Techniques

Hoshin kanri – a participative way of quality management in Japan

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Abstract

The essential steps of *"hoshin kanri"*, or policy management, in Japanese companies are described. They are annual policy and medium- to long-term policy, basic company philosophy and quality policy, converting methodological policy into objective policy, the composition of policy, two deployment styles of target – top-down and bottom-up, target deployment and "catch-ball", and top management internal quality control audit.

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Introduction

Bridgestone Tire Company, Japan, which won the Deming Application Prize in 1968, made strenuous efforts to rotate the plan-do-check-act cycle with the participation of all employees. Annual priority implementation items relating to cross-functional management areas such as quality assurance and profit management were determined in accordance with the annual policies of managers within the regular organization and were implemented by the relevant departments within that organization. Senior managers conducted diagnoses in order to check how this was being done, examine the results achieved, and identify any problems associated with it, as well as to assist in setting and fine-tuning policy. The company termed this approach *"hoshin kanri"* (Miyaji, 1969). The *hoshin kanri* subsequently spread rapidly to many other companies. Why do so many organizations emphasize *hoshin kanri* so strongly?

The first reason is the intensification of competition in the corporate business environment. Japanese industry has been able to achieve tremendous development since the end of World War II. *Hoshin kanri* proved extremely effective in furthering companywide improvement plans by uniting the efforts of all employees. Juran's emphasis of "annual programs of quality improvement" (Juran, 1981) as one of the characteristics of Japanese industrial QC leading to the quality revolution can be taken to mean the activity of *hoshin kanri*.

Hoshin kanri is also effective in motivating employees. In *hoshin kanri*, annual policies are decided after top management's policy proposals have been reviewed and revised by large numbers of middle managers. Sometimes, even QC circle leaders are involved in this process. The discussion process that takes place before policy is finally decided is known as "catch-ball", since the policy "ball" is thrown back and forth between top and middle managers before a final decision is made. The aim of this process of "catch-ball" is to convert mandatory objectives set by senior management into employees' own self-set targets.

One of the factors behind the success of totally participative CWQC in Japanese companies is its leadership by senior management. In concrete forms, senior managers are responsible for establishing specific policies on the quality of the products and services that their company is to provide to its customers and formulating medium- to long-term QC promotion plans for achieving this. They must

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also constantly monitor this quality, check whether or not the actual CWQC activities designed to produce it are processing according to the plan, and take appropriate corrective action as necessary. This kind of senior management leadership is exercised mainly through the activity of *hoshin kanri*.

Annual policy and medium- to long-term policy

Since *hoshin kanri* first appeared in the late 1960s, it has been a system of management in which the annual policy set by a company is passed down through the organization and implemented across all departments and functions in this system. The results are checked by means of individual managers' control items established during the policy deployment phase and internal QC audits by top managers, corrective action is taken as necessary, and the results are reflected in the following year's policy. It subsequently became clear that this approach was an effective method of strengthening corporate internal environments as part of CWQC. It was also recognized that *hoshin kanri* is an important strategy for allowing companies' top managers to exercise leadership of their CWQC programs. Since that time, many companies have made active efforts to link their annual policies firmly to their three- to five-year medium- to long-term policies.

This approach has been emphasized particularly strongly since the second half of the 1970s, when companies started trying in earnest to improve their overall strength and character. In the 1970s, it was feared that Japanese products, particularly energy-intensive ones, would rapidly lose their competitiveness on international markets as the result of the energy crises in 1973 and 1979 and the subsequent dramatic rise in the value of the Japanese yen, and measures to obviate this were hastily implemented. These naturally consisted primarily of trenchant cost-reduction and energy-saving measures in production processes, but Japanese corporations' efforts did not end there. Particularly in heavy industries, the possibility of improving corporate health by revolutionizing the approach to production planning was extensively explored. However, the more genuine and far-reaching such plans were, the longer they would take to implement, and companies were therefore forced to establish medium- to long-term plans for this purpose. Thus, more and more companies now establish a three- to five-year policy at the beginning of each fiscal year and take the policy for the first year of that three-year or five-year term as their annual policy for that particular year.

Under this system, a company's annual policy is not determined only by short-term considerations, such as a review of the previous year's results or the company's prediction and aspirations for the coming year. Instead, a company attempts to establish a policy for each year by taking into consideration what is likely to happen further in the future. Of course, the further ahead we look, the less accurate our predictions are likely to be. However, the effort to link the policy for each year to the firm's medium- to long-term policy can be viewed as a kind of training for widening our perspective and sharpening our ability to forecast the future.

