An OEM within the Volkswagen Group expands its product range and streamlines production logistics with Tecnomatix

Diversification drives improvement
The Czech company Škoda Auto, one of the four oldest automobile manufacturers in the world, operates as a subsidiary of the Volkswagen Group. Škoda Auto is part of the division that includes among others the brands Volkswagen, Bentley and Bugatti. Among the vehicles produced by Škoda Auto are the Fabia, Roomster, Octavia, Yeti and Superb models.

After several local implementations of Tecnomatix® digital manufacturing from Siemens PLM Software, Volkswagen decided to deploy digital manufacturing on a global basis. At that time Škoda Auto was expanding its product line with new models and an increasing number of options. That expansion, along with demands for higher quality, shorter cycle times and the need to boost manufacturing productivity and efficiency led to the creation of a digital factory logistics project.

After benchmarking several digital manufacturing options, Škoda Auto purchased
the Tecnomatix solutions for assembly planning and validation, and plant design and optimization. These were implemented in conjunction with the Tecnomatix logistics planning system.

One system replaces many
Radek Fáborský, the leader of Škoda Auto’s digital factory logistics project, prepared a successful implementation plan based on the Škoda Auto/Siemens developed automatic update mechanism for bills of material (BOMs). The engineering BOMs for the Roomster, Superb and the company’s new SUV, Yeti, set the stage for complete logistics planning using accurate data for all three cars. The main idea was to cover the full product lifecycle from the planning stage to the beginning and end of production. The open architecture of the Tecnomatix solution allows Škoda Auto’s engineers to share information across the product and process value chain. This same integration promotes efficiencies at the start of production (SOP) and flows back to other systems during production.

“We have extremely fast access to data for evaluating potential improvements,” says Jiří Cee, Škoda Auto Logistics CEO. “We can track the logistics production time of each single part, and optimize the ergonomics or the way parts are being put on pallets. In this way we can minimize the minutes spent on a specific car.” Data from this highly reliable application are also available on the shop floor, with the same level of quality and accuracy.

Škoda Auto made the important decision to fully implement Tecnomatix and switch off all other systems calculating logistics production time. This was done with the support of Siemens.

Processes as well as data structures are very complex at any car manufacturer, and the Škoda Auto logistics workflow and data flow diagram easily covers three square meters of wall space. Another problem was the huge amount of engineering BOM data of the Octavia car (within the second half of its lifecycle). “But Siemens reacted very quickly and the complete datasets were successfully transferred into the system where all process alternatives could be evaluated,” says Fáborský.

Broad functionality is convincing
The advanced functionality of the Tecnomatix solution led to the decision to use it to manage more areas – such as the supply chain, workforce demand and even logistics process time calculations – and to make the solution available to more engineers, similar to an “Outlook” for manufacturing. A time management module was added to the implementation and it turned out to be very reliable and easy to use. Comparisons with the traditional approach proved the new system to be
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Radek Fáborský
Project leader
Digital Factory Logistics
Škoda Auto

Absolutely correct. After six months of agreement, the traditional time calculation was switched off. “We felt that we could bring our complete knowledge into one system, and we succeeded,” says Fáborský.

At this point the benefits of the new Tecnomatix-based approach were clearly visible to all participants. A semi-automatic transfer of the manufacturing BOM streamlined the work of both logistics planners and operational logistics engineers. The placement of each part at the assembly line for the Škoda Auto models Superb, Yeti and the Roomster can now easily be transferred to and from Tecnomatix. The 40,000 data records per car (120,000 data sets in all) are updated and processed regularly.

Škoda Auto Logistics currently has thirty-two listed users in the Tecnomatix logistics planning system. Fifteen logistics planners and industrial engineers use it on a daily basis. “Our goal is to bring the remaining people into the system,” says Fáborský. By 2011, he estimates a total of 48 users.

Having the manufacturing and logistics data in one system saves search time, and facilitates new calculations and acquisitions. “We can use the software to run an analysis, calculate alternative scenarios and optimize our processes,” Cee adds. In the future, when all of the data related to the cars, processes, workplaces, EBOMs and suppliers is available in Tecnomatix, Fáborský expects the tool to be as important for a car manufacturer as Microsoft Windows. Then the team can start layout planning, bring 3D images into the system, work on ergonomics and simulate material flow.

“Our first goal was very high data quality, which was crucial for the whole system,” explains Fáborský. “In this way the implementation turned out to be economically very successful. With Tecnomatix, we gained lean processes without time-consuming discussions or huge expenses.” For those considering a similar technology rollout, Fáborský’s advice is to do the basic implementation “homework” within the company, and to work with a knowledgeable consultant who is available at all times on the phone and understands the enterprise’s needs.