Our Challenges (3)

Transformation of People and Organization

We will create an organizational culture of continuous learning, enabling all our employees to become digitally savvy.

Stanley Fukuyama
General Manager, Global Digital Transformation Office

Launching the GDX Office and Formulating the DX Vision

The Kuraray Group, in January 2022, established a new Global Digital Transformation (GDX) Office. I was involved in establishing the GDX Promotion Team, the predecessor to this organization, and have been working to create a system for promoting digital transformation (DX). Our team members are chosen for their knowledge of the Kuraray Group's technologies and products and their STEM (Science, Technology, Engineering, and Mathematics) skills and initiative.

When launching the team, we focused on understanding the current state of IT literacy in the Group through detailed surveys and interviews. We then held discussions with the management team about the kind of Group we should aim to become and what is possible with digital transformation. Based on this investigation, we formulated the DX Vision: "Improve competitiveness, continuously evolve, and contribute to the world." Digital technology is evolving rapidly in the world today. To keep up with these changes, each of us must take a personal interest in digital technology and continue learning. Alongside our efforts to hire and train data scientists and other specialized talents, we must create a culture and environment of continuous learning so that all employees can keep up with the digital evolution. We held a series of discussions looking at the gap between the DX Vision and our current circumstances and how we should fill that gap. We developed a digital transformation strategy based on the four priority fields in the Medium-Term Management Plan "PASSION 2026": "Customer experience (CX) reforms," "Operational process reforms," "Business model reforms," and "R&D and production technology simulations." With the participation of global members in the strategic planning process, we were able to create a roadmap that incorporates a variety of perspectives and can respond to various changes.

Digital Transformation Strategy in "PASSION 2026"

In terms of "Customer experience (CX) reforms," we will promote reforms in marketing and information systems in the area of customer contact. The Kuraray Group has already rolled out a customer relationship management (CRM) system. We moved into the data analysis phase in 2022. In the future, we plan to link the CRM's analysis data with the Innovation Networking Center, each business unit, and sustainability activities. We will connect the data to specific actions, such as customer communications. At this stage, though, we recognize that our challenge is to improve the quality of the source data provided by customers. We are focusing on input training and improving data literacy to enhance the quality of the information we obtain. Ultimately, our goal is to better understand customers through CRM data analysis and design and deliver new solutions using digital technology.

"Operational process reforms" are working to improve performance through the digitalization of each business process. It is a very broad topic. In terms of specific initiatives, our first step is to take an inventory of operations. We will then review processes currently being carried out manually and narrow down and select those where we can expect dramatic productivity gains through digitization. We have also begun to develop IT governance based on the Control Objectives for Information and Related Technology (COBIT) framework[1]. We aim to build a system that enables the active use of IT globally in secure environments.

In terms of "Business model reforms," we are actively moving ahead with building a mechanism for creating new value by combining services with digital technology. The Kuraray Group's strength has been using our proprietary technologies to create high value-added products that set us apart from those developed by other companies. In this sense, we have leaned toward a so-called "product-out" business model. One shortcoming with this is that once a social need has subsided, the product loses its adaptability. If we can address this challenge using interactive digital

services using IoT, we can meet social needs sustainably while expanding the possibilities for new proposals. We are now starting to create prototypes of this kind of service.

We are looking to R&D and production technology simulations, identifying what kind of R&D experiments to carry out in the future and exploring what can be reproduced in a digital environment. To this end, we are organizing and integrating data that will become the base for such simulations and designing a shared platform. Currently, in its production technologies, the Kuraray Group's technology division is carrying out digital twin simulation, an IoT-based operation optimization system for in-house power generation facilities. Going forward, we plan to expand these efforts and the number of simulations that reproduce physical conditions in a cyber environment.

By realizing our digital transformation strategy in these four priority fields, we anticipate a 20% or more improvement in efficiency, based on past experience. We are working on setting KPIs with reference to these initiatives as well.

Aiming to Be "a Digitally Savvy Company"

A data-driven mindset ("think in data, decide by data") is already ingrained in our day-to-day lives. For example, we make plans for the day based on weather forecasts, which are calculated by supercomputers using an extremely precise technique called the finite element method. People look at this data and decide what to do. The GDX Office aims to create a system for enabling company plans and strategies to use data for decision-making in the same way. To achieve this, every employee needs to think constantly about how the digital data they handle each day will be used in digital transformation. Employees should develop a habit of collecting, creating, editing, and storing data in a format that is easy to understand—just as they do with paper documents. If we do this, our data quality will improve naturally, making it possible to use for our business.

Alongside this, cultivating talent is also extremely important. We are working with the Personnel Development Department to assess the digital literacy of the organization as we explore training and education programs to fill any gaps. By carrying out these practical activities, we aim to become "a digitally savvy company" where all employees have digital expertise.

