

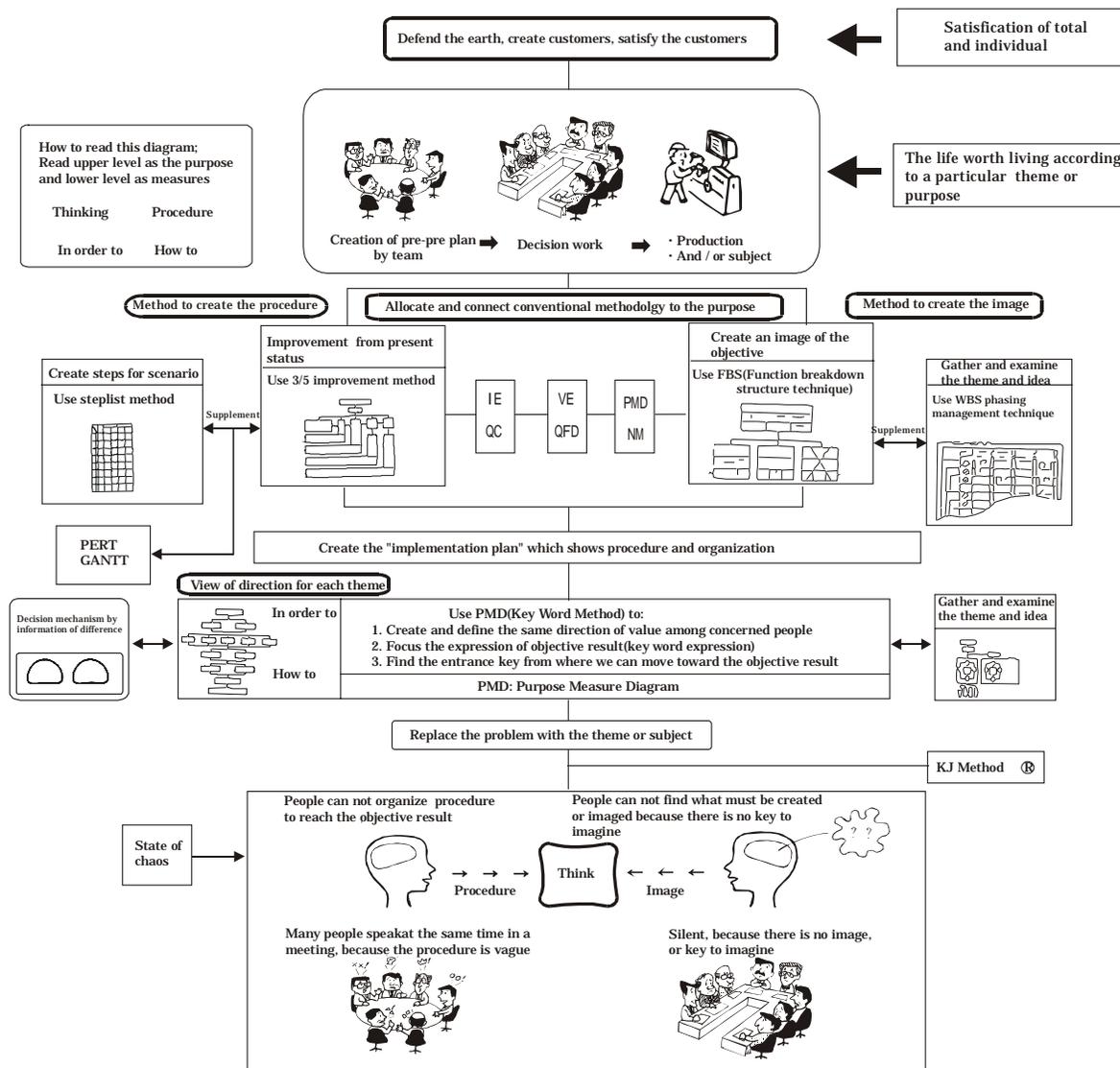
Appendix F

One-Page Explanation of DTCN/DTC Methodology

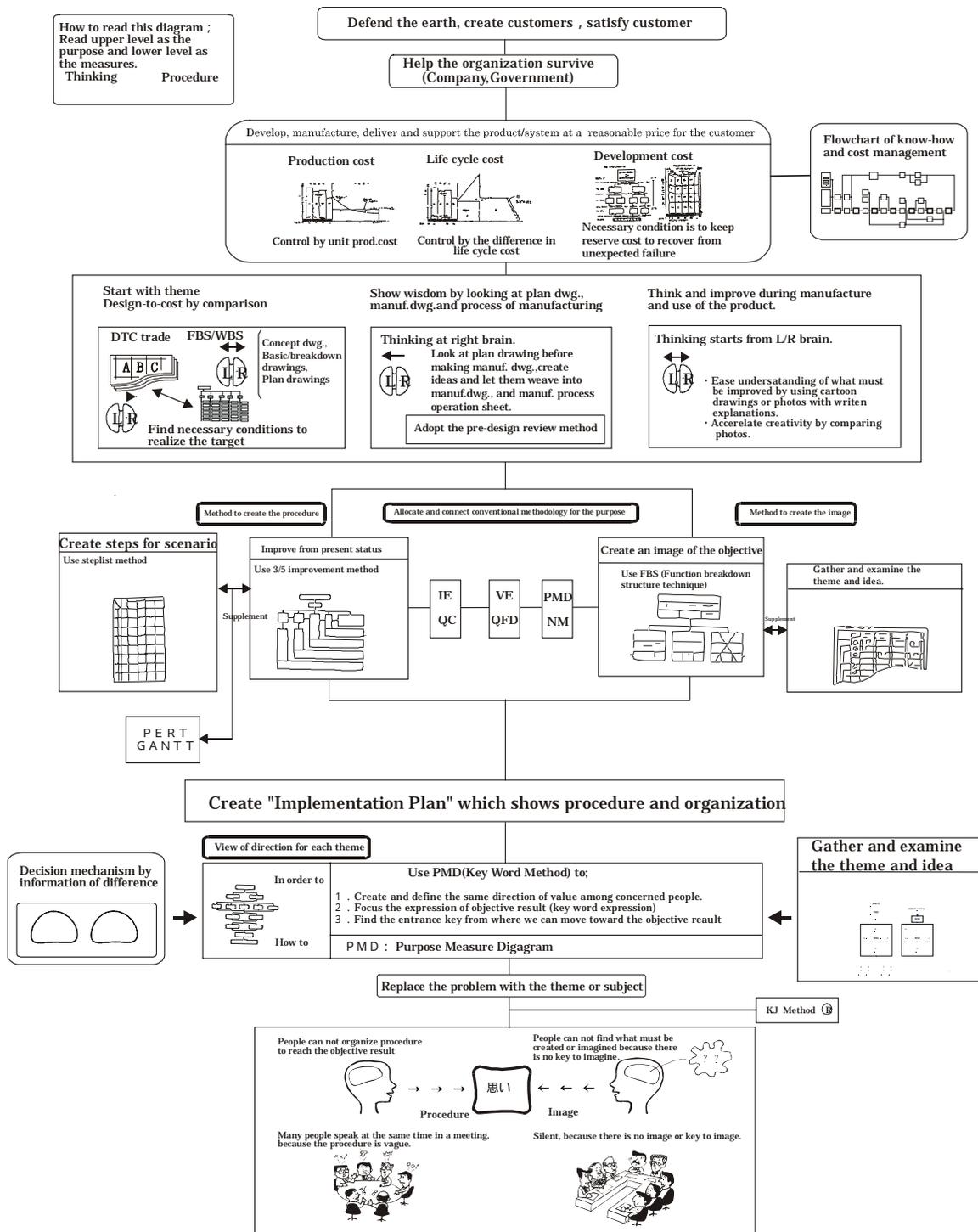
Abstract

Here, DTCN and DTCN/DTC methodologies are explained on one page with regard to PMD and flow of procedures, respectively.

