

## TARGET MEANS SOLUTION SYSTEM AND ITS APPLICATIONS

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### ABSTRACT

"Target Means Solution System"(TMSS) was created by author for decision making tool for management problems. This decision making tool has been applied for about two hundreds Japanese corporations in the past 18 years since 1970.

Target Means Solution System uses tree-structured hierarchy and subjective weights of value judgement like AHP(Analytical Hierarchy Process). But it has additional features in decision making process such as subjective possibility and target attain expectations etc.

"Target Means Solution System" is one of "Qualitative Decision System" which consists 20 sub systems. Decision makers can use these 20 sub systems to decide various qualitative conclusions. Business users can use personal or mini computer programs of 20 sub systems which are written in BASIC or developed by expert system development tool.

Typical application of TMSS in Japanese corporations are as follows. Corporate strategy formulation, new product development, sales promotion, cost reduction, profit increase, contingency plan, advertising, diversification strategy.

## 1. CONCEPT OF TARGET MEANS SOLUTION SYSTEM

To attain target is most important action in business. We may set a goal of 20 percent increase of production. Sometimes we can realize the goal, and sometimes we are short of the goal.

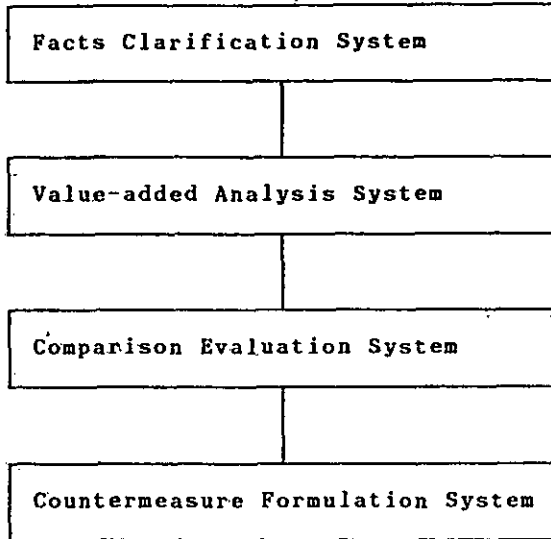
The object of "Target Means Solution System" is to assist decision maker who is willing to attain high goals by systematic combinations of effective means. The tree-structured hierarchy is used for representation of combined means. Weights are used to evaluate the importance of each mean. Then subjective possibilities have to clarify as score (0-100 percent). In the next step, decision makers draw a balance chart which compare weights and possibilities. Finally decision makers improve "target, attain expectations" by correction of the balance Chart.

The advantage of "Target Means Solution System" which were mentioned by users were as follows.

- \* TMSS is useful to aim high and to elaborate plans.
- \* It is a powerful tool to clear the priorities and importance of each means.
- \* The balance chart is helpful to correct unbalances of importance and satisfactions.
- \* I could simulate target attain expectations by changing assumed premises.
- \* TMSS is effective for improvement of my intuition of goal attainment.

## 2. POSITIONING IN QUALITATIVE DECISION SYSTEM

TMSS is one of a decision making support system called "Qualitative Decision System". Qualitative Decision System are divided into four groups. Each group has 5 sub systems.



"Facts Clarification System" consists 5 sub systems.

- \* Idea Pull Out System
- \* 5W2H Check System
- \* Multi Angle List Up System
- \* Proper Noun & Figure Addition System
- \* Strategic Redefinition System

The second group is called as "Value-added Analysis System".

- \* Multi Stage Formulation System
- \* Quantity to Quality System
- \* Problem Structure Analysis System
- \* Influence Effect Analysis System
- \* Quality to Quantity System

The third group is "Comparison Evaluation System" which includes 5 sub systems.

- \* Value Judgement Weighting System
- \* High-low Level Judgement System
- \* Priorities Judgement System
- \* Qualitative Evaluation & Selection System
- \* Logic Combination System

The fourth group has 5 sub systems.

- \* Goal Setting System
- \* Target Means Solution System
- \* Input Effect Measurement System
- \* Input Resources Allocation System
- \* Pros and Cons Decision System

### 3. PROCEDURES OF TMSS

(1) Determination of subject

Decision maker determines the subject to be solved by TMSS. The subject has a final goal in the specific period of time.

(2) Goal setting

Decision maker set a goal which includes target figure and target date. This goal is favorable if it is high level because decision maker may create innovative means to achieve high target.

(3) Formulation of tree-structured means

Decision maker writes from 50 to 200 of various means to attain the goal. In the final step, he or she has to connect the means in a tree-structured form.

(4) Weighting of importance of means

In each big, medium, and small branch weight is required which represents the importance of a mean for the goal. Weights are adjusted in a total tree.

(5) Estimation of possibilities

Then decision maker estimates subjective realization possibilities of tail end means. The possibilities may be from 0 to 100.

(6) Calculation of expectations

The next step is to multiply adjusted weights and possibilities. The results are called as "target attain expectations". According to my experience in the TMSS workshop held in Japan, the average of expectations is 70 percent.

(7) Drawing of balance chart

Decision maker then draws a balance chart. X axis is possibilities. On the other hand Y axis is adjusted possibilities. The sequential numbers of means are written in the balance chart. Finally decision maker divides into four groups of means.

(8) Improvement of expectations

He or she can improve the target attain expectations based on the pattern of the balance chart. Decision maker changes the value of weights or possibilities or tree-structured means.

#### 4 Applications of TMSS

Applications of TMSS varies from corporate strategy to personal decision making problems. In the fields of management problems for large corporations, decision makers rely on the simulation programs to get complicated solutions. On the other hand, personal decision making problems can be solved by calculaters.

Users of TMSS were mostly top management, executives and managers because of their strong needs for business problem solutions. TMSS has been taught in the inhouse seminars and workshops sponsored by Yahagi Consultants and other organizations such as Japan Management Association. Yahagi Consultants expanded practical applications of TMSS in general management and various functional areas.

The following subjects are examples of the practical applications or training courses.

[ Management strategy ]

- \* Corporate growth strategy
- \* Corporate profit increase strategy
- \* Diversification strategy
- \* New business development strategy
- \* Competitive strategy
- \* Marketing strategy
- \* Financial strategy

[ Management planning ]

- \* Long-range plan
- \* Midium-range plan
- \* Contingency plan
- \* Corporate crisis dissolution plan
- \* New product development plan
- \* Sales promotion plan
- \* Personnel plan

[ Management control ]

- \* Management by objectives
- \* Feedforward management control
- \* Salesman activities control
- \* Schedule management
- \* Cost control
- \* Increase of sales problems
- \* New factory construction management

[ Personal decision making problems ]

- \* Development of abilities
- \* Sales quota
- \* Long-range life plan
- \* Sales negotiation
- \* Learning of foreign languages
- \* Computer programming
- \* New ideas for speed reading



## 5. FUTURE EXPANSIONS AND CONCLUSION

At the time of writing, the current system is expanding in computer graphics and artificial intelligence. Availability of 65,000 colors, digital voice recording and easy-to-use expert system development system leads to a new world of decision making. And accumulations of the practical applications enable us to access data base and knowledge base of decision making.

In summary, the system described above represents an effective way to assist goal attaining with innovative means. Combinations of TMSS and other Qualitative Decision Systems are also useful for top management, executives and managers. Although the history of TMSS go back to 18 years ago, the system is still expanding towards CG and AI.