Improving Customer Experience (CX) with Digital Technology

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Amid the rapidly changing business environment, the use of digital technology has become increasingly important for companies to improve the customer experience (CX) as a key factor. Companies must make full use of digital technology in order to provide value to customers throughout the business process, from the preliminary phase of a project to after-sales service. This paper explains how Yokogawa is using its digital technology to improve CX.

INTRODUCTION

CX is an acronym for customer experience, which means the experience from the customer's perspective when they purchase products or use services. CX includes not only material values but also emotional values such as satisfaction and pleasure related to products and services. A higher CX boosts customer loyalty and the company's brand power, profits, and growth (Figure 1).
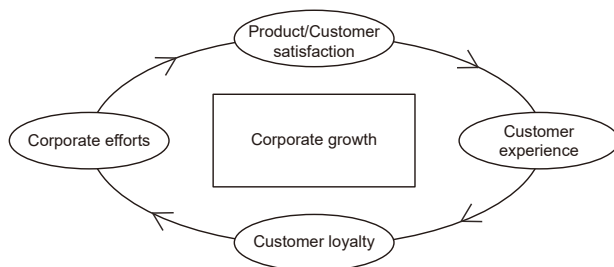

Figure 1 CX and corporate growth

The Ministry of Economy, Trade and Industry, Japan (METI) issued the "Guidelines for Promotion of Digital Transformations (DX Promotion Guidelines)[(1)]." It defines Digital Transformation (DX) as "an initiative based on the needs of customers and society to changing products, services, and business models; transforming business operations, organizations, processes, and corporate culture and climate; and establishing a competitive advantage, by responding to rapid changes in the business environment and by using data and digital technology." In other words, the purpose of DX is to use data and digital technology to boost CX.

Becoming a customer-oriented company is essential for Yokogawa, which is working hard to transform itself from a well-established manufacturing company that has been in business for more than 100 years into a world-class operational technology (OT) and information technology (IT) solutions and services company. For Yokogawa, using digital technology to improve CX is a key strategy.

For this purpose, we are promoting the following three approaches: (1) Yokogawa Digital Assistant (YODA), which integrates management of customer data in each business unit and supports consistent marketing and sales activities across the Group both in Japan and overseas, (2) Integrated Customer Portal (iCP), which offers digital communications with customers, and (3) Configure Price Quote (CPQ), which enables speedy and efficient quotations. This paper introduces these approaches.

IMPROVING CX WITH DIGITAL TECHNOLOGY

Overview of the CX Platform

The CX platform consists of CPQ, iCP, and YODA (Figure 2). CPQ and iCP are the front-end systems that

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directly interact with customers while YODA is the back-end system that integrates customer data. Customers communicate with Yokogawa through either conventional human-based sales (analog sales) or iCP-based sales (digital sales). The digital sales system can automatically make digital-based proposals such as recommendations based on customer data. Since both analog and digital sales channels refer to an integrated database on a unified customer data platform, the activities of these sales channels remain consistent.
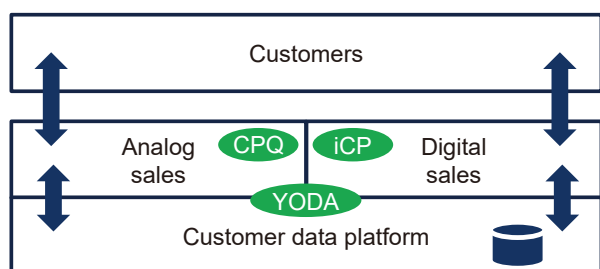

Figure 2 Conceptual diagram of the CX platform

To make sure that the Group companies in Japan and overseas can use the platform and that the platform does not prioritize requirements in Japan over those elsewhere, we set up a global organization that involves the CEO, directors in charge, and regional offices (Figure 3).
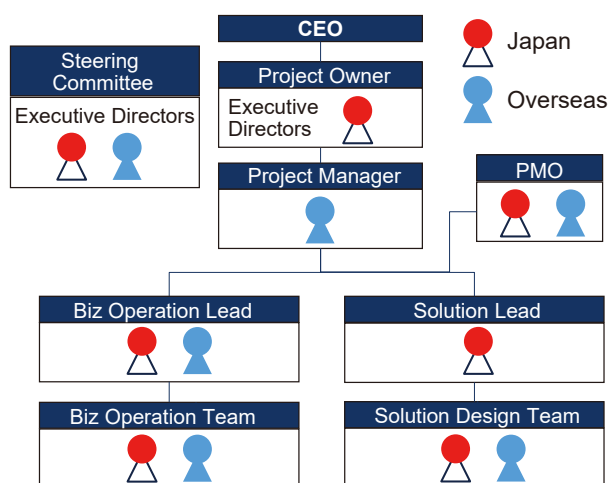

Figure 3 Organizational structure

This platform was developed by an agile approach. Some Group companies started using it in fiscal 2020, and the Group-wide roll-out will be completed in fiscal 2022.

The details of each approach are described below.

