CTO Interview

Innovation driven by Social Needs with Technology and Human Resources
The Challenge of Evolving Technology Management

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Director, Senior Managing Executive Officer, CTO and Senior General Manager, Technology & Intellectual Property HQ and Senior General Manager, Innovation Exploring Initiative HQ

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OMRON is implementing management based on the OMRON Principles to create Social Needs for solving social issues. Management based on the OMRON Principles is supported by Technology Management. OMRON has leveraged the power of technology to create a series of the world-first products and systems such as non-contact switches and automatic ticket gates. With the ever-increasing pace of technological innovations such as AI, IoT, and robotics, how does OMRON envision the future and what social issues will the company solve? We asked CTO Miyata, who has been given the job of accelerating OMRON innovation, about evolving technology management.

(Interviewer: Editorial Department)

Creating a Template for OMRON-style Innovation

—— **Editorial Department (following in bold): Regarding OMRON-style innovation, How do you define it and how are you trying to accelate?**

Miyata (omitted below) : OMRON-style innovation relies on technology innovation to perform near-future design tailored to solving social issues. This is what OMRON's technology management is all about.

Since coming on as CTO, I have worked to pick up the pace with which OMRON as an organization innovates by establishing and strengthening technology management to enhance our ability to create solutions to social needs. By developing and implementing a company-wide technology strategy we have sharpened our Sensing & Control + Think core technologies. Especially since the start of VG2.0 in 2017, we have created a template for OMRON-style innovation that meets the needs of the era to improve our technology management and speed up the creation of innovative technologies. Specifically, we have set up a professional organization to create backcasting innovation that begins from the standpoint of near-future design and extends to developing strategies

and business validation. We accumulate knowledge generated by this organization in-house.

—— **This organization consists of the Innovation Exploring Initiative HQ (IXI), which started full-scale operations in April 2018, and its subsidiary OMRON SINIC X Corporation (OSX). It's been a year since this organization started up. What's been the response so far?**

IXI is an organization that has all the capabilities necessary to do backcasting innovation, and can go through the entire process in a single operation. The role of the OSX subsidiary is to do the near-future research that is the starting point for the process of creating innovation. OSX has brought in many top talents from outside in the fields of AI, IoT, robotics, and other leadingedge technologies. This company makes the best use of talented staff, while working with research groups inside and outside OMRON, engaging in open innovation and performing near-future design.

When IXI was set up, the focus was on making it an innovation platform for OMRON. OMRON has tried, but failed, several times in the past to establish a department that creates new businesses. When we looked back on why these attempts failed, we found the answer. That was because it was a "remote island." In addition to being highly independent, there was a "show us what you've got" attitude from the standpoint of

