

Global Competition

by Dr. Takeda Shuzaburo

I am honored to have been given this opportunity to discuss global competition, the most important topic in the coming century. I am not an economist by training, but I have conducted research on lasers, in addition to organizational theory. Today, I hope to shed some light not on my experience in lasers but on organizational issues.

The countdown has started for the 21st century. We have experienced all sorts of unfortunate events in the 20th century, including global warming, problems which persist in African nations and other issues that still remain to be solved. Most of us feel we have succeeded in creating a world ruled by reason in this century, unlike those that preceded it. Still, I am not sure whether we can look forward to 20th century-style prosperity in the coming century. This is because our knowledge and way of thinking, which were believed to be sufficiently rational, embody so many irrational elements.

In the 1980s, when the United States economy was going through a period of slow growth, William Ouchi pointed out that the economy was infested with many superstitious beliefs, and that these had prompted the economic slow-down. In the two decades since then, the U.S. economy has made a strong comeback as the most vibrant economy in the world. While I pay tribute to the efforts of U.S. business during this period, I would like to point out that history never came to an end. I believe we need to work even harder to brush up knowledge to maintain prosperity in the coming century.

Hard work alone will not bring about rewards. To achieve good results, we need a theory. Let's look back again at the short history of competitiveness. As I see it, the word 'competitiveness' became familiar to many Americans after the establishment of the President's Commission on Industrial Competitiveness in 1983. It reported to the president in

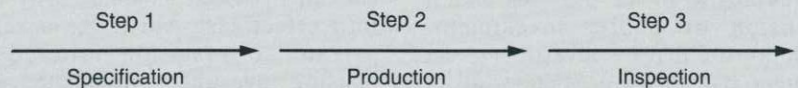
1985 and its subtitle was 'New Reality'. According to one survey, the word appeared in the headlines of U.S. newspapers and magazines some 5,700 times between 1983 and 1987. In reality, there were some American pioneers who had stressed the importance of competition prior to this.

Peter Drucker, dubbed the 'god of management,' once said that three Americans have had a major impact on the post-war Japanese economy. One is Drucker himself, who contributed to the theory of management, and the other two are William Edwards Deming, who introduced the concept of quality control, and J.M. Juran. In fact,

another group of Americans, whom Drucker failed to notice, preached the importance of management to the Japanese. Every electronics manufacturer in Japan, with the exception of Sony, has benefited from their efforts. In any event, it was Dr. Deming who has had the greatest impact on these companies. It was in the summer of 1950 that he held a seminar for managers and specialists in Japan.

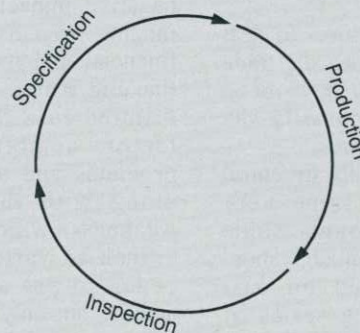
It is generally known that at that seminar, he taught the importance of applying statistical methods to quality control. If we look more closely at his lecture notes at the time, however, we see that he was trying to convey the

The old and new systems of production, represented as a line and cycle, were analyzed by Dr. W.E. Deming in 1950.



