

**muRata**  
INNOVATOR IN ELECTRONICS

# INFORMATION MEETING 2022

Murata Manufacturing Co., Ltd.

2022.11.30

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## Key Messages

- We are anticipating the growth of business opportunities toward 2030, led by communications and mobilities. To prepare for this market expansion, we will steadily implement Medium-Term Direction 2024.
- To look to the future and create wide-ranging innovations, we will strive to take our 3-layer portfolio management to a higher level.
- Forming a lean management base through strengthening human capital.

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I would like to summarize here three points that we would like to make particularly clear at today's briefing.

First, we expect business opportunities centered on telecommunications and mobility to expand toward 2030, and we will firmly implement Medium-Term Direction 2024 in order to prepare for this.

Second, as a management issue under the medium-term direction, we will work to enhance the sophistication of our 3-layer portfolio management. Thirdly, we will identify the characteristics of the human capital that underpins Murata's value creation, and we will work to strengthen this human capital.

Although the current business environment is expected to be difficult, Murata's business opportunities will expand over the medium to long term. I hope that everyone can sense Murata's underlying strength to take advantage of these opportunities.

# 01

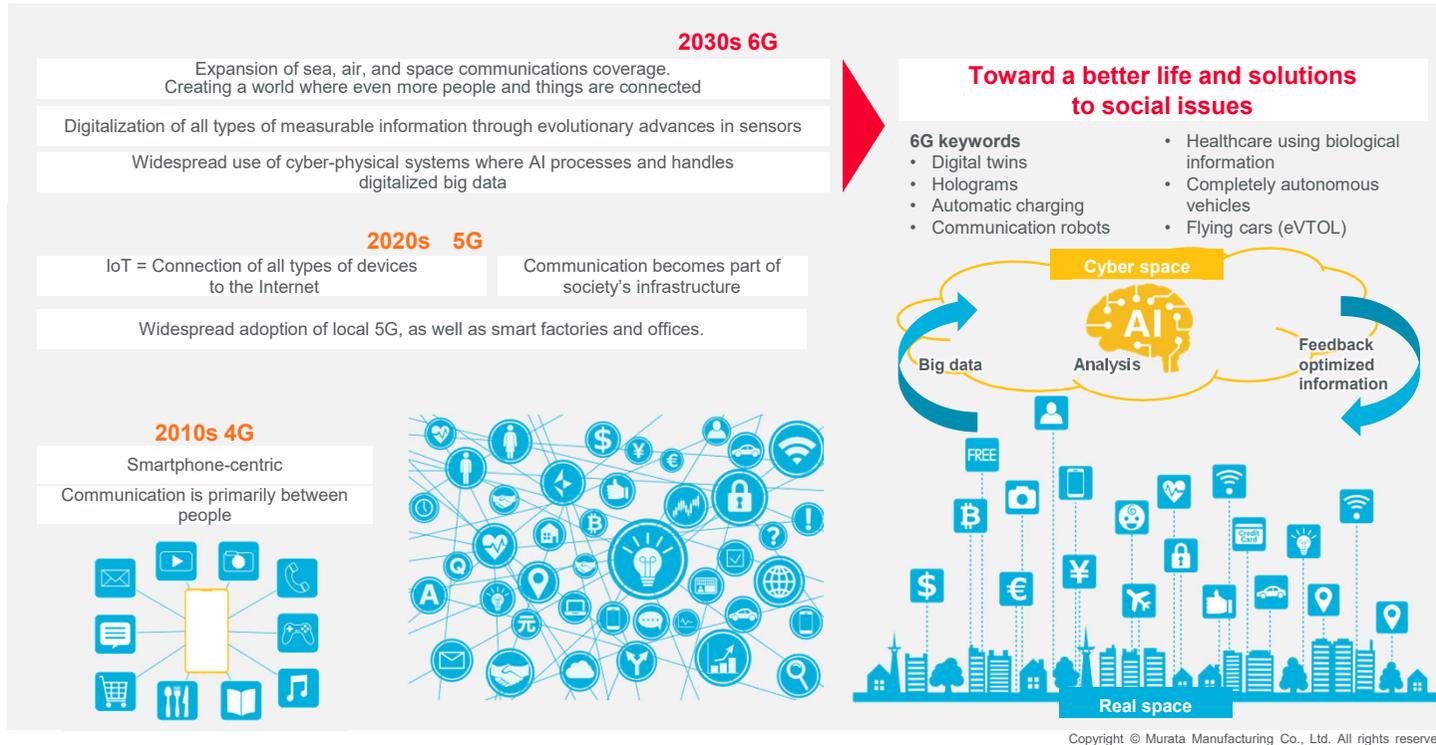
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## Expansion of the Usage of Electronics and 3-Layer Portfolio

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# 4

## Expansion of the Usage of Electronics



Please see page 4. First, let me explain about the expansion of the usage of electronics toward 2030. Currently, 5G is being widely adopted, and industry and society are undergoing major changes. However, beyond that, in 2030, 6G will make its appearance, and the use of communications infrastructure will advance even further. It is expected that a world in which everything and anything is connected by communications will become a reality. Between cyber space and physical space, a large amount of information will be processed by AI without delay. This is expected to lead to the realization of a system in which both cyber and physical spaces are closely interconnected. These technological innovations will lead to an ever-expanding usage of electronics, which in turn will expand Murata's business domain.

# 5

## The Future of Communications

### Network side

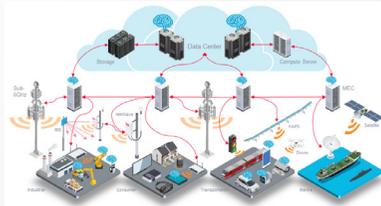
#### ■6th Generation Mobile Communication System (6G) is available

##### Market technology trends

- Appearance of high-capacity optical communications that support ultra-high-speed communications and largescale computation
- Transmission ranges are limited, so high-efficiency relay devices and base stations will increase
- The processing and communications capability of devices and other hardware will also support high-speed communications

##### Business opportunities

- Rise in demand for high levels of performance and reliability to support network connectivity functions
- Increase in demand for components due to more connected devices and processing capability improvements



### Device side

#### ■Increasing shift toward wearable and implanted devices

##### Market technology trends

- Acquire and digitalize all types of information
- Develop advanced modules and sensors
- Need for miniaturization, enhanced energy saving, and improved reliability in order to make devices more portable and wearable

##### Business opportunities

- Increase in demand for small and high-performance components and modules
- Rise in technical requirements in relation to reducing power consumption and increasing efficiency
- Added value will shift to hardware + software/solutions

#### Expectations for wearable devices



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Please see pages 5 and 6.

In the world of 5G and 6G, new value will be created by converting everything into data and connecting them together.

Hardware, such as devices and equipment that support communications, will need to support high-speed communications in terms of processing and communication capacity. In such areas, Murata's deep understanding of hardware and extensive knowledge of wireless communication technology will provide significant business opportunities.

For example, on the network side, there is an opportunity for Murata to provide high-performance and high-reliability products that contribute to the stabilization of communication systems and network infrastructures, which have now become social infrastructure. On the device side, we also expect to see devices that only have display functions + communication modules + batteries, which could change the role of today's mainstream smartphones.

Wearables are also expected to become widespread. In order to increase portability and wearability of wearable devices, miniaturization and high reliability are required. This opens up opportunities for the world's smallest products such as MLCCs and various sensors and modules. In addition, high-capacity, high-speed communication also poses issues such as increased power consumption and thermal countermeasures resulting from power loss. Therefore, power-saving and high-efficiency technologies are also becoming increasingly important.

Here, too, we can take advantage of the digital envelope tracking and XBAR technologies of the Company we acquired last year, as well as the superiority of multi-layer LCP products.

# 6

## Initiatives in the Communications Market

New value will be created by “converting everything into data and connecting them together”

There will be major business opportunities for Murata, with our deep understanding of hardware and extensive knowledge of wireless communications technologies

### Miniaturization initiatives

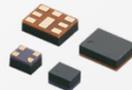
Devices will continue to become more compact, creating a rising need for miniaturization of components



Multilayer ceramic capacitor



Inductor



SAW filter

### Modularization initiatives

The value that customers demand will shift from providing single-function components to modularized proposals for concrete applications



Wi-Fi7-compatible module



UWB module



Edge AI module

### Low power consumption, low loss initiatives

Growing communications volume will create a demand for lower power consumption and low loss characteristics



Digital ET technology



Multi-layer LCP Product



XBAR technology

### Sensing technology initiatives

The range of data that can be acquired by sensors will grow, as will the range of data applications



Soil sensor



CO<sub>2</sub> sensor



NAONA

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# 7

## The Future of Mobility

### Inside the Vehicle

- In addition to xEVs, autonomous driving technology is evolving



More importance for ECUs due to more data processing and increasing complexity of controls

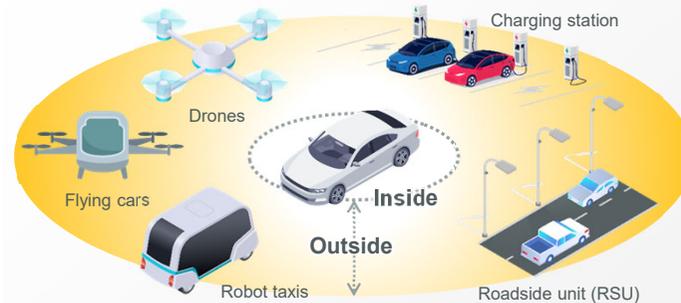
### Higher demand for electronic components

(e.g., number of in-vehicle MLCCs used)

(pcs)	ICE	Mild HV	Strong HV	PHEV	BEV
Powertrain	300 to 500	1,000 to 1,200	1,200 to 1,600	1,500 to 2,000	2,000 to 2,500
ADAS (Lv3/4/5)			3,000 to 5,000		
Safety			300 to 1,000		
Infotainment			500 to 2,500		
Other (non-safety)			500 to 2,500		

### Outside the Vehicle

- Growth of mobility business through technological innovation for CASE (connected, autonomous, shared, and electric) vehicles



- As vehicles connect to society through communications technology, services based on vehicles, such as MaaS, will continue to grow.
- Robot taxis, micro-mobility and flying cars (eVTOLs) are emerging as new modes of transportation

### Initiatives

- We will use our knowledge gained from the communication field to provide new value, including software and solutions.
- Search for opportunities outside of vehicles.

