

Moving Toward Realization of Revolutionary Industrial Automation with “Motors and Their Applications”

Since its founding in 1915, Yaskawa Electric has set motors and their applications as its business domain, and continued to support the cutting-edge industries of the times with its products and technologies. From “motor manufacturer” to “automation provider,” we gave birth to the now universally accepted concept of mechatronics*, and now we evolved to a “total solution provider.”

Global demographic changes, environmental issues caused by increases in energy consumption, transformation in the manufacturing scene caused by rapid evolutions of information technology—dramatic changes are now happening in the business environment that surrounds our Group.

Seeing these changes as opportunities, our Group will create new products and services to provide new values to society by integrating open innovation and our core technologies (motion control, robotics technology, power conversion). We identify this as our objectives for 2025 and are striving for realizing it.

*Yaskawa Electric led the world in putting forward the term “mechatronics” in the late 1960s. This concept evolved when we combined our customers’ machinery with Yaskawa’s electronic products to create superior quality and function.

Sustainable Development Goals

Sustainable Development Goals (SDGs) were adopted by the United Nations General Assembly in September 2015 as a social issue for which the global community should make efforts. Out of the 17 development goals of the SDGs, goals related to our business initiatives will be pursued to achieve through new value creation.



Financial Period Covered

This report covers FY2017
(From March 21, 2017 to February 28, 2018*),
but some FY2018 content is also included.

*In FY2017, the accounting period changed from March 20 to the last day of February.

Editorial Policy

This report has been compiled with the intent to communicate broadly the future potential of Yaskawa for its shareholders, investors, and a wide readership, and care has been taken to enable prompt understanding of its value creation from various perspectives in a balanced manner.

For FY2018 issue, the report is created with a focus on making it useful for all stakeholders to evaluate Yaskawa, conveying the overall picture how it creates values, using the International Integrated Reporting Framework by IIRC, as a reference.

Note on Numerical Values and Graphs

All numerical values are rounded down, as applicable.

Note on Forecasts Mentioned in this Report

Future projections for performance and other matters contained in this report are based on the information that is available at the time of issue and on a certain level of requirements as seen rational, however, actual results may vary due to various factors.

Some examples of such factors are economic conditions, both in Japan and outside the country, trends in demand for the company’s products and services, and trends in foreign exchange and stock markets. Please also note that factors which may impact the company’s results are not limited to the aforementioned.

Long-Term Business Plan “Vision 2025”

Mechatronics

Achieve revolutionary industrial automation, through combination of world's leading edge technologies and open innovation.



Humatronics

Create a society where people's capabilities are maximized, through the application of mechatronics technology to medical/welfare segment.



Clean Power

Provide safe and secure living in a sustainable society.

Our Goal	Respect Life	We aim to contribute to improving quality of life and building a sustainable society with technologies accumulated over the past century.
	Empower Innovation	We venture in new technologies/domains/targets to bring “Waku-Waku” * excitement to people.
	Deliver Results	We promise to deliver assured results to stakeholders, while continuously enhancing business execution capabilities.

* Waku-Waku: Onomatopoeia used in Japanese language to express someone's feeling of enthusiasm

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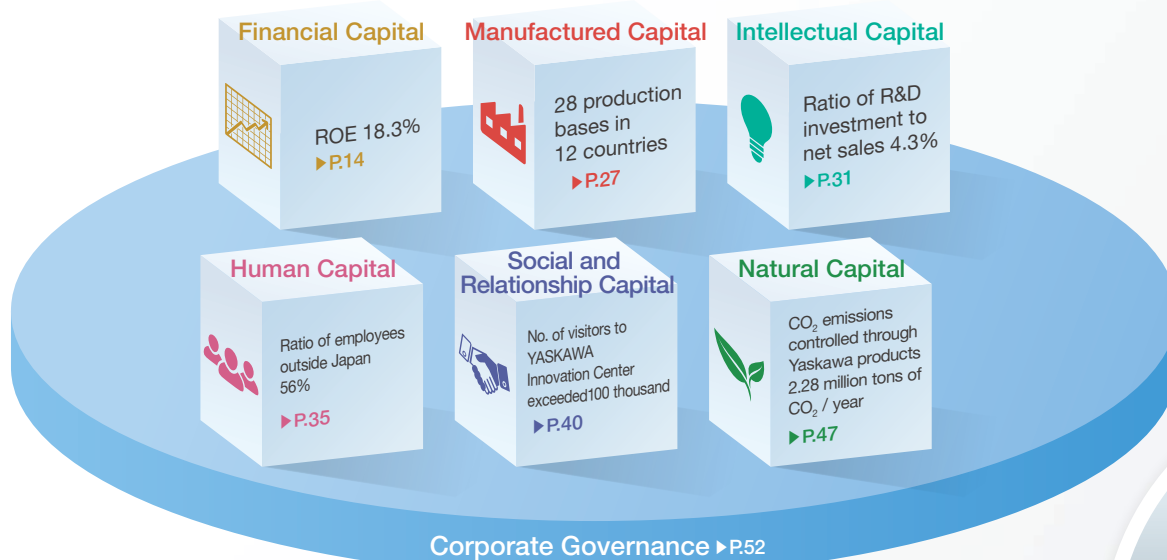
The Value Creation Process for Realizing Long-Term Business Plan “Vision 2025”

