



Storage and Implementation Planning for a Supply Center for the Automobile Industry

Quick-Wins

- 1** Status analysis of existing material and information flows as well as applied transport and supply concepts
- 2** Development of alternative concepts regarding future material flows, transports and IT, including layout, area and structure planning
- 3** Detailed planning of all material flows and logistics processes inside and outside the supply center and their optimization through automation solutions
- 4** Detailed planning of warehouse technology and equipment as well as personnel requirements
- 5** Creation of a specialist IT concept for the creation of a gap-free, smooth and integrative information flow along all logistics processes
- 6** Preparation of tender documents for awarding the operational logistics business to a logistics service provider, including tender support
- 7** Relocation and ramp-up planning taking into account all restrictions of the site-related interface areas during ongoing operations
- 8** Implementation support of the gradual ramp-up of the supply center with all interface partners



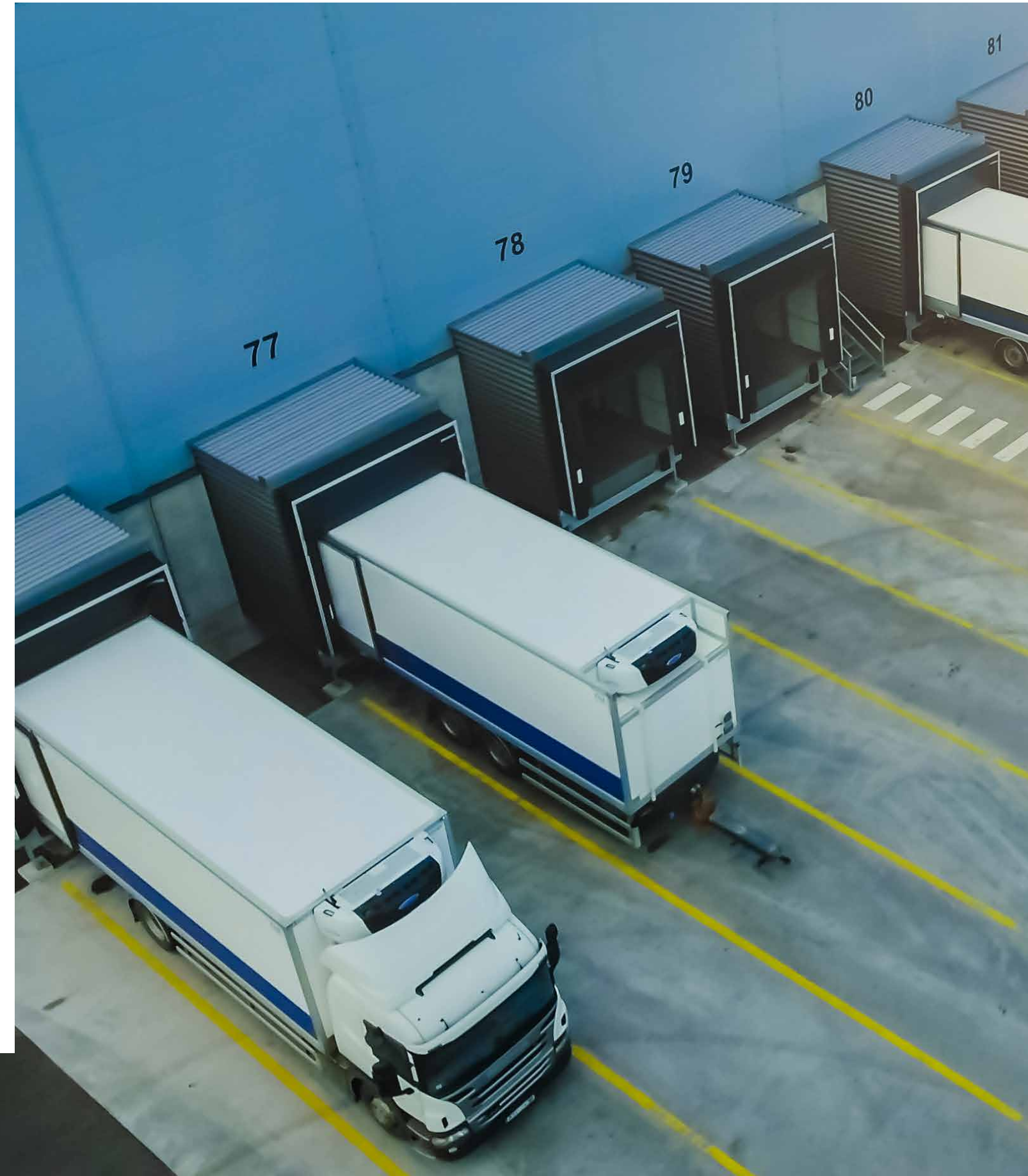
Introduction

A clear trend in automobile logistics is the sharply increasing complexity of product lines. The larger number of models and variants are the main drivers here. And this trend has direct implications for the logistics of an automobile plant. In addition to the supply of and removal from production lines, the upstream process steps up to the n-tier suppliers are affected by drastic increases in transport volumes, space requirements, handling levels, and personnel requirements.

Therefore, there are numerous requirements to fulfill along the supply chain in order to be able to supply production demands at optimal costs. A significant requirement of the automobile manufacturers is to break down their traditional plant structures and re-establish and enhance them so they are fit for future challenges.

Plant structure planning at a large German automobile manufacturer

