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Predictive maintenance is based on trust

The buzzwords Internet of Things (IoT) and Industry 4.0 are currently on everyone's lips. And at a time when we are moving ever further away from mass production into the industrial manufacturing of customer-specific products, new business models are becoming more significant. However, in order to implement these business models efficiently, more than simply the most contemporary machines and technologies are needed.

The prerequisite for the smooth functioning of a mechanical machine is regular, type-appropriate maintenance - after all, to this day there simply is no mechanical system that is not subject to wear. There may be different types of maintenance strategies, but what they all have in common is that they come at a cost. Contemporary companies are therefore already focusing their manufacturing processes on „predictive maintenance," which goes easy on costs.

The aim of predictive maintenance is to move away from the preventive replacement of components - as was common practice in mass production - and to replace only those parts of the machine that are about to fail on the basis of their life cycle data, meaning that they won't be able to perform their function much longer With the help of sensors and recorded operating data, past experience values can be used to show when a component's wear limit has been reached. For example, the „remaining life" of certain parts of the machine can be estimated on the basis of the number of products made per hour.

How reliable is this method?

Everyone knows that basing such estimates on insufficiently recorded information are only approximations to reality. For example, the number of kilometers driven does not tell a driver whether his brake pads need changing or not. To judge this, a mechanic needs additional information about the driver's driving style. To measure a machine's „style", it is equipped with appropriate sensors to measure vibrations, acceleration, temperature and the like. This data is then stored in a cloud modeled on the IoT, where it can be accessed at any time.

But even the method of using sensors does not go far enough with regard to IoT and Industry 4.0. After all, each sensor represents a possible source of error by, for example, providing no or unrealistic data. In such a case, how should the control system work?

Following the example of the IoT, the production data of all your orders would be stored in a cloud, allowing your machine to accurately assess whether data is faulty, wear parts are failing or the machine is producing efficiently and reliably as usual.

What if a special production run is scheduled?

In addition to the stored data of older production runs, it is necessary to work with a „view" to future events in order to make an optimized prediction. Let me explain this again using the example of the car: If you normally drive your car only about 100 kilometers a day, you will certainly subject your car to stricter checks for an upcoming trip from Switzerland to the North Cape. If you've always had your vehicle serviced at the same garage, your service provider will have found out pretty accurately over time whether you are a cautious driver who is always on the safe side, a rowdy who pushes the technical and legal limits, or any driving style in-between.

However, despite regular maintenance, you will inform your service provider of your intentions so that you won't experience any nasty surprises on the road. You will tell the car mechanic that you intend to cover the same number of kilometers within two weeks that you would normally drive in two months. Otherwise, you might end up stranded in Copenhagen with almost worn brake pads, or – even worse – in Trollstigen, you might not be able to get down from the top of the mountain pass with your car.

It therefore depends on whether you have one large order next week or several small orders. To take full advantage of predictive maintenance, you need a transparent flow of information.

For your service provider to actually anticipate what maintenance is required, he is dependent not only on receiving the parameters of the machine but also on information about the planned production types.

Oversight based on mutual trust

To date, however, the reality unfortunately looks a little different. In some cases, even simple remote maintenance access does not work because many customers have deactivated remote maintenance for fear that data could be transmitted unnoticed. Accordingly, the customer must agree to transfer his data to the controller so that predictive maintenance can be carried out on the basis of „customer-specific" models.

On the one hand, Muller Martini's data exchange is clearly governed by the relevant contracts. On the other hand, each customer is provided with a transparent, readable format for data transmission. As a customer, you must be able to see at any time which data has been transmitted and for what purpose it is being used. In addition, every customer can also agree to have their data compared with that of other customers using an anonymous benchmark.

In order to mutually benefit from the possibilities and opportunities of digitalization for predictive maintenance, it is therefore necessary to think beyond one's own system boundaries and – most importantly – to trust one another with regard to the use of the data. Muller Martini stands for this mutual trust as your strong partner – use it to have better control of your machine and your production.

Your
Jürg Brunner
Head of Corporate IT at Muller Martini