FACT SHEET

Intelligent Root Cause Identification

SR::EAGLE supplements the tried and tested systems SR::EPOS for process quality monitoring and the early warning system SR::SPC of STEAG Energy Services with a powerful add-on module for the decision support in the intelligent root cause analysis of unexpected events.

When unexpected events or changes in the mode of operation occur at a power plant, the causes of this must be analyzed as quickly as possible to be able to systematically take remedial action for the purpose of a high plant availability.

SR::EAGLE is a solution for decision support and helps to promptly trace changes in the operating behavior and unexpected events respectively in the course of a systematic root cause analysis. As an intelligent solution for the root cause identification, SR::EAGLE subsequently makes suggestions for the further course of action.

Predefined or self-defined event trees are often applied for a better root cause analysis. The disadvantages:

- Inconvenient handling in offline operation
- One-sided binary approach to root cause analysis – will work as long as there is only one cause of a top event

Other than classic event trees for root cause analysis, SR::EAGLE is able to

- detect several causes of a top event
- include different sections of the plant in the root cause analysis
- automatically evaluate all potential causes of a top event

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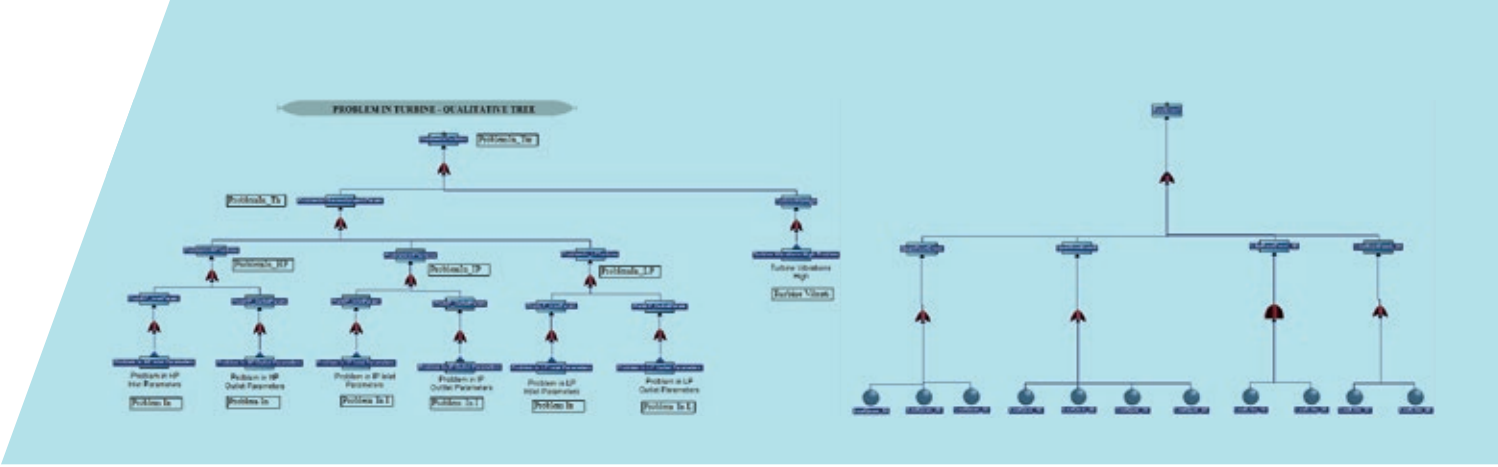

Fault tree with four / two stages and multiple branches

Online process quality monitoring and systematic root cause analysis work hand in hand with SR::EAGLE. The result: a prompt recommendation where to search first in order to remedy the cause of a top event and thus to achieve a lasting improvement of the plant efficiency.

Functional principle

The online process quality monitoring generates an alarm on the basis of current values or as a result of a deviating behavior over a certain period of time. This alarm activates the analysis of possible causes.

Based on its actual value and a possible load dependency, the possible causes are allocated a contribution to the top event. The causes are evaluated by means of the respective measurements and the involved physical correlations of the components.

This allows to calculate the contribution of causes to the top event. In the visualization, the paths with the highest contribution are highlighted in color for recommendation.

One system – many special features:

- Simultaneous isolation of several causes of a top event
- Automatic real-time evaluation
- Fast diagnosis (seconds after an alarm)
- Precise calculation both of the contribution and of the probability of a cause to a top event
- Precise classification of causes to a sequence that states
  - how big the effect of a cause on the top event is or
  - how high the probability is that a cause is the actual reason for a top event
- Better representation of different levels of the logical relationship between causes and their relevance
- Detailed proof of the specified normal operation

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