Initiatives to Expand Business Through DX

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Initiatives toward digital transformation (DX) are currently attracting wide attention in Japan and abroad. DX has been variously explained by various entities. In Japan, the Guidelines for Promoting Digital Transformation[1] published by the Ministry of Economy, Trade and Industry in 2018 define DX as follows.

"Companies leveraging data and digital technology to transform products, services and business models based on customer and social needs, as well as transforming business, organizations, processes, and corporate culture to establish competitive advantage, in response to the drastic changes in business environment."

According to this definition, DX is an activity that establishes competitive advantage through the use of data and digital technology, and is premised on the transformation of business models. It also calls for the transformation of the business itself, the organization, the processes, and the corporate culture.

This article provides an overview of OKI's initiatives to expand business through DX, including some examples.

1. Promoting DX

Figure 1 shows the relationship between the progress of digitization and DX as envisioned by OKI. On the basis of digitization through the digitization of data, we will aim to achieve digitalization aimed at transforming business models, from digitization of business processes. DX is an activity aimed at the wide social implementation of these transformations. Behind the progress of digitization are the diversification of business models, the shift from entity-oriented consumption to situation-oriented consumption, the aging of various infrastructures, and the labor shortage. We are envisioning the deployment of IoT, AI, cloud, 5G, and Local 5G as digital technologies to bring about DX.

OKI is promoting DX with the goal of doubling sales in the DX domain in FY2022 compared to FY2019 and laying the foundation for business expansion through DX in FY2023 and beyond. The main strategies for our DX activities are as follows.
- External strengthening: Entering new markets through AI edge strategies, reinforcing the creation of new solutions, and enhancing existing solutions through IT modernization
- Internal strengthening: Nurturing human resources through organizational reforms, strengthening innovation capabilities, and improving productivity through business process reforms. We believe these strategies can be applied to all companies promoting DX.

From these strategies, I will introduce the ecosystem initiatives that are being implemented as external activities. OKI leverages its technological strengths in AI edge and its relationships with co-creation partners, AI edge partners, and open innovation partners in various fields to promote the social implementation and business expansion of DX through OKI's unique DX solutions in the edge domain. We consider this as our DX ecosystem, as shown in Figure 2. As of November 2021, we have 93 co-creation partner companies and 102 AI edge partner companies.

■ **Figure 1: Progress of digitization and DX**

■ **Figure 2: Figure 2. DX Ecosystem**

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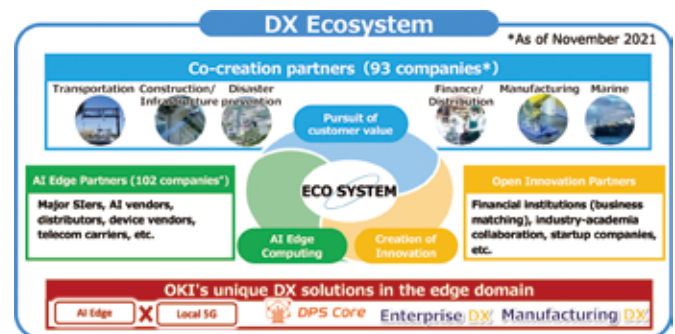
*1 https://www.meti.go.jp/policy/it_policy/investment/dgc/dgc.html
(Guidelines for Promoting Digital Transformation was succeeded to the Digital Governance Code 2.0 with the Digital Governance Code in 2022)

In July 2021, OKI was certified as a Digital-Transformation-Certified Operator by the Ministry of Economy, Trade and Industry, acknowledging it as a DX-ready company that is poised to achieve new growth in the Society 5.0 era. The Digital Transformation certification system is a system under which the government certifies companies that comply with the basic requirements of the Digital Governance Code[*2] based on the Act on Facilitation of Information Processing. The certification was granted in recognition of our group-wide efforts for digital transformation and information dissemination, including the unique innovation activities based on the Medium-Term Business Plan 2022 and the shift to smart factories. Figure 3 shows the process for acquiring certification as a DX-Certified Operator. It also shows an overview of OKI's initiatives as a Digital-Transformation-Certified Operator.

■ **Figure 3: Acquisition of certification as Digital-Transformation-Certified Operator**

2. DX Domains

Figure 4 shows the DX domains that the Solution Systems Business Group is engaged in. Our activities are organized into three domains: public solutions, enterprise solutions, and platforms. Under these, the company aims to establish competitive advantage particularly in transportation, disaster prevention, construction/infrastructure, marine, finance, distribution, and manufacturing, as the focus areas. Going forward, we plan to further expand these DX domains by entering new markets and creating new solutions.

As a concrete example of DX, I will introduce our initiatives in smart factories. Figure 5 shows an example of Virtual One Factory initiatives. Each factory had been individually optimized to produce equipment in a specific domain. However, in response to the recent changes in the supply chain, such as the need for business continuity during disasters and pandemics and for responding to demand variability due to economic fluctuations, etc., it has become imperative to construct an optimal production system as a whole, wherein individual factories can complement each other. Therefore, taking this as an opportunity to address the aging of the system as well, we are working to create smart factories that operate collectively and virtually as "One Factory."

