

# CHAPTER 73

## REGISTRATIONS, CERTIFICATIONS, AND AWARDS

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### 73.1 INTRODUCTION

As the concept and practice of Total Quality Management (TQM) has evolved over the past decade, a number of external influences have appeared. Of these, the most notable are registrations and certifications to international standards and quality awards offered by local, national, and international bodies. It is interesting to note that the United Kingdom and other European countries first accepted the ISO 9000 registration process wholeheartedly while only recently beginning to create national quality awards. In the United States, the Malcolm Baldrige National Quality Award was the first of these external influences to gain support. The ISO 9000 standard met with strong resistance in the United States and is only now gaining in acceptance.<sup>1</sup>

As companies engage in the process of achieving certifications, registrations and awards, mechanical engineers may be asked to participate, assisting their companies in preparations for a certification audit, or writing sections of an award application. This chapter provides a general overview of the most widely recognized programs. Keep in mind that standards are revised periodically, and award criteria may be updated annually. Use the contact information at the end of each section to obtain the latest information.

### 73.2 REGISTRATIONS AND CERTIFICATIONS

While the concept of certifying or registering quality systems to an industry or international standard is becoming accepted practice throughout the world, the terminology is often misunderstood. For all practical purposes, it does not matter whether the term *registration* or *certification* is used. When a company seeks validation of its ISO quality-management system by hiring a third-party registrar, the quality system is certified as meeting the ISO requirements, and the registrar issues a certificate.<sup>2</sup> The certification is then entered in a register of certified companies. Thus, companies meeting the requirements of a standard are both certified and registered. The term *certification* is most often used for this process in Europe. In the United States, it is more common to hear the process called *registration*.

### 73.2.1 ISO 9000

As the European Trading Community began to take shape in the 1980s, there was a perceived need for a common quality standard for all nations. The International Organization for Standardization assigned this task to Technical Committee 176, and in 1987, the ISO 9000 Quality System Standards were issued. Since then, a 1994 revision has been released. The standards are published in the United States as ANSI/ASQC Q9000, a joint effort between the American National Standards Institute (ANSI) and the American Society for Quality (ASQ).

The ISO 9000-series of standards is composed of several guidelines and three separate conformance models: ISO 9001, 9002, and 9003. The appropriate model is determined by the scope of an organization's activities. ISO 9001 contains provisions for companies that perform design/development, production, installation, and servicing; ISO 9002 is appropriate when the organization does not design any products, but performs all other tasks; and ISO 9003 is limited to provisions for quality assurance in final inspection and test.<sup>3</sup> The ISO 9000 Standards contain 20 elements of a quality-management system, although some of these do not apply to ISO 9002 and 9003. See Fig. 73.1 for a list of the elements and the ISO models to which each pertains.

In addition to the quality system models, there are ISO guidelines to augment understanding of the requirements. Guidelines are not requirements and need not be followed to obtain ISO 9000 registration. Some of these additional documents, however, can enhance understanding of the basic requirements and provide assistance for companies creating or improving quality systems. These include:

- ISO 8402: quality terminology and concepts and a cross reference of common quality terms used in Europe and the United States
- ISO 9000: a set of guidelines to help the user select the appropriate quality system model (ISO 9001, ISO 9002, ISO 9003)
- ISO 9000-3: the guideline for software quality

9001	9002	9003	ISO ELEMENT
X	X	X	4.1 Management Responsibility
X	X	X	4.2 Quality System
X	X	X	4.3 Contract Review
X			4.4 Design Control
X	X	X	4.5 Document and Data Control
X	X	X	4.6 Purchasing
X	X	X	4.7 Control of Customer Supplied Product
X	X	X	4.8 Product Identification and Traceability
X	X		4.9 Process Control
X	X	X	4.10 Inspection and Testing
X	X	X	4.11 Control of Inspection, Measuring and Test Equipment
X	X	X	4.12 Inspection and Test Status
X	X	X	4.13 Control of Nonconforming Product
X	X	X	4.14 Corrective and Preventive Action
X	X	X	4.15 Handling, Storage, Packaging, Preservation, and Delivery
X	X	X	4.16 Control of Quality Records
X	X	X	4.17 Internal Quality Audits
X	X	X	4.18 Training
X	X		4.19 Servicing
X	X	X	4.20 Statistical Techniques

Fig. 73.1 ISO conformance models by element.

- ISO 9004-1: explanations and suggested implementation methods for the elements of ISO 9001
- ISO 10011: guideline for internal quality audits
- ISO 10013: suggested formats and contents for an ISO 9000 quality manual

### 73.2.2 ISO 9000 Certification/Registration

Separate from the ISO 9000 Standards per se is a certification/registration process that has become institutionalized in many countries. The process requires that a third-party *registrar* review a company's documented quality system and the implementation of that system through on-site audits. The third-party registrar certifies that the system meets all of the requirements of a specific ISO 9000 model. The registration of the quality system can then be publicized. The registrar also performs periodic recertification audits.

The American Society for Quality (ASQ) is a good source of information on registrars in the United States. The Registrar Accreditation Board (RAB) is the U.S. agency that accredits agencies to serve as registrars. The RAB is a wholly owned, not-for-profit subsidiary of ASQ.<sup>4</sup>

The effort to obtain ISO 9000 registration typically takes 12 to 18 months from the time a company makes the commitment to become registered until its quality system receives the certificate from its third-party registrar. The cost of registration varies depending on the size and complexity of the company, the number of locations to be included on the registration certificate, and the state of its existing quality system when the decision to obtain registration is made.