The goal of the project was to work in close cooperation with the customer to consolidate all of the location's incoming and outgoing logistics streams. For this, a 44,000-square-meter supply center adjacent to the plant was supposed to be planned from the ground up and implemented (greenfield). In the past, the material supply buildings were scattered across the plant premises and the external warehouses, which created infrastructure bottlenecks. In addition, valantic helped the customer further expand the location's group-wide pioneering role as an innovation center by implementing innovative, sustainable logistics concepts. These include the use of electric driverless transport vehicles, for example. "An enormous challenge at the beginning of this project was the lack of transparency and inconsistency with respect to existing processes and planning data. Therefore, establishing a reliable basis for planning required a lot of work," remembers Markus Hoff, the assistant project manager at valantic.





To achieve the goals, Hoff and his team of ten employees completed multiple project phases, from initial planning to final implementation support and managed the following sub-projects:

- Actual analysis of existing material and information flows, as well as of transport and supply concepts applied
- Development of alternative concepts with regard to future material flows, transports, and IT, including layout, space, and structure planning
- Fine planning of all material flows and logistics processes within and outside of the supply center, and their optimization thanks to automation solutions
- Fine planning of warehouse technology and equipment, as well as personnel requirements
- Creation of an IT concept for creating a seamless, smooth, integrative information flow along all logistics processes

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- Creation of the bidding documents for awarding operative logistics operation to a logistics service provider, including bidding support
- Moving and start-up planning taking into account all restrictions of the local interface areas during ongoing operation
- Implementation support for the stage-by-stage start-up of the supply center with all interface partners



