

# **Murata Manufacturing Co., Ltd.**

Information Meeting 2023

November 30, 2023

## Event Summary

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<b>[Company Name]</b>	Murata Manufacturing Co., Ltd.	
<b>[Company ID]</b>	6981-QCODE	
<b>[Event Language]</b>	JPN	
<b>[Event Type]</b>	Analyst Meeting	
<b>[Event Name]</b>	Information Meeting 2023	
<b>[Date]</b>	November 30, 2023	
<b>[Time]</b>	15:30 – 16:49 (Total: 79 minutes, Presentation: 37 minutes, Q&A: 42 minutes)	
<b>[Venue]</b>	Webcast	
<b>[Number of Speakers]</b>	3	
	Norio Nakajima	President, Representative Director
	Masanori Minamide	Executive Vice President, Board Member, General Manager, Corporate Unit
	Nagato Omori	Executive Vice President, General Manager, Ceramic Capacitor Business Unit
<b>[Analyst Names]*</b>	Daiki Takayama	Goldman Sachs
	Shoji Sato	Morgan Stanley MUFG Securities
	Shingo Hirata	UBS Securities
	Manabu Akizuki	Nomura Securities
	Ryosuke Katsura	SMBC Nikko Securities

## Presentation

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**Moderator:** As it's time to begin, we will now start Murata Manufacturing Co., Ltd.'s information meeting 2023. Thank you all for joining us today despite your busy schedules.

First, I'd like to introduce today's attendees from our company.

Here with us is our President and Representative Director, Norio Nakajima.

**Nakajima:** Thank you for having me.

**Moderator:** Next, we have our Executive Vice President and General Manager of the Corporate Unit, Masanori Minamide.

**Minamide:** Thank you for having me.

**Moderator:** We also have our Executive Vice President and General Manager of the Ceramic Capacitor Business Unit, Nagato Omori.

**Omori:** Thank you for having me.

**Moderator:** In addition, members of our investor relations team are also participating.

Today's session will begin with a presentation from our company, followed by a Q&A session starting around 4:00 PM.

The materials for this meeting are available in the IR library section of our company website. We have also disclosed the materials in a timely manner, so you can check them on the Tokyo Stock Exchange's timely disclosure information viewing service. We will mention the page numbers of the materials during the presentation for those joining us over the phone.

Now, let me hand it over to Mr. Nakajima for the presentation.

**Nakajima:** Thank you all for joining us today despite your busy schedules. I am Norio Nakajima, the President and Representative Director.

Today, I would like to discuss how we aim to enhance our corporate value by 2030, particularly focusing on improving profitability from the perspective of strengthening our management capital.

## Key Messages

- Our outlook for expanding business opportunities through 2030 has not changed significantly despite the difficult business environment.
- We will promote 3-layer portfolio management for future growth and take on the challenge of market creation.
- Our objective is to strengthen management capital, the source of our ability to generate cash, to become a company that continually and sustainably creates economic and social value.

Please turn to page two. Today, I want to focus on three key points.

Firstly, despite the challenging business environment characterized by a slump in component demand, our outlook for business opportunities leading up to 2030 remains unchanged.

We continue to promote our three-layer portfolio management, while also striving to create new markets.

Furthermore, by bolstering our management capital, which is the source of our cash generation capability, we aim to be a company that continuously generates both economic and social value.

Additionally, the current weak yen is proving to be a tailwind for us, but we recognize the urgent need to enhance our earning power independently of this currency effect. I will also touch upon this aspect.

Vision 2030 sets out in detail what we must do in the future to realize the mission set out in the Murata Philosophy.

The key concepts in implementing this vision are a “Continuous cycle of social and economic value” and “Co-creating value with stakeholders.”

**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.



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Now, let’s move on to page four. This page outlines our mid- to long-term plan, Vision 2030, which we announced in November 2021.

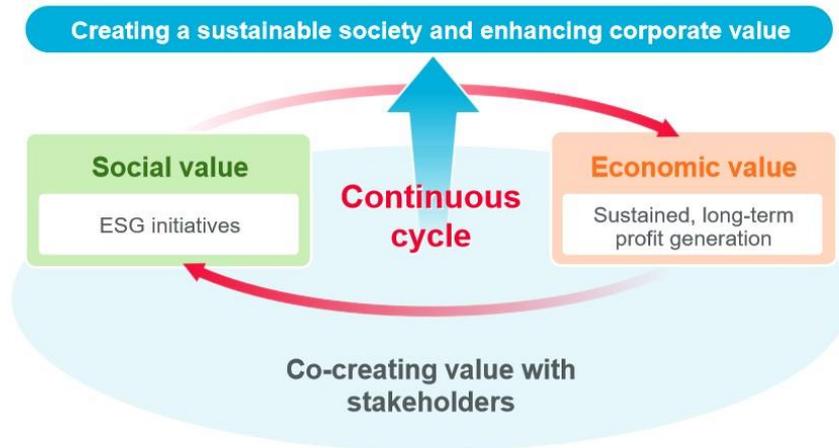
In this plan, we aim to become the global No.1 component & Module Supplier, making Murata the best choice for customers and society.

