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<Special Contribution>

Proposing Creative Type TQM and Problem Excavation Type QC in an Age of Turbulence

Recommending Creative Type TQM (1)

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Introduction

In November 1993 our company was honored as the first in the information service industry to win the Deming Prize. We regard this as a milestone in achieving the VC Movement*, wherein we continue to provide customers with high quality products which meet their satisfaction. The prize itself was not our goal and we are fully aware that our TQM has room for improvement.

However, as an information service industry firm, we wish to renew our TQM in order to cope with the rapid progress being made in the realm of information. Existing TQM, as represented by such expressions as "reconsideration" and "grasping the status quo," is considered as a mere extension of past ideas. Today's information service industry needs a fresh type of TQM which can create new assignments by anticipating the demands of society and the needs of

consumers, and accomplish them inductively while carrying them to the next phase. Taking this opportunity, I shall introduce my proposed creative type TQM.

Age of Turbulence

To keep an enterprise solvent, I believe "conversion" from the long-term viewpoint, not a short-term change, is essential. For this purpose, one should be able to picture the 21st century.

1. Corruption of the Descartes concept

In our modern age, the future, including the economy, is unpredictable. One reason for this is the corruption of the Descartes conception. In the 16th century Rene Descartes introduced his constituent reduction theory that a substance results from the accumulation of fractionalized constituents, but, contrarily, a substance can be made by assembling constituents. Ever since then, societies, industries, economies and customs have been formed based on this theory. However, for instance, human beings are made of such elements as water, amino acid and protein. From the Descartes viewpoint, human beings can be produced by putting together water, amino acid and protein, but this obviously is impossible, as special factors must be added

***The VC Movement**

Propose systems needed by clients from the viewpoint of value creation, or VC, and provide them with products of high quality which truly satisfy client needs. While so doing, the VC movement aims to create a reliable relationship between the company and its clientele, reform corporate structure and establish a healthy basis of operation.

to fabricate a person. There are a great many things which can not be explained by the Descartes theory, such as why clouds in the sky change their form.

Another phenomenon which proves the collapse of the Descartes theory is that during times of rapid economic growth, everything moved forward based on the simplex (single) system, which focused solely on expanding prosperity, while in our confused society of today, the system has metamorphosed into a complex (compound) system, and one must look from various angles in order to understand its situation.

Phenomena which heretofore could be explained by the Descartes concept must now be elucidated from a macro viewpoint, one requiring the addition of sensitivity to his theory to accommodate our present age of turbulence.

In our information society, how to communicate this sensitivity will definitely constitute one of the most important assignments with which we must deal.

2. Importance of communicating sensitivity

Theoretically, human beings can hear sounds only up to 20,000 hertz. In fact, nothing over 20,000 Hz is included in existing compact disks (CD). However, a university professor did an comparison experiment of listening to a CD not including sounds exceeding 20,000 Hz and an LP record that did extend beyond 20,000 Hz, and an electroencephalogram revealed that more Alpha waves (those produced while the brain is relaxed) were observed while listening to the record.

I have tried this experiment myself and felt the CD sounds were quite harsh while those of LP were rather soft. It has been proved that LP records produce more Alpha waves than the sounds of CDs.

Considering this example, I believe there is a sensitivity field which cannot be assessed by physical measurement.

By the same token, I question the aptness of considering the field of information communication as an operation that merely transmits data to distant locales. How to communicate sensitivity, which greatly influences the daily lives of people, henceforth will present a sizable task in the multimedia society.

3. Conversion from deductive to inductive management

As mentioned earlier, the world has transformed into a complex system, and to elucidate it is no easy task. We live amid chaos and there are two methods

for determining direction in it: deductive and inductive. The deductive approach is to learn from a law which can be led by past phenomena, checking existing phenomenon with the law and analyzing them according to the law. The inductive way is to find new laws from existing phenomena or foreseeable phenomena.

Existing management is deductive-based whereby analogy with a single phenomenon anticipates future trends and likely situations for the coming one to three years. But this will not be enough in our increasingly complex social system. It is essential not to be bound by past preconceptions, but proceed with the inductive method which enables looking at phenomena directly and deriving a procedure from it.

In other words, we should drop the existing accumulating method (logic of addition) and change it to logic of subtraction, which induces corporate growth by deleting unnecessary factors from the existing format. Decide the market price first and draw cost and profit from the price. This is the method to rationalize and seek an efficient operation system appropriate for the cost.

4. Seeking purposes and creating markets

In the coming age, studies must be structured to identify the fundamental purpose of merchandise and services. We often find products and services carrying excess weight, so to speak. These goods and services must diet, strip off the extra poundage so that their fundamental purpose can be seen clearly. By doing this, I believe that new markets can be created.

