

# Power Electronics Industry Business Strategies

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## ■ Business Overview

## ■ Performance

## ■ FY2023 Management Plan

- Market Outlook
- Business Plan
  - Net Sales and Operating Income Plan
- Priority Measures
- Capital Investment / Research and Development


## Realizing productivity improvements and energy savings through factory automation and visualization

Creation of competitive components, enhancement of systems using competitive components, and expansion of overseas businesses by leveraging systems

### Social Solutions

(Domestic sales: 83%; Overseas sales: 17%)

#### Rail cars



Electrical equipment for railcars  
Passenger door systems

#### Ship transportation systems



Electric propulsion systems  
Onshore harbor power supply systems

#### Radiation-related equipment and systems



**No. 1\* domestic share**  
Monitoring posts

### Equipment Construction

(Domestic sales: 99%; Overseas sales: 1%)

Electrical equipment construction (plants, power distribution, buildings, civil engineering, ICT)  
Air-conditioning equipment construction

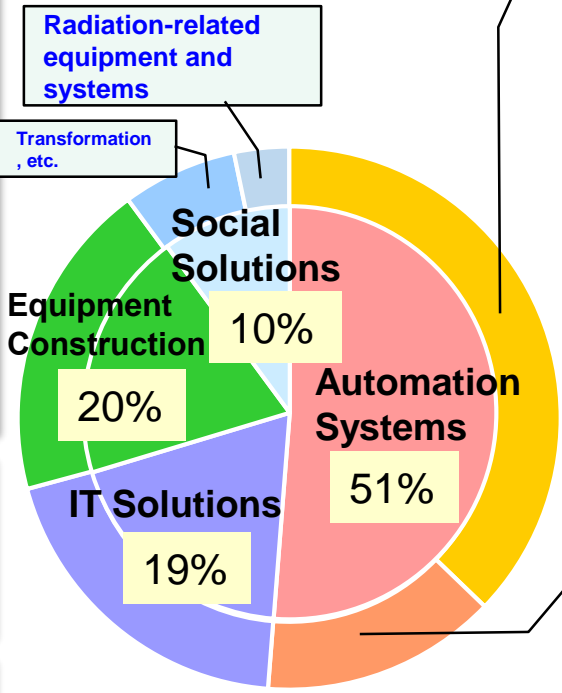
### IT Solutions

(Domestic sales: 100%)

#### Information systems

- FE solutions (packages, power supplies, government information)
- Cutting-edge ICT (IoT, AI, equipment maintenance, distribution solutions)

**Net sales (FY2022)**  
**¥353.4 billion**  
(Domestic sales: 79%; Overseas sales: 21%)



### Automation Systems

(Domestic sales: 64%; Overseas sales: 36%)

### Factory Automation

(Domestic sales: 60%; Overseas sales: 40%)

**No. 2\* domestic share**



Low-voltage inverters  
Small motors  
(Servos) (Controller)  
Measuring instruments and sensors

**No. 2\* domestic share**

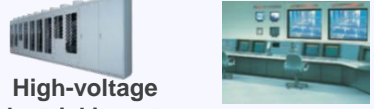


Small-capacity power supplies  
Smart meters

### Process Automation Systems

(Domestic sales: 75%; Overseas sales: 25%)

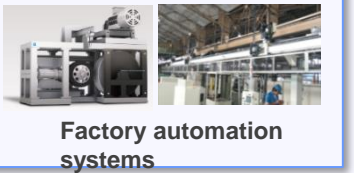
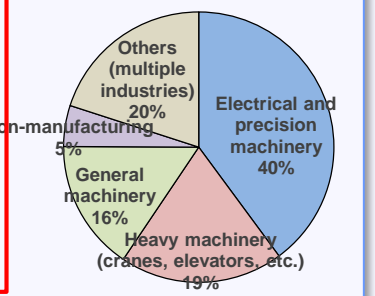
**No. 1\* domestic share**



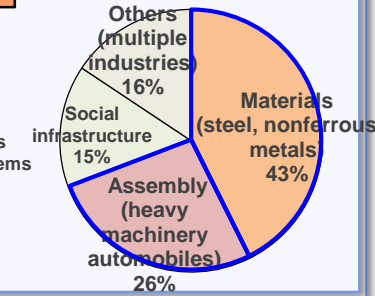
High-voltage industrial inverters  
Drive control systems  
Process control systems  
Induction furnaces

