

Preface to the English Edition

Another name for this methodology is “the DTCN/DTC (Design to Customers’ Needs/Design to Cost) Methodology” or “Wisdom Management Methodology with Wisdom Engine.”

This book is a book of methodology, which produces a creative and active ‘soul and spirit’ of creative management in an organization or person.

In this book, the word of methodology means “Way of Thinking and its procedure for any theme or subject.”

1. Why this book was written

In order to produce a creative and active ‘soul and spirit’ in management or other activities, e.g., for changing Knowledge to Wisdom in an organization or person, the author shares them the information and knowledge of new methodology, which he developed, from 1973 to 2001.

The Japanese Ministry of Education and Science provided a grant-in-aid for the Publication of scientific research to publish this English book.

The author gives the following information to readers all over the world in this book.

Note:

The first Japanese original version of this book was published in 1984 as the New thinking and its procedures for Design to Cost.

The second Japanese version of this book was published in 1997 as the Advanced Project management methodology for Design to Customers’ Needs / Design to Cost by creating the same view of value and procedure among the people concerned.

Methodologies in the third version of this book (2001) include the Method for changing Knowledge to Wisdom as appendix G and other author’s new methodologies, which were developed since the publication of the original book in 1997 in Japan.

2. What is included in this book?

- (1) An understanding of the “Decision Mechanism by Information of Difference” which is usually done unconsciously.
- (2) A visible method by which we can:
 - a. create or show a direction of value or a consensus among the people concerned (including ourselves), using a vertical form of repeating “in order to do XX, how to do YY” from top down on paper.

b. focus on and grasp the most appropriate expression level of “Must do” in order to reach the objective result as “ the main key word expression.”

c. grasp “the entrance key word expression,” which is where we have to start in order to realize the objective result of the main key word level.

This method is called “PMD (purpose-measure-diagram)” or “the method of key word.”

(3) A visible method to create the faultless phased procedures in the series of logical events to realize the objective result to the extent physically feasible.

This method is called “Steplist and 3-5 Phase Improvement Method.”

(4) A method to create the things or system structures of objective results which we want to have.

This method is called the FBS (Function Breakdown Structure) technique.”

(5) A method to rearrange an the organization in order to start new things, providing improvements over the conventional committee and task theme team system to prevent the hindrance of progress.

This method is called “the Root binding method.”

(6) A method of making an effective implementation plan document by combining the above method, in order to realize the objective results effectively.

This method is called “Implementation plan document method.”

(7) A method of adding cost factor and using the above methods:

a. furthers the targeted cost and performance design during the development and design phase.

b. reduces costs during production, logistics and operation phase.

c. creates new customers’ needs and their markets.

d. also creates ideas to improve the quality of things and processes by combining and supplementing conventional quality improvement method (e.g. QFD and TQC).

This method is called “DTCN/DTC Methodology.”

(8) The method to create new thinking and an idea exchange idea place to creatively work together with people in engineering, accounting and management, and others.

This method is called the “Engineering Accounting method.”

(9) Based on the above methodologies, this book introduces the method for changing knowledge to wisdom with a wisdom engine for the first time in the world.

(10) This book also introduces the minimum and effective knowledge and understandings/recognition to proceed with the above methodologies with an accompanying episode which relates to a new area of applied psychology.

3. What function and benefits a reader can get through this book.

The following are the examples:

- (1) When you are uncertain of where you can start ;
- a. make a PMD(Purpose Measure Diagram) using the PMD Method, in the style of vertically ordered expressions in the sense of repeating “in order to do XX, it is necessary to do YY.”
 - b. then, you can grasp the expressions of the upper abstracted purpose levels, at the implement key word level and entrance key word level, where you start.

This diagram shows the direction of value of what you are going to do.

- c. Understanding this direction of value, you can make a faultless phased procedure in the sense of having phased input and output with assurance activities and conditions between them using the “Steplist Format” in this book.

- (2) There are many conventional and new methodologies.

But many people don't know what and how phased preparation is necessary to use them effectively and appropriately.

You can allocate these methodologies depending upon the direction of value which you are going to effect using the “PMD method” and “Steplist method.”

In order to effectively use any tool, method or methodology, it is necessary to have the most appropriately prepared input materials or information beforehand.

“Steplist and 3-5 phase improvement” in this book provides this function and effect.

