

# A HYPOTHESIS TO ESTABLISH PLATFORMS FOR DESIGN MANAGEMENT FOCUSED ON DESIGNING USER-EXPERIENCES

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## ABSTRACT

After the World War II in-house design organizations were established in the major manufacturing companies in Japanese electronics and automotive industries where design function for product (hardware) was mainly featured. Since then design functions such as package design, CI design, communication design, GUI design, web design, solution design, sustainable design or universal design were added over a period of time, while increased purpose and item of design have promoted specialization and subdivision in the area of design. However, it is difficult for us to observe well established platforms for consistent and integrated design management system in the process. Rather confusion in management has been often seen. In the research we have redefined the objectives and functions of design from the viewpoint of 'designing items that users can or should experience' from the first contact to disposal of provided and used goods or services, and suggest a hypothesis to establish desirable platforms for design management. We expect the result of research will help to create a basic thought and specific methodologies that design management can achieve improvement of creativity and productivity in the activities resulting innovation.

**Keywords:** *In-house Design Organization, Holistic Design, Platform for Design Management*

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## **1. INTRODUCTION**

This study has been carried out based on previous comparative researches [1][2] on design management focusing on design development process, system or methodologies in electronics and automotive industries in Japan, Europe and the United States. In the researches we found significant changes in the history of industrial design that reflect economical and social development after the World War II and also learned various differences in industries and areas in the world. In this article we try to present a hypothesis to establish desirable platforms for design management in the future, referring to the results of what we found and learned in our researches.

## **2. SUMMARY OF ROLES IN IN-HOUSE DESIGN ORGANIZATIONS IN JAPANESE MAJOR MANUFACTURERS AFTER THE WORLD-WAR II**

Japan has developed various industries in the last half-century into a major economic power. Particularly electronics and automotive industries have played a great part in the development so that practical design management systems have been considered and kept up responding to business challenges and social changes. The roles in in-house design organizations in major manufacturing companies in Japan are chronologically summarized as follows.

### **2.1 1950s**

In this postwar revival period industries were concentrated more on filling up with every goods and materials in the society and people's lives by introducing Western advanced technologies and know-how including product design in the product development. Most of major manufacturers in electronics and automotive industries started to establish each in-house industrial design organization in this period. People longed for possession of electric products such as refrigerator, washing-machine or television set that should enrich their lives. Possession of goods was a big part of sense of value. The key-issue of design management was how to establish own design know-how to make better products and to develop human resources in the design organization.

### **2.2 1960s**

This period was the stage of industrial development. The government and industries drove export electric/electronic products as well as textiles with price competitiveness based on low-wage labor. Added-profit trade by importing materials, processing and exporting finished goods has been a basic national policy since this period. However, the product development modeled after the products of intended markets, mainly Western countries, caused copy-products problem and torrential exports led industries into serious trade conflict. Since the copy-products problem was recognized as a serious design issue, in-house design organizations were strongly required to solve it and forced to establish distinctiveness or originality as Japanese design.

### **2.3 1970s**

While trade-conflict problems have been solved gradually, Japanese electronics and automotive industries have been establishing a business model that we refer to it as 'Market-Adaptation Type'. Product development including design development and marketing for

export markets have been carried out based on this style. Some of major companies established design branches in Europe and the United States in the period to learn more about each market and the consumers.

#### **2.4 1980s**

After learning a lot of technologies and know-how from Western companies or institutions Japanese industries have been increasing own technological development that contributed to strengthen products in export markets. Japanese domestic market has become matured with fulfilled products at home. One of remarkable change in sales and distribution in Japan was appearance of mass merchandisers or chained superstores. Against a backdrop of the strong buying power these stores have required suppliers exclusive products with differentiated specification and design. Manufacturers' design organization should respond to prepare such customized product design. In some design-minded companies the head of design organization with background of career as designer were appointed to a board member with executive title. The size and functions of design organization in major manufacturers have expanded in the era.