### Major components

#### Major Customers Industries



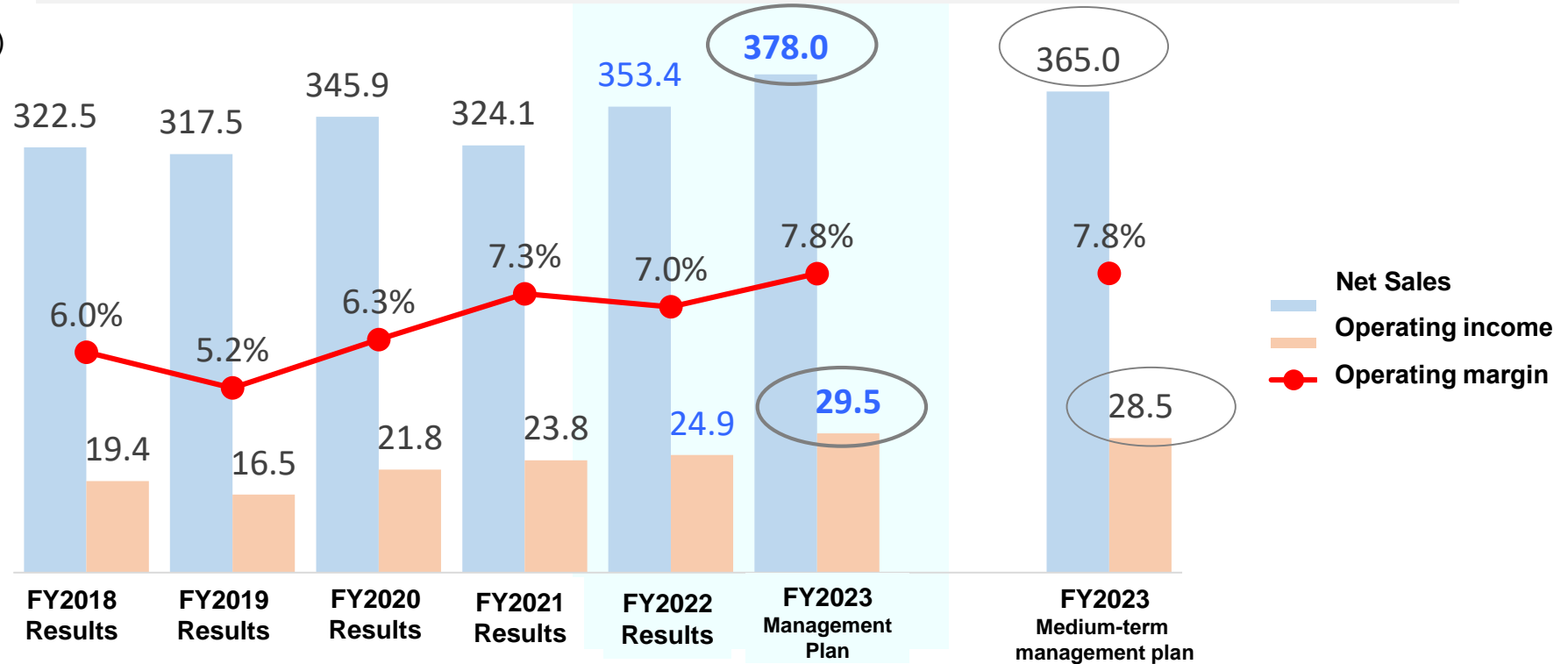
#### Major Customers Industries



\* Shares represent estimates by Fuji Electric based on FY2022 performance.  
Note: Percentages of total net sales figures represent FY2022 results and are calculated before deduction and adjustment for inter-segment sales.

## Accomplishment of medium-term management plan targets in FY2023

(Billion yen)



### Successes

- Promotion of platform development
- Development of global products
- Advancement of local production, consumption, and design
- Alteration of designs to accommodate parts requirements

### Challenges

- Strengthening of constitution of component businesses
- Growth of overseas operations
- Expansion of carbon neutrality- and digital transformation-related businesses

## Year-on-year growth in both component and plant markets

### Components

### Plants

**Signs of recovery of markets outside of China**  
(Loosening of COVID-19-related restrictions)

**Overall market growth projected, despite slowdown centered on semiconductors and machine tools**

**Market growth projected, despite slowdown centered on material industry**

YoY growth rates

	YoY growth rate (FY2021 indexed to 100)		
	FY2021	FY2022	FY2023
<b>Japan</b>	100%	104%	106%
<b>All overseas companies</b>	100%	92%	95%
<b>China</b>	100%	70%	70%
<b>Southeast Asia</b>	100%	106%	111%
<b>India</b>	100%	109%	117%
<b>South Korea / Taiwan</b>	100%	104%	105%
<b>Europe</b>	100%	105%	106%
<b>Americas</b>	100%	107%	109%

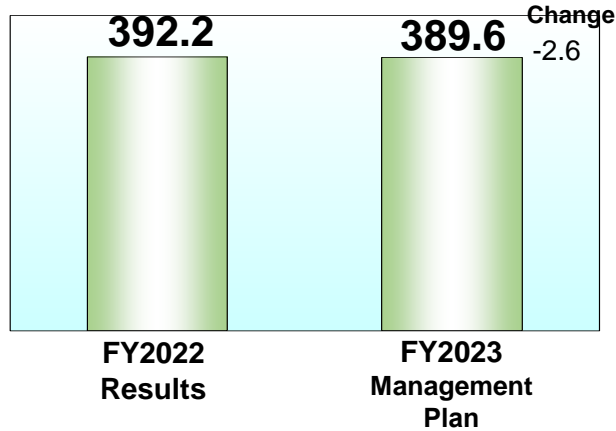
	YoY growth rates	
	FY2022	FY2023
<b>Japan</b>	104	102
<b>Electrical and precision machinery</b>		
Semiconductor production equipment	110	100
Molding machines and extruders	115	102
Food production equipment	107	101
Packaging and printing machines	105	101
Machine tools and metalworking equipment	103	103
Industrial robots	107	102
<b>Heavy machinery</b>		
Elevators	102	102
Fan pumps	105	103
Automobiles	96	102
<b>General machinery</b>		
Other industrial machinery	102	101

<b>Japan</b>	FY2022	FY2023
<b>Manufacturing</b>	110	107
<b>Materials</b>	112	107
Steel	102	103
Non-ferrous metals	118	118
Chemicals	117	105
<b>Assembly</b>	108	108
Automobiles	103	107
Electrical and precision machinery	108	112
Heavy machinery	118	105
<b>Non-manufacturing</b>	99	104
Transportation	95	102

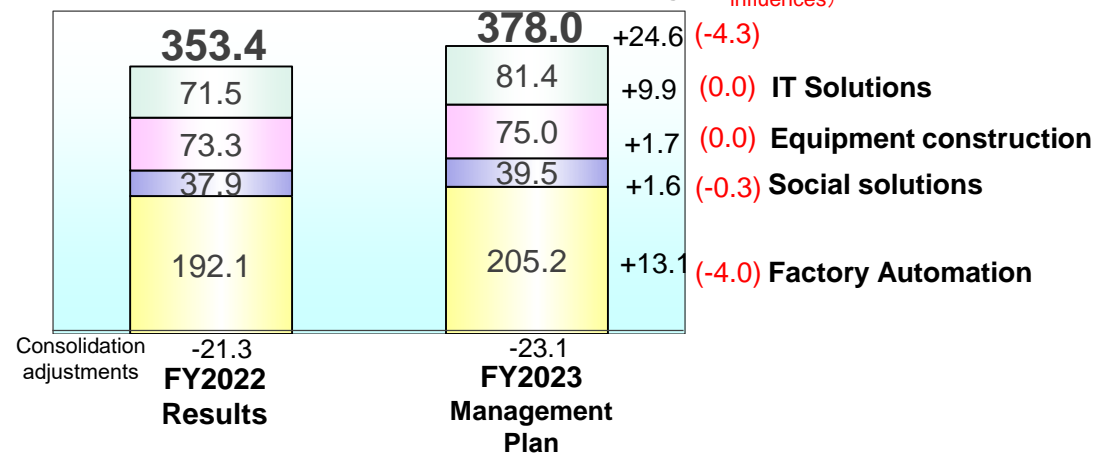
Sources: Meetings with customers for components;

