

Appendix G

A Method for Changing Knowledge to Wisdom and a Wisdom Engine for the Wisdom Management Era

Abstract

The difference between knowledge and wisdom has been discussed for a long time. However, the mechanisms for changing knowledge into wisdom have not been totally unraveled in any country in the world.

To address this question, the author developed a method for changing knowledge into wisdom in March 1999, using the Advanced Project Management Methodology (Methodology of DTCN/DTC) [in this book], which he developed between 1979-1997.

Using this methodology, it is possible to relate knowledge management (the accumulation and management of knowledge), with 'wisdom management' to change knowledge into wisdom.

By linking this method with the established CALS (Computer Aided Logistics Support), the 'New CALS for Changing Knowledge to Wisdom' and the 'Jojo Systems with Concrete Procedures' proposed by the Governor of Gifu Prefecture can be created.

1. Introduction

This paper, 'A Method for Changing Knowledge into Wisdom', is based on the views and word meanings indicated in section 1.1, "Background Knowledge," and section 1.2, "Terminology," which are quoted from 'Advanced Project Management Methodology (Methodology of DTCN/DTC).'

2. Background Knowledge

(Note: Chapters and section numbers are indicated as in this book)

- (1) Chapter 1.2: Decision Mechanism by Information of Difference (The paper clarified the direction of value and the mechanism of decision making.)
- (2) Chapter 2.1: The PMD Method to clarify the relationship between purpose and measures
- (3) Chapter 2.2: Method of Steplist management to create a faultless phased plan
- (4) Chapter 2.3: 3-5 Phased Improvement Method to divide approaches to improve anything from its present status.
- (5) Chapter 2.4: FBS technique to create image structures.
- (6) Episode 2 :PMD Method to investigate language.
- (7) Episode 5 :Relationship between PMD, Steplist, FBS and 3-5 Phased Improvement'
- (8) Episode 6 :Accumulation of Knowledge and Wisdom
- (9) Chapter 3.1: How to create the domain of thinking and consensus among the people concerned

3. Terminology

In this paper, the discussion proceeds based on an understanding of and a definition of the terms 'having knowledge' and 'having wisdom' which follow.

- (1) 'Having knowledge' means to have information of causation, i.e. 'if X happens, Y will happen,' and that of existence, or 'thing AND/OR information,' i.e. 'there is Z.'
- (2) Although 'having wisdom' is several levels in depth, it can be summarized as having information of 'what should/would be done.' The first level can be explained as follows.

a. 'Having wisdom' means to grasp two keywords in 'the relationship between purpose and measure': 1) the Main Key word which focuses on a demand expression, that is, 'what is needed to satisfy the want'; and 2) the Entrance Key word which focuses on the starting action, that is, 'as a minimum, what should be done first' in order to get what is wanted.

The relationship between purpose and measure enables the first level of wisdom.

The relationship between purpose and measure (direction of value) is expressed vertically by linking repeated expressions of 'in order to do X, it is necessary to do Y.'

With this, we can have the direction of value necessary for "Decision-Making Mechanism by Information of Difference" which has been done under our consciousness (See Chapter 1, Section 2: in this book).

This is the Wisdom Level 1.

This technique for structurizing the relationship between purpose and measure, is called PMD (Purpose Measure Diagram Method; Chapter 2.1 in this book).

b. In order to acquire an image structure (idea) and the procedure to realize the object result which is needed, it is necessary to grasp the main Key word and entrance Key words. This is the second level of wisdom (Wisdom Level 2).

In this book, 'Creation of procedure' depends on the Steplist Management Method and the 3-5 Phased Improvement Method in Chapters 2.2 and 2.3, while 'Creation of image structure' relies on the FBS Technique in Chapter 2.4.

These techniques can help us visualize our thinking process, which is usually unconscious.

By visualizing these processes of creation using the above methods, not only can the knowledge and wisdom of individuals and groups be connected and organized, but also new knowledge and wisdom can be created.

This is the third (Wisdom Level 3) and the fourth levels of wisdom (Wisdom Level 4). This is discussed in detail in Section 4 and Figure 4 in this paper.

4. Relationship between Knowledge and Wisdom Using PMD (Purpose Measure Block Diagram)

With the PMD Method (Chapter 2.1), two examples of the relationship between knowledge and

wisdom can be expressed as in Cases (A) and (B) in Figure 1.

By comparing the expressions in Case (A) with those in case (B) in Figure 1, the discussion focuses on the process that defines the relationship between knowledge and wisdom. It is apparent from Episode 2 that direct comparison of 'knowledge' and 'wisdom' can't separate them.

A PMD was, therefore, created using the expressions 'have knowledge' and 'have wisdom' in order to relate the two terms in the form of Figure 1 and make their relationship more explicit visually on paper.

Comparing Cases (A) and (B) in Figure 1, the relationship is understood more clearly in (B) ['In order to have wisdom', it is necessary 'to have knowledge'] than in (A) ['In order to have knowledge', it is necessary 'to have wisdom'].

