

The Myths of the Toyota System

By Nomura Masami

A frequently asked question during the current recession has been whether the "Japanese management system" will survive the present crisis. But before asking this question, it is necessary to explore another: in what ways does this system really exist, and in what ways it is only a myth?

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This article, which is based on an interview with the author, focuses exclusively on Toyota, though many of these observations are applicable more generally to the entire automobile industry, since all the companies face the same difficulties — for instance the shortage of youth in the labor market — that have plagued Toyota.

Much has been said from a variety of perspectives in praise of the Japanese management system. One of the principle focuses of this praise is the "internal labor market," in which (or so the image goes) companies educate their workers using on-the-job training (OJT), and through which blue collar workers move up from simple to complicated jobs. Another is *kaizen*, or job improvement activities, through which workers engage in self-management activities such as Quality Control (QC) campaigns, and through which they (according to the image) develop their capabilities. At the same time, it is said, the companies achieve productivity rises and improvements in quality.

These are important concepts for the admirers of the Japanese management system. To correct this opinion, however, I would like to give a description of the reality of Japanese companies' shopfloors, and I will use Toyota as an example. (see Table 1)

Toyota has conducted a series of reorganizations since 1989. The reasons for these changes and the relationship they have to the so-called Japanese management system or traditional Japanese labor customs can become a convincing critique of the

arguments in praise of Japanese management.

The first major characteristic of Toyota's labor method is mass-hiring and mass-retirement. Workers tend to retire, for instance, at certain well-defined periods. One peak occurs three or four years after they enter the company. A second comes when they reach the age of about 30, the age at which most rank-and-file workers become *ban* (team) leaders, the lowest position in the company hierarchy. Therefore the argument that workers stay in the company is wrong. The Toyota system involves giving freshmen workers severe tests on the assembly line to see whether they survive or not. This is why mass-employment is necessary for the reproduction of Toyota workers.

"Multi-skilling"

A second characteristic of the Toyota system which is often stressed by advocates of the internal labor market is *tanoko*, or multi-skilling. In truth, however, there are many types of *tanoko*. The first involves workers taking on several simple jobs. In a second type, workers are able to take steps toward skilled jobs in maintenance or goods inspection. In

yet a third, workers who already have high skills and experience in difficult fields such as electronics are able to study in another difficult area.

In Toyota's case, it involves nothing more than workers doing several monotonous jobs; repetitive tasks changed every few minutes. I can only describe this as "low-grade-*tanoko*." This is why, in this case, the argument that workers can expand their skills and become *tanoko* is completely wrong.

It is only when workers become *kumicho* or group leaders, that they leave the assembly line and engage in jobs that require more knowledge and judgment. This happens sometime between the age of 35 to around 40.

Toyota's manpower use can, therefore, be summarized in the following way: to have workers fresh out of high school engage in simple repetitive jobs, which require a minute or so each, for a period of more than ten years. Then, after these ten years, take the more capable workers, make them group leaders, and take them off the assembly lines. Those who are not chosen are discarded.

Kaizen

A third distinguishing point of the Toyota system is *kaizen*, which encompasses small group activities and QC circles, all of which have been cited as factors contributing to rising productivity. I do not

think, however, that this explanation is precise.

If we look into the details of *kaizen*, we will, especially in manufacturing departments, find a complicated reality. There are several levels within

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the system. At the top stand the engineers, who belong to the production engineering department. For example, it is typical for engineers from different Toyota subsidiaries to make a team, choose one particular assembly line, and engage in *kaizen* on the line. Once they complete the task, they bring their experience into their own companies and to their own factories. This is how the system works on a company level.