Let us say that an automobile manufacturer introduces a 2,000 cc class car, without options such as an air conditioner, for a bargain price of a million yen. The car was designed with the concept that such extras can be sold later to those who wish them. Design and produce products as simple as possible, then the simplicity creates an added value.

[Four major streams of modern society and cultural evolution]

1. Sudden change of the "Four streams" in social structure

Let us look at society from another angle. I believe that contemporary daily living comprises four main streams: money, merchandise, people and information. The four have become a permanent social fixture,

but the balance among them is about to undergo a drastic change. Increasing emphasis is on the flow of information. Moreover, the original roles of the four streams are about to change by the mutual supplement of the flows of people and information, money and information, merchandise and information.

Specifically, back when railroads constituted the main form of transportation, flows of people and goods converged on railway terminals, and produced streams of information and money. Later, when the private automobile came to the fore, supermarkets, boutiques, bookstores and pinball parlors with parking lots located in the suburbs became the center of the flows of people and goods and created flows of information and money. Thus, our life-style has been changed by substances which create these flows.

2. Roles and characteristics of the information flow

In the future, when an information society is fully realized, the flow of information will create a fresh flow in the new society, a flow which originated in combination with some other flow up until today.

The information flow has five salient characteristics: dual direction, speed, network, integration and virtuality. The POS (point of sales) system, which has been marketed by our firm, is a forerunner. This system is designed to grasp appropriate data based on the information sending system of actual sales places and assemble the data at our headquarters for processing. The focus seemingly is on current on-the-spot information, but this has been changing to the direct-order system based on data concerning actual sales sections. Moreover, this tendency will be strengthened in the future, as multimedia further develops. The directions of life-style change in the information society will be from group to individual, outside to home, corporate head office to each office.

3. Evolution of Culture

Information is a catalyzer which accelerates the speed of social structure and cultural development. For example, existing trading customs and trade among enterprises are about to change drastically by such systems as CALS and Electric Commerce (EC).

But progress in information also plays a role to support affluent social life. For instance, children and senior citizens will be able to draw pictures without going to all the trouble of preparing pigments or paper

by the development of computers and networking. In addition, by linking communication circuits, users can learn at home with self-made copies of examples received from teachers. "Watercolors," one of our art tool products, was designed expressly for this purpose.

[Corporate Revolution]

Three points should be noted when promoting a "corporate revolution" in an age of turbulence, and I wish to discuss them.

1. Collapse of Big Corporations

Many firms once tried to cut costs by mass production of small numbers of products under the belt-conveyor system. But nowadays manufacturing has shifted to small production of many kinds of goods to meet consumer needs, and it is expected to change further into making only one kind of product to satisfy individual requirements.

I fear that big corporations might collapse owing to such changes in method of production.

A university professor once said, "Information will bring about a reverse industrial revolution." As we all know, the Industrial Revolution began with mass production using power furnished by steam engines to drive machine tools. In a way, the Industrial Revolution intended to provide products and to create a society geared to satisfying the needs of the masses. To the contrary, in our information age society, I assume products and the society must aim to meet the needs of individuals.

This being the case, I believe that the days of small- and medium-size corporations will come in our ever-intensifying information society. Huge industries and systems may well fall, with small enterprises moving to the fore in the information revolution. Huge enterprises are poor in manufacturing only one kind of product to serve individual desire and their sheer size and enormous output of many products precludes their changing direction quickly.

Now, with the advent of a new information age when the customer-oriented revolution has been advanced instead of the traditional corporation-oriented variety, it would be critical for big enterprises to think about how to establish the functions of small- and medium-size firms within their operation.

2. Reconsidering Added Value

Facing a new era, we must reassess the meaning of “added value.” Are our products good enough to attract customers? Can our company set itself apart from competitors? Thinking about such points, I feel the need to add another four values to the traditional type, namely, time, space, “bi” and heart.

(1) Time

As a value, time can be described as similar to that of information. As stated later in the section “What Information Should Be,” information has two values: simultaneousness and rarity. Those two values are contradictory. While the value of simultaneousness grows as many persons share the information, the value of rarity adds its importance when information is available only to only one or but a few persons.

The same thing applies to the value of time which expands either by shortening or lengthening. A good example of the former can be seen in transport time by trains or aircraft. The value of time increases by shortening travel time. On the other hand, the length of working hours is regarded as an opposite example. The longer one works, the more overtime one is paid. Thus the value of time grows by lengthening working hours. However, to work longer hours without purpose is no longer appreciated, when Japan as a nation is trying to shorten working hours as much as possible. Heretofore, to heighten the meaning of life as a whole would be regarded as the effect of lengthening time to secure enough of it to enjoy affluence. Therefore, we must consider these two values of time as a new added value in our social structure for the purpose of enjoying an affluent life.