#### **2.5 1990s**

The importance of design value and its power was strongly but superficially recognized in the overheated economy era started from end of 1980s and finished in the beginning of 1990s in Japan. Companies have invested heavily in design for creating luxury products, using famous designers or costly advanced design projects. In electronics industry the era of digital technology started in earnest both in business and consumer electronics. Most of electronics products have equipped one or more display units to show variety of information, suggest how to operate the product or give hints for trouble shooting so that the demand for GUI (Graphical User Interface) designer increased rapidly and also strong demand for Web designer appeared according to development of internet technology and services based on it from latter half of 1990s.

#### **2.6 After 2000**

As already seen in many leading companies the functions of design have covered a broad range of corporate activities from conceptual planning stage of product development to various customer relation services. However, in most of cases each design function is not necessarily linked each other well due to lack of understanding about design, imperfection of management system or barrier of expertise inside company. On the other hand so-called 'Solution Design', 'Service Design' or 'Experience Design' is obviously aiming at holistic design approach to realize the best result. But we have not seen so many successful cases so far.

Although in-house design organization started its activity to provide product (styling) design in 1950s has expanded the functions as mentioned above, communication design including graphic design for printing media like catalogues, leaflets, posters etc. or Web design has been handled by other departments such as advertising, sales promotion or public relations department. In the case most of design production has been outsourced. This situation might often be causing lack of unified and consistent design management in the company.

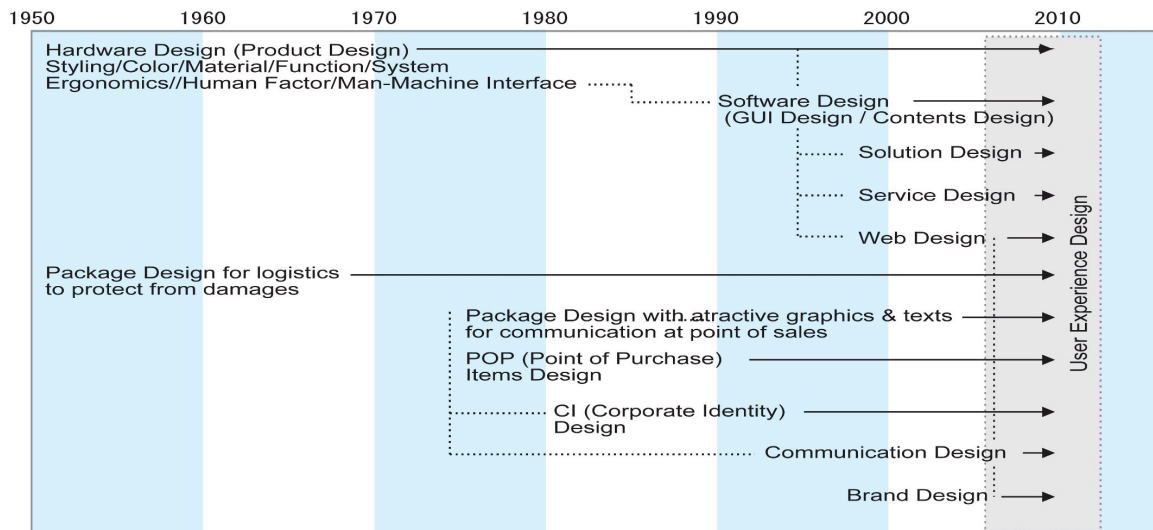


Figure 1: Transition of in-house design organization's functions (in Japan)

### 3. TWO CASES OF HOLISTIC DESIGN APPROACH

Referring to some actual cases in industries we try to illustrate situation of current holistic design approach. In order to avoid confusion in wording about 'Design' we explain about the holistic design world by using mainly 5 words such as 'Hardware Design', 'Software Design', 'Service Design', 'Communication Design' and 'Experience Design' with simple definitions mentioned as below.

