A Study on the Creative Value Innovation Strategy and Creative Value Design

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Abstract

In order to achieve sustainable growth in the era of global competitiveness, a speedy and flexible strategy is needed in the fast changing management environment. For this purpose, strengthening the core confidence in the organization along with acquiring competitive advantages that cannot be easily copied by competitors should be done based on dealing with needs from customers and markets positively. In this study, the creative value innovation strategy and creative value design methodology will be presented to improve company competitiveness.

Key Words: Six Sigma, Lean DFSS, Creative Value Design

1. Introduction

According to "The World Competitiveness Yearbook of 2006," published by IMD on 11th of May 2006, the competitive power of Korea has decreased as a whole. Korea is ranked 38th out of 61 countries researched. China is ranked 19th and India 29th. The competitive power of Korea ranked 29th in 2002, the last year of the former government. The ranking fell to 37th in 2003, the first year of the current government. It ranked 35th in 2004 and rose again to 29th later that year like in 2002. But the competitive power of Korea dropped most sharply among the sixty-one countries searched by IMD. It means that the competitive power of Korea decreased most sharply in the world within a year.

The objective rating by the international organization was quite low compared to the self-estimation that our economy is healthy. The reason for the sharp drop in the competitive power of Korea was that among the 4 evaluation categories, rankings of "efficiency of government administration" and "efficiency of company management" fell 16 steps and 15 steps each. The inefficiency of the government and companies decreased the competitive power of Korea.

More specifically, the ranking of government administration dropped sharply from 34th to

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51st because laws regulating business became worse. Also, the ranking of institutional system related to business activity went down to 46th from 30th. In contrast to the slogan 'Korea is a very good country to start business' which the government has purported, the laws and systems implemented are contrary to their claim.

The reason why business management efficiency dropped is because union management ranked last, 61st in the world, for 3 consecutive years. Also management efficiency of small and medium companies has been low, and management transparency of large companies such as the raising of slush funds by conglomerates has not improved. In detail, company audits and accounts in business ranked 58th, reliability of management ranked 54th, and shareholder's right protection ranked 53rd at the bottom.

The ranking of Infrastructure increased gradually from 30th in 2004 to 27th in 2003, but it went down one level this year. In low-level evaluation items, ranking of science Infrastructure rose from 15th to 12th, and engineering Infrastructure, which improved much last year, fell down to 6th this year. However, China and India, which ranked 19th and 29th respectively above Korea, have improved greatly in terms of efficiency of government administration and business management. It should be noted that the countries in the higher ranks of national competitiveness have high levels of government administration and business management efficiency. According to IMD's analysis result, achieving the innovation of national competitiveness in Korea should be through the innovation of "efficiency of government administration" and "efficiency of business management."

In this study, we will focus on one of these two issues: The efficiency of business management to innovate business competitiveness. For the innovation of business competitiveness, many things should be solved such as a stable union management, improved transparency of companies and so on. However, the key to improving the competitiveness of companies is to develop competitive new products. In this study, "creative value innovation strategy" will be studied for the purpose of new value creation within the company.

2. Definition of Creative Value Innovation

In an era of infinite competition, to develop and grow gradually, we need to deal with market trends and change the management environment quickly and flexibly to acquire a distinctively competitive advantage that cannot be copied by competitors easily. A distinctive competitive advantage is possible when the company has a competitive advantage in the core process that cannot be copied by competitors in the short term. This distinct competitive advantage is called "Core competency."

In the past industry technology growth was not very fast. However, as management and competition environments become faster and the life cycle of technology and competitive ad-

vantage items become shorter, it is difficult to maintain continuous growth with temporarily competitive items. Given this situation, the core competency of a company should be strengthened by positively dealing with and rapidly adjusting to the needs of markets and customers. In this regard, companies should deal with the change of outer environment appropriately and acquire new competitiveness by evolving their core competency continuously. Creativeness means the ability to do new things that others haven't done before, and these new things should be useful.

Thus, "Creative Value Innovation Strategy" in this study can be defined as a concrete method of creating value. Through this method, members of organizations and companies can 1) use the process (value analysis, value making, value creation, value design, value evaluation) methodology and tools in each step, 2) create useful and innovative new ideas, 3) make successful actions, promote creative ideas and manage obstructing items and 4) provide new functions to customers.