- Steady promotion and capitalization on results of measures for achieving targets of FY2023 medium-term management plan
- Ongoing reinforcement of business constitution, expansion of overseas operations, and acceleration of R&D

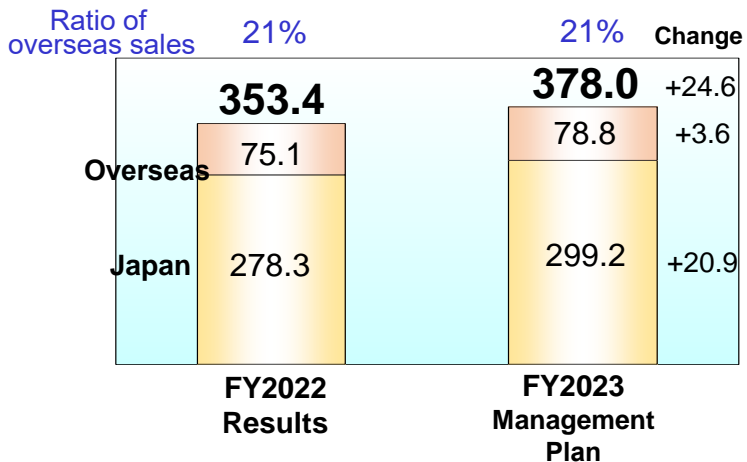
**Amount of Orders Received** (Billions of yen)



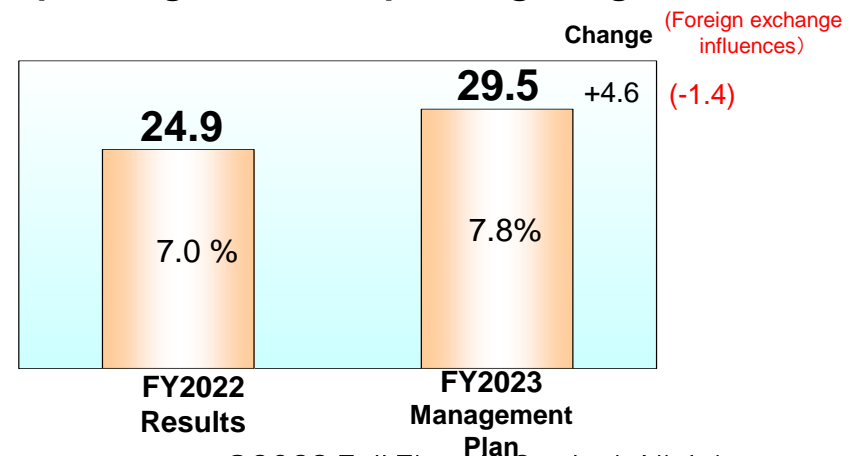
**Net Sales** (Billions of yen)



**Net Sales in Japan / Overseas** (Billions of yen)



**Operating Income / Operating Margin** (Billions of yen)



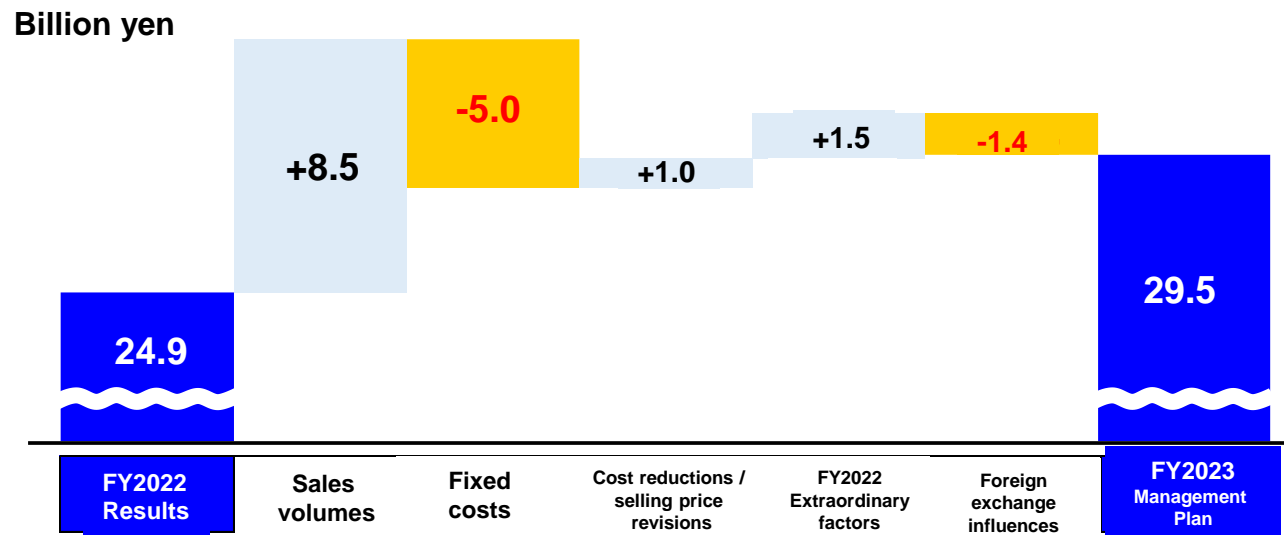
## Net Sales **¥378.0 billion (up ¥24.6 billion year on year)**

Massive increase in sales as a result of upfront orders and measures including exploration of new markets, collaborative partnerships, and new product launches

Note: Initial order backlog up ¥29.0 billion year on year

## Operating income **¥29.5 billion (up ¥4.6 billion year on year)**

Higher income as a result of sales volume increases, cost reductions, and selling price revisions



## Automation Systems

- ◇ **Strengthening of component business constitution**
  - Reinforcement of local production, consumption, and design functions (development of structure encompassing six areas of the world)
  - Promotion of platform development
- ◇ **Expansion of overseas system businesses using competitive components**
  - Growth of overseas operations driven by new global products

