

Southeastern Region

Gilbarco, Inc., Greensboro, NC: Involving Employees in Quality Improvements

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Management at Gilbarco, Inc., a major service station equipment supplier in Greensboro, NC, realized in the mid-1980s that a long-term, continuous improvement strategy was essential to enduring market leadership. Warning signals that traditional operations must change included excessive stockouts, high inventory levels, high scrap rates, declining delivery performance, quality problems on some product lines, high absenteeism rates among their 700 production employees, excessive overtime, and low morale. In 1986, they started a drive to achieve manufacturing excellence through techniques such as focused factories, JIT manufacturing, SPC, Total Preventive Maintenance (TPM), people involvement, and design for manufacture and assembly (DFMA).

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This cumulative effort, named CRISP (Continuous Rapid Improvement System of Production) produced notable results (see Figure 1) and a continuing emphasis on employee involvement. A new approach to the management of people is the foundation for these results, although some technical innovations such as robotics have contributed to performance improvements. According to Mark Snowberger, president, "The success of Gilbarco's programs to date can not be attributed to sophisticated systems or tech-

niques but to the powerful effect of people who are committed to continuous improvement."

Teamwork and Training

After early unsuccessful experiments in the early 1980s with hourly worker teams based on the Japanese quality circle concept, Gilbarco evolved toward self-directed teams in 1989. By the end of 1990, half of the plant workforce had begun the transition to the new way of working.

Initial training in self-directed work team concepts for production workers started in 1989. Core topics include quality concepts such as TQM, interpersonal skills, problem-solving, and JIT concepts. All production people are on self-directed work teams and have received 18 hours' quality training, ten hours' JIT training, and 24 hours' interpersonal skills training. Management's goal is to provide a minimum of 40 hours' training per year for all employees.

Most of Gilbarco's training is conducted by in-house senior managers and other employees who have received "train the trainer" instruction from the company. Snowberger said, "In the old days, the only

people we used to train were managers. We realize now that that was wrong. From now on, everybody will be trained."

[4 x 94]: Striving for Higher Performance

Seeking to expand its improvement activities company-wide and build on its existing improvement efforts, Gilbarco management began a program named "[4 x 94]" in 1990. Through [4 x 94] improvements, Gilbarco intends to achieve a work performance level of no more than four errors per million opportunities by the end of 1994. Objectives also included total customer satisfaction and customer perception as the best in products and services. A compilation of concepts and tools advocated by leading edge companies and quality experts, [4 x 94] emphasizes empowered employees in the plant and the office, working in teams to achieve customer satisfaction.

At any given time, there are about 250 projects in process, involving 600-700 employees. One of the cross-functional teams recently analyzed 14 ribbon cable suppliers and selected a new Gilbarco supplier. Another cross-functional team solved a major sealant

CRISP Results 1986 To Date

CRISP (Continuous Rapid Improvement System of Production) activities produced these results between 1986 and 1989:

- Manufacturing space reduced by 125,000 sq. ft., down from 500,000 sq. ft.
- Inventory decreased 35 percent
- Production per employee more than doubled
- Absenteeism down 50 percent
- Total cost of quality reduced 50 percent
- Manufacturing cycle time decreased 80 percent (from order receipt to shipment)
- Setup times reduced by up to 90 percent.

Figure 1.

problem, reducing errors to zero for the past nine months (14,000 opportunities for error per month). A team of production workers improved setup time on small sheet metal presses by 85-90 percent, and a plant communications improvement team is implementing a list of 12 suggestions approved by management.

Basic tenets of the [4 x 94] program are:

- Quality in every functional area
- Common goals and clear direction with management leadership and support
- People involvement and empowerment
- Consistent quality training for all employees.

Teamwork Continues

Meanwhile, Gilbarco divided production operations into two focused factories (assembly and mechanical). In these operations, and in after-market operations, all production and some salaried employees work in self-directed teams or cells (normally four to 15 members per team) with fewer supervisors. (Team members who served as workshop presenters are shown in Figure 2 and Figure 3.)

Former supervisors, now called "area administrators," serve as advisors, coaches, and information resources to the production teams which basically control the day-to-day operation of their work areas.

