

# KOBELCO's Perspective on Digital Transformation (DX)

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## Abstract

*The distinctive strengths of the KOBELCO Group lie in its diverse technological and business assets accumulated through engaging in various businesses. Additionally, the group possesses interactions and touchpoints with customers in diverse fields of demand, enabling the group to understand industry trends and customer needs. KOBELCO's concept of digital transformation (DX) involves combining digital technology and data with these unique assets to solve societal challenges and create new value. This article introduces the concept of and approach taken by KOBELCO's DX.*

## Introduction

The "DX Report"<sup>1)</sup> published in 2018 by the Ministry of Economy, Trade and Industry sparked Japan's interest in DX (digital transformation). This drove the KOBELCO Group to declare DX as one of its management strategies within the KOBELCO Group Medium-Term Management Plan (FY2021-FY2023).<sup>2)</sup>

The Ministry of Economy, Trade and Industry defines DX as the use of data and digital technology to transform not only products, services, and business models, but also the business itself, organization, business process, and corporate culture, by responding to changes in the business environment to meet customer and societal needs and establish a competitive advantage. However, each individual company is to define its specific DX initiatives, objectives, and scope in line with its management strategy.

This paper defines KOBELCO's perspective on DX and the company's plan of action toward DX initiatives.

## 1. KOBELCO's unique approach to DX

The KOBELCO Group will drive sustainability management in line with the KOBELCO Group's corporate philosophy to create added value. The DX component of our management strategy stipulates the use of digital technology and data to the fullest extent to achieve KOBELCO's View of the Future per the KOBELCO Group's corporate philosophy: a world in which people, now and in the future, can fulfill their hopes and dreams while enjoying safe, secure, and prosperous lives.

Further, KOBELCO's unique approach to DX includes the use of digital technology and data to foster KOBELCO's View of the Future as we carry out KOBELCO's Mission per the KOBELCO Group's corporate philosophy. Specifically, our Mission is to provide solutions that meet the needs of society by making the best use of the talents of our employees and our technologies. Such talents and technologies include diverse technological and business assets accumulated through engagement in various businesses including materials (steel and aluminum, advanced materials, welding), machinery (machinery, engineering, construction machinery), and electric power. Additionally, the group maintains relationships and touchpoints with customers in diverse fields, enabling the company to keep abreast of industry trends and customer needs. Digitizing information related to these distinctive assets and the needs of society and our customers makes it possible to utilize data throughout the group. Analyzing these data using AI and other tools reveals insights that could not be discovered within a single business. Combining the new value added following the discovery of these insights with Kobe Steel's distinctive technologies will foster the ultimate intention behind KOBELCO's unique approach to DX, which is to solve the challenges presented to society and our customers, including carbon neutrality and labor shortages.

## 2. DX implementation plan

We devised a DX implementation plan to bring to life KOBELCO's unique approach to DX. **Fig. 1** depicts this three-step medium- to long-term strategy.

### 2.1 STEP 1: Promote aggressive and bold digitization

Although Step 1 can be broadly referred to as digitization, the full phrase "promote aggressive and bold digitization" drives the involvement of all employees. Digitization can refer to the conversion of analog data into digital form or the automation or optimization of manual tasks via digital tools.

Specifically, this means all employees will use digital tools such as RPA (robotic process automation/automation of repetitive tasks), no-



Fig. 1 Promotion strategy for digital transformation

code/low-code platforms (system development without programming languages), BI tools (business intelligence tools/data visualization), and electronic contract software to optimize processes.

Step 1 improves efficiency directly and sets the foundation for the data utilization and transformation that will occur in Step 2.

## 2.2 Step 2: Drive the transformation of KOBELCO through digitalization

One can broadly think of Step 2 as the digitalization stage, the purpose of which is to drive the transformation of KOBELCO through digitalization. This step involves digitalizing (systematizing) operations, connecting operations through upstream and downstream data, using data to define optimal protocols, and automating processing and decision making. These measures will transform operational processes and greatly improve efficiency.

This step also includes managing, visualizing, and analyzing integrated data for a decision-making process that is faster and more advanced due to insights that humans cannot detect.