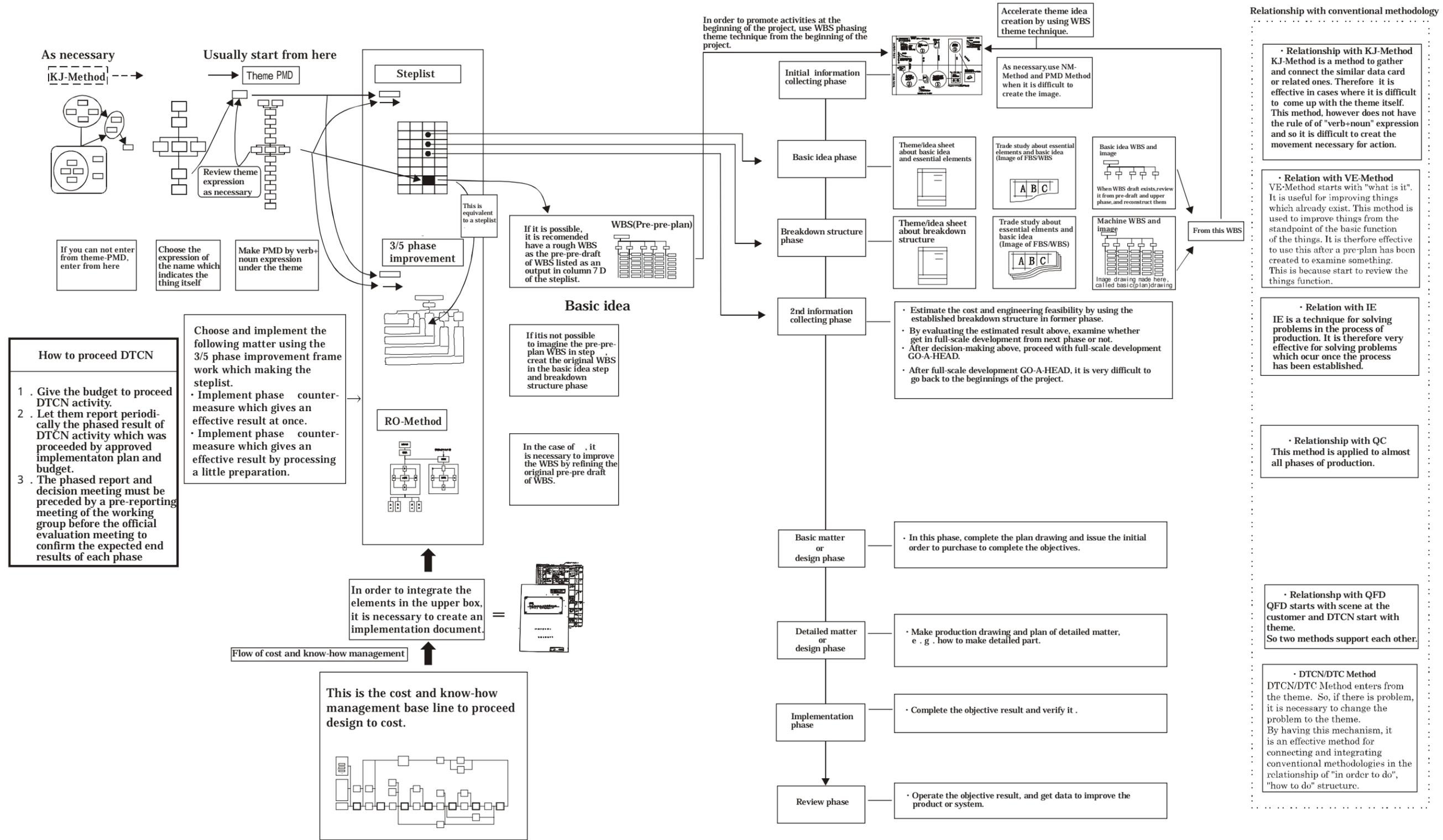
1. The purpose-measure relationship of DTCN Methodology



