The Deming Prize

The judging process for the Deming Prize is rigorous. After an initial application is accepted as eligible for the process, the company must submit a detailed description of its quality practices. Sorting through and evaluating a large number of applications is an extraordinary effort in itself. Based on review of the written descriptions, only a few companies believed to be successful in CWQC are selected for a site visit. The site visit consists of a company presentation, in-depth questioning by examiners, and an executive session with top managers. Examiners visit plants and are free to ask any worker any question. For example, at Florida Power and Light, the first non-Japanese company to win the Deming Prize, examiners asked questions of specific individuals such as, “What are your main accountabilities?” “What are the important priority issues for the corporation?” “What indicators do you have for your performance? For your target?” “How are you doing today compared to your target?” They request examples of inadequate performance. Documentation must be made available immediately. The preparation is extensive and sometimes frustrating.

More than 150 companies have won a Deming Prize, including the seven largest Japanese industrial corporations. Some winners of the Deming Prize include Toyota Motor Company, Ltd., NEC IC/Microcomputer Systems, Shimizu Construction Company, Ltd., and the Kansai Electric Power Company. Toyota has captured nearly 10 percent of the world’s automotive market. NEC has earned a reputation for exceptional quality in a diverse set of electronics areas. Shimizu Construction is one of the top five construction firms in Japan and has entered the U.S. market by developing golf courses and condominium communities. Kansai Electric helped to bring recognition of total quality management into the service sector. Kansai offers electrical service at consistently low rates and has managed to shorten service interruptions significantly in comparison with other Japanese electric utilities. Kansai was the major benchmark firm for Florida Power and Light when it began to consider seriously making a bid for the prize. In addition to Florida Power and Light, three other firms outside of Japan have won the Deming prize: Sundaram-Clayton, AT&T’s Power Systems Division, and Phillips Semiconductors in Taiwan. Next is a short profile of Sundaram-Clayton.

Sundaram-Clayton (S-C) is a manufacturer of air-brake systems and castings, headquartered in Chennai, India, and is part of an Indian industrial group called TVS–Suzuki. S-C became India's first-ever winner of the Deming Prize for Overseas Companies. In discussing how and why S-C adopted a Japanese type of quality system, CEO Venu Srinivasan pointed to a long history of conformance to procedures, which was part of the culture of the firm. However, he also said that they developed their own unique approach, based on encouragement from their Japanese quality advisors. Srinivasan took over as CEO in 1977, after receiving his MBA from Purdue University. Applying his business school learning, he conducted an analysis of the company's strengths, weaknesses, opportunities, and threats, which revealed—to the company's horror—that a 90 percent market share was no insulation against top-class competition. Concluding that short-term tactics or defensive strategies could not deliver what a long-term transition to excellence could, Srinivasan set the company on the route to total quality. The company identifies the critical issues three months ahead of each new financial year. The three most important issues are chosen and communicated to everyone in the company. Workers spend a minimum of 45 hours a year on classroom training, well above the industry average of 4 hours, starting with how and why to keep machines and the shop floor clean using the Japanese "5 Ss": seiri (clearing up), seiton (organizing), seiso (cleaning), seiketsu (standardizing), and shitsuke (training). They also learn to use quality problem-solving tools and implement them in small, self-managed teams. When S-C won the Deming Prize, sales per employee had increased three times over the prior year, and frame assembly line rejections had dropped from 12 percent to 0.5 percent over 10 years.

Source: India Today Web page, *http://www.india-today.com/*

Quality in Practice: Florida Power and Light[i]

Florida Power and Light (FPL) is one of the largest electric utilities in the United States. Its territory covers 27,650 square miles, about half of Florida, and services a population of 5.7 million people. FPL has about 15,000 employees, operates 13 plants, 397 substations, and more than 53,000 miles of transmission and distribution lines.

During the 1970s the company was forced to increase utility rates repeatedly because of increasing costs, slower sales growth, and stricter federal and state regulations. The company had become bureaucratic and inflexible. In 1981 Marshall McDonald, then chairman of the board, realized that the company had been concerned with keeping defects under control rather than improving quality. Due to his concern for quality, McDonald introduced quality improvement teams at FPL. Management knew this was a step in the right direction, but such teams alone would not bring about the change needed for the company to survive. McDonald tried to convince other executives that a total quality improvement process was needed, but all the experts that FPL talked to were in manufacturing, while FPL was primarily a service company. In 1983, while in Japan, McDonald met a president of Kansai Electric Power Company, a Deming Prize winner, who told him about their total quality efforts. Company officials began to visit Kansai regularly, and with their help, FPL began its quality improvement program (QIP) in 1983.

