

# Confronting Issues Facing a Wide Range of Industries and Society Based on the i<sup>3</sup>-Mechatronics Solution Concept and Contributing to the Realization of a Sustainable Society

## Toward the Achievement of "Realize 25" Mid-Term Business Plan Targets (Operating Profit of 100 Billion Yen)

The Yaskawa Group's long-term business plan, "Vision 2025 (FY2016 to FY2025)," consists of three mid-term business plans (hereafter MTP) that divide the 10-year period into 3 steps. During the first and the second two mid-term periods, unexpected events such as the COVID-19 pandemic occurred one after another, but from a business performance perspective, it is significant that we were able to reach the point where we can challenge the final goal for FY2025 by adapting our management operations to the changing environment. On top of that, in the current MTP, "Realize 25 (FY2023 to FY2025)," I believe it is important to act unswervingly toward our goals by flexibly adapting to changes and effectively using PDCA cycle.

In FY2023, the first year of "Realize 25," the business environment continued to be challenging, as demand in the semiconductor market, which is important to the Yaskawa Group, was sluggish, and the Chinese market, which had achieved high growth, was also weak. It is expected that the semiconductor market will recover in earnest from FY2024, but there is no doubt that achieving the MTP target of operating profit of ¥100 billion for FY2025 is a big hurdle. However, based on the achievements and capabilities that the Yaskawa Group has accumulated over the years, such as reforming our business model based on our solution concept, "i3-Mechatronics," and proposing solutions based on understanding of our customers' "benefit of improvement and evolution," I believe that even a lofty goal is not a goal that cannot be achieved if certain conditions such as the market environment are met. Therefore, in order to put on the last spurt to achieve this lofty goal, we have set a "24-month plan" for the remaining 2 years, and have created certain scenarios, which are implemented and monitored in detail in management, especially those that we can control, such as expenses. We have deliberately designed our operations in advance to realize our vision, and we manage our business by focusing on executing them as planned, including expenses. By minimizing the number of variables that affect performance as much as possible, I believe we can quickly and simply adapt to ever-changing environments.

# sident's Message

#### President's Message



# Autonomous Improvement and Innovation through "i³-Mechatronics" Solution Concept

Yaskawa is pursuing how to "make things happen" at manufacturing sites by mobilizing all of its AC servos, AC drives, and robots, which are core products that have been nurtured within the business domain of "motors and their applications" since its foundation. Our solution concept, "i3-Mechatronics", consists of three i's: "integrated (automation/data collection)," "intelligent (data visualization/analysis)," and "innovative (innovation/autonomous improvement)." Digitalization of the site, which is the first step, is the key to implementing this concept. By automating the site with equipment, that is, digitizing the site, we aim to create a cycle of autonomous improvement in which new knowledge and awareness are obtained from the site data and fed back to the site operations. The effect of awareness obtained from the data is not limited to the site, but spreads to the management level and the entire value chain, leading to autonomous improvement and innovation. By accumulating the practice of "i3-Mechatronics" both inside and outside the Yaskawa Group, and confirming the effects not limited to laborsaving at the production site, confidence in the concept is steadily increasing over time. Taking advantage of the fact that our technologies and products, which are our strengths, are located at the center of these efforts, we simply proceed with initiatives in a straightforward manner.

## Contributing to a Sustainable Society through "i³-Mechatronics"

In last year's Yaskawa Report, I stated that "we practice i³-Mechatronics to become the company that supports a wider range of industries and society than ever before." This year, I would like to talk about the expansion of contributions to industry and society through "i³-Mechatronics" that I have in my mind.

While technology in the world is evolving at an accelerating pace, the use of data, including AI, will lead to more advanced solutions, however, I believe that the value generated from these solutions remains in the virtual domain. What I envision for the future is the realization of the digital twin as a match between the virtual and the physical, in which the virtual is reproduced on site or in the physical domain. No matter how advanced the solutions in the virtual domain become, without the physical domain (the site) that matches it, it will not lead to the evolution of manufacturing, and consequently to actual contributions to society and humanity. Even if we aim to realize various values, I feel that our support for the physical domain (the site) is extremely immature at present, and I am strongly aware of this as a business opportunity for the Yaskawa Group. I may be making a little leap considering the history of "i3-Mechatronics", which originated in factory automation, but it is important to understand the extent of the contribution to society that this concept can bring. In the past 1 or 2 years, as I have had contacts with various stakeholders in our search for business, I have realized with more conviction the value that "i3-Mechatronics" brings.

The collaboration with Astellas Pharma announced in May 2024 is an example of how our concept is expected to significantly improve the value for customers in areas beyond factory automation. In the field of drug discovery, no matter how groundbreaking scientific discoveries are made, there is a big hurdle for the benefits to patients (administration), and it is said that the challenges are the huge cost and time required. The concordance between research results and actual benefits to patients, that is, the process of reproducing research (virtual) in clinical (physical) conditions with evidence and proving it digitally, is an innovative form brought about by the digital twin. In this way, in the fields of medical and drug discovery, we are steadily working with customers to create digital twins based on the i3-Mechatronics concept.