(2) Space

The value of space is created by relating space and goods when they are placed in a certain social environment. Here, we can imagine two values of space: real space and virtual space. Recognizing this, we can expand the value of real space, together with that of virtual space as based mainly on the ciberstic use of computers described as virtual, in our social structure. To do it requires making proper use of exterior values, as it is difficult to discover new values merely by relying on internal technologies created by ourselves.

(3) “Bi”

The value of “Bi” comes from Oriental philosophy. In this case, “Bi” is found in the Japanese words “wabi,” “sabi” and “miyabi,” and “Bi” in itself means beauty. By adding values of “Bi,” our products would be able to have distinguished values comparable those of foreign or competitors’ products.

(4) Heart

This is a psychological value. Specifically, it refers to the importance of products gentle to human beings, or user-friendly products. I suppose those values can be easily understood by applying the “logic of subtraction.”

3. Find the Future from the Bottom

We must also pay special attention to the “bottom-up” idea. In actual practice, “top-down” is the most penetrable way to make instructions spread in organizational structures. On the other hand, we will need to establish an informal organization within the company based on the bottom-up concept, inasmuch as management in our “unpredictable age” must depend on information obtained from persons who do the actual work.

Our company has been promoting a policy which calls for everyone joining management. We try to manage the firm by gathering wisdom widely and accepting positive proposals concerning management from all employees. For example, we have systems called “Creative Pass” and “Hot-blooded Proposal” as our major policies.

Creative Pass is a proposal system to reflect employee opinions, requests and proposals for improvement in the operation of business quickly and properly.

Hot-blooded Proposal is a suggestion system under which employees are urged to make highly creative and effective proposals by considering themes relating to management as his or her own problem, while seeking the ideal organization as a corporation

Under these systems, employee proposals reach executives directly, bypassing managers and their assistants. These systems enable corporate directors to quickly collect valuable information useful in management from the actual working site.

The days of management simply adhering to what those in the past did have ended. From now on it will be much more important to absorb information prop-

erly from the working site and reflect them in management. This idea can be understood by referring to the inductive concept stated earlier.

[What Information Should Be-Values of Information: Simultaneousness and Rarity]

1. Two Values of Information

Here, I wish to predict future society from the viewpoint of information. Considering the roles of information in an information society gives us two values.

One is the value of simultaneousness, which grows by sending the same information to as many persons as possible. In other words, as the number of recipients increases, the role of information becomes more important. In this respect, we should not ignore the effect of noise in the paradoxical sense. Noises naturally hinder transmitting real information. Yet I believe, paradoxically, that real information, namely the primary type, must be sent together with noise. Environmental information (noises) must be included in information sources, as opposed to merely focusing on the information itself. As you know, we learned that getting only firsthand information can lead to a misunderstanding of what is actually taking place, as demonstrated on various occasions such as the Hanshin Quake, the Gulf War and the TBS incident. Thus it is our responsibility to do our utmost to transmit primary information intact to recipients.

Another value of information is rarity, which means the ability to obtain information exclusively. This can be one of the causes of the “reverse industrial revolution” mentioned earlier in Part 1 of “Corporate Revolution.” To increase the value of rarity, I consider highly critical such factors as revising information targets from the masses to an individual, information available only for an individual, and personal habits to secure necessary data by adding mutual directions.

Establishing a system to adopt these two contradictory values, simultaneousness and rarity, in social life would be the true structure of an information age society.

[Challenge to Creative-type TQM]

Corporations are required to transform themselves in an age of unpredictable, easily changing common sense. Whether or not this kind of corporate revolution can be realized is the real key to success as an

enterprise.

1. Proposal of Creative Type TQM

TQM promoted in the past was geared to consider what should be done next based on what took place in the past, as shown in such expressions as “grasping the status quo” and “soul-searching.” According to the theory of this TQM, we promoted performance improvement by reflecting on past methods and maintenance activities within a basis of standards.

Nevertheless, as stated earlier, the old style TQM seems to have too many unpredictable factors for corporations of today to revolutionize when we cannot draw pictures of the future by extending from what we did before.

If TQM means to secure reasonable quality for NTT Data Corporation customers as a provider of information services, and that stands as a minimum requirement for us, then we must strive to offer even better services to our customers, making use of each employee’s creativity and originality as an added value by promoting TQM that is one step ahead. We must develop the new TQM in more drastic and creative manner, adding to the old structure of TQM.

So, I suggested the promotion of creative type TQM.

I regard creative type TQM as the philosophy of behavior for NTT Data Corporation to revolutionize toward the 21st century. I strongly feel that we must realize our corporate revolution through creative type TQM at any cost.