"Policy deployment" was the driving force behind the QIP program. Policy deployment (see Chapter 6) is a method that takes corporate vision and determines priority issues that will make the vision a reality. For FPL, the issues involved improving reliability, customer satisfaction, and employee safety while keeping costs in control. Each department was then responsible for developing plans to improve in these areas. Once plans were determined, their status was checked regularly to make sure they were on schedule. Each department was limited to working on no more than three items that had the most influence on their department's performance, but the work on these was expected to be done in great detail.

"Quality in daily work" (QIDW) is the expression that FPL used for another concept for improving business systems quality. It involves standardizing work routines, removing waste from them, promoting the concept of internal customers, and enabling better practice to be replicated from one location to another. QIDW control systems consist of flowcharts, process and quality indicators, procedure standards, and computer systems. By examining and analyzing work over and over again, employees in every area contribute to simplifying their work and improving processes. They discover opportunities for computer systems to free line employees from repetitive tasks.

One illustration of how QIDW was used was the development of a computer system for processing customer trouble calls. In the system, the computer first checks to find out if the customer has been disconnected for nonpayment, then begins to locate places and devices that may be malfunctioning, and routes the call through a dispatcher to a troubleshooter. A repairperson heading to the scene may have a diagnosis before arrival. The information is stored in a database to be used for future improvement planning.

FPL revamped a centralized suggestion system it had been using for many years. Only about 600 suggestions had been submitted annually and it usually took six months for evaluation. A new decentralized system was proposed with simplified procedures to improve the response time. Employees participated in the implementation of their own suggestions. In 1988, 9,000 suggestions were submitted; in 1989 this number increased to 25,000.

Training has played an important role in FPL's quality transformation. They found that training enhanced enthusiasm and participation. Supervisors are expected to train their employees and play a more active role as coaches and cheerleaders. As line employees have become more skilled in diagnosing and solving problems, issues that once required management attention are now handled by line employees. Problems are dealt with on a factual basis, not with intuition. All employees have developed a much broader view of the company and more flexibility in dealing with customers.

The management system has also changed. Customer satisfaction has become the focus of attention rather than cost control. Management reviews check on improvement progress monthly. Goals are now long term, but progress checks are frequent. Managers review progress with better statistical insight, recognizing that variation will exist, but seek to rid the system of common causes. Cross-functional teams are used to carry out large-scale improvement projects. Finally, the budget is integrated with quality improvement.

The influence of total quality control at FPL can be seen in Figure 3.10. The average length of service interruptions dropped from about 75 minutes in 1983 to about 47 minutes in 1989; the number of complaints per 1,000 customers fell to one-third of the 1983 level; safety has improved; and the price of electricity has stabilized.

After the Deming Prize[ii]

Although winning the Deming Prize in 1989 was an honor of which the company and its employees were very proud, a number of employees were feeling that the quality improvement program, intensified by the Deming challenge, had become mechanical and inflexible. In fact, the bureaucratic features that had developed in the process were becoming barriers to continuous improvement in many instances.

At the same time, management had underestimated the speed and impact of the growing threat of deregulation and new competition in the electric-utility industry. It was not preparing quickly enough to shift its structure and strategy to compete in this new environment, and needed to re-examine its vision and approach to the quality process. In 1990 the new chairman and CEO, James L. Broadhead, began to investigate both issues. He spoke personally to more than 500 employees in small groups and selected a team to make recommendations to address employees' concerns about the quality processes. The team suggested several changes, including retaining only those indicators, teams, and reports that contributed in a substantial way to achieving the objectives of the department and the company; eliminating many of the formal management reviews; no longer requiring a structured problem-solving process, but emphasizing continuous improvement and solutions that benefited the company and its customers; continuing to train all employees in the problem-solving process so they would have the appropriate tools and speak a common language; and dispersing the quality organizations within the company, making quality the responsibility of each business unit. In a letter to all employees, Mr. Broadhead reiterated management's commitment to continuous improvement in all aspects of FPL's business; nevertheless, some news media suggested that FPL was dismantling its quality efforts while attacking the quality movement. Although the current and future focus is on cost reduction in an increasingly competitive environment, Mr. Broadhead has stated emphatically that "it is unacceptable to reduce costs at the expense of quality."

