APPLYING AN "GOAL-ACHIEVING QC STORY" (1) TO THE PRODUCTION OF NEW CARS

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Following the start of production of the new Laurel model in January 1993, the Murayama Plant is scheduled to begin production of a new Skyline model in the very near future. The Plant is currently making final preparations for the start of production.

In producing the new Laurel, we adopted successful features from the March production line, which began operations a year ago, and revised those features that were not completely successful. We set our targets "one level higher" and strove to achieve them. More specifically, for each process we set target values involving 210 items relating to quality, quantity and cost. We implemented thorough control of these production targets.

In order to achieve major targets for the start to new car production, we were able to utilize to good effect PDCA's control cycle involving 210 control items. As a result, we believe that we were able to start up production smoothly.

As for vehicle quality, we were able to reach our targets in the latter half of the second production test run. Therefore, there were no major problems in commencing made production, and the plant was able to ship its products with confidence.

Unfortunately, the new car task force received many quality reports that described vehicle malfunctions.

We have investigated every case of vehicle malfunction described in the market quality reports and have taken appropriate measures. The following is an analysis of the contents of the reports.

(1) Parts that we considered satisfactory in fact provoked claims - - - differences between plant and customer evaluation.

(2) There was a malfunction during test production; measures were taken to rectify the problem, but a different malfunction occurred - - - Unsatisfactory measures taken to prevent recurrence of the malfunction and insufficient horizontal development.

(3) Parts provoked claims because of changes over time, such as changes in temperature - - - Unsatisfactory techniques for forecasting and evaluating changes that occur with the passage of time.

Furthermore, we received reports on malfunctions noting that, for example, muffled sounds were caused by a loose installation bolt for the air conditioner compressor.

When we examined this case, we found out that the air pressure used to install the bolt interfered with other components, and that the force had not been applied at a right angle to the head of the bolt, making it difficult to generate the required torque.

As this was considered a difficult operation during test production, a "Report on Malfunctions during Plant Test Production" was issued to improve the operation. It was not possible to modify the structure, so we had to depend on the skill of the operators in making the appropriate adjustment. However, when new operators took over, the technique was not passed on. This resulted in the improper amount of torque being applied,

THE STEPS AND PROCEDURES IN THE "GOAL-ACHIEVING QC STORY" (2)

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The steps and procedures in the "Goal- Achieving QC Story" may very depend on the issue (theme). It is not necessary to stick to these particular steps. However, the following steps and procedures are believed to be highly effective, based on past experience, and I would like to introduce them to you. Here, the steps are individually itemized, but it is also possible to combine them (See Table 1).

Q&A concerning the "Goal-Achieving QC Story"

Please make use of this Q & A section to deepen your understanding of the "Goal-Achieving QC Story"

Q1: What was the purpose of developing the "Goal-Achieving QC Story"?

A1: The "Goal-Achieving QC Story" was developed for the following reasons:

(1) Although purposes and targets may be clear, system defects may not be clearly visible.

(2) Although purposes and targets are clear, it is difficult to produce data.

(3) Although it is desirable to improve current performance significantly, the expected level is not achieved, even after eliminating problems from of the current situation.

(4) In order to achieve a job scheduled to commence a few months from now, for which there was no operational experience, the "problem-solving (cause investigation) QC story" was utilized. However, as there was no prior experience and system defects were not clearly visible, it was not possible to use the "problem-solving QC story" effectively.

(5) In QC circle activities carried out by the development division, examination of excellent elements rather than causes of poor elements is required. Accordingly a QC story that suits the above situation is desired.

It gradually became clear that the problem-solving (cause investigation) technique is not suited for investigating target levels (ideal situations) and responding to future needs. Therefore, in order to meet such requirements, we developed an "Goal-Achieving QC Story." By using the "Goal-Achieving QC Story" together with the problem-solving (cause investigation) technique, we aimed at expanding the range of selected themes promoting activities for further improvements, and developing QC circle activities. As a result, we

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and the bolt became loose.

To prevent such a malfunction, I believe it is important to anticipate the occurrence of a malfunction and to take the neccessary measures when problems such as the following occur: An operation is difficult → techniques vary → torque becomes insufficient → the bolt becomes loose → muffled noises are generated.

In summary, I feel that there is a lack of technical ability in forecasting and preventing problems.

What, then, should we do to forecast problems and solve them?