Office employees also are encouraged to form problem-solving and process improvement teams. These cross-functional teams represent a less dramatic change in work patterns, because office personnel generally were less closely supervised than plant employees.

Employee Recognition

Throughout the CRISP implementation, employees received "PRAISE" awards in recognition of outstanding individual contributions. To encourage team effort, this program recently was expanded to include Teamwork Recognition Awards. Teams present their projects to a selection committee (members are drawn from a cross-section of all departments) each quarter. The quarterly finalists receive a plaque and company-wide



Figure 2. Dewey Gross, a workshop presenter and plant tour guide, discussed pumping unit cell operations.



Figure 3. Electronic assembler Faye Dillard-Hamm discussed her team's products during the workshop.



Figure 4. In Gilbarco's Hall of Measures, performance improvements are posted for customer satisfaction, people, quality, cost, schedule, and reliability.

publicity, and they are eligible for a Team of the Year prize. Recognition also includes results posted on work area bulletin boards and newsletter articles about performance improvements.

Hall of Measures

Adding to the improvement momentum, strong performance gains resulting from [4 x 94] and CRISP activities are posted in Gilbarco's "Hall of Measures." Measures posted here are in six categories: customer satisfaction, people, quality, cost, schedule, and reliability. (See the Hall of Measures in Figure 4.)

Gilbarco is pleased by the cumulative

results to date, as shown in Figure 1, achieved in a depressed market. All production employees now work on self-directed work teams (there are approximately 50 teams). Operation-wide team activities have resulted in significant process improvements. Improved cooperation between departments, lower warranty costs, increased use of simultaneous engineering, and products delivered in five working days reflect Gilbarco's progress.

Supplier Partnership Development

Another means of achieving higher performance levels is to strengthen relationships with suppliers. Gilbarco's production supplier

base, originally numbering more than 800 companies, shrank to 250 during the past six years. "The relationship with those that remain is being carefully nurtured," said Ralph Alexander, manager of quality.

Rigorous examination of suppliers' cost, quality, and delivery performance by supplier quality engineers and planner/buyers and a parts certification process assure that suppliers meet JIT manufacturing requirements. Once a supplier is established as a partner, Gilbarco encourages them to participate in their training program. Gilbarco engineers work with suppliers on manufacturability and other issues.

Lessons Learned

Despite improvements in supplier relationships, employee involvement, and other areas, Snowberger is far from complacent. Successful strategies will be vigorously pursued to further improve customer satisfaction, he said. The company looks for improved financial returns while maintaining a high level of employee morale.

As in any major changes in management approaches, Snowberger said, there are lessons learned from the CRISP and [4 x 94] improvement activities. Steps that Gilbarco management would change if they started over, in addition to early training, include:

- Involve employees earlier; adopt "total employee involvement" including self-

About Gilbarco, Inc.

Gilbarco is the largest service station equipment manufacturer in the world. The company produces a variety of gasoline dispensing systems and monitoring equipment, and has a mobile precision tank testing service. Its after-market operations (AMO) include spare parts, remanufacturing, affiliate support, and technical training. Founded in 1865, it was owned by Standard Oil (Exxon) until 1966 when it was acquired by General Electric Company (GEC) of the United Kingdom (U.K.). With its headquarters in Greensboro, NC since 1966, Gilbarco employs approximately 1200 people in the United States, and has affiliates in the U.K., Canada, Australia, and Germany.

directed work teams early in the CRISP effort.

- Broaden the original CRISP scope from just "manufacturing excellence" to "total business excellence;" involve the entire corporation instead of just manufacturing.
- Start to work with suppliers and customer/distribution channels on supply chain management earlier in the improvement process.

Gilbarco management also learned from its teamwork activities that employee involvement requires:

- An early interpersonal skills training program
- Early training for, and buy-in from, supervisors
- Development of recognition activities as part of a new program
- Frequent management contact with work teams

- Emphasis on a long-term (never-ending) improvement process.

"We at Gilbarco strongly feel that success in the global marketplace of the 90s will be achieved through the empowerment of our people and by making customer-focused quality programs the driving force behind all business activities," Snowberger concluded.

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