OLD

The Quality Control Process Shown as a Line



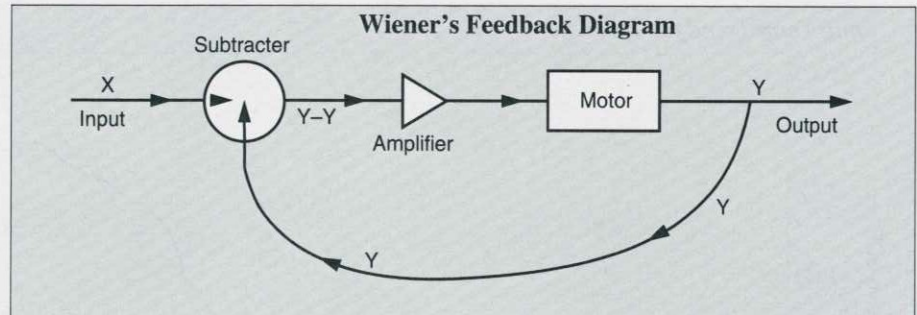
NEW

The Quality Control Process Shown as a Circle

Source: Dr. Shewhart, *Statistical Method From the Viewpoint of Quality Control*

importance of competitiveness and organizations. On the first day of the seminar, he started out by saying, "We are now in a new industrial age where international trade is an essential component of peace and prosperity, and the key to the new era lies in maintaining competitiveness." Then he went on to explain the new systems for the new era. He used several charts to explain that "manufacturers used to think of manufacturing in a line of three steps—design, manufacturing and sales. In this, the three steps are completely independent. But, in the new era, manufacturers must move to a cyclic way, through consumer research, a fourth step, and run through the four steps in a cycle, over and over (in order to maintain competitiveness. As shown in the chart below)." One rotation of this cycle would mean better products and services. Deming called it the Shewart cycle. He told the Japanese it was based on the theory of W.A. Shewhart, a lifetime friend and also a guru of Deming. However, the Japanese referred to it as the Deming cycle, or the PDSA cycle, after the acronym of Plan, Do, Study and Act.

The old system is also called Taylorism or scientific management. Under this system, information and products are forced or 'pushed' on consumers one-sidedly, as we can see from Henry Ford's famous comment, "consumers can buy any color of car they want, as long as it's black." The new method is a cycle with no end, in contrast to the old system where management works in line from design to sales. The difference, under the new system, is that consumers are incorporated or 'pulled' into the organization from the beginning, and their judgments are fed back to management. The difference between push and pull is substantial. Deming told the Japanese that managers of the new (industrial) era must move from the old system to the new system and that companies should develop products together with consumers. These discussions would not sound new to today's business world. But that was not the case in 1950, when it was greeted with sur-



prise. Nevertheless, the Japanese exerted every effort to establish new organizations, even at the cost of altering part of their mindset. I believe this provided an opportunity for the Japanese to produce new, unconventional types of organizations (companies).

Human development is basically a history of organizational development. This leads us to suppose that humans have evolved various types of organizations. By classifying organizations, however, we find that only three types have been developed in the course of history. One method of management, based on experience and tradition, originated in ancient times. Also called the guild or feudal system, this system was prevalent in the Middle Ages and some examples of this can be found even in present-day society. Prior to the modern age, the efforts of wise men and women were directed to destroying these old systems. In fact, the modern era produced many great people. The person who succeeded in accomplishing this in the area of corporate management was Frederick Taylor, who lived in Philadelphia at the turn of this century. His theory was then applied to actual corporate management by Henry Ford.

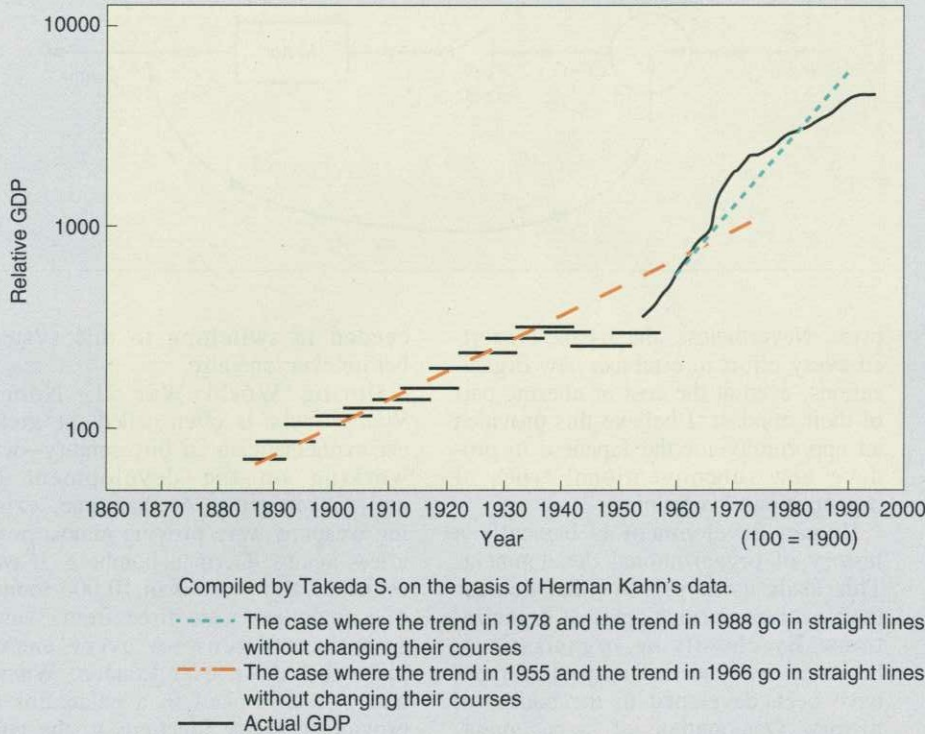
Although it was labeled 'old' by Deming in 1950, the new organization proved to be overwhelmingly competitive against all conventional ones when it was introduced by Taylor. His idea was to separate planning and execution departments, and introduce rational ideas in each. The U.S. economy developed faster than any other economy in the world in the first half of this century because, one may argue, it suc-

ceeded in switching to this system before everyone else.