Your supervisors are probably aware of "Problem-Solving (Cause Investigation)" and "Goal-Achieving (Policy Investigation Type)" QC stories.

I belive that the start of production of new cars is a good theme for the use of an "Goal-Achieving QC

Story," In order to tackle various issues at the start of new car production, it is important to effectively use the "Goal Achieving QC Story."

I believe that every plant and division is currently engaged in preparing for the commencement of production of new cars. I hope that such efforts will be successful as a result of using the "Goal-Achieving QC Story."

Furthermore, I hope that supervisors themselves master the "Goal-Achieving QC Story." Then, they will be able to issue appropriate instructions so that QC circles will be able to overcome difficult problems and meet higher targets.

(Taken from the company-wide QC Circle Monthly (May, 1993) of Nissan Motor Co., Ltd.)

Steps and procedures in the "Goal-Achieving QC Story" ★

believed that we would be able to achieve the expected results of (tangible and intangible effects).

Q2. Why is it called "goal-achieving type"?

A2. There are various names such as "goal-setting type," "target-achieving type," "measure (policies)-investigating type," "elimination of status quo type," and the "forecast and prevention type," in addition to the "goal-achieving type." However, all these terms are sometimes used to mean the same thing. In this particular case, the word "achievement" matches the word "goal" particularly well. Furthermore, "achievement" implies adopting a challenging stance to get out of the

Table 1

Step	Procedure
1. Select theme	·Identify issues ·Evaluate the issues at hand (the necessity of dealing with them) and focus on selected issues ·Choose a theme from among selected issues

2. Clarify the issue	· Gather information relevant to the issue
	· Understand the current state of affairs (current corporate environment, workplace environment, limiting conditions etc.)
	· Understand the targeted level (corporate environment, workplace environment and limiting conditions such as human resources goods and money in the near future, etc.)
	· Determine the gap between the current and the expected situation.
	· Decide on strategic points in examining draft measures. (Example) Strategic points concerning the theme "doubling sales"
	    · Expand the market · Improve the capability of marketing personnel
	    · Expand sales of popular products

3. Set targets	· Determine targets for strategic points what, by when, how much) · Clarify the basis for setting up such targets
4. Prepare plans to achieve ends	· Prepare promotion procedure plans, schedule, and resource plans (human resources, goods, money) to achieve desired ends
5. Prepare draft measures to achieve desired ends	· Gather information on issues · Gather information needed to come up with ideas (it is necessary to generate many ideas that are progressive and that utilize our unique technology ... utilization of methods for producing ideas) · Produce many draft measures (ideas) · Look into the relation between draft measures (ideas) and the target, and select the most effective measures without placing too much emphasis on feasibility.
6. Evaluate draft measures	· Evaluate draft measures (ideas) using feasibility method and select an effective draft plan (ideas) · Select the best draft plan at an evaluation meeting, etc.
7. Test and evaluate draft measures	· Determine the period for the experiment · Experiment with the best draft plan · Check the side effects · Compare the results with the target · Confirm the feasibility of the draft plan
8. Implement measures	· Prepare implementation plans and implement measures accordance with the plans
9. Check effects	· Check whether the measures achieve the target · Check the spread (secondary) effect · Study the resources (human resources goods money) required to implement the measures and check for any differences from original plans (comparison with step 4) · Study intangible effects such as the development of individual employees and QC circles.
10. Stoppages (standardization and establishment of control)	· Determine and implement a control method to prevent backsliding (5W1H) (Standardization) · Check whether the effects of measures are lasting (thorough daily control and establishment of such control) · Set up the system or incorporate the effects of measures into such a system (establishment and reflection of control)
11. Review and creation of future plans	(1)Review · Clarify the difference between plans and targets prepared to achieve goals and the actual results · Explain unforeseen problems · Determine how to implement each step and the links between steps. (2) Future plans · Incorporate the reviewed contents into the next plan · Develop and expand measures across a wide range · Utilize system

3

current situation and positively working to effect improvement. Also, "issue achieving" has the right sound when referring to ideal ways to carry out activities designed to make improvements, as well as QC circles activities and means to promoting such activities.

Q3. What is the difference between problems and issues?

A3. "Problems" refers to a difference between the level considered to be normal (the correct level) and the current level. Activities to narrow the gap (problem) are called problem-solving (cause investigation) activities.

