Overview

Hitachi's Digital Transformation Human Resource Development and Training

Tsukasa Ariyoshi

1. Introduction

Hitachi's 2018 Mid-term Management Plan calls for the Company to redefine itself as an innovation partner for the Internet of Things (IoT) era. To achieve this goal, the Company is promoting its Social Innovation Business driven by digital technologies. The first requirement for increasing the worldwide growth of this business will be customer-facing projects with customers and users to improve the skills of the human resources who create innovation. Promoting approaches and practical methods such as design thinking is also a crucial requirement, and the worldwide shortage of data scientists and other specialists for pioneering digital transformation is creating an urgent need develop its own talent.

With its existing training system unable to handle these issues, Hitachi is responding with group-wide activities and a new training organization. This article presents these developments.

2. Accelerating Human Resource Development for Digital Transformation

2. 1

Improving the Skills of Front Talent

April 2016 began the first fiscal year of Hitachi's 2018 Mid-term Management Plan. At this time, Hitachi created a front business unit structure for promoting its Social Innovation Business. The front-line functions and mission are to communicate with customers and users to discover specific social issues, find solutions by combining and integrating data utilization with operational technology (OT), IT, products, and system technologies and provide value-creating digital transformation in the form of services. Since Hitachi's existing training system was not suited to developing the front talent that handles these tasks, the Company needed to provide new learning opportunities and ongoing refinement of skills. To meet this need, Hitachi created a committee (the Social Innovation Business Front Talent Development Committee) centered around the Chief Marketing Officer (CMO), Chief Strategy Officer (CSO), and Chief Human Resource Officer (CHRO). After a six-month review by a preparatory committee, a three-year skills improvement training program tied to the Mid-term Management Plan was started.

Training was divided into four phases and carried out incrementally, starting with developing the workplace leaders (core talents) selected to handle the core elements of promoting the Social Innovation Business. In Phase 1 and Phase 2, the core talents in charge of important projects were the focus of action learning, case studies, and workshops related to actual projects. Training conditions were constantly monitored and evaluated to review the program. At the same time, training materials and results were also compiled into content whenever needed, creating fresh educational materials as the skills improvement program was expanded to all front-line employees during Phases 3 and 4. A general training program has now been

created that is offered to even more trainees. Activities that teach and promote wider adoption of the Social Innovation Business to all employees are provided, and e-learning materials and handbooks have been released.

For more information on Hitachi's efforts to improve the skills of the front talent that produces innovation at the front lines of customer co-creation projects, see "Human Resource Development for Front Talent in Social Innovation Business" on page 103 of this issue.

2. 2
## Developing Global Specialist Groups to Drive Digital Transformation

A wide range of companies are eager to reap the benefits of digital transformation driven by today's advancing digital technologies such as artificial intelligence (AI), the IoT, and big data usage. But despite this demand, there is a worldwide shortage of data scientists (data analysis specialists). For example, Japan's big data, IoT, and AI workforce deficit was about 30,000 workers in 2018 and is estimated to grow to about 48,000 workers by 2020[1]. Hiring outside data scientists is currently challenging, and advanced global corporations have started programs for educating data scientists.

Hitachi has been promoting human resource development in Japan and has previously started an in-house certification system for advanced IT workers who meet the standards of the Information Processing Society of Japan's Certified IT Professional (CITP) program[*]. But, in addition to IT knowledge, data scientists who work in the Social Innovation Business also need data analysis skills and business knowledge in OT areas such as power, rail transport, and industry.

Since Hitachi data scientists need to pioneer digital transformation by combining and integrating OT, IT, products, and system technologies, their development requires more than just a single business division's on-the-job training (OJT) or existing training programs. Hitachi responded to this need in June 2018 by creating a professional community that helps members discuss methods of solving particular issues

Figure 1 — Approach to Developing Data Scientists

By creating a global professional community, Hitachi is promoting interactive study among practitioners, and working on solving issues such as providing needed skills, training, and certification.