Key elements of this vision include creating a continuous cycle of social and economic value and co-creating value with our stakeholders.

On the left, you’ll see our company philosophy.

Recently, many companies have been adopting purpose-driven management, redefining their corporate significance and updating their management plans accordingly.

However, we stand out by adhering to the philosophy established by our founder, which continues to guide the behavior of our employees to this day.



- Produce a continuous cycle of social and economic value by co-creating value with stakeholders
- Actively work to resolve social issues, in this way improving our business competitiveness

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Turning to page six, we have a diagram illustrating the continuous cycle of social and economic value.

This concept is centered around co-creating value with our stakeholders—shareholders, investors, customers, employees, and suppliers.

Through this collaboration, we aim to achieve a symbiosis of social and economic value.

## Medium-Term Management Issues and Key Initiatives of Medium-Term Direction 2024



### Management transformation

- Use the hypothetical thinking in the business plan management process as a mechanism to ensure an autonomous and decentralized organization, then review the processes for formulating budgets and medium-term business plans as well as evaluate business viability.
- Formulate a vision for what Murata wants to be (ideal state) through DX and a document for proof of concept (PoC).
- Introduce a system for promoting investments for sustainability.

### Portfolio Management (Higher Level)

- Promote 3-layer portfolio management by resolving issues related to each layer.

### Form a Lean Management Base

- Consider and implement measures to strengthen human capital
- Implement training programs for management candidates
- Strengthen governance for quality assurance

### Preparation for 2030

- Eliminate waste and introduce technology at production sites, and proactively develop innovative technologies.
- Enhance the development of human resources for manufacturing by structuring global systems to strengthen training.
- Improve sales strengths by enhancing job-specific, specialized programs for human resource (HR) development.
- Begin considering future intellectual property strategies by creating an R&D portfolio and exploring new technologies.

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Next, I would like to touch on the progress we have made in our Medium-Term Direction 2024. Please turn to page nine.

In our Medium-Term Direction 2024, we have identified four key management challenges.

The first is the promotion of management transformation, which includes the introduction of a sustainability investment promotion system and our unique management control system.

The second is advancing our three-layer portfolio management.

Thirdly, we focus on building a lean management foundation, which includes the development of next-generation leaders through our leadership training programs.

Finally, we are preparing for 2030 by strengthening our manufacturing capital, customer and partner capital, and intellectual and technological capital.

These four challenges are critical in our approach towards 2030.

## Progress on Economic Value Goals



	Medium-term Direction 2021		Medium-term Direction 2024	
	FY2021	FY2022	FY2023 (Forecast as of Oct. 2023)	FY2024 (Targets)
Net sales (JPY)	1,812.5 billion	1,686.8 billion	1,620.0 billion	2,000.0 billion
Operating income ratio	23.4%	17.7%	16.7%	20% or higher
ROIC (pre-tax basis)	22.6%	14.4%	12.3%	20% or higher

Notes:

1. ROIC (pre-tax basis) = Operating income / Average invested capital at the beginning and end of the period (=Property, plant and equipment + right-of-use assets + goodwill + intangible assets + inventories + trade receivable - trade payables)

2. FY2022 results have been reclassified from U.S. GAAP to IFRS.

### ROIC (pre-tax basis)\* (%)



### Gross Profit Margin, S&A Expenses and R&D Expenses (Unit: billion yen, %)



### Invested Capital<sup>1</sup> & Capital Turnover Ratio<sup>2</sup> (Unit: billion yen, times)



- Increase investment in DX and new business creation for future growth. Accelerate cost reductions and improving utilization rates to get higher (or target) profit margins.
- Demand for electronic components is currently sluggish, while ongoing upfront investment is depressing capital turnover. Optimize invested capital by reducing inventory.

On page 10, we present our progress towards achieving our economic value targets.

For FY2024, we've set targets of JPY2 trillion in sales, an operating profit margin of over 20%, and a ROIC of over 20%. However, there is a significant gap between these targets and our projected figures for FY2023, as highlighted here.

Despite the challenging phase of recovery in component demand, we are committed to focusing on the operating profit margin and ROIC as our key management indicators.

We are working on improving our capital turnover and enhancing underperforming businesses to move closer to these targets.