During World War II, Norbert Wiener—who is often called the greatest mathematician in this century—was working on the development of anti-aircraft guns. At that time, existing weapons were proving almost powerless against German bombers. It was estimated that more than 10,000 rounds of ammunition were fired from 3-inch anti-aircraft guns for every enemy plane shot down over London. Wiener had a radar linked to a calculator to provide feedback functions to the gun, which brought about a startling improvement in accuracy. This was later formulated into the cybernetics theory, which was applied to management in the Deming system to produce what one may call cybernetics management. We need to remember, however, that Shewhart, whom I mentioned earlier, proposed this model in his book 'Economic Control of Quality of Manufactured Product' which was published in 1931, long before Wiener even started his research on anti-aircraft guns.

If Taylorism can be compared to scientific management that fully utilizes Newtonian dynamics, then the Deming way freely uses statistical theory, cognitive science, cybernetics and information theory that developed in later years. After the 1950 seminar, Deming told Japanese managers and engineers that he believed Japanese industry could dominate world markets in five years' time. Productivity in Japan at the time was very low. Toyota's productivity level was one eighth that of the Big Three, and Panasonic had a non-defec-

Long Term Trend for Japan



tive ratio of only 15% for its vacuum tubes.

The results of adopting the Deming way were overwhelming. As he predicted, Japanese industry continued to grow at an annual rate of over 10% for nearly two decades from 1955, five years after the seminar. An achievement of this scale could never be made merely by catching up with the West, but only through the emergence of new organizations. In the past, many people have sought to explain Japan's phenomenal economic growth, attributing it to peculiarities of Japanese culture, a "free ride," or unfair practices involving the government. However, some Japanese at least knew the real reason behind the success. Let me give you an example. Matsushita Konosuke, founder of Panasonic, told a U.S. journalist in an interview, "We will win, and you will lose. You cannot do anything about it because your failure is an internal disease. Your companies are based on Taylor's principles. Worse,

your heads are Taylorized, too." Companies that introduced the Deming way have, without exception, evolved into the world's leading enterprises. This system makes the company's technology and all other areas competitive, not just management. For instance, the production technology of Toyota and Panasonic, which used to be so low, has risen to the world's best during this period. And around 1980, Deming's theory started to attract attention in his home country, and new types of companies began to spread worldwide.

As you may be aware, the competitive power of Japanese economy declined dramatically in the early 1990s. Three weeks ago, *Newsweek* even featured an article on the chaos following the slowdown. This raises an important question. If the Deming way was so effective, then why did this kind of slowdown occur in Japan, which supposedly introduced it ahead of everyone else? The answer is clear. It

was not the Deming way that was at fault or problems with the fundamentals of the Japanese economy. The stagnation has been caused by some people who began to feel mistakenly that they brought on the success by themselves. In this sense, they acted in the same way as people following Taylorism when it was found to be successful. It also created some misunderstanding. Some people mistakenly thought that Deming's lessons would be effective only when applied to production systems. In fact, the Deming way was found to be effective not only in the production of goods, but also in services such as finance, and administration and education, as Deming himself pointed out in later years. Others were under the illusion that they could improve competitiveness simply by raising quality. As you can see with Japanese cars, Japan may be still ahead of the U.S. in quality control technology, but we are seeing the emergence of U.S. companies, even manufacturers such as General Electric Corporation, Proctor & Gamble, that are more competitive than their Japanese counterparts.

The reason is clear: Quality brings higher competitiveness, but quality is not equivalent to competitiveness. Quality has been extremely effective in building a common consciousness that links consumers, buyers, suppliers and manufacturers, and it was also effective in 'pulling' consumers. Attention to quality helped bring about in-house collaboration from top corporate management to the workers on site. Since these are merely indirect means to improve competitiveness however, it's necessary to launch more direct means to that end. This can also be applied to consumers. We must integrate into the organization not only people who buy our products but also our competitors and people across the border.