Yaskawa Electric is leveraging the business capital that it has accumulated more than a hundred years and implementing the business strategy to realize Vision 2025.

Through this initiative, we are both realizing sustainable growth and creating social values—improvements in labor productivity, reductions in the burden on the environment, and improvements in people’s quality of life—, and tying that in to realizing its principle of management.

Leveraging Our Business Capital

We are leveraging the business capital that has been nurtured more than a hundred years for value creation.



- Develop organizational capabilities
- Progress “glocal” management
- Develop individual capabilities



Establish energy creation/storage/application business

Develop business globally in the areas of photovoltaic and large-scale wind generation and EV powertrain



Pursue world No.1 in core business Deliver revolutionary industrial automation

Initiatives aimed at realizing solution concept “i³-Mechatronics”

i³-Mechatronics



Challenge in medical/welfare market

Commercialization through open innovation including alliances and industry-academia-government collaboration



Promoting Our Business Strategies

We are making efforts to create new value through the deployment of our business based on our core technology, and strengthening our business foundation to ensure maximum return.

Through the execution of our business initiatives,
we will offer value to our stakeholders.

Creating Social Values

Realization of management principles

Leverage the pursuit of our business to contribute to the advancement
of society and the well-being of humankind.

Mitigation of environmental impact



Improvement in labor productivity



Improvement in people's QOL*



*Quality of life



Financial goals for FY2025

■ Net sales	Double FY2015 level* or more	*FY2015 net sales: 411.3 billion JPY
■ Operating income (ratio)	More than 100.0 billion JPY (10% or more)	
■ Dividend payout ratio	Above 30%	
■ ROE	13% or more	

Provide safe and
secure living in a
sustainable society.

Achieve revolutionary industrial automation,
through combination of world's leading
edge technologies and open innovation.

Create a society where people's capabilities are maximized,
through the application of mechatronics technology
to medical/welfare segment.

We will realize sustainable growth through
initiatives aimed at achieving Vision 2025.

Realizing Sustainable Growth

Our History and Core Competence

1915~ Startup period

- Focusing business on electric motors and their applications
- Focusing on motors as hardware and intelligence as software to control motors

1950~ Motor manufacturer

- Aiming for mechanical automation by leveraging advancements in control technology
- Aiming to realize "unmanned factory", automated with support of machines

Contributing to the development of industry and society with world's first epoch-making products and technologies

Since its establishment in 1915, Yaskawa Electric has defined its area of business as electric motors and their applications, and continued to make challenges in the state of the art technology of the times. We apply "Motion control", "Robotics", and "Power conversion" that are core technologies as well as our strengths, which have been nurtured more than a hundred years, and contribute in resolving global issues such as declining birth rate and aging population and issues concerning energy and the environment.



1915
Founding

Promoter Keiichiro Yasukawa

Keiichiro Yasukawa, the promoter of Yaskawa absorbed new knowledge and philosophies from the West. He engaged himself in mining, later expanding his business to spinning, steel, railway and banking. He personally funded the opening of Meiji College of Technology, a vocational school for training engineers. The school later became Kyushu Institute of Technology, and continues to produce numerous engineers to this day.



