Whitepaper

How to Increase Your Efficiency with Real-Time Data

Why perfect timing is crucial in production

Why Real-Time Data?

It seems humans will have to surrender their status as most important data source in production to machines, since sensors increasingly take over the task of entering measured data and status information and providing them across connected systems. This not only improves the amount of information but also the speed of the transmission. Real-time processing of mass data has conquered production. But what are the benefits? We've taken a closer look.

WHAT IS REAL-TIME?

There is no clear definition of „real time" since every production company uses the term differently. The use case defines the meaning of real time. For some scenarios it might be split seconds, for others a range from seconds to minutes might still be considered real time. The golden rule is: There may be no perceptible delay within a defined procedure.

Another aspect to be considered is at what point a step can be classified as complete. For example, before a worker reports a step as complete, they must ensure that the machine is shut down properly and that the result is adequate. Therefore, it's often not just about the temporary aspects of real-time data but also about the whole operating process.

WHAT ARE THE BENEFITS OF REAL-TIME DATA?

There are many scenarios in which instantaneous processing has significantly improved productivity, regardless of the exact definition of real time. As a general rule, automated processes require automated monitoring, and the more automated a process is, the more automated the monitoring has to be.

A perfect example for this is the monitoring of machines. Various sensors constantly register certain criteria like temperature, noise level, speed, etc. and hence allow for a prompt intervention if the measured data exceed or fall below certain threshold values.

When you then compare the current status data to historical values of past machine failures or load-dependent reliability analyses, you can draw conclusions about potential problems. This accelerates the error analysis and helps to avoid unscheduled failures.

In addition, further actions like predictive maintenance can be implemented when real-time data from production are related to relevant commercial and technical information. For instance, if a potential problem at a machine is imminent, the ERP system can automatically create the necessary maintenance order before it actually stands still.

WHAT OTHER FIELDS OF APPLICATION ARE THERE?

Processes which have not yet been automated entirely also benefit from prompt reporting, for example, in the assembly department. Cameras or smart glasses help check whether the employee is using the right material. The workpiece which is currently being processed is identified by scanning its form or a barcode, and the required materials are assigned. This way, training periods can be reduced and the deployment of employees can be scheduled more flexibly.

In logistics, too, you can benefit from the ad hoc availability of certain data for increasing efficiency. Real-time tracking systems are able to locate workpieces and their carriers in a production hall with an accuracy of 10 cm. Based on this position, you can determine whether an order is currently work in progress or already being assembled. This status is then reported back to the ERP system. As a result, the sales department can pass on the latest information to customers at any time, without having to contact the production department first. A kanban system can also be mapped without any problems, especially since the costs for real-time tracking systems have significantly fallen in the last years. SMEs can now also afford the implementation of such solutions.

A chain is said to be only as strong as its weakest link. Therefore, such projects should not only focus on the fast collection and provision of data but also on their processing. We recommended to start the process with simple scenarios and to develop it step by step. Companies which haven‘t dealt with any real-time data yet are advised to involve an external consultant. This will avoid beginner‘s mistakes and reduce the time required for the implementation of new monitoring technologies.

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