- (3) You can solve a problem by doing the above functional activities and by the methods in this book.

- (4) The main suggestions to be understood in this book.

- a. Replace or raise the problem to subject or theme level expression (what you are going to do at this moment).

- b. Replace or re-identify the problem as the conditions expression to realize the objective result of the subject or theme. And make efforts to realize the conditions.

- c. Thus, you can get into the creative and active steps to realize the conditions needed in order to realize the objective result.

By doing the above, you can solve or overcome the problem more quickly and in a smarter style than you ever experienced in the past.

Additionally, if you want to do this more precisely, read “Proper use of questioning for creative thinking and decision making” of chapter 1.3 in this book.

- (5) The above are to create the procedure or phased procedure to realize the objective result.

Very few conventional methodologies provide a means how to create faultless phased procedures having the direction of value or view of value of subject.

The methodology in this book reveals these methodologies, and gives you the functional thinking and procedural tools and effects to overcome any theme or subject to the extent physically feasible.

(6) The Methodologies in this book provide functional thinking and structuring tools to effectively create the structure of objective results.

They are more visible and comprehensive in style and structure than any other methodology.

(7) Based on the above, the methodologies in this book have the function of integrating and combining together with other methodologies in effective procedures and supplementing other methodologies in terms of creativity, cost, and quality.

4. The structure of the book

In order to explain the above contents, the rough structure of the contents of this book is given below:

- (1) Prologue: The minimum recognition to understand the methodology
- (2) The seven basic methodologies
- (3) Some examples of deploying the basic method to complicated matter.
- (4) Related methodologies
 - (5) Reasonable price and its standards for making decision or reaching agreements between two parties.
 - (6) How to proceed with DTC (Design to Cost) by using DTCN methodology.
 - (7) How to proceed with Design to Cost for unit production cost.
 - (8) How to proceed with Design to Cost for development cost.
 - (9) Future prospects of this methodology as of 1995
 - (10) Acknowledgement regarding the doctoral dissertation
 - (11) Appendix to help the DTCN/DTC methodology and additional methods and methodologies derived from the DTCN/DTC methodology.
 - a. NM method to create the image of an idea from key word (invented by Mr. Masakazu Nakayama)
 - b. Supplemental thinking and methodologies to deploy and complete the objective of DTCN/DTC methodology.
 - c. A copy of MIL-STD-499A; engineering management.

This standard has been deleted by the Department of Defense. However, this standard is a very effective tool, if it is tailored as necessary for the development design/testing and evaluation stage of the upper stream phases of the ISO 9000 standard.

 - d. A success story of DTCN/DTC methodology in 1990.
 - e. Examples of implementation plan documents and related effective formats.
 - f. A one page explanation of DTCN and DTC using DTCN methodology.
 - g. A method for changing knowledge into wisdom with a wisdom engine.
 - h. A procedure and visible format for abduction, verification, evaluation and decision making of future

matter and past matter.

- i. A self organized flow chart to create and improve the goods, product, service and market with multi-screen wisdom desk, also combining QFD DTCN/DTC, TRIZ and Taguchi method.
- j. The relationship between QFD, VA/VE, and DTCN/DTC.
- k. The method of management /accounting using reversal positioning of journal format.
(a method to create co-operating thinking and work place among science/engineering and management/accounting people).

5. Special note to proceed with design to cost by using DTCN (Design to Customers' Needs) methodology.

The following are the differences between DOD the U.S. style of design to cost and the Japanese style of design to cost.

- (1) The success level will be greatly affected depending upon whether there is a reward.
- (2) To be successful :

Use "Design to Cost" in cases without reward money.

Give only the activity money expense with the implementation plan created by the DTCN/DTC methodology in this book by contract.

This is because, if an award money contract exists, the people concerned in that project on the contractor side will hide good ideas until a lot of award money can be obtained by proposing good idea. However, if a good idea is proposed at later phase, it is possible to cause another problem or trouble from the standpoint of integration, compatibility and re-test and evaluation.

- (3) For a long time, researchers believe that there was a rule, "if cost is reduced, performance must be lowered."

In this sense, they believe that there is a trade-off between cost and performance.

However, we have found many examples where "cost was lowered and performance was kept or increased," after we proceed with design to cost activities with activity expenses paid.

There are very few cases where performance has to be lowered to reduce the cost.

The US paper refers this to "CAIV" or "Cost as Independent Variable."