## Progress toward Social Value Goals



		FY2021	FY2022	FY2024 (Target)	FY2030 (Target)	Long-term Target
Environment	GHG emissions reduction rate vs. fiscal 2019	12.7%	16.4%	20%	46%	Carbon neutral
	Scopes 1 + 2					
	Renewable energy implementation rate	21.3%	23.7%	25%	50%	100% (2050)
		FY2021 <sup>3</sup>	FY2022 <sup>3</sup>	FY2024 (Target)	FY2030 (Target)	FY2050 (Target)
	Use of sustainable resources (%) <sup>1</sup>	—	—	1% improvement over FY2021 results	25%	100%
	Resource recycling (%) <sup>2</sup>	—	—	5% improvement over FY2021 results	50%	100%
<small>1. Resources at low risk of depletion, which Murata can use continually into the future by taking steps such as building recycling schemes. (Potentially depletable resources: Ag, Ni, etc.)                  2. Percentage of Murata's waste and useful outputs (emissions) recycled as resource.                  3. Currently being tabulated.</small>						
		FY2021	FY2022	FY2024 (Target)	FY2030 (Target)	
Diversity	Percentage of overseas indirect employees* with experience working at other sites	3%	5.3%	7%	10%	
* Applies to overseas local staff, excluding those transferred from Japan to overseas						
		FY2021	FY2023	2024 (Target)	FY2030 (Target)	
ES	Positive employee engagement response (%)	68%	Currently being tabulated	70% or higher	76% or higher	

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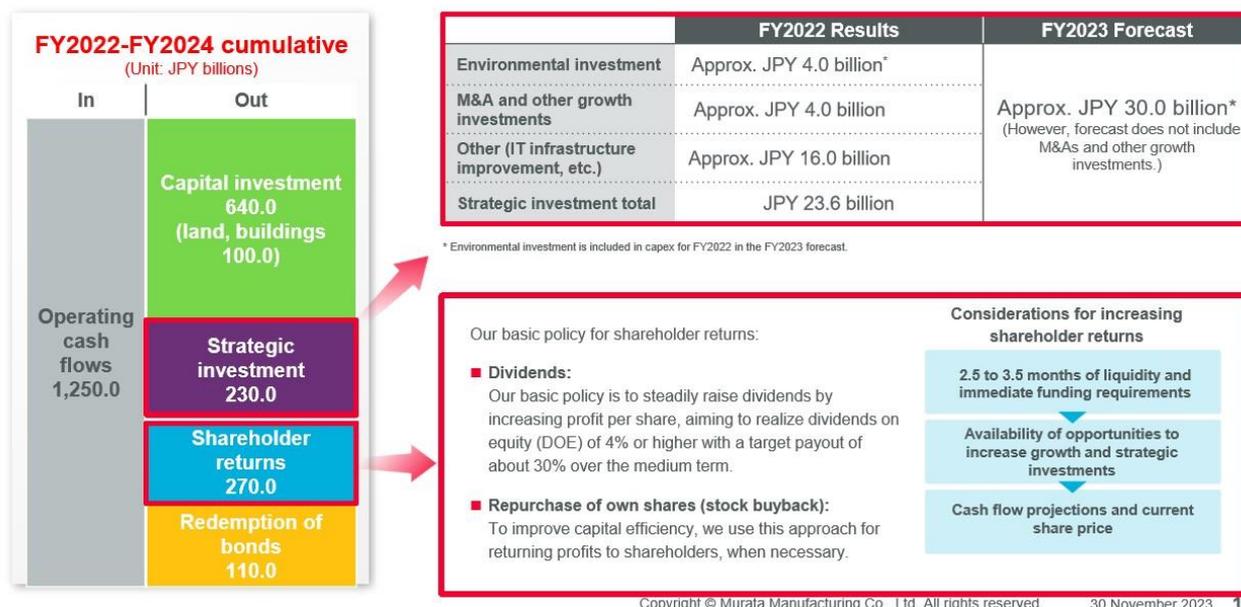
Moving on to page 11. This page details our progress in achieving our social value goals.

While we will provide an update on our social value targets at our ESG briefing scheduled for March, overall progress has been steady.

One area where we still see gaps is in parameters related to use of sustainable resources and resource recycling, which we acknowledge as a challenge.

Regarding employee engagement, we conducted a global survey in October and are currently in the process of assessment. The results of this will also be updated in our March ESG briefing.

## Medium-Term Direction 2024 Capital Allocation Policy



On page 12, we discuss our Medium-Term Direction 2024, in which we have, for the first time, clearly defined our capital allocation strategy.

While there are no changes to the content of this strategy, it includes investment in IT infrastructure, primarily focused on digital transformation (DX), environmental investments, and expenditures for mergers and acquisitions aimed at future business growth and enhancing corporate value.