In addition, in the food industry\* and other areas, efforts are being made to ensure the uniformity of quality based on evidence of product traceability, rather than simply automating for the purpose of labor saving. The goal of automation with such a purpose is to maintain and sustainably improve the brand value they have built up. In a society where labor shortages and other problems are becoming apparent, we are in a situation where value cannot be sustained, no matter how much passion we feel toward it, if we continue to use labor-dependent uncertain production processes and services. Therefore, I believe it is important how our digital solutions can contribute in the future. These possibilities extend beyond the boundaries of industry, and the potential for the Yaskawa Group to contribute will grow even greater. However, there are many things that need to be done to realize this, and more efforts are needed.

# Approach to Maximizing the Potential of Intangible Assets (Technologies and Human Resources)

The Yaskawa Group values the phrase "technology-driven" as its corporate motto. This means that we can create value as a technology-driven company only when we use the technologies we have nurtured over our 100 year history and achieve optimal conditions for the "benefits" demanded by the market. I do not consider it a technology-driven company which creates a series of products with unique ideas. I think it is valuable to stimulate demand from the perspective of product-out, but in my view, it is essential for us to provide products that contribute to the market in a sustainable manner based on dialogue and empathy with the market. I believe that continuing these activities as a platform for us is our commitment to society and leads to a sustainable contribution.

It goes without saying that each employee is the key to implementing these activities. As a manufacturing company, the focus tends to be on technology. production, sales, and services, including the people involved, but the people who support those involved in these activities also play a role as members of the team. Deepening our understanding of our role, which is linked to what we are working so hard for, leads to rewarding work. This is completely different from motivation to benefit financially or to use your time effectively. This kind of motivation does not lead to rewarding work. Instead, we must create a company in which as many employees as possible can be in a state where their motivation is found within their rewarding work. To this end, it is important for employees to be able to talk about the motivation of their work and the significance of their own existence through understanding the purpose of our business, as symbolized by the Yaskawa Principles, and the roles assigned to each employee to achieve it. If this happens, the vectors of the company and each employee, in other words, the direction we are aiming for, will match, and this will become a major driving force. I am strongly conscious of this when developing human resources. I believe that the Yaskawa Group is well equipped with

<sup>\*</sup> Please refer to P.17 Customer Story: Contributing to the Improvement and Evolution of the Food Industry through "i³-Mechatoronics" Concept — Application of Robots to Realize Kewpie's "Future Food Factory" —

#### President's Message

fields of value that enable employees with various roles to realize themselves and grow.

As the president of the Yaskawa Group, I have made it clear that the core of our business activities is to increase the value of our Group's contribution by providing products that address customer needs. From my position as the head of the Corporate Technology Division and in charge of promoting human resources development, I am constantly aware of maximizing the potential of technology and human resources, which are important intangible assets for Yaskawa, and am working to create an environment where business activities can be smoothly promoted.

# Recognizing the Challenges of Becoming a Company that Supports a Broader Range of Industries and Society

In December 2023, we launched MOTOMAN NEXT, the first autonomous robot in the industrial robot industry. In my own experience in the robotics business over a long period of time, this is a major device to create new value and expand the scope of Yaskawa Group's contribution in work areas that require human judgment, which we have been unable to face even if we wanted to. Although we have been thinking about this concept for 15 to 16 years, we are now in a situation where it is difficult to maintain the status quo of stable supply chains and service provision unless we address the issue of labor shortages. This demand is about to turn into necessity. What Yaskawa Group can do may start from a small place, but I am convinced that the solutions we provide are the automation and its technology, which will be widely required in the future.

In this context, MOTOMAN NEXT is a new approach to solving problems through technology, including AI, and targets areas outside the existing automation field. Therefore, we need to broaden the understanding of this approach among relevant stakeholders, and we will work to instill this understanding through cooperation with partners while taking advantage of our abundant engineering capabilities

and human resources, including those from outside the company. In expanding the areas of contribution with MOTOMAN NEXT, I believe that priority should be given to carefully accumulating the value of each "application" rather than the number of "robotic units." By placing importance on this action, I believe that cooperation with partners will be further strengthened, and we will be able to create a situation where evaluation leads to the next evaluation, which will enhance our ability to expand.

