Analysis of color measurement variability, dye delivery, color response, and utilization provide a benchmark for overall color performance. The resulting diagnostic report provides improvement recommendations and associated estimated ROI.

Typical savings potential: $150,000 – $210,000

Benefits
- Facilitates management decision process by focusing on high impact opportunities for improvement
- Provides clear path to quickly close the performance gaps by using the proposed improvement plan
- Provides a solid foundation for continuous improvement based on data

Features
- Access to ABB optimization experts
- Process Performance Benchmarking
- Detailed ROI-based improvement plan
- Clear communications during data collection and diagnosis activities

Color Fingerprint
The ABB Color Fingerprint is ABB’s process diagnostic service for paper machine-color applications. The Fingerprint generates both a performance benchmark and an improvement plan that prioritizes improvement opportunities based on estimated economic benefits. It is a platform-independent, non-invasive service that can be applied to machines with colored or optically brightened paper grades.

Color Performance Indicators
The Color Fingerprint uses comprehensive testing and analysis to measure five key Performance Indicators. These assess color performance and improvement-area potential (see Figure 1).
- Color Variability
- Utilization
- Historical Analysis
- Color Response
- Dye Delivery
- Color & OBA Control
- Color Control Configuration
- On-line and off-line color sensors
- Shade Change
- Level 1 Dye Control
- Startup and sheet break recovery

Color Process Testing
Each performance indicator is made up of a series of indexes derived from specific color process tests. Each test is performed inside product shade specifications utilizing ABB’s diagnostic tools and methodologies. The resulting index is used to evaluate the performance level of different areas of the paper color process including:

Identifying that a color process area is under-performing is the first step in the improvement process. Understanding the problem and having the expertise to provide solutions is assured through ABB’s extensive experience in paper machine color measurement and control.

In order to provide practical solutions for problems often identified in the color process, ABB has developed defined, logical optimization steps for each color process area.

Once engineers have established the entry point for each color process area, the solution to the performance bottleneck and the remaining steps to optimize the process become clear.

The Color Response indicator helps to determine a performance index for the color and OBA controls (see Figure 2). The “test entry point” is defined by the specific machine tests and data analysis associated with this performance indicator.

The Color Response indicator includes multi-level testing and analysis applied to Color, OBA, and Level 1 Dye Controls.

Each Performance Indicator involves similar testing methodologies. Complete Color Process Area testing sequences require three to five working days to collect the data required to com-
plete the diagnosis and develop improvement recommendations (see Delivery Schedule).

**Reporting**

An Executive Report and a Technical Report are provided to disclose findings and recommendations of the process performance diagnosis.

- **Technical Report** provides supporting data collected during the color process diagnosis.
- **Executive Report** provides benchmark results, a summary of findings, a financial impact of recommendations statement, and an actionable improvement plan based on the color process diagnosis.

**Improvement Plan**

The improvement plan defines how to resolve the performance bottleneck and move towards optimal performance. The plan also identifies the associated financial impact for each recommendation.

Based upon the findings, recommendations may include improving dye delivery, isolating color product variability related to process interactions, optimizing or adding control logic, updating operator procedures for shade change, startup, and sheet break recovery, or re-tuning color control loops.

The Color Fingerprint is the first step in achieving and sustaining higher performance levels. Annual Fingerprint, Implementation, and Sustaining services are recommended as part of your service contract agreement to achieve and continue the improvement process. These can be scheduled within a single- or multi-year service contract agreement.

ABB is the world leader in pulp and paper applications. In depth knowledge and experience in this area allows comprehensive evaluation, diagnosis, remedial recommendations and implementation, and the ability to manage and sustain process performance improvement.