Basic company philosophy and quality policy

A company's basic philosophy is of fundamental importance, since it underpins the enterprise's annual, medium- to long-term policies and provides its employees with a standard by which to measure their behavior. So, what kind of basic philosophy does a company need to make itself attractive to its employees and customers, as well as its shareholders, and continue to develop healthily instead of merely pursuing profit?

Human beings participate in society in groups such as families, sports clubs, companies, and so forth. Each of these has its own *raison d'être*, and it is extremely desirable for its purposes to be acceptable to all its members. For this to happen, the group's activities must be useful to its members and beneficial to society. Moreover, these activities must not merely be simple, mechanical, and repetitive, but must be rich in variety and must help us exercise our creative abilities. Such activities bring out our human qualities and stimulate our desire to work. Companies that "exist well in the world" (Okusa, 1985) are companies that fulfil these conditions, and this is what makes them attractive to their employees and young college graduates who wish to join them. This is because it is easy for people to buy into these kinds of conditions and thereby gain a sense of pride in their work.

The kind of basic philosophy we are talking about here has a close bearing on the quality created by the company. Quality has a longer

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history in the life of human kind than either cost or productivity, and is the only one of the three that is a common concern of both companies and customers (Kondo, 1988). It is for reasons such as these that quality is regarded as a more "human" concept than cost or productivity.

In addition, quality improvements effected by creative methods result in lower cost and higher productivity, and the development of new products with attractive qualities that meet customers' true needs creates new markets, expands existing market share and increases corporate profitability. Achieving this kind of quality revolution through creative quality improvements and the development of revolutionary new products and services is of course hard work, but we can gain tremendous pleasure and satisfaction from overcoming difficulties, putting our ideas into practice, and seeing the results.

Because of this relationship to a company's basic philosophy, its quality policy is extremely important.

Converting methodological policy into objective policy

The terms used in the title of this section are taken from Ishikawa's book, *Introduction to Quality Control* (Ishikawa, 1990).

For example, the TQC committee of a certain company was discussing what kind of annual policy the company should establish for the coming year. One of the members suggested "promotion of standardization" as one of the policy items. Since the other members felt strongly that their company's standardization program was less advanced than those of its competitors, this proposal was accepted. The committee decided to establish 50 new standards and review and revise 80 existing standards as the annual targets for the standardization promotion drive. On checking at the end of the year, it was found that, thanks to the efforts of everyone involved, these targets had been reached.

Why did this company choose "promotion of standardization" as an annual policy item? Was it simply because it was lagging behind the competitor? No, not at all. Doubtless it was because its product defect rates and rework rates were high, no reductions were being seen in the number of late deliveries, and customer complaints as a consequence of the incomplete and inadequate standardization resulted in a situation that urgently needed to be rectified. Achieving the standardization targets mentioned would be meaningless unless these problems were solved as a result.

It is clear that policies such as "promotion of standardization" have to do with methods (and hence are termed "methodological policies"), while policies such as "reducing defect rates and rework rates" have to do with results and their associated objectives (and hence are termed "objective policies"). It is essential to be clear about what type of policy we are setting and what our improvement aims really are.

After we have identified the resultant problems, we collect and analyze data that express them quantitatively. It is particularly important to stratify these data and use them to prepare Pareto diagrams at this stage. Pareto diagrams show us where to set our priorities when solving problems, and comparing Pareto diagrams prepared before and after the solution of a problem enables us to identify the areas where our improvement efforts were particularly effective and check whether or not our attempts to prioritize really worked.

We may also tend to assume that we are free of problems if we can find no great disparity between our actual results and targets or standards. When this happens, however, we should ask ourselves why there is no marked difference and consider whether these targets or standards are in fact suitable objects of comparison. It is commonly said that not having any problems is itself a problem.

A problem was defined above as a gap between the ideal and the reality. Imai (1986) gives the following further definition. "A problem is anything that inconveniences people downstream, either people in the next process or ultimately customers". He goes on to say the problem is that the people who create the problem are not directly inconvenienced by it. Thus people are always sensitive to problems (or inconveniences created by problems) caused by other people, yet insensitive to problems and the inconveniences they cause other people. The best way to break the vicious circle of passing the buck from one person to another is for every individual to resolve never to pass on a problem to the next process.