Founder Daigoro Yasukawa

In 1915, Daigoro Yasukawa founded the Company's predecessor, Yaskawa Electric Manufacturing Co. The company started its business by manufacturing electric mining products, most of which were imported at that time. The domestic electric products were both scarce and technologically several steps behind the imported products, therefore this was a move that went ahead of the time.

Net sales

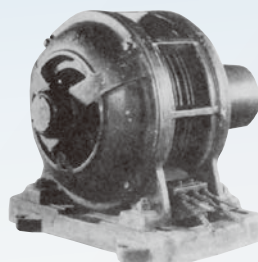
1925

1935

1945

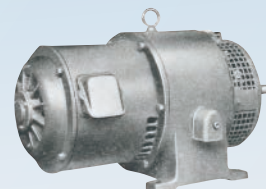
1955

- 1915 • YASKAWA Electric Manufacturing Co. established as a limited partnership
- 1917 • Commercialized "three-phase induction motor"
- 1919 • YASKAWA Electric Manufacturing Co. Ltd. established
- 1927 • Commercialized "super synchronous motor"
- 1928 • Commercialized "three-phase induction motor with ball bearings"
- 1936 • Opened research laboratory
- 1937 • Registered "Yaskawa Motor" as trademark
- 1946 • Absorbed Yaskawa Aviation Electric Co., Ltd. as Yukuhashi plant
- 1949 • Shares listed on the Tokyo and Osaka stock exchanges

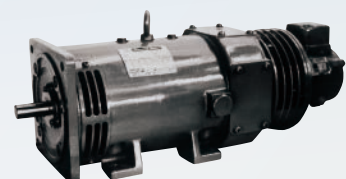


Three-phase induction motor
Yaskawa's first commercial product

- 1953 • Commercialized the first VS motor
- 1958 • Invented the "minertia motor" DC servo motor
- 1961 • Opened Kokura plant (Kitakyushu)
- 1964 • Opened Tokyo plant (Iruma)
- 1968 • Developed automation equipment "MOTO-FINGER," "MOTO-ARM" and "MOTO-HAND"
- 1969 • Opened Nakama foundry



The first VS motor 5HP
Variable speed motor



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

1970~

Automation provider

- Proposed the concept of "Mechatronics"
- Aggressively devoted management resources into the rapidly growing mechatronics market; unveiling new products back-to-back
- Changed the company name from YASKAWA Electric Manufacturing Co., Ltd. to YASKAWA Electric Corporation on the occasion of 75th anniversary

