Kawasaki Robotics Report 2024

Kawasaki
Robotics

Kawasaki Heavy Industries, Ltd.
Kawasaki Robotics Report Editorial Office
https://kawasakirobotics.com/asia-oceania/

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March 2025

“Contributing to the nation—to society—through expertise”

— Shozo Kawasaki

For more than 120 years, the Kawasaki Heavy Industries Group has continuously presented new answers to emerging issues by providing various products and solutions tailored to the needs of the times to live up our founding philosophy of “responding to social challenges through technology.” This journey is also the history of our efforts to address ever-changing social issues.

By leveraging the technology and knowledge that we have cultivated since the Group’s founding, we will anticipate future developments and transform ourselves to create new solutions needed by society.

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Editorial Policy

This Kawasaki Robotics Report (referred to as this “Report”) presents to stakeholders information on the Robots Business Division’s business objectives, fundamental approaches for achieving those objectives, management structures, results, and other topics. This Report is issued with the approval of the Division’s General Manager.

Scope of Report

This Report covers the Robot Business Division of Kawasaki Heavy Industries, Ltd., its consolidated subsidiaries and equity-method affiliates.

* Some data are non-consolidated information.

Reporting Period

This Report covers fiscal 2023 (April 1, 2023 to March 31, 2024). It also includes information on past activities and activities carried out on or after April 1, 2024, as well as activities planned for the future.

Guidelines and Standards

- Global Reporting Initiative (GRI)
  Sustainability Reporting Standards
- International Financial Reporting Standards (IFRS)
  International Integrated Reporting Framework
- Ministry of the Environment
  Environmental Reporting Guidelines (2018 Edition)
- Ministry of the Environment and Ministry of Economy, Trade and Industry
  Basic Guidelines on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain (Ver. 2.4)
- Ministry of Economy, Trade and Industry
  Guidance for Integrated Corporate Disclosure and Company-Investor Dialogue for Collaborative Value Creation 2.0

Contact Information

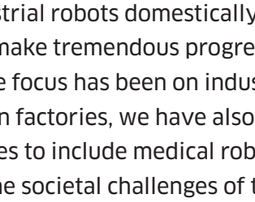
Management & Control Department of Robot Business, Planning & Control Division, Precision Machinery & Robot Company, Kawasaki Heavy Industries, Ltd.

Kawasaki Robotics: Over Half a Century of Forward Progress

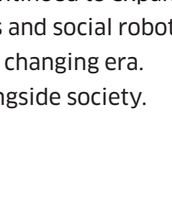
In 1968, Kawasaki Heavy Industries formed a technical alliance with Unimation Inc. to successfully become the first Japanese company to produce industrial robots domestically and since this time Japan has continued to make tremendous progress as a “robot superpower.” While our core focus has been on industrial robots that pursue productivity in factories, we have also continued to expand the scope of our activities to include medical robots and social robots as solutions to the societal challenges of the changing era.
We will continue to actively progress alongside society.

Industrial

1968
Technical alliance with Unimation (USA) and launch of business operations as Japan’s first robot manufacturer

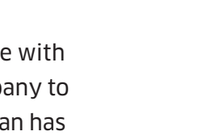


1969
Manufacture of Unimate, Japan’s first industrial robot



1983
EA65, first model large-scale electric robot

1997
TS520 semiconductor wafer transfer robot



2007
NT420 semiconductor wafer transfer robot

2009
YF003N parallel link robot

2013
MC004N medical and pharmaceutical robot

2013
MS005N medical and pharmaceutical robot

2015
MG10HL extra-large general-purpose robot

Medical

Medicaroid Corporation

2020
The hinotori™ robotic assisted surgery System, a surgical support robot

Purpose

Unlocking human ingenuity to create robotics that enrich the future

2019
KJ155 explosion-proof paint robot

2022
Vambo mixed-load devanning robot for the logistics sector

2021
BXP165N large general-purpose robot

2022
TRanbo self-propelled robot

2017
RS007N small- to medium-duty general-purpose robot

2015
The duAro collaborative robot

2017
Successor remotely-operated robot system

Social

2017
RHP Kaleido humanoid robot

2021
Nyokkey self-propelled robot with arms

2024
FORRO indoor delivery robot

1960s
Factory automation

2010s
Coexistence of humans and robots

Into the future
Changing the ways we live and work

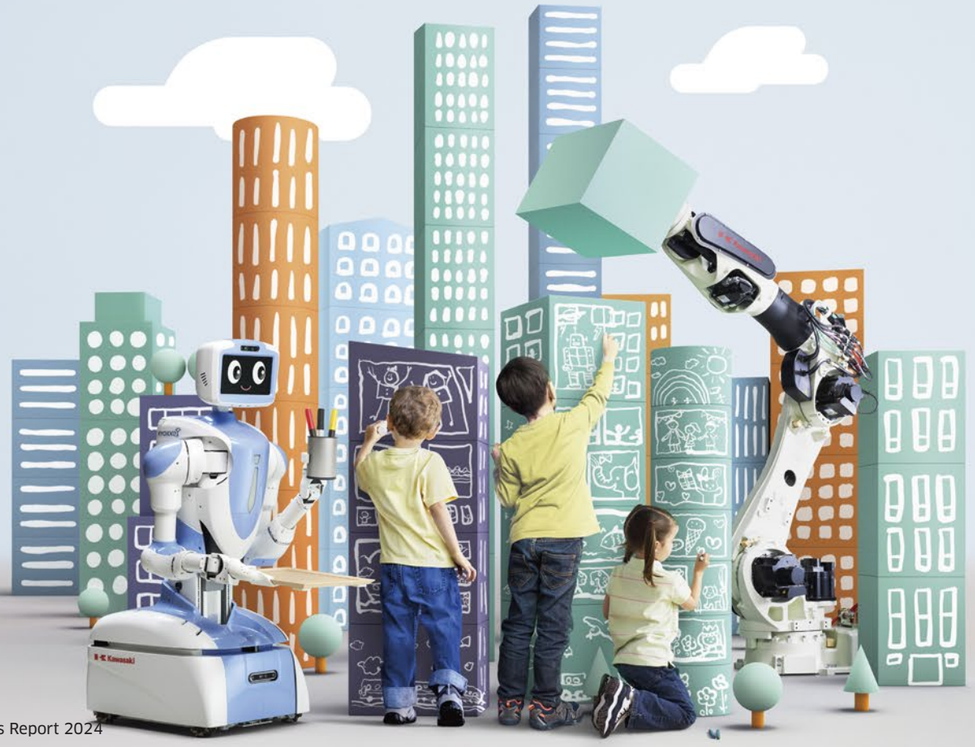
Purpose

Unlocking human ingenuity to create robotics that enrich the future

Important Values

Believe in our strengths and contribute new value to society

- **Passion and excitement**
  With passion and excitement, every one of us will challenge the difficulties standing in our way and broaden the scope of our activities.
- **Value creation**
  We will discover the seeds of business in our daily work and create value that brings about a transformation of behavior not only in customers but also in people, organizations, and society.
- **People-centered**
  We will realize a society that places top priority on the spiritual affluence of people and coexists with robots.
- **Proposal skills**
  Based on our abundant technological strength and experience giving us a broad overview of society, we will demonstrate proposal skills that look a step ahead and amaze one and all.



Conduct

Take ownership

We will believe in our own potential and actively take the initiative.
We will continuously acquire knowledge and technology, and we will constantly convey them to and involve others.
We will bring about change by raising our voice without being afraid of mistakes.

Accept mutual differences and strengths

We will know ourselves, and we will have an interest in others and respect them as friends.
As a single team, we will ensure psychological safety and deepen mutual understanding through cooperation.
As an organization solving social issues, we will mutually exchange opinions in a vibrant manner.

Discover opportunities for co-creation

We will increase the number of like-minded partners both inside and outside the company toward the solution of social issues.
Capitalizing on our mutual strengths, we will create new value.
We will have the courage to take risks at times, and we will overcome difficulties by mutually joining hands.

Inspire new realizations in the field

By being mindful of customer requirements and their background, we will identify the true causes of problems and make genuinely necessary proposals.
Furthermore, we will go beyond the expectations of customers and demonstrate our proposal skills to them.
With our technological strength and creativity, we will continue passionately to make exciting proposals.

No. of small-group activity[1] startups

327 people
46 teams

No. of *karakuri* improvements[2] at manufacturing sites

154 (total)

Ratio of mid-career hires to all new hires

53%

Ratio of active employees in employee engagement survey

33%
Ratio of employees for whom both "supportive environment" and "employee engagement" were high

No. of robot sales

300,000 (total)

Share of major semiconductor manufacturing equipment makers

Approx. 60%

Ratio of employees responding affirmatively to "Want to do more than the work required of me" in the employee engagement survey

68%

1 A voluntary activity in which small, inter-worksite teams are formed to implement improvement measures or explore new areas based on topics that the teams themselves set.
2 "*Karakuri* improvements" refer to improvements involving automation using only natural energy and mechanical systems and without using such power sources as electricity or air.

At a Glance—Robot Business Division Information (as of March 31, 2024)

Financial Summary

* Figures include inter-segment net sales and expenses.

Net sales

¥94.9 billion

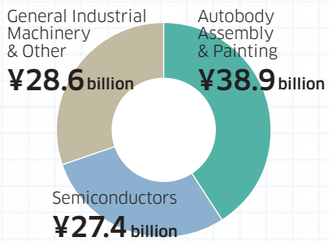
Total assets

¥137.6 billion

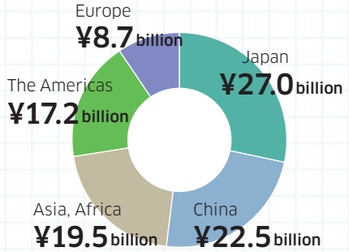
Capital expenditures (non-consolidated)

¥3.585 billion

Net sales by business segment



Net sales by region



Research and development expenses (non-consolidated)

¥4.685 billion

Education and training expenses (non-consolidated)

¥0.04 billion

Non-financial Summary (Non-consolidated)

Number of employees

928

Consolidated headcount*

2,206

* Robot Business Division + Kawasaki Robot Service + overseas subsidiaries

Ratio of women employees

14.0%

Ratio of women in managerial positions

1.8%

Ratio of foreign national employees

2.2%

Ratio of foreign nationals in managerial positions

0%

Turnover rate

3.1%

Turnover rate within three years of joining the company

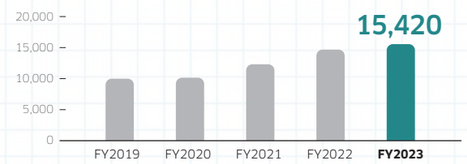
2.9%

Number of patents (cumulative)

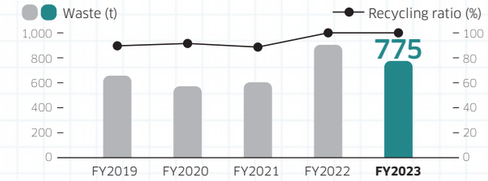
1,668

Environment data

Electricity consumption (unit: MWh)