Third-party registrars are generally contracted for three years. In addition to the initial assessment for registration, the registrar may be asked to perform a pre-assessment audit. A registering agency cannot perform the duties of an ISO consultant to companies for which it will be conducting the third-party assessment. Many companies find it helpful to hire an outside consultant to help prepare for ISO registration. There are many texts available on the subject of ISO 9000 quality systems and the registration process.

To obtain copies of ANSI/ASQC Q9000 documents, contact ASQ at 1-800-248-1946.

### 73.2.3 QS 9000

QS 9000 is an enhanced version of ISO 9000 created by the Big Three U.S. auto makers (General Motors, Ford, and Chrysler) in conjunction with other car and truck manufacturers. Although not an international standard, QS 9000 includes all of the requirements of ISO 9001 plus industry-specific requirements and a section of requirements specific to either Chrysler, Ford, or General Motors. QS 9000 was first issued in 1994 by the Automotive Industry Advisory Group (AIAG).<sup>5</sup>

The goal of QS 9000 is to reduce defects and waste in the supply chain while continuously improving quality and productivity. It is seen as a benefit to suppliers because it reduces duplication of systems, reporting methods, and audits while enhancing communication throughout the industry. For most suppliers, having a single quality-management system required by all automakers represents an opportunity for significant savings.

QS 9000 includes seven documents, all of which must be referenced to create a compliant system. The auto industry standard is more prescriptive than ISO 9001. There is a continuing debate as to whether QS 9000 is more rigorous than its ISO counterpart. A comparison of the number of "shall's" in each reveals 137 in ISO 9000 as compared to 300 in QS 9000.<sup>3</sup> This may be reflective of complexity, rigor, or both.

In the United States, the RAB (Registrar Accreditation Board) performs accreditation of registrars to QS 9000, and there is a certification/registration process in place despite the fact that the document is not controlled by ANSI, the International Organization for Standardization, or any other recognized standards-issuing body. The Big Three automakers have announced that third-party registration to QS 9000 will be required of all first-tier suppliers by 1997. First-tier suppliers are internal and external suppliers of production materials, production or service parts, and heat treating, painting, plating, or other finish services supplied directly to General Motors, Ford, or Chrysler. This could include as many as 14,000 companies worldwide. As these first-tier suppliers begin requiring QS 9000 compliance or registration of their own suppliers, more than 40,000 second-tier suppliers could be affected.

The QS 9000 documents are copyrighted by AIAG, which is the sole source of the documents, thus they must be purchased from them. To order these documents, contact AIAG at 1-800-358-3570.

### 73.2.4 TE 9000

Another of the auto-industry standards, TE 9000, is expected to be released as a supplement to QS 9000. This standard will be applied to tooling and equipment manufacturers that supply the non-production parts used in automobile manufacturing processes. Similar to QS 9000, the TE quality system standard will include ISO 9001 in its entirety along with industry- and auto company-specific requirements. The Big Three are expected to require third-party registration of quality systems to TE

9000. These registrations will be performed by registrars already accredited to perform ISO 9000 registrations. Although a publication date for TE 9000 has not been announced, affected companies are being encouraged to seek ISO 9001 registration as well as to follow the guidelines in the auto industry's *Reliability and Maintainability Guideline for Manufacturing Machinery*.<sup>3</sup>

When released, TE 9000 standards will be available for purchase from AIAG at 1-800-358-3570.

### 73.2.5 Other Quality System Standards

Although the auto-industry standards have gained acceptance, other attempts to create specialized quality system requirements have not fared as well. The Japanese created JIS Z9901, a software quality standard modeled after ISO 9000. So far, the standard has not been released or made mandatory to companies selling products in Japan. There is a concern that such specialized requirements may be used as trade barriers, limiting entry into global markets.<sup>6</sup>

### 73.2.6 ISO 14000

The ISO 14000 series of environmental management standards was released in 1996. The standards represent the work of the International Organization for Standardization's Technical Committee 207, and provide requirements for managing compliance to environmental regulations.<sup>7</sup> It is expected to affect all aspects of a company's environmental operations, including:

- Environmental management systems
- Environmental auditing
- Labeling requirements and formats
- Environmental performance evaluation
- Life-cycle assessments

It is expected that the ISO 14001 registration process will be similar to that of the quality system standard, ISO 9001. At this writing, the exact registration process has not been finalized. The Registration Accreditation Board (RAB) will most likely serve as the U.S. accrediting body in association with the American National Standards Institute (ANSI). Registration will require:

- Procedures for implementing an environmental management system that maintains compliance with applicable government regulations
- Proof that procedures are being followed
- Commitment to continuous improvement
- Commitment to pollution reduction

Certification to the ISO 14001 standard may become requisite to doing business in Europe in much the same way that ISO 9000 is now required by many companies both in Europe and the United States. The environmental standard is expected to minimize trade barriers and synchronize national environmental laws, labeling requirements, and other procedures that can enhance entry into global markets. Certification to the standard may also provide companies with some degree of legal protection.<sup>8</sup>

The environmental performance reporting requirements at the core of ISO 14001 are causing concern for some U.S. companies. There is a perception that such reports could supply the Environmental Protection Agency (EPA) with incriminating evidence resulting in fines and other penalties. However, there is also a possibility that registration to ISO 14001 might become incorporated into EPA requirements.<sup>9</sup>

At this writing, ISO 14000 has not been released. Contact ANSI at (212) 642-4900 for status and ordering information.