## Social Solutions

- ◇ **Strengthening of existing operations with competitive products**
  - Maintenance of high profitability and promotion of overseas sales in existing
- ◇ **Acceleration of development targeting carbon neutrality market**

## IT Solutions










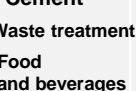






- ◇ **Growth of sales through digital solutions**

## Development, etc.

- ◇ **Creation of competitive components**
  - Improvement of development efficiency and swift introduction of new products
- ◇ **Strengthening of business through strategic responses to new rules**



# <Automation Systems> Growth of Overseas Operations

		China	Southeast Asia, etc.	India	Europe and North America
% of Total Overseas Net Sales (FY2022)		28%	23%	25%	24%
Net Sales		¥24.6 billion → ¥19.7 billion → ¥20.4 billion (FY2021) (FY2022) (FY2023 Forecast)	¥14.2 billion → ¥16.4 billion (FY2021) (FY2022) → ¥16.6 billion (FY2023 Forecast)	¥12.7 billion → ¥17.4 billion (FY2021) (FY2022) → ¥18.6 billion (FY2023 Forecast)	¥12.2 billion → ¥16.1 billion → ¥17.3 billion (FY2021) (FY2022) (FY2023 Forecast)
Target Industries		 Electricity  Steel  Ports  Equipment manufacturing	 HVAC  Elevators  Steel	 Steel  Chemical  Cement  Waste treatment  Food and beverages  Equipment manufacturing	 Oil and gas  Chillers  Elevators
Main Measures	FA	<ul style="list-style-type: none"> <li>• Exploration of new fields Batteries, synthetic fibers, air conditioning, cooling</li> <li>• System negotiations through equipment manufacturers Lithium-ion batteries, semiconductors</li> </ul>	<ul style="list-style-type: none"> <li>• Growth of sales to air conditioning (HVAC) market</li> <li>• Expansion of sale agent network in Asia</li> </ul>	<ul style="list-style-type: none"> <li>• Sales approaches accommodating local customization of air conditioning (HVAC) systems</li> <li>• Promotion of sales of products for elevators</li> </ul>	<ul style="list-style-type: none"> <li>• Promotion of sales through expansion of agent network</li> <li>• Expansion of sales channels through partnership</li> </ul>
	PA	<ul style="list-style-type: none"> <li>• Promotion of global induction furnace sales</li> <li>• Partnerships and promotion of sales at Shanghai joint venture</li> </ul>	<ul style="list-style-type: none"> <li>• Focus on high-voltage inverters (cranes) and small-to medium-scale monitoring systems (CEMSs)</li> <li>• Development of nearshore sales and engineering systems</li> </ul>	<ul style="list-style-type: none"> <li>• Promotion of sales for steel, port, and small-to medium-scale monitoring system markets</li> </ul>	—

# Strengthening of Constitution of Component Businesses (Reinforcement of Local Production, Consumption, and Design Functions)

Promotion of local production, consumption, and design in six areas of the world  
(Japan, China, Thailand, India, Europe, and the Americas)  
Improvement of component profitability and competitiveness

- FY2022: Expansion of range of models produced in India and Europe
- FY2023: **Completion of structure encompassing six areas of the world** through installation of functions in the Americas, ongoing improvement of ratios of local production and consumption



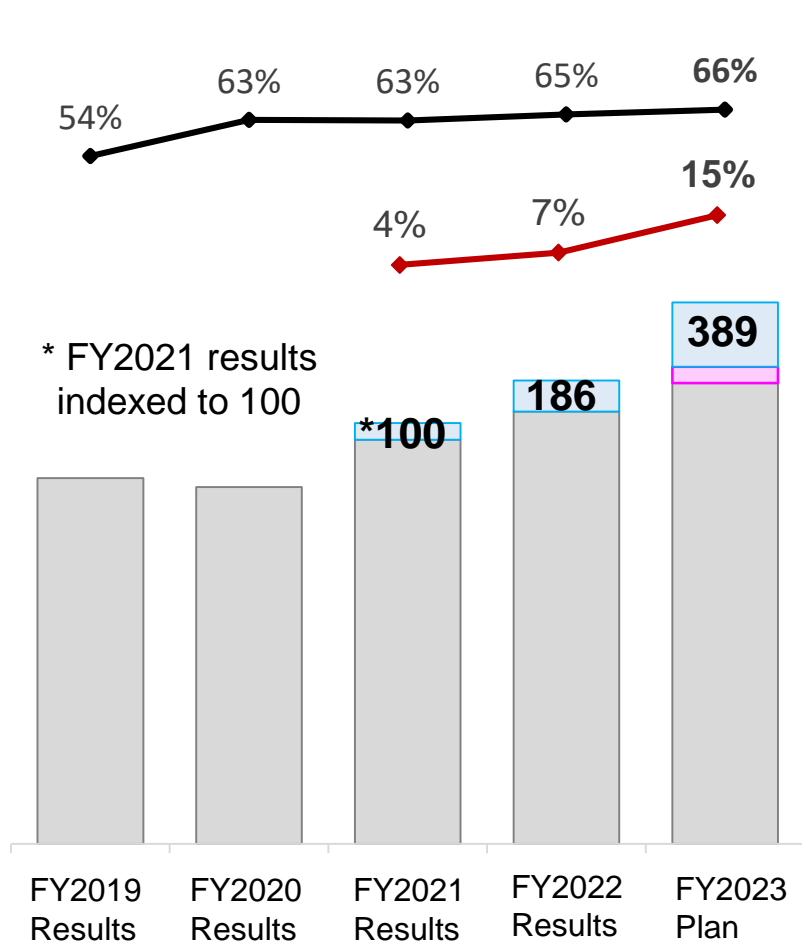
**Ongoing deployment of developed platforms in FY2023 to accelerated local production and consumption**