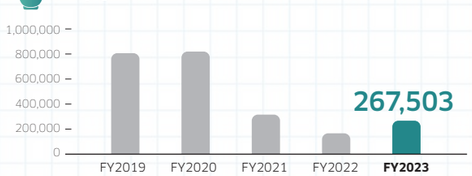
Waste volumes and recycling ratios*



* Recycling: material recycling and thermal recycling

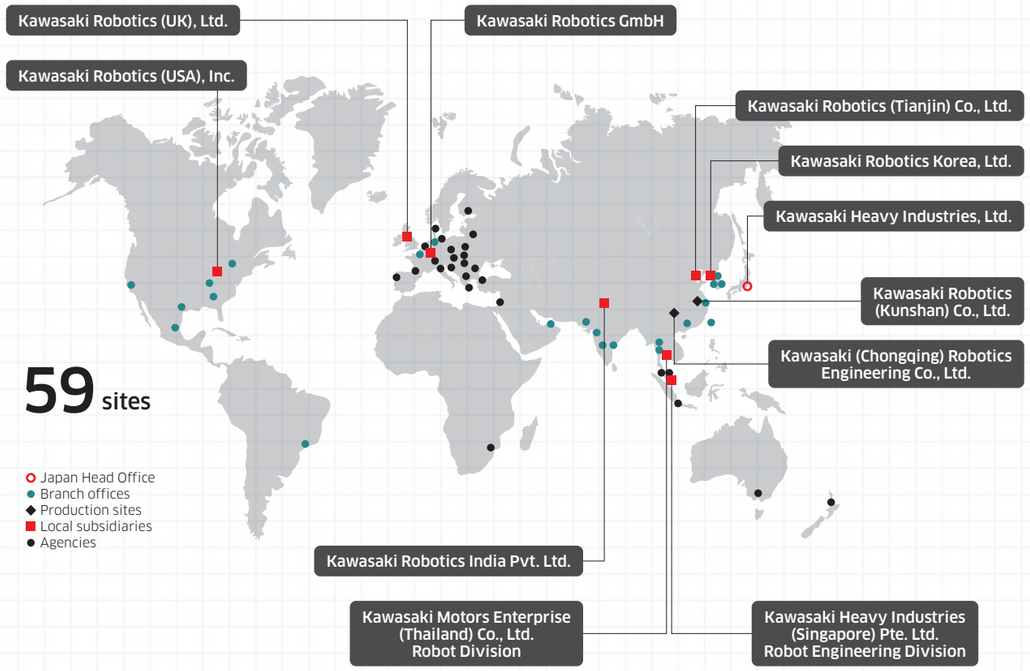
Water consumption (unit: m³)

City gas consumption (unit: m³)



Domestic sales and service sites

Worldwide sales and service sites



Supporting people's life by promoting robotization in wide-ranging fields, reforming our business management style, and transforming into an organization that continues to be trusted by society

Kenji Bando
Executive Officer and General Manager of the Robot Business Division

On Publication of the Robot Business Division Report

Our Robot Business Division is a business entity with the most varied stakeholders in the Kawasaki Group.

Our customers in the semiconductor, automobile, and other industries look at the way a company is run in terms of global standards, and they always operate their management and business with a sense of speed. Furthermore, the scope of activity of robots is going to expand further into all areas of society, so I believe that, going forward, all those who face social challenges could become our customers.

We decided that the Robot Business Division should issue this independent report out of a recognition that transmission of our desired sustainable management and our stance of putting our shoulders to the wheel toward that end would be the first step in fulfilling our social responsibility and showing our presence as a trustworthy business entity (company).

I think that this report will play an important role in showing customers that we aim to become the world's best all-round robot manufacturer and in encouraging our employees to continue making challenges with a high level of engagement.

How Are Robots Going to Be Required by Society?

Labor shortages due to population decline are now becoming a major social issue around the world and especially in the advanced industrial countries. In Japan, for example, many industries are going to face labor shortages in 2030. In particular, it is forecast that such industries as retail, medicine and welfare, and services will have a labor shortage of more than six million workers.[1] Meanwhile, even in the manufacturing industry, where robots have been installed the most, processes that have been robotized still account for only a few percent, so there is still plenty of room for robotization.[2]

Until now robots, by taking over repetitive work, the carrying of heavy objects, and the like, have freed humans from the so-called 3Ds of difficult, dirty, and dangerous work (the "3Ks" in Japanese). From now on, by combining the spectacularly evolving artificial intelligence and remote- control technologies and so on, robots are most likely going to be used not only for industrial purposes but in all kinds of fields. As a result, I think that people's workstyles and awareness are going to change. People will focus on work that requires creativity and that only humans can do. The age in which such a world will be realized through robots is approaching.

Supporting People's Affluent Life with Kawasaki Robotics

At the end of 2022, to put our raison d'etre and what kind of society we wish to realize into words, we stipulated our purpose as "Unlocking human ingenuity to create robotics that enrich the future." In addition, we formulated our business vision up to 2030 in the three areas of industrial robots, medical robots, and social robots and, at the Kawasaki Group Vision 2030 Progress Report Meeting, announced our targets of net sales of ¥400 billion and a business profit margin of over 10%. This means a business scale about four times greater than at present. Although they are extremely challenging, I believe that with the strengthening of strategy in each field, these are appropriate targets to be aimed for.

Of the three areas, in terms of the necessary technologies and overall business setup, the fundamental thinking behind medical robots and social robots is quite different from that of industrial robots, which operate inside factories. Therefore, co-creation with companies in new fields will be essential, and it will be more important than ever to show broadly to stakeholders that we are a trustworthy company.

In What Way Are We Trying to Transform?

In fiscal 2023, in addition to such external factors as the delay in market recovery and geopolitical turbulence, various issues surfaced within our organization. As a result, the management situation was extremely severe. As the person responsible for business, I am fully aware of the need to accelerate the corporate transformation (CX) that we have started. And simultaneously with this sense of crisis, I also sense that now is a chance to reform our traditional management style.

At present, as a part of CX, in addition to business portfolio innovations, we are aiming to strengthen the functions necessary for business management. Mainly, we are promoting green transformation (GX), which means environment-oriented business strategies, such as carbon neutrality; digital transformation (DX), which seeks to boost management efficiency through digitalization starting with a reform of management and work processes; and work transformation (WX), which signals workstyle reforms starting with "selection and concentration." Among them, regarding GX, in 2023 we issued a carbon neutrality report concerning our division alone, clarifying the division's current efforts to reduce CO_2 emissions and our policy going forward. Regarding DX, we have rectified management and work processes in the division as a whole and are promoting better efficiency through the reform of outdated mechanisms and digital applications. Regarding WX, going forward we will stipulate our basic policy and business strategy relating to the "selection and concentration" of our existing businesses and implement them together with organizational reform.

Notes: 1. Persol Research and Consulting Co., Ltd. and Chuo University, *2030 Labor Market Estimates*
2. International Federation of Robotics, *World Robotics 2023: Industrial Robots* (number of robots per 10,000 manufacturing industry employees)

"Selection and Concentration" Capitalizing on Our Strengths

From 1969, when we launched Japan's domestically made industrial robot, to the present day, we have grown together with our customers while being fostered by them. We have managed to do so by our continued stance of intently lending an ear to what customers have to say and not only meeting their expectations but also sometimes going a step ahead of them and offering suggestions. This approach has not been limited to industrial robots either. The made-in-Japan hinotori™ robotic assisted surgery system (by Medicaroid Corporation) broke through the oligopoly of a few large rivals that had taken the lead and grew into a business with a domestic market share of more than 10% in 2023. This has been the result of listening to the opinions of surgeons and innovating the product together with Medicaroid with the technology and product development speed befitting a robot manufacturer.

We certainly do not possess ample resources. So, to become a presence that makes customers sure to think of Kawasaki when ordering, the concentration of resources in the fostering of technological capabilities is going to be a core idea when promoting "selection and concentration" more strongly than ever.

Achieving Both "Selection and Concentration" and "Intensification and Exploration"

Against the background of labor shortages and other social issues, the robot business is forecast to see increased demand in the medium to long term, and applicable areas and demanded functions are expected to continue expanding too. Furthermore, in an age when the emphasis is on sustainability, robotic needs are becoming ever more complex and diverse. In these circumstances, in what direction should we be steering our business? It is now important for us to indicate a way forward for not only "selection and concentration" but also "intensification and exploration." Regarding the steering of business mindful of both "selection and concentration" and "intensification and exploration," I would like to place importance on two factors.

First, it is important for us to be strongly aware that robots are nothing more than a means of supplying value to the customer. For example, if the target of a social robot project is essential workers, we must stand in the customer's shoes, thinking first and foremost about the issues in the workstyles of these people and clarifying the overall functions necessary to relieve those issues. We must think about how a robot can be utilized in this situation. Robot makers like us have a habit of thinking from the robot's perspective, but it is necessary for us to change this approach.

Second, we must have an attitude of creating business with a bird's-eye view of the three business domains. What greatly differentiates us from other companies is the fact that we are developing business spanning the three areas of industrial, medical, and social robots. The functions required of robots differ, but the social challenges facing them are the same. We have the groundwork to offer one-stop solutions to customers' problems. For example, industrial issues can be solved by utilizing business schemes built in the social robot business.

These two ways of thinking hold good precisely because we are forever deepening our knowledge of industries by listening carefully to the opinions of our customers, who are key players in their industry.

Human Resources of the Robot Business Division Expanding the Circle of Empathy with a Sense of Commitment

The purpose that I mentioned above was not conceived by senior management; it was created through trial and error by volunteer members from the entire division. In the Conduct, which was formulated in conjunction with the purpose, there is a statement about "take ownership." I think this phrase sums up the essence of the human capital that will determine the future of the Robot Business Division. Seeing everything as a personal matter and taking action. Such a stance will attract the empathy of others, and the circle will widen. In the Robot Business Division, despite harsh management conditions, such enthusiastic personnel are already taking the lead in carrying out CX and other reforms relating to their own future.

Going forward also, in a society that keeps on changing at a dizzying pace, our employees as a whole will make the utmost efforts to technologically enhance our products and services and transform into a sustainable enterprise so as to continue supporting the affluent life of people through robot technology.

Kenji Bando

Approach to Sustainable Value Creation

Purpose

Unlocking human ingenuity to create robotics that enrich the future

Strengths and Input

Human capital

Strengths
- A frontier spirit of enjoying taking on challenges in uncharted domains
- Human resources with diverse backgrounds

Input
- Number of employees: **928** (non-consolidated), **2,206** (consolidated)
- Investment in human resources development: **40** million yen
- Ratio of mid-career hires to all new hires: **53**%

Intellectual capital

Strengths
- Advanced levels of individual expertise to enable intensive tailoring of mechanical and service solutions to customers
- Fundamental technologies developed in various businesses and possessed only by KHI owing to its status as a conglomerate entity
- An environment which enables research and development with a well-balanced mix of fundamental and advanced technologies

Input
- Investment in R&D: **4.69** billion yen

Relationship capital

Strengths
- Relationships of trust with OEM customers built up over many years and the capacity to gather information based on these relationships
- A mindset of co-creating and taking on the challenge of engaging with new domains alongside other companies

Input
- Number of collaborating companies: Around **10**
- Number of supplier companies: Over **200**
- Number of partner companies (including agencies): Over **300**

Manufactured capital

Strengths
- Highly precise and efficient manufacturing processes facilitated by thorough implementation of the Kawasaki Production System (KPS)
- Manufacturing sites at which autonomous improvement activities and safety awareness have taken root