The composition of policy

Once a methodological policy has been converted to an objective policy, the resultant policy consists of the following three items:
(1) aims;
(2) targets;
(3) priority strategies.

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Methodological policies previously discussed clearly correspond to item (3) (priority strategies). The discussion in the previous section was aimed at clarifying the true aims of such policies.

Since *hoshin kanri* is an activity that involves a company's entire workforce, top management must lead the way in whipping up everyone's energy and enthusiasm. "Catch-ball", in which top-down mandatory targets are converted to "voluntary" self-determined targets as part of the process of *hoshin kanri*, to be described later, is one idea for motivating employees.

To achieve this, it is also essential to explain to everyone concerned why those particular items have been adopted as *hoshin kanri* items and why they should be implemented.

Targets can be placed into two categories: intermediate and final. Final targets are the ultimate values that we hope to attain. In the case of defects, for example, this would be zero. They can be described as markers that show us where we should direct our energies. It is important from the standpoint of good teamwork for everyone involved to have the same final targets in mind.

Once the final targets have been established, we must decide how far to proceed in their direction within a certain time frame; in other words, we must set up intermediate targets. These might coincide with the annual targets set under *hoshin kanri*. Such intermediate targets are milestones on the path to the attainment of the final targets.

We should set breakthrough targets for these intermediate targets. If we set targets that can be achieved merely by doing what was done in the past, people will tend to think that, since it lies within the range of present dispersion anyway, it can be achieved without doing anything. Such targets will not create any motivation. Conversely, setting breakthrough targets that cannot be achieved by just carrying on as usual is an effective way of motivating people.

The two deployment styles – top-down and bottom-up

I would like to start the discussion in this section by describing examples of the successful deployment of targets by the top-down and bottom-up approaches.

The first is an example of the top-down approach. It happened when Matsushita Electric Industries' Car Radio Division received a demand from one of its customers for a 10 percent price reduction. The division manager and his staff put their heads together to try to meet this request but, after much discussion, reached the conclusion that they would be unable to achieve such a large price cut even by implementing all the cost reductions they could think of. They therefore decided that there was nothing to be done but to tell the customer that they were sorry but they could not meet the demand. The company's chairman, Konosuke Matsushita, happened to be visiting the division at that time on other business, and the situation was explained to him. After hearing the explanation, he said, "Whenever we receive a demand for a price reduction from our customers, it is our practice at Matsushita to work out how we can achieve an even greater cost reduction – in this case 15 percent. Please think about this again". After receiving this instruction from their company's founder, everyone involved started investigating the possibility of reducing costs even more thoroughly and eventually succeeded in cutting them by 13 percent. When this success was announced to him, Matsushita reportedly made a personal visit to the automobile company that had requested the price reduction and said, "Thanks to your request for a 10 percent price reduction, my company has succeeded in reducing its costs by 13 percent. We are extremely grateful to you".

Next is a successful example of the bottom-up approach. Bando Chemical Company owned the Nankai factory that specialized in making V-belts. For a long time, this factory had been implementing the top-down type of planning, in which production was carried out in accordance with targets set by the factory manager. The factory's monthly cumulative total production used to drop further and further below target in the first part of each month and then begin to approach the target from the middle of the month. It always ended the month a few percent below the target.

After much investigation and deliberation, this factory decided to change its system for setting the monthly production quotas. Under the new system, the factory manager would first propose the draft monthly production target and explain carefully why it was necessary to achieve that target. The proposal would then be thoroughly discussed by the people in the workplace. When this system was first implemented and the individual values determined as a result of the discussion

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were collated, the final value turned out to be a little less than that originally proposed by the factory manager.

When such a discrepancy exists, we often try to eliminate it by forcing the people in the workplace to raise the targets they have come up with in order to meet the originally proposed value. This factory took a different approach. Since the people on the shop floor had taken such trouble to discuss the proposals, it was decided to trust their commitment and enthusiasm and leave the total arrived at as the official monthly production target.

A curious thing happened when the setting of targets was changed from top-down to bottom-up in this way. The sag in the monthly cumulative total production graph occurring at the beginning and middle of the month disappeared, and the production proceeded more or less in accordance with the target line. Also, the monthly target was consistently achieved. Another interesting thing was that, although the target value established as a result of discussion in individual workplaces in this way started out slightly under the factory manager's proposed draft target, it increased month by month and at the end of six months, was approximately 20 percent higher than the factory manager's proposal, a result originally thought to be out of the question.