## 73.3 QUALITY AWARDS

### 73.3.1 Deming Prize

The Deming Prize was created in 1951 by the Union of Japanese Scientists and Engineers (JUSE). It was named after Dr. W. Edwards Deming to recognize his contributions to Japanese quality control. Deming was invited to Japan in 1950 to present a series of lectures on quality control and statistical techniques. At the time, Japan was still occupied by Allied forces and the Japanese were beginning to rebuild their industries. Deming's approach to quality control was instituted throughout Japan. It was later broadened to include total quality management (TQM), although Deming disavowed any relationship to TQM.

There are two types of Deming Prizes: Individual Person and Application. The Application Prize is offered in four categories: Overall Organization, Overseas Company, Division, and Small Enterprise. In addition, there is a Quality Control for Factory Prize.

The criteria for the Application Prize is contained on a broad, 10-point Deming Prize Checklist (see Fig. 73.2). There is no weighting for these criteria as is found in the Malcolm Baldrige National Quality Award criteria. In addition, other, unwritten criteria are also used by the judges when considering an organization for the prize. These can include:

- Cost Controls
- Inspection
- Inventories
- Processes
- Research
- Training
- Equipment Maintenance
- Instrumentation
- Personnel
- Profits
- Safety

The Deming Prize Committee administers the prize process. The Committee is chaired by the chairman of the JUSE board of directors or a person selected by the board. The prize committee is made up of quality experts chosen by its chairman. These experts review applications, conduct site visits, and select the individuals and organizations to receive the Deming Prize.<sup>10</sup>

The Deming Application Prize involves a process that can take several years and cost a great deal. Implied in this process is the use of JUSE consultants for months or years to assist the applicant in putting the prescribed quality control systems into place. The consultants perform a quality-control diagnosis and recommend changes. The organization creates its application for the Deming Prize the year after the JUSE consultants have completed their work. The length of the application is set according to the size of the company, ranging from 50 pages for organizations with fewer than 100

The Deming Prize Checklist
1. <b>POLICIES.</b> How are policies determined and transmitted? What results have been achieved?
2. <b>ORGANIZATION</b> and its management. How are scopes of responsibility and authority defined? How is cooperation promoted and quality control managed?
3. <b>EDUCATION</b> and dissemination. How is quality control taught, and how is training delivered to employees? To what extent are QC and statistical techniques understood? How are QC circle activities utilized?
4. <b>COLLECTION</b> , dissemination, and use of information on quality. How is information collected and disseminated at various locations inside and outside the company? How well is it used? How quickly?
5. <b>ANALYSIS.</b> Are critical problems grasped and analyzed against overall quality and the production process? Are they interpreted appropriately, using the correct statistical methods?
6. <b>STANDARDIZATION.</b> How are standards used, controlled, and systematized? What is their role in enhancement of company technology?
7. <b>CONTROL.</b> Are quality procedures reviewed for maintenance and improvement? Are responsibility and authority scrutinized, control charts and statistical techniques checked?
8. <b>QUALITY ASSURANCE.</b> Are all elements of the production operation that are essential for quality and reliability (from product development to service) examined, along with the quality assurance management system?
9. <b>EFFECTS (results).</b> Are products of sufficiently good quality being sold? Have there been improvements in quality, quantity, and cost? Has the whole company been improved in quality, profit, scientific way of thinking, and will to work?
10. <b>FUTURE PLANS.</b> Are strong and weak points in the present situation recognized? Is promotion of quality control planned and likely to continue?

**Fig. 73.2** Deming Prize criteria.

employees to 75 pages for 100–2,000 employees plus 5 pages for each additional 500 employees over 2,000. Applications are due in November and notification from the Committee on whether the application meets eligibility and technical requirements is made in December.<sup>4</sup>

Applications that pass the initial review must submit a Description of QC Practices and a company business prospectus in January. Both documents must be written in Japanese. If the Description is approved by the Committee, an on-site inspection is scheduled between March and September of that year.

In its first 38 years, the Deming Prize was awarded to a total of 139 companies. Only one prize was awarded in the category of Overseas Company, to Florida Power and Light in 1988. Two U.S. companies, Texas Instruments and Xerox, have been part-owners of Japanese companies that won the Deming Prize for Overall Organizations.<sup>11</sup>

For information on the Deming Prize for Overseas Companies, contact:

The Deming Prize Committee  
 Union of Japanese Scientists and Engineers  
 5-10-11 Sendagaya, Shibuya-ku  
 Tokyo 151  
 Japan  
 (011) 03-5379-1227, 1232, 03-3225-1813 Fax

### 73.3.2 Malcolm Baldrige National Quality Award

Although not the oldest quality award, the Malcolm Baldrige National Quality Award (MBNQA) has had the greatest influence on TQM in the United States. Named after the U.S. Secretary of Commerce who died in a tragic rodeo accident in 1987, this award was created by U.S. Public Law 100-107 on August 20, 1987.<sup>12</sup> It was designed to help U.S. companies enhance their competitiveness through focus on two results-oriented goals:

1. Delivery of ever-improving value to customers, resulting in marketplace success
2. Improvement of overall company performance and capabilities

The award is offered only to U.S. for-profit companies in one of three categories:

1. Manufacturing companies
2. Service companies
3. Small businesses with less than 500 employees

A maximum of two awards per year may be given in each category. There is no minimum number of awards that must be given.

The Department of Commerce is responsible for administering the MBNQA program. The National Institute of Standards and Technology (NIST), an agency of the Department of Commerce's Technology Administration, manages the award program. The American Society for Quality (ASQ) assists in administering the program under contract to NIST.