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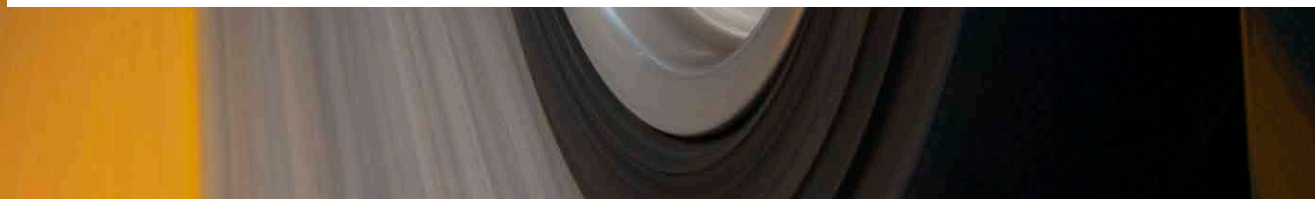
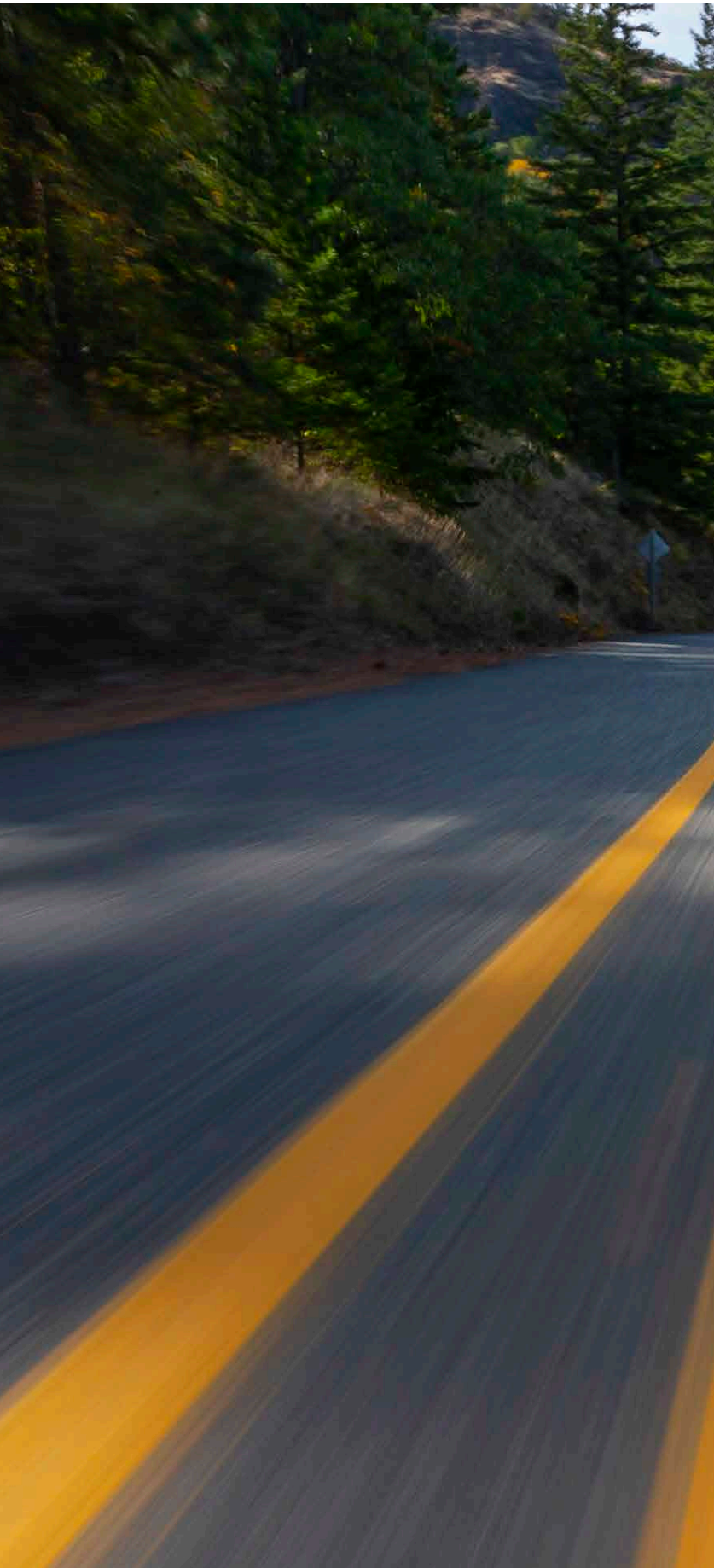


