

Accelerating Digital Transformation to Create New Value

Ryuichi Sumi and Nobukatsu Takei

Abstract

NTT is working to accelerate digital transformation to create new value by leveraging research results that are the most advanced in the world. In particular, we believe that through collaboration with B2B2X (business-to-business-to-X) partners, we can combine the different strengths of NTT and our partners, which will lead to the creation of value that can transform the world. In this article, the process of value creation—from the significance of collaboration and generating ideas to technical verification and promotion—is explained.

Keywords: digital transformation, value creation, joint experiment

1. Efforts to utilize research results to benefit the world

At the NTT laboratories, researchers are working day after day on the world's most advanced and proprietary research. Although the primary goal of our research activities is to achieve excellent research results, at the same time, it is necessary to disseminate such research results so that they are widely recognized in the world and are actually utilized.

In addition to publishing research papers and standardization activities to disseminate research results, it is also important to commercialize results so that they are used commercially. Producers at the Research and Development Planning Department are working to overcome the barrier between the research phase and the commercialization phase, the so-called *valley of death*, and are actively helping to get research results into commercial projects.

The main activity for producers involves collaborating with industry partners to achieve business development through our efforts concerning business-to-business-to-X (B2B2X), which is a policy of the NTT Group. The Feature Articles in this issue introduce representative examples of new value creation achieved through collaboration with B2B2X partners by making use of the most advanced research results in the world [1–5].

2. Collaboration with B2B2X partners

The significance of collaboration using research results as the core is described as follows. The concept of such collaboration is shown in **Fig. 1**.

First, by matching partners who are in contact with users around the world, and the NTT laboratories, which have the world's most advanced research results, we can create new value that did not exist before. By combining the technologies of the NTT laboratories with the assets of our partners (such as technologies and fields of expertise), we expect to create new value such as determining convenient forms of usage, solving certain business problems of our partners, and developing products and solutions that are widely applicable throughout the world.

Second, from the viewpoint of the NTT laboratories, we can directly understand requirements in the field, which are fed back from our partners, thereby leading to a higher level of research. For example, performance targets to be achieved are clarified, and hypotheses can be verified through field verifications and analysis of actual data.

Third, the collaborations with global partner companies are increasing, and we expect to roll out our research results to such global businesses. Collaborating with global partners and NTT's global operating companies from the early stages of research

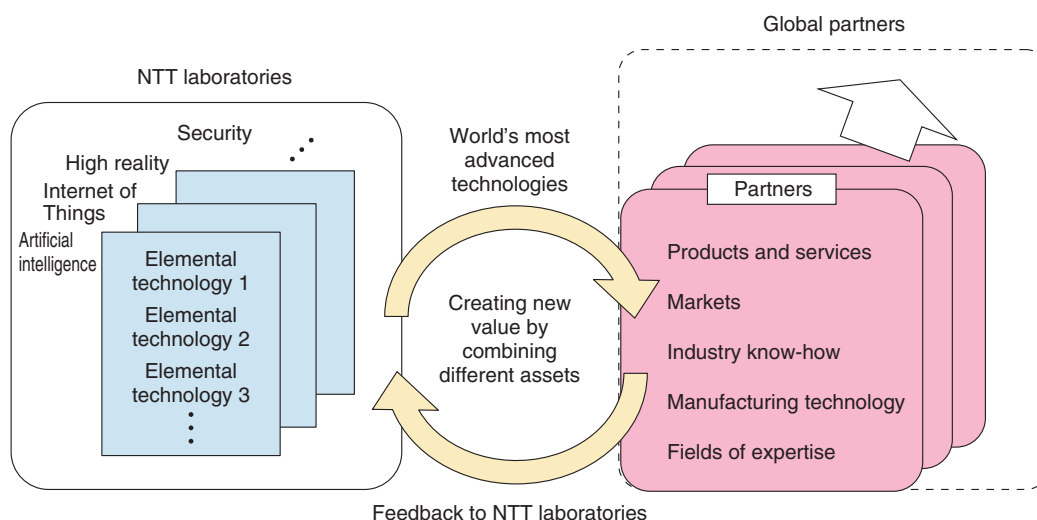


Fig. 1. Collaboration with B2B2X partners.