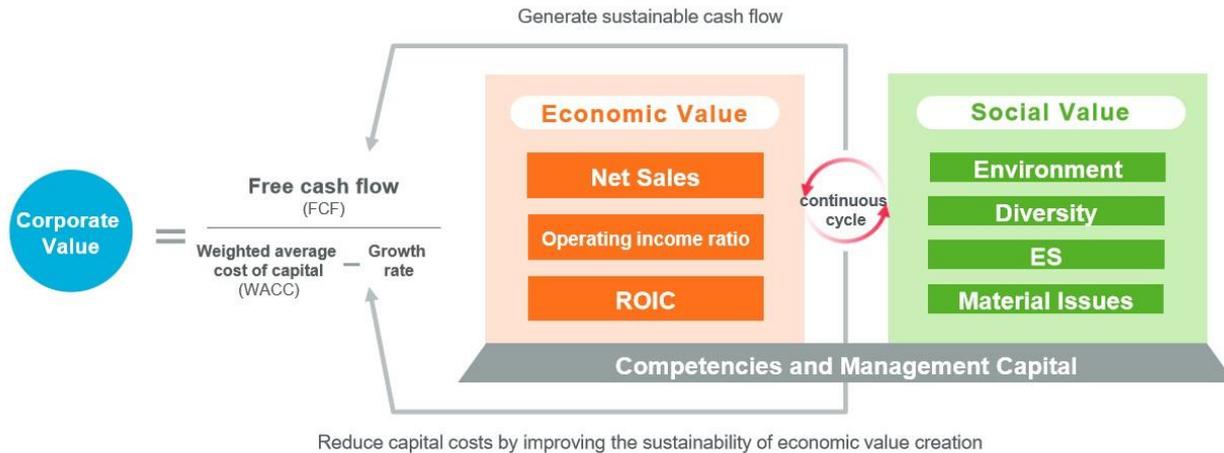
Currently, the progress in strategic investments has been underwhelming, and we see this as a significant challenge. We are determined to effectively implement these investments by FY2024.

Regarding shareholder returns, as noted here, we are maintaining a dividend payout ratio of around 30% and achieving a dividend on equity of over 4%. Additionally, we have been conducting share buybacks depending on our cash position.

On the other hand, for additional returns, as shown on the right, we maintain a specific approach.

We manage our liquidity ratio at 2.5 months to 3.5 months of sales revenue to prepare for immediate funding needs. Regarding growth investments or additional strategic investments, we consider the availability of such opportunities. In the absence of these, we contemplate future cash flow projections and stock price levels. Based on these factors and our cash position, we will consider additional returns.

**Targeting increased corporate value within a continuous cycle of social value and economic value**



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On page 14, we delve into Murata's key strategies for enhancing corporate value.

As a company operating within capitalism, we believe our mission is to generate profits and reinvest them for greater future value.

However, as shown here, corporate value is not just about economic value. It involves creating a continuous cycle with social value, thereby generating sustainable cash flow. Moreover, enhancing the sustainability of economic value creation, which in turn reduces capital costs, is essential in our efforts to increase corporate value.

This requires a strong foundation in our core competencies and the strengthening of our management capital, which I will discuss further.

## Vision 2030 Medium- to Long-term Recognition of Environment

<p><b>Expansion of the Usage of Electronics</b></p> <ul style="list-style-type: none"> <li>□ Proliferation of 5G and IoT and diversification of devices</li> <li>□ Automobile electrification and autonomous driving</li> </ul>	<p><b>Transition to a Sustainable Society</b></p> <ul style="list-style-type: none"> <li>□ Increasing awareness of environmental measures and stricter environmental regulations</li> <li>□ Concurrent pursuit of social and economic value</li> </ul>	<p><b>Advancement of Digitalization</b></p> <ul style="list-style-type: none"> <li>□ Business innovation through the use of big data, 5G, etc.</li> <li>□ Diversifying channels for external communications</li> </ul>
<p><b>Increasing Geopolitical Risks</b></p> <ul style="list-style-type: none"> <li>□ Trends in US-China relations</li> <li>□ New regulations resulting from the interrelationship among global trends such as environmental and human rights issues and local economic policies.</li> </ul>	<p><b>Changes in Demographic Structure and Power Balance</b></p> <ul style="list-style-type: none"> <li>□ Structural change in global demographics</li> <li>□ Developed countries facing the challenges associated with aging populations. The value of health increases.</li> </ul>	<p><b>Addressing Post-pandemic Society</b></p> <ul style="list-style-type: none"> <li>□ Combinations of in-person and online communications</li> <li>□ Corporate activities ranging from purchasing and production to logistics, are becoming more diverse and decentralized</li> </ul>

## Material Changes in the Business Environment since the Formulation of Medium-term Direction 2024

- 1 Slowing growth in number of smartphones and polarization at the device level
- 2 Acceleration of CASE in the automobile industry
- 3 Rapid proliferation of AI
- 4 Accelerated pivot to multiple supply chains
- 5 Increased opportunities for dialogues with stakeholders on sustainability

