

## **Encouragement of “Value Growth” Design**

### **-A New Product Creation for the Breakaway from the Throw-away Society**

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#### **The New Concept, “Value Growth Design”**

I had this one disappointing thought back when I was young and still engaged in automobile development. I wondered, “Why is it that the vehicles we make has the highest value to the customers the moment when it is purchased? After purchase, the value of the vehicle keeps on decreasing through usage. Is there not a way to increase the value of the vehicle through usage, so that the functionality and the attachment towards the vehicle rises?”. I have engaged in automobile development for many years, with these thoughts in my mind. However, back in those days, I was not able to find a resolution to realize a design in which its value increases.

Nevertheless, from the combination of recent progress of design science, the clue to realize value growth design was finally found. I have found the possibility of a design, in which the value grows through usage. I have called such design, “value growth design”, which is a design which can increase the product’s value through usage and be used for a long term.

The characteristic of this value growth design is the point in which it is focusing on the timeaxis change of the use stage of the product. The direct aim of the value growth design is to continuously deciding the adequate value and function of the product by considering the relationship with the product’s usage circumstances through timeaxis. The value growth design can allow individual optimization by corresponding to needs and use environments of the product, and sense of values and variety of the user. In addition, the value growth design can also correspond with the timeaxis change of the society and life. It is thereby, expected that the value growth design can provide various effect including, reduction of environmental load and breakaway from the throw-away society by realizing a long usage design.

#### **The 4 Types of Value Growth**

Previous studies have clarified the existence of 4 types of value growth design.

### · “Natural Changing Type”

A type in which, durability and efficiency improves by chemical reactions with the product's surrounding environment. The nambu ironware, lacquerware, copper-sheeted-roof are examples of a natural changing type. It is well known that the lacquerware that represents Japan's beauty, gradually stiffens by the oxidation reaction over time, making it stronger. In addition, the corduroy steel used for building shell is also attracting attention. The oxidation reaction gradually rusts the iron, which improves corrosion resistance and brings on a beautiful color. The recently popular nambu ironware is also making the tea more delicious by its rust. As a new factor, the self-repair coating materials that can heal the wound by itself, is highly expected in the future. From the value growth point of view, this natural changing type may have many possibilities more than we can imagine.

### · “Accustoming Type”

A type in which, the product becomes accustomed personally to its user through repeated usage and care. The writing brush, archer's glove, pongee, fountainpen (pen point) are examples of the accustoming type. The highly expensive brush, the becomes accustomed to the user through repeated care, and is said to last for a life. According to calligraphy craftsman, the Takahashi brush is truly realized, only if the user's hand strength and movement are considered when making the brush. This is one of the ideal product creation, in which the user and the designer interacts to create a product. The “accustoming type” has several examples such as leathers, cloths, and metals which holds a mechanical characteristic such as elastic-plasticity and attrition characteristics. Therefore, from the future product development point of view, considering the given material characteristics lead to a new accustoming type value growth design.

### · “Customizing Type”

A type in which, the product adapts to its operating environment by its user's original customization. Some of the well-known examples of a “customizing type” are wood materials with good workability and furniture with metal materials. In addition, IT devices such as smartphones and car navigators are also an example of a customizing type which are all over the market. In a new field, there is an example in which the product

customizes the light level to the environment or the user's taste by using a light control glass. Furthermore, several customizing type value growth designs are appearing in nursing and medical fields, such as products that can optimize its shape to an individual (e.g. nursing care spoon with shape-memorizing material). Therefore, these fields are expected for future development.

#### · **“Learning Type”**

A type in which, the product adapts to its user by learning repeatedly based on accumulated information. The most representative example of a “learning type” are robot pets such as Paro and AIBO. Especially, Paro has become an one and only pet to the users (elders), and is getting attention as a value growth design with mental value (attachment). Other than robots, sensors and actuators for piezoelectric element or the ferroelectric substance used in vehicles and other control instruments are also an example of the learning type. It is thought that this field of intelligent materials and smart structure can be applied to products with learning type value growth design.

In order to realize the stated 4 types of value growth design the “service technology”, which can consider customization of the product to the user and promotes natural changing and accustoming; and the “bio-inspired technology”, which can input the life form's system of learning, memorizing, and inheriting to the product, is thought effective and some studies have already begun.

### **The New Product Creation Industry and Society Led by Value Growth Design**

The effects that value growth design brings varies. In product creation, the value growth design enables the functions and characteristics of the product to optimize individually, by adapting to the user and use environment through usage. In addition, the value growth design can also adapt to the change of sense of values over time, enabling the realization of product with long-term usage. These traits of the value growth design are expected to be profitable in well-used products with professional of specific fields as users. Therefore, the value growth design is especially effective for musical instrument, medical instrument, measuring instrument, and industrial materials. Thus, the appearance of products with value growth design are eagerly awaited.

From the industrial point of view, the combination of the product creation (manufacturing industry, secondary sector of industry) and the value creation (service industry, tertiary sector of industry) to create a new business model is expected to be possible. This new industry can also be said as the sextiary sector of industry from the combination of the secondary and the tertiary sector of industries (2 X 3 industry). Since this sextiary sector of industry can make use of the mental inheritance of the people including “the heart of omotenashi”, it is expected to be an unique industry that can reflect cultures.

From the social point of view, the value growth design can lead to the breakaway from the throw-away society by the long-term use of the product. By breaking away from the throw-away society and becoming a society which uses products with care, can realize a new mental value society that deepens attachment the user feel towards the product. Then again, the new mental value society is expected to be able to correspond to the natural resource problems and reduction of environment load. As a result, the value growth design is connected in making a sustainable society, and to becoming a resolution for natural resource and environmental problems, like “the sun” from the story, “The North Wind and the Sun”.

The value growth stated above, has a possibility to create a new product creation industry and society. Therefore, it is hoped that the discussion on value growth design in various fields is carried out in the future.