1990~

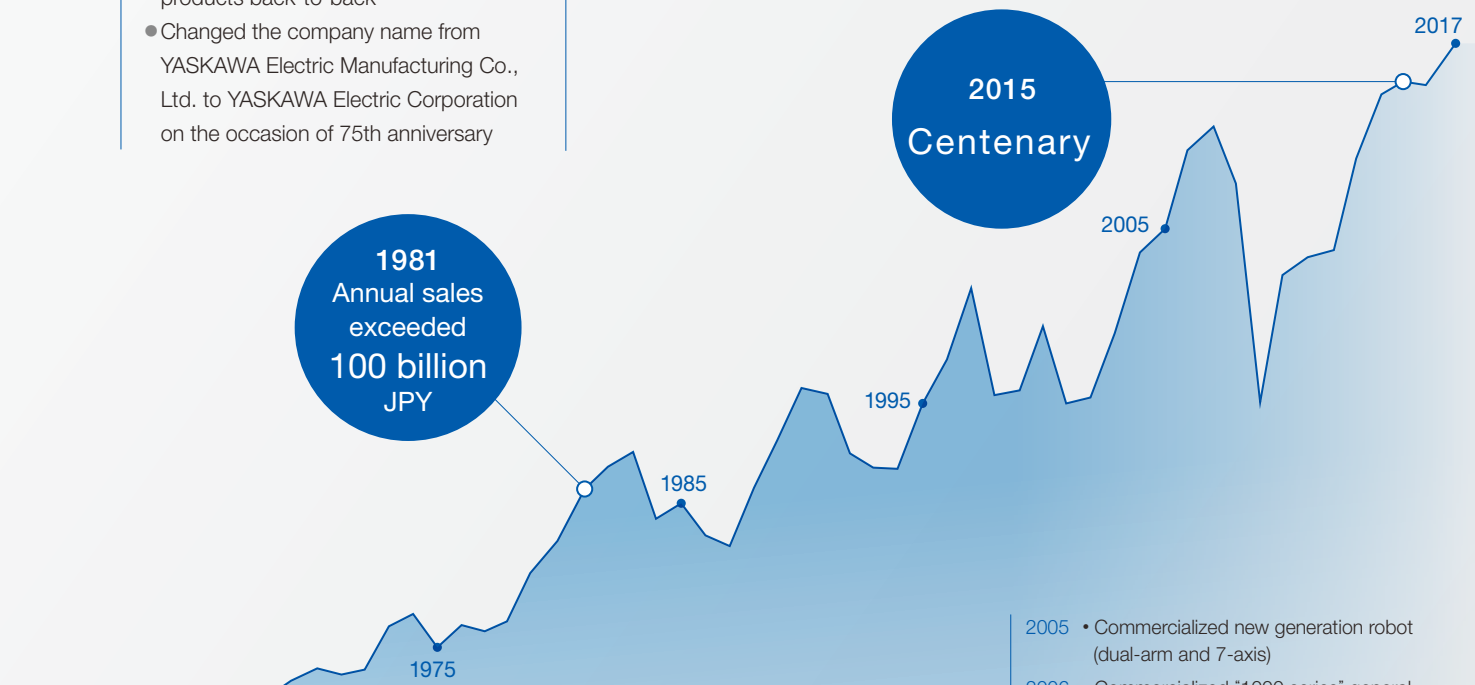
Mechatronics promoter

- Offering solutions that match changes in society and industry
- Creation of new business by developing applications of mechatronics technology

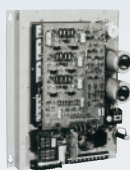
2005~

Total solution provider

- Launch of i³-Mechatronics, a new solution concept



- 1971 • Commercialized the "Varispeed (VS) series" AC drives
- 1974 • Started domestic production of floppy disk drives (as Y-E Data)
 - Developed of the "YASNAC" NC with built-in microcomputer
- 1977 • Commercialized "MOTOMAN-L10" vertically articulated industrial robot
- 1979 • Commercialized "VS-626TV" vector control AC drive
- 1983 • Commercialized the AC servo drive series
- 1987 • Commercialized vacuum robot for semiconductor manufacturing



VS-616T
World's first transistor AC drive



MOTOMAN-L10
Japan's first all-electric articulated robot

- 1991 • Commercialized "Σ series" AC servo drives
- 1995 • Commercialized "VS-616G5" vector control AC drive
- 1998 • Commercialized "MOTOMAN-UP6"
- 1999 • Commercialized "MOTOMAN-CS series" clean robots for transferring liquid crystal substrates
- 2002 • Commercialized "TEM LX2" lower limb rehabilitation robot
- 2003 • Developed "SmartPal" next-generation robot



Σ-I
World's smallest and lightest
Frequency response 250Hz



VS-616G5
World's first general-purpose vector control AC drive



MOTOMAN-UP6
World's first multiple robot cooperative control

- 2005 • Commercialized new generation robot (dual-arm and 7-axis)
- 2006 • Commercialized "1000 series" general-purpose AC drive
- 2009 • Developed "QMET DRIVE" motor drive system for hybrid electric vehicles
- 2010 • Released "Enewin" electrical products for large-scale wind turbines
 - Commercialized "PV 1000" PV inverter
- 2013 • Commercialized "MOTOMAN-BMDA3" for biomedical applications
- 2017 • Commercialized servo motor with built-in amplifier
 - Commercialized "MOTOMAN-HC10" collaborative robot
 - Commercialized "MotoMINI" small and lightweight robot



MOTOMAN-DA20
World's first dual-arm industrial robot for volume production



MotoMINI
The smallest and lightest in industry



Varispeed AC
World's first matrix converter

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



Vision

Financial Capital

Manufactured Capital

Intellectual Capital

Human Capital

Social and Relationship Capital

Natural Capital

Corporate Governance

Financial and Corporate Information

By offering new automation solutions for our customers to win, we will both lead the revolutionary industrial automation and pursue sustainable growth focusing on revenue.

The numerical targets in Dash 25 (FY2016-2018), the company's mid-term business plan, were achieved within FY2017, a year ahead of schedule. Tell us about progress on the basic policies in Dash 25.