Applicants must complete an application of up to 70 pages describing their businesses in seven main categories (Fig. 73.3). Points are awarded on a weighted scale (Fig. 73.4) with a maximum of 1000 points possible. Typically, winners score in the 700s. (See Fig. 73.5 for list of winners and categories for each.)

The seven criteria Categories are broken into subcategories called *Items*. Each Item has points assigned and contains Areas to Address. There are 54 Areas to Address in the 1996 MBNQA criteria. Each Area to Address must be covered in the application unless the area does not apply to a company's business.<sup>13</sup>

The MBNQA criteria is results-oriented and focuses on a company's business, customer, and competitive results. The greatest changes to the criteria were made in 1995, when the word *quality* was almost entirely removed, broadening the scope of the award criteria to encompass the entire business operations and not just TQM. Quality-management systems must be fully integrated into a company's operations.

Applications for the MBNQA are evaluated by five to ten members of the Board of Examiners. The Board is composed of approximately 250 examiners, a volunteer group of recognized experts in the areas of quality and continuous improvement. Board members are selected annually through an application process. Applications are scored during the first stage of the award process.

Applicants that received high scores from the examiners (generally, over 600 points out of a possible 1,000) receive site visits. The findings from the site visits are summarized in a site visit report that is presented to a panel of judges for review. The judges can recommend up to two winners in each category. The judges' recommendations are given to NIST, which makes the final recom-

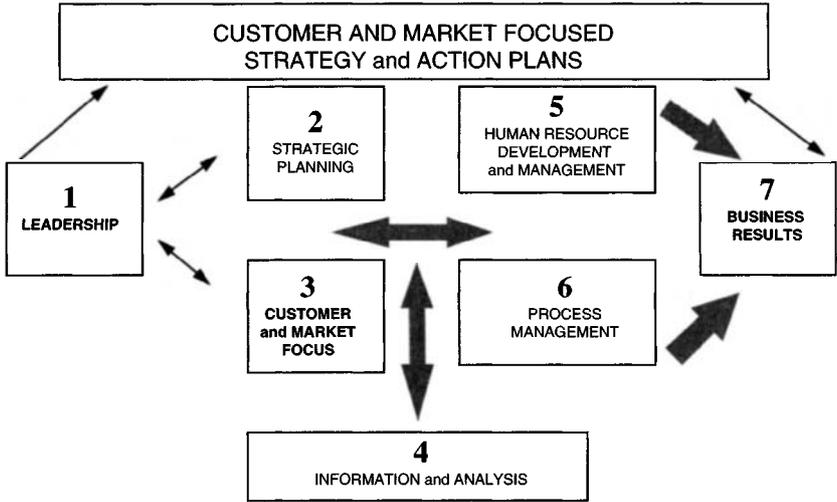


Fig. 73.3 MBNQA criteria framework.

mendations to the U.S. Secretary of Commerce. All applicants receive a detailed feedback report that itemizes strengths and areas for improvement.

The application fees for the MBNQA range from \$1,200 for small businesses to \$4,000 for large companies. In addition, expenses incurred during a site visit are reimbursed by the applicant. These fees are minimal when compared to the amount that would be charged by consultants for an analysis as detailed as the feedback report.<sup>14</sup>

Some of the past winners, however, have spent large sums to prepare their companies to apply for the award. The total cost of consultants, systems enhancements, and labor to create the application have ranged from several thousand to estimates in the millions. NIST has tracked the financial performance of past winners, however, and found stock performance many times better than the average Standard and Poors 500 performance (Fig. 73.6).

The number of applications for the MBNQA declined sharply in 1995, with only 47 applicants and 13 site visits (Fig. 73.7). This may not indicate a loss of interest in quality awards so much as a dramatic increase in state awards based on the Baldrige criteria. Many companies have developed self-assessment checklists and processes using the MBNQA criteria. The influence of the criteria may well be growing even as the applications decline.

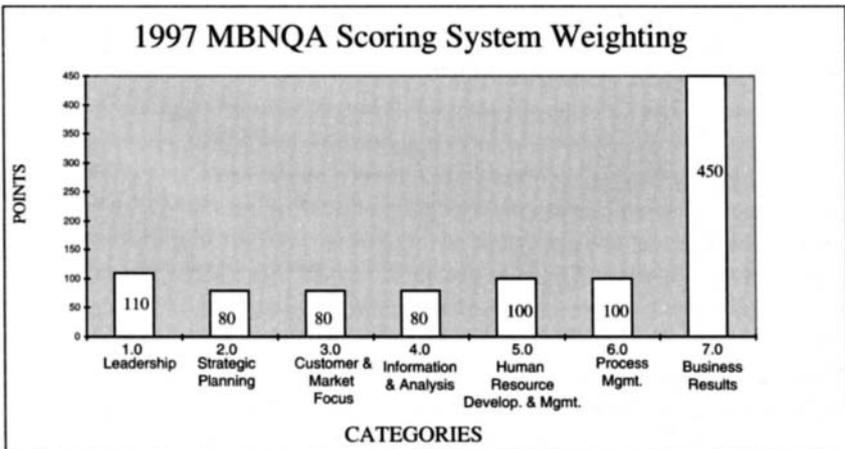


Fig. 73.4 Weights of the Malcolm Baldrige National Quality Award 1997 application criteria.

