NEC's Approach to Social Value Design

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Abstract. NEC's Social Value design (SVD) depicts an abundant future for people and society through the provision of solutions that use advanced technology. SVD is studied from the two perspectives of the "User Experience" and the "Social Experience," and provides society and our business customers with "Innovation". We use human-centered design and design thinking to enforce SVD. We introduce our solutions and systems as achieved results of SVD approach.

1 Introduction

Social Value Design (SVD) is a NEC's design concept (Fig. 1). SVD sketches a vision of the future from the perspective of the individual and society, and then completes the picture by designing and providing the businesses of our customers with relevant new value. As our Information Society advances and various IT systems become widespread and complex, the demand for ease of operational use also rises, and there are increasing expectations for a more comfortable experience. In order to respond to such needs, it is vital to view systems and services from a human perspective and adopt a "User Experience" approach that enhances the value for people.

In addition, the creation of a vision for a city and the solution of various social issues using ICT necessitate the drafting of the image of the society that we would like

Fig. 1. Social value design

to create, not only from the perspective of the individual person but also from standpoint of organized entities such as nations, corporations and even neighborhood associations. Answering these needs requires what we at NEC call the "Social Experience" approach to studying the issues - a way of thinking that seeks answers that will enhance the value of systems and services from the perspective of society at large.

However, the individual's desire for ease and comfort is often in conflict with the organization's pursuit of efficiency. The comfort of the individual is at odds with global environmental issues. These are few examples of why it is difficult to grasp and resolve issues from the perspective of both the individual and society.

In order for the life desired by an individual to mesh with the concept of a richer society overall, it is necessary to sketch a vision for the future that can be shared by both the individual and society. Consideration of the solution methodology based on a balanced perspective that draws on the standpoints of both the individual and society will lead to the creation of innovation.

2   Three Component of Social Value Design

2.1   User Experience - Enhancing Value for "People" -

In enhancement of the User Experience, design focuses on the users and operators of systems and services, and seeks to make the operation of systems and devices easy, efficient and comfortable, and provides equality of access irrespective of the user's nationality, abilities or other attributes.

- Producing designs which make complex systems and services easy to use and understand.
- Designing so that as many people as possible can use the product in various environments and conditions. (Universal design)
- Designing emotion and experience.

2.2   Social Experience - Enhancing Value for "Society" -

In the case of design from the standpoint of the Social Experience, the focus shifts to organizational entities such as society and groups. The design approach paints a picture of how society should ideally be, and seeks ideal solutions for the plurality of people who comprise society - for example, solutions that prevent human errors which trigger social problems, thereby enabling the smooth running of society.

- Design focused on urban vision or social issues (global environment, energy, food, water, urban infrastructure, disaster countermeasures, etc.).
- Taking organizations such as companies and national and local governments as stake holders, systems or services are designed together with the customers, the citizens of the region, and the administrative body.
- Designing with the purpose of making society and an entire organization operate efficiently and smoothly without any problems.

2.3 Innovation - Creating New Value from Human and Social Perspectives –

Innovation grasps the points in contention between the individual and society perspectives, and that creates new value that strikes a balance between both viewpoints. Innovation takes highly advanced technologies and links them to value for the individual and society, which in turn changes the way we live and work for the better.

- Designing the vision and concept of the society or business.
- Designing a new life style or work style.
- Designing services or product ideas not yet in existence.