OJT: on-the-job training   Off-JT: off-the-job training
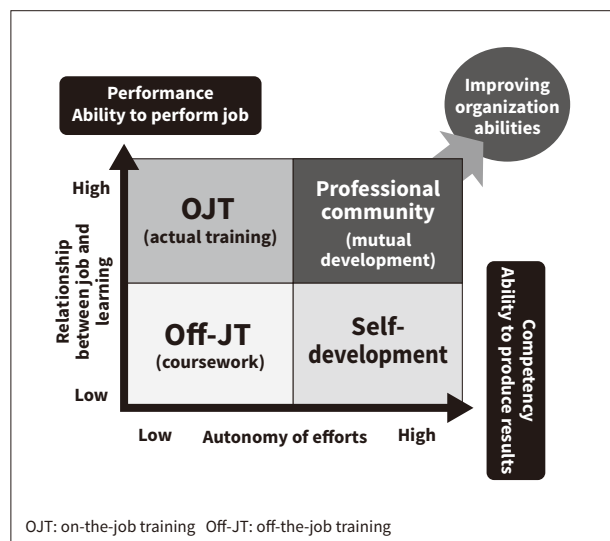
and share case studies and expertise related to AI and other advanced technologies. Specifically, the community allows members to share and give advice about information related to various issues faced by data scientists. Members include practitioners with OT- and IT-based digital transformation experience, and top-class researchers from around the world who have created advanced AI technologies. The community helps data scientists engage in interactive self-improvement-based learning and interactive study through self-directed activities and practical work (see **Figure 1**).

Hitachi is also planning to register the skills of all Hitachi Group data scientists in a human capital management integrated platform[2]. The platform will provide quantitative information on data scientists for use in applications such as human resource development effectiveness measurement and suitable staff hiring and placement.

Hitachi wants to increase the number of data scientists in the worldwide Hitachi Group workforce to 3,000 by FY2021 as a way to improve customer digital transformation support and expand digital solutions worldwide[3]. For more information on these activities, see "Professional Community and Its Activities for Meeting Diverse Needs in Data Utilization" on page 108 of this issue.

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[*] A certification system created by the Information Processing Society of Japan that uses the IT skill standards in widespread use among Japanese companies as its reference model.

2. 3

Promoting Wider Adoption of Design Thinking to Accelerate Collaborative Creation with Customers

Design thinking has gained recognition as being an effective method for responding to this digital era when the entire value chain is undergoing innovation starting with social issues involving complex causal relationships and consumer values. Design thinking is an approach used to rapidly repeat the processes of discovering issues, creating solutions for solving them, and verifying the value of those solutions. Its mindset and methods are being adopted by a large number of companies for use by all types of occupations from the front line to research and development (R&D) (see **Figure 2** and **Figure 3**).

In 2015, Hitachi developed NEXPERIENCE, a design thinking-based customer co-creation methodology and method/tool system[4]. It has been subsequently augmented through ongoing updates, IT tools, and simulators made possible by feedback gained from its practical application. Similarly, Lumada is a value creation platform that brings together site knowledge. Along with IoT platforms, it is a key method/tool for promoting the Social Innovation Business.

To increase the number of human resources that have practical rather than just theoretical mastery of