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Please see page 7.

We divide the mobility market into inside-the-vehicle and outside-the-vehicle areas.

In the inside-the-vehicle domain, in addition to xEVs, autonomous driving technology, as typified by ADAS, is becoming increasingly popular. As the level of autonomous driving increases, ECUs will need to respond to the growing volume of information and complexity of control. In order to simultaneously control complex functions such as detection, judgment, and maneuvering, integrated ECUs for automated driving are expected to be increasingly installed in the future.

This is expected to increase demand for high-performance, highly reliable electronic components. In addition, we can also expect the expansion of vehicle-based services such as MaaS in the future.

# 8

## Initiatives in the Mobility Market

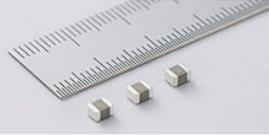
### Demands of the mobility market

- High-quality, highly reliable products that can withstand harsh environments
- From single-function components to proposing specific applications using modules
- Provide software and solutions

### Murata's value-creating strengths

- Technological capability to create highly reliable and high-performing products
- Supply capacity to mass-produce products with uniform quality
- Problem-solving capabilities, made possible by optimizing modularization technologies with our customers
- Deep knowledge of the communications field

### Expanded product lineup

Electrification	Autonomous
 <p>Multilayer ceramic capacitors (MLCCs)</p> <p>High Temperature Film Capacitor for Automotive</p>	 <p>6-DOF XYZ-Axis MEMS inertial sensors</p>
 <p>Metal power inductors</p>	 <p>V2X modules</p>

### Understanding market technology trends

#### Using our global sales network and customer/partner capital

- Predicting needs based on the solid relationships with our customers
- Building relationships with a wide range of customers, such as OEMs and IC manufacturers

#### Vehicle disassembly activities

Vehicle disassembly: component demand, design concept  
 Driving evaluation: required technology and level

- Feedback to R&D
- Improved demand forecast accuracy
- Enhanced proposal ability for customers



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Please see page 8.

In the area of inside the vehicle, demand for film capacitors is expected to increase in addition to MLCCs as electrification progresses. Our film capacitors are excellent at handling high temperatures. We expect that our film capacitors will grow as a set with capacitors, since thermal response will become necessary as the voltage in automobiles rises in the future.

We are also focusing on MEMS inertial sensors for autonomous driving. Compared to competing products, our products are undoubtedly competitive in terms of performance. As the number of MEMS inertial sensors required increases with the level of autonomous driving, we expect this product to contribute to future growth in our functional device sales.

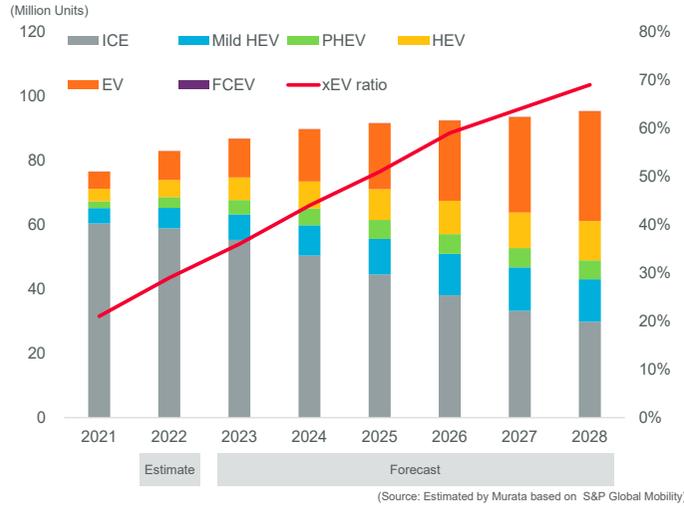
The future mobility market is expected to see changes in the industry structure due to accelerating technological innovation and new entrants. In order to accurately grasp and respond to diversifying customer requirements, it is essential to have a better understanding of the automotive market and technological trends.

Murata utilizes its strong relationships with a wide range of customers to anticipate their needs and analyze the automobiles themselves. We are enhancing our product development and demand forecasting by working to understand design concepts and component counts. By doing so, we believe we can establish a competitive advantage in the growing market.

# 9

## Automobile Volume Forecast

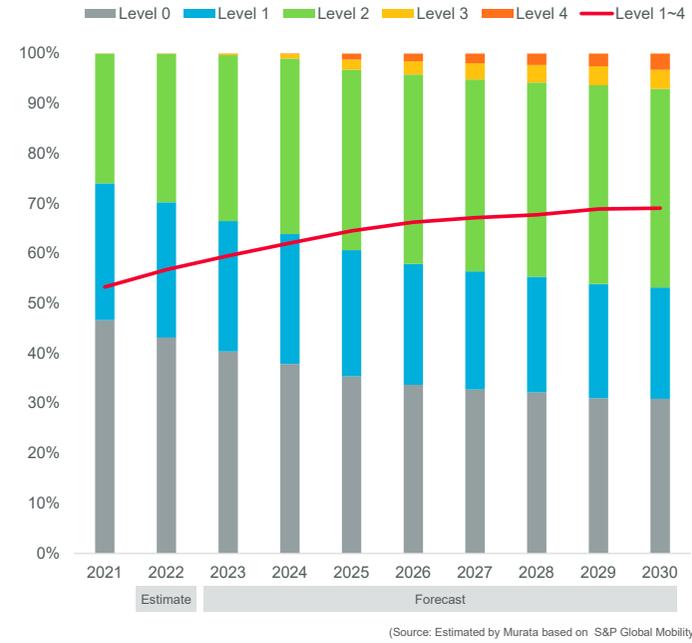
### Vehicle Production Volume Forecast by Powertrain



### MLCCs (pcs/by our research)

Conventional vehicles Autonomous driving Lv0	HEV Autonomous driving Lv2	EV Autonomous driving Lv3
3,000	Min. 6,000	Min. 10,000

### Autonomy Level Forecast, Share of Total



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### The Environment

#### Murata's contributions

- Contributing to the decarbonization of society through the battery and power supply business
- Realizing environmental monitoring using modules and sensors
- Developing production knowhow for energy savings and renewable energy

#### Examples of initiatives

Internal verification testing in preparation providing systems that combine solar panels + storage batteries + control software



control software  
"efinnos"

Instability of power system  
due to the increase in  
distributed power supply

Storage batteries and control  
are becoming indispensable

Strengths of our control software, which is based on our knowledge cultivated in the battery and power supply business. Prepare for external sales.

### Wellness

#### Murata's contributions

- Providing compact, high-quality electronic components
- Providing solutions that combine Murata's technologies and ideas
- Producing innovation by pursuing safety, efficiency, and convenience through the use of the fundamental technologies that Murata has cultivated

#### Examples of initiatives

Development of distinctively Murata-like medical and healthcare devices



Murata CPAP MX



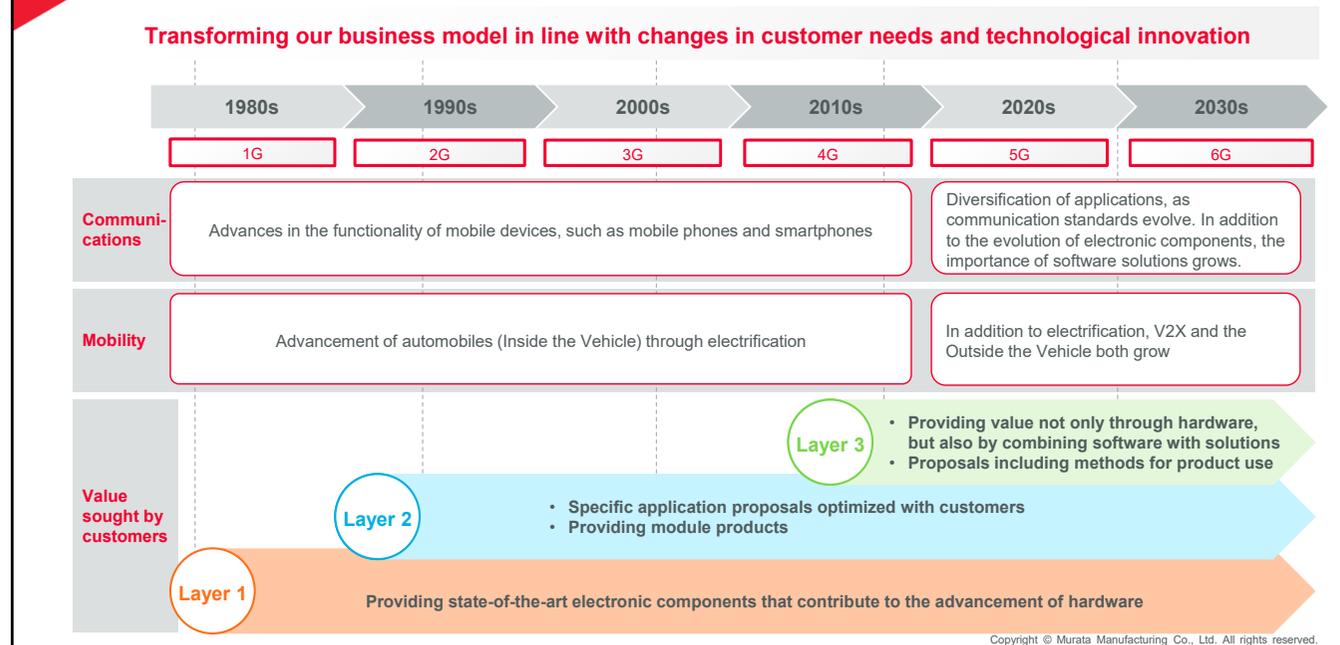
Auto control cuff pressure  
"SmartCuff"

※ These medical devices are approved and available in Japan only.