On the other hand, "goals" refers to the difference between the target level (ideal level) and the current level. Activities to narrow this gap are called "goal-achieving" activities.

Q4. What is the difference between problems and issues as shown in illustrations?

A4. The differences between problems and issues can be analyzed as follows: (See Figure 1)

Q5. What are the differences between the problem-solving (cause investigation) QC story and the goal-achieving QC story?

A5. The differences are as follows:

(1) The problem-solving (cause investigation) QC story focuses on "Why" and on "Preventing recurrence" and aims at "Investigating causes in relation to results."

(2) The issue-achieving QC story focuses on "Ideas on measures (ideas)" and on "Setting up a new system" and aims at "Investigating methods (measures) in relation to purposes."

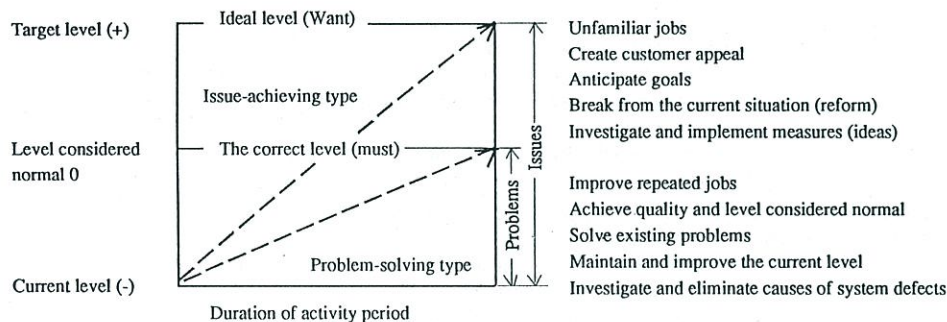(3) It goes without saying that some of the steps used

to solve problems or achieve issues, and the procedures required at each step, are different. The biggest difference is that while the problem-solving (cause investigation) type investigates the true causes and takes measures to eliminate such causes, the goal-achieving type does not include the analysis step of investigating causes, but instead investigates the measures (ideas) to achieve goals.

Q6. Please explain the reasoning used in applying the issue-achieving QC story and examples of the corresponding theme.
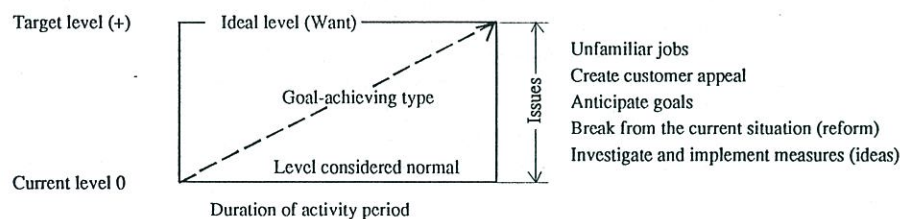
A6.

(1) When problems concerning new issues in new product development, new systems and new businesses (namely unfamiliar work) are forecast:
- Develop new products (new materials) that require creative thinking
- Establish new XX evaluation method
- Develop new system
- Develop new customers
- Move from hotel business into clothing industry
- Move from banking into real estate industry
- Move from leisure industry into food industry
- Move from the leisure industry into the development of medical products

(2) When problem solving at the level of the current quality (the level at which it should be) is unsatisfactory and greater customer appeal is desired:
- Prepare instruction manuals that will contribute to the promotion of sales
- Prepare an in-house newsletter that will be popular with employees
- Use the customer waiting period effectively

Figure 1 Unserstanding problems and issue when the current level is used as the basis.

Target level (+)

Ideal level (Want)

Issue-achieving type

Level considered normal 0

The correct level (must)

Problem-solving type

Current level (-)

Duration of activity period

Problems / Issues

Unfamiliar jobs
Create customer appeal
Anticipate goals
Break from the current situation (reform)
Investigate and implement measures (ideas)

Improve repeated jobs
Achieve quality and level considered normal
Solve existing problems
Maintain and improve the current level
Investigate and eliminate causes of system defects

Understanding issues when the current level has reached the level considered normal.