Figure 2 — Reasons for Design Thinking Demand

Many companies have adopted the mindset and methods of design thinking to respond to dynamic changes occurring throughout the entire value chain, starting with social issues involving complex causal relationships and consumer values.
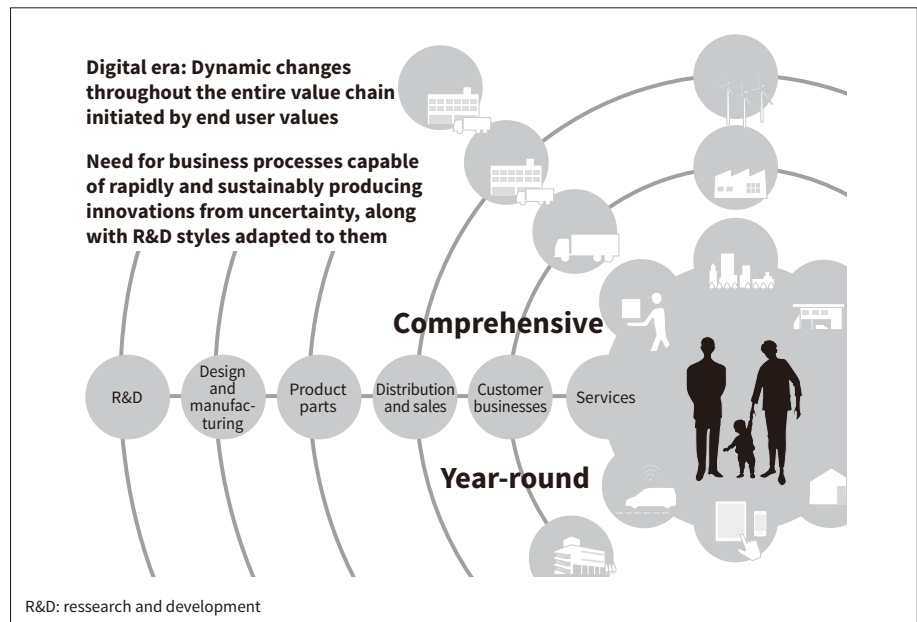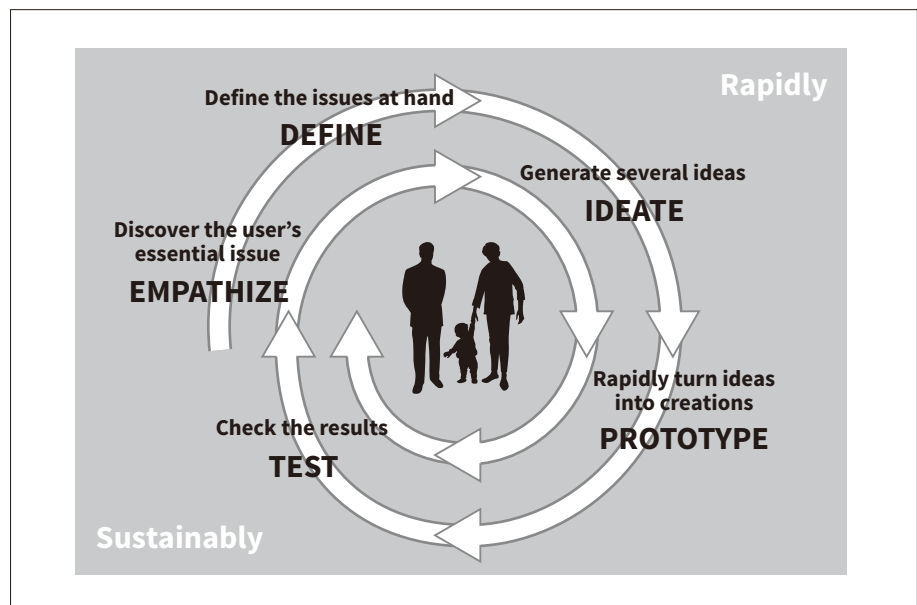

