Appendix I

Self-organized flow chart to create and improve goods, products, services, or markets using a multi-screen wisdom desk (combining the QFD, DTCN/DTC, TRIZ and Taguchi Methods)

Abstract

The relationship and how to combine QFD, VE/VA, and TRIZ methods, and a technique to combine them, have not been presented.

This paper reveals the new, self-organized flow-chart to combine QFD, TRIZ and Taguchi using DTCN/DTC Methodology developed by Dr. Esaki.

Using this flow chart, the full and extensive use of QFD method to create products, services, and markets for customers' satisfaction will be realized very practically.

The multi-screen wisdom desk and network system are the platforms for these methodologies and flow chart.

A full explanation of the DTCN/DTC Methodology appears at URL: http://ims-web.asahi-u.ac.jp/ims09

1. **The interface WEB design lets customers feel their need when it is shown before their eyes or they look at the WEB design : Figure 1 (Patent pending).**

Fig.1 show the WEB design concept which consists of the five frames shown in Fig.1.

This WEB design concept is an effective design to create the customer's needs on an internet WEB site, television screen, news paper column, or seal or “wappen” design attached to good or services.

Following are the explanations of each frame.

Frame ①: This frame is the interface to create

A. This interface window lets customers feel their need or create their need by himself or by themselves when it was shown before their eyes or they look at this.

This is the little different entrance window from which customers reaches what he or she wants, using the menu by “knowing the goods name" which he or she already have need for it before he look at the window.

However, this window is also effective after he or she entering to the window using the menu by “knowing the good name” which he already have need for it before he look at the window.

B. The purpose of showing pictures of two similar products in the same frame is to let the customer have the information of difference by comparison before buying the product, according to the decision mechanism by information of difference. (See chapter 1.2)

This comparison style will not let customers compare the two plans of "Buy" or "Not Buy" the products shown.

Frame ②: This frame consists of four key words.

(1) The key word of upper purpose which means “in order to . . . . ”
(2) The key word of what customers can do. This key word expression level is the basic function level which shows the product's effectiveness to the customer.
(3) Key word to show "In what Scene" or "In What Process or Procedure".
(4) Key word to differentiate the products from other supplier’s products, letting the customer decide to buy the products shown.

Frame ③: This shows the structure, and material of these products, and a brief procedure for using them.

Frame ④: When the customer clicks this frame, the following contents appear.

A. The supplier's policy for these products.
B. The presentation of customer's comments, suggestions, and action taken for claims from customers.

Frame ⑤: This frame shows the procedures and conditions for buying the products..

2. **A self-organized chart to create and improve goods, products, and services (QR/WECQDR flow chart): Figure 2.**

QR: Quick Response, **W**: What, **E**: Easy to look at, to decide, to buy, **C**: Cost and Price, **Q**: Quality, **D**: Delivery, **R**: Risk, Recycle

The purpose of this flow chart is used to organize and maintain the effective function of the WEB interface between supplier and customer shown in Fig.1.

The purpose-Measure Diagram of this flow chart is shown in Fig.3 using the style of a purpose measure diagram (See chapter 2.1 of this book).

Each block in Fig.2 is part of the flow of **DTCN/DTC (Design To Customer's Needs/Design To Cost)** activity, to create and maintain an effective manufacturing process, to proceed with effective sales activities and to get feed back from customers.

This flow chart shows where PMD, KJ, QFD, TAGUCHI and DTCN/DTC methodology can be used effectively in this flow chart.

With this flow and feed back flow as the baseline, we can keep, deploy and develop the self-organized system to create and improve goods, products, and services for the customers.

3. DTCN/DTC Trade **Work Sheet Figure 4.**

Using this DTCN/DTC work sheet, we create and choose the products or services to be shown in the WEB interface of Fig.1. The evaluation work using this DTCN/DTC trade worksheet includes the evaluation item from standpoint of Robustness and Taguchi method. (See also block No. 9a and 9B in figure 2)

4. The desk space for changing knowledge to wisdom (Pat. Pending): Figure 5.

Fig.5 show the continued multi-screen desk (Continued multi-screen means that it can be used as one continued screen or independent screen in which one mouse pointer moves around in all screens). Using this desk we can effectively implement the work for sections 1～3 above and the project management.