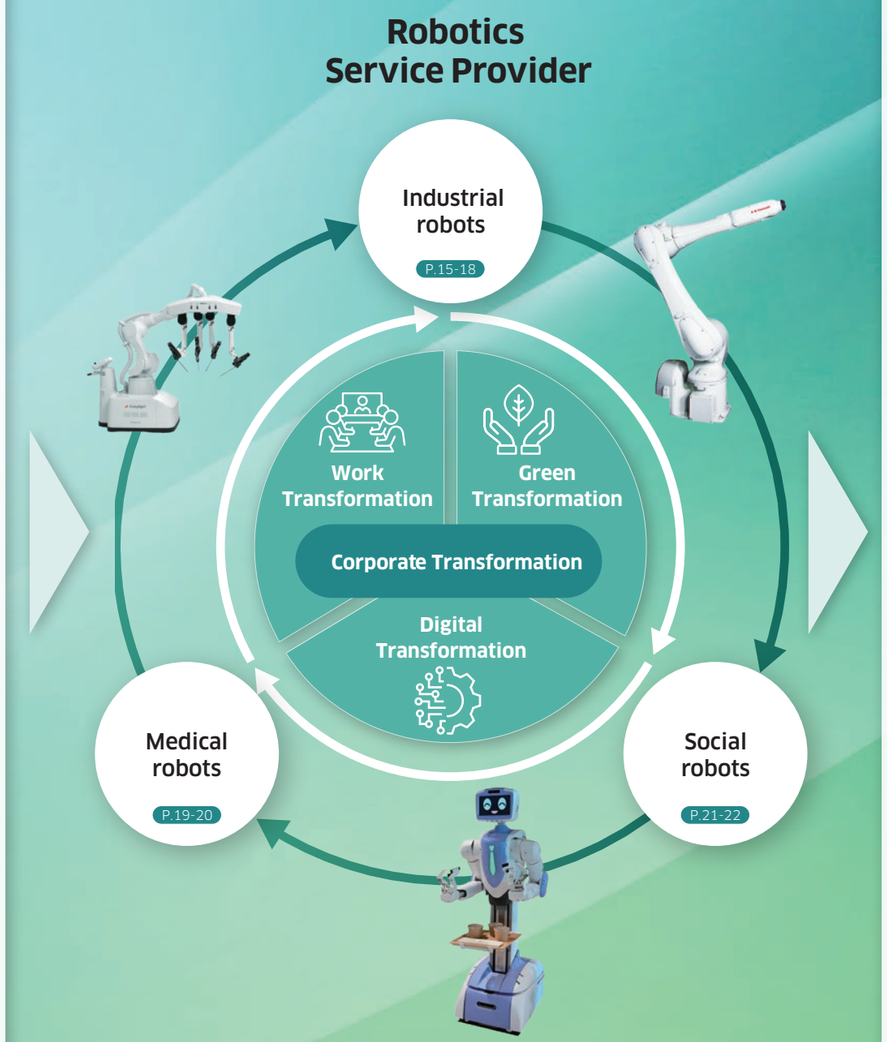
Input
- Capital expenditures: **3.59** billion yen
- Number of *karakuri* improvements: **154** (cumulative)

Natural capital

Strengths
- Top-down system to address sustainability issues, from the setting of targets and implementation of measures through to external disclosure

Input
- Electricity consumption: **15,420** MWh
- Water consumption: **20,464** m³
- City gas consumption: **267,503** m³

Value Creation



*1 Ratio of employees for whom both "supportive environment" and "employee engagement" are high
*2 Social contribution activity to give children hands-on experiences of the fun of robots
*3 In-house certification system for environmentally conscious products

Output

- Net sales: **94.9** billion yen
- Highly effective employee ratio*1: **33**%
  * From the results of the employee engagement survey
- Ratio of employees responding affirmatively to "Want to do more than the work required of me": **68**%
  * From the results of the employee engagement survey
- Number of patents: **1,668** (cumulative)
- Number of IR meetings by the division alone: **4**
- Number of articles published in newspapers, on the internet, or in other media (with interviews/coverage): **66**
- Units shipped (cumulative): **301,513**
- Manufacturing share among major semiconductor equipment manufacturers: approx. **60**%
  * As estimated by the Company
- Number of general visitors to Kawasaki Robostage (robot showroom): **18,788** (FY2023) **132,152** (cumulative)
- "Become a Kawasaki Robot Engineer!" event*2 Implemented (cumulative): **452** times, with **2,353** participants
- CO_2 emissions from our company (Scope 1 and 2): **7,437** t-CO_2
- Contribution to CO_2 reductions from Kawasaki Ecological Frontiers*3 certified products: **36,051** t-CO_2

Outcome

In the future society, when the working population is going to be insufficient, robots will take care of work that people cannot do and work that does not need to be done by people –Achieving both sustainability and an affluence in which people are able to focus on things only people can do–

Supporting progress

- Free people from engaging in the 3Ds of difficult, dirty, and dangerous work (the "3Ks" in Japanese)
- Contribute to creating efficient and precise manufacturing processes in the production plants of various industries
- Eliminate labor shortage and reduce costs for customers
- Contribute indirectly to the development of all industries and people's lifestyles by successfully facilitating the efficient production and improvements in production quality of semiconductors

Supporting human lives

- Help to reduce the physical burdens on patients who will undergo surgery and improve their quality of life
- Contribute to the elimination of regional disparities in healthcare and labor shortages through the realization of remote surgery

Supporting people where they live

- Concentrate capital in advanced healthcare through reductions in the workloads of essential workers in facilities such as hospitals and nursing homes
- Eliminate labor shortage and reduce costs for customers

Unlocking human ingenuity to create robotics that enrich the future

Medical robots

Supporting human lives

Social robots

Supporting people where they live

Industrial robots

Supporting progress

Supporting Progress in Industry

Forged in competition, our solution-based approach offers customers proposals with true value

Kawasaki Heavy Industries, a pioneer in the field of domestically manufactured industrial robots, has, over its history of more than 50 years, worked with those in the automotive industry and a variety of other customers to develop products, primarily 6-axes robots. At the same time, we advanced and further refined our technology for specialized robots, including those used in semiconductor production equipment and, in the medical field, robotic assisted surgery system, thereby expanding our business into new areas.

The most important factor enabling this expansion of our business domains is nothing other than our customer-centric approach, ingrained in our DNA. When our customers call on us, we do more than simply meet the specifications required of their robots—we look at those requirements in terms of a comprehensive solution aimed at solving the customer's issues. If existing robots are not suited to providing the best solution for the customer, we are able to develop robots and functions suitable for those needs and provide engineering for the entire robotic system.

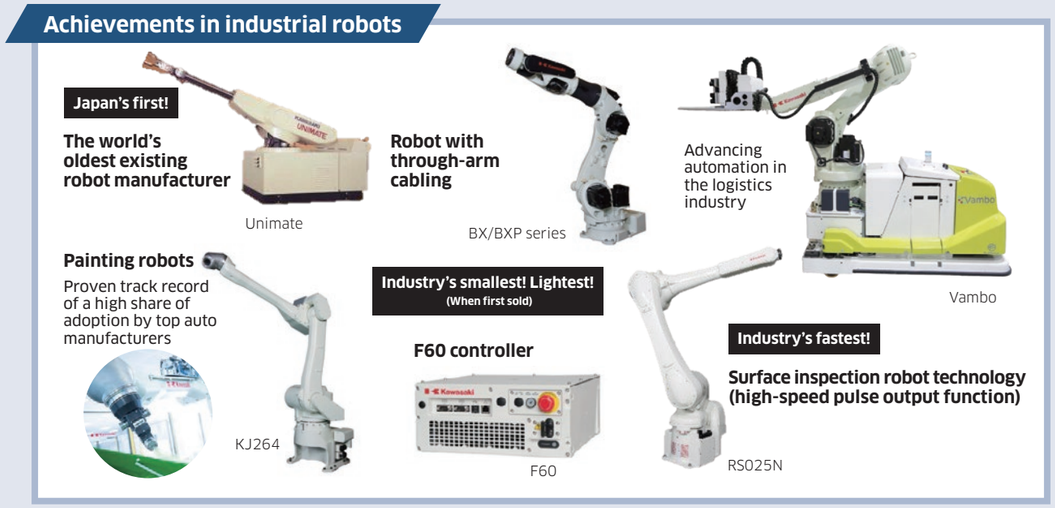
Today, in addition to the value industrial robots have provided by enhancing productivity and releasing people from difficult, dirty, and dangerous jobs, they are also being expected to tackle social issues, including environmental contributions and declines in working populations, that can only be addressed through comprehensive solutions. For example, in the area of environmental contributions, we are proposing robotic systems suited to such applications, including the ability to reduce volatile organic compounds (VOCs) by employing robotic systems offering a high coating ratio and to cut HVAC energy use through dense placement of the robots and reduction in the size of the painting booths in painting processes which consume a large amount of energy in manufacturing.

Meanwhile, to address the issue of a declining workforce, we are also proposing labor-saving solutions through a combination of sensors, robots, and AI in processes requiring human perception, such as surface inspection after surface treatment and handling of non-uniform goods in warehouse logistics. In addition to developing these and other technologies of our own, we actively promote co-creation and collaboration with other companies that have outstanding technology, enabling us to work quickly in delivering the ideal solutions for our customers.

Industrial robots, which were introduced in the 1960s primarily in the automotive industry, have expanded their presence into other industrial sectors, and have grown into a market with numerous customers and competitors worldwide. Additionally, with advances in science and technology, what robots are capable of and what is expected of them is expanding at an unprecedented pace. By working in this competitive environment, advances in areas such as manufacturing quality and cost control have become extremely important factors, and ultimately lead to the enhancement of the capabilities of the entire Robot Business Division.

By expanding our business in the market for industrial robots, which is both challenging yet full of potential, we continue to improve our foundational strength as a robot manufacturer. At the same time, we will continue to refine our ability to think flexibly and our technology to address the various issues our customers face.

Achievements in industrial robots



Remote Robotics, Inc., achieving new uses for robots through remote technology

The declining workforce, a major social issue, has already emerged as a challenge in the industrial sector. The industrial robot business is an important one for the Robot Business Division, in the sense that it involves approaching customers who are experiencing this issue firsthand and giving back to society the knowledge and technology gained through such engagements.

In 2021, Sony Group Corporation and Kawasaki Heavy Industries together established Remote Robotics, Inc. ("Remote Robotics"). Its stated purpose is to "realize a remote society where all people can participate."

By offering Remolink, a cloud-based service for remote robot operation, Remote Robotics is proposing new uses for robots and a new style of work, dividing roles that previously could only be performed on site between robots, which excel at repetitive, heavy-lifting tasks, and people, who are capable of flexible decision-making in a remote environment.

Kawasaki Heavy Industries will offer solutions that contribute to solving the issues of even more customers than before by combining Kawasaki robots, which have reached a peak in both performance and quality, and Remolink.

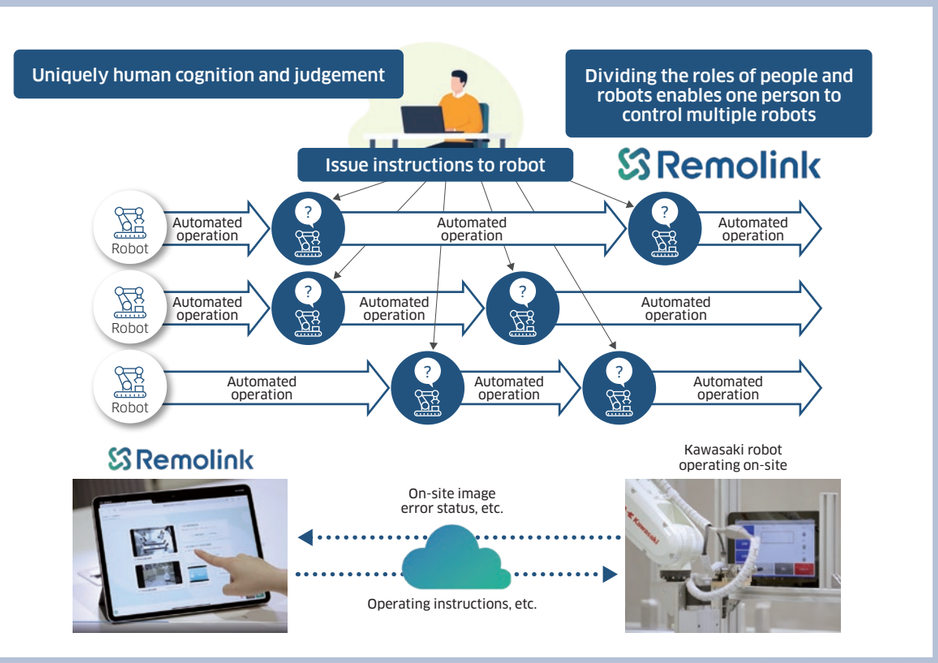


Illustration: Remote Robotics, Inc.