#### Creating a system for providing the solutions needed in medical environments

Reached an agreement with Social Medical Corporation Seikoukai on a cooperative framework to develop equipment that addresses the needs of medical environments

## Reason for Working on the 3-Layer Portfolio



Please see page 11.

Since I became president, I have been talking about 3-layer portfolio management. I would like to add a little background on this.

Since 1980, along with technological innovations in AV equipment, we formed a business foundation through technological innovations in capacitors and inductors that are thinner, lighter, and smaller. This was our first layer of products and business model.

Next, in the 1990s, the cell phone market expanded, and we created a new business model within this market. In the course of our discussions with customers, we responded to their demands for high-frequency devices and modules for increasingly complex circuits. This is the second layer of our main business.

The first, second, and third layers represent not only our composition and expansion of our business domain, but also the changing demands of our customers. In addition, it represents a situation where the definition of customers from our point of view has changed.

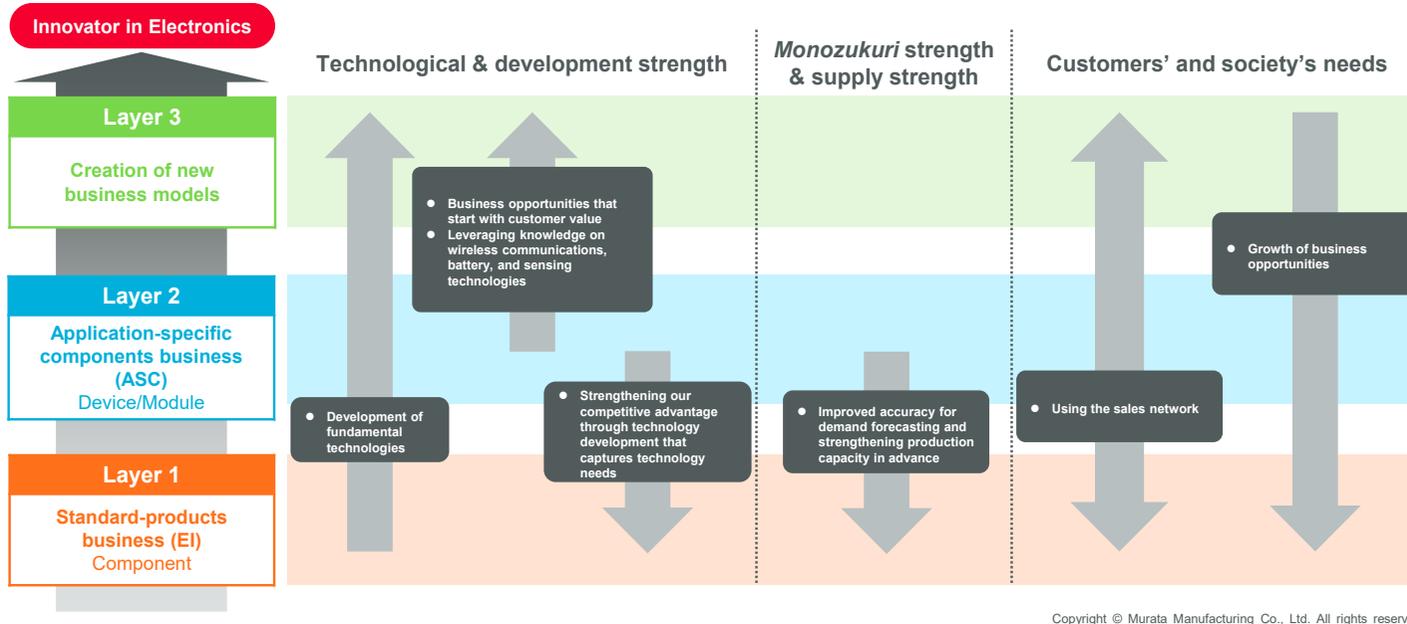
In 2020, 5G services were rolled. In addition to the current smartphones, 5G applications include medical networks, factory equipment availability and preventive maintenance, and the use in vehicles and infrastructure as autonomous driving becomes more prevalent. In this context, simply providing components and modules is not enough. We must provide our customers with solutions that combine hardware and software. We are promoting this business model as our three-layer business model.

We understand that the definition of a component manufacturer's component has changed from the first layer to the second layer to the third layer, and we believe that the definition of a component manufacturer will change in the future.

# 12

## Synergy among the 3-Layer Portfolio

- Until now, synergy between layers 1 and 2 has supported Murata's competitive advantage as well as product and technology innovation.
- As the value sought by customers undergoes tremendous change, we will achieve further growth through the synergy among the three layers.
- An organizational culture that values coordination and cooperation will support the synergy among the 3-layer portfolio. Strengthening our human capital will be also essential.



Please see page 12.

The first and second layers of our core business have been expanding by mutually influencing each other in terms of technology and sales. As a result, when one layer is lacking, the competitive advantage of the other layer also declines. As the value demanded by customers changes dramatically, we are aiming for further growth through synergies among the 3-layers.

One of the sources of synergy in our three-layer portfolio is the strength of our human capital, which I will discuss later. Efforts to instill our management philosophy, create a corporate culture that values collaboration, and increase the rotation of human resources in a correlated manner underpin our three-layer portfolio and the creation of value.

# 02

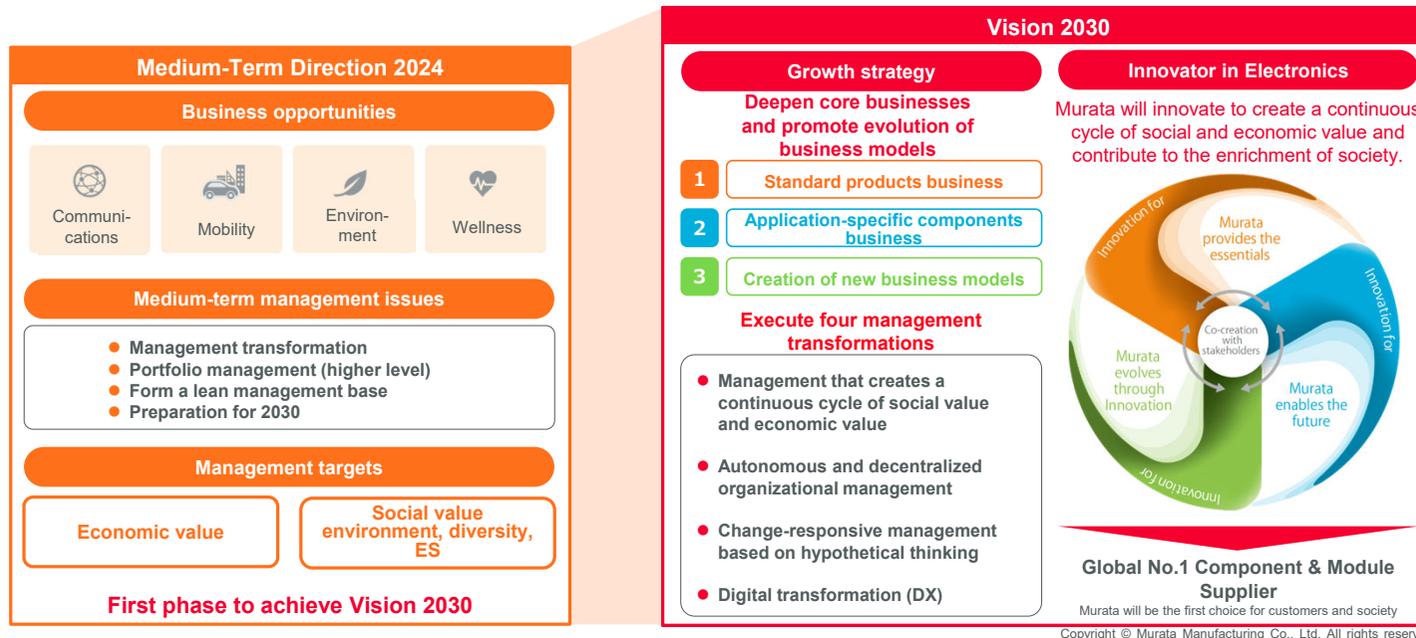
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## Vision 2030 and Medium-Term Direction 2024

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## Vision 2030 and Medium-Term Direction 2024

- To continuously increase corporate value, we established Vision 2030 to indicate our long-term direction.
- Medium-Term Direction 2024 covers three years that are vitally important to creating sustained growth for 2030 and beyond.
- Make steady preparations by backcasting from environmental changes viewed from a long-term perspective



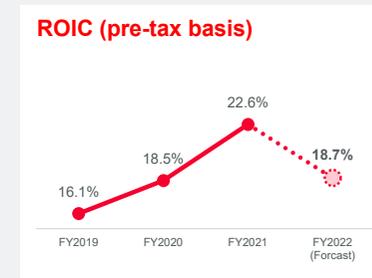
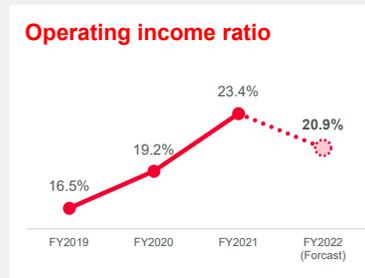
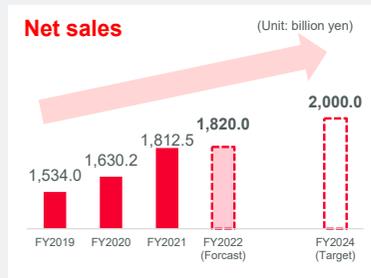
Please see page 14.

