Utilizing the "Four-layer Structural System Model" to organization Management

--A Suggestion from a New Point of View--

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Abstract

The purpose of this paper is to suggest that utilizing the "Four-layer Structural System Model" to organization management is effective in building consensus among human beings.

This model, which was developed by Seiemon Ioi, describes four layers: logical thought (R), emotional thought (Q), one's view of human's nature (S) and conduct (F).

Up until now, the developments in the field of Information Technology (IT) have helped people build logical (R) consensus. On the other hand, it is difficult to build emotional (Q) consensus by the use of IT. In order to manage things in an efficient and smooth way, it is also necessary to build emotional (Q) consensus.

In this paper, Toru Uchida analyzed how some companies built emotional (Q) consensus from the "Four-layer Structural System Model" point of view. Uchida interviewed leaders of these organizations about their process of merger and acquisition (M&A) and making new businesses.

As for the results, the companies, which adapted the "Four-layer Structural System Model" to manage their organizations whether consciously or unconsciously, were successful. One maintained double-digit growth from the beginning, another performed smooth M&A. When their leaders wanted to build consensus among employees, they tried to take logical (R) thought and emotional (Q) thought into consideration. Uchida found that the leaders especially respected *Ba* in order to build emotional (Q) consensus. However, the leaders who did not consider the model at all failed. Many employees of the companies resigned their posts when the companies attempted M&A integration. Their leaders were unable to build emotional (Q) consensus among employees.

The results imply that utilizing the "Four-layer Structural System Model" is useful in managing organization.

1. Introduction

Recently, " Knowledge Management" has been developed through the extensive application of Information Technology (IT) ［1］. Therefore, it is said to have recognized more about the importance of sharing common knowledge within an organization. During the process of sharing common knowledge, the key point is how to externalize tacit knowledge to explicit knowledge. Tacit knowledge and explicit knowledge are assumed to come from the two different layers of thinking in human beings. One layer is logical and explicit thought, the other layer is emotion and tacit thought. Up until now, it has been very easy to build consensus on logical and explicit thought with the use of IT. However, it is very difficult to build consensus among people using emotion and tacit thought, when the origin of the idea itself is on the emotion level. Building consensus on the emotion level is necessary in order to conduct efficient and smooth management. Sometimes human beings follow only logical thought, even though their emotion is at variance with this thought. Because they act against their deepest will, they are not eager to do their best. They work reluctantly. Therefore the chance of failure seems to be high.

The practical solutions for this lack of consensus would be to understand that the behaviors of human beings are likely to be explained by a "Four-layer Structural System Model" ［2］. This model explodes the established viewpoint. It seems to bring us towards changing paradigms as a new way of thinking.

2. "Four-layer Structural System Model"

Two models have been developed, a " Two-layer Structural System Model" ［3］and then a "Four-layer Structural System

Model".

2.1 The "Two-layer Structural System Model" by Shoichi Matsuda

Shoichi Matsuda developed a " Two-layer Structural System Model" in 1985.   He assumed that human beings had two layers.   One layer is external and visible, and the other one is internal and invisible.   The former leads to conduct, and is observable.   The latter concerns the heart or emotion, and is not observable. (See Fig.1)
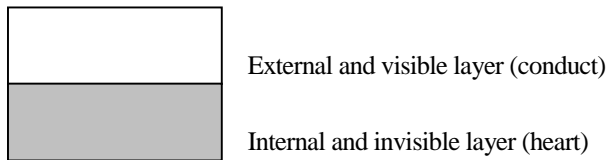
External and visible layer (conduct)

Internal and invisible layer (heart)