R&D: ressearch and development

Figure 3 — Characteristics of the Design Thinking Approach

Design thinking is characterized by the rapid repetition of the processes of discovering issues, creating ideas to solve them, and verifying the value of those ideas. It identifies constantly changing needs while exploring their intrinsic qualities at the same time.
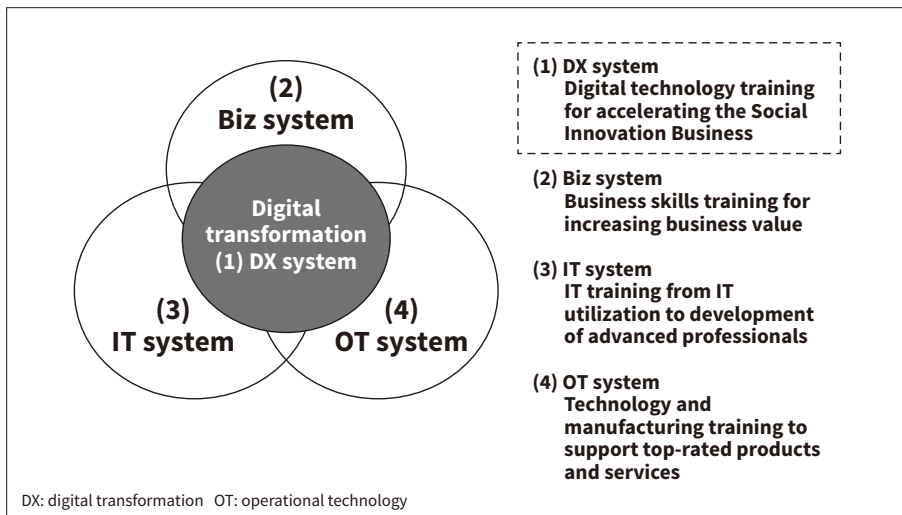
Figure 4 — Basic Approach to Training Systems Provided by the New Company
To accelerate digital transformation human resource development, Hitachi has created and runs new training systems that draw on the strengths of the previous three training organizations.

design thinking, Hitachi's in-house training organizations are planning increased use of design thinking in general training and in NEXPERIENCE-based hands-on selective training. For more information on these activities, see "Promoting NEXPERIENCE: Customer Co-creation Methodology-based Design Thinking" on page 115 of this issue.

3. Accelerating Digital Transformation Human Resource Development by Integrating In-house Training Organizations

Instead of just honing their personal areas of specialization, the human resources in charge of digital transformation (the digital transformation human resources) are expected to integrate technologies and products from different fields and to be active in all job skill areas ranging from front-line collaborative creation to R&D and MONOZUKURI (manufacturing) site operations. Hitachi's education and training were previously provided separately by three organizations—management and business skills training was provided by the Hitachi Institute of Management Development, IT training by Hitachi Information Academy Co., Ltd., and OT and product-oriented technology training by Hitachi Institute of Technology, Hitachi, Ltd. These organizations were integrated into a single company on April 1, 2019. Hitachi plans to draw on each organization's strengths to create and run a new digital transformation training system as an integrated technology. The plan is a top priority for the Company (see **Figure 4**).

In the future, the new company will organize the Hitachi Group's legacy education and training operations and provide a comprehensive lineup of activities ranging from training and administration, to planning human resource development strategies tailored to business strategies. These activities will make it a leader in human resource development activities designed to speed the pace of the Social Innovation Business worldwide. The achievements and expertise gained from these activities will be used to improve the existing human resource development services that Hitachi provides to customers. Activities such as training in the use of digital technologies will also promote collaborative creation activities with customers for creating new value, as well as for assisting problem-solving[5].

4. Conclusions

This article has presented Hitachi's digital transformation human resource development efforts, looking at Hitachi Group-wide activities and new training framework, and focusing on activities for improving the skills of front-line human resources, promoting design thinking, and training specialist groups of data scientists and other members.

Working on the front lines of innovation where today's paradigms are undergoing radical changes forces each employee to grapple with complex issues that cannot be handled by a single business division or the skills of one individual. Knowledge and

opportunities for interactive learning are the resources these employees need for solving issues. The corporate departments and in-house training organization are tasked with an all-encompassing mission to provide these resources to meet employee demands. This mission involves helping create and run an employee community, recording and compiling the results of interactive studies for passing to the next generation, and working with sites to create an ecosystem that will produce the innovators who will pioneer the next era. These roles and methods call for digital transformation.

References

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3) Hitachi News Release, "Accelerating the Development of Data Scientists for Further Expansion of Digital Solutions," (Jun. 2018), http://www.hitachi.com/New/cnews/month/2018/06/180621.html

4) T. Ishikawa et al., "Collaborative Creation with Customers – Establishing NEXPERIENCE," Hitachi Review, 65, pp. 832–839 (Mar. 2016).

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