
Maintenance planning and scheduling certification of cross functional teams improves plant productivity and cuts costs



01 ABB's consulting and engineering team worked with paper producer after consolidation to standardize procedures, implement training and improve workflows.

Making the old new again

After completing a facilities consolidation program, a major pulp and paper mill in the Southeastern U.S. turned to maintenance optimization to improve overall plant reliability and maximize productivity. The goal: run remaining paper machines harder, faster and longer without compromising safety, quality or the environment.

This type of comprehensive reliability improvement program involves the standardization of maintenance procedures, improved planning and scheduling for maintenance related activities. It relies on key performance indicators (KPIs) such as the number of

emergency work orders, the percentage of work orders labeled "urgent" and spending as a function of asset replacement value to verify results and track progress. It also calls for maintenance workers and engineers to properly trained, certified and coached on best practices.

Challenge

- Improve maintenance procedures
- Increase output from fewer machines
- Train, certify and coach staff

Solution

To meet these challenges head-on, the mill partnered with ABB to identify and implement a variety of these maintenance improvement initiatives. The first step involved conducting a benchmark study to ascertain the mill's current state of maintenance. From this study, a list of prioritized recommendations was developed.

ABB settled on a mix of classroom training, in-field and on-the-job coaching, follow-up audits and refresher courses for key personnel from each of eight critical areas: papermaking (involving three specific paper machines), the waste treatment plant, the bleach plant, the unbleached pulp mill, the power generation facility, the chemical recovery area and the wood-yard. Each team received customized training designed to improve its knowledge base and performance.

Traditionally, each of these functional areas had its own processes and procedures, developing standardized processes and work practices was critical. To achieve this, everyone received the same classroom and field training and the same tests. This ensured the mill could place the right personnel into the role best suited for their skills and knowledge.

Putting the team back into teamwork

In many industrial facilities, a certain level of competition exists between the operations and maintenance personnel – each has its own agenda. For instance, operations personnel are aggressively customer- and product-driven, while maintenance personnel pride themselves on the preventive maintenance activities that eliminate unplanned downtime and equipment failures.

To bridge this divide, ABB’s reliability-related training and certification program involves personnel from

both camps. Because reliability is everyone’s responsibility, this approach helps everyone to understand and appreciate each other’s roles, motivations and responsibilities.

Another useful element of the certification process is to define so-called “swim lanes” so the roles, responsibilities and accountability for each job title is clearly defined and understood by all stakeholders. In this way, workers are able to focus just on their work instead of being concerned about the roles of others.

Assessment	Classroom training	In-field coaching	Written	Planning & scheduling process audits	Results & certification
Assess planning and scheduling organization	3-4 days	1 week per planner	Based on classroom training document	2-3 days per planner	Each planner receives a certificate from ABB University for the level reached
Evaluate planner capabilities	Single point lessons	Daily and weekly scheduling meetings implementation	Go no/go for certification	35 technical topics and 8 management topics	Meeting with planning and scheduling client project leader and individual planners to present results
Evaluate training and coaching needs	Exercises	Team backlog review	Documentation not allowed	Score provided for each topic for the group average and individual	Identify with clients needs and re-training, re-coaching or additional support
Define performance measurement	Start work on weekly agenda, backlog review, scheduling tool, KPI development	Identification of improvement opportunities and best practices	80% required to pass - 2nd try allowed		

Site specific training

The industry-specific curriculum developed by ABB for the certification process combines industry best practices with lessons that are tailored to meet the mill’s site-specific issues and needs. Common topics include maintenance planning and work prioritization, backlog management, parts management, spare parts identification, time estimation for work order execution, work permit estimation and more.

Results

As a result of ABB’s reliability improvement initiatives, the mill achieved a four percent improvement in overall equipment effectiveness (OEE) across all three of its paper machines. OEE measures how well machinery, production lines and processes are performing as a

function of availability, performance and quality. Similarly, maintenance spend as a function of average replacement value ratio (spend/ARV) at the facility improved from 3.1 to 2.7. This means the mill spends far less to maintain the same set of assets. This method of measuring maintenance costs allows the mill to benchmark itself to others mills and manufacturing facilities to determine if its maintenance spend is best-in-class or if there is room for improvement.

Benefits

- 4% improvement in OEE
- More collegial work environment
- Improved spend/ARV ratio
- ABB University certification

Featured Solution

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