

WHAT JAPAN TAUGHT US ABOUT QUALITY

By Joseph M. Juran
August 15, 1993

In the minds of some journalists and industrialists, Japan's world leadership in product quality is the result of the lectures given four decades ago by two Americans - W. Edwards Deming and Joseph M. Juran. Had Deming and I not given those lectures, these people insist, Japanese goods would still be of stone-age quality.

But even if we had stayed home, the Japanese would have achieved world-quality leadership.

Even before the war the Japanese had achieved competitive and even superior quality in certain areas. It was just that their priorities were far different from ours in the West.

At the outbreak of World War II, there were three levels of quality in Japan. At the low end, prewar consumer exports were wretched. They became the basis for Japan's reputation as a producer of shoddy goods.

Instead, the Japanese had harnessed most of their capital and their best managers, engineers and materials to the country's imperial ambitions. Military hardware, the second level of Japanese quality, was quite competitive with that of the Western powers.

At the top of the quality pyramid was the ancient Japanese tradition of fine craftsmanship in handmade goods. When Dutch and Portuguese explorers reached the Japanese islands on their 16th-century voyages of discovery, they found that certain Japanese craft products -- including swords, paper, lacquerware, copper and woodblock prints -- were superior to anything known in Europe.

The shock of losing the war opened Japanese minds to the need for change. In 1954, I went to Japan to speak at the invitation of the Japanese Federation of Economic Organizations -- the Keidanren -- and the Japanese Union of Scientists.

What I told the Japanese was what I had been telling audiences in the United States for years. The difference was whose ears heard it.

The people who attended my two-day lectures in Japan turned out to be 140 chief executives from the largest manufacturing companies in the country. After those

sessions, two additional groups, each consisting of 150 senior Japanese managers, spent two weeks with me.

When I gave lectures in the United States, the audiences consisted of engineers and quality control managers. Never before my 1954 trip to Japan -- and never since -- has the industrial leadership of a major power given me so much of its attention.

I told the Japanese two things. First, I described the state of the art of quality management as it stood in 1954: What we knew about managing for quality then was how to manufacture products to design specifications and how to inspect them for defects so that as few flawed products as possible would find their way into buyers' hands.

The second idea I passed on to them was something that I had been working on since 1924, when I began my first job as an engineer at Western Electric, the manufacturing arm of the Bell System.

One early problem I was asked to analyze concerned a tiny circuit breaker that Western Electric made by the millions. The inspectors regularly scrapped about 15 percent of them.

The local production supervisor and I analyzed the manufacturing process, found the sources of our problems and then fixed them, increasing our production by approximately 15 percent without extra machines, people or material. A defect-prone process had become virtually defect-free.

By improving the production process, we had not only improved the quality of the circuit breakers, we had also lowered the cost of producing them.

I went to my boss and said, "I know that problems like this exist throughout the plant. Why don't we search them out and fix every one of them?"

He said that process improvement wasn't our job.

"We're the inspection department," I remember him saying, "and our job is to look at these things after they're made and find the bad ones. Making them right in the first place is the job of the production department."

And that's where it ended.

QUALITY REVOLUTION

I suggested that the Japanese try to find ways to institutionalize programs within their companies that would yield continuous quality improvement. That is exactly what they did.

Around those programs, the Japanese built a quality revolution. They pursued a larger role for quality -- a strategic role -- and soon I, the expert, was learning from my students.

To launch their quality revolution:

- The senior executives of Japanese companies took personal charge of managing for quality.
- The companies trained their engineers to use statistical methods for quality control.
- The companies enlarged their business plans to include quality goals.

Each of these actions was unprecedented in industrial history. Together, they added up to a massive change in direction.

Why didn't a similar quality revolution take place in the United States? Our companies could have taken every step the Japanese companies took. They failed to take those steps because they saw no reason to do so.

While U.S. companies tried to compete with the Japanese on price during the 1950s, the rise in Japanese quality caught them completely off-guard.

The American mind-set saw the Japanese as copyists rather than innovators -- Japan might compete on price but never on quality.

Further, U.S. companies failed to see superior Japanese quality coming because they lacked the proper instruments on their corporate dashboards. In their postwar anxiety to change their quality reputation, Japanese companies evolved means of measuring customer satisfaction, competitive quality and performance. These measures contributed to CEO decision making.

In contrast, U.S. companies, widely perceived as being among the world's quality leaders, were not anxious to tamper with their reputation. In fact, U.S. CEOs had long been detached from the quality function.

TAKEN BY SURPRISE

Xerox Corp. is probably the best example of how a financially powerful company allowed itself to be taken completely by surprise.