Using the PMD expression, it can be said that for the relationship between knowledge and wisdom, ['In order to have wisdom', it is necessary 'to have knowledge'] (i.e. have knowledge so as to have wisdom) is more appropriate.

Following the relationship in Case (B), the purpose-measure relationship between 'have knowledge' and 'have wisdom' is further discussed using another example.

5. Implication of the Ability to Make a PMD

This discussion focuses on the implication of being able to arrange terms into relationships of purpose and measure, as in 'knowledge' and 'wisdom' in Figure 1, using an example.

If the relationship between purpose and measure in the case of 'how to turn on the light in a room' is expressed using a PMD, it becomes the relationship in Figure 2.

What is necessary to be able to express this in Figure 2 using a PMD?

To find out, the PMD shown in Figure 3 can be created by using the expansion of PMD.

Figure 3 indicates that, in order to create a PMD in which the relationship between purpose and

measure is arranged, knowledge of cause and result is needed, that is, “Flipping on the switch causes to the light to turn on.”

6. Developing Knowledge into Wisdom Using PMD

In this section, the process in which knowledge changes to wisdom is explained, based on the author's childhood experience.

In his childhood, the author learned that when he touched tongs in a brazier, they were hot. From this experience, he postulated: 'Because my friend knows that tongs in a brazier are hot, he will react if I put a tong on his hand, even though the tong is not hot.' When the author tested his idea, his friend did become afraid and withdrew his hand. Using the knowledge from this experience, a PMD can be created as Wisdom Level 1 as seen on the left side of Figure 4.

Figure 4 describes an example of the process in which knowledge, which started from Wisdom Level 1, becomes Wisdom Level 4. This figure shows 'the flow of a process in which knowledge becomes wisdom,' using a childhood experience to reach wisdom Level 1, and then coming up with a countermeasure using wisdom in Level 2 and thereafter.

Figure 5 is an example of a PMD by which knowledge becomes wisdom.

Traditionally, the PMD Method has been used to visualize two keywords in order to escape chaos.

- 1) The Main Keyword focuses on a needs expression, that is, 'what is needed to satisfy the want as the result'; and
- 2) The Entrance Keyword focuses on the starting point, that is, 'as a minimum what should be done first in order to realize what is needed or wanted.'

In order to visualize these two keywords using the PMD Method, the expression of 'in order to do X, how to do Y' is arranged as an expression of the relationship between purpose and measure, i.e. “in order to do X, it is necessary to do Y,” and this structures the direction of value.

The figures on the left side of Figure 4 and Figure 5 are also examples of this.

In facing a new task or problem and dealing with it, we always create expressions of action: 'to do X' which is an entrance of wisdom; 'what is wanted to do' and 'as a minimum what should be done,' using a PMD (Note: People who don't know the PMD Method do think unconsciously in the same way as a PMD.)

If, while making a PMD, it becomes impossible to link expressions of action like '[In order to do X, it is necessary to do Y]', a blank empty box, or 'idea box' is prepared. Next, think things through: 'So as to link them, as a minimum what should be here?' With this step, the expression of 'do X' which suddenly comes to mind or 'an idea to choose as a measure' becomes clear, and is entered into the blank box or the idea box. (Note: This suddenly comes to mind appears some time after making first PMD and we lay down our self)

In this way, a PMD (draft) is completed. After completing the PMD (draft), two Keywords are taken from it (Wisdom level 2).

From these Keywords, wisdom towards Wisdom Level 3, that is, 'draft procedures to reach the object' and 'draft image structure of objects' are created by The Method of Steplist Management and FBS (Function Breakdown Structure) Technique. (For more details of the Steplist and FBS Technique, see Reference [1] Chapter2.2 "The Method of Steplist Management," and Chapter 2.4, "FBS Technique.")

It can be said that the first point of changing knowledge to wisdom is at Wisdom Level 2, where the two Keywords and some ideas are discovered for a certain purpose.

The second point is to produce Wisdom Level 3, the availability of procedures to reach the object as well as image structures of the necessary objects. Then we make an implementation plan which indicates who or what organization will materialize the implementation plan itself, as Wisdom Level 4.

This way of thinking and its procedures have already been presented in the DTC/DTCN Methodology. Therefore, the method for changing knowledge to wisdom is already available.

7. Relationships between Having Information (in a broad or narrow sense), Data, Knowledge, Wisdom, and Ideas, and New Knowledge After the Implementation of Wisdom

In the discussions above, the relationships between the different meanings of the term "information" are presented in Table 1. Table 1 shows the relationships between information in a broad sense, data, information in a narrow sense, knowledge from learning, knowledge from experience, 'wants, needs, and

seeds,' wisdom, and new knowledge after the implementation of wisdom.

The levels of knowledge and wisdom are displayed in each of the four stages using the Steplist Management Method (Chapter 2.2) in Table 2. Each step is also described in detail. Table 1 is a summary of Table 2.