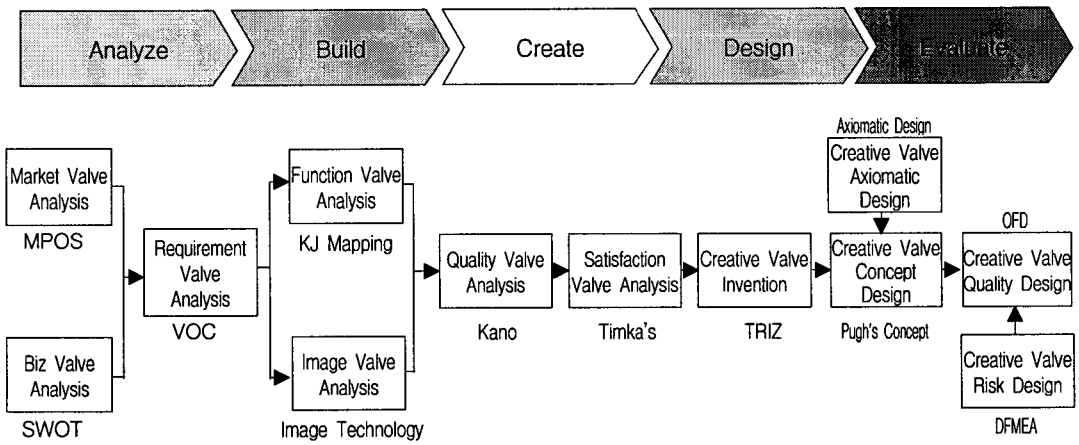

Figure 1. Creative Value Innovation Process

2.1 Definition of Creative Value

To clearly define the concept of Creative Value is very important. Creative Value has a wide variety of definitions and is still under discussion. Creative Value can generally be used as a word for "new product". In a narrower sense, Creative Value means the creation of new value useful to customers that has not existed in other products.

New products should satisfy new demands due to technology innovation and development or be produced in a completely new method even if products with the same purpose exist. In a broader sense, in addition to the previously mentioned products, new products can include all newly produced products which considerably improve upon existing products, newly

produced products copied from competitor products, and newly produced products taken over from other companies. If you consider the definition of Creative Value from the standpoint of companies, Creative Value (new products) can be defined whether their products ask companies for new markets, technology or new production lines.

Crawford (1991) defines a new product as a product that necessitates new marketing from a company and offers a substantial change beyond mere promotional change. Generally, new products can be defined from 2 standpoints: company and customer. Cooper (1993) said, "New products means, regardless of the existence of similar products in the existing markets, products new to the company and commercialized by that company."

In addition, the concept of Creative Value can be applicable not only to new products, but also to a wide range of industry knowledge such as service, movies, sports, entertainment, and media.

2.2 Classification of Creative Value

Classifications can be defined in terms of various standpoints, and three classifications can be made as follows:

2.2.1 Innovative Creative Value

Innovative Creative Value is a completely new value that has not existed before and upon introduction creates new markets. Its value builds new industry.

2.2.2 Improve Creative Value

Value improved from existing products is a result of value differentiation after the introduction of Innovative Creative Value through step-by-step technology development for the purpose of customer satisfaction.

2.2.3 Kaizen Creative Value

This value is already in the market, and this Creative Value creates new customers in the market through continuous improvement.

3. Methodology of Creative Value Innovation

3.1 Creative Value Design

For the creation of competitiveness within a company, the development of competitive and innovative new products is essential. This is the most important core activity of a company to ensure its existence and growth. But the success of new products becomes more and

more difficult due to rapid changes in the market and technology. Even successful new products can have a short life span due to changes in the market and customers and become obsolete easily due to changes in technology.

Now the creation of new value is necessary to ensure the survival of a company. People or companies that have until now copied others cannot guarantee competitiveness any more. In the near future, the ability to create new value is competition in and of itself. Creative Value Design is a "design method by which useful and innovative ideas are created and new functions are supplied to customers according to creative value innovation strategy by members of the organizations or companies so that creative values are created for companies and people."