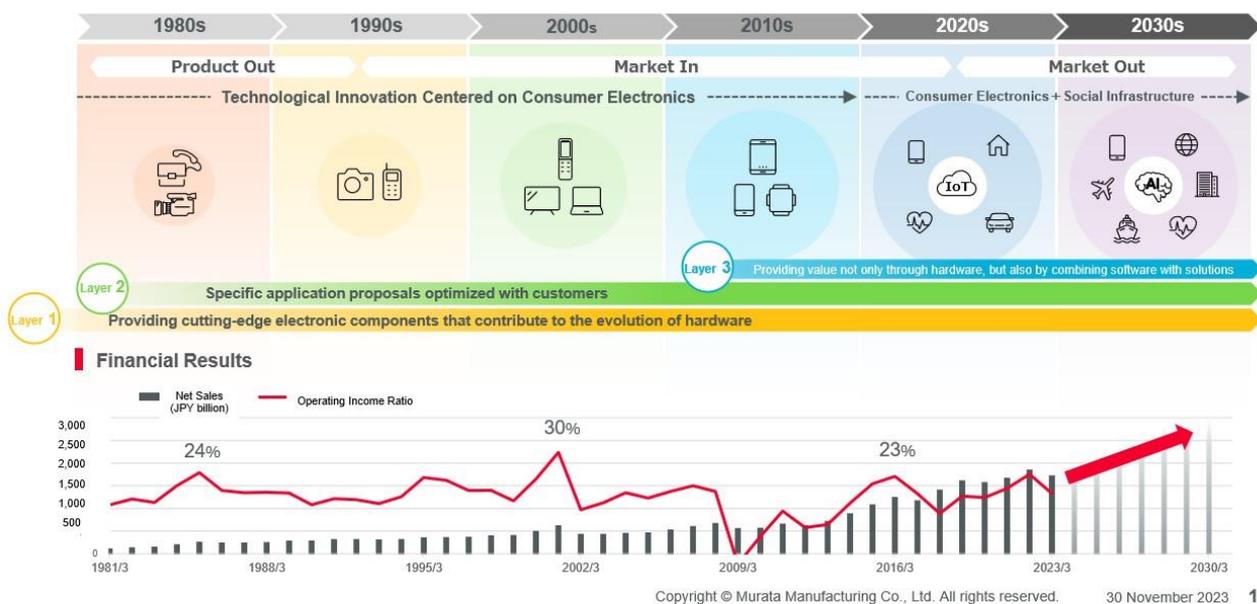
Our projection that the use of electronics and our business opportunities will both grow through 2030 has not changed, but the opportunities and risks associated with our business opportunities have changed since we formulated our medium-term direction.

Moving on to page 15. Before discussing management capital, let me explain the changes in the business environment and our portfolio strategy.

On the left, we have our long-term environmental understanding as of November 2021, outlined in Vision 2030. On the right, we address the changes since then.

Of these changes, the most significant for our business environment is the slowing growth in smartphone unit sales and the bifurcation into low-end or mid-range and high-end models. Particularly, as the volume zone shifts towards the low-end and mid-range, this shift has a considerable impact on our business environment.

## Evolving as an Innovator in Electronics



On page 16, the graph at the bottom represents what I personally envision as the cycle of economic fluctuations, which I term the “innovator in electronics” wave.

Throughout history, whenever there has been innovation in electronics, Murata Manufacturing has consistently maintained a strong presence, leading to profit generation.

For instance, if we look at this graph, around the time I joined the Company in 1985, the electronics industry was experiencing a boom in handheld video cameras. Our contribution to this trend was in providing compact, lightweight components that played a crucial role in this innovation.

Also, in the year 2001 during the IT bubble, there was an enormous boom in AV equipment and mobile phones. In this era, our small components were effectively utilized.

Then, in 2015, we saw the rise of the fourth generation of mobile phones, including LTE smartphones. Our RF device modules and similar offerings were widely used during this period.

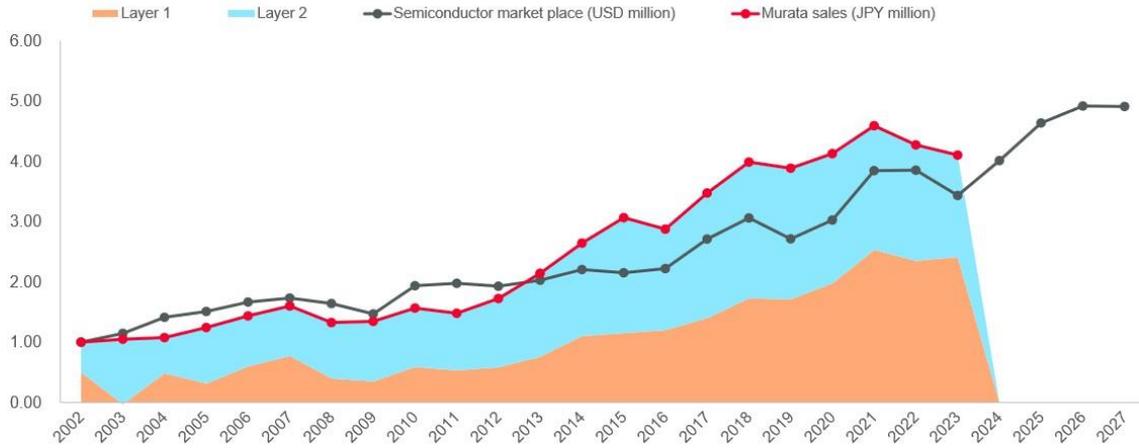
However, our approach so far, as shown above, has been primarily product out, providing standard products, and market in, where we collaborate closely with customers to develop new products, with the idea that the answers lie within the customers’ needs.