The second type of *kaizen* occurs at the section level, for instance in presses or car body manufacturing. Each section has its own technological assistance laboratory which is occupied by engineers

Table 1. Labor Conditions in the Japanese Automotive Industry (1991)

	number of union members	working hours per year	over time	total working hours	(Y) total earnings	average age
TOYOTA	64,886	1,869.0	411.0	2,280.0	373,830	33.6
NISSAN	50,648	1,881.6	399.5	2,281.1	344,156	37.0
HONDA	42,894	1,823.1	131.3	1,954.4	317,657	33.0
MITSUBISHI	24,464	1,859.2	460.0	2,319.2	356,737	37.6
MATSUDA	26,435	1,896.0	400.0	2,296.0	373,376	40.1
ISUZU	12,860	1,894.0	456.0	2,350.0	344,000	35.8
FUJI H.I.	14,386	1,893.0	330.0	2,223.0		36.2
DAIHATSU	11,033	1,880.8	409.7	2,290.5	339,699	36.0
HINO	7,352	1,882.0	529.0	2,411.0	362,439	36.6
SUZUKI	11,277	1,888.0	381.0	2,269.0	305,143	35.1
YAMAHA	8,983	1,908.0	205.0	2,113.0	313,133	36.9

Source: International Metal Federation - Japan Council 1991

with college degrees. They are responsible for the *kaizen* in their own sections.

These activities also occur at the workers' level. In this case the group leaders take responsibility for these activities within the group. The team leaders support them. At this level, *kaizen* is carried out by the work supervisors.

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At the next level down, the team, the activities are carried out by senior rank-and-file workers. And finally, at the bottom, are the activities performed by the rank-and-file workers themselves.

Thus, improvements on the assembly lines is mainly implemented by engineers and by technological assistance laboratories. The company expects problems to be solved at the work supervisor level and to be implemented by the supervisors.

QC Circles and Human Relations

The question that arises, then, is: what role do the rank-and-file workers play in *kaizen*? The com-

pany itself actually divides QC circles into two types. One consists of work supervisors, and the other of rank-and-file workers. The first kind of group is expected to raise the efficiency of production and to improve product quality. These are activities which the company can measure in dollar (or yen) terms. The second type of group, however, has as its only responsibility to create happiness on the shopfloor.

What this demonstrates is that the myth of rank-and-file worker QC circles coming up with ideas for improving the assembly line and implementing these ideas is clearly wrong. The rank-and-file workers can point out the problems on the shopfloor, but it is the specialized technical staff who come up with changes.

The main function of QC circles, in my opinion, is therefore to establish good human relations on the shopfloor. In Japan, unlike Europe, ergonomics are not a serious consideration in the planning of factory assembly lines. It is only when a line begins to produce many defects, is often stopped, or when the workers experience health problems, that the company managers decide to consider improving the line.

Activities outside the factory have also been used as a means to achieve the ultimate goal of getting the assembly line workers to work hard. This is the Toyota way of management. A kind of activity known as "human relations activities" began to be developed at the end of the 1960's at a time when the company was experiencing mass resignations. These

Figure 1 Informal Groups in Toyota

Supervisor Clubs

- Buchokai* (Department Managers) – 490
- Kachokai* (Section Chiefs) – 1,300
- Kakarichokai* (Sub-Section Chiefs) – 1,980
- Kochokai* (Factory Directors) – 740
- Kumichokai* (Group Leaders) – 2,660
- Hanchokai* (Team Leaders) – 6,390

Female Groups (by background)

- Green Club* (University Graduates) – 290
- Midorikai* (High School Graduates)
- Wakabakai* (Middle School Graduates)
- Wakakusakai* (Mid-Career Entrants)

Male Groups (by background)

- Hoyokai* (Toyota High School Graduates) – 5,800
- Hoshinkai* (University Graduates) – 2,700
- Hoseikai* (High School Graduates) – 16,500
- Horyukai* (Workers Promoted from Casual Status) – 14,500
- Hoeikai* (Ex-SDF Officers) – 2,700
- Hosenkai* (Five-Year High School Graduates) – 650
- Hokikai* (Graduates of Two-Year Colleges) – 250
- Seihokai* (Car Mechanic School Graduates) – 90

Alumni Associations

Shopfloor Groups

Groups of People from Same Prefectures

that two separate teams share one assembly line, one during the day and the other at night. The productivity of these two groups differs despite the fact that they use the same equipment, and this reflects an assessment of the work supervisors. The manager with a higher rate can show these numbers to supervisors, who then condemn the one with the lower rate. This system is very effective in forcing workers to compete against each other.