(Comments)

By listening to a story of the author's experience in the old time when tongs and braziers were used, the younger generation can take the content as knowledge.

This explains the possibility of acquiring knowledge from learning.

8. Creation of New CALS by Adding a Method for Changing Knowledge to Wisdom

The traditional paradigm of CALS Electronic Interface is shown in Figure 6. (CALS: Computer Aided Logistics Support)

Figure 7 is an image of 'The Structure of New CALS for Changing Knowledge in a Broad Sense to Wisdom.' This is made by adding a 'Remote Electric Meeting System' to Figure 6. Thus, the New CALS starts with people meeting through a networking system with linked multi-screens and shared information files (on the left end) and 'DTCN/DTC Method for changing knowledge to wisdom, KJ Method, QFD Method and TQC Method' (in the upper right corner).

QFD: Quality Function Deployment by Dr, Akao, whose office is next door to Dr. Esaki's at Asahi-University.

9. Discussion

In this paper, four points have been discovered:

(1) It is possible to use the PMD Method to help start drawing knowledge and wisdom from a group having wants or needs or seeds, that is, 'in order to do what', 'what to do ' and 'as a minimum what should be done', in the relationship between purpose and measure.

(2) Then, the Steplist and FBS Technique can be used as basic methods to draw out the wisdom of procedures and image structure in detail.

(3) The whole meaning of the term 'information' can be well understood by dividing it into 'information in a broad sense' and 'information in a narrow sense,' as shown in Table 1.

(4) By revealing the relationships between the KJ Method, the QFD Method, the NM Method and Advanced Project Management Methodology (DTCN/DTC Methodology), which were invented by Japanese researchers, the mechanism to shift the 'Knowledge Management Era' toward the 'Wisdom Management Era' can be presented.

Figure 8 shows a map which displays the relationships between the 'KJ Method', the 'QFD Method', the 'NM Method' and the 'Method of Changing Knowledge to Wisdom' (DTCN/DTC: Advanced Project Management Methodology) after adjustments with the permission of their inventors.

10. Conclusion

By replacing the difference between 'knowledge' and 'wisdom' with the relationship between 'having knowledge' and 'having wisdom', actual experience of 'working on acquiring wisdom,' that is, 'creation of the relationship between knowledge and wisdom' has resulted in this paper, 'A Method of Changing Knowledge to Wisdom for the Wisdom Management Era.'

In addition, a concrete example of only how 'knowledge' is changed to 'wisdom' has been presented.

That is, using the PMD Method of changing knowledge to wisdom, the 'relationship between knowledge and wisdom' has been shown in terms of the relationship between them.

Figure 9 shows a result, 'The Structural Concept of Purpose and Measure to Increase the Productivity of Information (Knowledge, and Wisdom) in the Electronic Information Society.' In this figure, the relationship between two engines is indicated; the engine for creating knowledge (box no. 4) and the engine for creating wisdom (box no. 6) and a means of returning the results to the knowledge box (box no. 5).

References

- [1] Esaki Michihiko, 'Advanced Project Management Methodology', 1997 ASCII Publishing. Japanese language (Copies can be purchased through Direct Service Ltd., tel. 03-5353-8201); English version can be seen in This book and at URL <http://ims-web.asahi-u.ac.jp/ims09>
- [2] Esaki Michihiko, 'Methodology of DTCN/DTC for Realizing CALS Plan', proceedings for 1996 CALS Japan conference.
- [3] Esaki Michihiko, 'A Method of Changing Knowledge to Wisdom'. Proceeding for 1999 Japan Creativity Society conference.
- [4] Esaki Michihiko, 'Design to Customers' Needs / Design to Cost (Advanced Project Management Methodology)', 1997 CALS Expo International Proceedings, Tokyo, Japan.
- [5] Esaki Michihiko, 'A method for changing Knowledge to Wisdom for new CALS,' Proceedings of the 1999 CALS/EC Japan Conference.
- [6] Nonaka Ikujiro and Takeuchi 'The Knowledge Creating Company: How Japanese companies create the dynamics of innovation,' Oxford University Press. 1995
- [7] Esaki Michihiko, and Kimura Keiji 'A procedure and format for the thinking and action of abduction, verification and decision-making: to reveal rational past mechanisms and to create future mechanisms,' 1998 Japan Creativity Society Conference.