We anticipate that 2030 will mark the next peak. Keywords like the metaverse, AI, and Web3 are likely to dominate this phase. To establish our presence in this future landscape, we need to create the market ourselves. We believe we must generate this next wave of economic cycle. We refer to this approach as market out.

## Innovator during the Electronics Wave



- Achieve growth that empowers Layer 1 + Layer 2 sales that exceed semiconductor market sales
- Targeting Layer 1 + Layer 2 + Layer 3 business growth along with expansion of electronics field



Source: Estimated by Murata, based on Gartner's research data

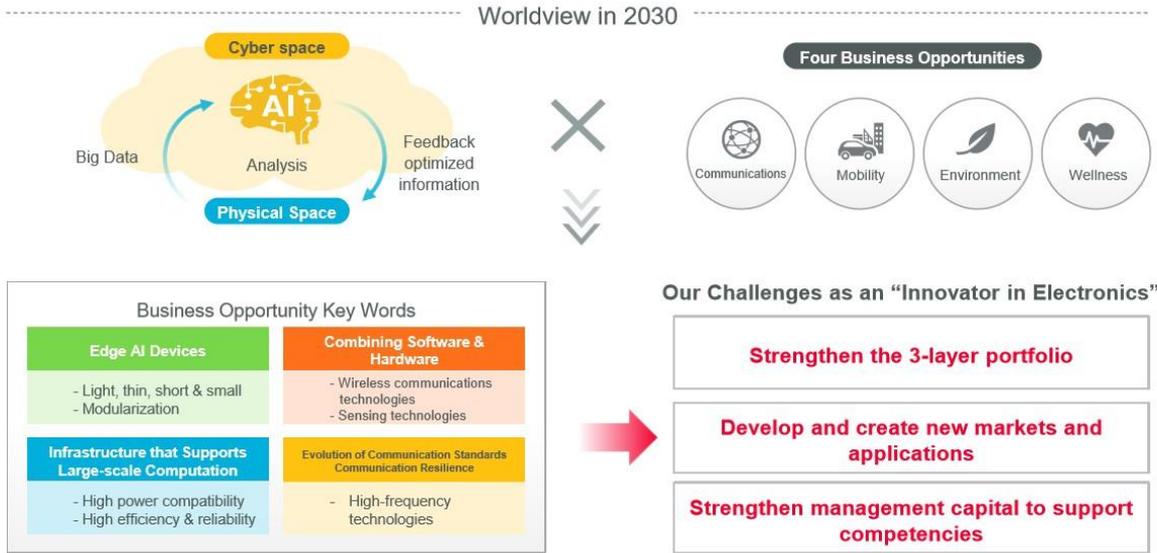
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On page 17, we have a chart that illustrates the history and projected future of the electronics market.

Starting from 2002, the chart shows the growth in semiconductor sales, in blue, and Murata's sales growth, in red. The beige section at the bottom represents the sales of our first-layer products, which are closely linked to semiconductor sales.

You'll notice a change in this curve around 2013. Since then, Murata's sales growth has consistently outpaced the growth rate of the electronics industry, primarily due to the contribution of our second-layer products.

Going forward, we aim to further strengthen our second and third layers, striving to achieve a sales growth rate that surpasses the overall electronics market trend.



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On page 18, as we discussed at last year’s information meeting, the world of 2030 will see physical and cyber spaces interconnected by AI.

We have identified four key business opportunities in response to this: communications, mobility, environment, and wellness.

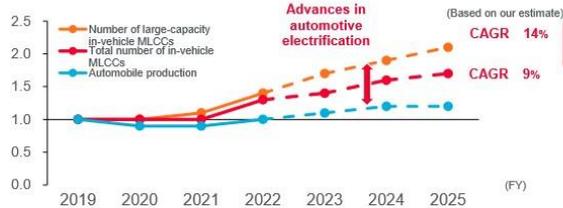
Our challenge lies in strengthening our three-layer portfolio, exploring and creating new markets and applications, and bolstering the management capital that underpins our competencies.

# Strengthening Layer 1



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

■ Trend of automotive electrification remains unchanged. Large-capacity components especially are increasing rapidly.