Materials informatics (MI) provides a concrete example of data visualization and analysis. MI is the use of big data and machine learning in materials development to increase the efficiency of the development process and to discover material formulations that conventional knowledge and experience alone generally could not uncover.<sup>3)</sup>

Production sites are also using Internet of Things (IoT) technology to digitalize and aggregate data surrounding processes and equipment. The intention behind this is to drive the transformation toward data-driven manufacturing, which unites historical operating expertise with big data analysis (see “Building and Utilizing Company-wide Data Analytics Platform, DataLab®,” pp.6-8 of this issue).

## 2.3 Step 3: Leverage DX to create KOBELCO's unique value

Step 3 involves implementing KOBELCO's unique approach to DX as described in Section 1 and making use of the resources (time) and aggregated assets (data) from Steps 1 and 2. This is how we will leverage DX to create KOBELCO's unique value to ultimately establish new value and solve societal challenges.

K-DIVE® (trademark of Kobelco Construction Machinery Co., Ltd.) is one example of KOBELCO's unique DX solutions. This system for remote construction equipment operation uses operating data to improve efficiency at construction sites and transform how operators work. As such, this system improves safety and addresses the societal challenge of labor shortages in the construction industry.<sup>4)</sup>

We are also furthering innovation in manufacturing by actively contributing to a carbon-neutral society through such products as AI Souro, an automatic blast furnace control system that uses AI to reduce CO<sub>2</sub> via high-volume charging of hot briquetted iron (HBI) in blast furnaces.<sup>5)</sup>

## 3. Infrastructure in support of DX

To accelerate Steps 1 through 3, every employee must support the transformation by using digital technology and data. The entire company must also hone its ability to implement, accelerate, and enhance this transformation (hereafter, the driving force for DX).

Three elements make up the driving force for DX: (1) a workforce that promotes the transformation and the use of digital technology and data; (2) an environment that facilitates employees' use of digital tools and data; and (3) an employee mindset and company culture of support and praise. Bolstering all of these elements in turn fortifies the driving force of DX.

These three elements are respectively deemed “employee development toward DX,” “environment for data utilization,” and “fostering a culture conducive to DX.”

### 3.1 Employee development toward DX

We are cultivating two roles in support of DX. The first is that of technology evangelists, who will lead business improvements and the transformation through the use of digital technology in each department. The second comprises data scientists, who will use statistical methods and analytical techniques to solve problems and uncover new information from data accumulated through digitalization.

Employees in these roles must continuously incorporate DX into their work. These specialists will receive ongoing training regarding digital tools and will participate in community activities.

### 3.2 Environment for data utilization

We are enhancing outdated systems to ensure that our processes can respond swiftly and flexibly to internal and external changes and to support the effective storage and utilization of data generated by our processes.

We have also introduced IoT technology to collect operating data from equipment both in our plants as well as supplied to customers. Further, we are adapting our environment to support data utilization via new technologies through developments in cloud data storage and advanced data analysis software (see “Building and Utilizing Company-wide Data Analytics Platform, DataLab<sup>®</sup>,” pp.4-7 of this issue).

### 3.3 Fostering a culture conducive to DX

We must foster a corporate culture in which all employees regard themselves as responsible for using digital technology and data, proactively inducing transformation, and taking on new challenges, wherein the cumulative actions of all employees are meaningful.

Efforts to cultivate the necessary culture have centered around sharing best practices through the intranet and internal events. However, this has not proven sufficient.

As such, we will provide training and support to improve DX literacy and foster a DX mindset, and we will establish a merit system to recognize and honor achievements.

## Conclusions

This paper describes KOBELCO’s perspective and implementation plan regarding digital transformation. Step 1 of the plan is to promote DX to set the stage for Step 2, the transformation of KOBELCO, which in turn supports Step 3 as the final stage of creating value through DX.

The latest Medium-Term Management Plan defines KOBELCO’s unique transformation via KOBELCO-X as a means to accelerate these efforts. The relationship between KOBELCO-X and KOBELCO’s perspective on DX is described next.

Step 2, driving the transformation of KOBELCO through digitalization, involves using digital technology and data to implement, accelerate, and enhance the four transformations of KOBELCO-X: business transformation (BX), customer experience transformation (CX<sup>2</sup>), employee experience (EX), and factory transformation (FX).

Step 3, leveraging DX to create KOBELCO’s unique value, involves using digital technology and data to bring to fruition the two prongs of our business strategy: ambidexterity (AX) and green transformation (GX).

Driving these initiatives forward supports our corporate philosophy of achieving KOBELCO’s View of the Future as we carry out KOBELCO’s Mission.

## References

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