Also, in order to develop new areas, cooperation with people who have an understanding of the uniqueness of each industry is key. In order to successfully adapt scenarios for creating new things to actual sites, we need to diversify our experience and expertise at the same time as we develop human resources. In some cases, we can do it because we like it. The development of our collaboration with Astellas Pharma announced in May 2024 was made possible by the presence of a doctor of medicine at Robotic Biology Institute Inc., a subsidiary of Yaskawa that works on the application of robots to the biomedical field. I believe that we were able to make progress because we had a promising human resource who shared my desire to create new areas of contribution through robots in order to face the challenges of diverse industries and who had knowledge and attachment to each industry. In the future, we plan to expand this into areas such as food and agriculture, but in order to proactively promote our activities, we need human resources who have an idea of "how to grow crops," who are familiar with the process, and who have a realistic understanding of the issues facing the sustainability of the industry, in order to take an appropriate approach to the introduction of robots. At present, however, no one in the Yaskawa Group has such a career. Yaskawa is a company that values technology with "motors and their applications" as its business domain, and the skills of the majority of its human resources have been strengthened mainly in that domain. We will continue to do so in the future, but as an organization we need to have more desire for diverse learning. In my personal experience, when I was in charge of maintenancerelated work for a railway company, I thought this job would be absolutely fun for people who love trains. I

feel that a mix of human resources with expertise and attachment in various industries and matching them with the direction of the company are essential for producing results in the future. In order to properly address the "needs" of the market, it will be necessary not only to cooperate with external parties, but also to diversify the skills and experience of internal human resources in order to deepen such cooperation.

#### Meeting the Challenges of Humankind through Technology and Achieving Sustainable Growth in the Next 10 Years

Under our long-term business plan, "Vision 2025," launched in 2016, we have been working to commercialize mechatronics application fields such as agriculture, biomedical, and the environment. While biomedical and the environment are steadily expanding as businesses, we intend to grow agriculture in a way that we can firmly commit to as a business once we confirm its practical application. In addition, we still have issues such as how to support the physical domain (the site) in areas such as energy, public infrastructure maintenance, and response to natural disasters. Enriching human life and maintaining it has always been a challenge for us, and it goes without saying that technology is one of the solutions. In the next 10 years, we will continue to establish businesses in the fields of agriculture, biomedical, and the environment that we have been working to commercialize. We will also take a firm view of the accelerating trend of

technological evolution around the world, and based on that, we will explore and take on challenges in the fields that should be part of the Yaskawa Group's businesses next among the challenges facing humanity.

In order to create new businesses and get them on track, it is essential that all parties concerned have the same motivation. For this reason, in the next 10 years, we will invest more in the enhancement of our ecosystem (economic cycle) and partner chains so that cross-industry collaboration can be well integrated into the value chain for value creation.

We will firmly create a vision for the next 10 years that aims to further develop and sustain the growth of the Yaskawa Group, and at the same time, we will move forward by globally aligning vectors to achieve Realize 25. Please look forward to the future growth of the Yaskawa Group and I appreciate your continued support.



#### History of Yaskawa and Its Six DNAs (Corporate Culture)

Since its establishment in 1915, Yaskawa Electric has earnestly pursued for more than 100 years the business area of "motors and their applications" and "making things happen by driving motors." The Six DNAs (corporate culture) have been nurtured as people from each era gathered their wisdom and overcame many difficulties, and they are linked to the strengths that support our current business model.

#### **Technology-driven**



In the early 1910s, electric motors began to make inroads into all industrial segments as a new alternative to steam engines. Daigoro Yasukawa, the founder of Yaskawa Electric, learned the fundamentals of such leading-edge technology and established our predecessor, Yaskawa Electric Manufacturing Co., in 1915.

Daigoro expressed his wish to contribute to the nation by exporting domestically produced motors in his "motivation

of establishment," and aimed at undertaking the business with the company's own technologies, not by copying the leading Western products. At the age of 29, Daigoro expressed his passion, and in fact promoted the development of a wide variety of products, including switches and transformers, in addition to various motors. At this time, a culture of "technology-driven" was established, which is the basis of Yaskawa.



#### **Customer and application focus**

The founder, Daigoro Yasukawa, created the "Business Policy" the year after he founded Yaskawa Electric Manufacturing. He set forth his policy of not forgetting the ideal for the sake of temporary profit and giving the

first priority to the satisfaction of customers with sincerity. As motors began to be used by customers through the business, the ideal form and direction of the entire organization have been created based on the concept of "learning how the motors are used by customers (applications) and providing optimal systems."



Writings and biographies of Daigoro







After World War II, we demonstrated our exclusive strength mainly in automatic charging equipment for raw materials around blast furnaces

#### **Quality first**

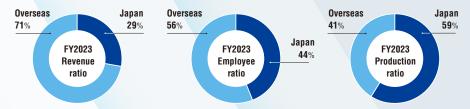
After the World War II, energy shifted from coal to oil, and the heavy chemical industry developed. At that time, the company was engaged in manufacturing equipment (process automation) for materials such as steel making and spinning, which operated 24 hours a day. The idea of "quality first" became ingrained in the organization as we believed that we should not cause any trouble to our customers' equipment.



