

Use of Life Cycle Data for State-Oriented Maintenance

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Abstract : The state-oriented maintenance enables the preventive intervention before the failure of a component and guarantees avoidance of expensive breakdowns. Because the timing of the maintenance is defined by the component's state, the remaining service life can be exhausted to the limit. The basic requirement for the state-oriented maintenance is the ability to define the component's state. New potential for this is offered by gentelligent components. They are developed at the Corporative Research Centre 653 of the German Research Foundation (DFG). Because of their sensory ability they enable the registration of stresses during the component's use. The data is gathered and evaluated. The methodology developed determines the current state of the gentelligent component based on the gathered data. This article presents this methodology as well as current research. The main focus of the current scientific work is to improve the quality of the state determination based on the life-cycle data analysis. The methodology developed until now evaluates the data of the usage phase and based on it predicts the timing of the gentelligent component's failure. The real failure timing though, deviate from the predicted one because the effects from the production phase aren't considered. The goal of the current research is to develop a methodology for state determination which considers both production and usage data.

Keywords : state-oriented maintenance, life-cycle data, gentelligent component, preventive intervention

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