Last year, we announced our vision 2030 and Medium-Term Direction 2024. Among the progress of the management objectives and the four management tasks of Medium-Term Direction 2024, I would like to explain our efforts to enhance portfolio management and to strengthen our human capital, which is one of the means by which we intend to form a lean management base.

## Progress toward Economic Value Goals

	FY2021	FY2022		FY2024
	Actual	Forecast (Oct. 2022)	YoY (vs FY2021)	Targets
<b>Net sales (JPY)</b>	1,812.5 billion	1,820.0 billion	+0.4%	2,000.0 billion
<b>Operating income ratio</b>	23.4%	20.9%	-2.5 pt.	20% or higher
<b>ROIC (pre-tax basis)</b>	22.6%	18.7%	-3.9 pt.	20% or higher

\* ROIC (pre-tax basis) = Pre-tax operating income / Average invested capital at the beginning and end of the period (= Net fixed assets [book value] + inventories + accounts receivable-trade - accounts payable-trade)



- Net sales** : Although the weaker yen has had a positive effect on sales, the company plans to remain flat from the previous fiscal year due to a decline in demand caused by a decline in production of smartphones and PCs.
- Operating income ratio** : Profit decreased from the previous fiscal year due to a drop in the operation rate, although profit increased due to the weaker yen.
- ROIC (pre-tax basis)** : Expected to deteriorate due to a decline in operating profit against an increase in invested capital due to an increase in inventories and property, plant and equipment.

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Please see page 15.

This page describes our progress on economic value goals. In particular, ROIC is below 20% due to an increase in invested capital. We must work on improving profitability and capital efficiency to achieve our goals.

Social Value ①: The Environment

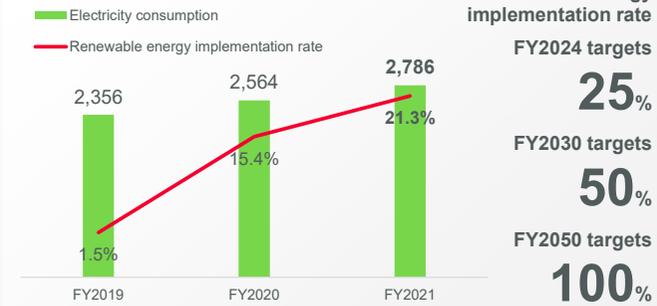
**Amount of greenhouse gas (GHG) emissions/  
Reduction in emissions vs. FY2019**  
(Unit: 1,000 t-CO<sub>2</sub>e/year, %) (Scopes 1 + 2)



**Initiatives**

- Ongoing implementation of energy conservation measures (reduction of 40,000 to 50,000 t-CO<sub>2</sub> annually)
- Began operation of internal carbon pricing system and sustainable investment promotion system
- Acquired SBT certification. Set Scope 3 GHG reduction target. Scope 3: By FY2030, reduce by 27.5% vs. FY2019 (WB2.0°C level)

**Electricity consumption/renewable energy implementation rate**  
(Unit: 1,000 MWh/year, %)



**Initiatives**

- Increase number of sites powered 100% by renewable energy. (FY2022: Sendai Murata Manufacturing)
- Began investigation of Japan's largest renewable energy procurement trial using a virtual PPA
- Entered into contract with Chugoku Electric power to purchase green energy and more

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Please see pages 16 and 17. Next, I will explain about our social value goals.

We have made good progress in our environmental initiatives, such as renewable energy and resource recycling. We are also making progress in diversity and engagement initiatives, as described here.

Specific details are disclosed in the Integrated Report. In addition, we are planning to hold an ESG presentation in March, so due to time constraints, I will not explain this in detail today.

Social Value ①: The Environment

Sustainable resource usage rate\*1

FY2024: 1%\*3  
↓  
FY2030: 25%  
↓  
FY2050: 100%

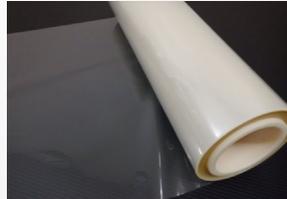
Resource recovery rate\*2

FY2024: 5%\*3  
↓  
FY2030: 50%  
↓  
FY2050: 100%

\*1 Rate of use of sustainable resources: Rate of use of resources with lower risk of depletion that can be used sustainably by building a recycling scheme, etc. (Resources that have risks of depletion: Ag, Ni, etc.)  
\*2 Resource recovery rate: Rate of Murata's outputs (emissions) recycled as resource  
\*3 Target at FY2024 indicates the improvement range from the current state. FY2021 figures are currently being tabulated

Initiatives

**Closed-loop recycling of PET film**  
Became the first company in the electronic component manufacturing industry to successfully create a closed-loop recycling system for polyethylene terephthalate (PET) film used in the manufacturing process for forming dielectric sheets for multilayer ceramic capacitors  
(As of May 2022, own research)



Social Value ②: Diversity

Percentage of overseas indirect employees\*4 with experience working at other sites

FY2021: 3%  
FY2024: 7%  
FY2030: 10%

\*4 Overseas local staff excluding employees from Japan

Initiatives

- Provided diverse dispatching for employees going overseas
- Expanded and enriched pre-dispatch training and strengthened support for employees being sent overseas



Social Value ③: ES\*5

Positive employee engagement response rate

FY2021: 68%  
FY2024: 70% or higher  
FY2030: 76% or higher

\*5 ES(Employee Satisfaction):every employee achieves satisfaction and continuing growth through the performance of their work duties.

Issues and initiatives

**Issue**  
Actions for employees closely related to manufacturing sites

Initiatives

- Implement workshops and training for department heads
- Strengthen dialogues with employees working in the field
- Ongoing review of workstyles

# 18

## Medium-Term Direction 2024 Capital Allocation Policy

- Continue growth investment in layers 1 and 2, and steadily create cash flow
- Position long-term environmental investment, acquisition of technologies, IT infrastructure improvement, etc., as strategic investments and actively pursue them
- Increase shareholder returns while maintaining a strong financial foundation

FY2022-FY2024 cumulative (Unit: billion yen)



### Effective resource allocation and shareholder returns

- **Based on the capital allocation policy**
  - Growth investments focused on ROIC and growth
  - Implement strategic investments in preparation for the future
  - Shareholder returns that can realize a minimum DOE of 4% in line with a dividend payout ratio of 30% as the guideline
  - Flexible acquisition of treasury stock

### Sustained growth

- **Management that creates a continuous cycle of social value and economic value**
- **Economic value:**  
Net sales ¥2,000 billion, Operating income ratio 20% or higher, ROIC (before tax) 20% or higher
- **Social value:**  
the environment, diversity, ES

### Strong financial foundation

- **Secure credit lines from financial institutions**
- **Cash reserves on an appropriate level**  
- Operate with a cash reserves turnover of 2.5 to 3.5 months as the guideline

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Please see page 18.

There is no change in our capital allocation policy.

Although we have not yet made any major strategic investments, our policy of JPY230 billion over three years remains unchanged.

Regarding shareholder returns, we plans to return profits mainly to shareholders through dividends. We will also consider shareholder returns through share buybacks as an option.

# 03

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## Medium-term management issues Portfolio management (higher level)

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# 20

## Key Issues

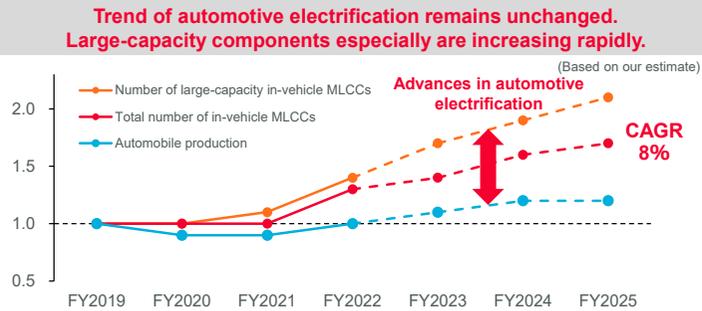
- To realize medium- to long-term growth, we believe it will be essential to deepen core businesses and promote the evolution of business models. That is why we are working to solve issues faced at each layer and striving to take our 3-layer portfolio management to a higher level.