**1988**

Globe Metallurgical, Inc. (SB)  
 Motorola, Inc. (M)  
 Westinghouse Commercial (M)

**1989**

Milliken & Company (M)  
 Xerox Business Products and Systems (M)

**1990**

Cadillac Motor Car Company (M)  
 Federal Express Corp. (S)  
 IBM Rochester (M)  
 Wallace Co., Inc. (SB)

**1991**

Marlow Industries (SB)  
 Solectron Corp. (M)  
 Zytec Corp. (M)

**1992**

AT&T Network Systems Group (M)  
 AT&T Universal Card Services (S)  
 Granite Rock Company (SB)  
 Texas Instruments, Inc. (M)

**1993**

Ames Rubber Corp. (SB)  
 Eastman Chemical Co. (M)

**1994**

AT&T Consumer Communications (S)  
 GTE Directories (S)  
 Wainwright Industries (SB)

**1995**

Armstrong World Industries (M)  
 Corning Telecommunications (M)

**1996**

ADAC Laboratories (M)  
 Custom Research, Inc. (SB)  
 Dana Commercial Credit Corporation (S)  
 Trident Precision Manufacturing, Inc. (SB)

**Fig. 73.5** MBNQA Award Winners—1988–1996. (From NIST's MBNQA homepage, located at <http://www.nist.gov:8012/>). (M) = Manufacturing, (S) = Service, (SB) = Small Business.

To obtain further information or award criteria and application forms contact:

United States Department of Commerce  
 Technology Administration  
 National Institute of Standards and Technology  
 Route 270 and Quince Orchard Road  
 Administration Building, Room A537  
 Gaithersburg, MD 20899-0001

Or contact ASQ at 1-800-248-1946.

### 73.3.3 European Quality Award

The European Quality Award is managed by the European Foundation for Quality Management (EFQM), an organization founded in 1988 and made up of more than 440 quality-oriented European businesses and organizations. It was created to enhance European competitiveness and effectiveness through the application of TQM principles in all aspects of organizations. EFQM headquarters is located in the Netherlands.

Date of Investment	Whole Company Winner or Parent (Subsidiary Winner)	Stock Purchases		Aug. 1, 1995 Close		
		Price	\$ Invested	Price	\$Value	%Change
4/4/88	Motorola	11.125**	\$1,000	76 1/2	\$6,876	587.6
4/4/88	Westinghouse (CNFD)	25.56*	17.78***	13 5/8	9	-46.7
4/3/89	Xerox (Business Products and Systems)	60.25	790***	119 3/8	1,565	98.1
4/2/90	General Motors (Cadillac Motor Car Division)	45.5	13.39***	48 3/4	14	7.1
4/2/90	Federal Express	55.38	1,000	67 1/2	1,219	21.9
4/2/90	IBM (IBM Rochester)	105.88	17.62***	108 7/8	18	2.8
4/1/91	Solelectron	4.1875**	1,000	36 3/8	8,687	768.7
4/1/92	AT&T (Universal Card Services)	40.38	6.53***	52 3/4	9	30.7
4/1/92	AT&T (Transmission Sys. Bus. Unit)	40.38	37.54	52 3/4	49	30.7
4/1/92	Texas Instruments (Defense Sys. & Elec. Group)	32	246.61	156 1/4	1,204	388.3
11/11/93	Zytec	10.38	1,000	8 1/4	795	-20.5
4/1/94	Eastman Chemical	45.25	1,000	64	1,414	41.1
4/1/94	AT&T (Consumer Communications Serv.)	51.25	159.26	52 3/4	164	2.9
4/1/94	GTE (GTE Directories)	31	41.88	35 1/2	48	14.5
<b>TOTALS:</b>	<b>S&amp;P 500</b>		6330.61		10,033	58.5
	<b>Baldrige Award-Winning Companies</b>		6330.61		22,072	248.7

\* Adjusted for 2 for 1 stock split after investment date

\*\* Adjusted for two separate stock splits of 2 for 1 after investment date

\*\*\* For subsidiaries, the sum invested is \$1,000 × the % of the parent company's employee base that the subsidiary represents

**Fig. 73.6** NIST stock study of Malcolm Baldrige National Quality Award winners, updated 21 March 1996.

The European Quality Award program was instituted in 1991, and the first prizes were awarded in 1992. The award system consists of several European Quality Prizes given to organizations that show their approach to TQM has contributed significantly over the years to satisfying the expectations of their customers, employees and other stakeholders. One of these prize winners is selected to receive the top award, the European Quality Award.<sup>15</sup>

This awards program is open to any European company or public service organization. European divisions of companies whose parent organizations are located outside Europe are also eligible. Xerox was the winner of the first European Quality Award in 1992, and Texas Instruments Europe received the award in 1995.<sup>16</sup>

The European Quality Award criteria is weighted and scored on a scale of 0 to 1,000 in a manner similar to the criteria for the Malcolm Baldrige National Quality Award. The criteria are divided into two main categories: Enabler Criteria and Results Criteria. (See Fig. 73.8 for details of the criteria and scoring system.)

### 73.3.4 Shingo Prize for Excellence in American Manufacturing

The Shingo Prize promotes world-class manufacturing in North America. It is administered by the College of Business, Utah State University, in partnership with the National Association of Manufacturers. The prize has been awarded to 17 companies since its inception in 1988.

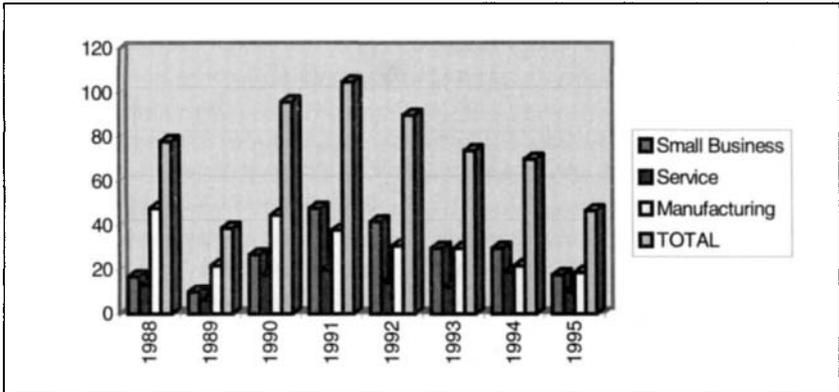


Fig. 73.7 MBNQA applications per year by type of organization.