**Rates of Local Production and Consumption**

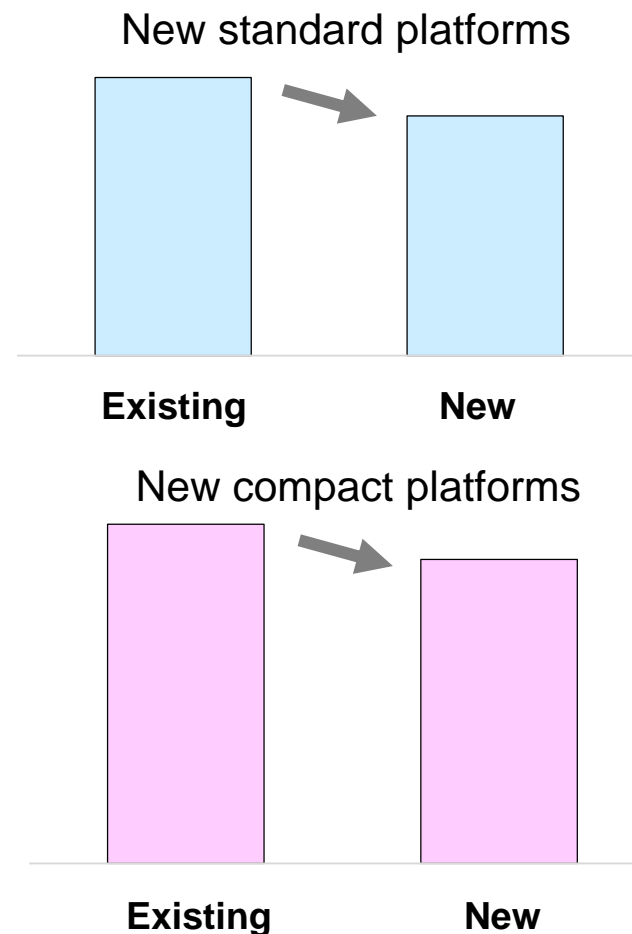
	FY2023 Forecast	FY2026 Target
China and other parts of Asia	90%	90%
India	40%	
Europe	40%	65%
Americas	0%	45%

Promotion of parts sharing and production efficiency improvement through platform use  
 Launch of low-voltage inverter products employing new platforms in FY2023

## Transition to New Platforms (Net Sales)

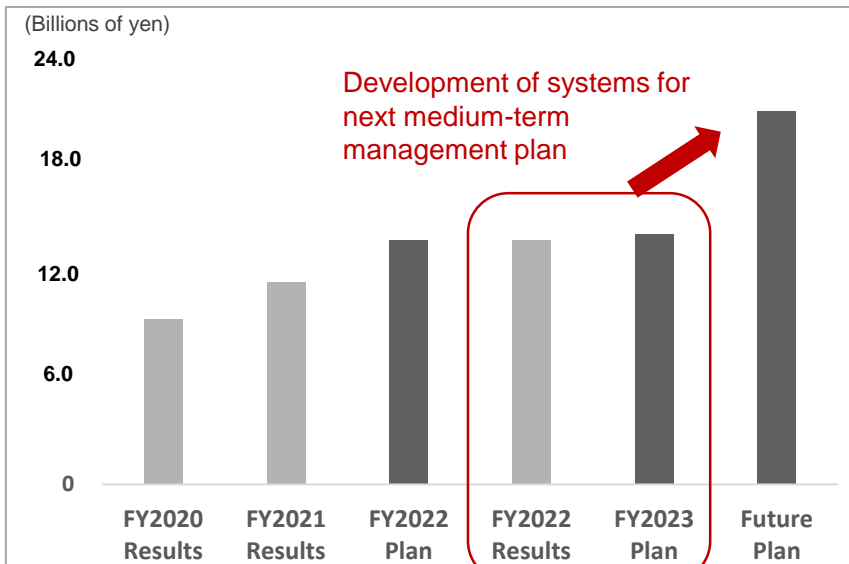


## Profitability Improvement through Cost Reductions



Promotion of global compatibility for core products (control systems, drives, industrial heating)

## Overseas Sales



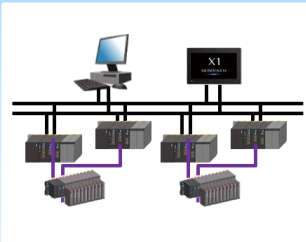
Note: Above figures are for drive control systems, instrumentation control systems, and industrial heating systems.

### Global Products

Control system

Industrial inverter

Induction furnace



Launched in FY2022



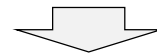
Scheduled for launch in FY2024



Launched in FY2020

### Measure 1: Expansion of Completely Localized Plant Businesses

● **Challenges: Localization of sales and engineering systems and preparation of products**



◇ **Sales and engineering**

- Exploration of new sales channels through partnerships with system integrators, accelerated development of dedicated nearshore organizations (Southeast Asia)
- Utilization of sales and service bases of partner\* in industrial heating field (China)

\* Manufacturer holding top share (based on Fuji Electric's research) in Shandong Province and boasting production bases in this area with leading number of casting companies

◇ **Introduction of global products**

- MICREX-View FOCUS evolution (control system launched in December 2022)
- FRENIC-GS (industrial inverter scheduled for launch in 2024)

### Measure 2: Expansion of value through digital transformation

● **Challenges: Proposal of operation optimization and work efficiency improvements to accommodate carbon neutrality needs**



◇ **High-efficiency induction furnace operation systems (linkage of EMSs and MESs)**

- Reduction in energy consumption of 5% (compared to existing induction furnaces) by combining short-cycle analyses with high-efficiency furnaces

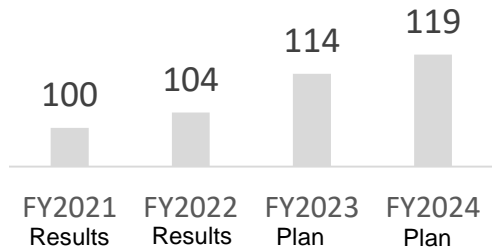
◇ **Soft sensor estimation model development and calculation tool (launched in May 2023)**

# Enhancement of Proposal Capabilities for Radiation-Related Equipment and Systems

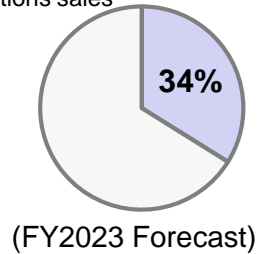
- **Expansion of business scale** while maintaining high profitability through differentiated products as part of efforts to strengthen domestic operations
- **Acceleration of initiatives for growing overseas operations**