*Hardware Design:* So-called product design to give a whole style, shape of each part, colors, finish of surface, select materials, lay out of parts, product graphics, mechanical system, man-machine user interface and so on.

*Software Design:* GUI (Graphical User Interface) design and Contents Design (embedded or downloaded) that are appeared on display units and handled by users on them. Interaction Design is done with the combination of Hardware Design and Software Design.

*Service Design:* Design to provide what people want at an intended range with combination of Hardware Design, Software Design, Communication Design, and Service by skilled or professional people.

*Communication Design:* Design for communication between people, companies or organizations to provide efficiently, surely or comfortably what people want to know and get. Graphic Design or Web Design could be included in this category.

*(User) Experience Design:* Design at an intended range that user(s) can experience with comfort and satisfaction by combining Hardware (Design), Software (Design) and Service (Design).

#### 3.1. Case of Lexus

Lexus is the premium brand of flagship cars of Toyota Motor. The premium values are not only in the outstanding quality of vehicle itself but also in the exceptional service for users.

All tangible items that potential and existing users can experience are carefully designed to fit the brand value. The services provided by skilled and well trained staffs are also excellent.[3] However, it does not seem to be existing holistic design approach because of weakness in consistency of design of each item as well as variability of design language, if compared with German premium cars like Mercedes-Benz, BMW or Porsche. In the company the vehicle (hardware) design and a part of software design are designed by the Design Center. But other items are designed by different departments or outside design providers. So there seems to be several missing links in the design management system and there are rooms to improve design management system in the company from the view point of holistic design approach. Despite such situation it is not that there is serious problem due to lack of holistic design approach in the Lexus brand world, but that there are still many rooms to innovate vehicles and services in future, if the company could establish platforms for better design management focusing on whole user experience with holistic design approach.

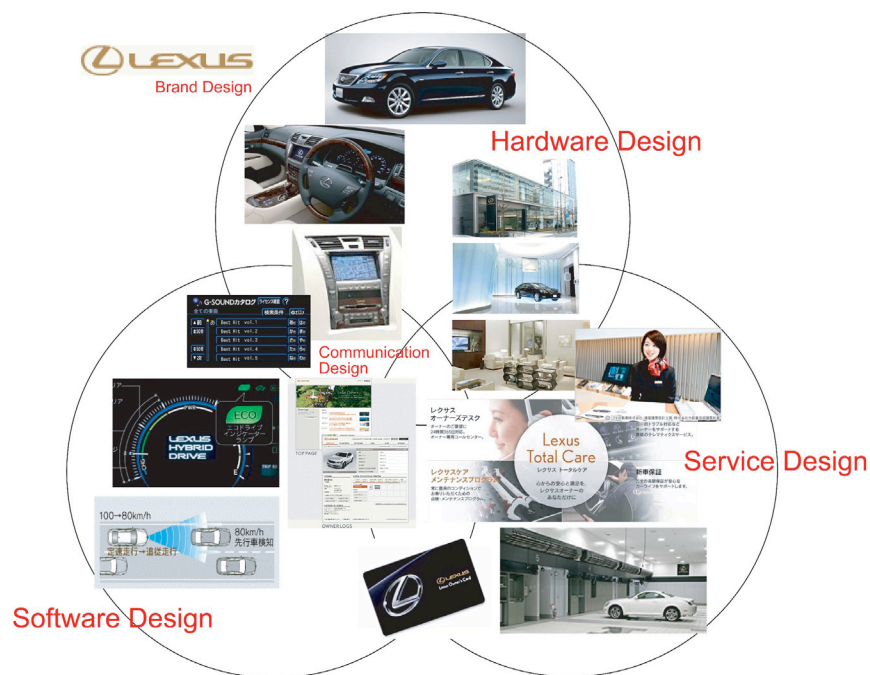


Figure 2: A part of the design world in Lexus case [4]