Five years after winning the Deming Prize, FPL still had an unwavering commitment to quality initiatives, which was noted by Dr. Noriaki Kano of the Union of Japanese Scientists and Engineers, after observing presentations from 11 FPL business units. Dr. Kano, who had served as a counselor to FPL since 1986, was "pleasantly surprised" that

FPL has simultaneously reduced costs and improved quality. Kano noted that recent improvements were based on skills developed through QIP practices. For example, one team improved service reliability by reducing transformer failures due to lightning. Before, an average of 23 transformers out of 761 on their worst-performing feeder failed each year. This number was reduced to zero failures, even though lightning strikes had increased 250 percent. Newly installed transformers incorporate the team's recommended changes, and existing transformers are modified as needed. The team leader stated that they found creative ways to use quality improvement tools and techniques to their best advantage without getting caught up in excessive paperwork or attending compulsory meetings. "Like most employees, we're so familiar with the quality processes that it's almost second nature."

Key Issues for Discussion

1. What makes FPL unique in the types of quality problems it encounters? How is its product similar to and different from oil being processed in a refinery? From water being delivered by a city water department?
2. How did FPL use policy deployment to improve quality?
3. What was the role of QIP teams at FPL in developing quality, which enabled them to win the Deming Prize?

What lessons did FPL learn after winning the Deming Prize? What can other companies learn about implementing quality from FPL's example?

The Deming Application Prize Checklist, below, shows the detailed policy categories and "checking points."

The Deming Application Prize Checklist

Items	Checking Points
1. Policies	(1) Management, quality and quality control/management policies (2) Methods for establishing policies (3) Appropriateness and consistency of policies (4) Utilization of statistical methods (5) Communication and dissemination of policies (6) Checks on policies and status of their achievement (7) Their relationship to long- and short-term plans
2. The organization and its operations	(1) Clarity of authority and responsibility (2) Appropriateness of the delegation of authority (3) Interdepartmental coordination (4) Committee activities (5) Utilization of staff (6) Utilization of QC Circle activities (7) Quality control/management diagnosis
3. Education and dissemination	(1) Educational plan and results (2) Consciousness of quality and how it is managed, and understanding of quality control/management (3) Education on statistical concepts and methods and the degree to which they are disseminated (4) Grasp of effects (5) Education of associated companies (especially, group companies, vendors, contractors and distributors) (6) QC Circle activities (7) The system of improvement suggestions and its status
4. Information gathering, communication and its utilization	(1) Collection of external information (2) Interdepartmental communication (3) Speed of communication (utilization of computers) (4) Information processing, (statistical) analysis and utilization of information
5. Analysis	(1) Selection of important issues and improvement themes (2) Appropriateness of analytical methods (3) Utilization of statistical methods (4) Linkage with industry intrinsic technology (5) Quality analysis and process analysis (6) Utilization of analysis results (7) Action taken on improvement suggestions
6. Standardization	(1) System of standards (2) Methods of establishing, revising and abolishing standards (3) Actual performance in establishing, revising and abolishing standards (4) Contents of the standards (5) Utilization of statistical methods (6) Accumulation of technology (7) Utilization of standards
7. Control/management	(1) Management systems for quality and other related elements, such as cost and delivery (quantity) (2) Control points and control items (3) Utilization of statistical methods and concepts, such as control charts (4) Contributions of QC Circle activities (5) Status of control/management activities (6) In-control situations

Items	Checking Points
8. Quality assurance	(1) New product and service development methods (quality deployment and analysis, reliability testing and design review) (2) Preventive activities for safety and product liability (3) Degree of customer satisfaction (4) Process design, process analysis and process control and improvement (5) Process capabilities (6) Instrumentation and inspection (7) Management of facilities, vendors, procurement and services (8) Quality assurance system and its diagnosis (9) Utilization of statistical methods (10) Quality evaluation and audit (11) Status of quality assurance
9. Effects	(1) Measurements of effects (2) Tangible effects such as quality, service, delivery, cost, profit, safety and environment (3) Intangible effects (4) Conformity of actual performance to planned effects
10. Future plans	(1) Concrete understanding of current situation (2) Measures for solving defect problems (3) Future promotion plans (4) Relationship between future plans and long-term plans

Source: Compiled by the Deming Application Prize Subcommittee, revised 1984. The Deming Prize Guide for Oversea Companies, Union of Japanese Scientists and Engineers, 1992.

[i] Brad Stratton, "A Beacon for the World," Quality Progress (May 1990), 60–65; Al Henderson and Target Staff, "For Florida Power and Light After the Deming Prize: The "Music Builds . . . And Builds . . . And Builds," Target (Summer 1990), 10–21.

[ii] The remainder of this Quality in Practice is adapted from "A Status Report on FPL's Improvement Activities Four Years After Receiving the Deming Prize," "Quality at Work," FPL Today 2, no. 1 (Spring 1993), and "Quality Effort Yields 'Impressive Results'," INSIDEFPL (May 1994). We gratefully acknowledge Mr. Alan E. Siebe, manager, quality services at FPL, for providing these materials.