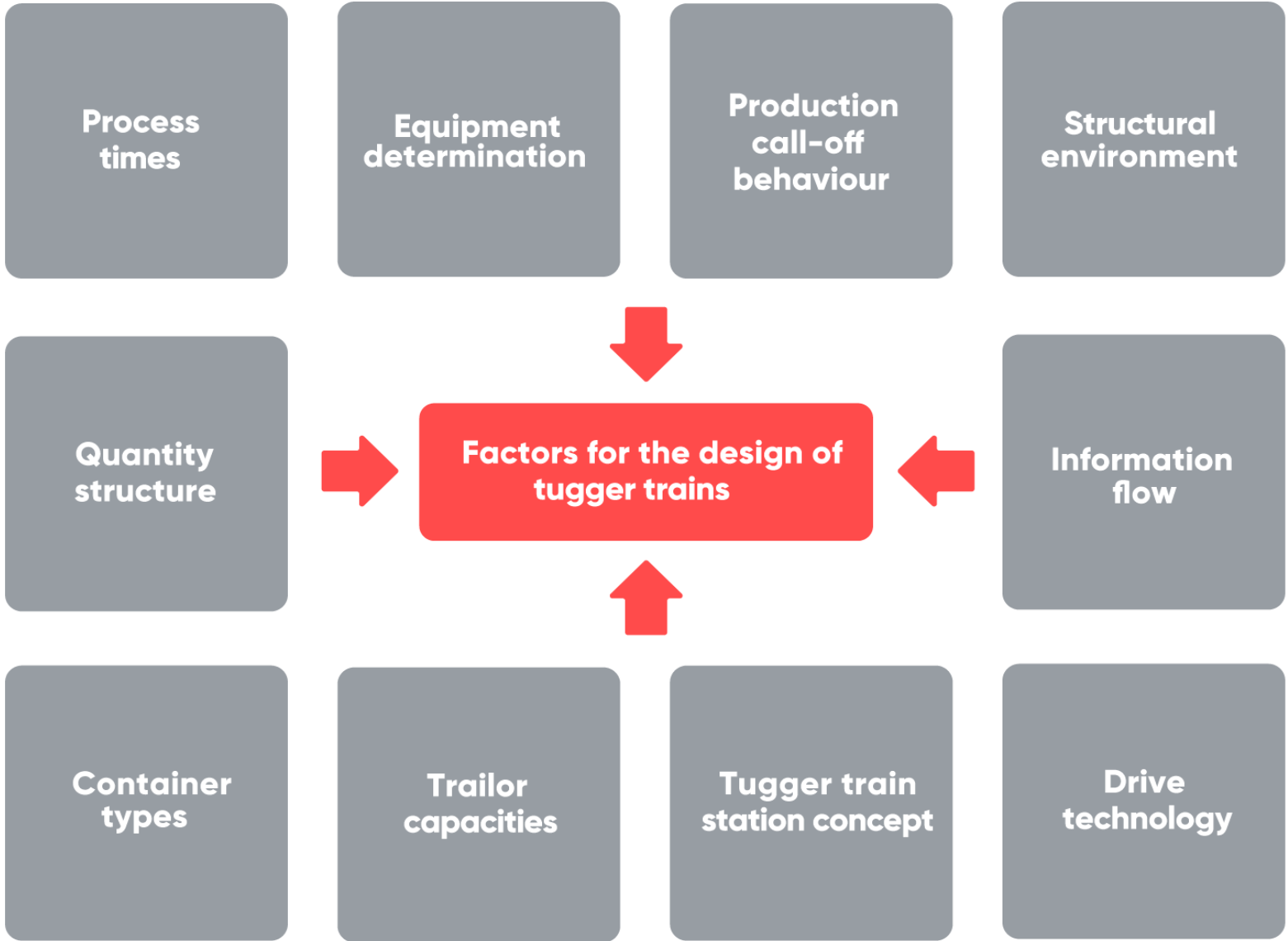
Plant structure and material flow planning

In the course of plant structure planning, valantic succeeded in creating additional production space by shifting existing logistics areas to the production halls. In addition to the spatial analysis that helped with production supply and removal, the positioning of logistics spaces such as trailer change areas and battery charging stations was re-planned.

Furthermore, valantic and the automobile manufacturer's project employees drastically reduced the load on the traffic infrastructure with an optimized material flow design taking into account the supply strategy.

Traffic and noise emissions were thus reduced considerably. The new material flow design not only resulted in optimized routes, it also adjusted frequencies and means of transport. For this, the use of electric trucks and route and trailer pulling for the transport of full and empty containers were evaluated using different scenarios, and the optimal scenario was then implemented.



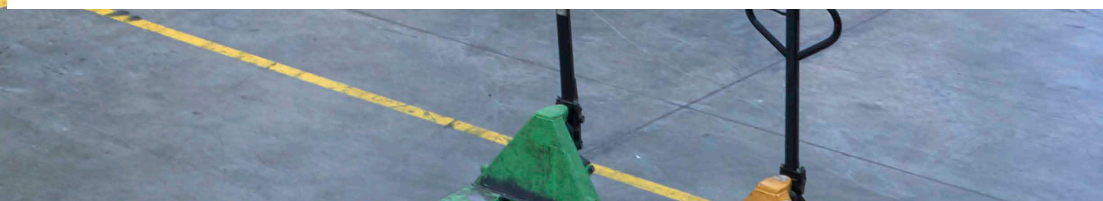


Nine factors have to be considered for the re-design of routes in a supply center. (Source: valantic).