Multiple computer screens are hung from the desk's shelf, so that the entire desk space can be used (because there are no legs of computer screens on the desk: Patent pending).

The multi-screen computer contains the **PMD** software for creating value in visible form, the **Step List** software for creating faultless phased procedures, and the FBS (Function Breakdown Structure) software for creating effective objective result structures. By combining these programs with conventional market software , we can effectively utilize the method for changing knowledge to wisdom, DTCN/DTC and the Advanced project management activities.(As of 2001August)

5. The combination with TRIZ and TAGUCHI

The combination use of QFD, DTCN/DTC and TRIZ can be conducted as follows.

(1) Using the PMD Method of the DTCN/DTC Methodology, visualize the function level expression in which two or three functions with minimum adjective and adverb conflicting each other, to satisfy the upper level function expressions adjective and adverb which are extracted by QFD method.

(2) TRIZ method is used to optimize or integrate this conflicting functions.

(3) Then, we create 2 or 3 comparable draft plan by using TRIZ and/or FBS technique with idea matrix column in the trade study work sheet of DTCN/DTC in block No. 8 of Fig.2 to integrate and optimize the answer from TRIZ to satisfy the upper level expression functions in PMD above (1) which are extracted by QFD Method. After this, get the robustness using TAGUCH method, if necessary.

(Note) The **VE/VA** basic instruction rule says that a function expression using Verb +Noun should not have adjectives or adverbs. This rule is very effective to review and improve the Function/Cost of existing things (products or service) or plan drawings we already have.

QFD and **DTCN/DTC** require a minimum of adjectives and adverbs in the expression of the function.

6. Summary

In this paper, we showed how to use QR/WECQDR procedure flow charts for PMD,KJ,QFD,

DTCN/DTC, TRIZ and TAGUCH to create the self-organized improving and creating market. Combining QR/WECQDR procedure with TQC will create the more things than conventional TQC alone.

Ref.