Figure 1. PMD to compare relationships of two terms

Comparison of relationships between 'have knowledge' and 'have wisdom'

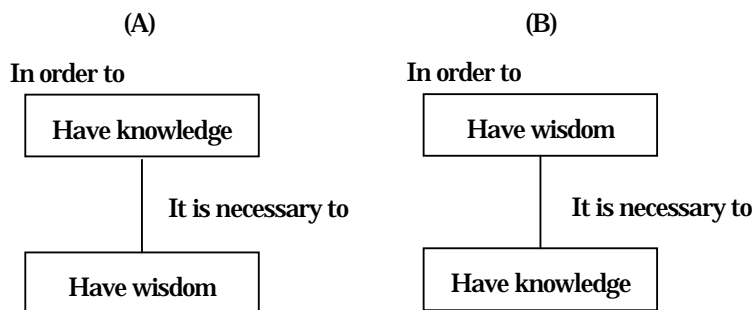


Figure 2. The Relationship between Purpose and Measure to Turn on the Light (1 of 2)

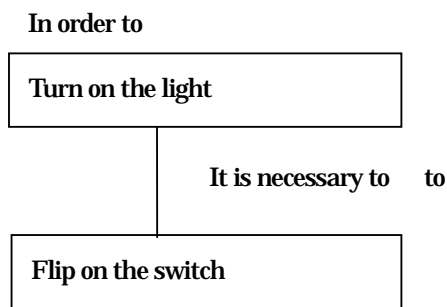


Figure 3. The Relationship between Purpose and Measure to turn on the Light (2 of 2)