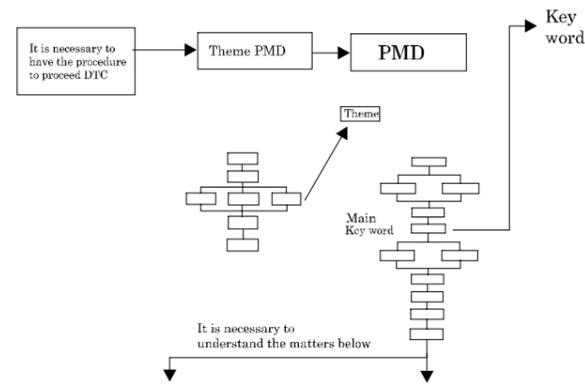
2. The Purpose-Measure relationship of DTCN Methodology.



1A. How to proceed DTCN(Design- to Customers' Needs)



2A. How to proceed DTC using DTCN methodology.
How to proceed DTC (Design-To-Cost)



<p>Minimum knowledge to proceed DTC</p> <p>Decision mechanism by information of difference</p>	<p>Imagine how to proceed design to cost</p> <p>DTC for unit production cost</p> <p>During the development phase, reduce the unit production cost by design to cost activity which must be done due to allocated budget.</p>
<p>Six conditions to make a decision</p>	<p>DTC for life cycle cost</p> <ul style="list-style-type: none"> Proceed life cycle cost design by comparing the life cycle cost between two or more plans created Creative thinking parallel with DTC activity of prod. unit cost.
<p>Cost driving factor</p>	<p>DTC of development cost</p> <ul style="list-style-type: none"> DTC of development cost is only effective in later phases of DTC activity In order to proceed DTC of development cost, it is necessary to keep reserve cost to recover unexpected failure costs. DTC of development cost is proceeded in a trade study of purpose and measures and by measures comparison activity using DTC-Methodology
<p>Flowchart of cost and know-how management</p>	

Starting with key word expression

Make steplist and implementation plan with it for phased working procedure, and the reach the objective result.(To realize the objective product with the target cost)

By using phased working procedure, repeat to create the comparative idea of design and choose the most effective one.