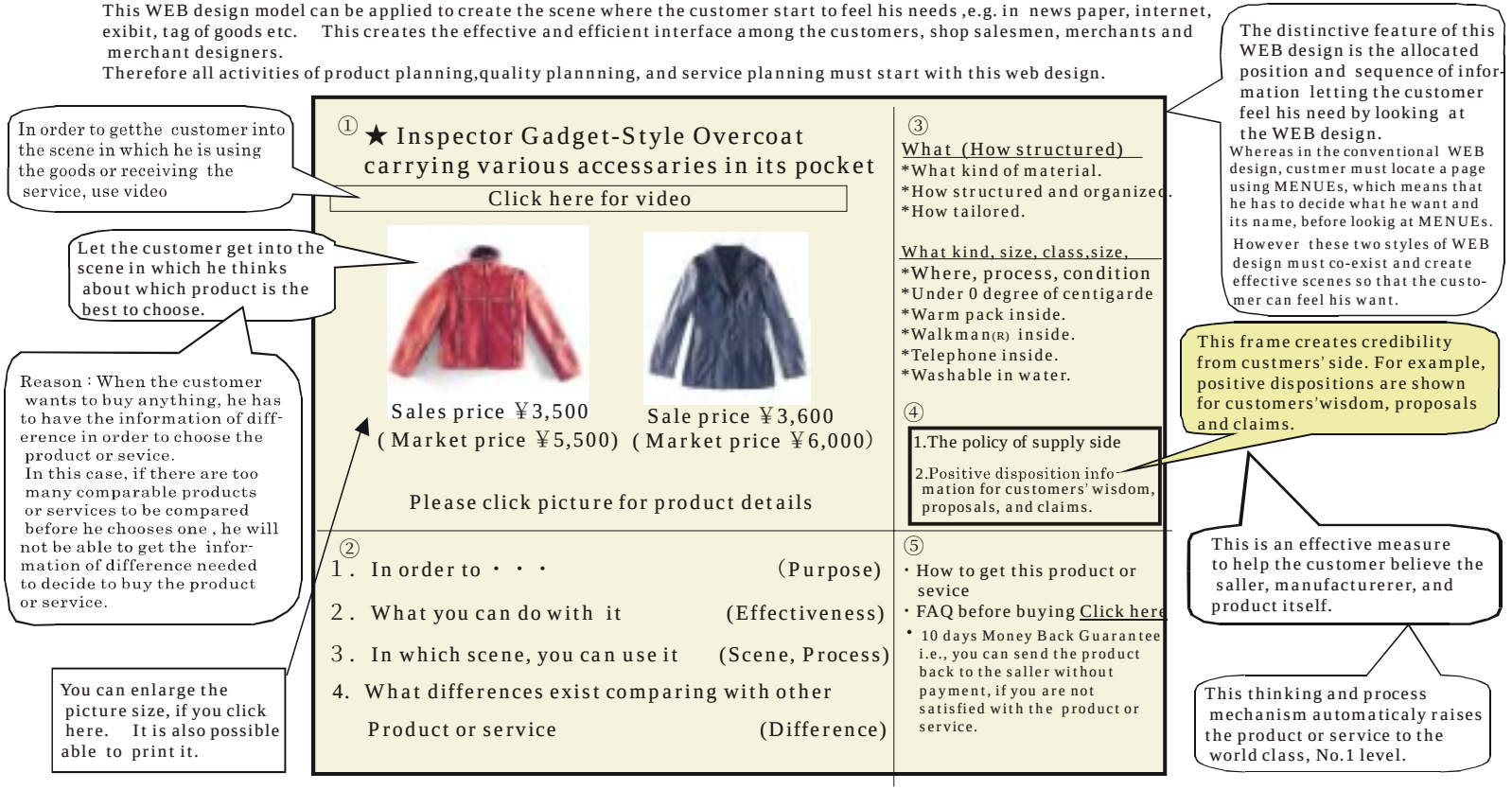
[1] :Esaki. M. Advanced Project Management Methodology (DTCN/DTC Method) with the Method for changing Knowledge to Wisdom, International project management conference, Tokyo 2001.
The full contents of this methodology appear at URL: http://ims-web.asahi-u.ac.jp/ims09/

Figure 1. The Interface WEB design model: (Patent Pending.)

Letting the customer feel his or her own need when looking at the Web or when WEB is shown before customers' eyes.

(Also including ways to let customers become aware new uses for the product or to create new effective value with it)

This WEB design model can be applied to create the scene where the customer start to feel his needs ,e.g. in news paper, internet, exibit, tag of goods etc. This creates the effective and efficient interface among the customers, shop salesmen, merchants and merchant designers.
Therefore all activities of product planning,quality plannning, and service planning must start with this web design.



Identify this interface web design as the starting point of any interactions among the customers and the supply side, i.e.,sallers and manufacturers of product or service people. © Michihiko Esaki 2000/9/30

Figure 2: A self-organized chart to create and improve goods, products, and services (QR/WECQDR flow chart)