■ **Innovation Exploring Initiative HQ (IXI) as Group-Wide Innovation Platform**
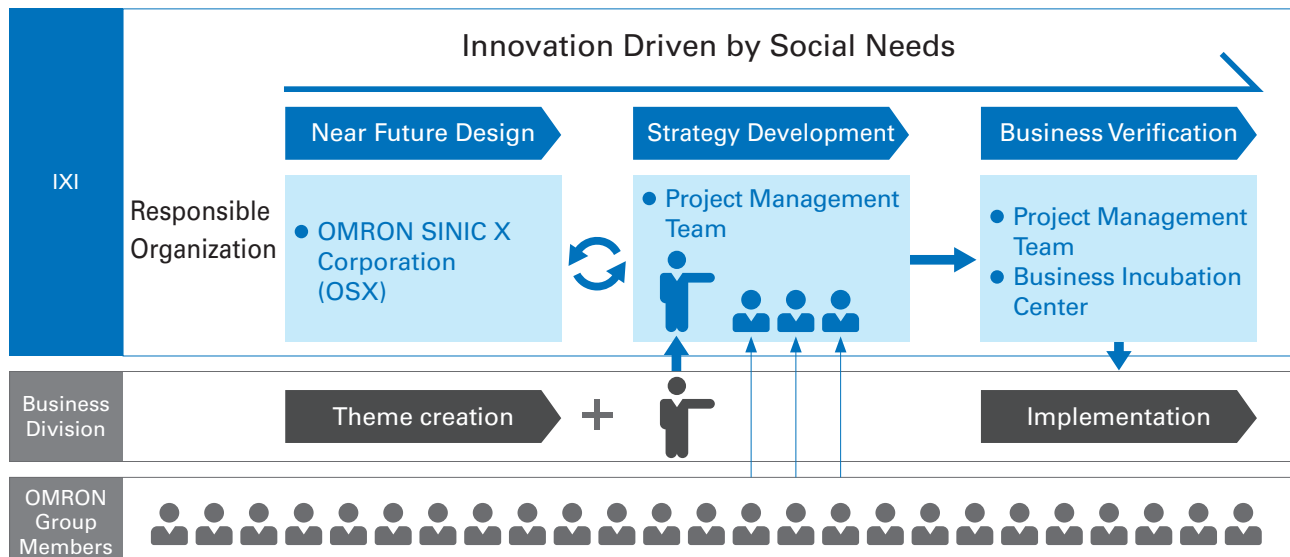
our existing business units, and the business units were not able to provide compelling ideas or leadership. The challenge was how to change this situation.

To achieve this change, we have actively promoted IXI since its establishment both inside and outside of OMRON. As a result, IXI has brought in over 60 ideas over the past year from inside and outside of the company, and nearly 20 projects have been launched that promise to have a real impact. In addition, over 20 young strategic candidates from across the company have participated in IXI. One of the projects launched by IXI is the *Cooperation agreement to solve problems in Japan's regional cities with a view toward 2030* which was announced jointly in April 2019 by the city of Maizuru in Kyoto Prefecture and OMRON's Social Systems, Solutions and Service Business. The impetus for this project came about when Mr. Yamaguchi who is deputy mayor of Maizuru became aware of the existence of OSX and indicated that he wanted to work with OMRON on regional development in Japan. The decision was made by IXI to start up the project immediately after discussions between the deputy mayor of Maizuru and the CEO of OSX, and a project team consisting of people from the city of Maizuru, IXI, and SSB was formed. The project team held discussions about what framework needs to be built to revitalize regional cities with populations between 50,000 and 100,000 people, what these cities should look like in 2030, and what sorts of technologies and business models are needed to achieve these goals. The project is currently at the stage where demonstration tests are being conducted toward the implementation of the near-future designs that have been created. This is an example of IXI's innovation creation process, one which develops near-future in response to social issues, formulates strategies and business validation, and demonstrates the dependability of the system that makes this all possible.

There are a number of projects like this that are now under way. Management needs to be patient because it takes time to achieve great results. There really is a great deal of potential here. I'm really looking forward to seeing what develops.

—— This means that the "template" for OMRON-style innovation is starting to work. On the other hand, the technology to create innovation is essential. What has been the response to the strengthening of core technologies?

It takes people to create and refine technologies. In the process of implementing our company-wide technology strategy, we have been paying particular attention to hiring and training technical people. One result of this is that we have been raising the number of technical presentations and the quality and quantity of our patent holdings. In FY2018, we increased both the number of technical presentations and number of patents held by a substantial factor of 1.4 over FY2014. In terms of the quality of our technology as well, the number of OMRON technical papers selected by leading scientific meetings has increased, while we have nearly doubled the ratio of patents offering promise of making significant contributions to our business. These are solid results. This shows how far we've raised the bar on our ability to implement into technologies into society from across OMRON. We are also seeing the creation of near future technologies and concepts such as technology that integrates the learning models of artificial intelligence (AI) using distributed data, platforms that remotely control robots, and the image inspection technology that can replicate human senses and other unique near future technologies.