No.	Phase	Main work	Key point	Feature of DTC methodology
0	Preparation	<ol style="list-style-type: none"> Divide the eight phases of DTC activities by steplist method Obtain or allocate to proceed DTC activity 	<ol style="list-style-type: none"> Use cost status graph to monitor the total present cost 	<ol style="list-style-type: none"> Create the most appropriate name which shows the itself Get the consensus among the people concerned. (PMD-Method)
1	Initial information collecting	<ol style="list-style-type: none"> Create and get approval of DTC implementation plan Confirm the budget for DTC activity with DTC Implementation plan Collect the necessary information to create a basic idea of the next phase 	<ol style="list-style-type: none"> Create an implementation plan and approve it using the procedure of the Created implementation plan itself Use the framework to periodically report work results by using the DTCN/DTC methodology and activity budget Establish the first present cost by establishing the prospected product Production cost if we design the product conventionally. 	<ol style="list-style-type: none"> A system to approve the implementation plan by the by the created implementation itself. A concrete method to force creative thinking and action.
2	Basic idea	<ol style="list-style-type: none"> Extract the comparative basic ideas, compare them and select. Next find the feasible and necessary conditions to realize them by using the DTC trade study. Identify the target cost 	<ol style="list-style-type: none"> Start thinking from the theme, and create two or more comparative basic ideas. by using the DTC trade worksheet and FBS technique. Next choose the most appropriate basic idea (Level 1 ~ 2) Extract the necessary conditions to reach the objective target cost Accompany the least adverb and adjectives in "Verb + noun expression" 	<ol style="list-style-type: none"> There is a way of thinking to replace the expression of problem with a theme, and then find the conditions to realize the objective result by using this way of thinking. We can have a positive mental attitude and make effort. The effort consists of creating a comparative rough sketch of ideas, thinking about it all day, and using the NM-Method as necessary.
3	Break-down structure	<ol style="list-style-type: none"> Proceed DTC trade study to identify the feasible structure of the basic idea Allocate detailed target cost to each design group 	<ol style="list-style-type: none"> Start with theme WBS, create two or more comparative and structured ideas by using the DTC trade worksheet and FBS technique, to get the most appropriate the idea structuralized idea (Level 3 ~ 4) Extract the necessary conditions to reach the objective result and target cost 	<ol style="list-style-type: none"> Make it easy to create using the feasible and most appropriate ideas by using the least adverbs and adjectives with "verb + noun" expressions to express the function required. Proceed to structure the necessary things to realize the objective result among the people concerned.
4	2nd information collecting phase	<ol style="list-style-type: none"> Adjust the conditions and evaluation to reach the target cost according to the result of the breakdown structure up to former phases Then decide "Full Scale Development GO-A-HEAD" 	<ol style="list-style-type: none"> Finish the test of elemental engineering components, before this phase. Also examine the prospected result and back up method, if there is not finished component test Create the DTC implementation plan(draft) at potential vendor and get promised conditions before selecting the vendor. 	<ol style="list-style-type: none"> This phase is allocated to evaluating the obtained result up to former phase and to finishing the preparation for the next phase, making the decision of "Full Scale Development GO-A-HEAD" Conventional project management method has little vague procedure of this phase.
5	Basic matter or design	<ol style="list-style-type: none"> Trade study work before make the each plan or layout drawing Make a plan drawing of the product/system Make a plan drawing of the jig for production Proceed with the vendor parts comparison and get them to make DTC implementation plan(draft) before selection of vendor parts Then decide the specifications of the vendor parts. 	<ol style="list-style-type: none"> Use technique starting with theme up to this phase, because the plan drawings at this phase are made through the DTC trade study work with theme. Establish and approve the vendor's basic idea thru. DTC implementation procedure at this phase. 	<ol style="list-style-type: none"> After this phase, use conventional cost down methodology used, but continue the DTC trade study work.
6	Detailed matter or design	<ol style="list-style-type: none"> Make the manufacturing drawing according the results of the pre-design meeting on plan drawing to make manufacturing drawing Same as the detailed process of production. 	<ol style="list-style-type: none"> Before making the manufacturing drawings, proceed the pre-design review meeting by looking at each corresponding plan drawing to examine what detailed ideas and recommendations must be woven into the manufacturing drawing among the concerned people, including production people. The control of cost down activity in this phase will be done by monitoring the number of ideas created.(Target number of ideas to be planned in advance) 	<ol style="list-style-type: none"> The target number of detailed ideas to be woven into the manufacturing drawing are monitored by collating the scheduled releasing number curve of manufacturing drawing. Generally the number of detailed ideas must proportionally increase roughly one month ahead of the scheduled release of manufacturing drawings.
7	Implementation and prototype	<ol style="list-style-type: none"> Identify the feasible estimated result to realize the target cost from the actual prototype production result by excluding special factors of the development phase. If there is a difference between the estimation by drawing and the actual result of the prototype, prosecute the cause of difference 	<ol style="list-style-type: none"> Estimate unit production cost from actual cost by excluding special factors at development cost. After this phase, the conventional IE, VE and QC methods are effective. Use DTC trade study as necessary. 	<ol style="list-style-type: none"> Nothing in particular.
8	Review and Collection	<ol style="list-style-type: none"> Proceed review and corrective action Quick action to reach the bottom of learning curve Maintain the average unit production cost 	<ol style="list-style-type: none"> Take pictures of the problem scene and write an explanation of other problem directly on the picture. By doing this, quick action can easily be taken. Ask the manufacturing people if there is the problem or not. By getting an 	<ol style="list-style-type: none"> In order to reduce the time to write the problem on paper, go and see the problem scene directly. Lighten the workload of production people from writing and thinking how to write the problem.