Fig. 1 The " Two-layer Structural System Model" by Shoichi Matsuda

2.2 The "Four-layer Structural System Model" by Seiemon Ioi

Seiemon Ioi recognized that Matsuda's "Two-layer Structural System Model" was useful in understanding people's ways of thinking.   Ioi later extended Matsuda's model and made a "Four-layer Structural System Model".   Ioi defined the conduct and thinking of human beings as the (F) layer, the (R) layer, the (Q) layer, and the (S) layer. (See Fig.2)
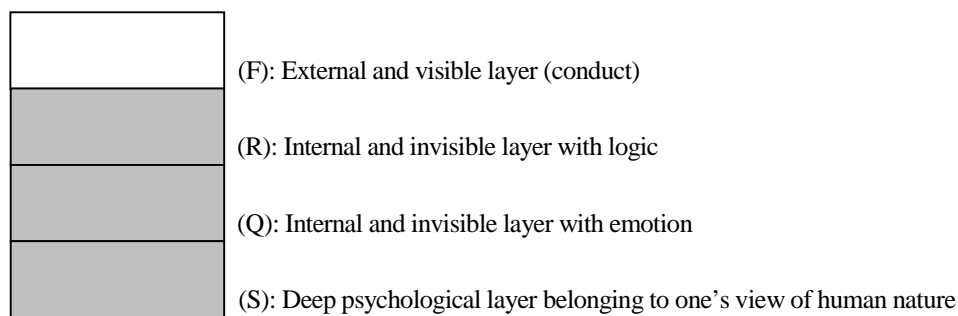
(F): External and visible layer (conduct)

(R): Internal and invisible layer with logic

(Q): Internal and invisible layer with emotion

(S): Deep psychological layer belonging to one's view of human nature

Fig. 2 The " Four-layer Structural System Model" by Seiemon Ioi

The (F) layer conducts the action. Human beings can take action (F) based on the decisions that they make by going through the thinking processes (R), (Q) and (S). (See (1))

$$\text{Human being's equation } F(x)=(R)(Q)(S) \tag{1}$$

The (R) layer is thought to conduct logical and explicit thought.   It consists of logic, reason, consciousness and so on. It is explained logically in words.

The (Q) layer is thought to conduct emotion and tacit thought.   It is not explained logically in words.   It consists of intuition, sensitivity, unconsciousness and so on.

The (S) layer is the deep psychology under the (R) and (Q) layers.   It consists of one's view of human nature.

Human beings have the ability to make logical (R) thought and emotional (Q) thought based on deep psychological language layer (S).   This way of behavior can be explained through the use of the "Four-layer Structural System Model" consisting of (F), (R), (Q), and (S).

The difference between human beings and animals is whether they have an (R) layer or not.   Animals do not have logical words (R).   They act by intuition and instinct.   Namely, they take action (F) based on (Q) and (S). (See (2))

$$\text{Animal's equation } F(x)=(Q)(S) \tag{2}$$

However, human beings do have (R) which is a layer connected to logical words.   Human beings' conduct (F) is based on (R), the logical decision-making level and (Q), the emotional and impulsive decision-making level. This is what separates

human beings from animals.

Ioi thinks there are two types of comprehension, the (R) layer and the (Q) layer.   (Q) layer comprehension means to accept and agree with something completely.   However, (R) layer comprehension does not imply total acceptance.   Someone may act on something just because he cannot reject it logically.   Usually human beings do not clearly distinguish between (R) and (Q).   Therefore, we should pay attention to this point.

Modern science has been approaching things using (F) and (R).   It has not been taking (Q) into consideration.   Non-logic (Q) has been considered to be less scientific than logic (R).   Therefore, it is put aside.   The "Four-layer Structural System Model" brings into light the existence of (Q), which has been neglected by modern science.

(R), (Q) and (S) can roughly be illustrated as follows:(See Table. 1)

Table.1   (R), (Q) and (S) Chart

Object	R	Q	S
General	Order Linear Digital Simplicity	Chaos Non-linear Analog Complexity	Root of things
Human	Logic Reason Consciousness Explicit knowledge Theory	Non-logic Intuition Emotion Sensitivity Unconsciousness Tacit knowledge Idea	Human's nature
Society	Science Civilization Theology	Art Culture Faith	Characteristic of race and climate
New Science	Explicit	Implicit	Implicit

3. 凹 (Square-concave) type model

When one communicates with others from the "Four-layer Structural System Model" point of view, the 凹 Model can be used.   The 凹 Model is useful in understanding the relation between the observing subject and the observed object.   In order to allow good communication, both should form a "Four-layer Structural System Model" with each other when two or more people have communication.   The 凹 Model combines both occidental thinking and oriental thinking.   In addition, *Ba* thinking should be added.