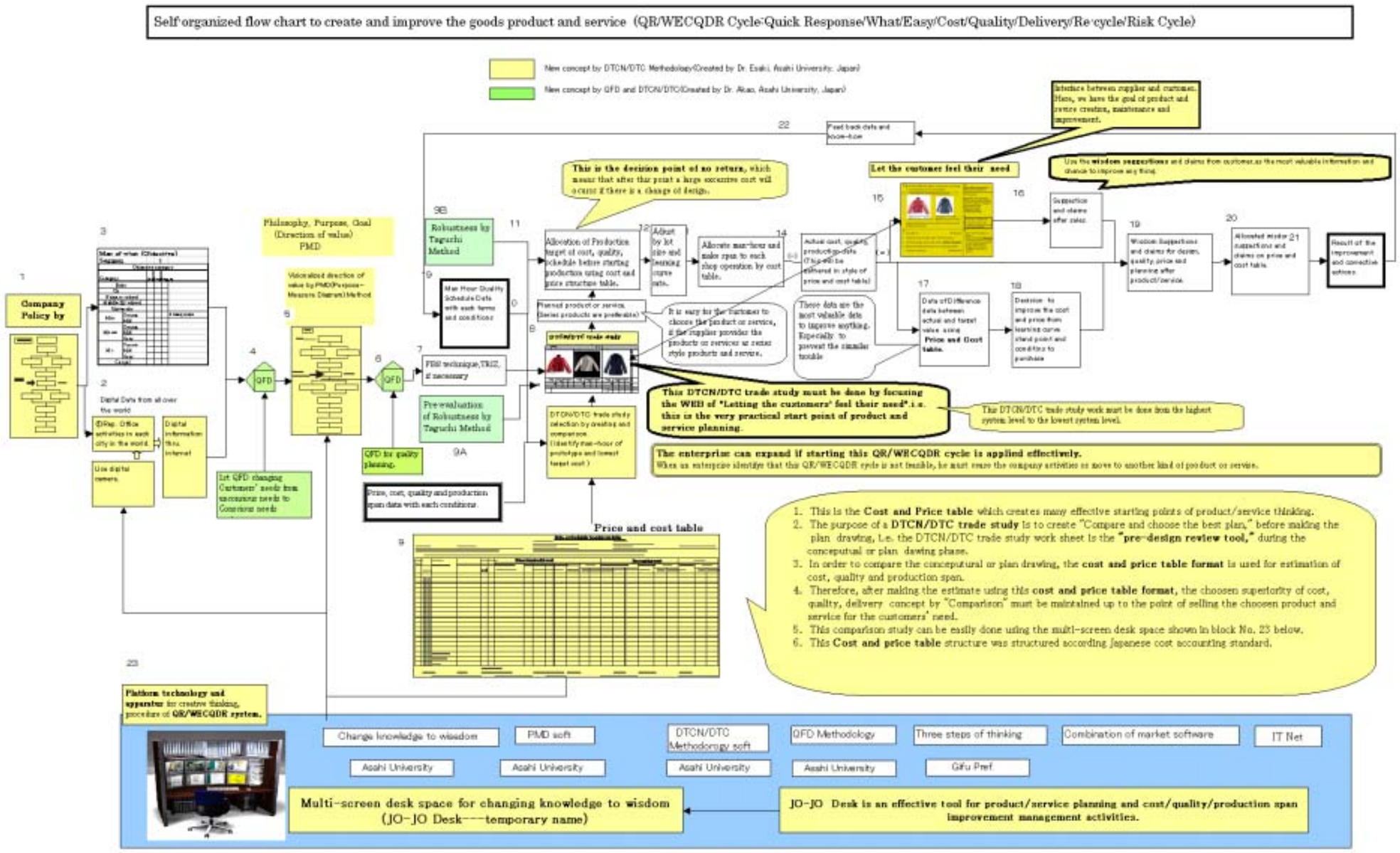


Figure3: PMD (Purpose-Measure Diagram) of Figure 2 Flow chart

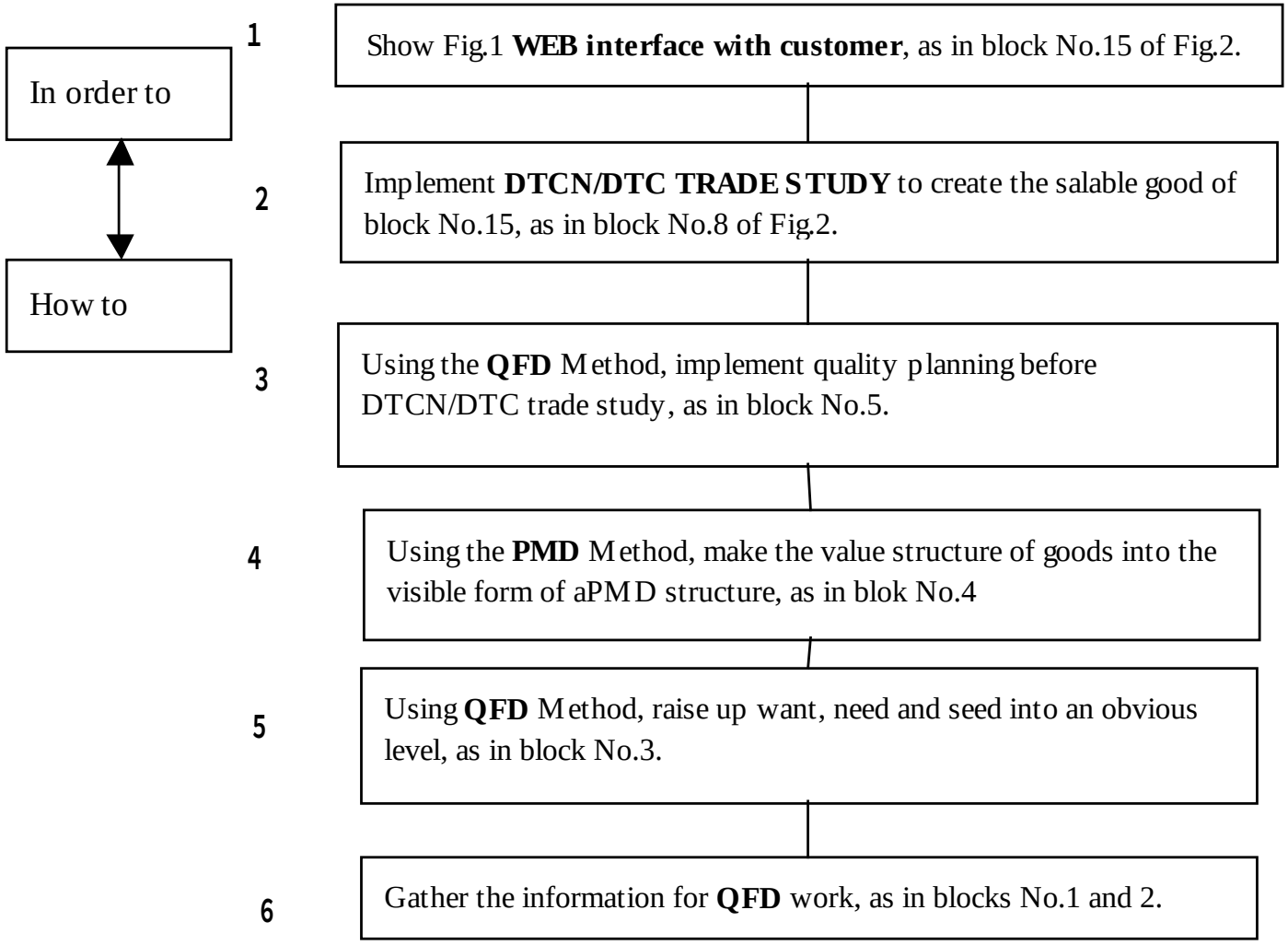
