KEEPING THE NETHERLANDS ON TRACK

How MES improves the customer journey of 1 million passengers

NS Dutch Railways safely carries more than one million passengers to their destinations every day. Passenger satisfaction is one of the railway operator's highest priorities, and one of the activities in which NS Dutch Railways invests so as to offer passengers the smoothest and most efficient possible journey is the continuous upgrading and renovation of its trains. The NS Train Modernisation workshop keeps a sufficient number of trains operational to keep the growing number of passengers that use NS services satisfied. Marco Kerstens, Senior Operations Manager at ICT Group, was part of the team responsible for automating this process at NS Train Modernisation.

Digitalisation of the renovation process

The upgrading and renovation of trains is a complex challenge involving many different parts and components. Marco: "When NS inaugurated its new wheel-set re-engineering workshop in Haarlem in 2017, they did not only install new machines, but also decided to further automate the renovation of wheel sets." Renovating wheel sets is a sustainable and cost-effective solution, and with around 100 engineering and planning experts on staff, NS ensures that all 13,000 available wheel sets are literally 'kept on track'. Once a wheel set has been renovated, it is good to go for another 1.2 million kilometres.

ICT smarter solutions

On arrival in the workshop, the wheel sets are inspected for wear and tear and damage to determine what parts and components need to be replaced or repaired. The next step is to create a workflow for the re-engineering process. "NS selected ICT Group for this project on the strength of our extensive experience in configuring MES software applications," Kerstens continues. MES, an acronym for Manufacturing Execution System, links customer demand from the ERP (Enterprise Resource Planning) system to the machines. "To put it in simple terms, the MES operates the machines digitally when performing the repair work, makes sure they start and stop in time, and collects all the test results and data required. MES really records every movement made. We use barcodes to track all parts and components, which means MES can process, record and store more than 100 tests per wheel set."

MES

During the re-engineering process used for the wheel sets, MES monitors the production parameters, issues an alert when an intervention is necessary, keeps track of the parts and components used per wheel set, and communicates with the ERP system to order or queue components. An additional advantage of an MES is that the system stores all tests and production data in one central location, making it possible to further optimise the re-engineering process based on smart data analysis. Marco: "MES automatically copies all relevant data to the maintenance system. All tests and re-engineering data are kept up-to-date, just like all actions performed by the operators, including implementation time and the results of these actions." NS on the automation process: "In addition to its successful completion, the automation project is also of a high quality and was finished right on schedule."

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"I am given the freedom to advance my personal mission and live up to my full potential, both personally and in my career."

Marco Kerstens, Senior Operations Manager at ICT Group

Fascinating challenge

Automating these types of processes is a complex business. There are many aspects and challenges involved in a production process: apart from requiring technical knowledge, it also calls for knowledge of the discipline, empathy, flexibility and strong communication skills. You start out by asking the client about the functionalities they're looking for, and then come up with a design that you eventually deliver to the client on-site fully operational. It means being involved in all aspects from start to finish!

Successfully managing an MES project also requires knowledge of both the hardware and the software (PLC and SCADA). In the case of NS, this included knowledge of the interfaces with the dozens of machines that must generate data, and various software applications. Marco: "For example, all operators in the workshop are equipped with a mobile scanner they can use to communicate with the MES. They use this scanner to store the measured data, scan and check objects, enable and disable tasks, and confirm certain actions." This app was developed by OrangeNXT, a division of the ICT Group.

Important contribution

Marco: "Working at ICT Group involves more than contributing to key processes within the various fields in which we operate." At ICT Group, you and your needs come first and you will be given new challenges and opportunities every day to proactively develop within your expertise. "I am given the freedom to advance my personal mission and live up to my full potential, both personally and in my career." The development and sharing of knowledge is a continuous challenge for ICT Group, with passion and personal ambition being all-important.

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