#### Global

After the 1990s, Yaskawa began localizing its business to expand its overseas business base. Yaskawa didn't sell the Japanese products as they were but provided customer services and products needed in each region. Also, starting with drives production in the United States in 1992, we expanded our production bases overseas based on our policy of local demand production. We are implementing global management that combines efficient global operations with management tailored to the characteristics of each region.

#### FY2023 overseas ratio (Revenue/employee/production)



# AS e Culture)

DNA 6

DNA 4

**Mechatronics** 



#### Policy-based management

At the time "mechatronics" was launched, the existing business was still mainly focused and the concept was not a culture yet but just a vision. As such, Yaskawa worked on TQC (policy management) as a tool to set the whole organization in one direction. Yaskawa estab-

lished its own management system, including tools for setting and managing targets in development, manufacturing and sales. As a result, the vision of mechatronics and TQC have become part of its corporate culture, and Yaskawa has made significant progress in the R&D and cus-



Received Deming

tomer development for automation in the assembly industry.

#### **Mechatronics**

In 1969, Yaskawa became the first company in the world to propose the concept of "mechatronics," aiming to "Integrate customer machines with Yaskawa motors and controllers to achieve higher functionality." We accelerated our business expansion from conventional process automation to factory automation, aggressively invested resources in response to the rapid growth of the mechatronics market, and introduced a number of new products. Against this backdrop, "MOTOMAN-L10," Japan's first all-electric arc welding robot, was born, laying the foundation for the company's Robotics Business.



Minertia motor (1958)
A motor that became the basis for the servo motor available today. A revolutionary product that had a response rate 100 times greater than conventional motors.



Moto-arm (left) and motofinger (right) commercialized in the



MOTOMAN-L10 (1977)
Japan's first all-electric vertical articulated industrial robot

#### **Our Unique Strengths**















# Development focused on the world's first and best technologies

Since its establishment, the company has focused on "electric motors and their applications" and has produced many of the world's first and world's best technologies and products. Yaskawa's technologies and products lead to industrial innovation and contribute to the development of society.



World's first Transistor AC drive: VS-616T (1974)



World's first Matrix converter: Varispeed AC (2005)



World's first
GaN power semiconductor
equipped servo motor with
built-in amplifier (2017)



# Strengths

#### **Customers' trust**

Since the 1930s, when we established a policy of not only manufacturing and selling motors, but also learning how they are used by customers and providing optimal systems, we have maintained a stance of being close to our customers. Even today, based on our policy of continuing to provide high value-added and high-quality products that realize the benefits of improvement and evolution that customers demand, we promote our business with a strong relationship with our customers.



#### World's first

Multiple robot cooperative control: MOTOMAN-SK Series (1995)

#### **Ability to transform**

In 1969, Yaskawa pioneered the concept of "mechatronics," and the following year, in 1970, it envisioned "Unmanned Factory," an automated factory that humans and machines work together by using mechatronics. In the 1970s, when Japanese manufacturing shifted from the material industry to the assembly industry, the concept of "mechatronics" from the Yaskawa Group became the driving force behind the Third Industrial Revolution. Then, in 2018, the Yaskawa Solution Factory was established, which embodied unmanned factory envisioned for a long time. As a demonstration factory for i3-Mechatronics, it is leading the transformation of manufacturing and business. Based on the concept of i3-Mechatronics, the Yaskawa Group will lead the evolution of production in the Fourth Industrial Revolution, which aims to achieve optimal production systems in a data-driven society.



Production line in Yaskawa Solution Factory

The Yaskawa Group's DNA has been the driving force behind the development of the world's first and best technologies, and the products and technologies created through this process have brought about changes not only in the Yaskawa Group but also in society. In addition to a corporate culture that emphasizes quality, Yaskawa today has a strong presence in global markets by promoting business based on relationships of trust by addressing customer needs. Based on the broad customer base that the Yaskawa Group has built up, we strive to further strengthen its unique strengths by constantly developing products with an eye toward the future.

#### Strong presence in global markets

We have been involved in the export of products since the early days of our founding, following the spirit of our founder, who had a wish to contribute to the nation by exporting domestically produced motors overseas. Since the 1990s, we have been localizing our business and building our own sales network and production system in demand areas, and we have a top-level global market share in our core products.