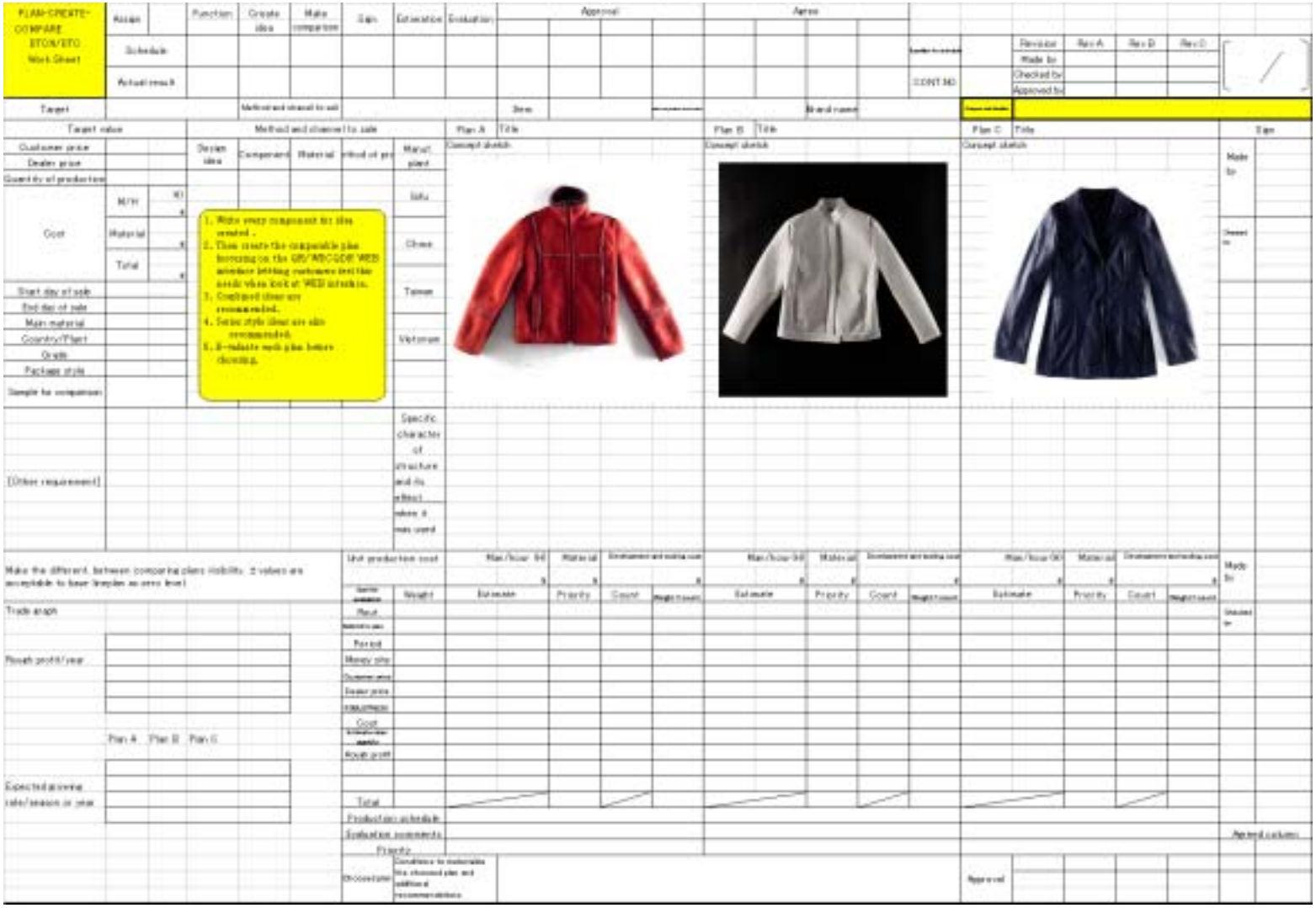