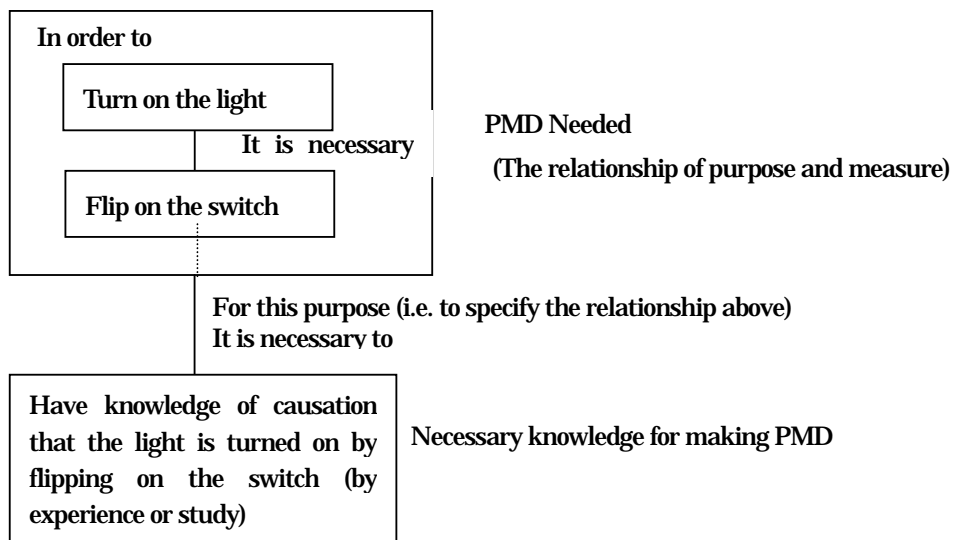


Figure 4 An example of the process in which knowledge becomes wisdom

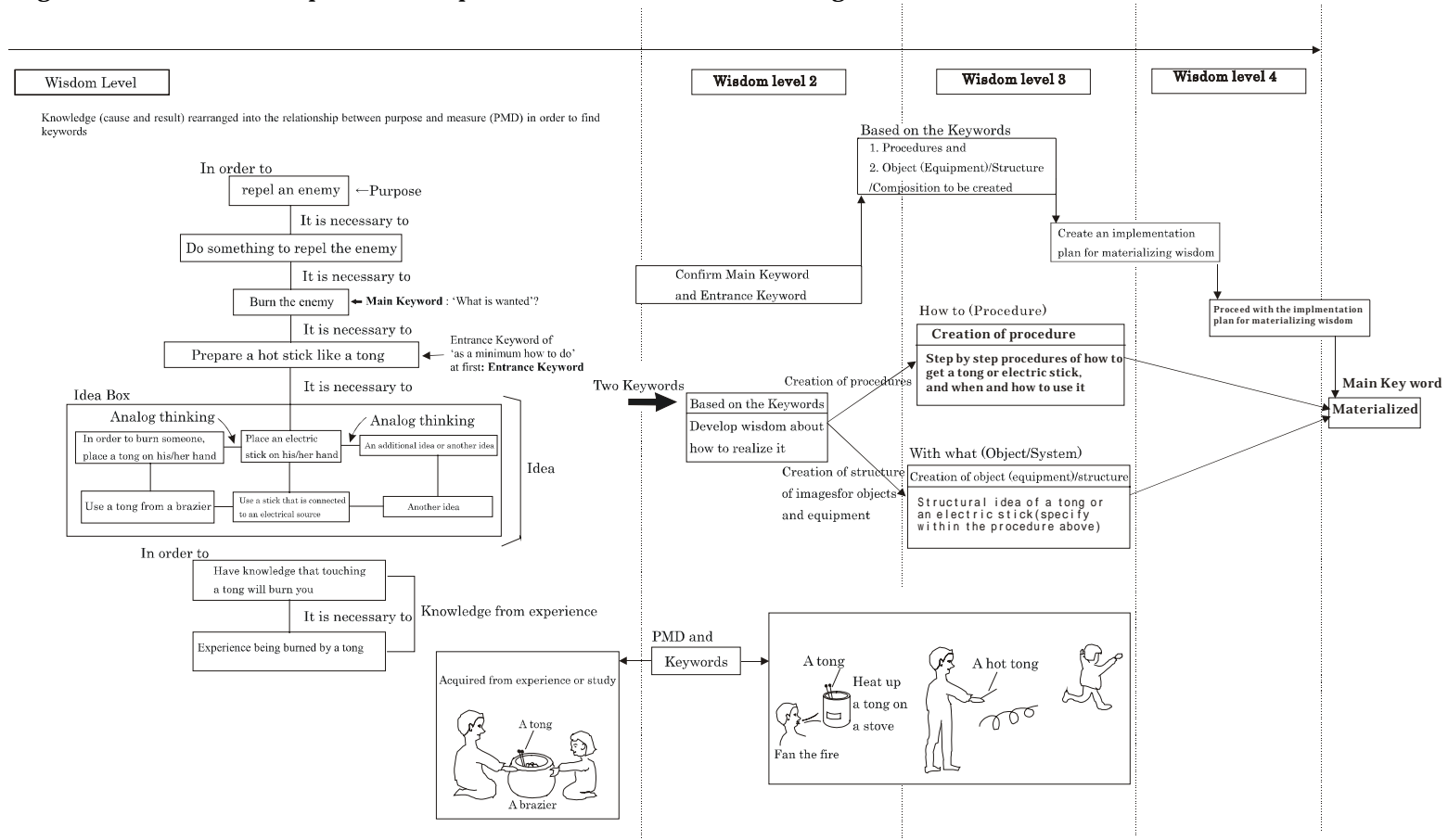


Figure 5 PMD of the Childhood Experience

(You can read this diagram from top to bottom, i.e., “in order to do X, it is necessary to do Y,” or from the bottom up, i.e., “do Y, then do X”)

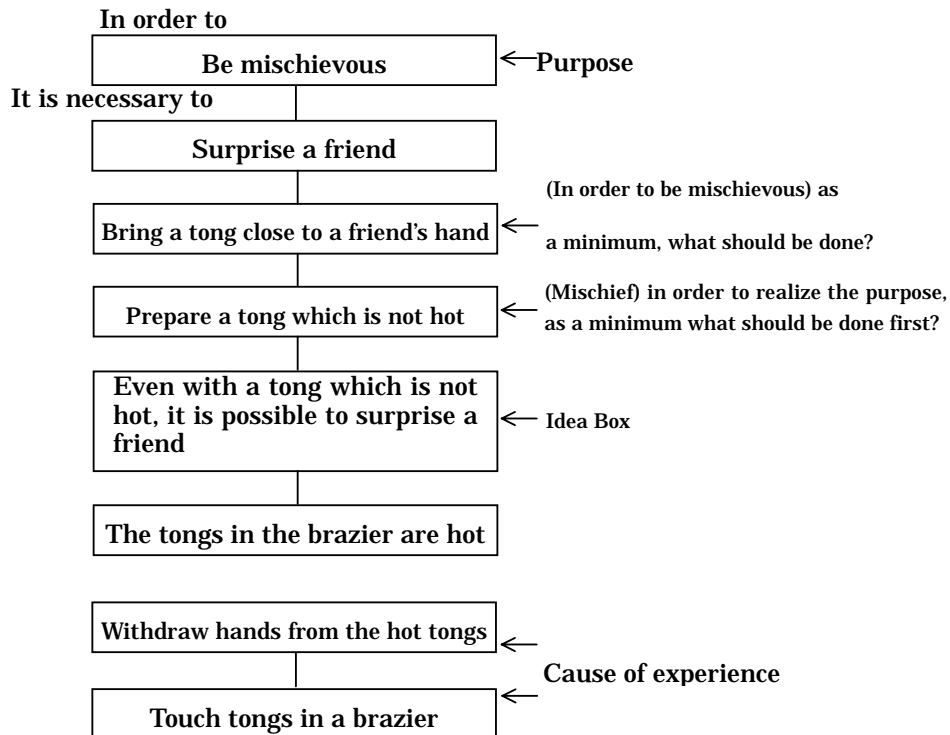


Table 1 Relationships between Having Information (in a broad or narrow sense), Data, Knowledge, Wisdom, and Ideas