	Sales classification	Issues	Direction taken
Layer 1	Capacitors Inductors/EMI filters	<ul style="list-style-type: none"> <li>• Expand and reinforce production capacity to respond to stronger demand</li> <li>• Maintain and improve our competitive advantage, such as technological strengths</li> <li>• Improve business efficiency to further bolster our business foundation</li> </ul>	<ul style="list-style-type: none"> <li>■ Expand and reinforce production capacity</li> <li>■ Strengthen cutting-edge technologies</li> <li>■ Improve business efficiency</li> </ul>
Layer 2	High frequency devices and communications modules Battery and power supply Functional devices	<ul style="list-style-type: none"> <li>• Develop technologies that differentiate us from our competitors</li> <li>• Completely standardize processes and materials, promote mass customization</li> <li>• Strengthen financial position of businesses with low profitability</li> </ul>	<ul style="list-style-type: none"> <li>■ Strengthen differentiated technologies</li> <li>■ Improve profitability and establish a healthy portfolio</li> </ul>
Layer 3	Others	<ul style="list-style-type: none"> <li>• “Creation of new business models” from a long-term perspective</li> <li>• Build up successful cases with the aim of becoming business mainstays in 2030 and beyond</li> </ul>	<ul style="list-style-type: none"> <li>■ Search for fields where we can leverage our strengths</li> <li>■ Implement mechanisms for creating ideas</li> </ul>

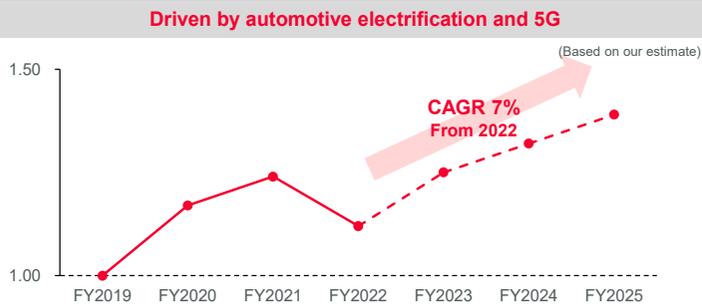
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Next, I will explain about the sophistication of our portfolio management out of our medium-term management issues. Please see page 20. In order to achieve medium- to long-term growth, we will work to resolve the issues faced by each layer and upgrade our 3-layer portfolio. In the first layer, we will ensure our top position in the industry through our supply capabilities that keep pace with demand growth, our cutting-edge technological capabilities that break through technological limitations, and the improvement of our business efficiency. In particular, we will leverage our cutting-edge technological capabilities to continue to produce leading products ahead of our competitors. The challenge in the second layer is to establish differentiating technologies. By strengthening our differentiating technologies, we hope to gain market share in the short term and grow our second-layer business to a scale on par with our first-layer business in the longer term. We also need to strengthen our financial position, as some of our businesses are facing profitability issues. In the past, we reviewed our portfolio in the battery and connectivity module businesses. In the medium term, we intend to expand our overall business by expanding business in areas where we can leverage our strengths in each of our products.

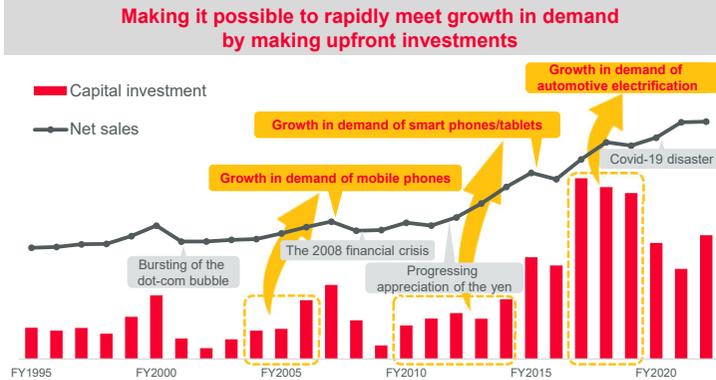
**In-vehicle MLCCs market forecast (quantity basis)**



**Market forecast for inductors/EMI filters (quantity basis)**



**Capital investment for growth in demand in the future**



**New Production Building**

Capacitor	
Murata Electronics Thailand	To be completed in March 2023
Izumo Murata Manufacturing Co., Ltd. (Japan)	To be completed in April 2023
Inductor	
Murata Manufacturing Vietnam	To be completed in August 2023



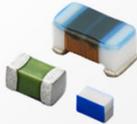
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Please see page 21.

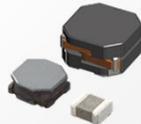
As for MLCCs for automotive applications, the overall growth rate is about 8% per year. We expect an even higher growth rate for high capacitance products. As for inductors and EMI filters, we expect 7% annual growth starting this fiscal year. To prepare for these medium- and long-term increases in demand, we are firmly committed to expanding our production capacity. Murata has so far grown by making forward-looking capital investments in anticipation of future demand increases, and we expect a large increase in demand for automotive applications in the future. We have continued to invest in this opportunity since FY2017, and we believe that we will be among the first to seize the opportunity in this growing market.

**Capacitors****Technology trends**

- Small size and higher capacity
- High levels of reliability
- High temperature support
- Withstanding increased voltage, etc.

**RF inductors****Technology trends**

- Miniaturization
- Low loss (high Q)
- Strong currents
- High temperature support, etc.

**Power inductors****Technology trends**

- Small size and high frequency
- Strong currents
- Low profile, etc.

**The power to read the future**

- Our sales network, built by supplying products with strong market shares, and our connections with customers in a broad range of industries
- Coordination with our network among global sites
- Our robust technical support system

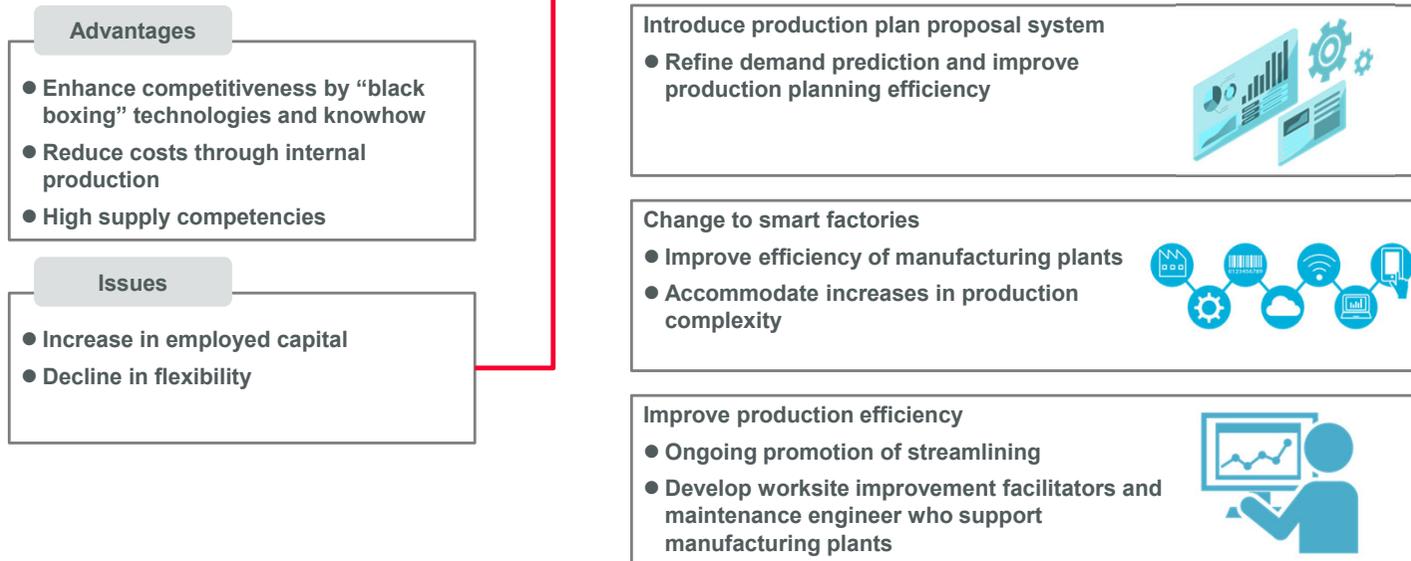
**The power to give shape to needs**

- Vertically integrated production system
- Our unique platform and core technologies
- Advanced coordination among all of our functions, such as development and manufacturing

**These factors enable us to take the lead  
over competitors and create  
state-of-the-art products**

- One of Murata's strengths is an integrated production system, which includes everything from raw materials to products.
- We will strive to improve business efficiency and raise ROIC by addressing issues with the integrated production system.

## Vertically integrated production system



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Please see page 23.

The advantages of Murata's vertically integrated production system, which is one of our strengths, are the black box of technology and know-how, and the enhanced competitiveness in quality and cost due to in-house production. These have supported Murata's competitive advantage to date.

On the other hand, our challenge is that we are deeply involved in the equipment industry, which requires us to make significant capital investment, resulting in an increase in capital employed.

As I mentioned earlier, I would like to ask for your understanding regarding the increase in capital employed as a result of forward-looking investments. Meanwhile, in order to improve ROIC, we intend to improve capital efficiency by promoting the initiatives described here.

Category	Products/technology	Application	Differentiated points	Initiatives for strengthening differentiated technologies
High frequency devices and communications modules	<b>XBAR technology</b>	Used in mobile devices, such as smartphones and wearable devices	<ul style="list-style-type: none"> <li>• Important technology for realizing high-speed wireless communications, such as 5G</li> <li>• High performance characteristics in high frequency/wide bandwidths</li> <li>• High degree of affinity with SAW filter technology</li> </ul>	<ul style="list-style-type: none"> <li>• Development of 5G and next-generation Wi-Fi® standards</li> <li>• Aim for adoption in a wide range of mobile devices, not limited to smartphones</li> </ul>
	<b>Digital ET technology</b>		<ul style="list-style-type: none"> <li>• Technology that contributes to energy savings in high-frequency circuits</li> <li>• Synergy with Murata's high-frequency circuit design technologies</li> </ul>	<ul style="list-style-type: none"> <li>• Apply to high-frequency circuits that support wide bandwidths communications systems, such as 5G and 6G</li> <li>• Aim for adoption in a wide range of mobile devices, not limited to smartphones</li> </ul>
	<b>Multi-layer LCP Product</b>		<ul style="list-style-type: none"> <li>• Superior high-frequency characteristics</li> <li>• Stability due to low water absorption</li> <li>• Highly multiple layers and flexibility for design freedom</li> </ul>	<ul style="list-style-type: none"> <li>• Reinforce competitive advantage of characteristics for high-frequency regions, such as 5G and 6G</li> <li>• Aim for adoption in a wide range of mobile devices, not limited to smartphones</li> </ul>
Functional devices	<b>MEMS sensors</b>	Used in the automation of mobility, such as automobiles and construction/farming equipment	<ul style="list-style-type: none"> <li>• High sensitivity, high accuracy, robustness, reliability and low noise level achieved with Murata's unique 3D-MEMS technologies</li> <li>• Function safety design and customer system support for state-of-the-art autonomous driving systems</li> </ul>	<ul style="list-style-type: none"> <li>• Aim to expand business in the autonomous driving market, which is expected to grow in the future</li> <li>• Aim to become a sensor supplier that is essential for vehicle control in the increasingly diverse mobility market</li> </ul>
Energy power	<b>FORTELION</b>	Used in in-house consumption storage batteries	<ul style="list-style-type: none"> <li>• High output</li> <li>• Safety, long life, and high temperature characteristics</li> <li>• Packaging technology for impact resistance and miniaturization</li> <li>• LFP(Lithium Iron Phosphate)</li> </ul>	<ul style="list-style-type: none"> <li>• Leverage Murata's unique materials technology and ensure competitive advantage</li> <li>• Create environmental business through synergy with other businesses</li> </ul>

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Please see page 24. I will explain about establishing differentiated technologies in the second layer.