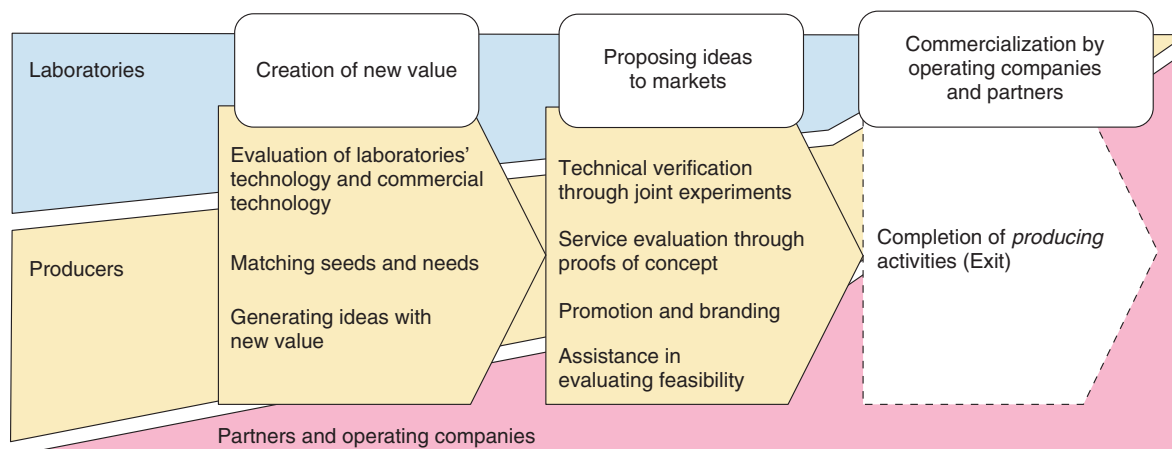


Fig. 2. Collaboration process with partners.

makes it possible to acquire new knowledge that cannot be obtained in Japan alone and to understand pressing issues in various parts of the world. As a result, new channels for disseminating our research results will be opened up around the world.

In these three ways, through business collaborations based on multiplying state-of-the-art technologies of the NTT laboratories and partners from different industries, assets not owned by NTT but owned by the different industries, and vice versa, react in a chemical-like manner that triggers the creation of new ideas aimed at the whole world.

3. Collaboration process with partners

The collaboration process with partners is shown schematically in **Fig. 2**.

In the first step, new value is created. In concrete terms, we investigate and evaluate laboratories' technologies and market technologies by exchanging opinions with the laboratories in regard to what technologies from among various themes being researched should be announced to the world at an early date and what dissemination channels are conceivable. In addition, by combining different elemental technologies, or combining the technologies of our laboratories

with the intellectual property of other companies and with the needs of users in the industrial world, we generate ideas with new value that did not exist in the world. To this end, from day to day, producers are building trusting relationships with their partners while constantly considering what value can be created by combining mutual technology assets.

In the second step, proposals are offered to the market. To confirm that an idea generated through joint examination with a partner is beneficial, joint experiments are conducted in the field, and the feasibility of the idea from a technical viewpoint is evaluated. For these joint experiments, the NTT laboratories and partners collaborate in conducting technical verifications; that is, the NTT laboratories provide technologies and demonstration equipment, while the partners provide business fields and subjects.

In addition, it is essential to visualize the idea through a proof of concept (PoC) and evaluate it from the viewpoint of services for users by actually *touching* it, or trying it out. For a PoC, ideas are put into concrete form such as software and hardware, although they are simply structured. In the meantime, usage scenarios of users are visualized, and usability when such ideas are commercialized is confirmed.

In the final step, commercialization is supported. If both the technical evaluation through the joint experiment and the evaluation of serviceability through the PoC are concluded successfully, the partner and the NTT operating company will then determine whether or not the idea will be established as a business. Once that judgement is made, the NTT operating company and our partner will continue to mutually work on profitability evaluations of the business, forms of commercial distribution, price targets for products, future market prospects, and other details. One such effort carried out by producers is to support the NTT operating companies and the partners in their efforts towards commercialization by, for example, proposing business models and coordinating the business formation.

4. Promotional activities for forming partnerships

To create collaborative partnerships, it is necessary to disseminate information to the outside. We actively

disseminate information on key milestones such as the start of new collaborations and the results of joint experiments and PoCs via news releases from NTT and responses to media. In addition, research results are exhibited at NTT R&D Forum, CEATEC JAPAN, MWC Barcelona, AI EXPO TOKYO, Next-generation Agriculture EXPO, the International Modern Hospital Show, and other domestic and overseas exhibitions. At these venues, we strive to promote our research results and to create opportunities for new encounters.

It is also important to *brand* the new value created through collaboration as that of the NTT Group. Accordingly, producers are naming services that embody value and are actively registering trademarks.

5. Future development

Collaboration with partners with different backgrounds is a good way to create new value. From now onwards, we will put even more effort into global collaboration and will conscientiously spread our research results for the benefit of the world.

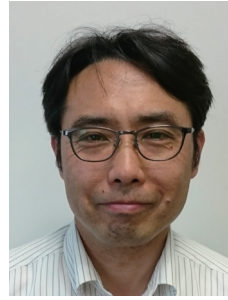
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He received a B.E. in administration engineering from Keio University, Kanagawa, in 1988 and joined NTT Software Laboratories the same year. He studied software development support for CHILL (CCITT High Level Language for telephone switching systems) using a UNIX workstation and the Internet during 1988–1994. He moved to NTT Multimedia Business Department, where he developed a video-on-demand system over an optical fiber network with Microsoft. He also worked at NTT WEST and was actively involved in developing a local area information-sharing portal and a video conference system over Internet protocol (IP) networks. After that, he was with NTT Resonant, where he established a live entertainment ticket information service company with ticket sellers. Upon his return to NTT, he led open source projects and joined the InfoQ, Java, and JBoss communities and fostered committers. He also managed the development of network technology at the Information Network Laboratory Group. He has been in his current position since 2016, where he oversees the promotion of the Laboratory Group's technical achievements.

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