SUCCESS STORY

Intelligent Vehicle Logistics System

VW Mexico realized their vision for a highly integrated approach to vehicle logistics by coordinating production and import/export volumes into a highly efficient process using SYNCROTESS from INFORM GmbH.

"It has already covered 10,000 kilometers with no mileage on the clock", jokes the VW dealer as he hands over the keys of a new Beetle which was ordered some weeks ago by its new owner in Germany. After all, with modern global production, many Volkswagen cars are nowadays delivered over long distances before they can be handed over to their buyers and numerous processes in a global logistics chain have to be perfectly synchronized for this to happen.

VW produces not only the Beetle but also the Jetta in its plant in Puebla, Mexico. Every year, 15,000 employees produce around 600,000 vehicles for worldwide distribution. Both the production and subsequent shipping of the cars is dominated by a demand for the shortest possible time between order and delivery carried out by a combination of truck, rail and ship to European as well as North and South American dealers.

INFORM's SYNCROTESS Vehicle Logistics software controls the transport logistics of the vehicles handled in Mexico for the global market. This includes vehicles produced in Puebla as well as cars imported from other locations around the world. The most efficient transport planning possible is crucial to ensure that each car reaches the right dealer in the right country at the right time and with minimized costs.

A complex task

VW dé Mexico uses the intelligent vehicle logistics system SYNCROTESS to plan each element of the logistics process from the Mexican site. The software, from Aachen system house INFORM GmbH controls all yard processes, including storage and the loading of the cars, and coordinates these with all inbound and outbound transports. This includes not only trips to Mexican dealers but also movements to the ports of Veracruz and Acapulco from where the cars are shipped around the world.

"We wanted a transport management system that allowed us to organize all of the processes in the yards as well as the transport and to show these transparently in one system", says Björn Beckmann, responsible for logistics planning at Volkswagen de México. It's a complex task, as a glance at the figures shows. The yard directly alongside the production hall in Puebla alone can hold over 11,500 cars with a further 8,000 spaces available in external yards. In the port of Veracruz another 12,000 cars can be held awaiting import and export.

Yard spaces are a valuable resource. "Around 1,700 cars that leave the production plant in Puebla every day are joined by around 600 imported cars every day which arrive by vessel from Volkswagen Group production sites around the world", explains Beckmann. In order to avoid overcrowding in the yards, a smooth daily shipping of vehicles is of crucial importance for the entire logistics process.

"We ship around 1,200 cars per train from Puebla every day. 600 of these are sent directly to North America and the other 600 to the port in Veracruz from where they are shipped to Europe", explains Hector Romero, responsible for the yard management in Puebla. On top of that, around 100 trucks leave the yard every day to deliver cars to the ports or directly to Mexican dealers. These so called "Madrinas" are giant trucks with a capacity of up to 15 vehicles. This means that

VW MEXICO
Around 18,000 staff are employed at the Volkswagen plant in Mexico (VWM), which has been in operation since 1967. More than 80 percent of the 605,500 Beetles, Beetle Cabriolets, Jettas and Golf Variant produced at the plant in 2012 were exported to the global market.

a total of around 2,500 cars start their journey in Puebla every day. "Thanks to SYNCROTESS, most of these cars spend less than a day and a half day in any of our yards", continues Romero. This efficiency saves both time and money, which can be considerable over the year.

» **In the past, we had a number of different yard management systems from our logistics providers. These systems only collected data, and did not organize our workflows. SYNCROTESS provides us with a system with which we can optimize all processes centrally in real-time, and simultaneously synchronize these throughout the entire supply chain. We have thus been able to realize our idea of a highly integrated approach.**
Björn Beckmann, responsible for logistics planning at Volkswagen de México

Transparent processes

"Vehicle Logistics System" is the name of the SYNCROTESS transport control software that was chosen for the task in September 2007. "Apart from transparency, we needed a system that was able to automate, organize and synchronize our processes", is how Beckmann explains the decision to go with SYNCROTESS, and on completion of the project in mid 2008, the software had been successfully installed in all VW yards in Mexico.
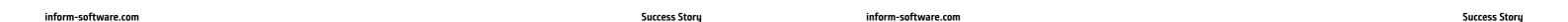
The software receives planning data from the central Volkswagen system TOMCADS via an interface. This system manages the entire global supply chain at VW and prepares the worldwide transport routes for the vehicles (e.g. from Puebla to a dealer in Emden). "Based on the data supplied by TOMCADS to SYNCROTESS, our system automatically generates the best possible workflow for all tasks that have to be completed to ship a car efficiently", explains Matthias Berlit, Vice President of Manufacturing Logistics Division at INFORM.

Intelligent yard management

The process starts at the end of production, at checkpoint eight. "This is where the cars are handed over from production to logistics", explains Beckmann. Approximately three to four hours beforehand, TOMCADS announces the arrival of the car at this point to SYNCROTESS along with other important details. "This includes the destination, delivery date and the car model. Planning has practically been completed by the time the car reaches check point eight", continues Beckmann.

Before the car finally reaches the yard it passes three further processes. It is first inspected to ensure the perfect condition of the car. "If we discover that the car cannot leave the plant on account of a fault, the relevant inspector sends a message so that SYNCROTESS can re-plan the route for the car, taking into account any necessary repairs", says Beckmann. Next, each car receives a combination of foam pads and film covers on parts of the bodywork to protect it against damage during transportation. Based on the data from the VW system, SYNCROTESS knows the model type of the car and can ensure that the right process is carried out. The same applies for the accessory process, where employees place the correct hub caps and manuals in the car. It is then moved to the yard where SYNCROTESS

decides on the best possible space by taking into account the destination, date of transport and expected means of transport. Finally, the car is scheduled into a loading plan to meet the required transport date.

Efficient transport management

Transport movements are compiled by the core of the SYNCROTESS system, the trip-optimizer. "This allows us to compile the best possible transport routes to ensure an efficient and on-schedule delivery of all cars", says Beckmann. "The following criteria are applied when it comes to optimizing the transport: a transport route should be as short as possible and using the best mode of transport (road, rail or sea). " These conditions also affect the choice of location in the yard so that the cars can be loaded in the correct sequence according to the planned route and mode of transport. "This is very important", adds Beckmann, "for example, our rail wagons can hold 17 cars. But if the cars are in the wrong order during loading, we can lose vital capacity." The same applies for loading the cars on trucks.

The import and export of cars via the ports of Veracruz and Acapulco is even more complex. Arriving and departing vessels also have to be taken into account in the planning. "It is important that we know when a vessel will arrive and how many cars it is carrying. In this way we try to combine and optimize the import transport from Veracruz to Puebla with the export transport on the return leg taking into account lead times and avoiding creating additional intermediate storage requirements", continues Beckmann.

Integrated Optimization

With SYNCROTESS for Vehicle Logistics, VW has a highly integrated system which synchronizes and transparently controls all of these processes. "We develop and continuously improve complex optimization algorithms that consider the entire logistics processes in the yards in real-time and calculate optimized strategic decisions from these", says Berlit. "Moreover, the system is easy to operate so that it is widely accepted by VW employees after a very short familiarization period."

A total of around 200 people work with the SYNCROTESS software on each shift. The carriers responsible for truck transports of the cars are also integrated in this system. "Together with Volkswagen we have built up a special process for them", explains Berlit. The carriers can call up their relevant job online, confirm their collection time slots and the system ensures that the cars are prepared and are available in the correct load lane at the right time.

If you would like to know more, we look forward to hearing from you:
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