In the area of high-frequency communications, our challenge is to quickly bring to bear the technologies acquired through M&A, such as XBAR and digital envelope tracking technologies.

We believe that these technologies will give us a competitive advantage in high-frequency areas such as 5G, next-generation Wi-Fi®, and 6G. These technologies are important for our company to grow in the telecommunications market, and they will be increasingly needed in smartphones and beyond.

In the area of functional devices, we will strengthen our MEMS sensors, and in the area of energy and power, we intend to utilize high-power and safe LFP batteries as self-consumption storage batteries.

## [Layer 2] Improve Profitability and Build a Healthy Business Portfolio

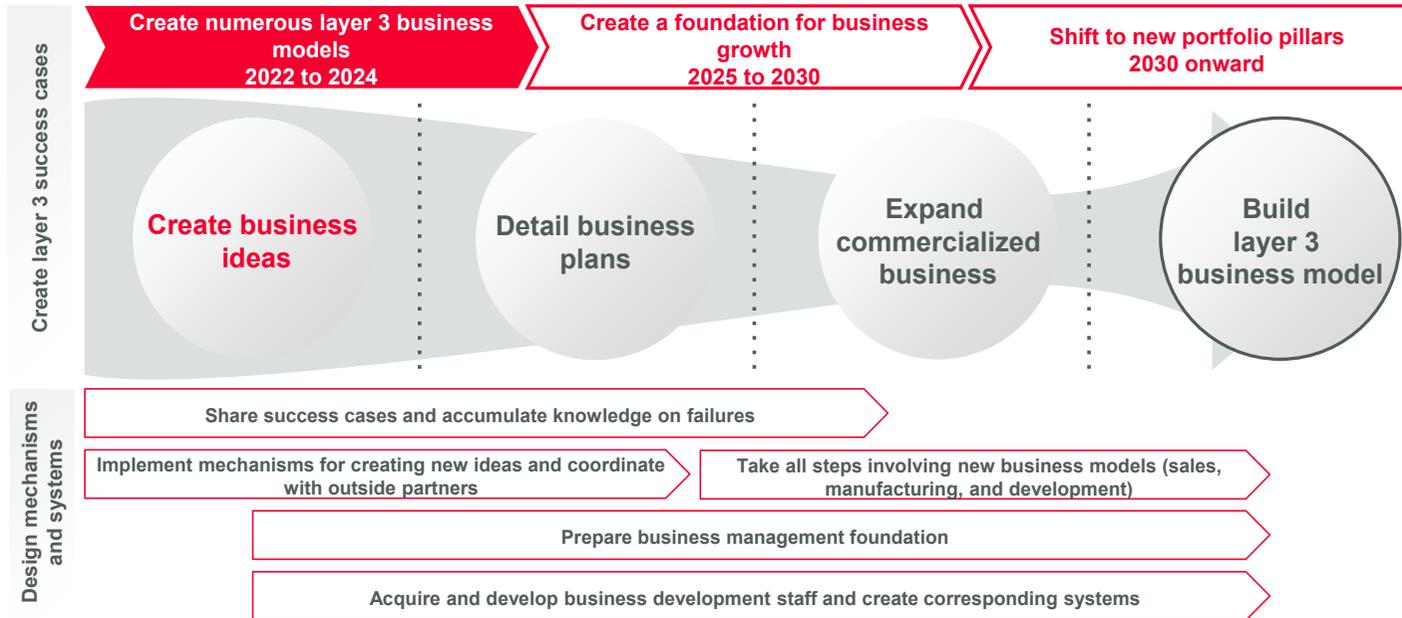
- Introduce a business evaluation model based on growth potential and ROIC, review and revise business portfolio
- Shift portfolio to fields with high growth potential where Murata's strengths can be leveraged

Target field	Initiatives	Future direction
<b>Lithium-ion secondary battery</b>	<ul style="list-style-type: none"> <li>■ Contract business involving laminated type batteries for smartphones</li> </ul>	<ul style="list-style-type: none"> <li>• Focus on high-capacity cylindrical batteries for power tools, etc.</li> <li>• Build a business foundation for businesses that make environmental contributions</li> </ul> 
<b>Connectivity modules</b>	<ul style="list-style-type: none"> <li>■ Review and revise smartphone-oriented business structure</li> </ul>	<ul style="list-style-type: none"> <li>• Focus on in-vehicle and IoT-oriented business, promote sales growth of modules that use in-house technologies to meet millimeter wave, UWB, and other communication standards</li> <li>• Emphasize added value from super small modules +α</li> </ul> 
<b>Power supply modules</b>	<ul style="list-style-type: none"> <li>■ Sell off custom power supply business for office equipment</li> <li>■ Conduct M&amp;As to reinforce differentiated technologies (high efficiency, high power density, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Focus on low power and high power fields</li> <li>• Expand business aimed at data centers and servers</li> </ul> 

# 26

## [Layer 3] Search for Fields Where We Can Leverage Our Strengths

- Under Medium-Term Direction 2024 , we will identify the fields where we can leverage Murata's strengths.
- In 2030, as layer 3, we aim to achieve sales of ¥100.0 billion.



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Please see page 26. I will explain our initiatives toward establishing the third layer. Under Medium-Term Direction 2024, we are working to identify areas where we can leverage Murata's strengths. These efforts are explained on the next page.

## [Layer 3] Implement Mechanisms for Creating New Ideas

- To promote innovation, we will create technology displays that enable us to show our technologies to customers and partners, and we will promote knowledge collaboration outside our company.

Initiatives	Overview	Aims
<b>KUMIHIMO Tech Camp with Murata</b>	<p>Through this project, we will provide Murata products to start-ups and solicit ideas for new products and services, then, together with our partner companies, we will provide support for everything from prototype production to mass-production and sales support in order to commercialize these ideas.</p> 	<ul style="list-style-type: none"> <li>• Increase awareness of Murata's highly reliable, highly accuracy sensor devices and other products</li> <li>• Work together with start-ups to provide support for the market launches of new products and services, thereby promoting the creation of new business</li> </ul>
<b>MURATA MIRAI MOBILITY</b>	<p>Experience-based facility for introducing Murata's solutions and technologies for the in-vehicle system market</p> 	<ul style="list-style-type: none"> <li>• Reinforce external collaborations, such as technology exchange</li> <li>• Reinforce collaborations with research and development sites</li> <li>• Create industry-leading, innovative products and technologies</li> </ul>
<b>Murata Interactive Communication Space</b>	<p>A facility that promotes knowledge collaboration. Visitors can experience Murata technologies and products that are connected to the technologies and applications of the future.</p>	
<b>Acquire the seeds of new business through venture capital (VC) funding</b>	<p>We will invest in VC-funded companies in Japan and overseas. We will collect information about cutting-edge products from companies, such as start-ups around the world, and search for the seeds of new business.</p>	<ul style="list-style-type: none"> <li>• New commercialization of Murata technologies</li> <li>• Take on the challenges of new business fields, such as drones, healthcare, storage batteries, and services</li> </ul>

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On page 27, I will introduce some examples of our initiatives to create idea generation mechanisms.

In order to collaborate with outside companies and create new innovations, we need to stimulate the latent needs of our customers and partners by proactively presenting our technologies to the outside world, rather than stashing them away in our own drawers.

The case studies here are examples of our efforts to promote collaboration with external parties. We will continue to develop our 3-layer business by commercializing ideas that are generated through such cases.

**PIECLEX**

New business and partner company  
that combines with the strengths of Murata



Murata and Teijin Frontier have jointly developed PIECLEX, the world's first piezoelectric fabric that generates electrical energy and is antimicrobial when motion occurs.

**Acquiring new capabilities through business tie-ups has made commercialization possible**

**Worker safety monitoring system**

New business that helps to resolve customers' problems and provide more experiential value



Together with another company, we have developed a "worker safety monitoring system" that uses sensor devices attached to a helmet to monitor bioinformation and surrounding environmental conditions (work environment) in real time.

**Linking the resolution of customers' problems and experiential value to business**

**Traffic counter system**

New business that leverages data to help resolve social issues



This system leverages communication and power technologies to collect traffic volume data. Through this business, we are establishing technologies, collaborating with local companies, and creating a platform of extensive knowledge on certification procedures and more.