The reason for the success achieved in the first of the above examples was probably that what Konosuke Matsushita said to the people involved was their first real source of motivation for the problem and made them feel that they really had to pull out all the stops. For a company's top manager to be able to motivate their people in this way, they have to be highly respected. In the second example, the factory manager respected the results of the discussions and investigations carried out in individual workplaces and set the monthly targets without using coercion to raise them artificially. The reason why this approach succeeded was probably because it motivated everyone by making them feel that they were trusted and therefore had to do everything they could to repay that trust.

In general, the discussion of top-down targets focuses mainly on the necessity of achieving the targets in order to satisfy customer requirements, secure profits, or increase market share, and such targets are usually compulsory. If the workers do not respect their managers, there is a danger that they will be turned off by this kind of mandatory goal-setting and lose their sense of autonomy and self-responsibility.

In contrast to this, the discussion of bottom-up targets focuses mainly on the possibility of achieving them – finding the best methods of achieving them, identifying possible obstacles to their achievement, and finding ways of eliminating such obstacles.

Top management may find this kind of process roundabout and tedious. Even if the target is achieved 100 percent, it is still the same as the result achieved before improvement. However, considering things from the "possibility" aspect fosters employees' independent thinking and leads to an improvement in their capabilities over the long term.

Target deployment and "catch-ball"

In *hoshin kanri*, a process known as "catch-ball" is practiced at the deployment stage. Although the ways in which it is done differ slightly from company to company, it usually takes the following form.

To begin with, the company's CEO and other top managers work out the company's draft policy for the following fiscal year, taking into consideration the control items of individual directors, reflections on the past year based on the results of internal QC audits carried out by senior managers, forecasts and aspirations for the next year and the medium- to long-term, and the company's basic philosophy. This draft policy is then discussed in each of the company's divisions by the particular division's director in consultation with the divisional manager, department managers, and so on. Based on these discussions, each division draws up its own policy proposal, modifying the company's draft policy as necessary. The divisional draft proposal is then discussed in each department of the division by the department manager section managers, and (if necessary) sub-section managers, and each department formulates its own revised policy proposal. This departmental proposal is then discussed and modified in each of the department's sections by the section manager, sub-section managers, team leaders, and so on. After the opinions of as many people as possible right down to the front line have been incorporated in this way, the information is fed back up through the hierarchy to top management, and the company's policy for the forthcoming year is finally decided on after further discussion and revision as needed.

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As described here, in "catch-ball", the policy proposals for each of the company's divisions are repeatedly reviewed, starting at the highest management level in the division and, in principle, going down to lower levels. Meanwhile, top management's cross-functional policy proposals, such as those for quality assurance, profit control, and so on, are discussed right across the company's organization chart by all relevant divisions, and the forthcoming year's policy for the entire company is decided after top management has taken into account the feed-back from these discussions.

Why do companies expend so much time and effort on "catch-ball"? It is because the discussion that takes place among the people taking part at the various different levels of the organization deepens their understanding of the policies and enables them to think about both the "necessity" and "possibility" aspects of the proposed targets. Through this process, companies hope to effect a qualitative change in top-down mandatory targets, turning them into bottom-up voluntary targets. I hardly need to repeat that this is an extremely effective way of motivating people to achieve their targets.

Top management internal QC audit

As explained earlier, the senior managers of a company are responsible for determining specific policies concerning the quality of the products and services their company offers its customers and for formulating medium- to long-term QC promotion plans for achieving this target. They must also check whether the QC activities are proceeding according to the plan and whether the planned quality is actually being achieved, and take corrective action as necessary. This activity clarifies the specific control items to be attended to by managers at every level and makes it possible to monitor the results achieved concretely and easily, and uncover any outstanding problems.

However, trouble occurs when people get locked into a stereotyped way of thinking, management becomes reactive instead of proactive, and people become insensitive to abnormalities. It is essential to keep the situation under vigorous, systematic and comprehensive review in order to detect hidden sources of trouble as well as unnoticed strengths and talents not picked up in the process of daily management and to analyze these and make use of them for future improvements. This is the purpose of internal QC audits (Kondo, 1969).