## Net Sales / Ratio of Total Net Sales

FY2021 indexed to 100



Ratio of radiation-related equipment and system sales to total social solutions sales



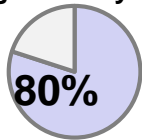
## Market Trends

- Massive change in policy of Government of Japan toward utilization of nuclear power in light pursuit of decarbonization and rising energy security risks
- Reactivation of nuclear power plants (Total of 10 currently active ⇒ Preparations underway to commence operation of seven approved plants beginning in summer 2023)

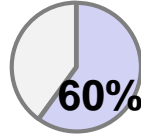
## Share of Domestic Market

(FY2022 Results)

Personal exposure management systems



Environmental radiation monitors



## Fuji Electric's Strengths

- Robust track record supported by strong share in Japan
- Partnerships, expertise, and sophisticated technologies developed while building track record

## Measures

- ◆ **Reinforcement of existing operations** (growth of market share)  
Expansion of sales volumes in conjunction with upgrades to nuclear power facilities, growth in municipality and healthcare fields



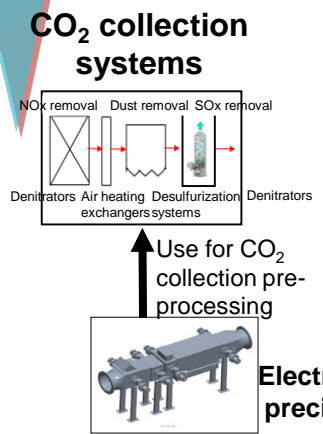
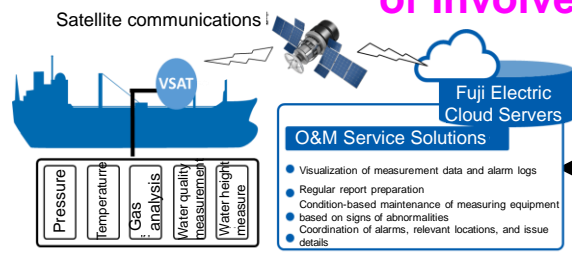
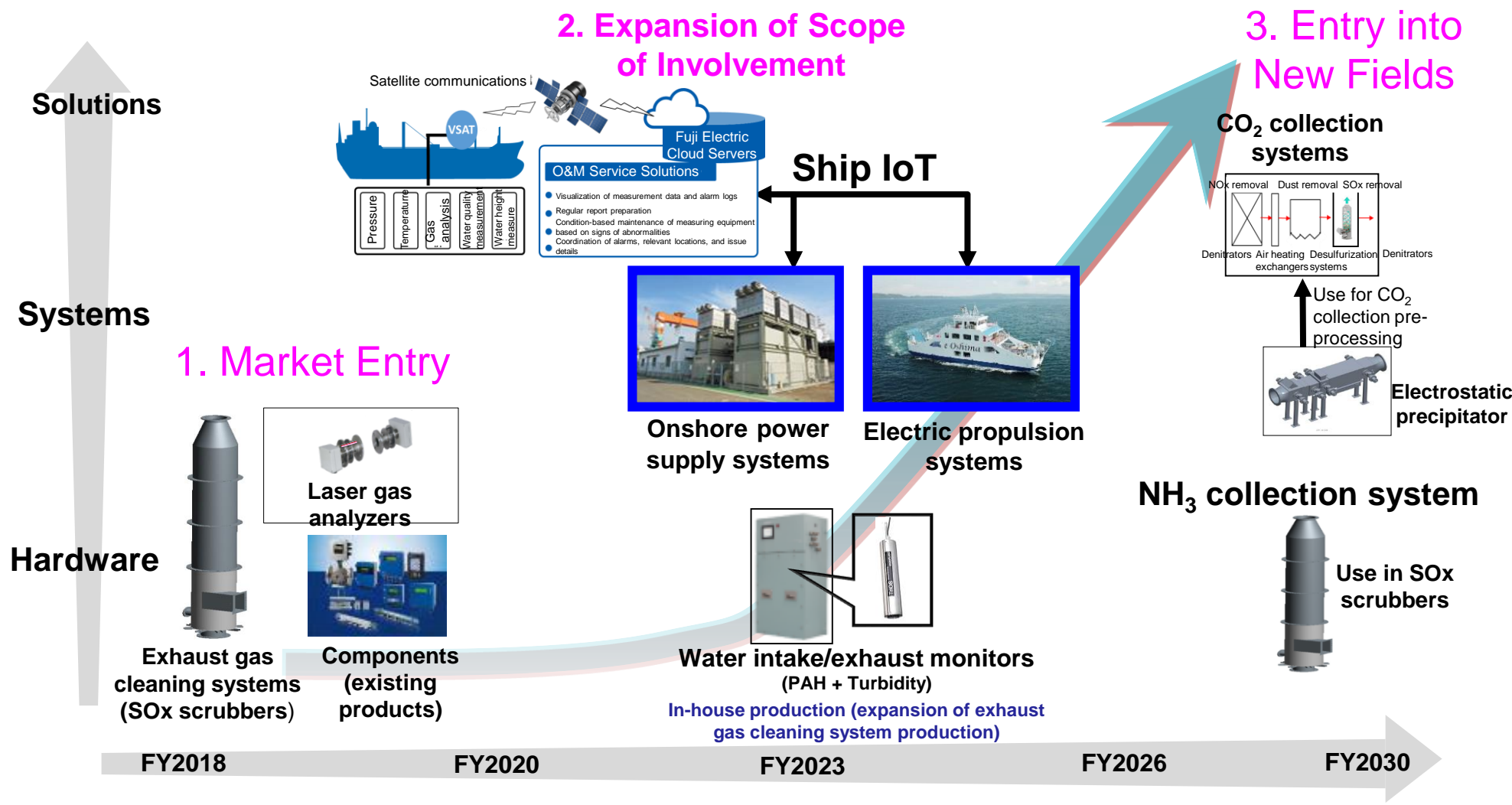
- ◆ **Entry into new fields**  
Launch of new products for decommissioned electricity furnaces

- ◆ **Ongoing disaster relief support** (utilization of replacement demand)  
Replacement of disaster relief items provided to Fukushima Prefecture, etc.

- ◆ **Growth of overseas operations**  
Development of new products compatible with overseas specifications (dosimeter, survey equipment, etc.)

