

Electronic initial sample inspection report in large corporations

Bringing all plants together

In 2014, a development project between Robert Bosch GmbH and iqs Software GmbH was started, with the aim to introduce digital initial sample inspection reports to all manufacturing plants in the “Mobility Solutions” division of Robert Bosch GmbH. The main challenges were the standardization and digitization of the sampling process, the global implementation in almost one hundred Bosch manufacturing plants and the connection of thousands of suppliers via a web application. This Herculean task has now been successfully completed.

In the automotive industry, initial sampling of a component is an important element of the quality management system. Before a supplier is allowed to go into serial production, the customer requires that the component be checked for compliance with all specified properties (specifications). The supplier documents the result in the so-called initial sample inspection report (ISIR), which is created on the basis of sample parts and transmitted to the customer. The customer verifies the relevant documents, makes a usage decision and archives the documents.

Advantages for customers and suppliers

The complete digital and standardized handling of the sampling process (electronic Initial Sample Inspection Report, eISIR) has numerous advantages for suppliers and customers alike:

- › The technical drawing can be read directly from the CAD system into the CAQ tool. All drawing characteristics are automatically recognized and stamped. Among other things, target values, tolerances, attributive characteristics and values of a characteristic are transferred. This eliminates the time-consuming and error-prone manual transfer of these values from the CAD system.
- › The ISIR is transmitted with digitally editable files between the supplier and the customer.
- › Measured values recorded with electronic measuring devices (e.g. 3D measuring machines) can be transferred directly to the ISIR.

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- › Deviations from the actual value or missing positions are automatically recognized and displayed.
 - › The supplier's locally available IT systems can be used without restriction, since the applied software is web-based and the data packets can be exchanged via a standardized QDX interface.
 - › The ISIR is stored in a central database, so that it is possible to access the data worldwide.
 - › By using the eISIR, the processing time of an ISIR is significantly reduced.
 - › The elimination of manual processes reduces potential sources of error to a minimum.
 - › The global standardization of the process promotes the completeness of requirements, which leads to a reduction in recursions.
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Bühl pilot plant

Robert Bosch GmbH developed the eISIR together with iqs Software GmbH at the Bühl plant over 20 years ago. Although the experience in individual plants was consistently positive, the technical prerequisites for global use have until now been lacking. There was no uniform IT connection for suppliers. In addition, plants placed individual emphasis on processes. Therefore, many locations continued to prefer the established "paper sampling". As part of the global centralization of purchasing for the „Mobility Solutions“ division and due to the technical development in the IT area, the project described here was launched in 2014 at the request of management, which aimed to introduce eISIRs worldwide.

Rollout in 84 Bosch plants

The basis for the successful rollout was a project team made up of several internal employees who were released for this task. As a first step, existing Bosch-specific processes were transferred to a digitally editable format and integrated into an existing iqs software solution. Furthermore, a web application was developed with the software partner, via which all relevant ISIR data can be exchanged between Bosch and its suppliers. Based on the iqs full version, this web application was simplified in such a way that no significant training sessions for the users were required. This web application presents a safe, simple and standardized solution for data exchange. For example, it is possible that suppliers can connect their existing CAQ software via a QDX interface.

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The rollout of the eISIR took place in successive stages. These included internal training measures, support offers for employees as well as suppliers and optimization of the software. The project was completed in late 2018. Around 1,600 ISIRs are currently processed digitally per month and over 2,500 suppliers are connected via the web application. This makes the eISIR the global standard process for sampling at Mobility Solutions.

Division strengthened

The worldwide standardized introduction of the eISIR laid the foundation for using its potential within the entire value chain. This includes increased efficiency in processing the sampling procedures through standardized workflows, documents that are available worldwide, and automated sampling requirements including validation processes for the release of samples. In addition, there is increased efficiency due to a measurable reduction in the number of recursions required.

High development potential and prospect

Further potential for improvement was discovered and consistently optimized, including the networking of eISIR with other systems in the group. The system has proven itself in the Mobility Solutions area and is also requested by divisions outside the automotive area. Most parts of the eISIR can be adopted in these areas, and adjustments can be implemented without major effort. Another division has been in the rollout since 2019. Parts of the eISIR are also integrated in internal quality processes. Further quality processes are being digitized with the aim of involving Bosch customers in the data exchange.

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