Configure Price Quote (CPQ)

There are a wide variety of products related to measurement and control and various options are available for even a single product, making it possible to provide products that match any type of usage by customers. On the other hand, some options cannot be used together with others, making the configuration complex and problematic. It is difficult to quickly determine feasible combinations, and it also takes time to calculate costs for selected options and to prepare quotations.

To solve these problems, we adopted a CPQ tool based on Software as a Service (SaaS). There was a concern that CPQ tools with low performance may not be able to handle products with a complex configuration, so we selected a tool that has sufficient processing power. Although CPQ uses different SaaS from that for YODA, we made sure that CPQ works with other systems including ERP and Datahub. Thus, its architecture meets the business requirements (Figure 4).

In the past, many sales representatives used Microsoft Excel and Word to create quotations independently. The CPQ tool can record any quotations, whether they were approved or not. These data can be compiled into reports by using the dashboard, making it possible to analyze sales activities. Although this tool is quite useful, some distributors prefer to obtain only the necessary information via an application programming interface (API) rather than the CPQ tool because they also handle products from other companies. So, we developed an API that can be securely accessed. This API is expected to serve as a basis for e-commerce. In addition, since CPQ is linked to YODA (described in the next section), it seamlessly supports sales activities.

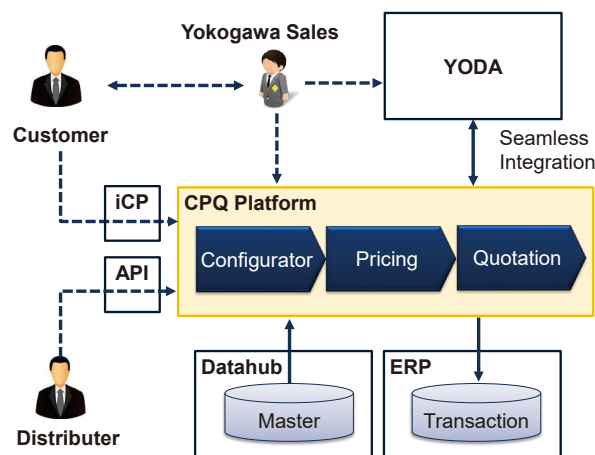With CPQ, we aim to improve operational efficiency and profitability.

Figure 4 Overview of CPQ architecture

Yokogawa Digital Assistant (YODA)

To improve CX, it is necessary to understand what customers want and how they use and evaluate our products and services. In other words, we need to shift our business model from push-style sales, in which we simply provide products and services we want to sell, to a customer-centered business model, in which we identify the potential needs of customers and provide products and services that match them (Figure 5). Conventionally, sales representatives visit customers to grasp their needs. Today, digital technology can take sales activities to the next level.
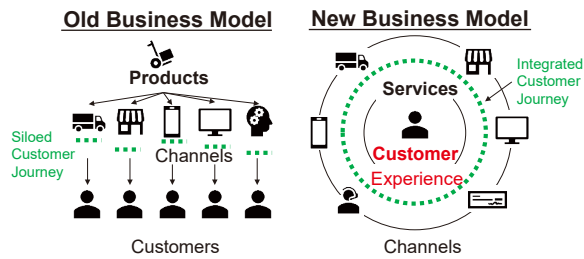
Figure 5 Transformation of Yokogawa's business model

To promote digital technology-enhanced sales activities, YODA aims to transform the business model (1) from unconnected data to integrated data, (2) from general-purpose portal sites to personalized ones, and (3) from individually optimized, passive communication to customer-centered, active communication (Figure 6). To make YODA the core sales platform of Yokogawa, the following requirements must be satisfied: "ensuring data quality so that any customer and their related information can be uniquely identified," "seamless access to all customer-related data and their utilization," and "smooth deployment and utilization of the system across the Group companies both in and outside Japan." The details are described below.
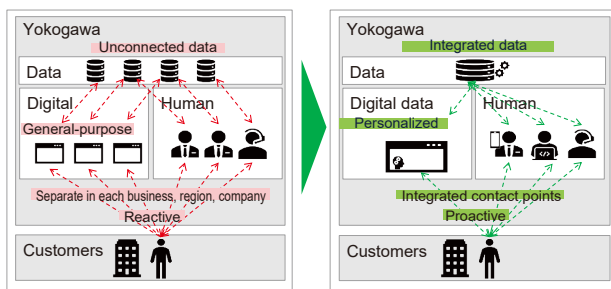

Figure 6 Making YODA the core sales platform

To ensure data quality so that any customer and their related information can be uniquely identified, the most important and difficult factor is to manage customer data in each business unit in an integrated manner. To do this, we implemented two measures: develop a common data model among various systems and eliminate the duplication in customer data.

In developing a common data model among various systems, it is difficult to migrate the data models defined in existing systems to a common data model. In its history of more than 100 years, Yokogawa has built a variety of customer management systems. Until the concept of enterprise architecture became commonplace, each system had its own data model, and the granularity of management was not uniform, making it extremely difficult to link data among existing systems. To solve this problem, we built Datahub, which allows centralized management and alignment of data. In this architecture, we linked information on customers' accounts, plants, assets, and contracts as well as Yokogawa

staff in charge of each customer and developed a data model for common management.