**We will apply this platform to other businesses as well, expanding our data business**

# 04

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Medium-term management issues  
Form a lean management base  
Strengthen human capital

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- Murata's human capital: "A company is its people, and it's people who are at the core of value creation."
- We emphasize that employees, with which the Murata Philosophy resonates, can achieve satisfaction and continuing growth, then build trust and cooperate with others to demonstrate collective strength, in this way creating new innovations.
- Employees share the same objectives and respond to the changing business environment.

### Murata Philosophy

We contribute to the  
advancement of society  
by  
enhancing technologies and skills  
applying scientific approach  
creating innovative products and solutions  
being trustworthy  
and, together with all our stakeholders,  
thankful for the increase in prosperity.



Founder Akira Murata

### Murata's human capital strengths developed over years of practicing the Murata Philosophy

**Global penetration of Murata Philosophy**  
**Employees who sympathize with the Murata Philosophy and  
sincerely practice it**  
**CS\* and ES\* as key values**  
**An organizational culture that maximizes potential of diverse  
individuals and helps their collaboration**  
**A corporate culture that values innovation**

\* CS (customer satisfaction): Continuing to create and provide value that is recognized by the customer.

\* ES (employee satisfaction): Every employee achieves satisfaction and continuing growth through their work.

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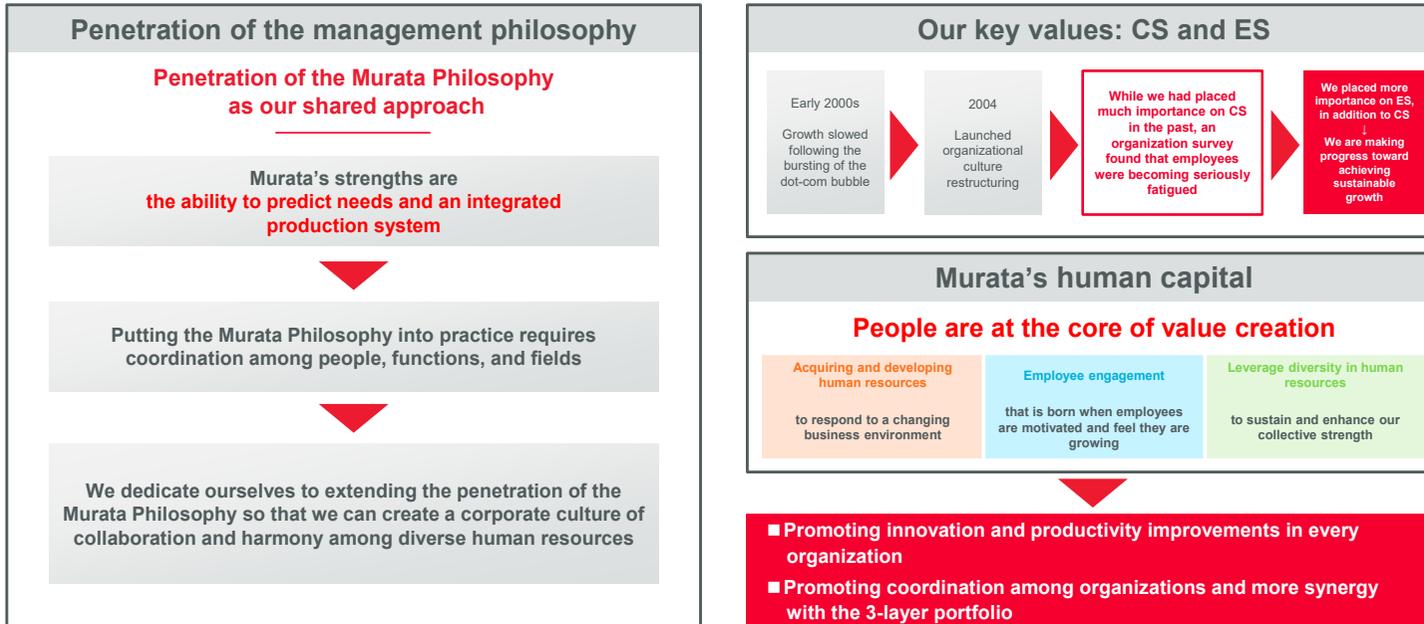
Next, I will explain about strengthening human capital, which is one of the themes of forming a lean management base in our medium-term management agenda. Please see page 30.

The keywords for Murata's human capital are the permeation of the Murata Philosophy, which must not become a mere formality, and values that place importance on CS and ES. These have led to the strengthening of our human capital and competence, and have led to the growth of our company today.

# 31

## Our Cherished Beliefs

- When managing Murata, we strive to have everyone share and implement the Murata Philosophy, which serves as a compass that directs the actions of management and of each and every employee.
- Our key values are CS and ES, which came up when our business performance was slumping in the early 2000s, and we work to improve our competencies.



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Please see page 31.

In order to demonstrate our strengths such as anticipation of future needs and integrated production system, it is essential to coordinate various functions and fields in our long value chain.

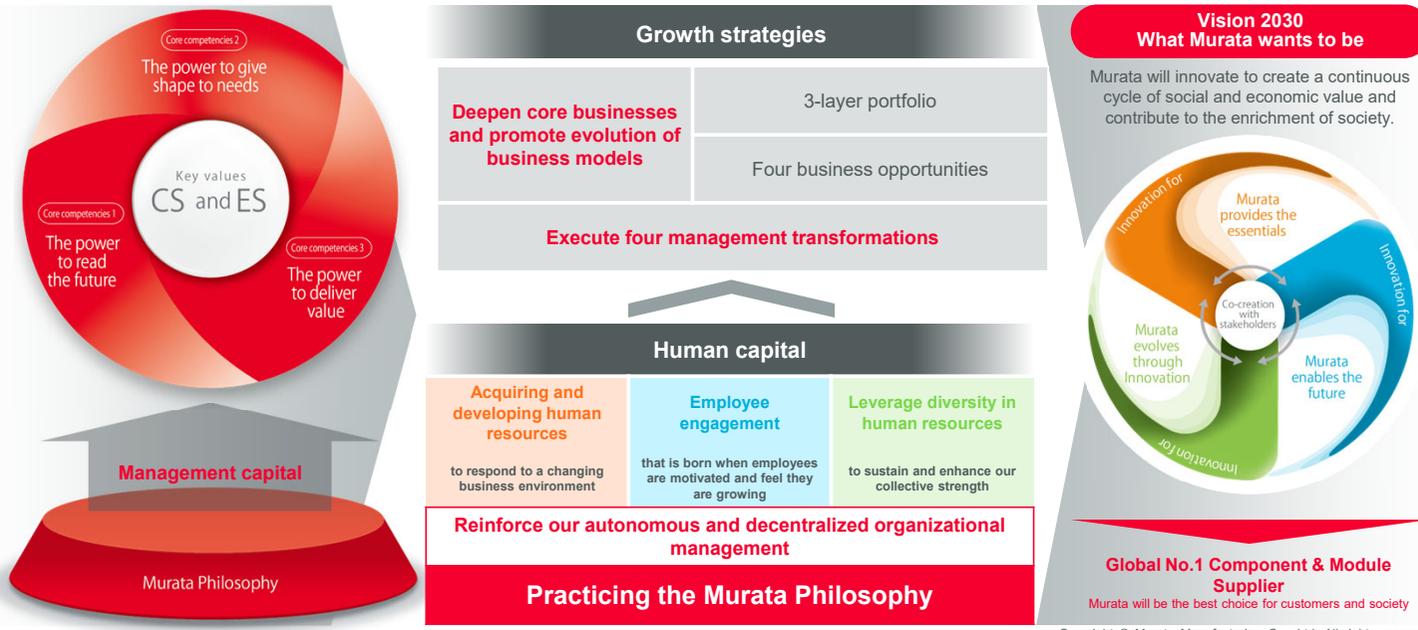
While Murata has a high ratio of domestic production, it also has a high ratio of overseas sales, and its value chain is supported by a global and diverse workforce. For this reason, we place great importance on instilling our Murata Philosophy as a compass for the actions of our diverse human resources.

In addition to the Murata Philosophy, we also consider CS and ES to be important values. It is a fact that CS and ES have supported our growth.

To further enhance Murata's corporate value, we are strengthening our human capital from three perspectives, without changing our approach to instilling our management philosophy and valuing CS and ES. We aim to strengthen the synergy of our 3-layer portfolio through promotion of innovation and inter-organizational collaboration.

## Human Capital Reinforcement Approach

- Led by our belief that a company is its people, and it's people who are at the core of value creation, we aim to achieve continuous growth by strengthening our human capital and linking them to our management strategy.



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## Human Capital Reinforcement Approach

- Under Medium-Term Direction 2024, we intend to strengthen our human capital by taking action listed below

	Issues	Actions
<p><b>Leverage diversity in human resources</b> to sustain and enhance our collective strength</p>	<ul style="list-style-type: none"> <li>Enable all employees to gain wide-ranging, borderless experience.</li> <li>Enhance the strength of organization through collaboration and cooperation among diverse human resources.</li> </ul>	<ol style="list-style-type: none"> <li>Promote global rotation of employees</li> <li>Acquire diverse personnel with a variety of experience and leverage the diversity</li> <li>Provide a variety of career paths</li> <li>Promote women's participation</li> </ol>
<p><b>Employee engagement</b> that is born when employees are motivated and feel they are growing</p>	<ul style="list-style-type: none"> <li>Enable employees to act autonomously for overall optimization.</li> <li>Ensure that employees can work in safety and peace of mind.</li> </ul>	<ol style="list-style-type: none"> <li>Use global survey to improve the organizational culture</li> <li>Encourage conversation between top management and employees</li> <li>Establish employee-friendly work environments and systems</li> <li>Provide safe and secure workplaces and practice health management</li> </ol>
<p><b>Acquiring and developing human resources</b> to respond to a changing business environment</p>	<ul style="list-style-type: none"> <li>Acquire, develop, and deploy human resources to achieve Vision 2030.</li> <li>Prepare management for the future.</li> </ul>	<ol style="list-style-type: none"> <li>Attracting and acquiring human resources</li> <li>Develop human resources</li> <li>Continual training of candidates for next generation of management</li> <li>Acquire and develop employees for DX (digital transformation)</li> </ol>

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On page 33, we have summarized our direction for strengthening human capital. In conjunction with the growth strategies outlined in Medium-Term Direction 2024, we will work to strengthen our human capital and achieve sustainable growth from three perspectives: leveraging diversity in human resources, employee engagement, and the acquisition and development of human resources. As described on this page, we are taking action in each of these areas, and will report regularly on our progress.