Target level (+)

Ideal level (Want)

Goal-achieving type

Current level 0

Level considered normal

Duration of activity period

Issues

Unfamiliar jobs
Create customer appeal
Anticipate goals
Break from the current situation (reform)
Investigate and implement measures (ideas)

WINNERS OF 1993 DEMING PRIZE

DEMING PRIZE (FOR INDIVIDUALS)

Winner:
Dr. Yasutoshi WASHIO, Professor, Keio University
(Born March 15, 1929)

Basis for Award

Dr. Washio has worked hard in areas of research and education to diffuse quality control through his books and theses as well as his activities at The Japan Society for Quality Control and the Japan Society of Applied Statistics. In particular his achievements in experimental design merit the highest of praise. He has also contributed much to the promotion of Japan's TQC movement on the international scene by giving lectures at universities in Japan, China, Taiwan, India and the United States, coupled with personal guidance among business circles. Among these activities, the role he played at CII (Confederation of Indian Industries), including its subsidiaries, plus his valuable advice to Philips Taiwan, Ltd. are worthy of special attention.

DEMING APPLICATION PRIZE

Winner:
NTT Data Communications Systems Co.
(President: Mr. Shiro FUJITA)
Headquarters: 3-3, 3-chome, Toyosu, Koto-ku,
Tokyo 135

NTT Data Communications Systems renders professional services to support all proceses required for the structuring of computer systems, from management planning to system integration, maintenance and operation.

Capital: 10 billion yen
Employees: 7,887

Basis for Award

NTT Data Communications Systems was separated from Nippon Telegram Telephone (NTT) in 1988 and founded as an independent corporation, which soon became a leader in the information industry.

After it became a private enterprise, the company, under the brilliant leadership of its President Shiro Fujita, promoted TQC activities with remarkable vigor to accomplish radical reform and divest itself of former public sector management traits. With "Warmness, Foresight and Systematization with creativity" as its primary theme, the firm's new leaders developed movements aimed at providing full customer satisfaction; they improved quality to the maximum thereby preventing system disorder and other shortcomings, and at the same time obtained excellent business showings.

NTT Data Communications Systems rates esteem as a model private enterprise that succeeded in renovating its past character of laboring under public sector management. ★
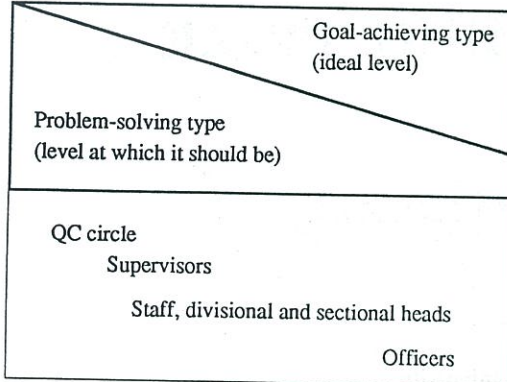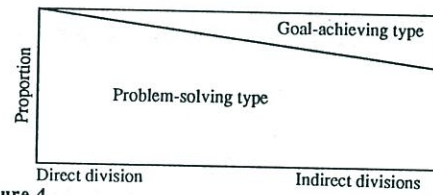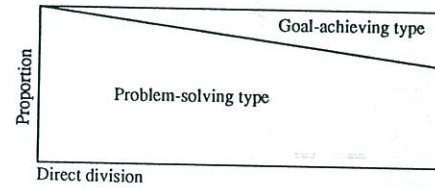
Figure 2

Figure 3

Figure 4

Table 2 Appropriateness Evaluation Chart of QC Stories

Classification	Goal-achieving QC story	Degree of fit		Problem-solving QC story
Job contents	Wishing to carry out unfamiliar work			Wishing to improve repeated jobs
Quality achieved	Wishing to make a challenge to create attractive quality and achieving the target level			Wishing to reach the quality considered normal
Conditions of involvement	Wishing to anticipate and work on forecast issues			Wishing to solve existing problems
Level	Wishing to significantly improve the current level (reform)			Wishing to maintain and improve the current level
Investigation method	Wishing to achieve issues by investigating and implementing measures (ideas)			Wishng to solve problems by investigating and eliminating the causes for system defects
Evaluation results	Total score			Three-stage evaluation (degree of fit): Large -2, Mcdium = 1, Small = 0

- Create a plan to entertain customers while they wait
(3) When measures need to be taken for future issues but not current problems, namely forecast issues (anticipated problems)
- Respond to anticipated issues that will arise with the shift to office automation
- Respond to anticipated issues that which will arise with the commencement of production of XX products
- Respond to anticipated issues that which will arise with the construction of a new plant
- Respond to anticipated issues that will arise with the launch of an offshore plant
(4) When problems are difficult to solve solely through investigation and analysis because the targets are too high:
- Double the sales of XX products over the previous year
- Double the share of XX products over the previous year
- Reduce XX operations hours by 50%
- Reduce the number of operators from 5 to 3 in XX operations

Q7. Are there any differences according to rank in using the goal-achieving QC story?