3 Means for Realizing Social Value Design

The realization of SVD requires a change in the way that we traditionally approach the development of products and services. We use human-centered design (HCD) and design thinking to enforce SVD. HCD is the philosophy of making things according to the user instead of first producing something and then thinking about the user. Design thinking is an approach used in business for the purpose of creating something new such as market creation, business models and new services. While the approach conceived by IDEO, a US design consultancy and a leading proponent of Design thinking, places importance on concept generation and visualization in a five-step methodology of understanding, observation, visualization, evaluation and refinement/implementation that employ tools such as "fieldwork","prototyping", "user testing", and "brainstorming", the design thinking process is essentially the same as that for HCD. People related the system or service form a team, and design and development is carried out with HCD/design thinking process (Fig. 2).
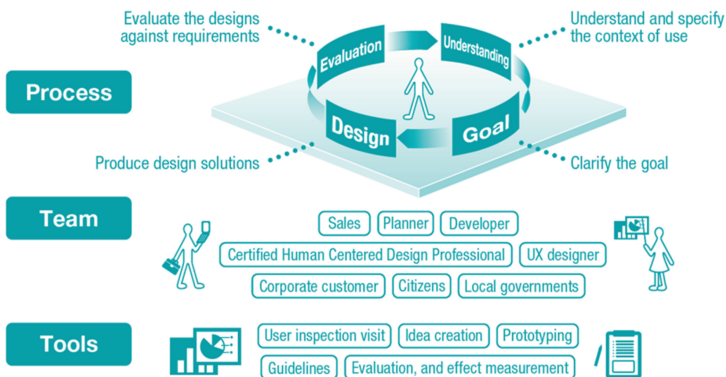
Fig. 2. Means for realizing social value design

4   Examples of Social Value Design

4.1   Vison for City in 2030

We created a vision for the city, Tigre Argentina, in 2030 and a plan of how this can be achieved through ICT (Fig. 3). For creating the vision, designers actually visited Tigre and conducted workshop with city employees (Fig. 4), then we created a scenario of how Tigre could be experienced in 2030 so as to convey our image of the future in an easy to understand way.

Fig. 3. Examples of vision for the city in 2030.

Fig. 4. Future workshop with the employees of the city.

4.2   Airport Solution

We created a flight information system which provides comfortable space for various people using an airport. The flight information system displays in real time various information that is necessary in the airport, such as the flight information, airport access transportation information, weather information, news, etc. (Fig. 5). The board has high accessibility. The color is easily read by people with impaired color vision and the elderly, and the font and character size fit the location, environment, and distance between the board and the passengers. The information design on the board also has high usability. The information is laid out to correspond with how important it is, so passengers can quickly find the information they need.

Fig. 5. Flight information board

Fig. 6. Evaluation using the actual display panel.

Designers specified the context of use by observing various information boards at several airports and train stations and then determined which user interface design concept to use. They developed several prototypes and evaluated them iteratively during the project execution. They carried out evaluation and verification of visibility and comprehensibility using the actual display panels (Fig. 6).

4.3   Multi-Function Compact ATM

The multi-function compact ATM (Automated Teller Machine) co-developed by the NEC Group in cooperation with Seven Bank, Ltd. is designed to function as an integral part of a new-style infrastructure that facilitates a variety of contemporary lifestyles. It provides people with access to ATMs in their neighborhood 24 h a day. The ATM is designed so that as many people as possible can use the product in various environments and conditions for universal design (Fig. 7). It provides voice guidance for people with impaired vision and installing an operation display, an interphone and input buttons at lower positions on the ATM for people with wheel chairs. The letters on the screen were enlarged and the sentences shortened to enhance readability for everyone.

Designers carried out user test for current system to understand and specify the context of use, and clarified the goal. Several types of prototype such as screen image,

Fig. 7. Multi-function compact ATM

Fig. 8. Evaluation by people with impaired vision.

paper prototype, or hardware mock-up were used for design and evaluation. Universal design checks were executed each developing process, for example evaluation by people with impaired vision was executed to obtain the required level of accessibility (Fig. 8).

5   Conclusion

We are using Social Value Design to create solutions for society that provide advanced social infrastructure to the world. In this paper, we introduced, a vision for the city in 2030, a flight information board and a multi-function compact ATM using various methods such as observation, workshop, prototyping, user testing, and information sharing, and the end result was enhancing "User Experience", "Social Experience", and creating "Innovation".