Have information (in a broad sense)		Have data	Have information that is not put in useful order (data)		
	1	Have information (in a narrow sense)	Data, which is put in order, becomes information in a narrow sense.		
	2	Have knowledge	1. It measures knowledge of causation (Information of cause and result) 2. It measures knowledge of the existence of 'object AND/OR information in a broad sense' Note: If you know that information of wisdom exists as below, then it is the same as 'having knowledge'.	Have knowledge from learning	Have knowledge acquired by learning, such as reading or hearing information in a narrow sense
	3			Have knowledge from experience	Have knowledge acquired by experience
	4	Have Want(s) Need(s) Seed(s)	(1) "To have want" means to have the purpose or desire of something to do (2) "To have seed" means to have the seed information which will create the New purpose and something to do with or for it. (3) "To have need" means to have the just realizable result which is necessary to the upper purpose or want.		
	5	Have wisdom	1. It means having knowledge and understanding two Keywords in 'the relationship between purpose and measure': 1) the Main Keyword of 'what is needed to realize the want'; and 2) the Entrance Keyword of 'as a minimum what should be done first' in order to get what is wanted or needed. 2. 'Having an idea' is the ability to think of or notice measures of comparable things or processes in order to fill a gap in 'the relationship between purpose and measure' above. This is also an aspect of 'having wisdom.' Ideas consist of 'ideas of procedures' and 'ideas of structural images of objects (briefly, ideas of objects)'. Note: One method for working something out in order to acquire wisdom is DTCN/DTC Methodology.' This methodology includes the 'PMD Method for defining the relationship between purpose and measure and for understanding the Main Keyword and the Entrance Keyword,' and methods to deepen the level of this wisdom; The 'Method of Steplist Management' and the 'Method of 3-5 Phased Improvement for creating procedures' and the 'FBS Technique for creating image structures of objects,' etc. All these methods and techniques actualize the means which people having wisdom traditionally use unconsciously.		
6	Have New knowledge after implementing the wisdom	After getting or during getting the objective result by implementing the wisdom above, we are able to become to explain the causation from wisdom. This causation is the exactly new knowledge. This new knowledge will be return to knowledge box of No.3 of this table. By doing this we can get the cycle of wisdom to knowledge, knowledge to wisdom. This is the wisdom engine cycle. Fuel for this engine is knowledge. To start this engine we have to have to make PMD(Purpose measure Diagram) Which is created from want or need or seed.			