We formulated Dash 25, our current mid-term business plan, in FY2015, and at the time, we couldn't be optimistic about our outlook due to a slowdown in Chinese market, the United Kingdom's departure from the EU, and rapid changes in the currency and stock market. But we were later able to get started with favorable tailwinds—the apparent labor shortage in China and an acceleration of automation in manufacturing due to soaring labor costs. One of the results for our company is that we were able to capture those opportunities while fully leveraging the “glocal” development and manufacturing structure that we had been building in our previous mid-term business plan, Realize 100, and tied it in to earn-

ings. And on the other hand, when we look at progress in our basic policy identified in Dash 25, there are some aspects where we cannot say that we have fully honed the ability. Particularly in clean power, which we have been attempting to make a core business, there are delays in our progress for profitability.

Rather than reacting nervously to achievements in our mid-term business plan, we see the target that we should be aiming for as always “achieving increases in sales and profit” and “winning against our competitors”. The targets in our long-term business plan, Vision 2025, are approximately 800 billion yen in sales and more than 100 billion in operating profit, with the achievement of our targeted operating profit standing as a priority target. I would like to create a structure where, for example, we are able to achieve that targeted operating profit with 500 billion yen in sales.



Representative Director
President

H. Ogasawara



As we can see from IoT and AI, the speed of technical advancements is becoming faster and faster. How will that impact your business? How will you respond?

As seen by the fact that many of the higher-ranked enterprises in terms of market capitalization comprise software and communications, it's advancements in communication technology that's leading technical advancements today, and we can surmise that it's these advancements that are tying in to improved performance in semiconductors and CPUs.

It's said that the migration to 5G for communication standards will change the world. In the FA industry which we are a part of, the use of IoT and AI will be accelerated to realize Industrie 4.0., which will have important impact on our business areas inevitably.

In the same way that PCs are connected through the Internet, devices for moving motors such as amplifiers, controllers and AC drives will also be connected by networks at the manufacturing scene in the near future. Our company will leverage the data that is obtained from these connected devices and look at creating solutions together with our customers to lead revolutionary industrial automation.

You announced the new solution concept "i³-Mechatronics" (i cube Mechatronics) in October 2017. How will this contribute to your performance in the time to come?

The concept behind i³-Mechatronics is the way that we consider business and our action guideline, and it isn't as if we are actually selling i³-Mechatronics in itself. The "i³" stands for three words—"integrated," "intelligent," and "innovative." It represents our belief that by collecting data from the devices that comprises manufacturing lines based on the concept of "integrated", the machines and facilities that embed them become "intelligent" and enables "innovative" manufacturing lines to be a reality, which is our guideline for action.

What I always tell our employees is that a solution "is not simply selling our products and services in a package but that the customer wins in business by using the solutions that we supply."

Yaskawa Electric's strength had been the very devices—our servos, AC drives, and robots—backed by our world number one technology that has been nurtured in the field of "motors and their control." By controlling these devices comprehensively, we will make our customers' manufacturing lines more intelligent, and we will push forward our activities so that their profits will increase as a result.

And by adding features like failure prediction that leverages AI, a tool for making things intelligent, to spice up our solutions, we will continue to boost value of our mainstay products—our servos, AC drives, and robots.

As a "company founded on technology", Yaskawa has engaged in R&D to produce products sticking to being world number one or world's firsts. What are the challenges you face in continuing your efforts to achieve technology that's world number one or world's firsts?

The answer to that challenge would be "the establishment of the Yaskawa Technology Center (tentative)" announced in April. We are presently conducting operations with a focus on AC drives for the technology to control motor rotation, servos, technology to control position, and industrial robots, which apply the technology to con-

trol position, as a developed form of our core technology, “motors and their control”. However, it is my belief that to go back to “motors and their control”, which is our origin, and to create new ideas in a cross-sectoral manner, we need to change our product-out thinking that we aim to be world number one within the frameworks of our current servos, AC drives, and robots. Through the Yaskawa Technology Center, I would like to change the ideas of our engineers and further accelerate our pursuit to achieve world number one and world’s first technologies.

Since appointed as president, you have been appealing the importance of management through the use of data (digital management). And this year, you have also assumed the position as a head of the ICT Strategy Promotion Division. What specifically are you aiming for with this?

