

SCCH

Software Competence Center Hagenberg

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Predictive Analytics Message Board

The Software Competence Center Hagenberg (SCCH) has developed a "Predictive Analytics Message Board", which monitors machines, production plants, etc. to detect and analyze faults at an early stage. Predictive maintenance strategies can thus increase plant availability, reduce downtimes and save material and energy costs.



Where is the “Early Warning Point”?

The term Industry 4.0 (the smart factory) has become a buzzword. Often huge data streams (e.g., machine data, process data, quality data) from diverse, heterogeneous data sources must be linked and analyzed in order to provide a useful basis for decision support and recommended actions for humans. The application spectrum ranges from the process industry and production, to energy management to the manufacture and maintenance of machines and plants.

“Predictive Maintenance” is another important buzzword. If an industrial production system suffers unforeseen disruption of a machine and therefore downtime, then this is a worst-case scenario: production is delayed and enormous costs can ensue.

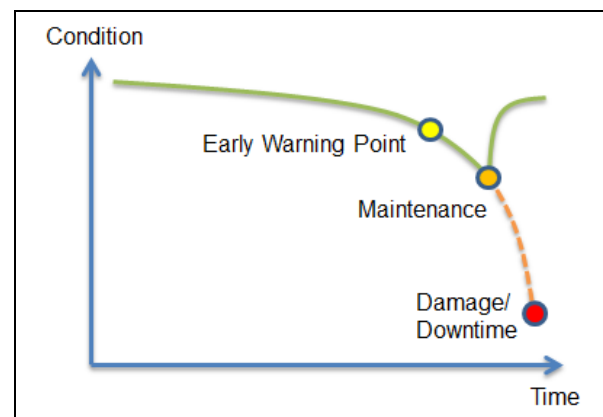


Fig. 1: Early Warning Point



Predictive Maintenance

Modern control systems are incapable of evaluating their own state so as to derive relevant information for the maintenance team. The vision of machine diagnosis and prognosis is to close this gap. The goal is to predict a time

(warning) when corresponding maintenance measures can avoid possible damage or downtime (see Fig. 1). That warning improves the state of a component or a machine and the production continues according to the plan. Data mining and machine learning methods enable us to create fault prediction models in order to find this early warning point and thus plan predictive maintenance strategies (see Fig. 2). The key is the combination of expert knowledge and data-based fault prediction models. This increases plant availability with reduced use of resources.



Impact and effects

The use of predictive maintenance strategies is promising in many areas:

- Increased plant availability because fault prediction promotes early detection of damages and reduced down time
- Reduced material and energy costs because maintenance is not bound to predefined schedules but instead conducted as needed
- Improved planability of maintenance via state monitoring
- Heightened operational security by avoidance of dangerous damages



Fig. 2: Predictive Analytics Message Board

Navigate to <http://www.scch.at/en/projects-das> for additional information about projects at the Software Competence Center Hagenberg regarding Predictive Analytics und Predictive Maintenance.

Contact and information

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Further information on COMET – Competence Centers for Excellent Technologies: www.ffg.at/comet

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