<b>ENABLER CRITERIA (How results are being achieved)</b>	<b>POINTS %</b>
I. <u>Leadership</u> : How the executive team and all other managers inspire, drive, and reflect TQM as the organization's fundamental process for continuous improvement.	100 (10%)
II. <u>Policy and Strategy</u> : How the organization's policy and strategy reflect the concept of TQ, and how the principles of TQ are used in formulation, deployment, review, and improvement of policy and strategy.	80 (8%)
III. <u>People Management</u> : How the organization releases the full potential of its people to continuously improve its business.	90 (9%)
IV. <u>Resources</u> : How the organization's resources are effectively deployed in support of policy and strategy.	90 (9%)
V. <u>Processes</u> : How processes are identified, reviewed, and if necessary revised to ensure continuous improvement.	140 (14%)
<b>RESULTS CRITERIA (What the organization has achieved and is achieving)</b>	
VI. <u>Customer Satisfaction</u> : What the organization is achieving in relation to the satisfaction of its external customers.	200 (20%)
VII. <u>People Satisfaction</u> : What the organization is achieving in relation to the satisfaction of its people.	90 (9%)
VIII. <u>Impact on Society</u> : What the organization is achieving in satisfying the expectations of the community at large. This includes perceptions of the organization's approach to quality of life and the environment.	60 (6%)
IX. <u>Business Results</u> : What the organization is achieving in relation to its planned business objectives and in satisfying the needs and expectations of everyone with a financial interest or stake in the organization.	150 (15%)
<b>TOTAL POINTS</b>	<b>1,000 (100%)</b>

Fig. 73.8 European Quality Award criteria.

The Shingo Prize for Excellence in Manufacturing honors Dr. Shigeo Shingo, a leading expert on improving the manufacturing process. He created, with Taiichi Ohno, many of the facets of just-in-time manufacturing while working with Toyota Production Systems. Shingo is known for his books, including *Zero Quality Control: Source Inspection and the Poka-yoke System*; *Non-Stock Production: The Shingo System for Continuous Improvement*; and *The Shingo Production Management: Improving Process Functions*.

The philosophy of the Shingo Prize is that world-class status may be achieved through focused improvements in core manufacturing processes, implementing lean, just-in-time philosophies and systems, eliminating waste, and achieving zero defects, while continuously improving products and costs.

The mission of the Shingo Prize is to:

- Facilitate an increased awareness by the manufacturing community of lean, just-in-time manufacturing processes, systems, and methodologies that will maintain and enhance a company's competitive position in the world marketplace
- Foster enhanced understanding and subsequent sharing of successful core manufacturing-improvement methodologies
- Encourage research and study of manufacturing processes and production improvements in both the academic and business arenas

The Shingo Prize is awarded annually to:

- Manufacturing companies, divisions, and plants in the United States, Canada, and Mexico
- Research and writing that addresses innovative manufacturing, quality and productivity improvements, systems, and processes

The prize uses weighted criteria and requires a written application. See Fig. 73.9 for the criteria and weighting.<sup>4</sup>

For further information on the Shingo Prize, the application process, or the criteria, contact:

CRITERIA	POINTS
<b>Total Quality and Productivity Management Culture and Infrastructure</b> <ul style="list-style-type: none"> <li>• Leading: 100</li> <li>• Empowering: 100</li> <li>• Partnering: 75</li> </ul>	<b>275 pts.</b>
<b>Manufacturing Strategy, Processes, and Systems</b> <ul style="list-style-type: none"> <li>• Manufacturing Vision and Strategy: 50</li> <li>• Manufacturing Process Integration: 125</li> <li>• Quality and Productivity Methods Integration: 125</li> <li>• Manufacturing and Business Integration: 125</li> </ul>	<b>425 pts.</b>
<b>Measured Customer Service</b> <ul style="list-style-type: none"> <li>• Customer Satisfaction: 100</li> </ul>	<b>100 pts.</b>
<b>Measured Quality and Productivity</b> <ul style="list-style-type: none"> <li>• Quality Enhancement: 100</li> <li>• Productivity Improvement: 100</li> </ul>	<b>200 pts.</b>
<b>TOTAL</b>	<b>1,000 pts.</b>