Changing Systems

As I mentioned at the beginning, however, Toyota's traditional management system began to change in 1989. One of the factors behind this change is a shift in the top management. In 1982, Toyota Eiji was shifted from president (*shacho*) to chairman of the board (*kaicho*), Toyota Shoichiro, Eiji's nephew, was promoted to the presidency. Even after retiring from the presidency, however, Eiji, whose ideas represent traditional Toyotism, still held a dominant influence in the company. This balance, however, began to change in the late 1980's.

Many changes have occurred since then. First, Toyota started to "flatten" its organization (see Table 2). This process has not reached the manufacturing sections, but has already been instituted in white collar sections such as business and technology. Before this change, Toyota had a traditional hierarchical Japanese structure, shaped in a pyramid of

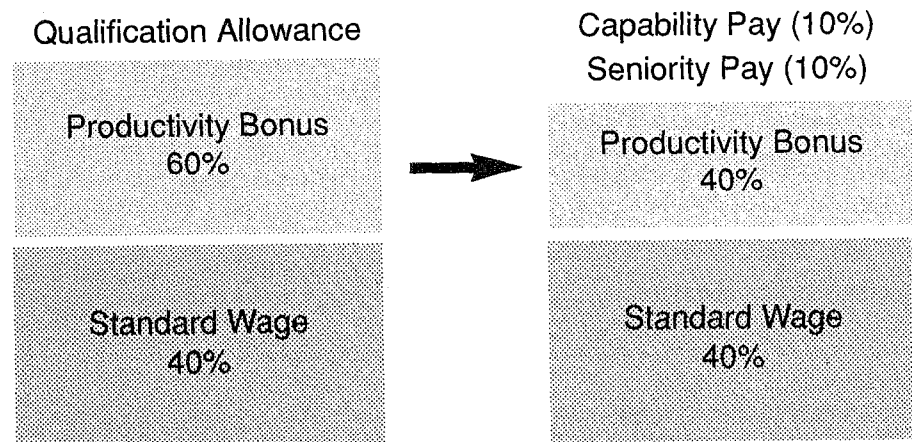
department managers, section chiefs and so on. Under the flattening policy the company abolished this pyramid, adopting in its place a structure in which office chiefs, who represent one workers group, report directly to department managers. This makes it easier for workers to relay their plans to upper management, since they no longer have to go through a long chain to reach the department chief.

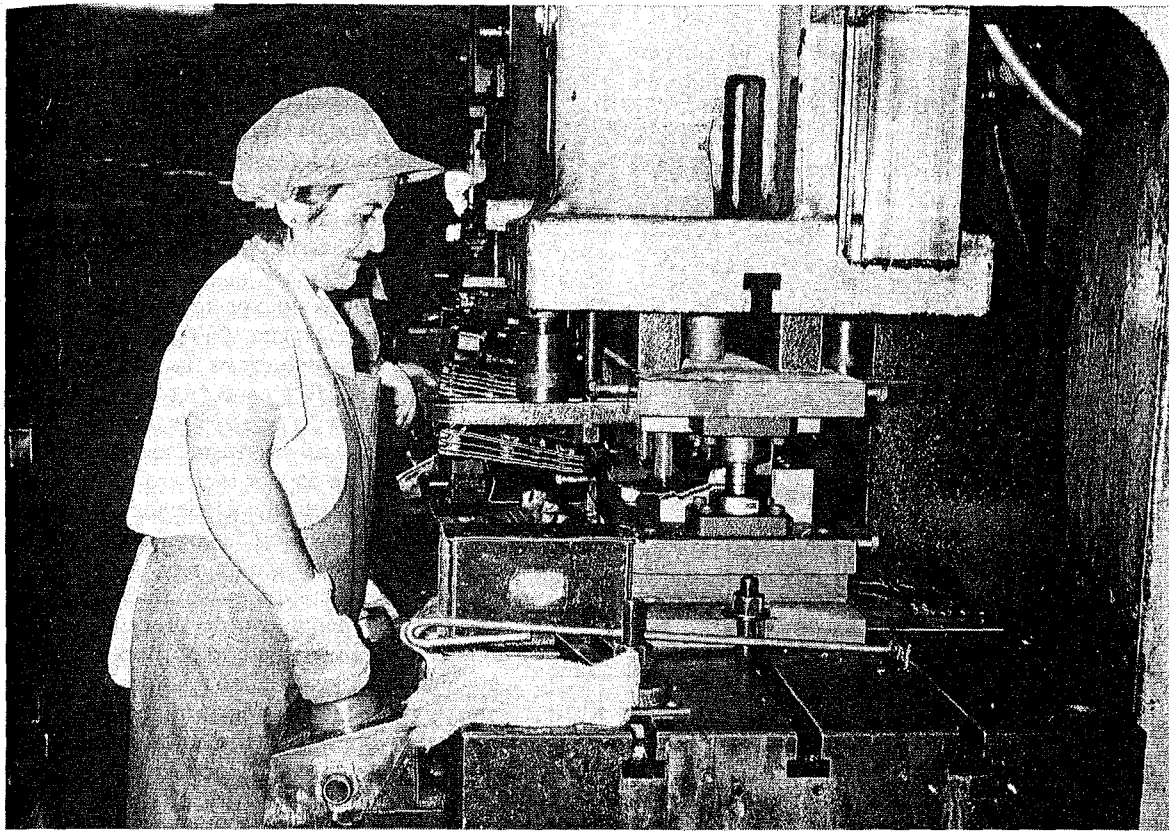
Second, Toyota changed its wage deal. As I mentioned earlier, the productivity bonus traditionally accounted for 50% to 60% of the total salary, but the company reduced this proportion to 40% in 1990 (see Table 3). In 1992 it was cut again to just 20%. Hence the importance of group efficiency, which encouraged workers' groups to make efforts to raise their productivity, was cut from 60% to 20%. As a result, competition has begun to occur on an individual rather than group level. The company has also started to use a personal merit system, which serves to widen the gaps between the individuals.