In the 1950s and 1960s, Xerox had a lock on a key industrial process -- copying documents. Everybody wanted Xerox copies, and nobody could get them except by leasing a Xerox machine. The company was growing, and Xerox executives could look at their instruments and see sales, costs and profits at a glance. But they had no meter showing customer satisfaction.

The Xerox machines malfunctioned or broke down regularly, and Xerox executives knew it. They could have sent their designers back to the drawing board to redesign the machines so they wouldn't fail. Instead, they created a service force they could dispatch to fix the machines. As far as Xerox executives were concerned, that solved the problem.

Xerox's customers didn't agree. They didn't want repairs, they wanted machines that didn't break down in the first place.

This situation set the stage for the entry of competition, and the Japanese rushed in. The effect on market share became so devastating that Xerox's very survival came into question.

Xerox had no lack of design engineers who might have corrected their problems, but it was largely product managers who decided what the design engineers should spend their time working on. Since the chief mission of product managers was to sell more copiers, they prodded the designers to come up with new product features that would translate into increasing new sales.

This disparity in priorities was directly traceable to the content of the information package available to Xerox's senior managers. The senior management lacked summarized information on field failures and their effect on customer relations, the performance of competing machines and the extent of customer defections.

The Xerox scenario has become a familiar one in the United States. In the 1950s, there were about 30 U.S.-owned companies making color televisions in the United States. By the 1980s, we were down to one.

The most publicized example took place in the auto industry. Japanese cars were of such poor quality in the 1950s that they could hardly be sold in the United States.

But then the Japanese automakers adopted the concept of quality improvement, applied it at an unprecedented rate, and kept at it year after year. In 1975, by my estimate, after more than two decades of work, the Japanese caught up with and surpassed U.S. automakers in product quality.

The Japanese had thrown overboard the old idea of using inspection to weed out defects and had adopted new quality concepts instead. They focused on customer needs rather than on mere conformity to specifications. They put senior managers in charge of quality. They broke down organizational barriers of the kind that had frustrated me at Western Electric in the mid-1920s and that persist to this day in too many U.S. companies.

As the quality crisis deepened, U.S. companies launched initiatives to improve their quality. Most failed because of the ignorance of otherwise intelligent senior managers about quality. For decades, these managers had delegated quality to a quality department, never acquiring the training and experience needed to set appropriate quality goals and develop a plan of action for achieving them.

Worse yet, CEOs tried to delegate the entire responsibility for their quality action plans to middle managers. They thought they could make the right speeches, establish broad goals and leave everything else to subordinates. U.S. CEOs didn't realize that fixing quality meant fixing whole companies, a task that can't be delegated.

During the 1980s, some people expressed the view that Western culture was less well-suited than Japanese culture to the disciplines of quality improvement.

But our most successful companies have demolished that contention. Motorola is one example; it has become a leading seller of communications equipment in Japan. And Xerox has come from behind to recapture much of the market share it had lost.

NEW GLOBAL COMPETITION

Our need is not to redesign our culture. Our need is to intensify what these companies have shown us we can do.

The most powerful force driving this effort is an intense new global competition in quality. This competition has produced a major shift in world economic priorities. While the 20th century has been the Century of Productivity, the 21st century will be the Century of Quality.

Companies that have attained world-class quality have begun requiring their suppliers to move toward world-class quality as well. In this way, quality criteria spread gradually within the entire supplier chain.

The new impetus for quality will be limited only by the pace at which our CEOs accept responsibility for their roles, which cannot be delegated. There are seven steps that a responsible CEO must take to achieve quality in any organization:

1. Set up and serve on the company's quality council, the quality equivalent of the finance committee.
2. Establish corporate quality goals, including quality improvement goals, and make them a part of the business plan.
3. Make provisions for training the entire company hierarchy in managing for quality.
4. Establish the means to measure quality results against quality goals.

5. Review results against goals on a regular basis.
6. Give recognition for superior quality performance.
7. Revise the reward system to respond to the changes demanded by world-class quality.

WATERSHED EVENT

In the spring of 1993, I addressed a meeting of the Business Roundtable in Washington.

The Roundtable had convened 70 CEOs for a day devoted to the subject of quality. It showed every sign of being a watershed event in the history of the quality movement in the United States.

As I spoke, I couldn't help wondering whether the Americans would follow up on their first quality conference as effectively as the Japanese have over the past 40 years.

The critical variable in Japanese quality leadership is the extent of participation by senior managers. The same will be true in the United States. We will regain that quality leadership, rung by rung, when our senior managers carry out the quality-management roles that they cannot afford to delegate. Only then can "Made in U.S.A." become a symbol once again of world-class quality.

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