### 3.2. Case of Apple

Apple is one of the most successful electronics vendors in the world as well known. The products (hardware) seem to be very simple, sophisticated and identical, software regardless embedded or downloaded are so smart, and various and attractive service menus are provided by the company and also huge number of third parties. Behind the success there are so many side stories and some of them are often manifested in myths. Even though there are many important players in the business, the company cannot be talked without Steve Jobs who has been leading the management. The characteristic corporate culture formed by management, employees and users should be reflected by clear will, attitude or action in business or work-style. However, what the company has achieved should be realized with well-shared thought or philosophy, well-conceived methodologies and excellent management

system. Otherwise the business-model such as Apple, the holistic 'Apple World', could not exist.



Figure 3: A series of design in the 'Apple World' [5]

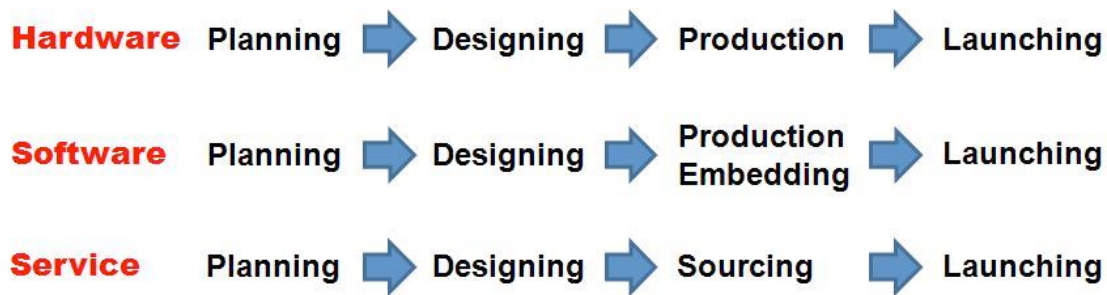
#### 4. PLATFORMS FOR DESIGN MANAGEMENT IN FUTURE

As seen in the history manufacturing industries have been carrying out the business with so-called 'Product-Out' type model. For a long time it has been believed that if created a good product, then people will buy it. It is true if the products that people want are not available enough and the hardware can mainly provide what people want. Most of developing countries are still requiring many products to fulfill them in their lives. But once we think carefully about what people really want, we will notice that hardware and software are just a measure to realize it. In order to realize people's real (or final) demand 'Service' should be indispensable. In this sense what kind of platform should be prepared in the design management?

The goals of design management are to satisfy customers with higher value created by design and bring a certain profit into the provider. The platforms are to reach the goals surely, effectively and efficiently. Then what kind factors are included in the platforms from the viewpoint?

##### 4.1. Process

The product and service development process is very important factor as a platform and it should be understood and shared by all concerned people who are involved in reaching the goals. If simply described, the process of product and service development is shown as below.



**Figure 4:** Process of product and service development

The manufacturing industries are not familiar with service development and service industries are not familiar with hardware development. Software industries may bridge both sides. Except a few cases such as Apple most of industries are still not realizing holistic design development approach that includes hardware, software and service design because of lack of proper platforms. Each design development is basically done separately. Therefore it is important to establish a standardized and unified design process that leads holistic design approach.

#### **4.2. Leadership and Team Building**

In the previous research [6] we found that there is a remarkable difference in proceeding product development between Western and Japanese industries. In the Western companies an appointed product/project manager has a strong power to promote product development with responsibility for sales and profit. On the other hand Japanese companies are carrying out the product development by appointed members from planning, engineering and design departments by reporting to the general manager of related business unit. In the system consensus shared with related people is regarded as important factor. Problem of leadership and communication is an endless issue in management so that the final and best solution cannot be found. However, in the holistic design development, teamwork under excellent leadership is indispensable. In such situation service oriented organization or whole user experience oriented organization should be required. If realized, it could be a good platform.

