

# Grade Change Improvement

## Increase Volume of Sellable Paper



Optimizing grade change improvements takes ability to analyze, and identify data to sustain improved paper machine performance, to quantify the financial benefit of optimum grade change. ABB Grade Change Improvement provides a unique performance benchmark and an implementation plan with associated ROI. With the ABB Ability™ Collaborative Operations comes the ability to do more, do better, together by gaining access to ABB:s deep domain expertise 24/7.

The ABB Ability™ Collaborative Operations Grade Change Improvement Service optimizes grade changes to reduce the amount of off-specification paper, minimize machine upsets, and decrease the number of sheet breaks during transition from one grade to the next. Ramp rates are maximized and the coordination between multiple target changes is optimized to complete grade changes in the minimal amount of time while reducing the probability of sheet breaks.

Grade change improvement service follows a proven three-step methodology to establish a baseline and assess potential improvement areas, implement improvement actions and then establish a continuous improvement process through periodic analysis of performance.

### 1. Establish Baseline and Assess Improvement Potential

The grade change baseline provides both a valuable benchmark and identifies areas where improvements may be made. The tangible result of a Grade Change Transition baseline is its performance indices. The grade change baseline will result in indices that represent the following four paper machine areas:

- Transition Time
- Control Response
- Moisture Response
- Setpoint Prediction
- Historical Analysis

### 2. Implement Improvement Actions

The implementation plan is a series of practical solutions designed to raise the performance of the system up to its mechanical constraints. Typically solutions include: improving level 1 PID loop tuning, improving level 2 scanner based control loop tuning, optimizing or adding control logic for transitions, updating standard operating grade change procedures, updating grade change modeling parameters, and adding transient compensations.

### 3. Continuous Improvement

With ABB Ability™ Collaborative Operations a complex event like a grade change can be continuously analyzed and improved. Key information is monitored by ABB experts on a periodic basis and compared against performance benchmarks. The Grade Change Improvement service provides continuous monitoring capabilities to identify continuous improvement actions to help to ensure process performance remains at peak levels.

The following key performance indicators will be monitored on a regular basis and activities will be performed by ABB experts to help maintain and improve the overall grade change performance:

- Excessive Transition Time
- Sheet Breaks
- Weight Ramp Rate Under Limit
- Excessive Weight Deviation
- Excessive Moisture Deviation
- Speed Ramp Rate Under Limit

#### Benefits

- Cost savings through Collaborative Operations
- Faster problem identification
- Reduced product rejects
- More efficient transitions
- Decreased disturbances
- Quicker grade changes
- Fewer sheet breaks
- Higher availability
- Consistent quality

#### Features

- Site assessment to establish baseline and identify initial improvement actions
- Implementation of prioritized recommendations
- Continuous improvement based on Key Performance Indicators (KPIs)
- Periodic checks by ABB Ability™ Collaborative Operation monitoring experts
- Automatic, non-invasive gathering and statistical analysis of QCS transition data
- Continuous data analysis for faster optimization
- On-site or remote access for customer and ABB service personnel
- Consolidation and long-term storage of QCS transition data
- Remote diagnosis and proactive support from ABB experts
- Secure communications

### COLLABORATION IN DATA-DRIVEN ECOSYSTEM PEOPLE MAKE THE DIFFERENCE

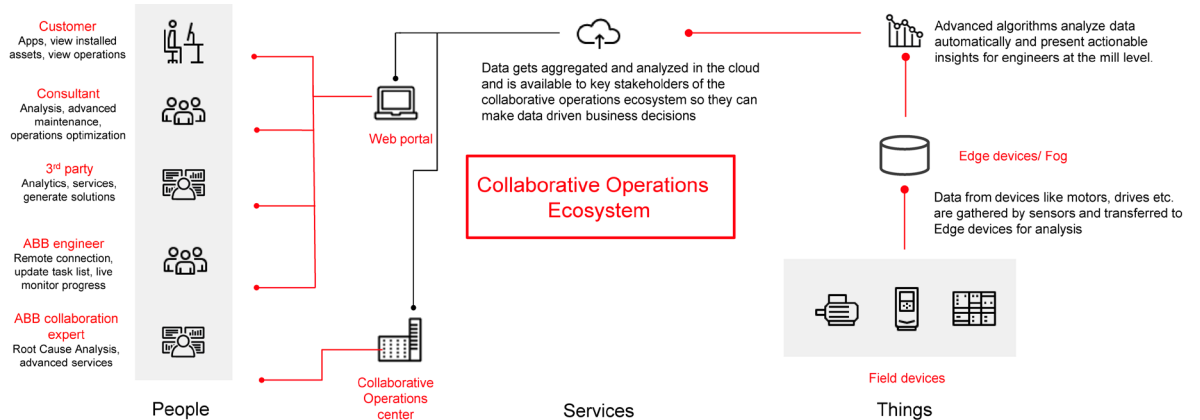


ABB Ability™ technology collects, aggregates, analyzes, and presents actionable information on KPIs to enable experts to improve grade change performance.