Industrial Robots (Semiconductors)

Supporting the Progress of a Digital Society

Contributing to major social change by addressing the social mission of our customers

It has been about 30 years since we first got the idea for business focused on robots within semiconductor manufacturing equipment, an area that has not even been included in statistical data on industrial robots since then. Although we successfully applied our industrial robot technology to the field, we faced many hardships in achieving stable production at the level of product quality required for customers with a completely different culture from our previous business. During this time, what sustained us was our rigorous customer-centric, that is, unique belief that our goal was not just to meet the specifications provided by the customer, but to fulfill the underlying aspirations behind them.

Today, in the semiconductor manufacturing equipment market, which is expected to grow at a 10% CAGR through 2030, Kawasaki is trusted by leading semiconductor manufacturing equipment makers around the world who consult us about their varied requests and problems. This is the result of our 30 years of experience and effort, and is a great honor for us. Currently, with the semiconductor industry as a whole undergoing a transformation, three major expectations have been placed upon us.

First is the need to contribute to technological innovation in the semiconductor manufacturing back-end process. There has been a shift in technology trends, previously focused on miniaturization and a high level of integration, as remarkable advances are being made in manufacturing techniques that combine chips made with different technologies into a single semiconductor product. As a result, the role and importance of the back-end process in semiconductor manufacturing have increased, and investment in technology development is rising globally. To date, we have focused on manufacturers of semiconductor manufacturing equipment in front-end processes, improving product performance and functionality in line with advances in miniaturization technology and making this a pillar of our business. Going forward, however, we will also provide products to semiconductor device manufacturers—the end users—and contribute to the evolution of semiconductor manufacturing technology in both front-end and back-end process steps.

Second is the need to address labor shortages associated with the explosive growth in semiconductor demand. AI is considered a key technology, and the demand for semiconductors is thus predicted to increase significantly by 2030. Semiconductor factories are being built around the world to meet this demand, but a critical shortage of workers has emerged as a challenge. For semiconductor device manufacturers, who bear a social mission of supporting our digital society, automation and labor-saving technologies to ensure the reliable operation of semiconductor factories are an extremely important and urgent issue.

Main semiconductor wafer transfer robot product lines

NTH series

A long arm that is offset from the center of rotation can access 4FOUP device without a track

NTH20

TTJ20

TTJ series

Uses a telescopic mechanism to transfer to both high and low pass-lines

System product

A system that packages various devices for wafer processing and handling, called an Equipment Front End Module (EFEM)

Leveraging our many years of experience and knowledge in the semiconductor industry, our wide-ranging lineup of robots, and our automation and labor-saving technologies, we will also contribute to resolving the issue of labor shortages in the industry.

Third is the need to manage a sustainable business in conjunction with changes in corporate social responsibilities.

Among Kawasaki Heavy Industries' customers crossing a wide range of fields, the semiconductor industry has a particularly strong awareness of sustainability, and is notable for taking quick action on the issue. While Kawasaki Heavy Industries as a whole is engaged in systematically addressing the SDGs and carbon neutrality, our Robot Business Division is leading the way in advancing business management with an emphasis on sustainability.

The era demands that we make successive, fast-paced efforts to take on the next steps and the next issues. To more quickly respond to the requirements of society and our customers, we will strengthen our posture of having an accurate understanding of customer feedback and constantly preparing in advance.

Strengths of Kawasaki semiconductor wafer transfer robots

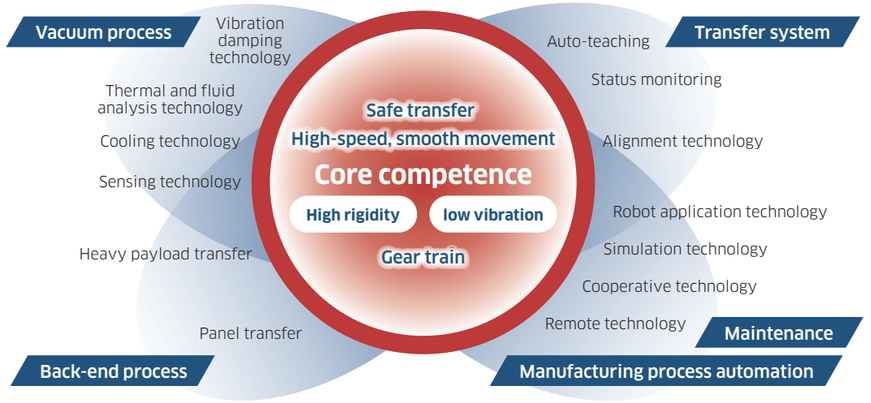
The main attribute of Kawasaki's wafer transfer robot is its gear drive. From its earliest wafer transfer robots, Kawasaki has developed robots with gear drives, unlike the belt drives used by other manufacturers that preceded us. The gear drive provides high rigidity, enabling high-speed operation, high precision, and low vibration.

Kawasaki Heavy Industries, a comprehensive manufacturer of heavy equipment with businesses ranging across land, sea, and air, possess micrometer-level gear meshing technology developed through experience with helicopter transmissions , ship reduction gears, and other machinery. Applying these gear design concepts and technologies has enabled us to achieve high gear quality. Even after nearly 30 years since our entry into the market, we continue to adopt gear drives, which have become one of the strengths that significantly differentiate ourselves from other companies.

In addition, heat dissipation technology is another very important element in wafer transfer robots. The semiconductor wafers carried by the robots get extremely hot inside the manufacturing equipment; in a vacuum state in particular, temperatures can rise to as much as about 800℃, making the robot, also affected by that heat, very hot as well. The heat dissipation technology, which is focused on how well heat can be released from the robot, has matured to a very high level with a combination of technology from the Robot Business Division and Kawasaki Heavy Industries as a whole. It can address a number of customer requirements, including wanting to transfer wafers in even higher temperature conditions.

While the wafer transfer robot performs a simple operation—carrying wafers within the equipment—at the same time, it is packed full of Kawasaki Heavy Industries' technology.

Kawasaki Heavy Industries comprehensive technological strengths support the growth of semiconductor wafer transfer robots



Medical Robots

Supporting Human Lives

Bringing together the technologies of an industrial robot manufacturer to address the vital mission of saving human lives

Against a backdrop of further advances in medical technology, and expectations for resolving regional disparities and labor shortages and reducing the burden on healthcare staff, the medical robot market—currently estimated at about ¥1.8 trillion—is predicted* to grow to about ¥6.3 trillion, or by about 3.5 times, by 2030.

* Source: Allied Market Report

Playing a role in this demand for medical robots is the robotic assisted surgery system, which allows doctors to perform surgeries by operating a robotic arm from a control panel. Through intuitive manipulation of a robotic assisted surgery system, doctors are able to perform delicate surgeries through small incisions, which is expected to lead to alleviation of the burdens on surgeons themselves as well as the physical and mental burdens on patients.

In 2013, Kawasaki Heavy Industries, in a joint venture with Sysmex Corporation (“Sysmex”), which has wide-ranging expertise in the medical field, launched Medicaroid Corporation (“Medicaroid”) to conduct business in the field of medical robotics. Since then, Medicaroid has been at the center of the partners’ efforts to develop the hinotori™, a robotic assisted surgery system designed around the concept of compactness and high operability. In an effort to meet stringent performance and safety requirements, we developed hinotori™ with feedback from doctors actually performing surgeries—a process unlike any experienced with typical industrial robots. The devices mounted on the end of the robot’s four arms, which have a greater degree of movement than the human arm, perform surgical procedures inside the body through small incisions, while also minimizing interference outside the body between the arms, other surgical equipment, and medical staff during those procedures. Achieving this requires not only control of the robot, but also position verification and operational rules for the robot itself. To do so, a total of 18 trillion meticulous simulations of the robot’s motions were conducted.

As a result of those efforts, in 2020 the robotic assisted surgery system obtained approval for manufacturing and sales as a system produced in Japan for use in urology. Subsequently, we have expanded our targeted departments to include gastroenterology, gynecology, and in 2024, respiratory surgery. We are thus now able to support approximately 90% of the robot-assisted surgeries being performed with Japanese insurance coverage in these four departments. Already, a cumulative total of more than 7,000 surgeries have been performed domestically (as of the end of October 2024), and the system continues to evolve as results are accumulated.

And now, at last, hinotori™ is ready to expand its business globally. Medicaroid obtained its first sales approval outside of Japan in Singapore in September 2023, and has begun global expansion, starting with the Asia-Pacific region. Going forward, that sales area will be expanded to Europe and the United States.

Offering strong support for the business in terms of sales, production, and service during this time will be Sysmex and Kawasaki Heavy Industries. The latter has production assets in clean room environments for the manufacture of robots for semiconductor production equipment, and applies its expertise in environmental management to the production of medical robots, which require strict hygiene control. In terms of maintenance, we are able to utilize robot service bases located globally, establishing a system whereby robot maintenance professionals can respond in each location.

Kawasaki Heavy Industries and Medicaroid have integrated products from two entirely different fields—robots and medical devices—while leveraging their technical expertise in their respective domains, advancing them to a level where they can be used in life-critical situations. Going forward, Kawasaki Heavy Industries will continue to expand the business for hinotori™ in partnership with Medicaroid and Sysmex.

The hinotori™ Surgical Support System, a robotic assisted surgery system (Medicaroid)

■ With an increase in clinical departments, the number of cases has increased dramatically

Covering approximately 90% of robot-assisted surgeries covered by insurance in Japan

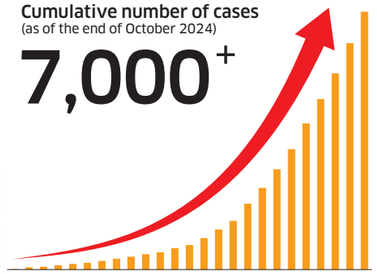
Text in white represents number of surgical techniques

11 Digestive	8 Urological	4 Gyneco-logical
5 Respira-tory	2 Ear, nose, and throat	2 Cardiac

* ■ indicates clinical departments covered by Medicaroid

Cumulative number of cases (as of the end of October 2024)

7,000+



The future of robotic assisted surgery system

Starting in fiscal 2024, a new system was implemented in Japan to address workstyle reforms for doctors, and there is an increasing desire to efficiently provide treatment of patients, practice in surgical techniques, and training of doctors who are beginning robotic surgery—all in a limited amount of time. Even in the use of robotic assisted surgery system, experienced surgeons must visit each location to aid in developing doctors’ skills, and the time required for travel, among other things, has become an issue.

As one solution to these issues, we are now working in collaboration with academia and communication infrastructure companies to conduct verification testing aimed at using hinotori™ to enable remote surgeries. Multiple proof-of-concept experiments have already been conducted, and in 2023, a successful remote surgery test demonstration was carried out between Singapore and Japan. This was made possible through the development of specific functionality in collaboration with Medicaroid using remote operating technology cultivated by Kawasaki Heavy Industries in the development of industrial robots. With this, we have demonstrated the potential to train doctors remotely and increase opportunities for patient treatment and an improvement in surgical skills. Going forward, Kawasaki Heavy Industries will continue to utilize its technology to support the development of hinotori™ and contribute to solving issues in medicine.

Supporting People Where They Live

Creating robots that can change workstyles and bring convenience, comfort, and abundance to daily life

Aging populations and a declining birthrate are increasingly pronounced, primarily in developed countries, and labor shortages have become a major social issue. As a result, expectations are growing for social robots that support people's work and communication to serve as one solution to these issues. The market for social robots, currently valued at about ¥2 trillion, is predicted to grow significantly alongside the evolution of AI, reaching about ¥7.4 trillion* by 2030.