Market share (company estimate)







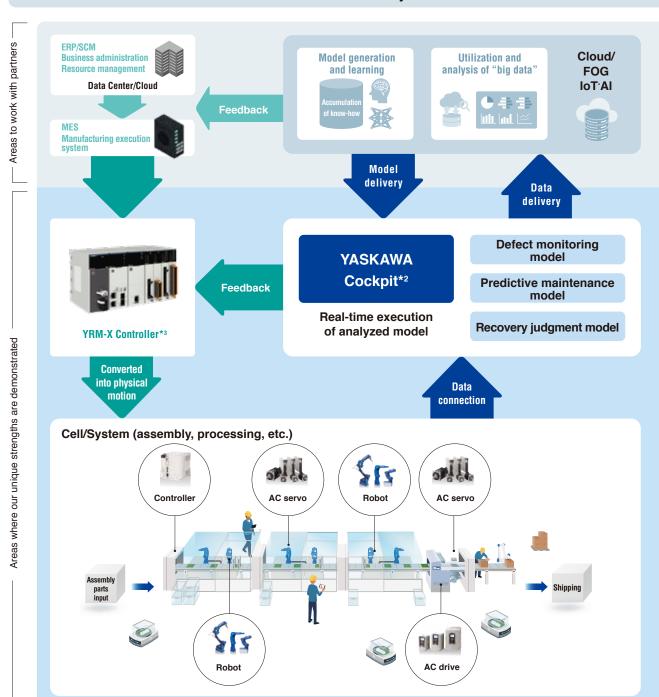
#### Differentiation Strategy — i<sup>3</sup>-Mechatronics —



Yaskawa's strength has been to automate the "cells," a unit of the factory's production line, with industrial robots, servo motors and AC drives.

Based on the concept of "i³-Mechatronics" we propose to automate the cells and manage them with digital data as a solution to the "improvement and evolution" demanded by customers. This enables us to manage the operation status of equipment with process data and the production status with status data as "numerical values" rather than "tacit knowledge" of experts.

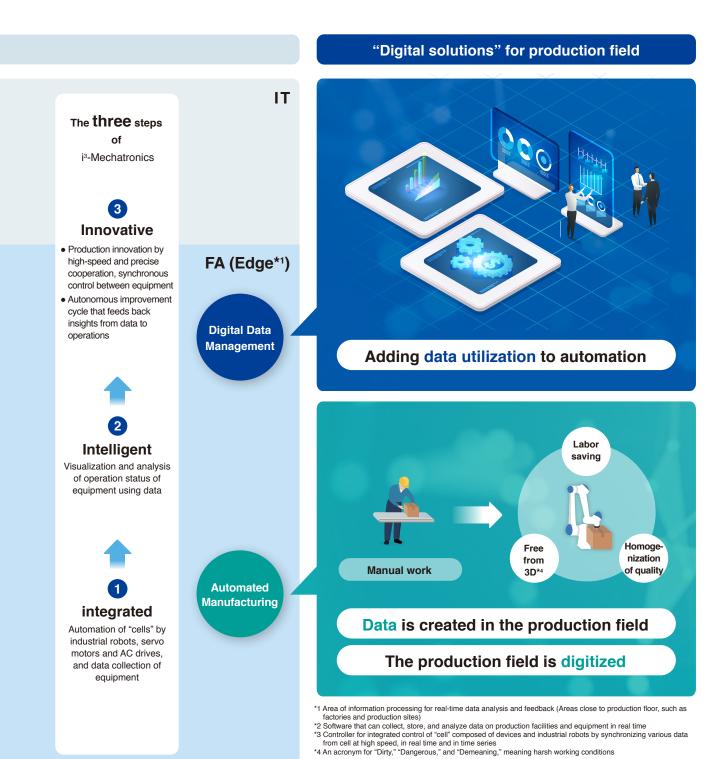
#### The factory where i3-Mechatronics is realized



The "i³-Mechatronics" will proceed in three "i" steps: 1 integrated, 2 intelligent, and 3 innovative.

The use of data enables continuous improvement and helps solve various issues in manufacturing to realize the smart factories that our customers aspire to.

Yaskawa has a global brand in industrial robots, servo motors, and AC drives, which are essential "products" for factory automation, and we seek to differentiate ourselves and create added value by proposing solutions unique to our company, which has accumulated the practice of "i³-Mechatronics" in its own production.





# Contributing to the Improvement and Evolution of the Food Industry through "i3-Mechatoronics" Concept

#### — Application of Robots to Realize Kewpie's "Future Food Factory" —

Since its establishment in 1919, Kewpie Corporation has been providing value to a variety of "food" scenes as a leading company in salads and eggs. Since 2023, Kewpie has been promoting the automation of production processes to improve quality and productivity through the use of data, with the aim of achieving sustainable growth under the banner of "Future Food Factory." Yaskawa has promoted technological development while sharing the concept of "autonomous improvement through automation of cells and equipment and utilization of data in high-mix, low-volume production lines" with Kewpie. In November 2023, a robot applicable to a cell to close the lid of deli dishes was developed and started operation.

We spoke with persons in charge of Kewpie Corporation's Production Division on the theme of how Yaskawa's solutions will help Kewpie realize its Future Food Factory.