**Fig. 73.9** Shingo Prize criteria and weighting.

STATE	TYPE OF QUALITY AWARD	CRITERIA & ELIGIBILITY	CONTACT
AR	1) Interest 2) Commitment 3) Achievement 4) Governor's	Based on Baldrige Award. Open to public and private organizations in state of Arkansas.	Arkansas Quality Award, Inc. 1111 West Capitol, Room 1013 Little Rock, AR 72201 501/373-1300
AZ	1) Prospecting 2) Pioneer 3) Governor's	Based on last year's Baldrige Award criteria with some modifications. Open to public, private and non-profit in state.	Arizona Quality Alliance 1435 N. Hayden Rd. Scottsdale, AZ 85257 602/481-3454
CA-1	1) Management 2) Marketplace 3) Workplace 4) Community 5) Overall Excellence	Uses Baldrige Award concepts. Open to for-profit manufacturing, service and small business in state.	California Center for Quality Education and Development PO Box 2231 Sacramento, CA 95812-2231 916/322-3590
CA-2	Eureka Award	Based on Baldrige Award. Open to California-based service, non-profit, governmental and educational institutions.	California Council for Quality & Service PO Box 880774 San Diego, CA 92168 619/491-3050
CT-1	Connecticut Award for Excellence (CAFE)	Uses Baldrige criteria. Open to business, education, government, and health care.	Connecticut Award for Excellence PO Box 38 Rocky Hill, CT 06067 800/392-2122
CT-2	Connecticut Quality Improvement Award	Uses current year Baldrige criteria. Open to for-profit and not-for-profit organizations.	Connecticut Quality Improvement Award, Inc. PO Box 1396 Stamford, CT 06904-1396 203/322-9534
DE	Up to 10 awards per year.	Modified Baldrige criteria. Open to manufacturing, non-manufacturing and non-profit in large and small categories.	Delaware Quality Consortium, Inc. Delaware Economic Development Off. PO Box 1401 Dover, DE 19903 302/739-4271
FL	Governor's Sterling Award	Baldrige criteria. Open to private manufacturing, private service, education, health care, and public.	Florida Sterling Council Governor's Sterling Award Office Room 313, Carlton Building Tallahassee, FL 32399-0001 904/922-5316
HA	State Award for Excellence: Gold (highest) Red (significant) Purple (high)	Patterned after Baldrige Award. Open to any organization which provides products or services to people of Hawaii.	Pacific Region Institute for Service Excellence Chamber of Commerce of Hawaii 1132 Bishop Street, Suite 200 Honolulu, HI 96813 808/545-4355
IL	Lincoln Award	New, 1/96. Open to large and small industry and service in state.	Lincoln Award for Business Excellence 520 W. Jackson Blvd., #600 Chicago, IL 60607 312/258-4074
LA	Louisiana Quality Award	Patterned after Baldrige Award. Open to any size or type organization in state.	Louisiana Quality Foundation c/o LSU at Alexandria 8100 Highway 71 South Alexandria, LA 71302-9121 318/473-6453
MA	Massachusetts Quality Award	Uses Baldrige criteria. Open to manufacturing, service and non-profit organizations.	Massachusetts State Quality Award 3 Robinson Drive Bedford, MA 01730 617/275-1200
MD	Maryland Excellence Award	Criteria from Maryland Senate Productivity Award. Two categories: Education and small business.	Maryland Center for Quality & Productivity College of Business and Management University of Maryland College Park, MD 20742-7215 301/405-7099
ME	Maine Quality Award	Modeled after Baldrige Award. Open to large and small manufacturing and service companies and non-profits of any size.	Maine Quality Award Program Margaret Chase Smith Library PO Box 3152 Skowhegan, ME 04976 207/474-0513
MI	Michigan Quality Leadership Award	Based on Baldrige criteria. Manufacturing, Service, Health Care, Education, Public Sector, and Small Enterprise categories.	Michigan Quality Council Oakland University 525 O'Dowd Hall Rochester, MI 48309-4401 810/370-4552

Fig. 73.10 State quality awards (information supplied by National Institute of Standards and Technology).

MN	Minnesota Quality Award	Uses Baldrige categories and items but does not include areas to address. Categories: Manufacturing, Service, and Education	Minnesota Quality Award Minnesota Council for Quality 2850 Metro Drive, Suite 300 Bloomington, MN 55425 612/851-3181
MO	Missouri Quality Award	Patterned after Baldrige Award. Categories: Manufacturing, Service, Health Care, Education, Public Sector in 3 sizes.	Excellence in Missouri Foundation Harry S. Truman State Office Building Room 620, 301 W. High Street Jefferson City, MO 65102 314/526-1725
MS	Mississippi Quality Award. Four award levels: 1) Interest 2) Commitment 3) Award 4) Governor's	Patterned after Baldrige Award. Any MS public or private organization may apply.	Mississippi Quality Award Center for Quality and Productivity 3825 Ridgewood Rd. Jackson, MS 39211 601/982-6739
NC	North Carolina Quality Leadership Award	Uses previous year's Baldrige Award criteria. Seven categories: 1) Education, 2-4) Manufacturing (small, medium and large) and 5-7) Service (small, medium and large).	North Carolina Quality Leadership Award 4904 Professional Court, Suite 100 Raleigh, NC 27609 919/872-8198
NE	Edgerton Quality Awards: 1) Continuous Process Improvement 2) Adaptation of Technology	Patterned after Baldrige criteria (plus 8th category for "Sharing of Information") and Minnesota award program. Two categories: Manufacturing and Service.	The Edgerton Quality Award Program Nebraska Department of Economic Develop. Existing Business Assistance Division PO Box 94666, 301 Centennial Mall South Lincoln, NE 68509-4666 402/471-4167
NH	New Hampshire Quality Award	Patterned after Baldrige Award. Two categories for small (>200 employees) and large organizations 1) Manufacturing, 2) Service.	New Hampshire Quality Council PO Box 3128 Portsmouth, NH 03802 603/427-2280
NJ	New Jersey Quality Achievement Award	Uses Baldrige Award criteria. Categories: Manufacturing, Service, Small Business, Education, Government	New Jersey Quality Achievement Award Mary G. Roebing Building, CN 827 Trenton, NJ 08625-0827 609/777-0939
NM	1) Pinon-commitment 2) Roadrunner-progress 3) Zia-excellence 4) Quality Hero	Pinon requires written description of seven Baldrige categories. Roadrunner requires 28 Baldrige items, and Zia requires complete Baldrige criteria application. Quality Heros are individuals cited for outstanding service. Open to any public or privately-held organization of any size.	Quality New Mexico PO Box 25005 Albuquerque, NM 87125 505/242-7903
NY	Governor's Excelsior Award	Modeled on Baldrige Award. Open to any organization, any size.	The Excelsior Award, Inc. 152 Washington Avenue Albany, NY 12210-2289 518/465-1706
OK	Oklahoma Quality Award	Patterned after Baldrige Award. Categories: Manufacturing (large, medium, small) and Service (large, medium, small). Plans to expand to public sector.	Oklahoma State Quality Award Foundation 6601 N. Broadway Oklahoma City, OK 73116 405/841-5295
OR	Oregon Quality Award	Modified Baldrige criteria. Applicants complete self-assessment with areas for improvement. Categories: Manufacturing, Service, Education, Health Care, and Government.	Oregon Quality Award One World Trade Center 121 S.W. Salmon, Suite 1140 Portland, OR 97204 503/224-4606
PA	Pennsylvania Quality Leadership Award: 1) Cornerstone 2) Keystone 3) Governor's	Use Baldrige criteria. Open to any public or private organization. Categories: Manufacturing (large and small), and Service (large and small).	Pennsylvania Quality Leadership Foundation PO Box 4129 Harrisburg, PA 17111-0129 717/561-7180

