Our solution – your benefits

• **KPIs and statistical functions**
  SmartSCADA delivers enhancements based on WinCC OA in the areas of key performance indicators, data analysis, forecasting and statistical evaluation, as well as data visualization. These enhancements are offered as software libraries and, in contrast to conventional solutions, can also be integrated into existing systems if necessary.

• **Tools and wizards**
  SmartSCADA offers a variety of tools and wizards for the efficient definition and automated calculation of key performance indicators in major infrastructure installations. Analysis and statistical functions are enabled through the seamless integration of a software environment for statistical calculation.

• **Visualization techniques**
  SmartSCADA offers new and innovative display options that enable graphical analysis of key performance indicators and comparison of various parts of the infrastructure installations.

The volumes of data in modern infrastructure installations are growing steadily. The demands on Supervisory Control and Data Acquisition (SCADA) solutions – the computer-based systems for monitoring and controlling technical processes in infrastructure automation – are thus also increasing:

- vast quantities of data have to be managed and stored in long-term archives
- at the same time, expectations in terms of performance are constantly rising
- in times of rising (energy) costs, increasing efficiency and productivity is vital

The main areas of application of WinCC OA solutions are in infrastructure automation:

- automation in water management
- process automation solutions for the oil & gas industry
- smart-grid monitoring and control
- building automation
- manufacturing and production systems
- traffic & transportation

SCADA systems currently offer only limited options for the systematic analysis and visualization of key performance indicators. Furthermore, SCADA systems do not have automated analysis capabilities that would make it possible to detect defects in the infrastructure installation early.

1) Currently an ongoing Siemens internal research project.
Condition monitoring & root cause analysis

Alarms in SCADA systems are usually triggered because defined threshold values have been exceeded. Alarms are displayed in an alarm screen, and are checked and acknowledged by the operator. There is, however, no guarantee that the right corrective action will have been taken by the operator. Another problem is that the operator is given no suggestions as to what actions to take to solve the problem.

Our solution – your benefits

SmartSCADA enables the implementation of condition monitoring & root cause analysis using key performance indicators and the evaluation of statistical models during runtime. Based on error patterns in historical data, models are trained which help the operator to pinpoint problems during runtime.

Alarm prediction

Infrastructure automation systems have a large number of sensors and actuators. Due to mechanical wear, these require repair work and servicing at regular intervals. Such work results in a reduction in system availability and/or shutdowns of entire parts of the system.

Our solution – your benefits

Using maintenance alarms (for example, the intelligent system forecasts the upcoming maintenance of an infrastructure component), SmartSCADA increases system availability and keeps shutdowns to a minimum. The forecasts are generated based on historical data and can thus take into account the actual load behavior of the actual system. Operators can in this way optimally plan plant maintenance and staffing and in some cases completely prevent shutdowns of parts of the system. This ensures that targets in terms of infrastructure efficiency and overall equipment effectiveness are adhered to.

SmartSCADA offers you a variety of different tools and wizards. These will enable you to assist your customers with the implementation and integration of new and innovative use cases. These include e.g. condition monitoring combined with predictive maintenance or energy optimization in the operational management of an infrastructure automation solution. The use of SmartSCADA workflows and wizards enables the integrator to use the tools to generate statistical models and automatically evaluate these against quality indicators.

Wizard for training statistical models for root cause analysis in WinCC OA:
(1) selection of historical data supported by new display options,
(2) automatic pre-analysis and statistical model generation,
(3) supported model evaluation (quality indicators)

Wizard for training forecasting models for the predictive maintenance of machines:
(1) selection of historical data,
(2) selection of the forecasting method and calculation rule,
(3) supported model evaluation (quality indicators)

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