In some places the process has gone further. One new plant in Kyushu, which is at least in form an independent firm, has completely eliminated the productivity bonus. It is certain, in fact, that the system will soon be abolished throughout the whole Toyota empire. This must be seen as an important change in Toyota's system of internal competition.

Third, Toyota's concept of cycle time (*kijun jikan*), which measures the amount of time necessary to complete a given task, has been changed

Table 3 The New Wage System





from the original concept. The cycle time was very difficult for workers, since it did not, for instance, take into account the time taken to check one's work, but this has been changed. In addition, it has been modified to make it easier for new workers to work up to standard.

Fourth, the company launched a campaign to shorten working hours, though this was done in response to international pressure. This was accomplished, first, by changing the factory shift system on some lines from a system of two shifts and two groups to one of two shifts and three groups (see Figure 2). Under the three groups-two shifts system the factories can be kept in operation for longer periods even while working hours are reduced. It can also make Saturday work possible. Before adopting this system, factories were as a rule closed on Saturdays. But under the new shifts they have remained open as if it were a regular working day. Toyota adopted this technique from the experiences of European firms which also faced pressure to cut working hours.

Saturday Work and the JIT System

There are serious doubts, however, about whether or not Toyota will be able to retain its much-

lauded "Just in Time," or JIT production system if its factories begin operations on Saturdays. In order for the JIT system to work, sub-contractors have to remain open to supply parts, but the problem is that these smaller firms cannot easily afford to rearrange their working systems to a three groups-two shifts one. There were fears thus that Toyota might come under criticism for forcing these companies to institute longer working hours just to stay open on Saturdays.

As a result, the firm suspended the JIT system on Saturdays. This decision, however, created another headache, since it became impractical to institute the three-groups two-shifts system in the final assembly process because of the vast space that would be required for stock. After all, most of Toyota's factories were built in late 1960's, and are not spacious.