3.1 Occidental thinking

Occidental thinking often relies on the concept that one sees others as separate.   It is called "separation between oneself and others".   Following this concept, "one exists as oneself" and "the other is other".   This is the basis of individualism or existentialism.

3.2 Oriental thinking

Oriental thinking is based on the fact that one does not easily feel separated from others. It is called "oneness of oneself with others".   It is not a link between bodies but between minds.

3.3 *Ba* thinking

Ba, a Japanese word for place or field, has deep roots in Japanese philosophy.   It was first used in the field of biology by Hiroshi Shimizu ［4］ and was later introduced to the field of management by Ikujiro Nonaka and Noboru Konno ［5］

Ba seems to be important in building (Q) consensus, for instance, in on the job training (OJT) and in face-to-face meetings.   All participants consciously share the same ideas and impressions in the *Ba*.   They understand each other as if

they could read each other's minds.   In other words, it is a kind of communication apart from speech.

Ioi illustrates *Ba* by using the expression "spoiling group morale".   The term does not imply physical silence.   Even though modern science cannot prove it completely, it seems to exist as something intangible.

3.4 凹 (Square-concave) type model

Occidental thinking(See Fig.3), oriental thinking(See Fig.4) and Ba thinking (See Fig.5) are combined in the 凹 Model(See Fig.6).

Fig.3 Occidental
Thinking

Fig.4 Oriental
Thinking

Fig.5 *Ba*
Thinking

Fig.6 凹 type model
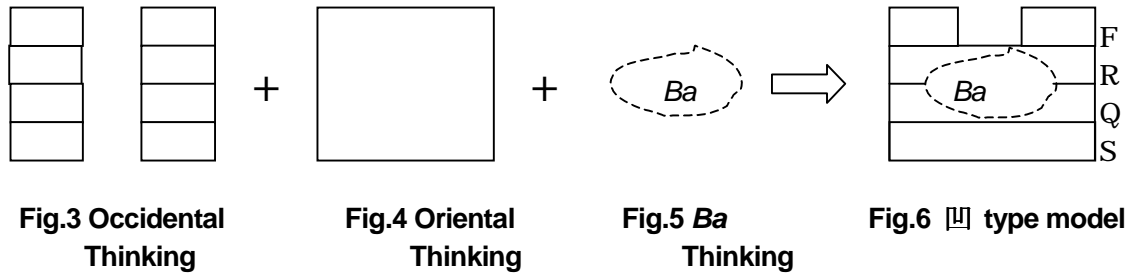
There is separation between the observing subject and the observed object at the (F) layer in the 凹 type model. However, it is essential that (R), (Q) and (S) are united between the observing subject and the observed object.   The highest layer is visible from the outside.   (R), (Q) and (S) exist under (F).

4.   Analyzing the organization management utilizing the "Four-layer Structural System Model"

4.1 (R) and (Q) layers of organization (See Fig. 7)

An organization is a group of human beings. Just like humans, it has (R) and (Q) layers.   It also has common objectives.   Norms and roles are created in order to attain these objectives and to maintain the organization's cohesion. Norms and roles are expressed by language, that is to say, the (R) layer.   Employees in an organization recognize (R) and then take action (F).