Figure 6 Traditional Paradigm of CALS Electronic Interface

Conditions for Communicating with Integrated Database structure

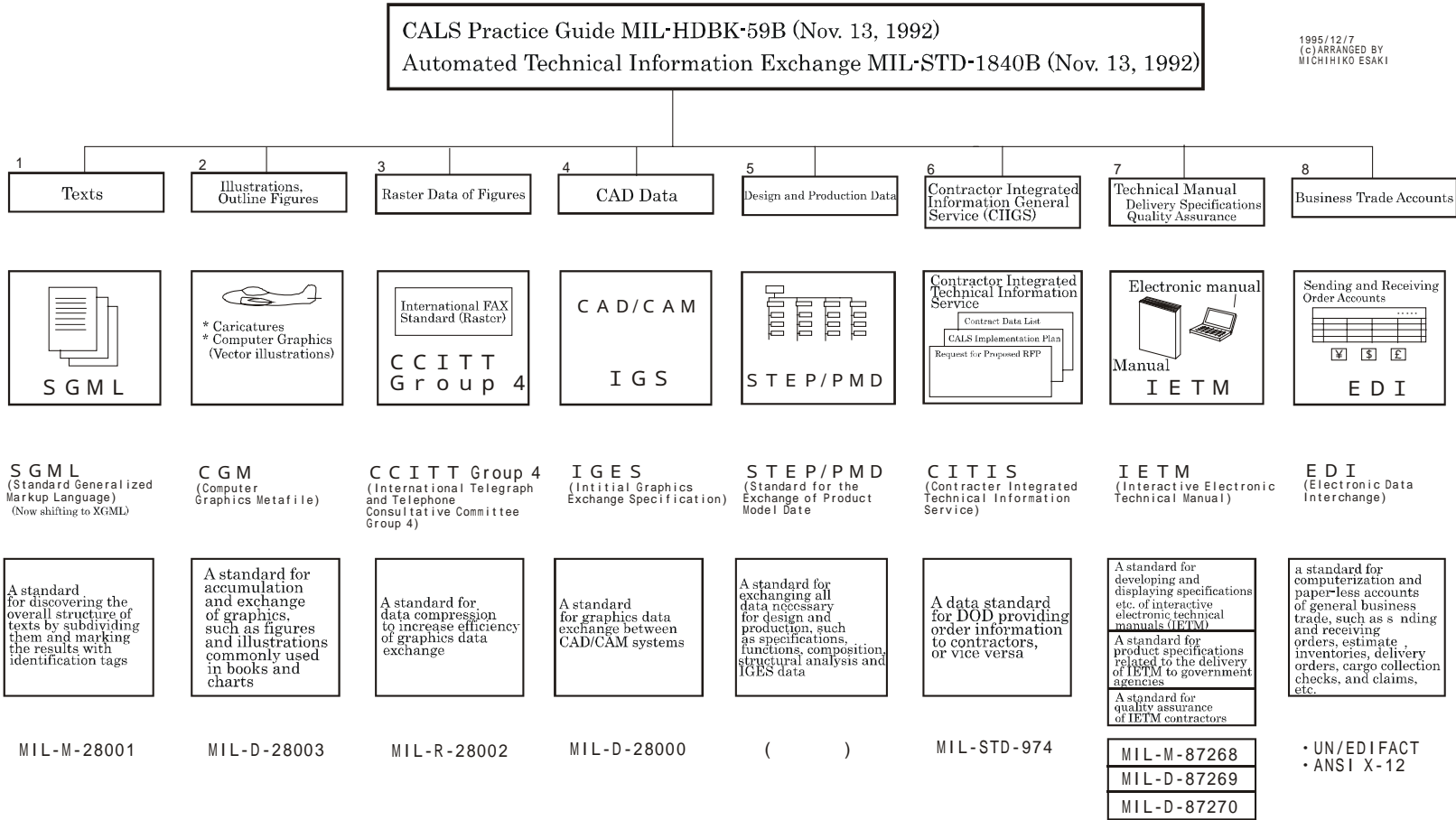


Figure 7 The structural Image of New CALS for Increasing Producibility of Information (Knowledge, Wisdom) in an Electronic Information Society