# 34

## Initiatives for Leverage Diversity in Human Resources: Multi-track Career Paths and D&I

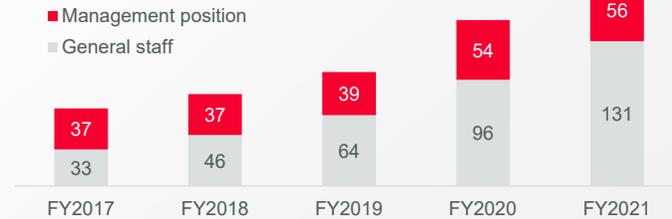
- We are creating environments where employees with diverse experience and ways of thinking respect each other and work together, leveraging their full abilities.

### Multi-track career paths

We use multiple career paths to reward personnel who can contribute through their expertise



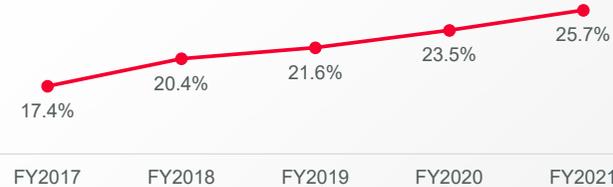
No. of assigned specialist path officials (Unit: people; Japan only)



### Promoting Diversity & Inclusion (D&I)

Realizing diverse leadership styles

Percentage of management staff that are mid-career hires including employees acquired through M&As (Japan only)



Percentage of female management staff (Murata Manufacturing Co., Ltd.; nonconsolidated basis)



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Next, I will briefly introduce examples of each initiative. Please see page 34.

In order for the diverse human resources who support Murata's business to demonstrate their strengths, we are working to create an environment in which each and every one of our employees can play an active role.

Specifically, we have established a personnel system that allows for a multilayered career path that takes advantage of diverse expertise and experience. We are also working to increase the ratio of women and mid-career hires in management positions in order to evolve the homogeneous image of leadership that has been created over the years and realize diverse leadership styles.

- As part of our initiatives, we are preparing secure, safe workplace environments and actively promoting health management.



#### Sleep improvement: Improving ES among shift workers at manufacturing sites

We are dedicating ourselves to implementing sleep improvements to improve ES among shift workers who support Murata's *monozukuri*.

From September 2021, we employed a sleep improvement advisor who specializes in circadian rhythms and internal clocks, and we are leading the Japanese manufacturing industry with our pioneering measures

- Introduced sleep questionnaires and sleep diaries for employee sleep consultations
- Began adjusting the lighting environment to foster better quality of sleep
- Using MF100 fatigue stress detector to visualize the effects to promote greater health awareness among employees

#### MF100 fatigue stress detector (layer three business)

Based on vital data, such as heart rate and pulse, this detector accurately measures heart rate variabilities, visualizing the degree of fatigue and stress (previously not easily evaluated) based on the balance of autonomic nerves and more.

\*This product is not a medical device



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Please see page 35.

As part of our efforts to improve engagement, we are also actively engaged in health and productivity management. As an example of our efforts, I would like to introduce our efforts to improve sleep at our manufacturing sites.

This initiative was initiated after our Health Management Office received a number of sleep-related inquiries from employees at manufacturing sites. A distinctive feature of this initiative is that we have introduced an environment and system that supports good sleep by inviting outside experts as advisors. In addition, by visualizing the effects of sleep improvement using, for example, the fatigue stress detector, a product of our three-layer business, we are working to encourage employees to take voluntary action for their own health through a PDCA cycle.

We believe that these efforts will help employees to feel healthy and to maintain that condition, which will also lead to higher engagement.

# 36

## Initiatives for Acquiring and Developing Human Resources: Level-Specific Training Program

- During their first year with the company, and as members of the manufacturing industry, employees take part in factory hands-on training to learn how interesting *monozukuri* is and gain an understanding of areas of dedication at manufacturing sites.
- We have developed level-specific training programs for nurturing candidates who will become corporate executives in the future.



- Our two-year selective training program promotes the self-transformation of participants into leadership roles (MLP: Middle Leadership Program).
- Participants work directly not only with their immediate superiors, but with multiple executives, and we provide opportunities for their active growth.



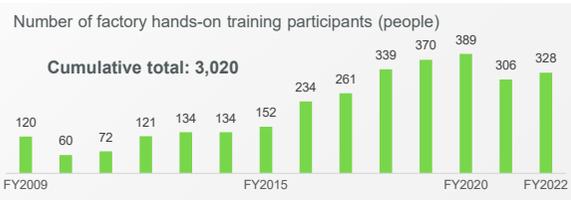
- We have set up programs for developing next-generation corporate executive candidates.

**Make2030** A program that provides experience at an early stage to heighten sensitivity to changes in the environment, to promote coordination throughout the organization, and to have participants link their self-directed thinking and behavior with the future of the company

**Global Program** A human resource development and reinforcement program that helps to develop employees who can contribute to business growth from a company-wide perspective while adopting the Murata Philosophy



- All new graduates take part in factory hands-on training (for approximately six months). The goal is to teach them about our dedication to safety, quality, and cost at manufacturing sites, the value of teamwork, and the sources of Murata's value creation.
- Much time is invested in new graduates. We have high expectations from them for growth, in order to reinforce our human capital.



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Please see page 36.

In order for Murata to continue to grow sustainably in the future, it is essential to develop the leaders who will lead Murata in the future. As part of our training efforts, we are implementing a selective training program for managers, and have started a training program for future managers linked to our management policy from this fiscal year.

We are not only training next-generation executive candidates in Japan, but also globally, as Murata is developing its business globally, with overseas sales accounting for approximately 90% of total sales. Furthermore, with the need to increase the ratio of overseas production in line with future business expansion, we have implemented a globally common selective training program for next-generation leaders and are developing leaders, including overseas local personnel.

In addition, one of our unique initiatives is to provide all new employees with approximately six months of practical factory training. The purpose of this factory training is to foster a commitment to safety, quality, and cost at the manufacturing site and to learn the importance of teamwork. We are committed to strengthening our human capital by investing a great deal of time in our new employees.

## Initiatives for Acquiring and Developing Human Resources: Developing *Monozukuri* Employees

- For Murata, as a manufacturer, manufacturing sites are the wellspring of value creation, so the development of *monozukuri* employees is an important task.
- Murata devotes special attention to developing *monozukuri* employees for worksite improvement as well as maintenance engineer who are responsible for equipment maintenance.

### The human resources that support *monozukuri* sites

#### Worksite improvement facilitators

- Worksite improvement employees, who specialize in improvement technologies (*kaizen*) that support our competitiveness in *monozukuri*, are primarily manufacturing supervisors and workers on the front lines at manufacturing sites. They are remarkable for their implementation of scientific management techniques and the fact that they steadily produce improvements.
- We focus on providing them with wide-ranging experience so that they develop diverse perspectives and skills.

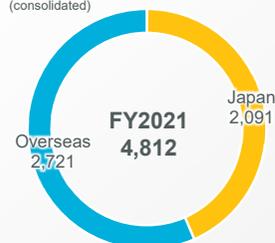
No. of worksite improvement facilitators (consolidated)



#### Maintenance engineer

- Maintenance engineer are essential for Murata's equipment-focused processes, as they help ensure that factories operate steadily and maintain supply capabilities, one of Murata's strengths.
- We write down and standardize maintenance skills, which take a lot of time to acquire, and reinforce our development of maintenance engineer through maintenance training rooms at our main production sites.

No. of maintenance engineer (consolidated)



In the maintenance training room

### **Cautionary Statement on Forward-looking Statements**

This report contains forward-looking statements concerning Murata Manufacturing Co., Ltd. and its group companies' projections, plans, policies, strategies, schedules, and decisions.

These forward-looking statements are not historical facts; rather, they represent the assumptions of the Murata Group (the "Group") based on information currently available and certain assumptions we deem as reasonable. Actual results may differ materially from expectations due to various risks and uncertainties. Readers are therefore requested not to rely on these forward-looking statements as the sole basis for evaluating the Group. The Company has no obligation to revise any of the forward-looking statements as a result of new information, future events or otherwise.

Risks and uncertainties that may affect actual results include, but are not limited to, the following:

1. Economic conditions of the Company's business environment, and trends, supply-demand balance, and price fluctuations in the markets for electronic devices and components
2. Price fluctuations and insufficient supply of raw materials
3. Exchange rate fluctuations
4. The Group's ability to provide a stable supply of new products that are compatible with the rapid technical innovation of the electronic components market and to continue to design and develop products and services that satisfy customers
5. Changes in the market value of the Group's financial assets
6. Drastic legal, political, and social changes in the Group's business environment
7. Other uncertainties and contingencies.

The Company undertakes no obligation to publicly update any forward-looking statements included in this report.

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This concludes my explanation.

I hope that you will continue to look forward to Murata's efforts to enhance its corporate value, and I look forward to your continued support in the future.

Thank you very much for your attention.