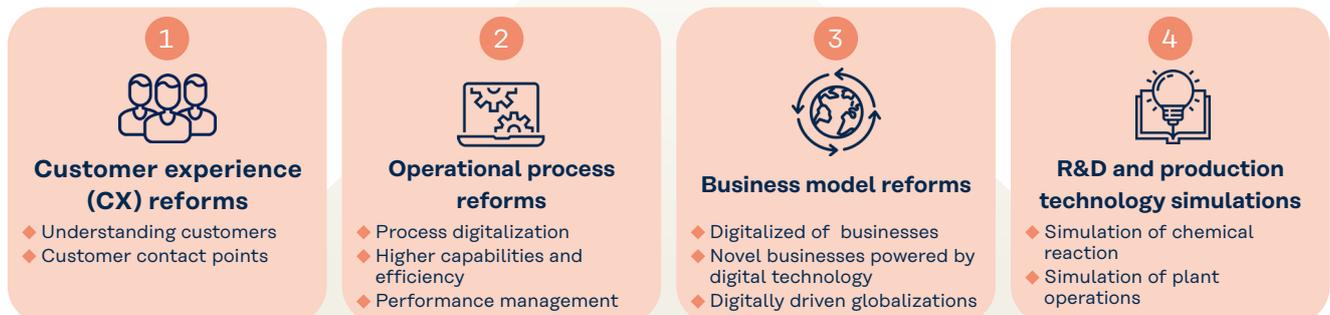*1 An IT governance and management framework developed by the ISACA

Digital Transformation Strategy in "PASSION 2026"

"PASSION 2026" sets out four priority fields to be addressed as we pursue Group-wide digital transformation based on the DX Vision: "Customer experience (CX) reforms," "Operational process reforms," "Business model reforms," and "R&D and production technology simulations." The Kuraray Group will draw on digital technology to change our processes and on diversity to expand our thinking, bringing transformation to both people and our organization. This will enable us to grow and contribute to society.

DX Vision

Improve competitiveness, continuously evolve, and contribute to the world as a digitally savvy company

Priority Fields

1 Customer experience (CX) reforms
◆ Understanding customers
◆ Customer contact points

2 Operational process reforms
◆ Process digitalization
◆ Higher capabilities and efficiency
◆ Performance management

3 Business model reforms
◆ Digitalized of businesses
◆ Novel businesses powered by digital technology
◆ Digitally driven globalizations