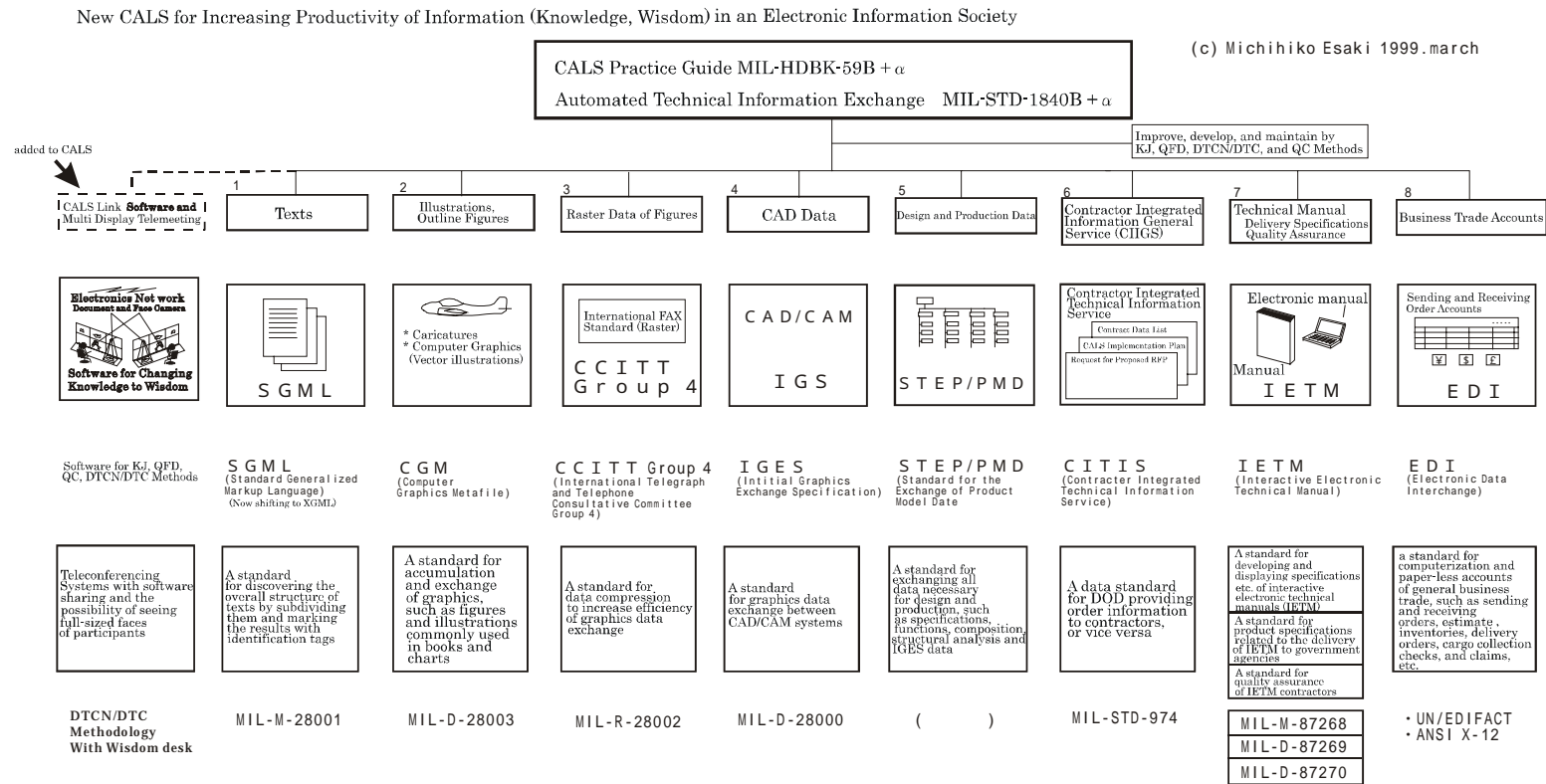
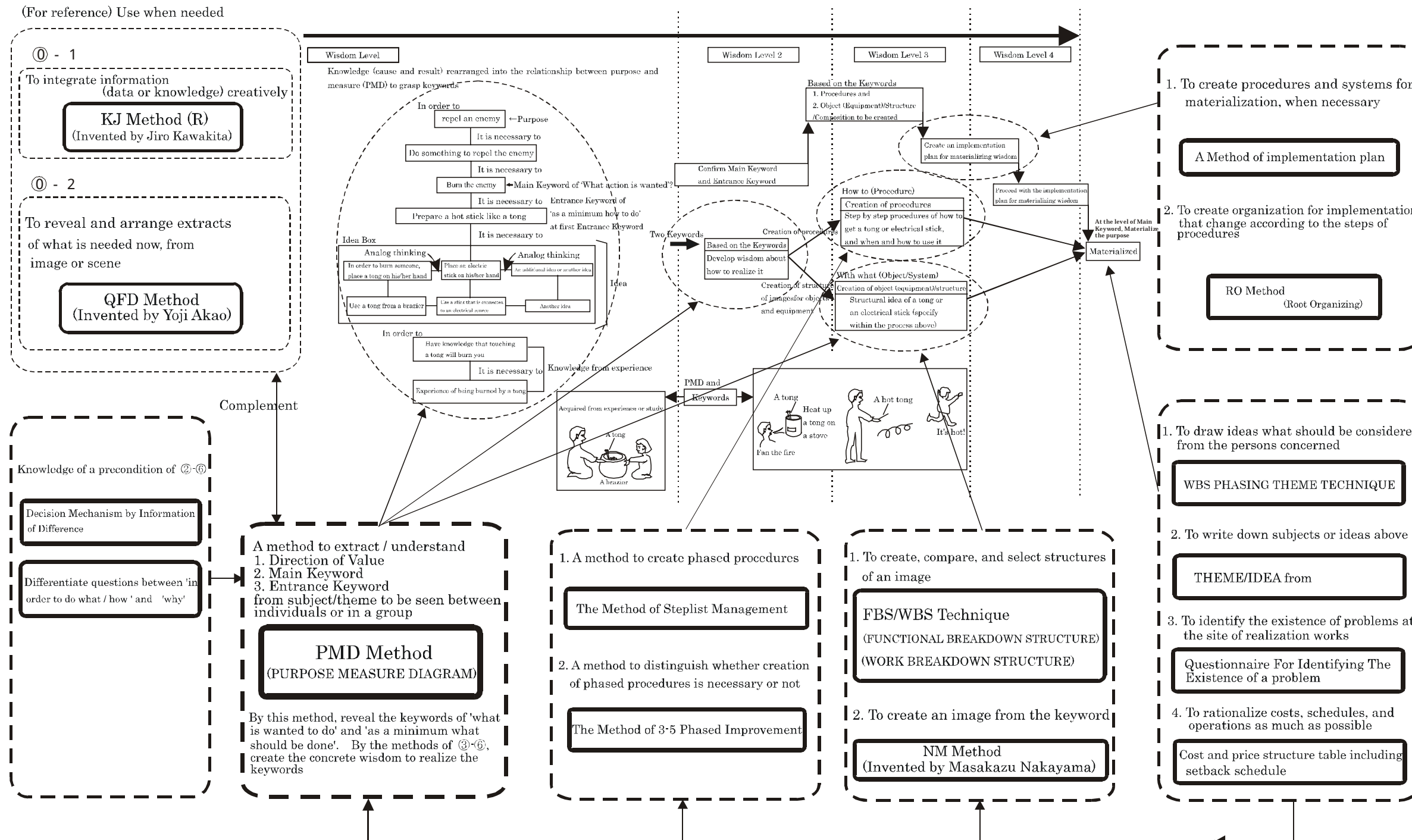


Figure 8 The map of the Relationship between KJ Method, QFD Method, NM Method and DTCN/DTC Method(Advanced Project management Methodology)

The Overall Relationship of Methods (Idea and Procedures) Necessary for Changing Knowledge to Wisdom



Methods of ①-⑥ are called 'Advanced Project Management Methodology' (Methodology of DTCN/DTC).
DTCN/DTC: Design to Customers' Needs/Design to Cost

(c) Michihiko Esaki (inventor) Aug.- Oct. 1999
(Adjusted with Dr. Kawakita on Sept. 25, and Dr. Akao on Oct. 9, Dr. Nakayama on Oct. 30)

Figure 9 The Structure concept of purpose Measure to increase the Producibility of Information (Knowledge an Wisdom) in an Electronic Information Society