* Source: Allied Market Report

In general, industrial robots have been used to improve productivity in factories and as a means of labor-saving and automation. Social robots, on the other hand, are designed to coexist with people in their communities, helping them to live more abundant lives. We believe that, as labor shortages progress, a sustainable society can only be achieved when jobs that robots can do are left to robots, while people focus on engaging in work that only people can do. We are thus considering a society in which we live alongside social robots.

To create a society in which people and social robots coexist, we must first have society as a whole see robots as a familiar presence. Consequently, we have provided spaces for social implementation, where robots are operated in spaces alongside the general public, allowing everyone to feel more familiar with robots. To this end, we are working to advance co-creation relationships with those who have various technologies, building on social robots as a theme.

In those spaces, we see children's eyes light up at the sight of robots at work, and this assures us that a society where coexistence with robots can be achieved in the not-so-distant future.

Next, it is important that we raise awareness and foster a spirit of co-creation among various stakeholders, including industries that have not yet deployed robots. To do this, we need to demonstrate the specific benefits of introducing social robots, as well as their business viability—including their economic feasibility. For example, to date we have used the COVID-19 pandemic as an opportunity to visualize the workstyles of essential workers, and started by identifying tasks with which robots might assist. In this context, we focused on the fact that nurses in medical settings spend a significant amount of time not directly related to patient care, and we have already commercialized the use of FORRO, an indoor delivery robot, for transport of specimens within hospitals. Additionally, in the caregiving workplace, we focused on the fact that there are many times when heavy tasks involving physical contact with residents, and lighter tasks such as conversation, overlap. With the cooperation of care facilities, we have been advancing development of a function to facilitate conversation with residents afflicted with dementia, gradually moving closer to the practical use of robots in everyday society.

This kind of social implementation of social robots starts with our making numerous on-site visits to see the work being done there from our own point of view.

Nyokkey, a self-propelled robot with arms serving at a restaurant open to the public as part of demonstration testing

Kaleido, a humanoid robot, working with a human partner to lift and move heavy objects

To do that, it is important that people trust Kawasaki Heavy Industries as a company, and that we continue to respond to that trust.

In November 2024, Kawasaki Heavy Industries leveraged its comprehensive strengths to establish CO-CREATION PARK – KAWARUBA in Haneda, Tokyo, as a co-creation hub for social innovation and a place where we can rapidly create new businesses in collaboration with various stakeholders, including those in corporations, local government, and academia. At this hub, we will establish a structure with social robots as one of the co-creation themes with our stakeholders, building on a series of new demonstration testing and social implementation.

Social robots, such as indoor delivery robots, self-propelled robots with arms, and humanoid robots, derived from the industrial robot technologies we have developed and which combine safety and reliability, will create new added value unique to Kawasaki.

Beyond task substitution—creating a space where humans and robots can comfortably coexist

Robots working seamlessly alongside people, supporting everyday life: To make that kind of world the norm, we are dedicated to the development of social robots, finding value in the accumulation of small challenges along the way.

Unlike industrial robots installed in factories, for many robots to work in the same space as people requires tracking the position and operational status of each robot to ensure they work without interfering with people, buildings, or other robots. To accomplish this, it is essential that the robots themselves be autonomous, while also having in place the technology and systems to monitor and centrally manage both the movement of people and the state of the robots. Today, Kawasaki Heavy Industries, in collaboration with partner companies, is commercially deploying an indoor positioning service (mapxus Driven by Kawasaki™), a service that can track people's movements without additional equipment and provide them with needed information and infrastructure. For example, by combining this service with robots, we can achieve an orchestration of people, robots, and infrastructure, allowing robots and infrastructure to evolve to form a "human-friendly" society.

Our goals for the social implementation of social robots go beyond merely replacing tasks. Looking ahead, we envision creating a space where people and robots leverage one another's strengths and differences to coexist comfortably. To do that, we are actively working toward harmony with our own partners in co-creation.

Corporate Transformation (CX)

Opportunities for Fundamental Management Reform

Transformation relating to management, such as GX, DX, and WX, has become the focus of considerable discussion. All of these seek to achieve sustainable corporate management, but they are meaningless without appropriate business operations and corporate management adapted to the changes in the times.

Going forward, the Robot Business Division will expand both the scale and scope of its business while changing its business structures (business portfolio). In addition, it is necessary to systematically develop management structures based on societal demands including responses to increasingly complex business risks such as geopolitical risks and cyber security. As a result, a fundamental review of corporate governance has become an urgent issue.

The Robot Business Division will use these circumstances as an opportunity to actively advance corporate transformation (CX). CX implemented by the Robot Business Division will focus on the following two elements:

(1) Conducting marketing and searching for new business to transform the business portfolio (including selecting and concentrating businesses); and
(2) Designing and operating the functions that will be necessary for business operations.

With respect to the second element in particular, corporate functions must be more deeply connected to management than ever before and must be implemented while anticipating social trends and business changes. Various transformations including GX, DX, and WX are seen as transformational elements associated with CX, and corporate functions are performing integrated roles to promote them.

Overall image of corporate transformation (CX)

Business portfolio transformation

Reinforce globally optimized sales and product strategies to optimize the business portfolio

WX (work transformation)	DX (digital transformation)	GX (green transformation)
Reform employee workstyles and generate a sense of purpose. ➡See page 24 for details.	Contribute to internal and external stakeholders by enhancing productivity through digitalization. ➡See pages 25–26 for details.	Reflect environmental contributions including carbon neutrality as a key element in business. ➡See pages 27–28 for details.

Business Portfolio Transformation Starting from Global Marketing

Since external factors, such as market conditions, competition, and political risks, vary significantly by region in the robot business, the Robot Business Division has prioritized implementing sales strategies optimized for each region along with product strategies aligned with those sales strategies. In other words, it is a global business strategy that starts with bottom-up regional strategies. In order to expand business scale as well as business areas, however, a medium- to long-term business strategy that strongly emphasizes the concentration of resources in priority areas and products and the resulting enhancement of competitiveness will become even more important than ever before, and consequently, it will be necessary to shift the balance between bottom-up regional strategies and top-down division strategies.

Therefore, to further strengthen the functions of refining and advancing division strategies, we established a special-purpose organization for global marketing and product management in 2023. Starting in 2024, we began developing optimized sales and product strategies and expanding sales from a global perspective, and at the same time, we formulated and began executing plans to reorganize our product lineup and development plans with a focus on priority areas.

These initiatives will make collaboration with sales departments, overseas sales companies, and business units stronger than ever before and will lead to a transformation of the division's entire business portfolio.

Work Transformation (WX)

Emphasizing Meaningful Work to Become a Company Chosen by Employees

The decline in the working population has already begun to emerge as a business risk, and this is becoming an urgent issue for Kawasaki Heavy Industries, which anticipates substantial growth in the future. The Robot Business Division is also entering a time where action concerning workstyles has an impact on business operations, with some customers requesting explanations of specific initiatives relating to sustainability including employee working conditions. We asked two people who are driving work transformation (WX), a new workstyle reform initiative, at both the head office and in the division, regarding the company's approach to WX.

Dialogue participants

Takashi Abe
Chief Executive Staff Officer, Corporate Planning Department, Corporate Planning Division, Head Office

Kazuhiro Abe
General Manager of Planning & Control Division

What is work transformation (WX)?

● **Takashi Abe:** To achieve sustainable business growth in a time of a declining working population due to aging and low birth rates, it is important to improve the labor productivity of each individual. The WX that Kawasaki Heavy Industries is seeking, however, is not just about improving labor productivity through simple efficiency measures, but rather, emphasizes creating conditions where employees perform their work with a positive attitude and achieve sustainable growth. In addition to promoting the use of robots in production lines, we are also striving to become a company where employees want to work for Kawasaki Heavy Industries by creating a virtuous cycle whereby employees improve their own work environments and increase company profits, which will enhance the company's investment capacity and ultimately lead to improved employee benefits. Kawasaki Heavy Industries currently has approximately 40,000 employees, and since job satisfaction and priorities differ from person to person, we believe that it is necessary to listen carefully to each person's thoughts.

● **Kazuhiro Abe:** It is certainly true that a cycle of experiencing growth, job satisfaction, improvement of work environments, and better employee treatment leads to motivation for achieving higher levels of growth and enables the WX that we seek to function. In addition, the Robot Business Division is developing career paths for each organization function. Having multiple options for growth and the resulting sense of security is also important in generating motivation. The Robot Business Division has another urgent reason to address WX as well: in recent years, sustainability issues have become increasingly linked to corporate evaluation. As a result, improving engagement with stakeholders including employees is becoming an essential condition for companies to even enter the business arena. Until now, we have consciously been implementing sustainability initiatives, but some customers are asking us to submit information on the current status of and plans for sustainability as partners engaged in business together, increasing the urgency for concrete action. I believe that now is precisely the time for the Robot Business Division to embody the WX that Kawasaki Heavy Industries seeks to achieve.

How will WX be implemented?

● **Takashi Abe:** First, we will clarify the company's vision from various perspectives including the business portfolio and employee engagement. Second, we will streamline and standardize business processes to distinguish between tasks that should be performed by people and those that should be automated. And third, we will focus on high value-added work so that people can reliably achieve business growth even in a time of labor shortages. We will implement WX by carrying out these three steps companywide.

● **Kazuhiro Abe:** The Robot Business Division is currently reviewing and reorganizing business processes overall. This is a gradual process, but we are clarifying issues by streamlining processes as a whole and then incorporating IT, AI, and robotics. In addition, as our business evolves, we anticipate that changes in the roles of plants and overseas sites will also be necessary, and we have already started creating concrete business asset designs looking ahead to the future.

● **Takashi Abe:** When implementing these types of organizational reforms, it is important that we express the strong will and commitment of management and present not just the ideal, but also concrete options as a set.

● **Kazuhiro Abe:** I think that's right. In parallel with leadership from management, we will increase transparency by disclosing to all stakeholders including employees the vision that we seek, our thinking, the details of actions, and their results through this report and other means. By doing this, we will also increase employee trust in the Robot Business Division.

What is needed to promote WX?

● **Kazuhiro Abe:** The WX that Kawasaki Heavy Industries seeks is for each individual to take ownership over the issue. To achieve this, I believe that it will be important that we continuously foster a sense of expectation for business growth. The Robot Business Division is currently facing a challenging business environment, but the elements for growth are in place. When we envision the future in 2030, the work we are doing now is no more than one small part of that. However, if everyone can understand the significance of that part within the overall picture, they will be able to see, feel, and experience our business advancing toward the future. When all of these elements are in place, I believe that the people we work with will experience pride and excitement about participating in a valuable business. It's my hope that all of our stakeholders can experience this together.

Digital Transformation (DX)

Two DX

DX is generally referred to as a means of raising operational efficiency and changing employee workstyles, but in the Robot Business Division, which handles robots with a high degree of affinity to IT and the Internet of Things (IoT) as its products, efforts are also underway to implement DX for business stakeholders.

Yutaro Mishima
Senior Manager,
DX Promotion Department
of Robot Business,
Planning & Control Division

Streamlining Business Processes

In conjunction with the substantial expansion and increased complexity of business, we are now confronting a situation where global supply chain management cannot be adequately implemented by simply using the same business improvement methods employed until now. To address this situation, the Robot Business Division had been actively implementing DX for the past several years for the purpose of fundamentally improving business processes, but little progress was made. We sometimes hear the expression "fitting into ready-made clothes" (i.e., conforming to existing standards), and indeed, in the early stages, the task force became confused between the "ready-made clothes" and the "As-Is" of processes, resulting in a situation where we were discussing "ill-fitting ready-made clothes."

When the implementation structure was changed in 2023, a policy was announced from the top down to prioritize process streamlining through business process reengineering (BPR) before proceeding with IT implementation, leading to rapid progress in DX.