A7. The differences according to rank are as shown in the following illustration (See Figure 2)

Q8. Are there any differences in using the issue-achieving QC story in the direct (manufacturing) division and indirect (development, administration, sales, service, etc.) divisions?

A8. The use of the goal-achieving QC story in direct and in indirect divisions is as shown in the following illustrative example: (See Figure 3)

Q9. Is the use of the goal-achieving QC story related to the degree of growth in QC circles?

A9. The use of goal-achieving QC story in relation to the degree of growth in QC circles is as shown in the following hypothetical illustration. (See Figure 4)

Q10. When working on issues and problems, which do we need to use, the goal-achiving or the problem solving QC story?

A10. Judgments are made using the following appropriateness evaluation chart for QC stories. (See Table 2) With consideration paid to the issues to be worked on, the nature of problems, and targets, each item in the judgment chart is evaluated in three stages (degree of fit: large - 2, medium - 1, small - 0). Whichever QC story scores higher will be the right one to use. Of the total scores are the same, either may be used.

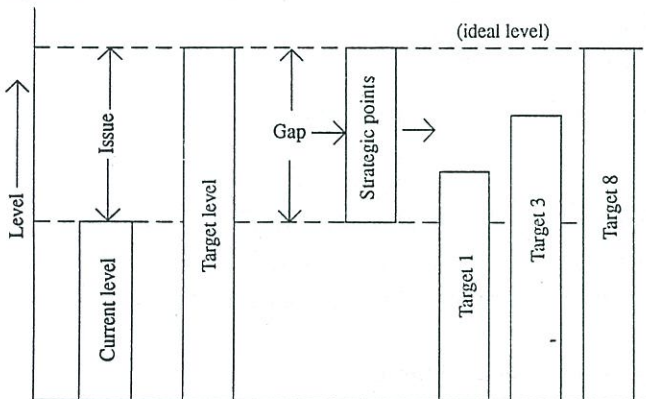## JUSE INTERNATIONAL SEMINARS
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TQC Seminar for India Top Management ⟶
August 16 ~~to October~~ 26, 1993
No. of Participants: 27

⟵ TQC Seminar
for Brazil Top Management
September 13 to 23, 1993
No. of Participants: 45

(Continued from Page 4)

Figure 5

Q11. Does the step (position) of the set target come after "clarification of issues?"

A11. Steps (positions) of set targets are determined on the following basis:

(1) In order to set up achievable targets, clarify the current and target levels. The steps come after "clarification of issues," once the size of the gap is known.

(2) When issues and targets are already clear as a result of policy control, etc., the steps come before "clarification issues."

Q12. What happens if targets are not achieved when checking the effects?

A12. If targets are not achieved, it is necessary to go back a step and implement that step again or investigate or analyze the causes of the shortfall, using the steps in the problem solving (cause investigation) QC story.

Q13. What are the important steps in the goal-achieving QC story?

A13. Every step is important, but the preparation and examination of draft measures to achieve issues is the most important. In the procedures for this step it is important to examine the relationship with targets based on many draft measures (ideas) and select the most effective of them without focusing on feasibility.

Placing too much focus on feasibility from the outset may result in the creation of only superficial draft measures. As a result, a plan that might have been effective may be overlooked.

Q14. How are the gap between the current level and the target level and the relationship between strategic points and targets illustrated?

A14. If the gap between the current level and the target level and the relationship between strategic points and targets are illustrated, they appear as follows (See Figure 5). The levels of achievement in targets 1, 2 and 3 are decided with consideration paid to strategic points.

Q15. Is the QC story applicable to all cases of problem solving (cause investigation) and issue achieving?

A15. Although the QC story is scientifically designed, it does not have to be applied all the time. It is not necessary to apply the QC story for problems and issues whose causes and measures are clear, or when such messures simply need to be implemented. Apply the QC story only when the causes and measures are not evident. ★

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(B) ENGLISH COURSE
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        to October 26, 1994
  Seminar Venue: JUSE
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More detailed information will be announced later on.

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CONTENTS