This purpose of an internal QC audit is to find and solve problems, discover and build on strengths, and standardize and institutionalize improvements. In this sense, internal QC audits are highly instructive for the auditors as well as those being audited. Because of this, many Japanese companies avoid using the rather stiff and formal-sounding term "audit", referring to them instead as "QC diagnoses", "QC reviews", "president's reporting meeting", and so on.

Audits performed by top managers themselves enable them to systematically review the situation in their company's factories, branch offices, sales centers, and so on, and getting close to the facts in this way may lead them to reflect on their own performance. At the same time, an audit gives the people being audited a chance to review their own daily work and organize their thoughts about it. These kinds of audits also create opportunities for achieving better mutual understanding and human relations. These are valuable benefits that are difficult to obtain through the usual daily meetings and reports.

As will be explained later, letting people know the theme of an audit in advance and publishing the audit checklist are very effective ways of making the purpose of the audit clear and making the audit itself even more effective.

There is a general tendency for internal QC audits to shift from divisional to cross-functional, with more and more importance being placed on the interdepartmental relationships concerning each function. Audits are usually carried out once or twice a year. This is because a company's audits relate to the *hoshin kanri*, and close attention is paid to the timing of audits in relation to discussions and announcements of the company's annual policy.

The department or other organizational unit being audited generally prepares a short written status report in advance of the audit. This is an effective way of getting the auditors to put their thoughts in order. An audit checklist is also sometimes prepared, but it is not necessary to adhere strictly to this when conducting the audit. Since such a checklist summarizes the purposes of the audit and what it is going to focus on, it is often effective to reveal its contents before the audit is conducted.

Audits are conducted in different ways depending on the company's established practice and on the necessity and urgency for the audit at the particular time. Generally, however, an audit consists of a verbal report by the department being audited followed by

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a discussion and a tour of the workplace. It is essential for the report to include details of the follow-up actions carried out by the department based on the results of the previous audit. The report should concentrate on the department's priorities and should explain how the PDCA cycle is being followed cross-functionally. The higher the level of knowledge of those being audited, the more discussion in this part of the audit will contain, as opposed to simple reporting.

When conducting the plant tour, the most important factor is to obtain an accurate grasp of the facts. For example, during the audit of a powder metallurgical works, the issues raised at the reporting stage were the large amount of work-in-process and the frequent late deliveries of the product. When the auditing team actually walked through the plant, following the production process, they discovered that the product was moving repeatedly from one floor to another and back again, and that the amount of work-in-process was particularly great at the points where this happened. It was therefore advised to change the plant layout to minimize the transfer of product between floors. As a result, the amount of work-in-process decreased and the number of late deliveries decreased at the same time.

It is also important for top managers to talk directly to front-line supervisors, team leaders, and ordinary workers during their plant tour. An audit is an excellent opportunity for this kind of interaction, which is very unlikely to happen in the course of normal daily work.

The results of the audit should be summarized and presented as soon as possible, and should include details of the actions to be carried out by head-office staff and top management. It should also include the auditing team's opinions and recommendations for the department that underwent the audit. One popular method of bringing the audit to a close is for the audit team to hold a short free discussion at the end of the audit, after which the audit team leader summarizes and announces the results of this discussion. The outside expert taking part in the audit also makes comments from a third-party perspective. The form of these announcements is not of course important, but they should always mention some of the good points of the department audited. When necessary, these announcements and recommendations are summarized in the form of a written report. The auditing team and the department audited draw up improvement plans for the department to incorporate into its subsequent policies and plans.

Although internal QC audits can bring about a lot of benefits, some notes of caution must also be sounded. If audits are carried out in the wrong way, there is an ever-present danger of their becoming superficial and ritualistic. Some effective ways of preventing this are to periodically change the way in which the audits are conducted, announce the audit themes in advance, rotate audit team members, and change the methods of checking.

Summary

The rotation of the PDCA cycle is of basic importance in promoting company-wide quality control. It is indispensable for continuous improvement. *Hoshin kanri* was started in Japanese companies to rotate a PDCA cycle of companywide size, and it is the stage where top management display their leadership.

The essential points of *hoshin kanri* such as annual policy and medium- to long-term policy, the establishment of quality policy, converting methodological policy into objective policy which is composed of aims, targets and priority strategies, the top-down and bottom-up deployment and the meaning and practice of "catch-ball" in the deployment process, and top management internal QC audits were explained.

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Commentary

Seminal, sensible stuff. Pass a copy round for your next senior management meeting.