Fig. 73.10 (Continued)

RI	1) RI Award for Competitiveness and Excellence 2) Quality Achievement Award 3) AT&T/URI Quality and Education Award	Uses modified Baldrige Award criteria. Open to any RI organization except U.S. Government, professional and trade organizations. AT&T/URI winner receives \$10,000 (K-12).	Rhode Island Area Coalition for Excellence PO Box 6766 Providence, RI 02940 401/454-3030
SC	1) Achiever's Award 2) Governor's Award	Uses previous year's Baldrige Award criteria. Open to public and private organizations.	South Carolina Quality Forum c/o Quality Institute University of South Carolina at Spartanburg 800 University Way Spartanburg, SC 29303 803/599-2990
TN	1) Quality Interest 2) Commitment 3) Achievement 4) Governor's	Modeled after Baldrige Award with four levels. Open to any public or private organization.	Tennessee Quality Award Office 2233 Highway 75, Suite 1 Blountville, TN 37617-5840 615/279-0037
TX	Texas Quality Award	Patterned after Baldrige Award. Categories: small (< 100 employees) and large (> 100). Open to for-profit and not-for-profit organizations.	Quality Texas PO Box 684157 Austin, TX 78768-4157 512/477-8137
UT	1) Improvement 2) Progress 3) Governor's 4) Continuous (for past winners of Governor's Award)	Based on Baldrige Award with separate criteria for government and education. Four award categories: 1) manufacturing, 2) service, 3) Education, 4) Government.	Utah Quality Council 2120 State Office Building Salt Lake City, UT 84114 801/538-3067
WA		Categories: 1) manufacturing, 2) service, 3) government and education, 4) not-for-profit; all categories judged in large or small (< 200) division.	Department of Labor and Industries N. 901 Monroe, Suite 100 Spokane, WA 99201 509/324-2534

Fig. 73.10 (Continued)

	Deming	ISO 9000	Baldrige	Shingo	European	State
Year Created	1951	1987	1987	1988	1991	various
Form	Long-term prize	Certification	Annual Awards	Annual Prizes	Annual Prizes and Award	Annual Awards
Emphasis	Statistics; Quality Control	Documented Procedures and Compliance	Customer Satisfaction, Business Results, All Parts of the Organization	Just-in time Manufacturing, Process Improvements	Customer Satisfaction, Business Results, Processes	Similar to Baldrige
Missing from TQ Perspective	Customer Focus	Customer Focus, Business Results, Support Organizations	Complete	Business and Support Organizations, Customer Focus	Complete	Complete
Cost	Very High	Low--Medium	Medium--High	Low	Medium--High	Very Low

Fig. 73.11 Comparison of TQM elements in ISO 9000 and the quality awards.

The Shingo Prize for Excellence in Manufacturing  
 College of Business, Utah State University  
 Logan, UT 84322-3521  
 (801) 797-2279, (801) 797-3440 Fax

### 73.3.5 State Quality Awards

In the United States, quality awards have been initiated in over 40 states. Many of the awards are based on the Baldrige Award criteria, although eligibility has been extended in most cases to not-for-profit and governmental organizations as well as manufacturing and service companies. While the number of applicants for the Malcolm Baldrige National Quality Award has declined in recent years, state applications have increased dramatically. In 1995, there were only 47 applications submitted for the MBNQA but the total for state awards was 450, a 33% increase from the previous year. Even though state awards were almost nonexistent in 1990, over 40 states had initiated award programs by 1997, with others expected to follow suit.

In most states, the award process adheres to the MBNQA with a written application, site visits, and an award ceremony in the fall. Application costs are often less than half the Baldrige application fee and, in most cases, the organization receives a feedback report. Figure 73.10 is a listing of state awards and contact points.

### 73.3.6 How Do They Compare?

There have been many attempts to compare the various award and registration initiatives looking for common and missing elements of a Total Quality (TQ) system. Figure 73.11 illustrates some of the differences among the more popular TQ initiatives.

The value of any of the registrations, certifications, or awards is not necessarily in achieving the certificate or plaque. The benefit is derived from the process itself, which serves to drive continuous improvement.

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