BRP requires streamlining along two axes—in-house product development and supply chains—and in fiscal 2023, we placed particular emphasis on product lifecycle management (PLM), an important aspect of such streamlining. Raising the efficiency of only individual business operations, such as sales operations and production management operations, leaves the connection points between those operations inefficient. Therefore, we are working to building a PLM system so that we can streamline operations with a view of the entire flow from development to procurement, production and after-sales service.

Rather than streamlining all of the division's operations at once, we decided to start with business units whose business processes are the closest to the standard. I feel that this had a major effect, enabling us to present examples of streamlining and higher efficiency that include suppliers. As a result, it became easier to share information on the objectives of DX within the task force, and the awareness and understanding of the task force members have also clearly changed.

After PLM, we will expand the scope to include ERP development, steadily advancing the adoption of IT while taking measures to maintain a balance with process streamlining.

DX for Business Stakeholders (ROBO CROSS)

Creating Environments That Facilitate the Introduction of Robots by All Customers and Implementing DX for Stakeholders

Labor shortages due to the declining population are becoming more prominent recently, and the need for automation using robot is increasing. The introduction of robots, however, requires the creation of systems tailored to each worksite, and considerable effort and cost are necessary. In addition, maintaining robotic systems in normal operating condition at all times and minimizing the impact on production processes from sudden stoppages require the performance of appropriate maintenance.

In other words, purchasing robots alone will not immediately eliminate problems, and both the initial introduction and operational hurdles can be substantial, particularly for customers introducing robots for the first time.

To enable such customers to use robots with peace of mind, we developed ROBO CROSS, a robot digital platform.

ROBO CROSS is equipped with two functions: an open development environment for efficiently building robotic systems and a data platform that creates new value by utilizing data collected by robots. Gathered here are stakeholders from the robot industry, each with a diverse range of technologies and services, and ultimately, we will be able to design the most effective systems for customers and provide remote robot system management as a service. In addition, it will be possible for stakeholders on the system provider side to use the platform as a forum for developing services that create new value.

Shifting Toward an Open Mindset

At the start of development, we were able to garner understanding of our concept, but the specific details were difficult to envision, and we faced challenges recruiting partners outside the company. By communicating the benefits to each stakeholder and providing concrete examples of implementation, however, we have steadily expanded our circle of colleagues.

In fiscal 2023, we moved forward with recruiting partners by explaining the concept, conducting demonstrations at exhibitions, and taking other action, and we received many expressions of high expectations. We positioned fiscal 2024 as the phase for launching the provision of services on a small scale. By linking the cloud and on-site operations, we will work with robot manufacturers, system integrators, and vendors to provide services that enable efficient remote on-site support.

Connecting one's own manufacturing sites to the cloud is generally seen as a hurdle from the perspective of security, but we are creating a secure foundation, providing it as infrastructure, and making it available as a forum for providing cloud-based services, expanding the benefits to participating companies and users.

Toshihiko Miyazaki
Robotics Technology Department,
System Technology Development Center,
Corporate Technology Division, Head Office

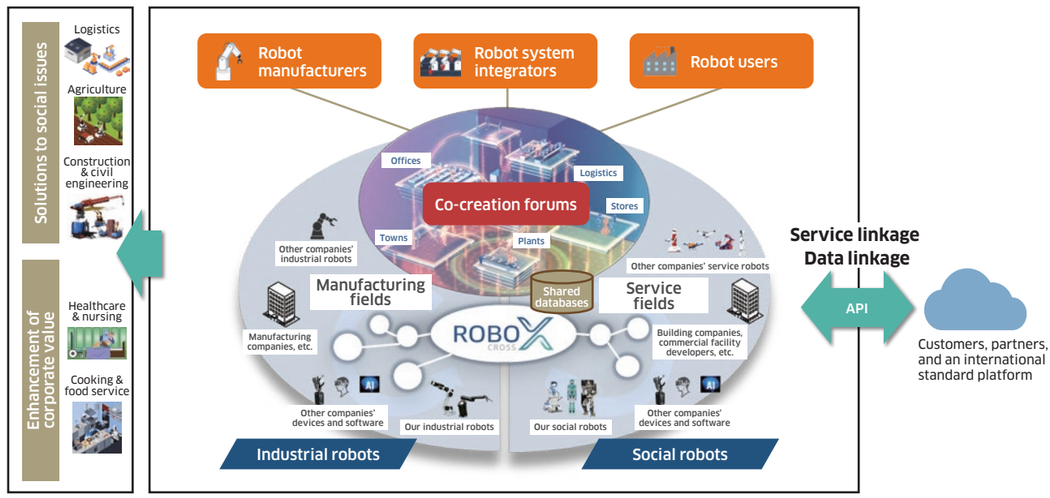
This is a shift away from a "goods-selling" approach that focuses primarily on robot sales to a "value-selling" approach that provides services and added value through robot with an open orientation. This is a new challenge for the Robot Business Division. Also, we believe that for all of the involved stakeholders, this will result in a transformation of how business is conducted through DX in the sense that it will lead to the use of accumulated data to reduce times and new value-added proposals.

Working Toward Further Expansion

ROBO CROSS is a robot system-related service platform, but by providing interfaces with different industry platforms, we will be able to link them as part of a larger DX system.

We will conduct development while keeping this new expansion in mind.

Overview of ROBO CROSS



News Release
VAP audit pursuant to the RBA Code of Conduct

Green Transformation (GX)

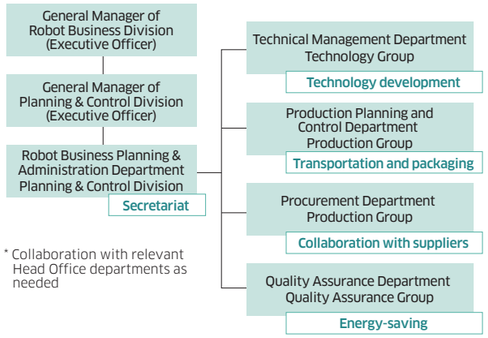
Working Toward Carbon Neutrality in the Robot Business Division

Responding to climate change has become an urgent issue in recent years, and implementing measures to reduce CO_2 emissions with the objective of achieving a carbon-neutral society has become a part of the social responsibility of global business enterprises. In addition, the Robot Business Division has many customers with extremely high awareness of environmental contribution, including customers in the semiconductor and automobile industries, and these customers are demanding more than ever that the division present clear plans and progress toward achieving carbon neutrality. As a result, carbon neutrality is becoming a crucial element directly linked to the division's business activities.

In response to these circumstances, the Carbon Neutrality Committee (now the Sustainability Committee), made up from the relevant departments, was established in 2022 under the direct authority of division management. The committee is now advancing various initiatives for reducing CO_2 emissions throughout product lifecycles.

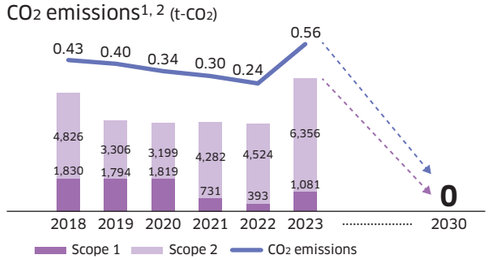
The Robot Business Division is working to visualize and reduce CO_2 emissions, starting in four key areas—procurement, production, transportation and packaging, and use of sold products—with the objective of achieving net carbon zero by 2050.

Structure of the Robot Business Division Sustainability Committee (formerly the Carbon Neutrality Committee)

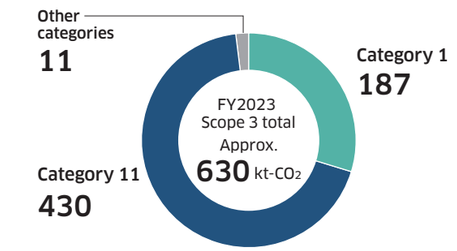


* Collaboration with relevant Head Office departments as needed

Changes in Robot Business Division scope 1 and 2 CO_2 emissions[1, 2] (t-CO_2)



Robot Business Division scope 3 CO_2 emissions[1, 3] (kt-CO_2)



Notes:
1. Cover only emissions at major domestic facilities (Akashi Works and Nishi-Kobe Works).
2. In fiscal 2023, CO_2 emissions per unit temporarily increased due to a change in the electric power company emissions coefficient and an increase the percentage of city gas at plants.
3. Scope 3 emissions are calculated for categories 1, 2, 3, 4, 5, 6, 7, and 11.

From Carbon Neutrality to Sustainability

In response to rising importance of sustainability in recent years, the Carbon Neutrality Committee was elevated to the Sustainability Committee and its scope of responsibilities was expanded in 2024. The committee discusses sustainability initiatives overall, including those relating to carbon neutrality, and promotes various measures. As a part of its initiatives for sustainability, in 2024 the Robot Business Division underwent an audit conducted by a certification body designated by the Responsible Business Alliance (RBA), the world's largest corporate coalition dedicated to promoting social responsibility in global supply chains, and received platinum status, the highest rating.

The Robot Business Division, which conducts business globally, is required to conduct management and collaborate within the company and throughout the entire supply chain from diverse perspectives including carbon neutrality, human rights due diligence, and management of environmentally hazardous substances. Going forward, the division will build cooperative structures with stakeholders and contribute to the development of a sustainable society through its business activities.

Main initiatives for reducing CO_2 emissions throughout the product lifecycle

Procurement of Parts: Scope 3 Category 1

In fiscal 2023, we conducted study sessions for suppliers to increase motivation to take action for achieving carbon neutrality. We also selected leading suppliers that are leading the way in measuring CO_2 emissions in collaboration with the division and increased the rate of primary data (the ratio of data obtained from suppliers, rather than being estimated by us) for Scope 3 Category 1 CO_2 emissions. In fiscal 2024, we will continue our supplier education efforts and measures to increase the primary data rate.

The Robot Business Division is currently working to create a clear outline for a concrete pathway to CO_2 emissions reductions and to calculate CO_2 emissions per product unit (carbon footprint). These initiatives were accelerated starting in fiscal 2023.


Supplier study session

Production: Scope 1 & 2

Kawasaki Heavy Industries is currently transitioning to renewable energy, developing CO_2 separation and capture technologies, and preparing for hydrogen power generation business in the future. The Robot Business Division is primarily promoting energy conservation in plants and offices. Our efforts include a partial transition to renewable energy, interlocking sheet shutters, converting lighting to LEDs, introducing power monitoring systems, and promoting *karakuri* improvements.* Going forward, Kawasaki Heavy Industries a whole and the Robot Business Division will continue collaborating to promote measures that contribute to reductions in Scope 1 and 2 emissions.

* *Karakuri* improvements refers to improvements that involve automation using only natural energy and mechanical systems without using power sources such as electricity or air.

Transportation and Packaging: Scope 3 Category 4

Until now, the Robot Business Division has taken measures to reduce CO_2 emissions relating to product transportation such as utilizing joint deliveries and mixed shipments with other divisions and stacking products into multiple levels inside trucks. In fiscal 2024, we will implement on a trial basis and evaluate modal shifts (changing from truck transportation to railway transportation), look into using recycled packaging materials, and take other measures.


A joint delivery of the Robot Business Division and another division

Use of Sold Products: Scope 3 Category 11

Scope 3 Category 11 emissions, which account for the bulk of the Robot Business Division's total CO_2 emissions, are generated from the use of electric power by robots. The division is working to reduce electric power consumption by robots by developing energy-saving features including weight reduction, configuration optimization, power regeneration functions, and automatic servo shutdown and is developing service functions including power use visualization. In addition to reducing power consumption by products themselves, we also provide customers with carbon neutral solutions that employ robots to reduce CO_2, water, materials, and waste by shortening processes and downsizing booths in customer plants.

F0x Series Controller (the optional power regeneration function reduces power consumption by approximately 20% compared to earlier models.)