Short and long-term storage planning

A central element of the project was storage planning for the new supply center. The basis of the planning was a valid quantity structure, which also considers future quantity development so that the supply center can fulfill not just short-term, but also long-term requirements. In addition to planning layouts for incoming and outgoing goods and storage types such as floor storage, rack storage, picking with small-load carriers, and individual parts, spaces for empty goods and social and break rooms were also planned. Here, Lean management methods were applied. valantic heeded structural, occupational safety, and fire safety restrictions for the design of spaces and logistics structures. The layout planning was also designed so that there would be appropriate use of personnel and equipment.

When the layout planning is complete, the fine planning of logistical processes is enormously important. Here, the interplay of logistics areas, logistics structures, equipment, and personnel is brought to bear. Planning picking areas in harmony with the supply requirements of individual production areas is the greatest challenge here. When selecting logistics structure and equipment, valantic always conducted a market analysis in order to develop the lowest cost and most process-efficient technical solution.



IT concept for automobile manufacturers and logistics service providers

So that the planned logistics processes are in harmony with the logistics structures used, the equipment, and operative employees, a continuous, integrated, disturbance-free flow of information is required. In addition to the automobile manufacturer's logistics systems, the interfaces to the logistics service provider's processes were also planned and implemented. Based on the previous planning, valantic worked with the customer's department to formulate an IT concept. Subsequently, this IT concept was validated in close cooperation with the customer's IT department and transferred into an IT concept that the customer's IT department implemented.



Awarding to a logistics service provider

valantic uses a standardized, methodical approach to award operation of logistics real estate and processes to logistics service providers; for this, it created a logistics quantity structure and a standard compensation sheet in advance. In addition, the scopes of supply for logistics service providers and interface processes between logistics service provider and the automobile manufacturer were defined. From this, valantic developed a requirements specification that formed the basis for the logistics service providers' bidding process. The shadow calculation created was the authoritative basis for comparing the individual providers' bids. After awarding by the customer's purchasing department, valantic assisted the logistics service provider during start-up so that, among other things, shop floor management was implemented and the smooth flow of the planned processes could be assured..



Assessment and introduction of innovations

In order to further expand the plant’s pioneering position as innovation location within the automotive group, various innovative logistics concepts and technologies were assessed for their sustainability, feasibility, and economic efficiency. valantic’s standardized methodology for identifying and implementing potential logistics innovations has already produced specific results quickly in various projects.



Innovative highlights of the project (excerpt):

E-trucks

The use of electric tractors for plant traffic results in an improvement of the automobile plant's CO2 footprint. Hazardous substance and noise emissions were reduced significantly.

3D stacker management system

A laser location and stacker management system automatically locates charging stations where e-trucks can be charged. This reduced paper consumption, search times for the stacker drivers, and the error quota for storing correct load units. Furthermore, scanning the load units during internal transport became a thing of the past.

Driverless transport system (DTS)

In the future, DTSes will automatically supply the tugger train station with load units from the high-bay warehouse. Thanks to the goods-to-person principle, fewer employees were required and the productivity of the industrial vehicles deployed was increased.





Move planning and implementation support

In the final phase of the project, valantic recorded, assessed, and formulated plans for the individual phases of the move, start-up and implementation phases of the supply center. "At the end of the project, seeing the finished building with functioning processes and flows and attending the festive opening was an unbelievably fulfilling feeling, not just for me, but for the whole valantic team," recalls assistant project manager Markus Hoff. valantic assisted intensively with the start-up phase and, among other things, supported the process for continuous improvement in ongoing operation.

About valantic

valantic is the N°1 for digital transformation. We combine technological expertise with industry knowledge - from strategy to implementation. The range of services includes Financial Services, Customer Engagement & Commerce, Business and Predictive Analytics, SAP/ERP/HR Consulting, Enterprise Software and Logistics & Supply Chain Management.

The valantic Supply Chain Excellence division is the proven partner of companies in the end-to-end digitalization of business processes, optimization of value chains and enhancement of logistics performance. From integrated process and IT consulting to the implementation of IT systems, valantic supports its customers in the areas of SCM, production, logistics and supplier management.

As part of the SAP Digital Supply Chain, valantic is a SAP partner for SAP Integrated Business Planning.

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You can find more information on our website:



www.valantic.com

or contact us!



info@sce.valantic.com



+49 89-578399-0

valantic
Supply Chain Excellence GmbH

Location Munich

Birketweg 21
80639 Munich
Germany

T +49 89 578399-0

Location Böblingen

Konrad-Zuse-Strasse 12
71034 Böblingen
Germany

T +49 7031 2096210

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