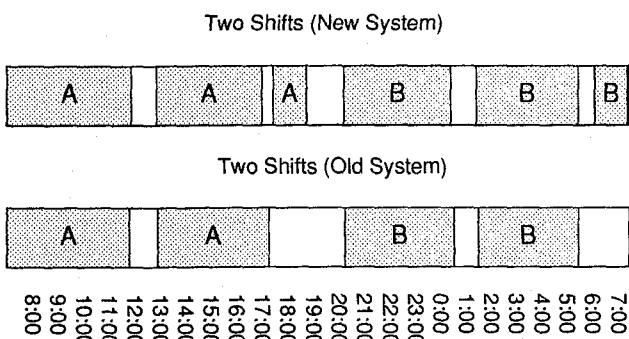
At the present, therefore, Toyota is planning to maintain the two-groups two-shifts system in the final assembly process and car body sections, with the first group working from 6 a.m. to 2 p.m., and the second starting after a short break. The earlier two-groups two-shifts system had a three-hour interval between shifts, but under the system implemented at Toyota Kyushu the interval for machine maintenance has been cut to 15 minutes (see Figure 3).

Figure 2 Three Groups - Two Shifts System

DAY:	MTWTFSS	MTWTFSS	MTWTFSS
A Group-ΔΔ-.....-ΔΔΔΔ-		
B Group	ΔΔ-.....-ΔΔΔΔ-.....-		
C Group	--ΔΔΔΔ-.....-ΔΔ-.....-		

Notes: Δ: Day shift; ·: Night shift; -: Holiday

Daily Schedules under New and Old Shift Systems



Finally, Toyota took its first steps at manufacturing process automation in the late 1980's in the 4th manufacturing plant at its new Tahara factory complex in Aichi prefecture. Toyota has invested heavily in this plant, which produces its luxury cars.

In addition, the company began to review its skilled labor training system, which consists of technical education for blue collar workers. Under the new training system, rank-and-file workers have been encouraged to study off-line jobs such as quality inspecting, an opportunity that previously was only granted to group leaders. The company was fully aware that workers would want to leave the line once they had acquired other skills.

Car varieties and styles are also under review. During the bubble period there was a blossoming in car design, and this cut into the profit rates of the auto manufacturers. The possibility of having less variety and more common parts is being studied as one means of raising the profit rate.

Why These Changes?

One of the major reasons behind these reforms is the fact that the basis of Toyota's traditional management system, namely mass hiring, is no longer possible. Recent data shows that 25% of new workers in the Japanese auto industry quit within a year of being hired. In one company's case, this figure has reached 50%.

This figure is unexpectedly similar to the situation during the late 1960's, a period when there were mass defections from the industry. The important difference between the two periods is that in the late 1960's the companies could still find an abundant source of fresh labor. This is no longer the case. As a result, Toyota, and especially its personnel department, has been doing its best to make the shopfloors more attractive.

This is also where we find the main incentive for manufacturing process automation. The traditional method of shopfloor management, in which "human relations" activities were used as a means to encourage workers not to leave Toyota despite the hard assembly line work, has begun to fail. Hence, for the first time, Toyota has adopted the idea that hard labor should be carried by machinery and that human beings should engage in humane work.

At the same time, Toyota has started to adopt ergonomics to its work, and is trying to determine which jobs are too difficult for human beings. It is now giving rankings to each task, and has initiated the process of automation, starting with the hardest-ranked jobs. In short, Toyota's reforms in its manufacturing process have been dictated by the labor market.

With the reforms in the wage system, the earlier style which encouraged competition between work groups has been thrown out the window. Under the previous system, it was quite common for group leaders to join the line in order to raise the productivity and make up for labor shortages. This tended to take time away from their other duties such as quality control, line preparation, and personnel management. This is one of the factors that led the management to change its wage system, and in particular to reduce the weight of the productivity bonus.

In the future, though, I do not think that working hour reductions will be used, as they were in the past, to promote "human relations" activities. The new Toyota Kyushu factory management made a decision, in violation of company tradition, not to

implement these kinds of activities, because it felt that they forced workers to devote their holidays to the firm. One staff member of the plant said that these activities were not being implemented because of the many negative effects they had. I assume, therefore, that they will be reduced throughout the whole Toyota empire.

I doubt, though, if Toyota will be able to develop a new management concept to replace the old Toyotism. I argue this from two points. First, these reforms have sapped the company financially at a time when the profit rate was dropping. One has to wonder whether reform can be implemented in the midst of financial crisis. Second, the labor market has been depressed since the collapse of the bubble economy, and it is said now that fewer workers are leaving the company than were during the previous period. The reforms were based on the premise of a high withdrawal rate, and it is difficult to determine how the reforms will be affected by this new situation.