A typical delicatessen production site

## What prompted the collaboration with Yaskawa?

Around 2015, when we were considering weighing using a handling robot at our mass-production factory of Kobe Plant, Yaskawa Electric had flexibly responded to the unique needs of the food industry. It was Yaskawa, with a division specializing in food industry, who showed the most positive attitude toward co-creation with Kewpie, which is an end user in the food industry, when considering the automation of low-volume production of various products. In addition, we had the impression that distance between sales team and technical team of Yaskawa was close. In this case, we had a great opportunity to be able to have in-depth discussions between us and Yaskawa's sales and technical teams on how to use robots and development policies.

#### What were some of the challenges to realize the practical use of robots?

It was to foster a sense of confidence in the robot's ability and stable operation at the manufacturing site. Previously, the delicatessen factory, which handled a wide variety of products, had no experience with robots and no engineers who could handle them. Therefore, "Easy to use\*"

was an absolute requirement when installing robots. For this reason, the operation panel was equipped with a variety of user-friendly functions, such as "having only three operation buttons" and "variety registration can be done easily on site."

## What are the results of the practical application?

The delicatessen factory needed to realize a highly challenging form of automation such as; "operating 365 days/ 24 hours without engineers," "being faster than humans," "having space-saving equivalent to humans," and "having low cost." The factory where the lid-closing robot was introduced produces more than 400 kinds of products in a day, and about a quarter of them are replaced every month. In the past, we had attempted to automate the delicatessen factory's production line several times but gave up as a result, so the goal seemed difficult to both factory staffs and engineers. In this collaboration, Yaskawa had greatly contributed its experience and knowledge cultivated outside the food market, such as in electronics and automobiles, and cooperated in the development of the necessary elemental technologies and mechanisms. More than six months have passed since the operation, and there have been no problems and the factory staff have been pleased with the results. In FY2024, four additional robots

will be put into operation. It is a great achievement that the intuition and skills of the workers have been automated, and we could move on to the horizontal deployment phase.

### • How do you see the collaboration with Yaskawa in the future?

The labor shortage is becoming serious across the entire Kewpie Group, and we believe that proactive investment is necessary to continue fulfilling our supply responsibilities. The three elements realized by the lid closing robot, "Multi-product compatibility," "Workability at the same level as humans," and "Easy to use," are also essential elements for automating processes common to all Group companies, such as loading and stacking. We are going to apply these knowledges to other production sites.

Specifically, we are planning to automate the loading of palletizers. The loading process at mass-production plants is automated, but at high-mix low-volume production plants, there are issues such as adapting to small numbers of products and cooperating in space-saving operations, and we are still relying on manual labor. We look forward to the further proposals from Yaskawa.

In addition, from the perspective of quality assurance, we believe that robotization has significant advantages. Currently, the success rate of lid-closing robots is almost 100%, but if an open lid flows to the next process, it is corrected by a human. Aiming to achieve full volume assurance with no manual dependence, we have begun to implement a system in which the robot itself inspects the state of all lids using torque and position data from the electric cylinders attached to the robot hand.

In this way, there are many processes for inspection devices to check the work results of automatic equipment, but from a cost perspective, it would be extremely useful to be able to guarantee the full amount of work with only the functions of the robot without the need for additional devices. Furthermore, if the robot learns the data currently being collected for inspection, and if it can reflect this in its movements, such as automatically "increasing the pressure applied" when it finds a part of the lid that is difficult to close, it will be possible to perform work in a manner similar to that of a human.

The collaboration with Yaskawa gives us a sense of the feasibility of such technology.

\* Easy to Use: Worker friendly operation



People in charge of the lid closing robot project Production Technology Department, Production Division, Kewpie Corporation From left: Mr. Keisuke Tanaka, Mr. Yuichi Nakakubo, Mr. Junichi Fukuie

#### COLUMN

#### Mr. Ryota Watanabe

In charge of Supply Chain Management Director, Executive Corporate Officer Kewpie Corporation



# Kewpie's vision for a future food factory

Food production is a delicate job where one mistake can put people's lives at risk. We carry out production daily with extreme care, but even so, troubles sometimes occur.

Based on our experience of causing major troubles in the past, we have come to the conclusion that the real cause of troubles is "the fact that people in the field are busy with daily production and have no time to think."

In order to maintain and improve quality, it is important for employees to be able to play an active role in the workplace. To achieve this, we have been working on "cultivating a system and culture in which each individual plays a leading role and can think and act on his or her own initiative" based on the principle of manufacturing. When complicated work is simplified, there is room for thinking. I believe that robots contribute to fostering a sense of satisfaction among workers at the workplace in the sense that "automating processes that can be simplified and leaving the task of thinking to humans."

Kewpie's vision for a future food factory is to use digital technology to optimize everything from product launch to quality assurance at production sites, and to build a production system that can achieve sustainable growth by improving quality and productivity amid an increasingly complex business environment and labor shortages. Data is not only connected within factories. At plants, we collect and analyze data linked to the preceding and subsequent processes, such as logistics and sales team. Robotics, which we are currently working with Yaskawa, not only automates processes, but also quantifies the effects, enabling feedback to sales team and materials, and serving as the starting point for an improvement cycle throughout the supply chain.