Based on the concept of aiming for more intelligent business operations by the integrated collection and use of data through the internal deployment of i³-Mechatronics, we will also get data connected to development, manufacturing, and sales comprehensively. We will also initiate innovation for systems related to accounting and HR, and be comprehensive in automating and boosting the efficiency of our business administration to manage and evaluate our business status and human resources digitally.

This year, you are calling on employees to make Yaskawa a company that is worth working for. How specifically will you do for that?

We are currently conducting reviews on our HR system and remuneration system to create a company that’s worth working for. For example, we will make it possible to work in various ways to match individual lifestyles, such as workstyles where there are no transfers or workstyles where the job types are limited, and we will adopt frameworks for leveraging and developing our human resources. If we can have each and every one of our employees consider how their work ties in to profit for the company, taking action to evaluate the output of that numerically, it will be possible for them to achieve remuneration that compensates output from their free work-

style. I’m convinced that there will be true diversity in the workplace.

While it isn’t easy to create such a system, we will continue to push forward our initiatives as a key for the continued sustainable growth of our company.

Lastly, please offer a message to our stakeholders.

Amid the top companies that produce industrial robots—FANUC, ABB, KUKA, and Yaskawa, only two of them build robots using their own motor products and technology, between whom only Yaskawa sells its motors globally. By leveraging this unique strength, we will focus on realizing revolutionary industrial automation and further expansions in our business based on the concept of i³-Mechatronics. For that purpose, we will stick to profit for the next decade by leveraging servos, AC drives, and robots, our core products, to a full extent, and we will make efforts to maximize our earnings.

We will also maintain a long-term perspective and aim for management that is strong in both offense and defense, and realize sustainable growth by enhancing the effectiveness of our governance by enhancing our outside directors. We will make efforts together with our stakeholders to co-create value and continue to improve our return of profits, for example by improving our dividend payout ratio, taking agile steps such as stock repurchases in accordance with our profit growth, vitalizing the local community through our business, and offering returns to our employees.

I would like to take this opportunity to ask our stakeholders for the continued support and patronage to Yaskawa in the days to come.



Special Feature:

Achieving Revolutionary Industrial Automation with the “i³-Mechatronics” Solution Concept

We will reform our business model to expand our business domains and find new opportunities to sell products, which represent the core of our business operations.



Director, Managing Executive Officer
General Manager, Corporate Sales & Marketing Div.

Koichi Takamiya

In October 2017, we announced a new solution concept called “i³-Mechatronics.” In order to materialize the concept, we reorganized our sales structure in Japan, which used to be divided into business segments, to create a structure divided into markets and clients in FY2018. That marked the actual beginning of our new business efforts. The company’s sales structure was reorganized for the first time in 18 years. What are the goals of these efforts?

Takamiya Ever since we made a shift in our business operations to focus on mechatronics in the 1980s, we have managed to expand globally by selling AC servos, AC drives, robots, and other products (components). In recent years, however, markets have been undergoing changes in order to deal with labor shortages and promote the next generation of manufacturing with IoT and AI technologies. This has resulted in a rapid increase of new demands regarding production efficiency and quality maintenance. Under such circumstances, it is becoming increasingly difficult to boost growth by focusing on conventional methods for selling products (component sales), especially in the Japanese market. In order to tackle these changes, we decided to reform our sales structure this fiscal year and move towards a sales method for providing integrated solutions with Yaskawa products and digital data management. We reorganized our existing sales structure, which used to be divided into product categories. The new structure is divided into regions and combines a variety of different products, following the principle “one customer, one face.” The solutions we sell entail proposals to solve our customers’ management issues and improve their productivity or achieve other management objectives. Through these efforts, we aim to materialize the concept of i³-Mechatronics.

How does the sales method that combines products and digital data management work?

Takamiya In the past, we used to sell our products by first seeking to understand the needs of the design and production engineering department of a particular customer that actually used our products. Then we provided the customer with proposals to help them achieve various objectives, such as improving the performance of their machinery or reducing takt time on their production line. With the new sales method, on the other hand, we first seek to strengthen our relationship with the management of a particular company through consultations, and then we choose an approach in order to help the customer solve management issues and achieve various objectives. This in turn provides us with new opportunities to sell our products, which represent the core of our business operations. Thus, we encourage sales activities by the top management to get a better understanding of our customers' management issues and objectives. We are also enhancing efforts that cut across the business segments of our company to deliver optimum solutions.