4 R&D and production technology simulations
◆ Simulation of chemical reaction
◆ Simulation of plant operations

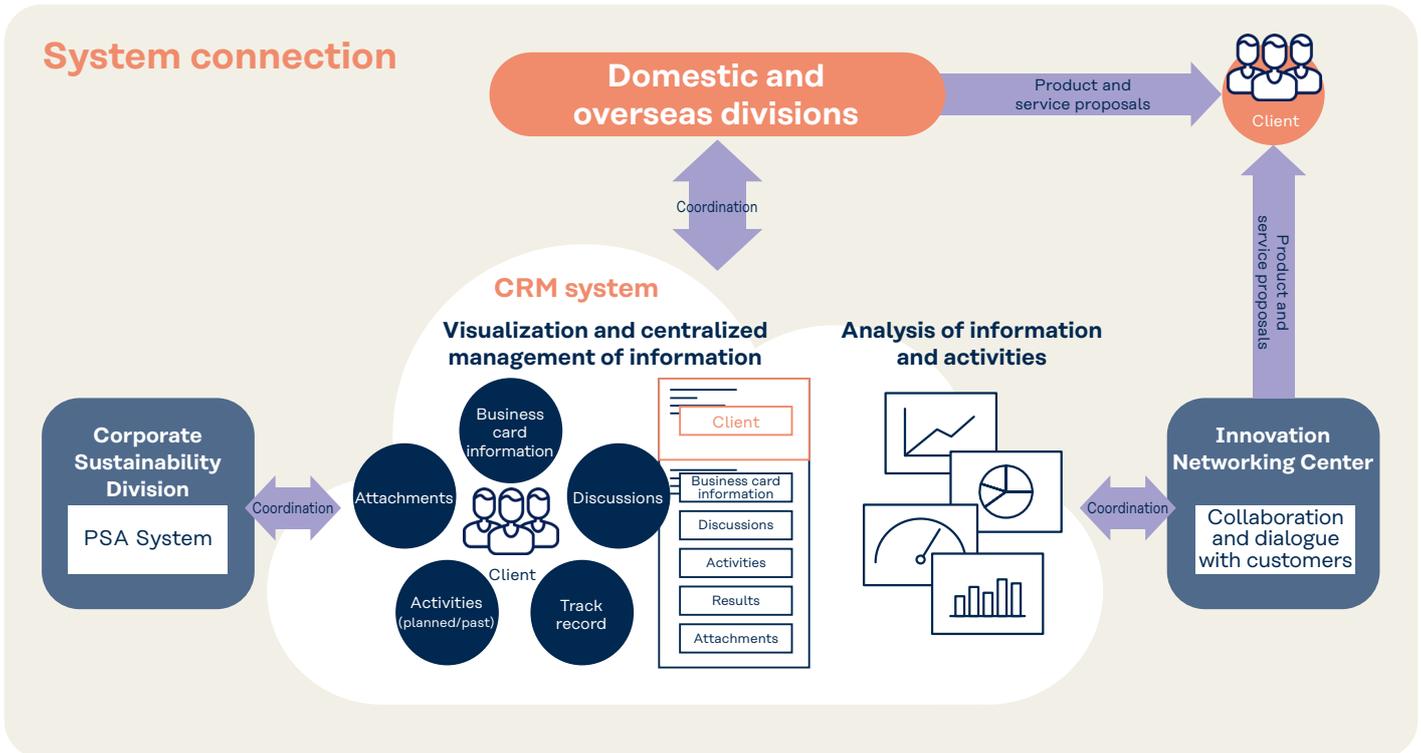### Global Digital Transformation Office

Data-driven organization
"Think in data, decide by data."

Higher digital literacy
Improve ratio of data analytics talents.

Digital Transformation Example (1)
Customer proposals through CRM system integration

CRM systems are designed to maintain and improve smooth relationships with customers by providing centrally managed records of collaboration and conversations. The Kuraray Group moved into the data analysis phase for its CRM system in 2022. In the future, our goal is to link CRM analysis data with the Innovation Networking Center and each business unit and with sustainability activities. This will enable us to draw on an array of perspectives as we develop new products and services, which will lead to higher levels of satisfaction.

System connection

- Domestic and overseas divisions
- Product and service proposals → Client
- Coordination
- **CRM system**
  - **Visualization and centralized management of information**
    - Business card information
    - Attachments
    - Discussions
    - Client
    - Activities (planned/past)
    - Track record
  - Client
    - Business card information
    - Discussions
    - Activities
    - Results
    - Attachments
  - **Analysis of information and activities**
- Corporate Sustainability Division — PSA System
- Coordination
- Innovation Networking Center — Collaboration and dialogue with customers
- Coordination
- Product and service proposals

Digital Transformation Example (2)
Digital twin simulation

The Kuraray Group's in-house power stations operate multiple power generation units, supplying electricity and steam within plants. Digital twin simulation collects weather data and boiler and turbine data on an IoT platform. This data is used to forecast demand for electricity and steam at the plant. Once we satisfy the operational constraints for each boiler, turbine, and other type equipment, we will formulate and present an optimal operation plan for all power stations.

Main dashboard

Operated through dashboards customized for each user department

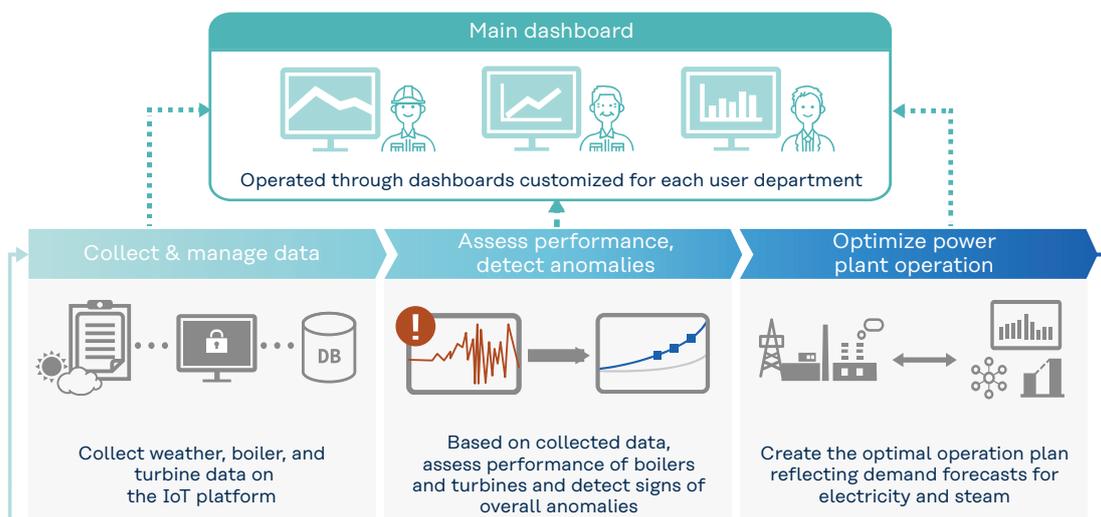| Collect & manage data	Assess performance, detect anomalies	Optimize power plant operation
Collect weather, boiler, and turbine data on the IoT platform	Based on collected data, assess performance of boilers and turbines and detect signs of overall anomalies	Create the optimal operation plan reflecting demand forecasts for electricity and steam

Image courtesy of Toshiba Energy Systems & Solutions Corporation