A company that fails to do so will

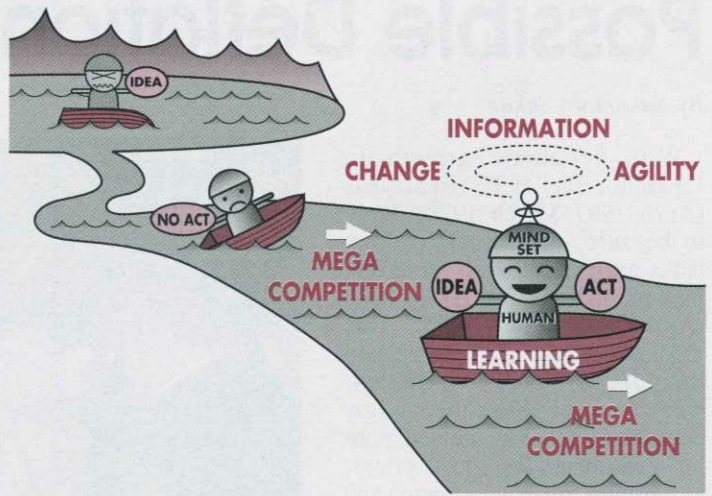
eventually see their competitiveness plummeting. We should not stick to fixed ideas. Competition in this age depends not on overpowering the opponent but on how, and how swiftly, we adapt to changes. Agility, as well as collaboration, is the key. I hope you remember the Shewhart cycle, that is the cybernetics management theory I mentioned earlier. Today, the 'pull' theory of collaboration is far more important than the conventional 'push' theory of exclusion. The key is whether we can build a system of collaboration that envelops even those who are opposed to us. Trust relations, shared views and so on will make for differences in competitiveness.

In the past few years, the Japanese government has launched a series of measures aimed at stimulating the economy, including a substantial tax cut, although this may not have been obvious to those outside Japan (believe it or not, the Japanese government has spent ¥70 trillion in total). In spite of all these efforts, I believe a full-scale comeback will not occur unless many Japanese leave their superstitious ideas behind and recover the essence of Deming's theory. By no means am I pessimistic about the future of Japan. The table shows the profits of Japanese

companies in the last fiscal year. We can see that a group of Japanese companies continues to earn high returns—it's not that the whole economy is in a shambles. A few days ago, *The Nihon Keisai Shimbun* estimated that there were 23 companies that earned over ¥100 billion last year.

These are Toyota Motor Corporation, Canon Corporation, Toshiba Corporation and other companies that have solidly maintained swift management by constantly working on ways to realize agile management.

We are now in the midst of an era of great competition. This trend is expected to intensify further in the 21st century. If we can compare the past era to the surface of a placid lake, the future can be likened to a rapid stream. It's not that the Deming way has failed to



adapt; it will be in greater demand in the years ahead. Moreover, organizations adapted to the new industrial age have sprung up around the world, working together to find ways to produce agility. The tasks for global competition in the 21st century will be to build organizations that can swiftly adapt to unforeseen changes. This system has been sought after not only in the U.S. and Japan, but also in Britain and Germany. In Asia, the situation is more complex. Although I do not believe we can look forward to advancement in this area in all the countries of Asia, some companies and nations have already started out on this path. This by no means signifies the arrival of a harsh era of 'survival of the fittest.' Competitiveness in the new era will not be determined by differences in capital or technology but by the ability to move on to an adaptable organization in a shorter time. This will be achieved not by beating our competitors but through a system where we learn from and collaborate with each other. The golden rule for the next era is collaboration, a philosophy of win-win and continued learning.

I believe people who understand this theory can look forward to excellent opportunities in the coming era, like rafting down the rapids, quite unlike the conventional era where people used to row their boats on a tranquil lake. Whether you will be able to enjoy it or not depends on the speed with which you eliminate your superstitious beliefs.

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Corporate Income for Fiscal 1996

Rank	Company	Self-assessment income	Change from 1995
		¥ Billion	%
1 (2)	Toyota	745.45	103.5
2 (1)	NTT	411.30	6.9
3 (-)	Honda	200.20	281.7
4 (7)	MHI (Mitsubishi)	199.19	16.3
5 (44)	Matsushita	181.19	158.6
6 (11)	NLI (Insurance)	176.73	27.5
7 (14)	NEC	173.30	42.1
8 (10)	Kansai Electric Power	160.19	9.6
9 (33)	Dai-Ichi (Insurance)	153.80	81.9
10 (3)	Tokyo Electric Power	153.59	▲43.9
14 (34)	Canon	123.37	46.2
18 (-)	IBM Japan	117.05	146.1
19 (-)	Sony	115.38	998.2
24 (12)	Kyocera	98.72	▲26.3

Source: *The Nihon Keizai Shimbun*