# Development of Ship and Harbor System Businesses to Contribute to Carbon Neutrality

- Expansion into ship IoT, onshore power supply system, electric propulsion, and other fields of ship and harbor system market
- Growth of operations through entry into new fields



## Contribution to transformation of customer businesses and processes with Fuji Electric's digital transformation

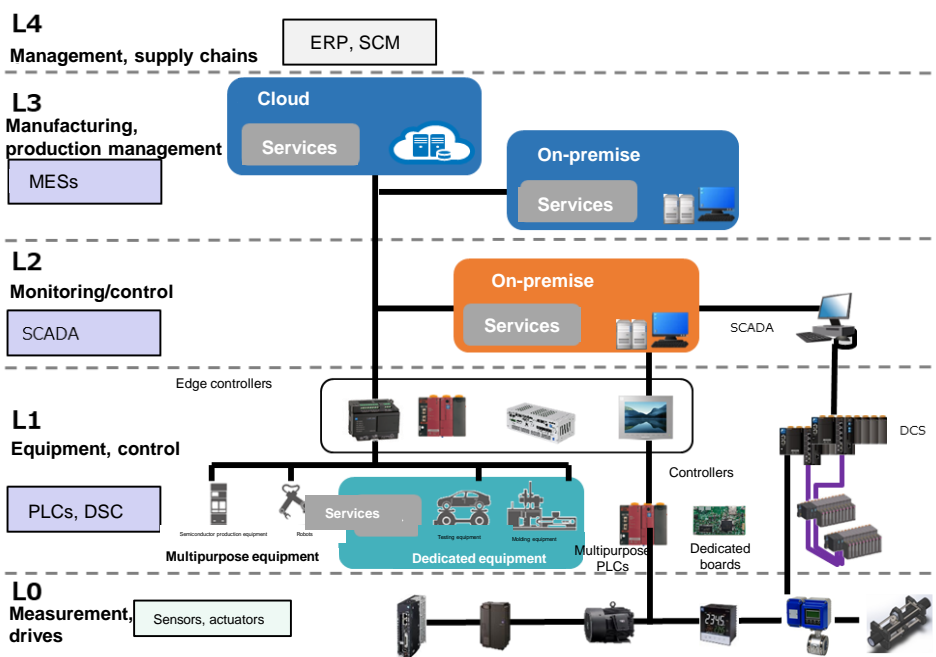
Supply of factory digital transformation solutions comprised of combinations of Fuji Electric field equipment and office digital transformations for digitalizing work flows

### Factory digital transformation

◇Creation of smart factories by enabling integrated management of overall manufacturing system information (compliant with IEC 62264\*)

- Accelerated development of products based on challenges of L1, L2, and L3 levels
- Contributions to improvements in overall equipment efficiency

ISA-95 Compliant Manufacturing Operations Management Model



\* IEC 62264 (ISA-95): International standard for integration of management and manufacturing systems

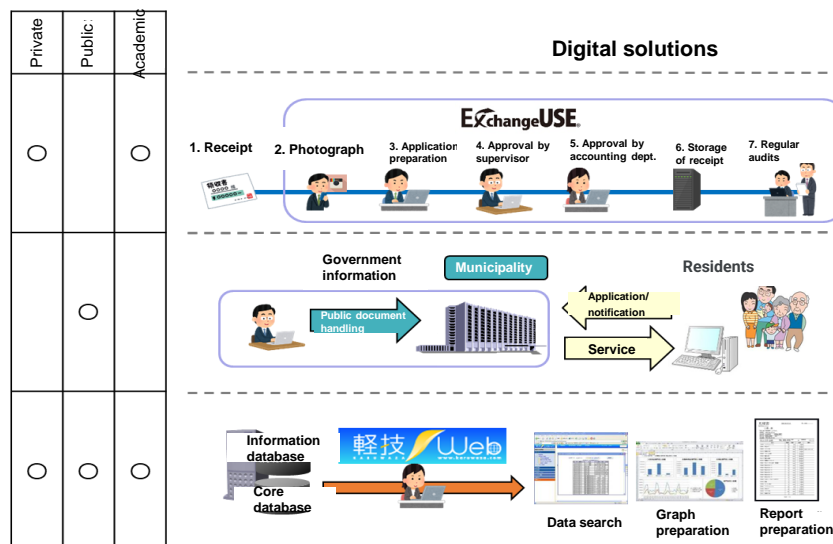
### Office Digital Transformation

Cross-field application of strengths pertaining to private, public, and academic sectors

◇Private: Workstyle reform packages (electronic record legislation compliance, electronic contracts, etc.)

◇Public: Digital transformation for municipalities (Japan's leading electronic document management system for municipalities, support for introduction of Digital Agency's electronic payment system to all major government departments and offices)

◇Academic: Total ICT infrastructure proposals



## Improvement of development efficiency and swift introduction of new products

★ Launch (Scheduled commercialization)

### ● Global Deployment

#### Components



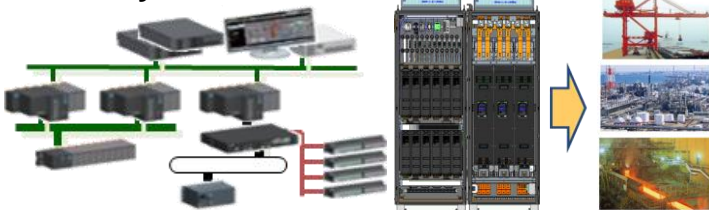
New low-voltage inverter offerings

#### Social infrastructure



Railcar door systems

#### Plant systems



Plant control systems

Low-voltage drives for systems

### ● Digital Transformation Solutions

Expansion of IT solutions business to contribute to customer digital transformation



