ABB Loop Performance Services use ABB’s proven, three-step methodology—Diagnose, Implement and Sustain—to identify and correct loop performance issues. Using the ABB Loop Performance Fingerprint, ABB benchmarks current control system standards against established ABB standards, and outlines and implements an improvement plan. Improvements are sustained through the ABB Loop Performance Channel powered by ABB ServicePort™, which provides periodic or continuous performance monitoring.

Benefits
- Improved product quality and operating range
- Lower raw material and energy cost
- Higher production asset utilization
- Increased process availability
- Fewer process upsets

Features
- Efficient data gathering and analysis software
- Proven Advanced Services methodology
- Benchmark data and calculations
- Return-on-investment projections
- Improvement implementation plan
- Periodic or continuous monitoring
- Access to ABB control experts
- Remote-enabled support
- Flexible delivery

Process Control Performance
When first installed, automatic controls provide substantial benefit, but sustained benefits can be elusive. In many cases, after a few months, gains are lost due to process or system changes. Even slight process control degradation can result in millions of dollars of lost productivity.

ABB Loop Performance Services include a series of platform-independent, non-invasive services that can be applied to any automated process or control system to benchmark, correct and sustain performance improvements. Proprietary, state-of-the-art software tools simplify complex control loop data analysis and identify troublesome loops through data collection, model identification, feedback tuning, feedforward tuning and controller simulation.

ABB Advanced Services Methodology
ABB Loop Performance Services follow ABB’s Advanced Services three-step methodology—Diagnose, Implement and Sustain—which audits and tunes PID control loops. The “diagnose” phase benchmarks existing performance to evaluate and identify improvement opportunities. A resulting implementation plan identifies corrective activities for performance with associated financial benefits. When the improvement plan has been implemented, sustaining services—delivered on-site or remotely—maintain and continue improvements.
Step 1: Diagnose with ABB Loop Performance Fingerprint

The ABB Loop Performance Fingerprint compares existing controls to optimized standards to determine expected capabilities. Supported by years of loop tuning experience, the Fingerprint uses comprehensive data mining techniques, proven loop performance indicators and standard service to access and diagnose:

- Control loop and process assessments
- Performance thresholds
- Controller setup and tuning cluster measures

ABB engineers, equipped with Loop Analyzer software, analyze the control loop response of control systems. Overnight plant-wide data collection allows each loop to be classified and prioritized related to control, signal conditioning and process interactions. Disturbance sources, such as dead time, inverse response and abnormal behavior in the process models, are identified. Loops are ranked to classify the Key Performance Indicator (KPI) relationship, severity and priority. Problem areas are isolated and disturbance sources are identified.

Process Evaluation

Each performance index is a function of specially designed ABB indicators. The resulting KPIs are used to evaluate performance levels and to provide:

- Assurance that solutions are applied to process disturbance rather than process symptoms
- A determination between tuning problems and physical hardware issues
- Qualification of problems related to signal conditioning setup on actual instrumentation

Reporting

Findings are presented at the end of the evaluation period. Executive and Technical Reports describe Fingerprint findings, supporting data, recommendations, financial impact of recommendations and an actionable improvement plan.

Improvement Plan

Based on the findings of the Fingerprint, improvement recommendations may include: replacing valves, correcting the sources of cyclic process problems, cleaning up signal conditioning problems, optimizing or adding control logic, revising tuning techniques, updating standard operating procedures or re-tuning controls.

Step 2: Implement

An implementation plan is developed by ABB and customer representatives through a collaborative review of the Fingerprint findings and recommendations. Once the plan has been set, improvements can be delivered incrementally or all at once. Phased implementation ensures that process and equipment changes can be made and maintained throughout the year with steady progress toward the performance goal.

Implementation examples include:

- Prioritized control loop tuning
- Instrumentation calibration or repair
- Control loop enhancements
- Valve and positioner repair
- Level 1 tuning
- Advanced control algorithm implementation
- Advanced composition control
- Root-cause disturbance investigation

ABB engineers are equipped with advanced software tools that allow process response modeling and efficient and accurate tuning of PID loops. Specifically, LoopTune is applied in this phase to improve control loop performance by searching for the best tuning parameters for PID controllers. This helps reduce quality variation and downtime, and increase productivity.

Loop Tuning

Loop tuning parameters are compared with tuning standards, based on process type. Outliers are identified first.
Step 3: Sustain Performance with the ABB Loop Performance Channel powered by ABB ServicePort

To sustain benefits achieved in implementation, ABB recommends either regularly scheduled ABB Loop Performance Fingerprints, or the ABB Loop Performance Channel powered by ABB ServicePort.

The ABB Loop Performance Channel empowers customers to view loop performance KPIs in real time, regularly scan for loop performance issues and continuously track loop performance events. The ABB Loop Performance Channel helps ensure that new issues are diagnosed and current performance levels maintained and improved. The channel has three main features:

- **View** allows customers and ABB personnel to view raw data associated with each channel without analysis. View is a critical check to validate that the results being presented from automated analyses make sense.
- **Scan** presents the summary of the calculated KPIs addressing equipment, process or industry issues that are generated from the raw data through periodic diagnostic monitoring of performance levels.
- **Track** provides continuous monitoring between Scan periodic deliveries, and allows for the configuration of site-specific rules to control notifications and alarms based on pre-defined, calculated KPIs called “triggers.”

**ABB ServicePort**

ABB ServicePort is a remote-enabled service delivery platform that provides process automation systems with a secure connection to ABB services and experts. Acting as an on-site service guide, it enables delivery of local and remote services and provides access to the latest process diagnostics and sustaining services for loop optimization.

Similar to smartphone applications, ABB ServicePort runs multiple “apps” or “channels”, which deliver high-value services and provides both the customer and ABB a real-time, standardized and unified interface for different views of performance, KPIs, diagnosis and control loop data.

By providing access to and interaction with the ABB Loop Performance Channel, ABB ServicePort gathers key system and process data at the customer site, analyzes it with automatic software tools, and delivers data and analysis to the right ABB or customer resource wherever they are in the world.

**Sustain Improvement**

Available as a subscription service, the ABB Loop Performance Channel powered by ABB ServicePort offers substantial financial value by providing access to ABB experts without the lost time or travel costs needed to get service experts on-site. ABB ServicePort delivers immediate access to services that keep production running, maximize system lifecycle, optimize processes and deliver operational excellence.

Track, one of the features of the ABB Loop Performance Channel, shows all trends being monitored and allows users to choose specific trends to analyze further if, for instance, a trend appears to be outside desired operating parameters.
ABB ServicePort is a secure service delivery platform that links ABB services and experts with your equipment and processes. Customers select what Advanced Services they want to access from the Equipment, Process and/or Industry Performance Channels. Once selected, customers can define access, linking the data obtained from the channels to ABB experts via on-site visits or remote connection.

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