Medicaroid × Sysmex × KHI (Robot Business Division)

Discussion

Background of the hinotori™ robotic assisted surgery system, born from a fusion of mutual strengths

For the Robot Business Division, a robotic assisted surgery system is the ultimate robot working alongside people for the sake of people. Together with surgeons and medical staff, it serves to safeguard human life. For us, this robot development was unexplored technology, of course, and an unexplored business as well. This time we asked key persons at Sysmex Corporation, an important partner, and Medicaroid Corporation, a joint venture, about their motivation and prospects in promoting the hinotori™ robotic assisted surgery system business.

Robotic Assisted Surgery System Created by Each Company Mutually Supplementing Missing Pieces

● **Muneto:** At Medicaroid, one of the fascinating things about advancing this project was the creation of a new business by fusing the robot technology of which Kawasaki's Robot Business Division is so proud and Sysmex's medical knowledge. Not only was Kawasaki stepping into the medical field for the first time, but also Sysmex, which is strong in the area of testing, was making a new venture into the surgical field. We felt extremely motivated, because the three companies were engaged in launching a new business together from scratch.

● **Murakami:** Each of the three companies was getting close to realizing a medical robot, but in terms of actual commercialization, there were pieces missing. I think we were able to make the final spurt because the three companies mutually provided the missing parts. In addition, as well as those seconded from the two companies, at Medicaroid we have assembled employees with a knowledge of the surgical field. Every day Medicaroid experiences the difficulty and the fascination of people with experiences in different environments engaging in exchange together. I feel it is a place where people can enjoy extremely good experiences.

● **Muneto:** When it comes to starting up a new business, it is often necessary to put aside your conventional wisdom. For example, in the case of industrial robots, basically production is made-to-order. But in the surgical field you are handling disposable supplies, so a switch to planned production is necessary. This point was very difficult, I felt.

● **Kameyama:** That's right. Industrial robots are produced in response to orders, and how they are used and operating guarantees are mostly left to the customer or system integrator. In the world of surgical treatment, however, the product supplier must teach how to use them and respond to maintenance and disposable supplies. This need to place the whole product lifecycle into the business was one of the big gaps that Kawasaki felt when entering the field.

● **Murakami:** In the realm of surgical treatment, it is completely taboo to have a shortage of any surgical items. Instead of delivering when an order is received, you have to continue supplying them constantly. I think this shift in production style became a good example of how our three companies mutually can spot deficiencies immediately and respond quickly by combining their different experiences.

● **Muneto:** It is no mistake to say that we have been able to release hinotori™ and broaden the market precisely because we joined forces with Kawasaki and Sysmex.

Development with hinotori™

● **Muneto:** In the development of hinotori™, the key point was how to realize a robot that could make full use of many joints and move flexibly just like a human being. Therefore, we set up many opportunities to directly hear the opinions of users. Usually industrial robots are general-purpose robots that have already been commercialized, so it is often difficult for the opinions of end users to reach the designers. In the case of hinotori™, it is important to constantly listen directly to the raw opinions of surgeons and make improvements accordingly.

● **Kameyama:** Entry into the field of surgical treatment was a breath of fresh air in the sense that we felt the short distance between us and users on the ground. For designers, when they make some good improvement, it is motivating to receive a positive response directly in return. Of course, it is not always so. Sometimes we get raked over the coals as well. As engineers, it is both severe and fascinating for us to see the increasing number of cases indicated in figures every time we repeat modifications.

● **Murakami:** In sales, of course, we are always listening to the opinions of surgeons. When we first started sales, the market was dominated by rival products, and our marketing activities did not go well. Sometimes, when they rejected our product, surgeons would say, "We couldn't perform a satisfactory operation with this." But we knew that Kawasaki is brilliant when it comes to making things and would implement product modifications and development at an amazing speed. I was extremely delighted when, the moment we showed the product again to surgeons after a couple of years of modifications, their response was, "That's it! We can perform satisfactory operations with this!" I've never been so thrilled in sales before. I couldn't have experienced such delight if I had not been involved in the hinotori™ project.

● **Kameyama:** We also managed to continue making modifications and gave shape to hinotori™ in that way because we were able to utilize the unique knowledge of the medical industry and network of surgeons and hospitals that Sysmex has cultivated. If we hadn't teamed up with Sysmex, we couldn't have entered the medical field. Kawasaki has learned a lot, and I am very grateful to them.

Pride in Saving Lives

● **Murakami:** As of the end of October 2024, hinotori™ had been used in 7,000 cases, and the number is growing at an accelerating pace. The figure of 7,000 cases means that our robot system has helped in saving the lives of 7,000 patients. The field of medical treatment makes us strongly aware that just by performing our business, we are contributing directly to the world. I want to mindfully foster that awareness of contributing in Medicaroid too.

● **Kameyama:** Absolutely. I want the members of the Robot Business Division to feel pride in that respect as well.

● **Muneto:** Yes, Medicaroid shares that same feeling. And to get hinotori™ used even more widely, we designated 2023 as the fiscal year in which we would shift the business structure from the investment phase to one that seeks to yield a profit. In that situation, one major initiative was the market launch of an upgraded model with added modifications and functions. The launch of this model has led to greater reputation in the market and an increase in the number of installed systems and cases. Furthermore, the scope of applicable medical departments is expanding. In addition to urology, gastroenterology, and gynecology, respiratory surgery also submitted a pharmaceutical application and received approval in April 2024. In fiscal 2024 we are tackling three issues in a priority manner. The first is strengthening of the product's competitiveness. This means the further bolstering of functions and performance and making the system even easier for surgeons to use. We will also accelerate the development of technologies that differentiate us from rivals. The second is global development. In 2023 we acquired Medicaroid's first overseas approval in Singapore and began sales there. In fiscal 2024, in addition to having acquired sales approval in Malaysia, we are going ahead with applications in Europe. And the third issue is enhancing total brand strength. While strengthening brand diffusion through promotional campaigns, we will endeavor to enhance total brand strength by improving product quality and support arrangements.

Mission to Improve Quality of Life and Realize Postsurgery Return to Society

● **Muneto:** Our hope is that hinotori™ can be of help in enabling surgeons to provide better treatment and in easing the physical burden on patients. The main thing is that, after their surgery, patients can lead their lives with a high quality of life. We do not conduct the treatment ourselves, but we want to support better treatment by supplying good robots.

● **Murakami:** On the sales side, we want to achieve a total of 100 installed systems in the current fiscal year. That's a tough target, but I want to change the sales stage. Kawasaki's development members had close technical talks with surgeons in the initial development of hinotori™, but going forward, with the ultimate objective of enhancing quality of life, it will be necessary for sales and development members to further increase opportunities for discussions with surgeons by going to hospitals. I think we can achieve our numerical target for installed systems if we pool our overall strengths, combining not only engineers but also sales support services and so on.

● **Kameyama:** It's important to promote business by placing importance on on-site opinions, isn't it? On the technical side, naturally we must improve operability and general usability, but I also want us to develop products that bring out the unique characteristics of Kawasaki and Medicaroid and realize differentiation.

● **Muneto:** Absolutely. And like the immortal phoenix [hinotori in Japanese], let's create a future where people return to society quickly after their operations and lead better lives.

Atsushi Kameyama
Executive Group Manager of Medical Robot Group and Senior Executive Officer, Medicaroid Corporation

Koji Muneto
President and Chief Executive Officer, Medicaroid Corporation

Genichi Murakami
General Manager of MR Business Development Division, Sysmex Corporation and Senior Executive Officer, Medicaroid Corporation

Head Office Presidential Project Management Division × Robot Business Division

Discussion

Inter-organizational co-creation initiatives, shifting mindsets to new challenges

In conjunction with technological advances such as AI, the robot business is steadily coming closer to society. Because of the considerable potential, however, there is also a risk that the business will lose focus. At this time, we spoke with trusted colleagues who will work with us to promote measures that can bring concrete form to the roles of the robotics business in society, with an emphasis on the significance of in-house co-creation and importance of changing mindsets.

Internal Kawasaki Heavy Industries Co-Creation Initiatives That Go beyond Divisions

● **Matsuda:** Until now, Kawasaki Heavy Industries has mainly conducted business with national governments and major corporations. Within the heavy manufacturing industry, keeping one's commitments without fail is emphasized even more than in other industries. I believe that as a result of this, the lofty perspective of considering social impact and social issues as well as the mindset of seeing things through to the end without avoiding them has been steadily handed down as an element of our organizational culture throughout the company. The Presidential Project Management Division was launched in 2021 to maximize utilization of this positive quality while creating business with a high degree of agility tailored to the needs of the times.

● **Takatori:** In the Robot Business Division, we are working to expand our business fields from industrial applications to medical and social settings. When doing this, the ability to promptly provide reliable value to customers with diverse perspectives is a major issue. In this respect, I believe that collaboration with the Presidential Project Management Division is a major strength.

● **Matsuda:** The Presidential Project Management Division is advancing the social robot business by making use of a small but elite team structure. When planning new business, we start by exploring the relevant areas of the Kawasaki Heavy Industries Group Vision 2030 to learn more about sites and finding intersections between on-site issues and our solutions. Although we are working to identify issues on site, there are many issues that cannot be uncovered simply by conducting on-site interviews, as there are on-site customers who are unaware of their own potential needs or have unconsciously accepted their current difficulties.

Achieving Changes in Customer Mindsets Using the 3 Reality Principles

● **Takatori:** In general, robots are particularly good at accurately performing the same task over and over. There seems to be a belief among the general public that robots are capable of doing anything, but in fact, it is humans who have unlimited potential and cannot easily be replaced. People in industry are quite familiar with the attributes of robots, but in many instances, social robot customers have only this general image of robots. Under these circumstances, the key is to analyze the customer's tasks from the perspective of identifying which aspects of human work can be delegated to robots to reduce the burdens of human work and then presenting a proposal that will gain their understanding.

● **Matsuda:** I think that's right. When developing the FORRO indoor delivery robot, for example, we learned that nurses spend a lot of their time carrying things. When we actually measured this, we discovered that some nurses walk as much as 20 km in a single day. Nonetheless, this was accepted as simply the way things are. We proposed starting with a robot that can carry things so that nurses can focus on the work that only they can perform. When we started, people said things like, "If something like that is moving around, it will just get in the way." The Presidential Project Management Division created a prototype and updated the system four or five times over the course of two years. Because the work was done by a small team, we were able to bring new things to fruition very quickly in terms of both marketing and technology. Recently, we have been receiving gradually increasing inquiries from hospitals, and as the next step, we are now transitioning to the phase of ensuring product reliability.

Shifting Mindsets from Robot Sales to Provision of Service

● **Matsuda:** The Robots Business Division has been continuously active in the industrial robot business for more than a half century, since 1969, and in addition to providing product reliability, it has a solid foundation including support systems. Start-up companies are generally considered to excel at "entering unknown fields," but under these circumstances, we are constantly exploring areas where we can generate significant value by leveraging our strength to enter such unknown fields. In the case of FORRO, for example, it was initially envisioned for outdoor use, but the market was already flooded with many low-cost products from overseas, and despite its overwhelming performance, the high price made it difficult to commercialize. Accordingly, we decided to shift our target to the medical field, where performance, safety, and reliability are crucial. The medical field had long been uncharted territory for Kawasaki Heavy Industries, and the experience and achievements we gained with hinotori™ and PCR test systems enabled us to experience the core challenges faced by those in healthcare, and as a result, FORRO, which was initially for outdoor use, was able to enter the medical field. The fields that truly need the value that can be provided by our products are often outside our expectations, and we feel a need to carve out new markets through services.

● **Takatori:** That is certainly right. The industrial robots that we currently provide tend to start with hardware performance and function, with services added after installation. Depending on how you view things, it can be said that we supply hardware while also providing services that enable people to lead more enriching lives, but examining business from a thorough service perspective, as we have done with social robots, and incorporating that into our business, feels like a new challenge. Social issues, such as the declining labor force and rising labor costs, are becoming increasingly prominent around the world. There is also a tendency for Japanese government to try to develop social robots into a core industry. The roles expected of social robots will expand even further in the future, and for this reason, a shift in mindsets regarding business will be essential.

