Technotalk

Enhancing Service Businesses by Design

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The challenges facing both companies and wider society are becoming more complex, encompassing rapid changes in the structure of society, globalization, and the problems of resources and the environment. Along with the need to move away from past growth scenarios, Hitachi is strengthening its Social Innovation Business through collaborative creation, meaning the sharing of challenges with its customers and other partners and working with them to develop solutions. Utilizing its portfolio of technologies built up through past experience, Hitachi intends to help overcome the challenges facing companies and societies by developing innovative solutions as well as by using its own service design methods to create and expand service businesses.

Fusion of Design and Business

Takeyama: My research field of service design is a new area of study that has been attracting attention in Japan recently. As society matures, the bulk of value generated by economic activity is shifting away from goods and toward the services that accompany the provision of goods. This creates a need for service systems that generate new value in the relationships between goods and people. Service design emerged, primarily in Europe, as a way of achieving this.

In recent times, the scope of service design has expanded beyond service interactions to include the nature of the business itself and the organization, extending as far as the organizational culture. One likely background factor to all this is that a growing uncertainty about the future direction of the global economy and other aspects of society has led to greater recognition of the potential for design techniques that seek answers through a repeated process of prototyping. This expanding scope of service design is bringing with it major changes in the roles played in business by design and designers. Rather than jumping straight to a conclusion, it has become more common to work creatively with users or to help users create their own designs.

At Hitachi, meanwhile, “collaborative creation” has been a key concept behind your Social Innovation Business, and I understand you are seeking to build up your service businesses. How are you dealing with the major changes taking place in business and design?

Kashimura: While design at Hitachi used to focus on product design for such things as home appliances and digital signage. Then, we naturally expanded our focus to human-centered design, experience design, and now to service design. As you mentioned, the role of corporate designers has changed. They are now expected to have facilitation skills and knowledge of technologies and business models. With this background, Hitachi reorganized its research and development group in April, 2015. We established a new organization called the Global Center for Social Innovation, where the designers and the IT researchers are working together to create innovative solutions on the front line of collaborative creation with customers.

Hasegawa: We are also aware of major changes in the business workplace. In the past, along with systems and other products, we have also supplied customers with services, the form of which was decided in advance. In our Social Innovation Business, however, which creates new value through collaborative creation with customers, we work with customers from the design stage, both for services themselves and the value able to be provided by these services. There are also examples from within Hitachi itself in which service operation and design staff work together from the business design stage, such as an energy management service for a block of office buildings in which experience design techniques were adopted for the development of information services that make it easy for the people who work in or visit the buildings to see how they use energy.

Takeyama: Internationally, too, putting the capabilities of design to use in service businesses is emerging as a rising trend. In fact, my teaching at the Faculty of Economics is also service design. The fusion of design and service businesses will likely expand further in the

future. It is worthy of note that Hitachi has preemptively reorganized itself for just this reason.

Clarification of Issues

Takeyama: The service design process is primarily made up of: (1) Clarification of issues through consultation with users or the identification of their latent challenges and other needs, (2) Use of the potential for new value as a basis for devising ideas and a business model, (3) Testing of prototypes, and (4) Launching the commercial business. While the focus in design tends to be on how to put things together, I believe that ideas for innovation are to be found prior to that step in the process of determining the true nature of the challenges faced by the users. In the issues, in other words. However, when you set out to investigate new problems in actual collaborative creation with customers, do you find things like defining and sharing the issues to be difficult?
Kashimura: They surely are difficult. The management problems are not necessarily clear to the customers themselves. The important thing is to reveal these problems through dialogues with customers. A designer's approach would be helpful here. For example, we have a design method for envisioning future images as well as business opportunities. It is done by identifying changes in people's values and social trends. We have been applying this method to various countries and areas. Our intention is to discover new issues by disrupting the customer's ideas of future service, which often are developed as extensions of the existing systems, with our future images.
Hasegawa: Looked at in business terms, it is also important to consider how much the management challenges faced by one particular customer have in common with those of other customers. Being a business, we need to think about things like cost and profitability, and this makes it essential that we seek to leverage our solutions. I believe that both customization and standardization will be key considerations in the future expansion of service businesses.