2. What Is Creative Type TQM?

Three factors can explain creative type TQM:

(1) To grasp hidden needs from the viewpoint of customer satisfaction

Literally, this is to determine what to do by ferretting out hidden consumer needs, rather than looking only at overt needs.

For example, the questionnaire method is generally used to investigate customer satisfaction. Yet that method does not produce impressive results for me, as pollees usually do not put a mark in “very bad” unless they have a special complaint, and tend to express their evaluation as “more or less satisfied” or “ordinary.”

So the results typically show that about 75 percent of the respondents are satisfied, which means that our customers are satisfied with our products. What about the response to our competitors’ products? They also

draw evaluation as being satisfactory. Clear-cut differences will not result from the questionnaire method. Still, we should consider the “somehow dissatisfied” type of answer as implying their underlying needs, which makes it essential to discover those needs.

I always suggest to our employees that they “feel face-to-face, make products using their heads, then take action according to on what you feel.” How you feel when facing the customers is most important. Instead of thinking with elbows on a desk, jotting down ideas or simply mulling them over, they should try to feel and imagine how customers rate our products or systems through face-to-face encounters, then take action. Doing this will lead to understanding their hidden needs and taking the proper steps to satisfy them.

(2) Discover Things that Glitter

This means to find things that glitter hidden at the jobsite, in other words, draw promising ideas from information at the site for the purpose of applying them to management. As stated earlier, management should rely on information from persons actually working in this unpredictable age.

For that purpose, it becomes necessary for each employee to consider what he or she should do with an awareness that he or she is participating corporate management. Moreover, it is necessary to establish a corporate culture or environment in which workers can freely make proposals, so that their glittering ideas can be sufficiently polished, and buds of their ideas are not crushed.

(3) Produce Creativity by Harmonizing Individuals

This is based on the idea of collaboration, which aims to create new values through cooperative working procedures.

To create new values cannot be easily accomplished

by a single person's ability. Even if one employee has a remarkable idea with him, it may still be but raw material for a diamond. To produce a glittering diamond demands first cutting the rough stone. I think this can be accomplished through the mutual cooperation of co-workers. They should start out with a free exchange of ideas, saying, “This is what I think” or “My idea is like this,” and try to increase supporters for it. Then they can produce other ideas by understanding and sympathizing with supporters. That achieved, more detailed ideas can result. I believe that new values can be created through this process of collaboration.

Individuality means the strong skills of each person. It is impossible for corporations to develop without making most of this individuality. As the old adage goes, “Two heads are better than one.” I suppose a corporation can exert its real power when group power creates originality.

These ideas cannot be materialized without spreading and penetrating the creative concept, and it will become more and more important to offer training courses for building creative power when educating people.

[In closing...]

TQC changed its name to TQM. I hope that TQM will expand to become a method for changing social paradigms and not merely rest at the stage of improving one product.

I would consider it most gratifying if, through the process of systematizing and realizing quality control in the social system, breakthrough ideas can be born and creative-type TQM activities take root in the society.

When these targets and goals are achieved, I am confident that a marvelous information society will be waiting for us in the 21st century.



2WCSQ in JAPAN

The Second World Congress for Software Quality



September 26 - 29 , 2000

TOKYO BAY AREA

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Outline of 2WCSQ

Date: September 25(mon) through 29(fri), 2000

Venue: Pacifico Yokohama Conference Center, Yokohama (*planned*)

Main theme: "Software Quality for the Comming New Millennium"

Attendance: 530 (*estimated*)

Working language: English and Japanese (*simultaneous interpretation*)

Organizers: Union of Japanese Scientists and Engineers (JUSE)

American Society for Quality (ASQ)

European Organization for Quality (EOQ)

Support & Cooperation: (*under negotiation*)

Registration fee: (*To be determined*)

Participants: Expected participants to 2WCSQ are as follows;

Anyone of improving softwear quality and productivity,
Computer Users and Consultants.

System Integrators, Softwear Developers and Dealers,

Information and Telecommunication Operators,

Computer-related Manufacturers or dealers,

Schedule:

A: Sept. 25 (mon) - Tutorial Sessions, Welcome Reception

B: Sept. 26 (tue) - Opening Ceremony, Commemorative Lectures
Closing Ceremony

C: Sept. 27 (wed) - Paper Presentations, Panel Discussions, Luncheon
Speeches, Banquet

D: Sept. 28 (thu) - Paper Presentations, Commemorative Lectures
Closing Ceremony

E: Sept. 29 (fri) - Technical and Cultural Tours

Distinctive Features:

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Firms, and Tours to places of cultural interest will be included in the
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