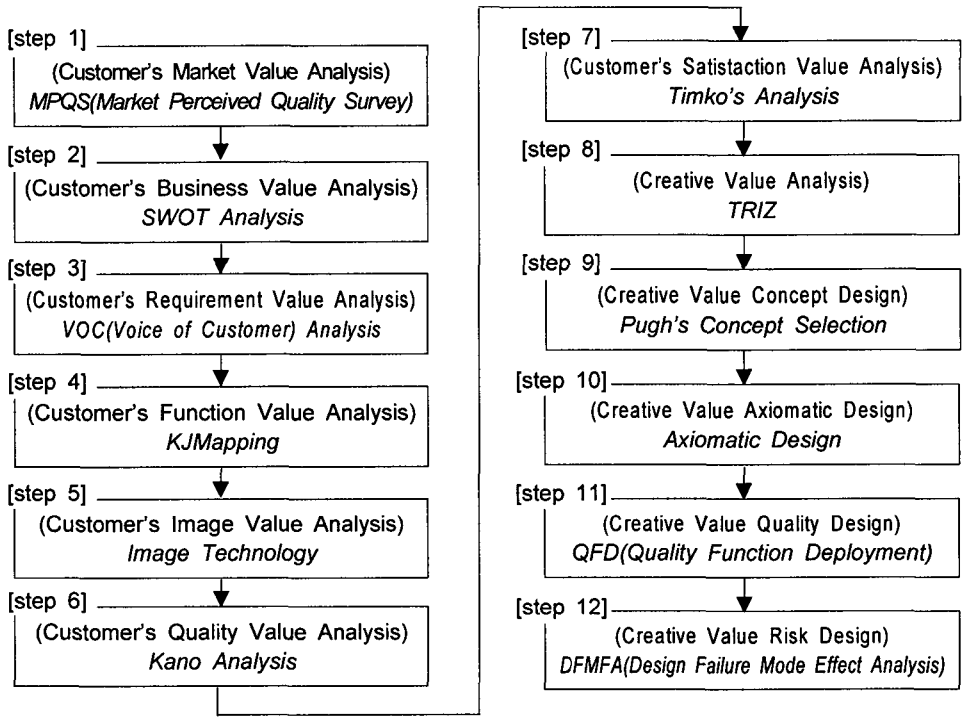

Figure 2. Creative Value Design Method is composed of 12 steps.

3.2 Tools and Methods in Creative Value Design

3.2.1 Customer's Market Value Analysis

Market value can be formed only when customers willing to buy coexist with products that can satisfy their desires. That means the market is a gathering of products and brands that can satisfy customers' desires.

3.2.2 Customer's Business Value Analysis

One of the most commonly applied methods in Business Value Analysis is "SWOT analysis". SWOT analysis is based on Strength, Weakness, Opportunity, and Threat. It is used to set and manage business direction by analysis of positive and negative factors that can occur from within or outside.

Factors	(Strengths)	(Weaknesses)
(Opportunity)	SO Strategy	WO Strategy
(Treats)	ST Strategy	WT Strategy

Figure 3. SWOT Matrix

3.2.3 Customer's Requirement Value Analysis

A critical factor in the development of new products is the definition of customer. It is important to develop products that can satisfy customer needs after understanding the characteristics of the predefined focus customers. Here we can define customers as "people who desire something from me". If we look at the importance of these customers, we come to know that the profit of the company is directly related to customer survey data.

3.2.4 Customer's Function Value Analysis

In Function Value Analysis, data in language is collected from the chaos state, such as the unknown, unclear, and difficult to understand realm of future problems, and arrange the collected data according to inter-intimacy so that we can clearly understand the structure of the problem that should be solved.

3.2.5 Customer's Image Value Analysis

Image Value Analysis is the analysis method of the human multi-emotions that are felt from images or feelings (external stimuli that is experienced through human senses) of products by customers. The ultimate purpose of the Image Value Analysis is "to be better for people".

3.2.6 Customer's Quality Value Analysis

Nowadays customers are dissatisfied with small defects in products. Even if there are no defects, customers merely feel normal, not satisfied.

In the Kano analysis, 2-way quality recognition can correspond to 2 aspects of quality: "User satisfaction" and "Meeting of required conditions".

3.2.7 Customer's Satisfaction Value Analysis

Timko proposed "CS-Coefficient: Customer Satisfaction Coefficient" in 1993. By CS-Coefficient, we are able to quantify how high customer satisfaction can increase or decrease when customers experience products or services.