Strengthen supply capacity in anticipation of the expansion of the communications and mobility market

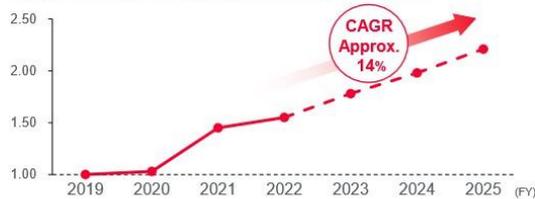


Established a joint venture company with Ishihara Sangyo Kaisha, Ltd. and Fuji Titanium Industry Co., Ltd. to have a system for the consistent supply for the material for MLCCs.

New facility in Thailand

## In-vehicle Inductors/EMI filters (quantity basis)

■ Driven by automotive electrification and 5G related (Based on our estimate)



### Initiatives to Improve Our Position in the Automotive Market

The ongoing electrification of automobiles has increased the number of installed DC-to-DC converters, and has increased the need for smaller power inductors with excellent electrical characteristics.

➔ Strengthen supply capacity and accelerate new product development



New facility in Vietnam



Enhanced metal power inductors

Turning to page 19, I'll talk about the first layer of our three-layer portfolio enhancement.

To strengthen the supply capability across the entire supply chain, we have established joint ventures with Ishihara Sangyo Kaisha, Ltd. and Fuji Titanium Industry Co., Ltd. to ensure the stable supply of MLCC materials.

In Chiang Mai, Thailand, we constructed a new building contributing to MLCC production, and in Vietnam, a new building for power inductor production was completed this fiscal year.

The background for these developments is the market trend toward the electrification and electronic integration of automobiles, as shown on the left. The top graph forecasts the MLCC market, while the bottom graph forecasts the market for inductors and EMI filters, both anticipating a CAGR exceeding 10%.

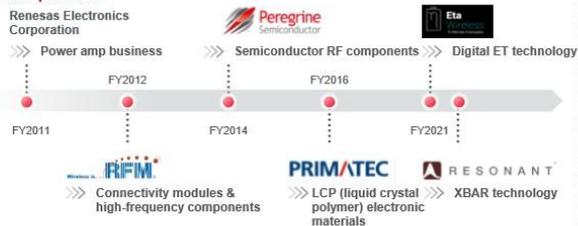
To capitalize on these trends and achieve sales expansion and increased market share in the automotive market, we are implementing supply chain enhancements as shown on the right.

## Strengthening Layer 2: High-Frequency Devices, Communication Modules, and Functional Devices



### Preparing for the evolution of wireless communication technology

Use M&As to improve technology that differentiates us from our competitors



### Participation in international communication standardization projects

- As a member of projects, including ITU-R<sup>1</sup> and 3GPP<sup>2</sup>, we contribute to formulating new communication standards and the practical application of wireless communication.
- By encouraging collaboration with external organizations and companies, we are improving material R&D and production processes over the medium to long term, with an eye to the evolution of communication network systems and next-generation communication technology trends.
- We are exploring new business opportunities in response to changes in customer needs and diversification of applications as communications become social infrastructure.

Notes:

- International Telecommunication Union, Radiocommunication Sector
- The 3rd Generation Partnership Project

### Product improvements: functional devices

#### Sensor initiatives for the autonomous driving market

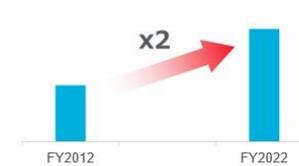
- Developed and mass-produced a water-resistant ultrasonic sensor for advanced driver assistance systems (ADAS) that achieves short-distance detection of 15 cm.
- MEMS inertial sensors for autonomous driving are selling well. To build a stable supply system, we will also increase production capacity at locations in Japan. We already have this type of location in Finland.



MEMS inertial sensor (SHCA600)

#### Change of net sales for automotive applications in the sensor business sector

##### Trend of net sales



##### Sales composition ratio



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On page 20, I'll discuss the enhancement of our second layer.

In the second layer products and businesses, having differentiation technology compared to competitors is crucial for success.

In line with this, we have engaged in mergers and acquisitions, particularly in wireless communication technology, as listed here. These efforts have allowed us to acquire technologies that differentiate us from our competitors, and we believe that starting from FY2024, these technologies will become a significant part of our market offerings.

The complexity of research and development activities has increased substantially, making early preparation vital. In this context, participating in international standardization activities and leveraging the advantage of being involved in standard setting from an early stage have made it possible for us to advance our research and development and preparation processes.

We intend to fully utilize these advantages in the communications market.

On another note, the MEMS inertial sensor technology acquired through our 2014 purchase of Finland's VTI Technologies has become a critical component, especially for autonomous driving at Level 3 and above.

The expansion of these automotive components has led to a doubling of our automotive-related sales in the sensor business over the past decade.

Moreover, the proportion of automotive-related sales in our total sensor business has reached 40%. We expect and aim to continue growing this percentage.

