls in such a way that they can exit the following morning without other vehicles having to be moved out of the way. Processes need to be brought into optimum alignment, from monitoring arrivals and departures in order to ascertain whether the driver has left in good time right through to parking space management and information for the workshop concerning pending repairs. Qualicision®-based optimisation differentiates between optimisation criteria that demand strict compliance and qualitative criteria. Strict criteria place demands on the result of optimisation and are usually derived from the actual spatial or topological conditions of the depot and its parking spaces. Qualitative criteria relate to the demands placed on the efficiency of the business process. For instance, filling all lanes in the depot evenly with vehicles, or bringing the mid-term and long-term mileage of vehicles into alignment. Qualitative criteria can be in conflict with one another to a varying degree but can also be compatible. The relation between qualitative criteria is always dependent on the base data relating to the situation of the depot and its vehicles and is therefore dynamic. PSI*traffic*, incorporating Qualicision®-based depot management, is in operation in numerous depots at more than seven locations in Germany. The system will soon be transferred to internal traffic at logistics providers and production enterprises.



Extract for designing a dynamic scheduling configuration for depots by means of differently weighted Qualicision® target priorities based on the values of a bandwidth ranging from 0 (deactivated) and 100 (full effect).
Source: PSI Transcom

Workforce management for optimum planning and control of maintenance work

The efficient operation of spatially decentralised infrastructures such as energy supply networks is a demanding task of high economic significance. Value-preserving maintenance work on the network infrastructure that guarantees the security of supply has to be carried out within the scope of scheduled measures. The planning and operative scheduling of maintenance and construction work, as well as the management of troubleshooting activities such as confirming and processing faults, is a continuous optimisation process of decisive economic significance to the dynamics of business operations.Integrated Qualicision® optimisation enables the software tool PSI*command* to control these complexities and map the entire spectrum of optimisation targets. As an example: the optimisation was able to equalise the distribution of workload among service employees. Allocating work tasks to workforce units created a balance between contradictory optimisation objectives, for instance allocation on the basis of minimum qualification profiles, reduction of external labour ratios and aiming to achieve as much task variety as possible. The solution is already in use, providing systematic support to dispatchers via a suitable user interface.

Deployment management system for energy network maintenance and troubleshooting using PSIcommand with integrated Qualicision® optimisation guarantees the best possible technical and economical task synchronisation. Source: Thinkstock

Needs-based goods relocation between warehouses

Under the slogan "Fashion that suits me", the Ulla Popken group of companies sells ladies' outerwear and presents its customers with changing collections each month. The company sells its fashion range in over 300 branches, by mail order and online, with the help of selected European and international franchise partners, and also with shop-in-shop partners who are supplied with items in various sizes from the central warehouse.

The demand for goods from the seasonal range varies in different branches due to, for example, regional conditions. The dynamics of demand give rise to differently structured stocks of items and sizes in the individual branches. With the aim of harmonising the stocks in the branches with the demand structure, employees at head office or regional sales directors regularly decide which branches send which item quantities to other branches and when. Head office defines the target and minimum stock levels for each size of an article to be kept available at each branch. The sales reports are constantly assessed to ascertain at which branches and for which items the stock levels need to be adjusted, and how the stock transfers are to be executed.Further supplies can be obtained from the central warehouse only as long as there is sufficient stock available. Stock relocations between branches are then generated dynamically. Qualicision®-based optimisation now supports the former manual method of determining relocation requirements.

► *Information*

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