#### **4.3. Evaluation and Decision-Making System**

In order to create excellent products and services companies should have appropriate evaluation and decision-making system in the development process. Only good tongue can taste the quality of delicate dishes. The question is whether companies retain capable staffs to evaluate intermediate and final outputs. Particularly the quality of service is not easy to evaluate because its judgment requires rich experience around the service. One of the most rational approaches is to involve potential users, who have rich experience and capability to evaluate intended product and service, in the product and service development process. If such user-involvement process could be introduced in the company as a regulated system, it would be a part of platforms in holistic design management system.

The chart mentioned as below is a model of holistic design management platforms that consist of each design management platform in hardware, software and service design as the basic elements. Each design management platform includes team as a workforce, methodology as a shared way to realize intended design and know-how as originally



accumulated knowledge and skills in the organization. In order to realize harmonious design management and provide the best solution for customers 'User Experience Design Platform' linked with user involvement system and a common administrative system are bridged each other. This management system explores user-experience oriented product and service development unlike historical 'product-out' or 'product-oriented' type business model. In the next step of the research time-based management structures from before-purchase to post-purchase would be examined in detail.

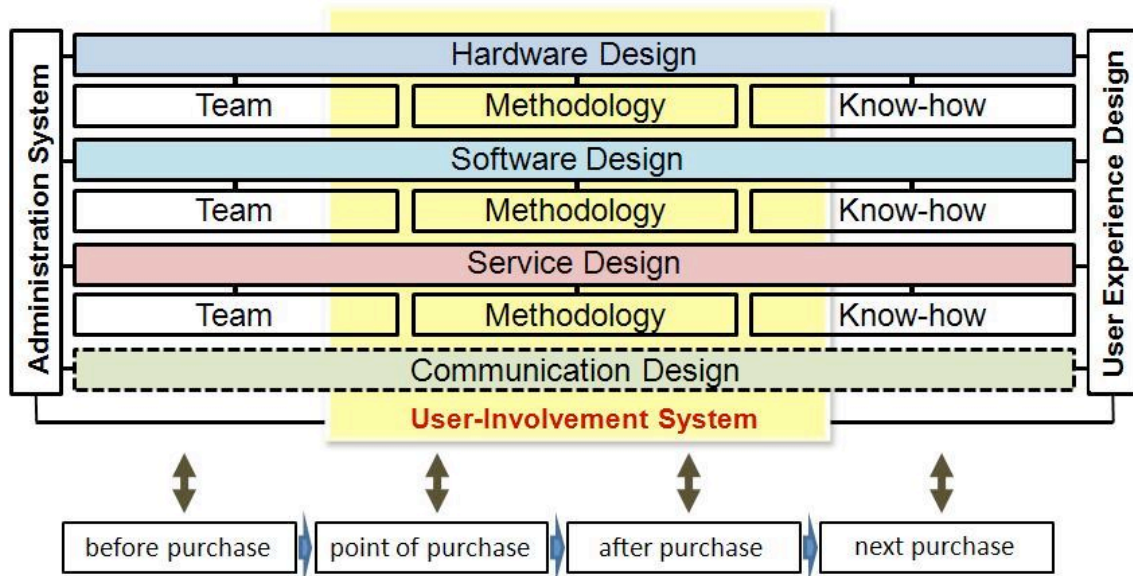


Figure 5: Holistic Design Management Platform Based on User-Experience

## 5. SUMARRY

Our society has become more complex and faced severe economical and environmental crisis. Requirement to Design has broadened. People who called 'Designer' cannot always provide proper solutions to everything. Already some major companies have been changing the style and functions of each design organization by involving various talented people including engineer, scientist, psychologist, sociologist, and so on. The ideal platforms for proper design management in future have sought in various leading companies. What we described on this article is just looking around the historical change and a desirable figure of future design management system in a simple way. It is sure that multidisciplinary approach in product and service development will be more and more required in future. We would like to continue the research on the issue more deeply and present more effective and precise model of desirable design management system.



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