Another important question is whether Toyota will be able to retain its international competitiveness under its new system, which differs from the previous policy of rationalization. I believe the company has come to a stage where it needs to

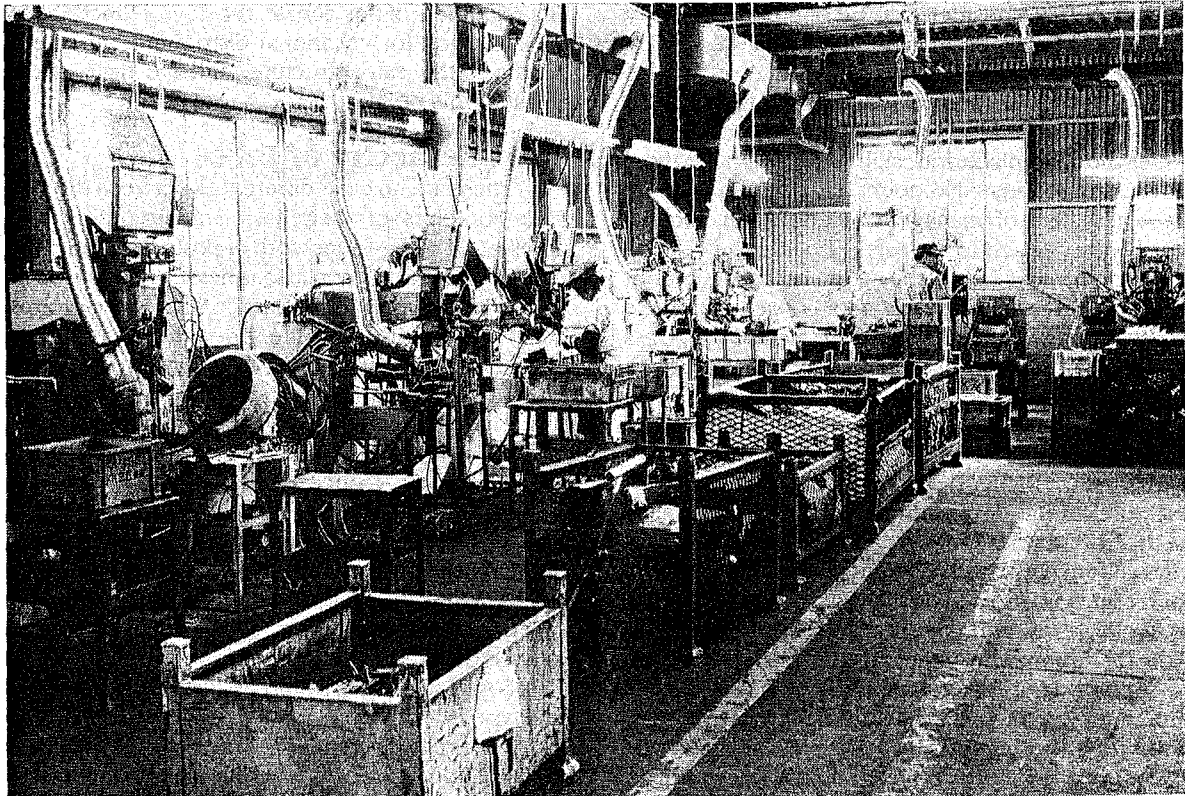
develop an alternative solution based on its surroundings, but that it has not yet established a new direction.

The Role of the Union

Toyota's labor union has always supported the management, which has traditionally held an overwhelming advantage over it. One of the main reason for this has been the background of the union leaders, who mostly worked as officials for just a few years and then returned to their shopfloors (as foremen). As a result, they had little experience as unionists. The union could be described as an "amateur union."

In addition, the company put tremendous efforts into subjugating the union up until the late 1980's. The only matter in which the union officially engaged was pay raises, but it was never able to challenge the management's proposals.

And how has the union reacted to the recent reform programs? Since the late 1980's, the union has begun to speak with a much louder voice, and this has coincided with the period of reform. In this sense, the union is also changing. I think they have come to realize the limitations of the traditional Toyota management. ■



A Toyota subcontractor

photo by Fuke Yosuke