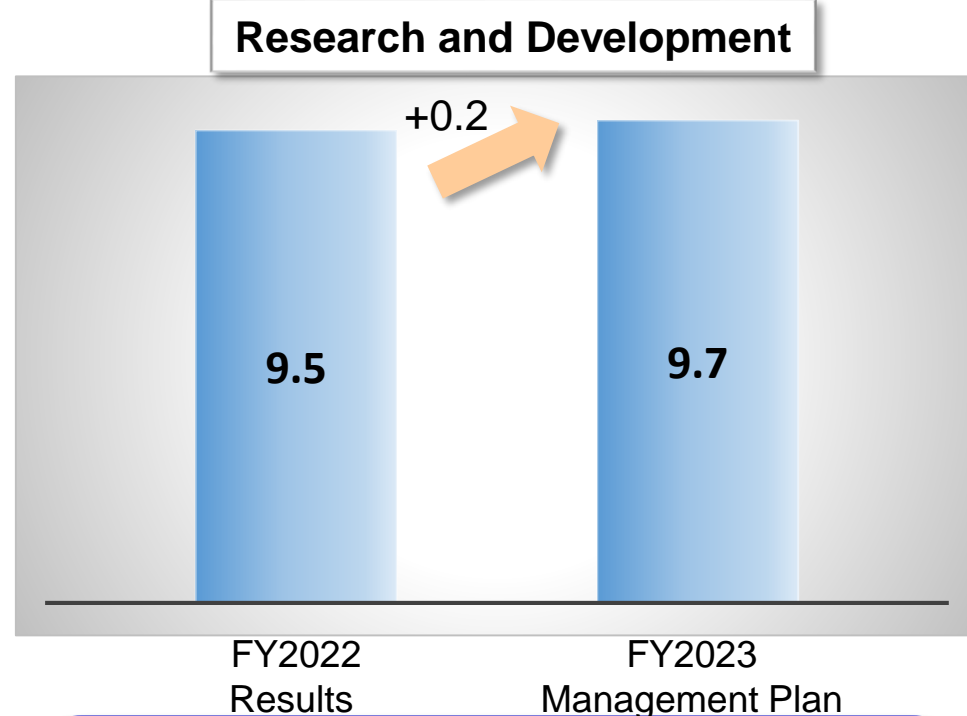
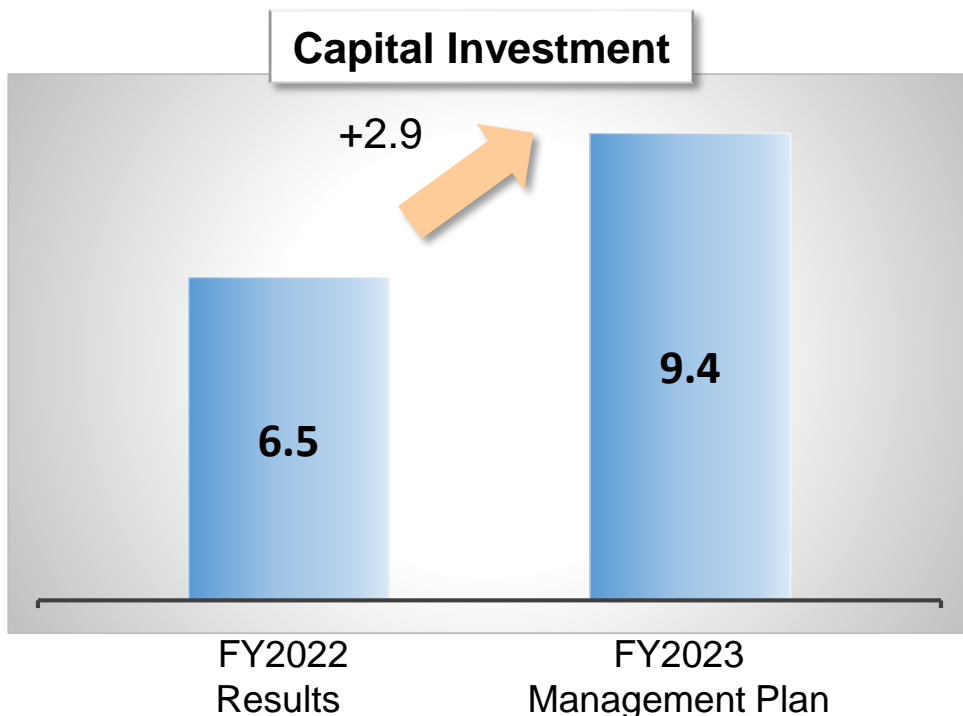
#### Edge controllers



Subsegments	Product/System	Target Regions	FY2021	FY2022	FY2023	FY2024
Automation Systems	<b>Low-voltage inverters</b> •Expansion of models employing developed platforms •Expansion of production at overseas bases (local production and consumption)	Japan China Asia Europe North America	Component platform development, model deployment			
	<b>System drives</b> •Development of new low-voltage drives for systems •Development of new high-voltage inverters	Japan China Southeast Asia India	Component platform development, model deployment			★
	<b>Plant control systems</b> •Enhancement of engineering and customization capabilities •Simple and flexible system development	Japan Southeast Asia India	Component platform development, model deployment	★ Japan	★ Overseas	★ Large-scale
Social Solutions	<b>Electrical equipment for railcars (drive systems)</b> •Compact, lightweight •Highly reliable	Japan	Development, assessment			
	<b>Railcar door standardization and function expansion</b> •FCPM and next-generation linear systems •Operational monitoring, maintenance, and preventative maintenance functions	Japan North America Southeast Asia	Component platform development, model deployment		★	
	<b>Ship and harbor systems</b> •Onshore power supply systems •Electric propulsion systems	Japan India	Onshore power supply systems			★ Parallel systems
IT Solutions	<b>Digital transformation solutions</b> •Development of platforms for factory digital transformation and expansion of employing systems •Promotion of standardization and cloud compatibility in relation to office digital transformation	Japan China Southeast Asia	Component platform development, model deployment			
					EMS/MES	MOM diagnosis



(Billions of yen)



## ● Forward-looking strategic investments

- ◆ Expansion of in-house production at overseas production bases
- ◆ Augmentation of domestic production capacity

## ● Ongoing investment for systematic development of new products

- ◆ Expansion of development using platforms to strengthen component business constitution
- ◆ Enhancement of global product offerings to grow overseas system and plant businesses
- ◆ Promotion of products that contribute to carbon neutrality (harbors, etc.)
- ◆ Development of system, service, and local 5G offerings that include digital transformation and IoT elements

Note: The R&D expenditure figures above represent expenditures that have been allocated to segments based on theme and may therefore differ from figures contained in consolidated financial reports.

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