What proposals do you provide as integrated solutions?

Takamiya To determine what digital solutions need to be added to our products (components) that a particular customer is using, we seek to understand the management issues and IoT or AI capabilities of the customer to provide them with a proposal tailored to their needs. With the con-

cept of i³-Mechatronics, which serves to inspire innovation by utilizing the data we obtain from components to make the machines more intelligent, we are improving our capability of providing our customers with proposals that lead to direct solutions to their management issues. Our current efforts represent the first attempt by our company to provide integrated solutions. This change is essential for the expansion of our business domains. By deepening on-site knowledge and experience and by continuing to succeed in our endeavors, we can reform our business model, which symbolizes the spirit of Yaskawa.

In order to achieve the next generation of manufacturing with IoT and AI technologies, our competitors also continue introducing various new concepts and participate in collaborations that go beyond their corporate frameworks. Taking this into consideration, what do you think are the strengths and distinguishing qualities of Yaskawa?

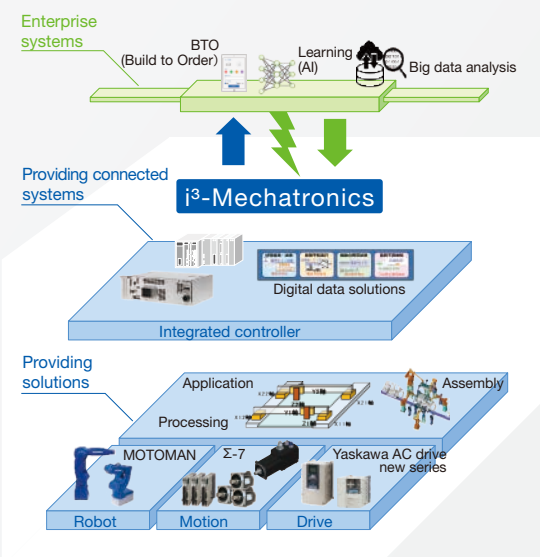
Takamiya Our key products include AC servos, AC drives, and robots. These devices play an essential role in moving the machinery and products at production sites. They also generate data related to facility operation on a daily basis. These products boast the best performance in their category in the entire world, and they maintain the top-class global market shares for many years. Also, the data that can be obtained from these robust components is far more detailed compared to the products of our competitors. Under the

Overview of i³-Mechatronics

"i³-Mechatronics" is a solution concept that serves as the basis for our company's plan to realize revolutionary industrial automation, which is stated in Vision 2025.

- Integrated [Systematization]
- Intelligent [Improving intelligence]
- Innovative [Evolution through technological innovation]

Our solutions combine software and hardware with these attributes.