#### **Business Model Transformation**

To contribute to solving customers' management issues and deliver added value based on the "i³-Mechatronics" concept, Yaskawa is promoting reforms aimed at overall optimization in the areas of Technology/Product Development, Production, Sales, and Service.

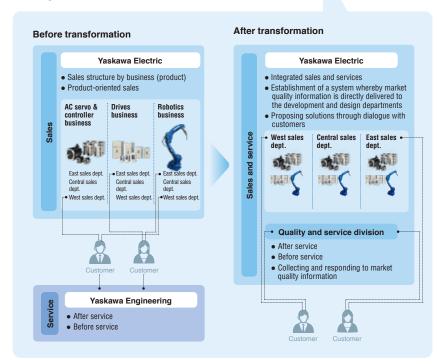
Furthermore, by connecting data groups in each value chain and optimizing the entire product life cycle, we will further evolve our business model and create value.



## Strengthening the strategic approach to the customers' supply chain

Yaskawa is strengthening the relationship with customers by reorganizing the sales structure, which used to be divided by product, into a regional and product-mix sales structure, and integrating its quality and service divisions. In this way, we provide optimal solutions to achieve the improvement and evolution our customers require. We also provide technical support and proposal activities to improve equipment performance and expand solutions by strengthening cooperation with partners such as equipment manufacturers and Slers.

#### Changes in sales and service structure





# Strengthening technology development capabilities to create value for customers

By consolidating development systems that were previously dispersed among business divisions and corporate technology division, we have created an environment in which we can work consistently through planning, development, production, and quality control. By integrating development processes, we realize global cross-business development that consolidates and creates knowledge. We also promote open innovation with companies, research and academic institutions, and create products and technologies that accurately meet customer needs in a timely manner.



#### Changes in technology/product develo



# **Production** progress and inventory information new value YDX chain eform of PLM\* Parts and design information

After transformation

Yaskawa Technology Center

Product development and product maintenance development

Finishing technology for product application

Technology development for product application

Elemental technology development Basic technology development

Product maintenance development

AC servo & controller business / Drives business /

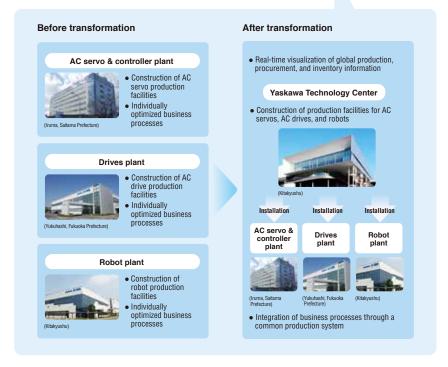
pment structure

Consolidation

#### Advancement of own manufacturing through i<sup>3</sup>-Mechatronics

In the past, development of production facilities was assigned to each plant. By consolidating this work, we are consolidating and upgrading the skills and know-how of production engineers and shortening the time required to construct new facilities. In addition, by implementing leading-edge manufacturing based on the i3-Mechatronics concept at our mother plants in Japan and globally deploying highly productive production facilities, we are working to reduce direct man-hours, promoting the standardization of facilities, and responding quickly to problems in a centralized manner.

#### Changes in production structure



For indirect operations related to production (procurement and production planning), business processes were established for each plant. However, based on the i3-Mechatronics concept, we have developed and introduced a common production system for the entire company, which enables more efficient production operations through integration of business processes and overall optimization. We have also deployed this common production system in Japan and overseas, and by visualizing production information such as global production status, parts procurement status, and inventory status in real time, we are reducing indirect man-hours.



#### Value Creation Process

#### Changes in the external environment

#### **Management environment**

- Changes in the industrial structure (Generative AI, electrification of cars, adoption of EVs)
- Advancement of products (Miniaturization and 3D adoption of semiconductors)
- Evolution of communications (5G and 6G)
- Intensifying industry competition (Rise of emerging manufacturers)

#### Social issues

- · Labor shortage
- · Rising labor costs
- BCP, supply chain issues
- Environmental issues (Carbon neutral)
- Food loss issues
- Diversification of work styles (Changes due to COVID-19)
- Human rights due diligence

#### Input (FY2023)

#### Financial capital

We will use the cash generated by our business activities in three directions: investment for growth, shareholder return, and employee allocation to achieve sustainable earnings growth and increase corporate value.

Profit attributable to owners of the parent: 50.7 B. yen Equity attributable to owners of the parent (End of FY): 399.3 B. ven Interest-bearing debt (End of

FY): 95.9 B. yen

#### Manufactured capital

We constantly strive to improve the efficiency of our production systems, while at the same time ensuring sufficient production capacity to meet market needs.

Capital investment: 37.86 B. yen (Ratio to revenue) 6.6%

#### Intellectual capital

We will continue to develop the world's first and best technologies, collaborate with joint development partners, and exercise our global intellectual property strategies to create customer value.