The so-called organization's (Q) is a cluster of human beings where each person has (R) and (Q) layers.   Human beings who belong to an organization share common values, common thinking and common action.   They make the organization's culture.   This is one of the organizations' (Q)[6].
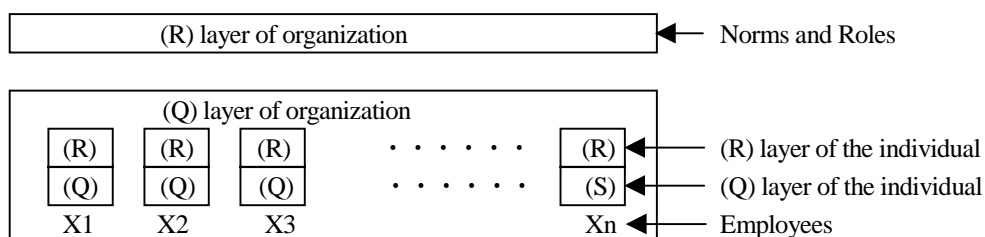

Fig. 7 R and Q layers of organization

4.2 Organization management cases

The purpose of Uchida's research was to understand how leaders manage their organization and build consensus among employees.   Uchida interviewed the leaders of organizations about merger and acquisition (M&A) processes and new business development. Relevant cases were found.   These were not quantitative analyses.   However, the "Four-layer Structural System Model" was used for analysis.   Five organizations participated.   They were analyzed by their successes and failures in managing employees' emotional (Q) consensus.

As for the results, Uchida could see that when the leaders wanted to build consensus among the employees, they took logical (R) thought and emotional (Q) thought into consideration.   One of the factors for success was likely to cause by factors

explained by the "Four-layer Structural System Model". It seemed fair to say that understanding of this model allowed the organizations to gain opportunities for success, which they would not have gained otherwise.

(1) Success in the case of H Company: establishing *Ba* in the organization of new business

The leader of H Company faced a problem of lack of communication due to the employees' various backgrounds and skills. Even though the organization had adequate resources in terms of organizational capital and technical capability, the personnel was too diverse to succeed. (See Table 2)

Table 2 Types of Employees in H Company

Quality of the Employees	Rate
Excellent employee coming from Parent Company	10%
Normal employees coming from Parent Company	30%
New recruits	10%
Excellent employees coming from other companies in the same industry	40%
Normal employees coming from other companies in the other industries	5%
Part timer	5%
Total	**100%**

In Japan, it is the very rare to find such drastically diverse employees. That was a crucial weak point.

At the beginning, the leader of the organization tried to make the employees share common knowledge by using E-mail. He wanted to make them externalize tacit knowledge to explicit knowledge. However, because of the employees' diversity, only two-thirds of them fully understood easy documentation. Therefore, there was a gap between those who understood and those who didn't understand. Those who didn't understand the easy documentation, of course didn't understand tacit knowledge. Therefore the leader tried to build (Q) consensus by establishing *Ba*. The reasons the company was able to realize the success of the project were the following:

1. Frequent meetings both unofficial and official
2. Excellent employees accompanying normal employees to show them necessary skills
3. Face-to-face interviews between the leader and the employees.

After that, they could build (Q) consensus. *Ba* can provide an insight into others' minds. H Company made double-digit growth from the beginning of the new business (1994-1998). The leader said, "We had good products and adequate resources for starting a new business, but too much diversity created a bottleneck. *Ba* was useful in building consensus among diverse employees, and it was one of the factors in successfully meeting our budget." By establishing *Ba* and utilizing the "Four-layer Structural System Model", the management was able to build (Q) consensus as well as (R) consensus, even though the organization was very diverse.

(2) Failure in the case of M Company: the impossibility of understanding the company's culture during M&A

M Company failed in an acquisition because it seemed that the leader could not build (Q) consensus regarding the company's culture (Q).

When M Company acquired a certain venture company, it tried to impose its own culture on the acquired company. For instance, in the field of research and development (R&D), the leader restricted the budget for laboratory work and experimentation, which had been unlimited previously. He also forced researchers to change these research projects without their consent because he wanted to focus on other priorities. It appeared to be necessary from a logical short-term point of view. However, from the (Q) point of view, because of this lack of communication, the researchers refused his order and 150 out of 200 resigned.

