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## Malcolm Baldrige National Quality Award 1990 Recipient Cadillac Motor Car Company



To many car buyers, the Cadillac nameplate symbolizes the highest level of quality. But during the 1980s, competitors made determined efforts to wrest that reputation away and, until 1988, gained market share at Cadillac's expense.

But the maker of luxury automobiles has risen to the challenge. Over the last several years, its cars have improved markedly in quality, reliability, durability, and performance. Through its greatly expanded warranty coverage and unique new service offerings, including a nationwide Roadside Service program, Cadillac has intensified its commitment to the customer. And it has become a nimbler competitor, the result of a simultaneous engineering process guided by a finely tuned information system that helps translate buyer preferences and expectations into new product features and new services.

By effectively integrating quality into all endeavors -- from product planning to personnel practices -- Cadillac has reversed its decline in market share, attracting new buyers while boasting the highest percentage of repeat buyers in the car industry.

### CADILLAC: A SNAPSHOT

Founded in 1902, Cadillac is the flagship division of the General Motors (GM) North American Automotive Operations. It manufactures or directs the production of nine car models -- including two (Reatta and Riviera) marketed by the GM Buick division and one (Toronado) by the Oldsmobile division -- that compete in the luxury segments of the automobile market. Cadillac models are the Allante, Brougham, Seville, Eldorado, DeVille, and Fleetwood.



Directed by General Manager John O. Grettenberger, Cadillac employs about 10,000 people at its Detroit-area headquarters, four Michigan-based manufacturing plants, and 10 sales and service zone offices in the United States. In the domestic market, which accounts for nearly 99 percent of sales, cars are sold through a network of 1,600 franchised dealerships, partners in the division's quality improvement efforts.

### CUSTOMER SATISFACTION AS THE MASTER PLAN

Cadillac's turnaround began in 1985. That's when top management started implementing simultaneous engineering (SE). SE contrasts sharply with the traditional serial approach to automobile development and manufacturing, in which individual departments functioned largely in isolation from the others.

Product design and development now begin with integrated knowledge of all essential elements, including performance targets, product features, systems and parts, processes, and maintenance requirements. Thus, SE anticipates how changes in one functional area will affect the others, making it easier to prevent problems and bottlenecks, to determine in advance how to monitor and control production processes, and to identify opportunities for quality improvement.

The effectiveness of SE, however, hinges critically on carefully orchestrated teamwork. More than 700 employees and supplier representatives now participate on SE teams responsible for defining, engineering, marketing, and continuously improving all Cadillac products. Their coordinated efforts on three recent major styling changes trimmed 50-85 weeks from what typically had been a 175-week process.

Successes achieved by SE teams were the springboard to a complete transformation in Cadillac's quality culture. Its partnerships with the United Auto Workers (UAW) have been a catalyst in this transformation. Along with Cadillac executives and plant managers, union leaders serve on the Divisional Quality Council, which is part of the UAW/GM Quality Network. At Cadillac, the Quality Network also includes plant councils at each of its seven major facilities, which are supported by the efforts of nearly 600 work teams and cross-functional teams, each composed of between 10 and 15 hourly and salaried employees.

Pledging to involve its employees "in the running of the business," Cadillac solicits the views of all employee teams during the preparation of its annual business plans, which embody short- and long-term quality improvement goals. The open, yet disciplined, planning process, guided by analyses of information in more than 50 databases, culminates with the completion of detailed quality plans for plants and staff units. These plans translate business objectives into discrete measurable actions carried out by teams and individuals. Progress is closely monitored, and feedback is provided in weekly team meetings. Feedback is also provided through individual and team recognition awards.

A comprehensive program of competitive analyses -- of products; product features; services; and planning, development, and manufacturing processes -- provides Cadillac management and employees with a clear picture of what the division must do to maintain or achieve world-class status in each category.

Thorough planning is also a hallmark of Cadillac's "people strategy" for improving the effectiveness and job satisfaction of hourly and salaried employees' efforts. Especially close attention is paid to educational needs. Each plant and staff unit has a Training Priorities Committee to determine what skills and knowledge workers must have to accomplish quality goals, and training programs are crafted to individual needs. In 1990, for example, skilled hourly personnel will receive a minimum of 80 hours of formal instruction in such areas as quality improvement, leadership skills, process modeling, statistical methods, and health and safety.

Suppliers and dealers also are fully integrated into Cadillac's customer-focused quality improvement efforts. Three-fourths of the division's 55 Product Development and Improvement Teams have suppliers as members. External suppliers must demonstrate continuous improvement in meeting "targets for excellence" in five key areas: quality, cost, delivery, technology, and management. A well-developed assessment and part qualification process assures conformance, eliminating the need for regular inspection of shipments.

In reliability and durability tests equivalent to 100,000 miles of customer use and 10 years of corrosion exposure, all models have improved markedly, as determined from measures of the "number of things gone wrong" during the test. For all nine models, the number of such problems decreased between 27 percent and 71 percent since 1986 or, for new models, since production began. In tests of 1990 and 1991 cars, nearly all models met or exceeded world-class levels for reliability and durability.

For the customer, these product improvements and Cadillac's commitment to improving service have resulted in expanded warranty coverage -- to a minimum of four years or 50,000 miles, as compared with one year or 12,000 miles in 1988. Improved product quality, however, has resulted in a 29-percent drop in warranty-related costs during the first year or 12,000 miles, from 1986 to 1989.

In step with service and product quality, customer satisfaction has risen, as measured through extensive surveys and analyses of complaints handled by its 24-hour Customer Relations Center, for instance. On three key measures -- satisfaction with cars, service, and total ownership experience -- 1985 customers rated Cadillac at about 70 percent. In 1989, Cadillac's scores in all three categories were 86 percent or better.

**Baldrige Website comments:**

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