Figure 6 shows an example of our manufacturing DX initiatives. Shown is a new production process for implementing the virtual One Factory. The factory edge platform utilizes IoT and AI to digitalize on-site data in order to digitalize the know-how of skilled engineers and improve productivity and quality.

■ **Figure 4: Domains for DX initiatives in the solution system business**

■ **Figure 5: Example of Virtual One Factory initiatives**
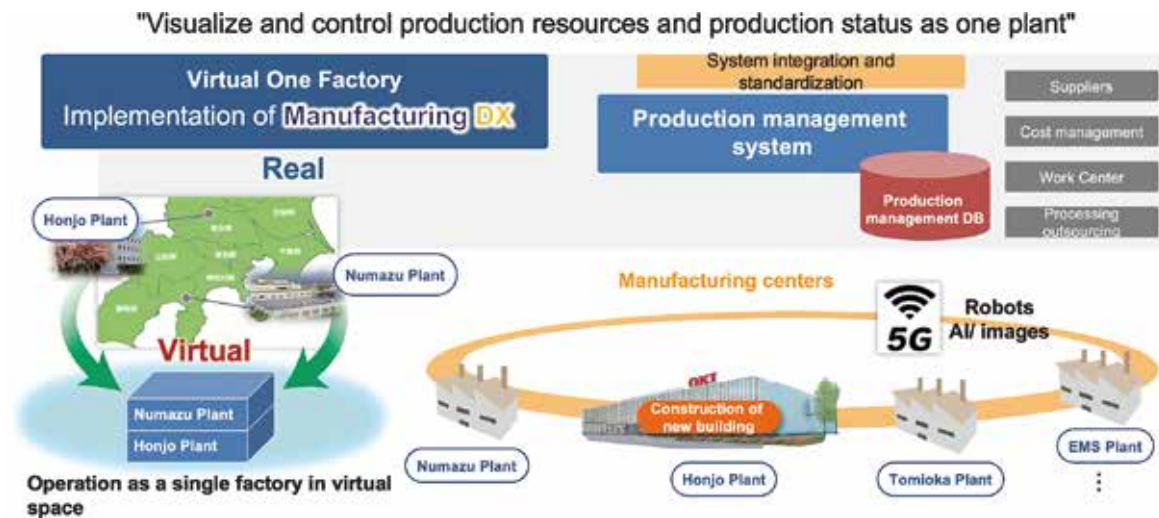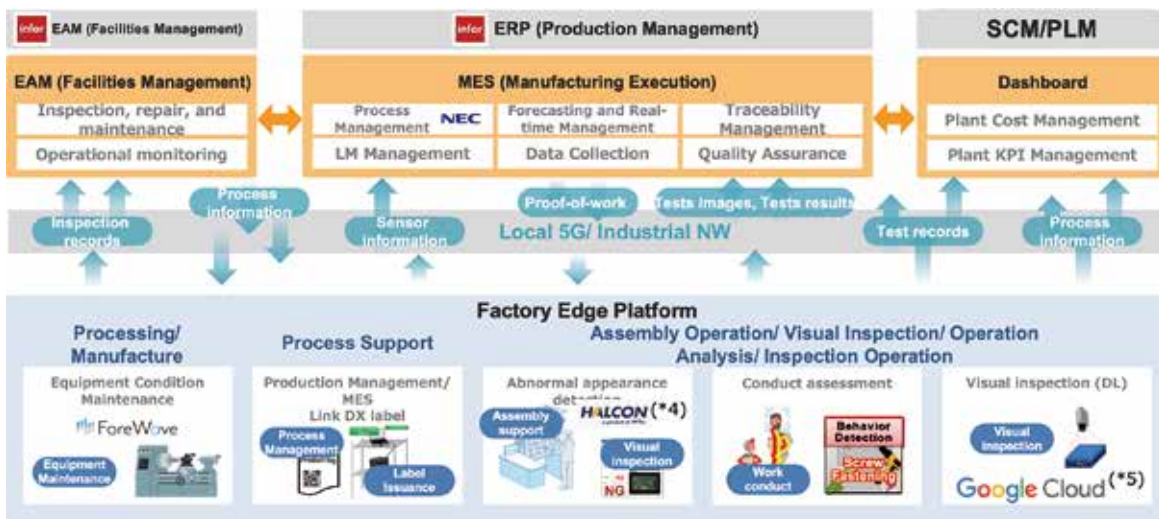

■ **Figure 6: Example of Manufacturing DX initiatives**

Also, using advanced networks such as Local 5G will make it possible to flexibly construct production lines for high-mix manufacturing and to visualize production status through high-security and high-speed transfer of image processing data. Going forward, we will deploy solutions for smart factories based on success stories of our manufacturing industry process reforms.