R & D expenditure: 21.25 B. yen (Ratio to revenue) 3.7%

#### **Human capital**

In order to respond swiftly to rapidly changing business environment and to achieve corporate evolution and strengthen competitiveness, we aim to be a company that is rewarding to work for where diverse employees make the most of their abilities

End of FY

Number of employees: 13,010 (of which, 56% were employees at overseas bases)

#### Social and relationship capital

We carry out our business based on trust with various stakeholders and strive to build relationships that lead to continuous mutual development.

End of FY

Business bases:

Approx. 30 countries and regions

#### **Natural capital**

We create value by reducing the environmental impact of our products (green products) and by reducing the environmental impact of Yaskawa Group's business activities (green process). Input energy (electricity): 98.14 million kWh

Contributing Desig develop AC servo & controller

Service

Sustaina

After-sales

service

Create social value and solve social issue through business activities

Transformation of development, production, sales, and services using the d

Yaskawa's Inherited DNA (Corporate culture)



DNA 2 **Customer and application focus** 

#### **Realization of Yaskawa Principles**

"Contribute broadly to social development and human welfare through the execution of our business"

#### **Realization of Vision 2025**

Yaskawa's FY2025 Goals

#### Respect Life

We aim to contribute to improving quality of life and building a sustainable society with technologies accumulated over the past century.

#### **Empower Innovation**

We venture in new technologies/domains/targets to bring excitement and enthusiasm to people

#### **Deliver Results**

We promise to deliver assured results to stakeholders, while continuously enhancing business execution capabilities.

#### Financial target for FY2025

Operating profit 100.0 billion yen

ROE: 15.0% or more

ROIC: 15.0% or more

Dividend payout ratio: 30%+a

#### Value chain

Sales and marketing

Logistics

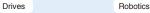
to a sustainable society through Solution Concept

## *lechatronics*





Procurement





System Engineering

#### **Business portfolio**

bility challenges and targets (Materiality)

Strengthen management foundation that contributes to sustainable society/businesses

Production

igital management infrastructure of YDX (YASKAWA Digital Transformation)







Policy-based management



#### Output

#### Factory automation/ **Optimization**

- Realize revolutionary industrial automation through i3-Mechatronics
- Pursue global No.1 in core business



#### Mechatronics applications

· Challenge for new mechatronics applications

**Energy Saving** Food & Agri Clean Power Biomedical Science





#### Outcome (FY2023) Financial capital

- ROE: 13.6%
- ROIC: 11.8%
- Annual dividend (Payout ratio) 64 yen per share (33.0%)

#### Manufactured capital

· Productivity indicator: +21% (Compared to FY2019)

#### Intellectual capital

- i3-Mechatronics-related
- patent application rate: 41%
   Number of external commendations and awards: 7

#### Human capital

- · Percentage of employees who feel rewarding to work : 86%
- Percentage of female managers Non-consolidated 2.4% Group in Japan 2.6%

#### Social and relationship

- Completion of a new plan for the Manufacturing Human Resource Development Program
- Global expansion of activities to nip "PL buds"
- · Support for developing sustainable procurement policies and establishing guidelines for 2 overseas group companies
- Number of investor meetings: 391

#### Natural capital

- CO2 emission reduction rate: -18.6%
- (Compared to FY2018)
   CCE100: 113.9 times

#### YASKAWA at a Glance

#### FY2023 revenue breakdown by business segment



#### **System Engineering**

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#### Core products:

- Electrical systems for steel plants
- Electrical instrumentation systems for water supply plants and sewage treatment facilities
- PV inverters\*

\*Reclassified to Drives business of Motion Control segment from FY2024



Electrical systems for steel plants

Revenue **55.5** B. JPY



#### **Robotics**

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#### Core products:

- Industrial robots
  - · Arc and spot-welding robots, painting
  - · FPD glass sheet transfer robots, handling robots
- Semiconductor wafer transfer robots
- Biomedical robots
- Collaborative robots



MOTOMAN NEXT series

Revenue **234.7** B. JPY

#### Global network

(As of February 29, 2024)

Europe: Approx. 1,800 employees

China: Approx. 2,900 employees

Japan: Approx. 5,800 employees

Other

4%

**System** 

**Robotics** 

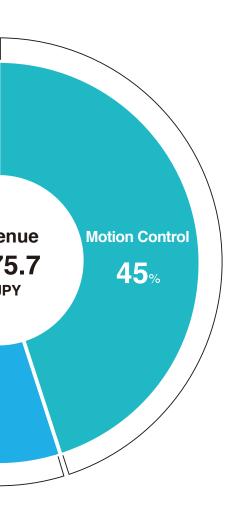
41%

**Engineering** 

10%

Reve

Asian countries except China: Approx. **800** employees





#### Revenue breakdown by location