Service Platforms Based on Symbiotic Autonomous Decentralized Systems Concept

Takeyama: Going from identification of the issues to idea creation is the phase that calls for creativity. Hitachi has led the world in devising unique methods for generating ideas such as your customer journey map and other service design techniques.
Kashimura: Hitachi's unique tool related to the customer journey map came out of the idea that a service can be designed by visualizing the interactions among stakeholders and the way their emotions change on a timeline. The customer journey map has become a common tool today. However, our tool has been developed through a process of trial and error from a time when such a map was not available. Moreover, our tool was developed through actual applications rather than from a theoretical concept. So we are confident about our excellent capability in conducting and applying this tool.
Takeyama: Advances in technology often serve as a trigger for coming up with new ideas. In relation to service design, it is recognized that genuine progress is being made on the true integration of products and services that deliver these services on an as-required basis, using technologies such as the Internet of things (IoT) to keep track of users in realtime. How do you view this development?
Hasegawa: With a portfolio that includes both control technologies for operating equipment and information and telecommunication technologies, Hitachi can be seen as having the wherewithal for implementing the

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IoT. Given this strength, a key consideration for service business enhancement is the symbiotic autonomous decentralized systems concept. A further development of the autonomous decentralized systems concept used by Hitachi as the basis for the implementation of a railway traffic management system for the Tokyo metropolitan area, the symbiotic autonomous decentralized systems technology concept involves creating an environment that facilitates system-wide optimization by having systems of different types interoperate in a symbiotic manner while still operating autonomously.

The value provided by service businesses and the types of service they deliver change in the course of their operation. Rather than being built once and never modified, the systems and other platforms that underpin these services need to be designed on the assumption of ongoing change, growth, and expansion. Platforms that incorporate the symbiotic autonomous decentralized systems concept are intended to serve as common platforms, providing an environment that facilitates the implementation and mashup of services by customers.

Takeyama: We are entering a world in which various services are tied together by IoT, and in which it is no longer possible to know at the development stage what form products or services will ultimately take. This is a world where I see great potential for the symbiotic autonomous decentralized systems concept, which is based on growing as an ecosystem.

Hasegawa: In that regard, I believe that, even at the level of companies and other organizations, creating a world based on the symbiotic autonomous decentralized systems concept will lead to the fusion of social systems that include goods and information technology (IT).

Use of Simulation for Trials

Takeyama: The idea of prototyping upcoming processes is a concept unique to the field of design. Unfortunately, with service design it is frequently difficult to measure the success of trials quantitatively, with the prototyping of something on such a large scale as social infrastructure being likewise difficult. How do you cope with this?

Kashimura: Hitachi has been developing many simulation technologies in various industries. We are also working on the development of interactive tools by combining those technologies to simulate the impact of services, which are provided with Hitachi's systems. Our aim is to be able to use simulations to obtain a certain assessment before actual application in projects for which it is difficult to investigate a scheme for the highest return on investment (ROI), for instance, building new rail lines in emerging markets.

Takeyama: So far we have gone over the process of service design, but once it is up and running what is important is the organization. Even when we consider how attractive we can make the user's experience, unless the organization and systems needed to implement the concept in practice are put in place, this takes us no further than painting a picture. In other words, we can speak of organizational design as being at the core of service design.

Hasegawa: This is an issue that we too have come up against. We identify the elements required by service businesses established through collaborative creation at an early stage and make an effort to build an organization that fosters people while building up know-how.

Expectations for Use of Data Science

Takeyama: When thinking about design, the human factor cannot be ignored. Energy efficiency or healthcare services, for example, where there is a need for user behavior to shift in directions desired by society without coercion, call for an approach to service design that

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encourages changes to people's behavior. In this context, the fusion of behavioral science and service design has attracted attention in recent times. To create a sustainable society, I believe we need service design capabilities that are accompanied by an understanding of people and knowledge of psychology.

Kashimura: That's right. Just as the fusion of cognitive psychology and design has contributed to improving usability in digital devices, innovative design technologies based on a deep understanding of human behaviors are required in social infrastructure, where a large number of people are involved in various activities. We are taking on the topic of service design as it is an important part of our business.

Hasegawa: The use of data science is another key to service businesses for social infrastructure. Hitachi already has experience with the use of big data, including systems for things like remote monitoring and predictive maintenance that collect large quantities of data from the industrial machinery that supports social infrastructure. Hitachi was also among the first to make use of human big data, including systems that utilize the measurement and analysis of people's movements for such applications as marketing and city operations, or systems that measure people's behavior at an organization and use it to improve results. Our aim is to contribute to Social Innovation by expanding the scope of new service businesses that utilize this big data.

Takeyama: Data science is clearly set to become an important technology for future service design. I also see potential for the creation of services or the development of service design techniques that use actual data as evidence and are based on new understandings of people's behavior.

Kashimura: Hitachi is accelerating the development of artificial intelligence and its applications in the business domain. We will apply qualified design to Social Innovation while utilizing such advanced technology to be a leader in driving innovation. Thank you for your time today.