The leader could have been more careful, knowing that researchers need particularly skillful management.

(3) Success in the case of M Company: the impossibility of understanding the acquired company's culture

When acquiring the new company, the leader promoted his own company's culture through mutual consent and

understanding.

M company had learned from the past and did not want to have the same failure as before. It paid much more attention to the culture of the acquired company. The Chief Integration Officer and also Vice-Financial Officer of M Company, Mr. Delucia said, "Before buying the company, check upon its Strategic Fit first, then its Financial Fit". This explains why M Company was able to get along well with the acquired company. In this case, Strategic Fit is (Q), Financial Fit is (R) (See Table.3)

Table.3 Guideline of M Company before acquisition

Strategic Fit (Q)	Financial Fit (R)
Culture	Revenue
Human Assets	Profit
Market Place Image	Share
Future Direction/ Vision/Objective	Long Term (5 Years) Financial Return

Based on an understanding of each other's culture and common values, the leader shared explicit knowledge and was able to accomplish smooth integration. Moreover he built consensus with the acquired company. Mr. Delucia, in speaking of building (Q) thought consensus, said, "The success of the integration caused us to understand Strategic Fit (Q) before Financial Fit (R)".

(4) Failure in the case of N Company: ignorance of (Q) thought of the researchers

Management that puts pressure on employees has a very good chance of failure. The reason is that the leader ignores (Q) thought completely. It is especially necessary to build (Q) consensus in the field of research & development (R&D). Epoch-making products are often discovered by the intuitive hypothesis (Q layer) of researchers (i.e. fuzzy logic). Researchers are very sensitive about (Q) thought. There are many cases of management putting pressure on researchers in Japan. In this paper, Uchida shows an example of this in N Company in the United States.

There were two failures due to excessive pressure in N Company. First, because of the leader's pressure, one of the researchers in R&D leaked confidential documents to a competitive company. Second, a talented researcher, being unable to understand the leader's pressure, resigned from N Company. He developed epoch-making products in another company.

Ms. Cunningham, one of the excellent researchers of N company, said, "Do not put strict pressure on a researcher, especially, on a researcher of genius. Instead, contact him gently, carefully and respectfully."

(5) Success in the case of H Company and B Company: mutual comprehension for merger

H Company and B Company organized ten pre-meetings for six months before their official merger: top management class meetings and middle management class meetings. The leaders of the two companies built (R) consensus on three points:
1. The two companies synthesized software and structured groupware.
2. Consensus of hierarchy was developed between the two companies
3. E-mail was full utilized

By developing consensus in these ways, the two companies shared common knowledge and a functional checklist for merger process was formed. However, a few conflicts appeared. Utilizing only E-mail could not solve some of them. One leader said, "The only solution for conflict was to have a face-to-face meeting or to have a heart-to-heart talk. We not only exchanged information frequently by utilizing E-mail but also established *Ba*."

5. Conclusion

IT is an important tool to facilitate the sharing of explicit knowledge. However, it is difficult to recognize tacit knowledge by utilizing IT. Thinking in terms of the "Four-layer Structural System Model" will bring organizations the possibility of building consensus. (Q) thought is especially important for building consensus

Results revealed that the leaders of successful organizations respected *Ba* in building emotional consensus. Through

the implementation of *Ba*, OJT and face-to-face meetings, organizations seemed to be able to build (Q) consensus and to avoid employees' misunderstanding.   This model might dissolve the barriers in understanding each other.   Thanks to this model, it will be more likely that organizations in the future can reduce the lack of communication that results from very diverse backgrounds among their employees.

Results also showed that Organizations in search of ideas and creativity in R&D or new business would greatly benefit from the implementation of the "Four-layer Structural System Model".   Ideas seem to come much more from intuition than reason.   In order to have a lot of ideas, it is essential to establish *Ba*.

The "Four-layer Structural System Model" is based on both oriental and occidental thought. Therefore, this model can also be applied to non-Japanese organizations.

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