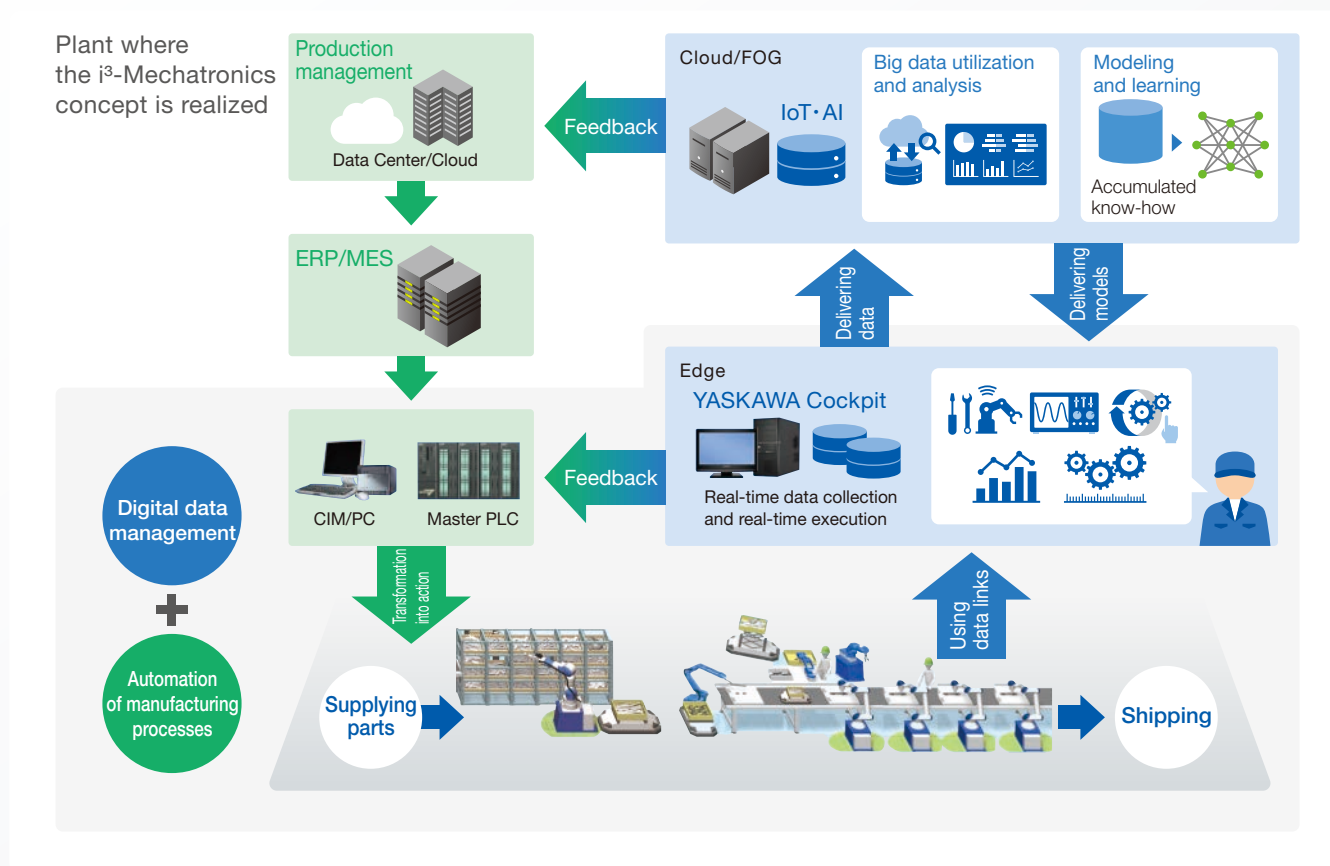


Achieving maximum efficiency, quality, and production continuity

Digital data solutions provided through aggregation of knowledge related to mechatronics (ICT/MES/IoT/AI)



i³-Mechatronics Materialization Model



concept of i³-Mechatronics, which seeks to inspire innovation by making our machines more intelligent, we can utilize high-quality data obtained from our products. This represents our greatest strength.

While the concepts for the next-generation manufacturing proposed by other companies tend to advocate a customer retention approach starting from the customer's host system, we specialize in utilizing production site devices located in the bottom end of the process and detailed data generated by those devices. Our company focuses mainly on looking for solutions to our customers' management issues from the edge area*1.

External collaborations that include host system vendors are essential for this unique model we have developed. Therefore, we are determined to maintain an open attitude towards such collaborations. Our products can be connected regardless of any host systems. The YASKAWA Cockpit software*2 installed in edge computers allows our customers or host system vendors to obtain any collected data. By relying on a strategy that combines robust components and network compatibility, we want to participate in collaborations that will allow us to build win-win relationships with all of the companies related to our business. Our ultimate goal is to provide solutions for our customers' management issues.

These efforts aim to strengthen our customers' sites (edge areas) and allow them to succeed in their business endeavors,

which will eventually help us boost our own growth.

* 1: Edge: An information processing location for data analysis and feedback processes that need to be carried out in real time (an area near a production site such as a factory or production plant)

* 2: YASKAWA Cockpit: Our software for integrated management and real-time monitoring of production line operation status, device status, production status, and other data

What reforms does Yaskawa need to make to implement the i³-Mechatronics concept and boost growth in the future?

Takamiya Having a good understanding of our customers' management issues and accurately defining the services our customers need are going to become even more important for our future sales operations if we are to materialize the i³-Mechatronics concept. It is essential to use this process in order to strengthen our relationships with our customers and to expand our business to areas we could not access with our conventional sales method for selling products (component sales). As business practices are undergoing drastic transformations, we are planning to win against our competitors by materializing the concept of i³-Mechatronics with the unified efforts of our production, sales, and engineering divisions. The goal is to attain our Vision 2025 objectives and start on a new path to growth beyond that.