Since each existing system has its own customer data, multiple customer IDs are generated for a single customer and managed individually by each system. As a result, information related to the same customer was not linked among the systems, and it was not clear how Yokogawa dealt with each customer. To eliminate this duplication, YODA uses common customer IDs. These IDs are not Yokogawa's original ones, but use the Data Universal Numbering System (D-U-N-S) Number, which is a corporate identification code developed by Dun & Bradstreet Corporation, a U.S. credit research firm, and is recommended by the United Nations and the International Organization for Standardization (ISO). In Japan, Tokyo Shoko Research manages these numbers. For existing data, we cross-referenced the D-U-N-S Number and the customer data in Datahub to delete the duplication. For new data, YODA will register only IDs based on the D-U-N-S number system. In this way, this architecture eliminates the duplication in management. In addition, we are planning to set up an organization that continuously checks for duplication and performs other data management tasks.

The second requirement is "seamless access to all customer data and their utilization." Yokogawa offers a variety of products and services, which are managed by different business units which, unfortunately, do not always exchange information smoothly with each other. YODA can provide a common platform that enables any business unit to seamlessly access the necessary information stored in any Group companies both in and outside Japan. To achieve this, we defined standard operations for marketing, sales, and service, and used them as a common global template. Its construction depends heavily on which organization will be involved. In this project, persons in charge of process standardization were assigned in each domain of marketing, sales, and service. Under them, we placed persons in charge of each business unit, who are responsible for compiling the requirements for each region. The executives of each business unit and the presidents of the sales companies also participate in the steering committee, ensuring that this system works both bottom-up and top-down.

YODA's marketing automation function helps boost sales by managing prospective customers, who have not been covered to date. We also aim to improve the usability of the system so that data can be input efficiently, which will increase productivity. In addition, we are incorporating a mechanism that allows sufficient data to be efficiently stored in the platform. To support remote sales activities, the system is linked to Webinars, which are an important communication tool in the new business environment, both now and after COVID-19.

To determine the effects of YODA on business, we set several KPIs: number of leads (prospective customers), number of orders, number of product transactions per customer, and productivity of sales and marketing operations.

Lastly, "smooth deployment and utilization of the system

across the Group companies both in and outside Japan" is explained. As described in METI's "DX Promotion Guidelines," transforming the corporate culture and climate is an important key to the success of DX. To make YODA take root in Yokogawa's corporate culture, we set up a dedicated team to promote the spread of YODA. We also clarified and shared the project's vision (Figure 7) so that everyone can go back to basics at any time. In addition, we are promoting use of the system by analyzing stakeholders, developing leadership, creating promotional videos, and providing training. In particular, the promotional videos have been popular and have motivated overseas project members.
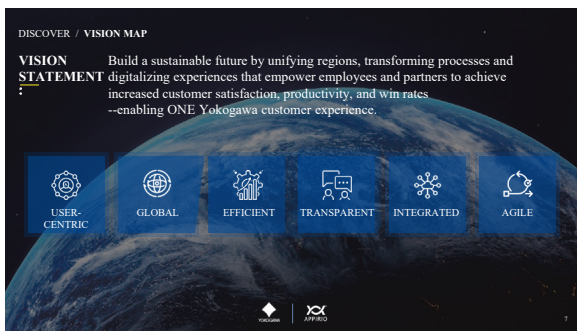

Figure 7 YODA's vision statement

Integrated Customer Portal (iCP)

iCP is a portal site for customers who purchased Yokogawa products. iCP will have various functions: managing asset information, monitoring equipment for fault prediction and proactive maintenance, software activation and download, contract information, e-commerce (including recommendations), sharing the project status, training, and proactive consultation based on customer data. We plan to release these functions soon. Once these functions are available, customers will be able to directly request repairs and order replacement parts. We are also considering the use of AI for automatic and proactive consultation. Preparations for its Proof of Concept (PoC) are under way.

The same SaaS as that for YODA used for a platform enables access to the same database and thus timely communication between customers and Yokogawa. We also use the same KPIs as those for YODA to determine the effects of iCP on business.

CONCLUSION

In long-standing companies including Yokogawa, it is not easy to introduce DX to improve CX because it requires not only introducing new digital technologies but also eliminating and consolidating existing systems and changing the corporate culture. We will continue to promote these activities for the benefit and satisfaction of customers.

Yokogawa is also planning to aggressively take on the following highly challenging areas: integration of DX service platforms for customers with e-commerce and the Industrial Internet of Things (IIoT); and automation of sales, marketing, and service operations through the use of AI/ML (machine learning).

REFERENCES

(1) Ministry of Economy, Trade and Industry, "Guidelines for Promotion of Digital Transformations (DX Promotion Guidelines) Ver. 1.0," 2018, p. 2 (in Japanese)

* D-U-N-S is a registered trademark of Dun & Bradstreet Corporation.

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