OKI constructed a new building at its Honjo Plant as the first step toward making its factories smarter. In the new building, which was completed in July 2022, IoT/AI and local 5G were introduced to the production and assembly sites to digitally visualize on-site data and know-how and improve productivity, quality, and technical capabilities. In addition to making the production system smarter, the company is also working on

creating a Zero Energy Factory (ZEF) with the aim of making the entire factory smarter and environment friendly. We aim to reduce energy consumption not only in the office buildings but also in the entire factory, including the production facilities.

3. DX promotion management

We have set up a DX Expansion Task Force within the Business Group to manage DX promotion activities, while sharing information and coordinating activities with other departments within the company (Marketing & Sales Group and Innovation Promotion Center). Figure 7 shows the management of DX promotion.

For the management of DX promotion, a common format

＊4 Halcon is a registered trademark of MVTec Software GmbH.
＊5 Google Cloud is a trademark or registered trademark of Google LLC in the U.S and other countries.

■ Figure 7: Management of DX promotion
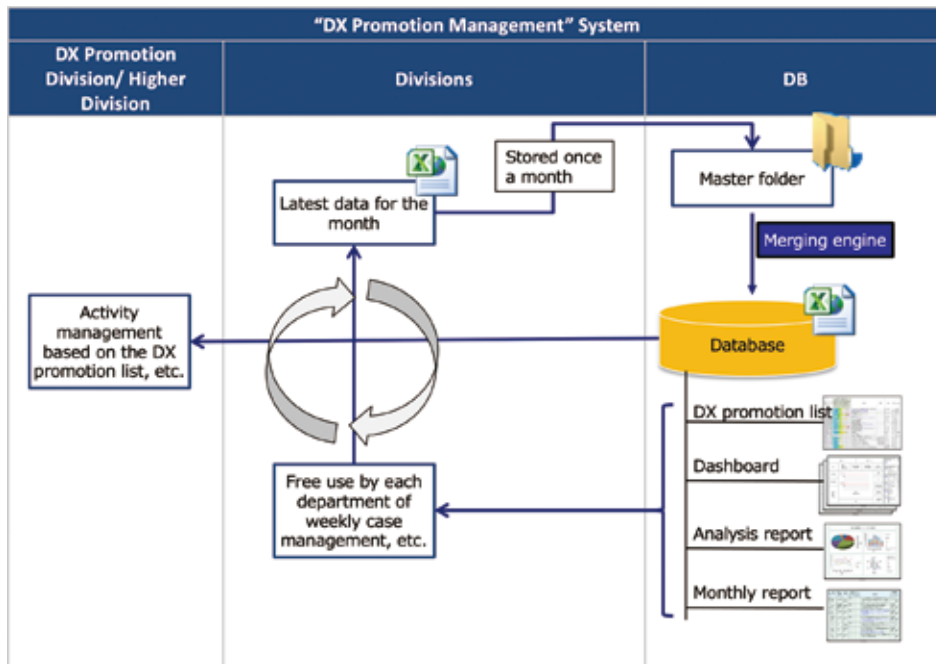
is specified as the "dashboard" for the management of activity information, and a method is being tried to manage data created and updated by each business division into a database. Constructing a database in a common format enables flexible analysis of activities. Also, the centralized management of the database facilitates information sharing between departments, leading to the creation of new solutions through cooperation between departments. Likewise, this management approach is expected to lead to operational and cultural reforms in each division.

We believe that DX is almost synonymous with digital innovation, and efforts to expand DX are equivalent to initiatives aimed at innovation using digital technology. In this management approach, we have adopted the five innovation processes of "identification of opportunities," "creation of concept," "proof of concept," "development of solutions," and "introduction of solutions" into a process management that is linked to the innovation management system (IMS), which we have been implementing across the entire company since 2017. These activities are aimed at the full-scale introduction of ISO56002. OKI's "Yume Pro" IMS, which is ahead of ISO56002, focuses on the social issues raised in the SDGs, and will be used to reform the above-mentioned business processes and business models[6].

4. Future initiatives

Above I have introduced initiatives for business expansion through DX, the key points of which are "innovation activities," "co-creation partnership," and "expansion of DX domains." As the two pillars of the expansion of our DX business, the company plans to "enter new markets/create new solutions" and "strengthen existing solutions" through external strengthening such as by ensuring competitive advantage through the use of digital technology and by reforming business models. The company also plans to carry out internal strengthening through transformation of business processes, organizations, and corporate culture.

In addition, we will actively disseminate information to expand our DX business, focusing on introducing DX case studies and co-creation cases, and on online promotion. Figure 8 shows an overview of the AI Edge Conference & Solutions Contest held in December 2021. The event is a competition of ideas and technologies to solve social issues in various industries using OKI's AI edge computer "AE2100," and is one of the company's initiatives aimed at business expansion through DX.

■ Figure 8: AI Edge Conference & Solutions Contest

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*6 https://www.oki.com/jp/press/2020/12/z20092.html