

Encouragement of “Timeaxis” Design

-Towards original industrialization and economic revitalization

Keio University Professor Yoshiyuki Matsuoka

I often judge new products in design contests. However, during the judging process, there is a moment I question myself, “What kind of evaluation will this product receive five years or decades later?”, “How will this product positioned in the future industry?”, and “What kind of influence will the product have on the society?”.

Essentially, an evaluation of a product design should be given towards the result of the product’s usage over the years. In other words, the product should be evaluated by looking back on years of history of its usage, and not just the moment it was announced. However, many design evaluation is carried out just after the announcement of a new product. Therefore, it is necessary for us judges, to evaluate the product by foreseeing the future and social trends. This is a heavy responsibility and at the same time a difficult problem for the judges.

The “timeaxis” holds the key in solving the problem stated above. Through the perspective of “timeaxis”, one must put the following questions into consideration when evaluating the product; how the environment and the usage of the product changes, and how the society and the sense of values changes affect the evaluation of the product.

However, there has been a new way of thinking that has begun to attract attentions recently. The new way of thinking of design is to understand how the product itself can create the changes under various “timeaxis” and not the adaptations of the products to the environment and usage changes it undergoes through “timeaxis”. I would like to discuss about “timeaxis” from this perspective in this paper.

The Value Growth Design Seen in Handicraft Work

25 years ago, while I was still working at an automobile company, I made a speech in my own wedding, saying, “Automobiles that we make nowadays have high value at the beginning (at the moment it is purchased). Unfortunately, automobile’s value gradually decrease as time goes by. However, handicraft works have a characteristic in which its value increases as time goes by. I wish for our marriage to be like a handicraft work, in which the value grows over time by strengthening our bonds.”

What I want to state here is that there is one thing that kept me feel disappointed from those days. The thing that made me disappointed is the fact that the value of the automobile we design decreases over time. On the other hand, many handicraft works such as lacquer ware and leather work have a trait in which its value increases through usage and over time. From this fact, I had a vague question, “Is there a way in applying the design with such trait (named as value growth design) to the current industrial product?”. If the application of value growth design is possible to industrial products it may help change the throwaway society into becoming a society, which uses products with care and for a long span. Still, even though I had such thought, I was not able to realize such value growth design in my 14 years of work in an automobile company.

However, I have found a clue from the recent technological development, which is the “timeaxis design”, a concept in considering the timeaxis to the design.

The New Paradigm “Timeaxis Design”

The “timeaxis design” is a new paradigm of design, which introduces timeaxis into design theory and methodology. However, there has not yet been such perspective in optimization theory and system engineering so far.

In timeaxis design, several models of timeaxis are used. The specialized terms of the models are; “non-steady model” indicating the change of state of a timeaxis, “plasticity model” considering the inability of restoring the state change after it has occurred, and a “multi-timescale model” expressing the multi-layer like time scale (such as seconds, minutes, hours, days, and years). These models are thought to correspond to the value changes from various environment and timeaxis, which was considered difficult until now. In addition, timeaxis design is also discussed as becoming a countermeasure for other unexpected problems.

Research and development for the realization of value growth design has been promoted. For example, a development of a new mobility system (product like a robot and a vehicle) enabling the value growth design on several time axes such as value discovery phase→value realization phase→value growth phase→value establishment phase has been promoted. The knowledge obtained from analyzing the value growth mechanism of the timeaxis for pets (cats and dogs) are applied to this system. Furthermore, a new business model that incorporated structure and service system enabling value tradition is discussed.

Technology “To Grow” and Technology “To Nurture”

The main technologies that sustain the timeaxis design are the bio-inspired technology and the service technology.

The bio-inspired technology is a technology in which the product itself “grows” by incorporating the life form’s characteristic such as learning, memorizing, and inheriting into a system. The incorporation of the life form’s system into a product, enables the product to have the life form’s trait such as robustness, redundancy, and environment adaptability. These traits allow the product to maintain stable function and provide long-term usage.

The service technology is a technology to provide a service to both the product and its usage environment to “nurture” their relationships. This technology is discussed in the “service science” that the IBM proposed and in the “service engineering”. The service technology has a possibility to correspond to the timeaxis change of product’s usage environment and to user values (such as being able to provide product customization for the user and provide degraded product maintenance), which can lead to the realization of the long usage of the product and user’s attachment to the product.

These two technologies, enables the timeaxis design, in which the value of the products grow as time proceeds, leading to the user to use the product with care for a long time. Of course, the product will not sell and become a disadvantageous in economic aspect if it is long lasting. However, the aim of timeaxis design is to unify the product creation (the second industry) and value creation from the service business (the third industry), and to improve the economy despite the disadvantages given before, by providing service.

The stated technologies are thought to be the strength of a Japanese. The bio-inspired technology can be understood as Japan’s innovative spirits in robot engineering and control technology fields; the service technology can be understood as Japan’s sensible “omotenashi” spirit. The application of these Japan’s unique technologies to timeaxis design is believed to lead to a creation of a new industry and its meaning, and is expected future development.

Industrial Construction and Economic Revitalization to Lead the World -To make use of the mental inheritance of people

I think that the materials for economic revitalization lies within the psychological inheritance that humans passed on until now. This psychological inheritance will become a huge strength in carrying out timeaxis design.

For example, “taoyakasa” (like gracefulness) seen in people after the Japan’s earthquake disaster. The the people calmly stood in line to use the public telephone and to get water, and the drivers gave way to each other at the crossing where the lights were not working. From these actions, I felt the fortitude of people hidden in gentleness and tough yet flexible spirit. I believe that this “taoyakasa” is reflected in the mind to use products with care, and can become the mind base to realize a sustainable society. At the same time, this “taoyakasa” may lead to the timeaxis design (short term and long term) to becoming the base of the reconstruction activity.

The “mind to pursue” will promote the timeaxis design. It is said that inside faithful personality of people lies the “mind to pursue” which bases on discipline. This existence of mind is proven from the way of the handicraft works and conventional industrial products found in product creation until now. This “mind to pursue” enables the re-design in timeaxis continuously, and is considered effective in reviving and sustain the society.

Therefore, it can be understood that the psychological inheritance of people can be effective in realizing the timeaxis design. It may be time for us to make use of these inheritance and to aim for the construction of a new industry and revitalization of a new economy which can lead the world, by acquiring the people’s values from different cultures and methodology based on the values.