Kawasaki Heavy Industries' Strengths

● **Matsuda:** As I mentioned at the beginning, I believe that the lofty perspective of considering social impact and social issues as well as the mindset of seeing things through without avoiding them is one of Kawasaki Heavy Industries' absolute strengths. For instance, during the COVID-19 pandemic, we were able to launch a free, automated PCR testing robot system business in Tokyo Metropolitan Government in the extremely short period of six months from concept, achieving a substantial reduction in testing times as well as a major increase in the number of tests performed. This was the first business project of the Presidential Project Management Division, and it all started with the desire to solve major social issues including achieving an early recovery of socioeconomic activities and preventing secondary infections among medical workers during the pandemic, which was an unprecedented crisis. We were able to make this business a reality thanks not only to the efforts of Robot Business Division members, but also many people working in the aircraft business, which was greatly impacted at that time.

Future Outlook and Message

● **Matsuda:** We envision a future where social robots and humans interact with one another and move in the same spaces, and we currently hope to implement DX with a focus on real-world points of interaction through integration with the indoor positioning information service currently being advanced by the Presidential Project Management Division. We believe that by adding the strengths of the Robot Business Division, we can draw out the unique characteristics of Kawasaki Heavy Industries.

● **Takatori:** The Robot Business Division seeks to expand the possibilities of the social robot business through co-creation with the Presidential Project Management Division, and we hope to focus our efforts on developing the technological items that will be necessary for the provision of various services, such as robot interfaces that are easy for customers to use. To do this, we plan to actively build technological co-creation relationships.

● **Matsuda:** I believe that there are three things that are essential in order to achieve a breakthrough. The first is to put aside one's lack of ability and draw the world's best roadmap. The second is to work with a sense of ownership. And the third is to take action with a positive and enjoyable attitude. We hope to enjoy robots ourselves so that our customers can also sense that robots are fun.

● **Takatori:** Kenji Bando, General Manager of the Robot Business Division is always telling us that we should enjoy ourselves. The social robot business is just now starting, and while this may be the most difficult time for the business, it is also an opportunity for robots to play important roles in solving social issues. We will move forward with our colleagues without fear of the unknown.

Yoshimoto Matsuda
Executive Officer and General Manager, Presidential Project Management Division, Head Office

Masao Takatori
Executive and Group Manager of Technology Group

Developing Future Human Resources for Robotics Industry

The Consortium of Human Education for Future Robot System Integration (CHERSI)

There is increased expectation around automation through the introduction of robots to address the societal challenges of recent times, such as the falling birthrate and aging population, labor shortages, and increasing productivity. Under these circumstances, it is important for the robotics industry to work together to actively develop the future human resources for robotics services.

The Consortium of Human Education for Future Robot System Integration (CHERSI), in which eight robot manufacturers including Kawasaki Heavy Industries alongside the Japan Robot System Integrator Association participate, is involved in the delivery to educational institutions of the latest technological trends as well as producer-driven solutions, and other resources. Initiatives it undertakes include visits by teachers from higher technical colleges and technical high schools to CHERSI member companies to achieve a full view of the latest technological trends and robot application case studies, thereby facilitating the incorporation of industry know-how into higher technical college education; with CHERSI member companies in turn dispatching lecturers to higher technical colleges to directly convey information to students about the latest technological trends and robot application case studies.

Realization of “A society where people and robots coexist” will not be possible without future human resources for robotics services. The entire robotics industry is committed to working together to promote the understanding of robots and actively contribute to the fostering of human resources who will be responsible for the next generation of robot development and system integration.

Become a Kawasaki Robot Engineer!

We regularly hold “Become a Kawasaki Robot Engineer!” interactive robot events for third-grade elementary school students and above, at which participants can actively observe, touch, and operate the “industrial robots” that support people’s daily lives.

These are hands-on events to allow the participating students to learn about industrial robots, which while rarely seen are in fact used in the *monozukuri* manufacturing which takes place all around them, including “how they work,” and “what kind of work they do,” while having fun, getting an actual experience of programming the robots and taking on challenges.

The “Become a Kawasaki Robot Engineer!” event was awarded the Children’s Smiles Award in the Children’s Smiles Odyssey organized by the Tokyo Metropolitan Government in September 2023. This award is bestowed on companies and other organizations that have implemented outstanding initiatives for children, and Kawasaki was selected in the “We Want to Experience It for Ourselves” category.

Kawasaki will remain actively committed to encouraging the children who will be responsible for the future by delivering fun experiences and learning to these children through robots.

Providing Venues for Contact Between People and Robots

Kawasaki Robostage

Kawasaki Robostage, in Odaiba, Tokyo, is a robot showroom open to general visitors, with the concept of realizing human-robot coexistence and collaboration.

It contains a large collection of various robots, including dual-armed robots, large welding robots, medical and pharmaceutical robots, and humanoid robots. Visitors to Kawasaki Robostage can have their portraits drawn by robots, experience programming, and enjoy learning about robots, while observing, touching, and interacting with cutting-edge technology and techniques.

Please visit us and experience “the future of human-robot coexistence.”

Nishi-Kobe Robot Showroom

Nishi-Kobe Robot Showroom, located at the Kawasaki Nishi-Kobe Works, is one of the largest robot showrooms in Japan. At the showroom, the scenes in which robots are used in real-life settings in logistics and manufacturing processes are faithfully recreated, with the showroom aimed at those who are considering introducing robots.

While viewing the robots performing actual operations, we will consider together “which robot or system could help solve the challenges at you, the customer’s site” and propose your optimized total solutions.

CO-CREATION PARK—KAWARUBA

In November 2024, Kawasaki opened CO-CREATION PARK - KAWARUBA as a new site for social innovation co-creation within Tokyo Haneda Innovation City. This facility aims to provide a venue at which a diverse range of determined people can encounter one another and come together to create value and achieve social implementation toward the resolution of various societal challenges.

In addition to social robots, the facility targets societal challenges for which Kawasaki Heavy Industries is engaged in initiatives, such as hydrogen and carbon-neutral solutions, next-generation mobility on land, sea, and air, and societal transformation through digital technologies such as DX and AI, with Kawasaki co-creating alongside major corporations, small and medium enterprises, start-ups, government bodies, local authorities, and academia, to actively conduct a series of demonstration tests and attempts at social implementation for these targets.

The Robot Business Division has positioned this as a site for the promotion of the social implementation of social robots and will use it to stimulate societal receptivity to social robots while robustly promoting their commercialization through co-creation and demonstration tests with the market and stakeholders. The facility will also be leveraged as a venue for putting Robot Business Division technologies, human resources, and services into circulation, and will thereby facilitate further enhancement of its existing businesses.

Creating a New Culture

Purpose

Unlocking human ingenuity to create robotics that enrich the future

Important Values

Believe in our strengths and contribute new value to society

Conduct

Take ownership
Accept mutual differences and strengths
Discover opportunities for co-creation
Inspire new realizations in the field

Our Robot Business Division has a rather different nature to other businesses at Kawasaki Heavy Industries in that all kinds of people in industrial circles, medical circles, and society at large could become our customers. For that reason, it is essential for us not only to value our traditions as a longstanding enterprise but also to have a free-spirited, resonating organizational culture in which we squarely confront social issues and businesses, which change with the times, as our own challenges and think flexibly. As one initiative to create such a culture, here we introduce the activities of our young like-minded employees.

Creating a Strong Force by Encouraging Human Resources, an Important Capital, to Empathize with the Purpose

For global enterprises, sustainable management emphasizing environmental, social, and governance (ESG) factors is also becoming increasingly important in terms of corporate value. Accordingly, in addition to financial capital, such as sales and profit, the importance of non-financial capital is growing year by year. For a company, five types of non-financial capital can be cited as important: manufactured capital, intellectual capital, human capital, social and relationship capital, and natural capital. We believe that human capital is the foundation of all these types of capital. In other words, human resources are the wellspring of everything.

It is people, that is, the members involved in Kawasaki Robotics, who display their skills to the utmost and maximize the output of the organization. Therefore, it is necessary for every individual member to empathize with the future image and sentiments aimed for by the company and to have rock-solid foundations in which those sentiments can be broken down as their own.

As a symbol of this empathy, at the end of 2022 we established the “purpose” of Kawasaki Robotics. Since this purpose verbalizes the future society that we are aiming for through our business and our raison d’etre, it is the lingua franca that everyone involved in the robot business should be constantly aware of. Moreover, empathy is not limited to related persons inside the company. We believe that this written purpose will provide the impetus for all our stakeholders, including not only employees but also customers, suppliers, local communities, and investors, to know about our sentiments and to have trust and expectations in us for many years to come.

Activities by Like-minded Persons to Disseminate the Purpose

Approximately forty like-minded employees, transcending the barriers of department, position, background, and gender, gathered to formulate the purpose. After repeated discussions, they came up with the “purpose” of “Unlocking human ingenuity to create robotics that enrich the future,” an attached declaration of “important values,” and a “code of conduct” indicating a daily stance toward achieving them. In fiscal 2023 they promoted dissemination activities, mainly among managerial staff in Japan, and in fiscal 2024 they are going further and focusing also on initiatives to bring about a transformation of conduct.

These three documents---the purpose, attached values, and code of conduct---serve as a benchmark for making judgments when perplexed in daily work. If every employee becomes able to truly empathize with them, changes will occur in everything from important decisions that impact management to the approach to daily work. By putting the purpose into words, our conduct will change. And by changing our conduct, we can realize the society — in other words, the purpose — that we are aiming for.

Going forward, we will continue to conduct earnest efforts to entrench the purpose and thereby solidify its presence.

Members engaged in activities to disseminate the purpose

What is the purpose for you?
(Replies by purpose dissemination activity members)

Something at the heart of everyone’s consciousness of moving in the same direction

Something indicating preparedness

A way of life. Every time you read it, it makes you question how you want to be and how you want to live.

A compass to bring together members of Kawasaki Robotics both in Japan and overseas, including our business partners. Sometimes it plays the role of an engine as a kind of slogan.

The Sentiments Ingrained in the Purpose’s Key Visual

In a townscape made from large building blocks, children draw people with smiling faces and exciting lifestyles. An industrial robot constructs the community with a large building block, handling the heavy labor and dangerous tasks instead of people. Alongside the children, a social robot holds coloring pens and watches over them closely. Through this scene of children building the next era and robots supporting them, creating the future together by capitalizing on their respective characteristics, the visual expresses the image of a future enriched by the blending of human ingenuity and robotics.

Key Chart

* Questionnaire survey of employees in Japan conducted in March 2024 (response rate of approximately 50%)

■ Recognition:

80%

No. of effective replies: 381

■ Empathy with purpose:

80%

No. of effective replies: 391

■ Change of conduct due to purpose:

20%

No. of effective replies: 109

——Supplying value

We not only meet the requests of customers but also have the ability to perceive what customers really want.
Furthermore, we elicit the amazement and admiration of customers with our solid technological capabilities and sense of speed.
We perceive what is truly required of Kawasaki and supply value.

——Delivering

We confront the challenges faced by customers as a team and perceive how to solve them.
This stance of battling right to the end is our value; it is the only means of gaining customer trust.
We perceive methods transcending the limits and deliver.

——Displaying individual strength

Amid the diversification of values, our own individual growth will strengthen business.
We possess wide-ranging expertise, strongly inquisitive minds, and a nourishing experience of failure; these are all valuable assets that strengthen us and develop business.
We challenge unchartered territory in response to diverse values.

Tetsuya Yoshida

Executive, Deputy Manager
of Robot Business Division,
and Group Manager of Clean Robot Group