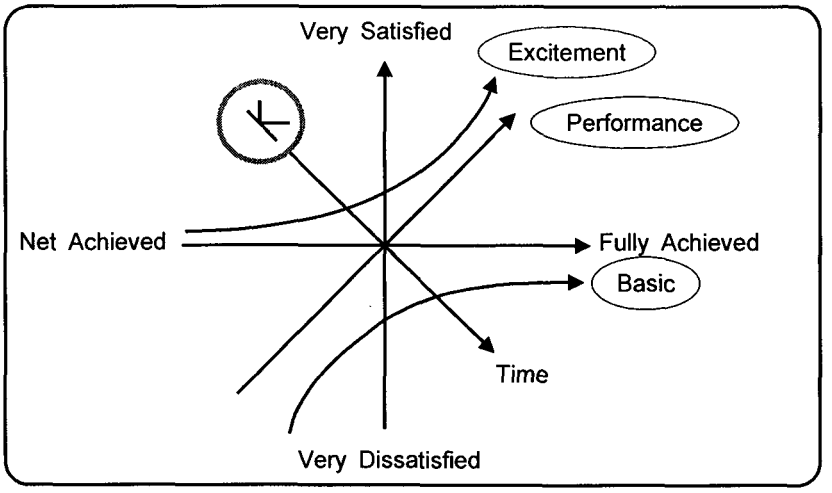

Figure 4. Kano Diagram

3.2.8 Creative Value Invention

A powerful tool used for Creative Value Invention is "TRIZ". "TRIZ" is an abbreviation of Russian words and stands for the creative problem solving method. In English, it can be called the "Theory of Inventive Problem Solving". Genrich H. Altshuller invented this method of solving problems that systematically arranges the basic theories that are based upon science and engineering knowledge such as physics, Chemistry, Geometry, Electrics, Electronics, and Mechanics.

3.2.9 Creative Value Concept Design

To develop products that customers want to have, target specifications should be established after collecting and analyzing customer needs. A product's concept should be selected according to target specification, and steps such as prototype manufacturing and confirmation tests that guarantee selected concepts should be performed before the finalization of product development. Thus, concept selection is an initial step at the beginning of product development.

3.2.10 Creative Value Axiomatic Design

By using Axiomatic Design, verification of structure and functions of systems made for value creation should be done.

(1) Independent axiom

Generally functional needs and design variables are the same in number and the relationship between functional needs and design variables is as below:

$$\{FRs\} = [A]\{DPs\}$$

[A] Is the design matrix and there are 3 types of related design matrix.

$$\begin{bmatrix} A_{11} & 0 & 0 \\ 0 & A_{12} & 0 \\ 0 & 0 & A_{13} \end{bmatrix} \qquad \begin{bmatrix} A_{11} & 0 & 0 \\ A_{21} & A_{22} & 0 \\ A_{31} & A_{32} & A_{33} \end{bmatrix} \qquad \begin{bmatrix} A_{11} & A_{12} & A_{13} \\ A_{21} & A_{22} & A_{23} \\ A_{31} & A_{32} & A_{33} \end{bmatrix}$$

(Uncoupled) (Decoupled) (Coupled)

(2) Information Axiom

From the designs that satisfy the Independent axiom, designing with the least amount of information is best.

3.2.11 Creative Value Quality Design

According to the QFD method, customer needs are switched to product characteristics. After deciding the product's design and quality of components, all steps, including design of the manufacturing line and manufacturing process, are systematically developed and planned. That means that QFD is a tool that makes a rational system in which customer opinions are heard and their needs are discovered. Whether customer needs can be satisfied with limited resources is decided. QFD is one of the methods in which customer needs are reflected as much as possible in every step from concept setting of new products to design, components supply, process development, and manufacturing so that customer satisfaction can be maximized.

3.2.12 Creative Value Risk Design

To develop and produce high quality products, investigation of the suitability of each design should be done and pre-investigation and countermeasure for flaws, defects, and failures, which can occur later, should be established during product design and manufacturing line design. FMEA is a systematic method to achieve these goals. Through the FMEA method, potential failure modes of systems and products are found; and, in the case these kinds of failures happen during operation of system or products, the effects of fulfilling the tasks of systems and products are investigated and evaluated. As for failure modes with big effects, relevant preventive measures should be established and failures are prevented beforehand.

This method is used not only for product design but also for the evaluation of manufacturing lines and safety.

4. Conclusion

In this study, in order to achieve acquisition of the advantages of companies and competitiveness innovation, the concept of creative value was established as a concrete methodology of innovation strategy. The Creative Value Design Method was proposed in twelve steps. Members of an organization can create, manage, control new ideas, and assess them for strategic actions through systematic methodology in major steps such as Value analysis, Value formation, Value creation, Value design, and Value evaluation by scientific tools. Through creative value design and this creative value innovation strategy, improvement of companies in management efficiency and competitiveness, and ultimately improvement of national competitiveness and the development of Korea is attempted.

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