As We Advance into the Future, We will Move to Still-higher Levels of Innovation.

—— I can see how you've managed to improve both the *template* and the *technology*. What are some of the tasks that lie ahead for OMRON?

As we have improved our skills in technology management, new issues have emerged as we further accelerate our response to Innovation driven by social needs. That is, how do we create innovation with high social value that is accompanied by technological innovation. As we see in the case of the city of Maizuru, we have set up a process for creating innovation with high value to society that involves designing for the near

future with social issues as the starting point, and then implementing these designs in society. We are also training people who can engage in that process. However, for OMRON to continue as a venture that on its own creates an autonomous society, we need to create innovation that has high social value and technical innovation that can solve future social issues that no one can anticipate. In the project with the city of Maizuru, we are demonstrating social value and are studying ways to further enhance innovation through technology. To that end, in FY 2019, we will closely focus on creating new value to increase social value and on strengthening competitiveness with advanced technology to bring about technological innovation. Specifically, we will focus on strengthening human resources, structure, and on knowledge management.

It is urgent in particular that we train architect human resources that can build the technology and intellectual property strategies and business models that will be essential to run the innovation creation process at IXI. We also need people at the Technology & Intellectual Property Headquarters who can leverage AI, robotics, and other core technologies to fuel the process of technical innovation. These types of people are hard to find in the employment marketplace, so we have to train them and increase their numbers ourselves. That's why IXI has created a new internal strategic human resources development organization. In FY 2018, we identified conceptual ability, communications ability, and the ability to carry tasks to completion as the three elements required of architect human resources. These are the abilities needed in the areas of technology strategy, intellectual property strategy, and creating business models. We also assessed the degree to which each of these abilities are needed. To expand our capabilities in these areas, we will be training strategic human resources candidates who are participating from throughout the company by having them engage in a variety of experiences in the innovation creation process that has been developed by IXI. Core technology human resources start from the definitions of capability requirements, making reference to IXI's human resource development process. Meanwhile, the Technology & Intellectual Property Headquarters is

▌Advancing into the Future and Moving to Still-higher Levels of Innovation.
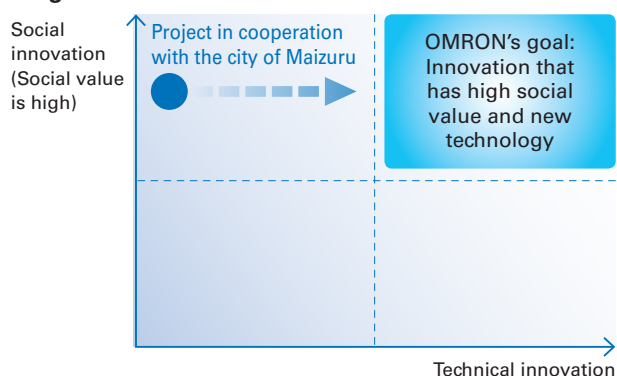
continuing the training of human resources through the implementation of policies that facilitate the search for new technologies.

We're also creating opportunities for people to gain experience in testing out intuitive ideas and giving shape to these ideas through systems designed to enhance both social and technical value. We are creating opportunities for team members to refine their ideas through the process of discussion and debate with people who have a different outlooks and a diversity of knowledge.

The expertise gained from success stories at IXI through the experience of running their processes along with the value creation expertise of the Technology & Intellectual Property Headquarters will be accumulated as organizational knowledge to ensure reproducibility and continuity. This organizational knowledge will be transformed into assets that can be deployed throughout OMRON. OMRON's technology management has frameworks such as stances, strategies, processes, organizations, and systems as well as the human resources to put these in to action. Going forward, we will develop knowledge management, which is an all-out battle to bring together company-wide knowledge that are organically linked to frameworks and human resources to maximize results. We will also create the conditions in which we generate a series of responses to social needs in every OMRON organization.

You can expect more innovation driven by social needs from OMRON.