Figure 4: **DTCN/DTC Trade Work Sheet** Using this DTCN/DTC work sheet, we create and choose the product or service to be shown in the WEB interface of Fig.1



19-Appendix I R4

Figure 5: The desk space for changing knowledge to wisdom (Patent Pending) This desk is available for purchase through the Gifu Computer Service Co. (Tel: +81-583-71-2977, Mr. Sasaki or +81-3-5634-6728, Mr. Matsuda).

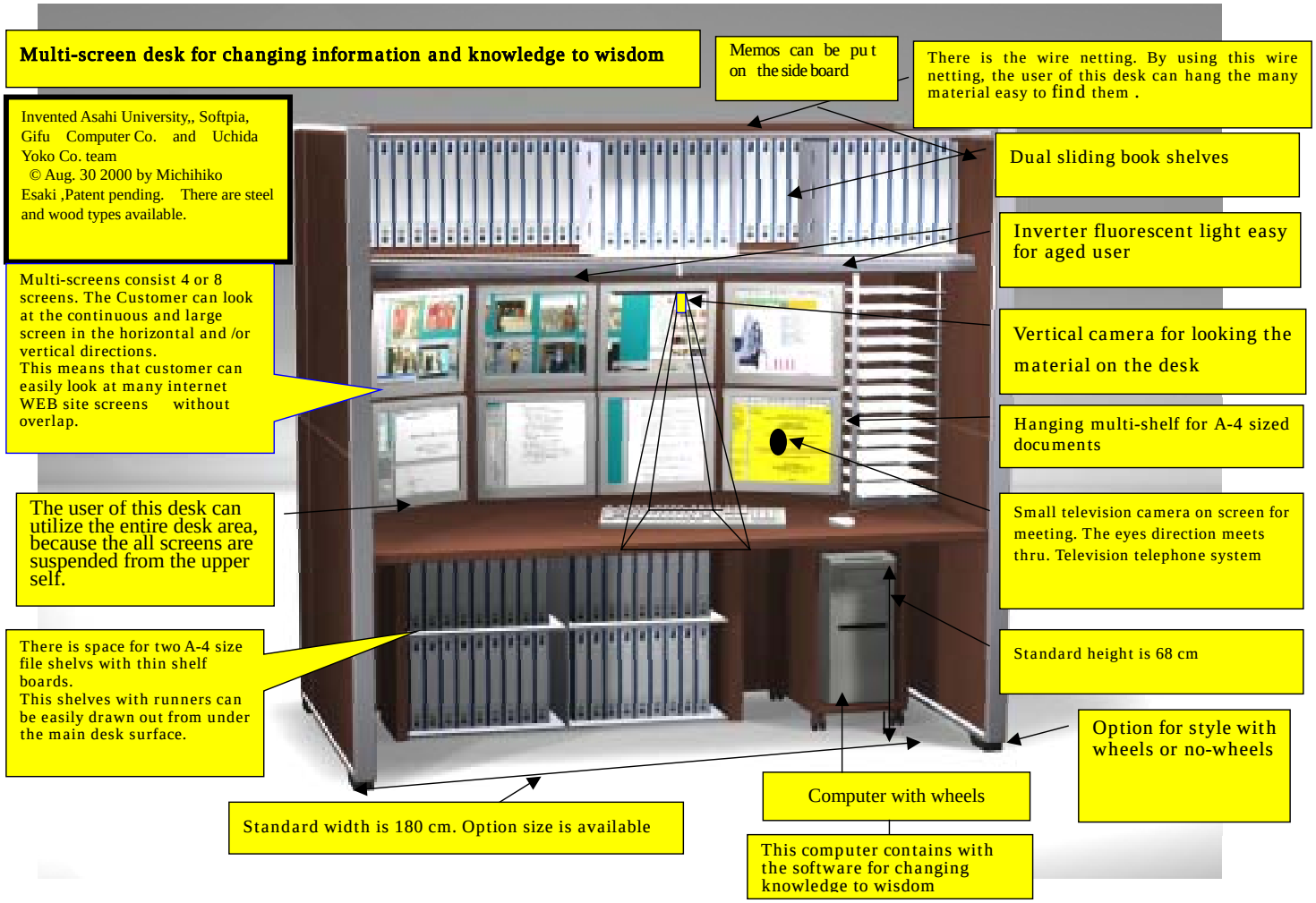
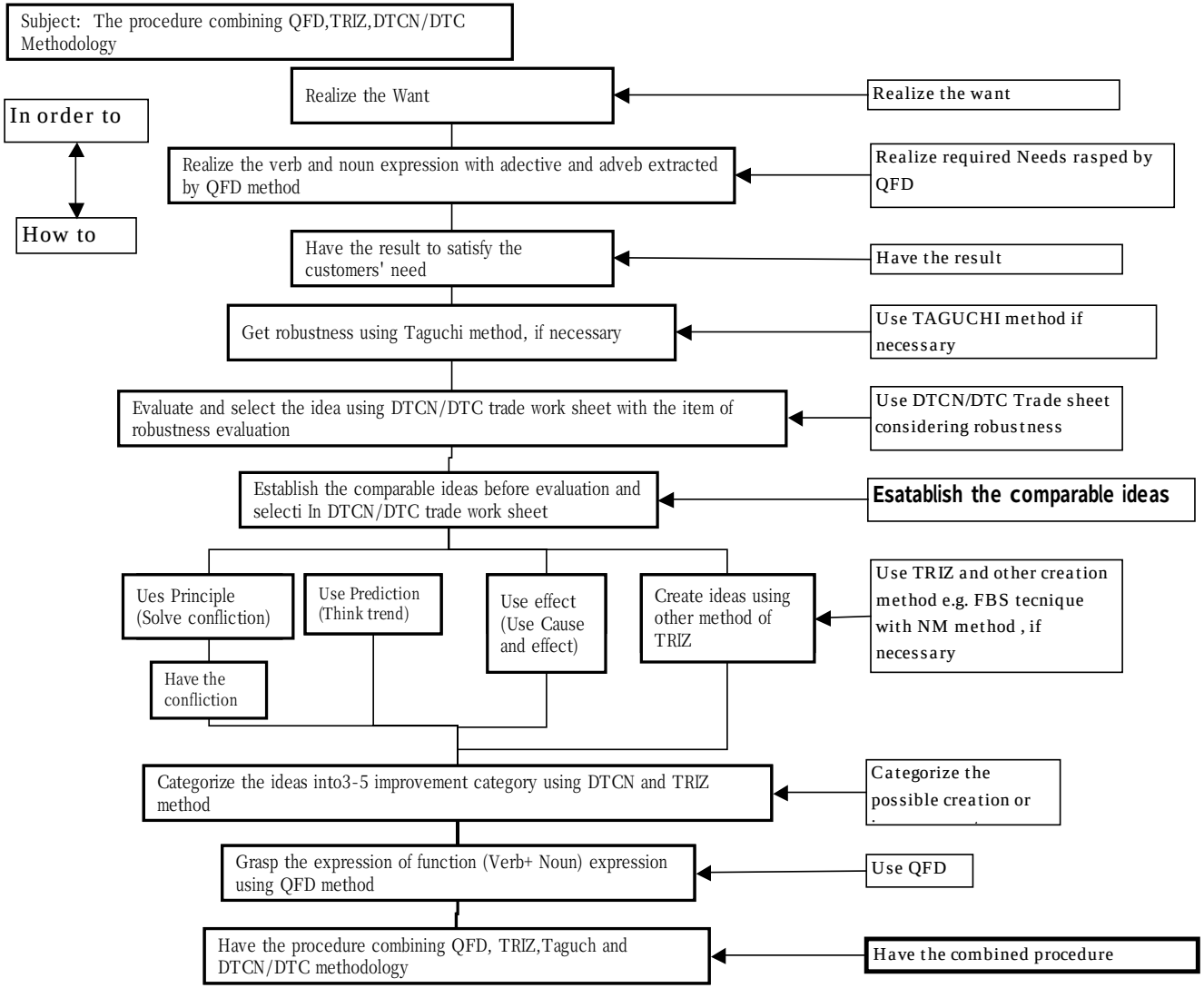



Fig.6 PMD: Purpose Measure Diagram for QFD,TRIZ, Taguchi, DTCN/DTC