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Here is how a maintenance assessment process can be used to collect benchmarking data to help improve internal processes.

The usual goal of benchmarking with other companies is to compare processes and the costs associated with them and to discover new concepts. When you are competing in a national or global economy, competition to reduce costs, improve quality, and increase product output is intense. There are a multitude of competitive benchmarking drivers to deal with: team empowerment, material flow, inventory control, production operation, product design, industrial engineering, utility management, maintenance practices, training, technology, computer support, etc.

But it is difficult to share manufacturing benchmarking data and information without a good analysis of internal activity. The problem is that most companies do not know what they already have internally, good or bad. Nor do they have a process in place to improve common cross-functional weaknesses.

To add to this, it is extremely difficult to find a benchmarking partner whose performance measures and costs can be compared. Even those who have the same equipment and the same process flow will still have different cultural attributes that impact overall performance at all levels of the organization.

Background

About 1992, the Saturn Maintenance Core Council (MCC) sanctioned an effort to develop a process for internal benchmarking relative to world class practices for all of the Saturn maintenance organization. The goal was to compare nine key elements of the Saturn maintenance strategy against perceived world class best maintenance practices. See the accompanying section “Saturn’s World Class Maintenance Strategy.”

The Saturn MCC membership is made up from all the partnered (UAW-represented and nonrepresented) maintenance leadership area module advisors and the three elected UAW skilled trades advisors. The council developed the mission statement and the key

support elements for its maintenance strategy. It meets several times each month to review and discuss sitewide maintenance issues.

Assessment process

Several Saturn leaders (UAW-represented and nonrepresented) gathered information from or visited such sources as the Marshall Institute, North American Maintenance Excellence Award, AT Kearney's Best of Seven, General Motors Corp. facilities, and non-GM manufacturers. As a result, an assessment questionnaire was developed and point values were assigned to each element and question. The assessment totals 1000 points divided across the nine key areas, with Planned Maintenance and Continuous Improvement elements weighted to indicate their higher importance to the company's growth and development.

The Saturn UAW manufacturing advisor and the vice president of manufacturing sanctioned the maintenance assessment process in 1995.

The 37 Saturn maintenance teams, each consisting of six to 15 skilled trades members, are spread across a wide variety of production processes. These teams cover support for robotics, assembly, paint processing, metal stamping, polymer injection, gear machines, foundry and heat treatment, etc. Each is responsible for running its operations support activities as a business, including planning, absenteeism, continuous improvement, controlling part and tool inventory, performing to budget, etc. Because Saturn has a unique union agreement that allows for partnership at all leadership levels, it was decided that all 37 teams would be assessed, instead of assessment at some higher level in the business structure.

The purpose of the assessment process is to train the maintenance team members as to what world class practices are and help them develop continuous improvement plans as may be appropriate to correct any shortfall the team decides is important. See the accompanying section "Assessment Process—Guidelines." The process requires that the maintenance team members being assessed develop a team manual with supporting evidence for each of the 67 assessment questions. A group of maintenance peers from other Saturn business units then meets with the team members to review and discuss each of the questions. Originally this took a full day to complete, but today it takes about four hours.

The assessors' results are averaged and comments combined onto one questionnaire form. Within three to four weeks the maintenance team members are invited to meet again, with the same assessors, to review the results together. Scores are discussed for clarification and future reference, but will not be changed until the next assessment. The questions on the assessment form are subdivided to reduce subjective scoring. In the future Saturn plans to subdivide the questions to a one point (Yes/No) level. This will allow the teams to assess themselves fairly accurately.

It is important to note that the assessors do not share maintenance team scores with other teams within or outside their module or business unit; only with the assessed team's leadership. The team is asked to put together a continuous improvement plan, due in six weeks, for those items it wants to improve.

It is urged to select items for improvement that the team has the time and resource help to complete. The Saturn maintenance leaders are responsible for their teams' completion of the process. Team members are asked to help as future assessors for other site teams.

Assessment results

A spider graph is provided to the teams at the feedback session to give them a visual representation of how their assessment score compares to world class for each key element. The MCC has determined that out of the 1000 points only 810 are directly within the teams' control. The other 190 points deal with the interaction of maintenance support functions like training, indirect materials, operations, maintenance leadership, etc.

As of this writing all of the Saturn maintenance teams have completed the first round of the assessment process and Saturn is about halfway through the second round. Thus far, over 60 assessments have been completed in the past three years.

The MCC has determined that awards will be given to the maintenance teams that score points during the second round assessment in the following ranges:

- **Above 700** (Level I): Demonstrated a working knowledge of world class practices
- **Above 800** (Level II): Demonstrated and documented progress toward world class
- **Above 900** (Level III): Developed, documented, and utilizes world class practices

Benefits

As a result of the first round assessment, various teams have undertaken improvements within their respective areas. From a site perspective several changes have been recommended and started.

For example, team and module preventive and predictive maintenance programs have been reviewed and modified. Saturn indirect materials and Saturn technical resource support functions are currently implementing continuous improvement plans specifically for maintenance. More attention has been given to team norms and point role activities. Several maintenance modules have revised maintenance planner activities. Team manuals prepared for the assessment have become a good foundation for QS-9000 process documentation, and maintenance libraries across the site have been updated. **MT**

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