## Strengthening Layer 2: Battery and Power Supplies



**Building a solid operating foundation for the battery business sector**  
**Targeting higher growth in the long-service-life and high-output fields where we can capitalize on our strengths**



Cylindrical lithium-ion secondary batteries

Battery modules with olivine-type lithium iron phosphate ion secondary batteries (FORTELION)

### Current Business Opportunities

- Trend toward cordless and electric power tools and cleaning tools
- Use of natural energy, self-consumption, backup in case of power outages

### Future Directions

- Standardize production processes and materials
- Build flexible production systems based on demand forecasts
- Differentiate our technology in the long-service-life and high-output fields
- Promote in-house renewable energy and energy savings plus contribute to environmental protection

**Capturing business opportunities for power supply modules by contributing to energy savings**

**Expanding business in growing markets, such as data centers and servers**

Products for low-power fields



DC-DC converter products

Products for high-power fields



AC-DC converter products

### Current Business Opportunities

- Increasing energy conservation requirements due to higher power consumption is accompanying the increase in data volume from the growth of 5G, generative AI, and the use of big data

### Future Directions

- Concentrate resources on the low-power and high-power fields
- Use our strengths in high efficiency, low noise, and high power density for energy savings in network infrastructure and electronic devices

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On page 21, let's discuss the battery and power supplies sector.

Regarding power modules, we've undergone significant portfolio revisions, including past divestments. These changes have positively impacted our profit structure.

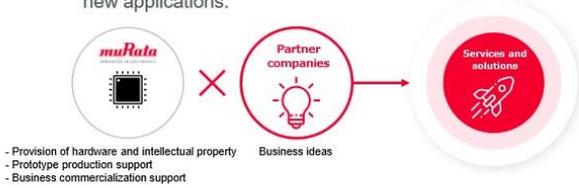
Currently, we are focusing on expanding our business in growing markets, such as data centers and servers. We have commercialized high-power AC-DC converters and are expanding our product line with micro DC-DC converters centered around semiconductors. This is where we are concentrating our resources in the power module segment.

On the other hand, we have our battery business. Batteries represent one of the few product groups and technologies where we can directly contribute to environmental solutions. It's an essential business for Murata, but currently, improving profitability in this area is taking time. Addressing the low profitability of this segment is a significant challenge, and we believe there is a need to accelerate its turnaround.

**KUMIHIMO Tech Camp with Murata**



- Mechanisms that proactively create opportunities for innovation
- By promoting knowledge collaboration with different industries, we aim to create innovative services and solutions, then develop and create new markets and new applications.



**Kanazu Murata Manufacturing Clean Energy Park**



- ◀ Energy storage system using in-house cells
- ◀ Effinos control software

Features a system that combines solar panels, storage batteries, and control software

Our goal is to create economic value through ongoing in-house demonstrations that lead to commercialization

**PIECLEX**



- Developed by combining Murata's electronics expertise with Teijin Frontier's expertise in fibers. The movement of the fibers generates a weak electrical current that is antibacterial.
- Clothing is compostable because the plant-derived polylactic acid (PLA) raw material is biodegradable.

On page 22, we focus on the creation of third-layer businesses.

As an example, I'd like to introduce the KUMIHIMO Tech Camp initiative. This initiative aims to create new services and solutions by partnering start-ups or students who have business ideas utilizing Murata's existing products and technologies.

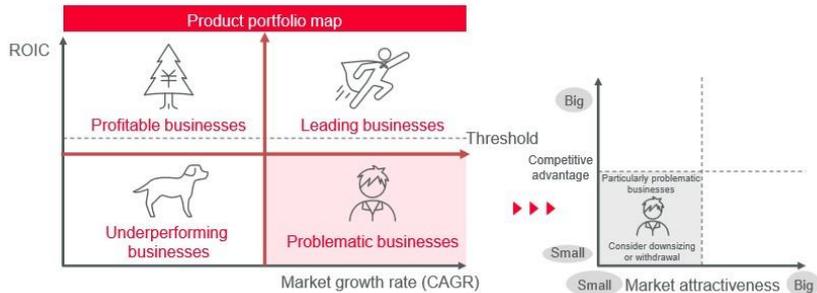
On the right, we have the Kanazu Murata Manufacturing facility in Fukui Prefecture, which was one of the first in the Murata Group to achieve RE100, or 100% renewable energy. At this location, we have installed solar panels on the rooftop and carports and implemented a system combining our own storage battery units and control software.

This initiative has been ongoing for two years, and we have accumulated a significant amount of convincing demonstration data. We are encouraging our customers to visit and see these systems, hoping that their adoption will lead to creating economic value.

**Features of Murata's business management systems**

- Management accounting system that applies an internal interest rate that is higher than the cost of capital (WACC)
- Investment economics evaluation that considers return on investment and the payback period
- Strong awareness of onsite profit and loss management
- Transparent accountability system (clarifying the responsibilities and authorities of business divisions, financially independent subsidiary system)

**Business Feasibility Assessment System**



- System Summary**
- We created a product portfolio map that employs market growth rate, ROIC, and operating income charged with internal interest rate as indicators.
  - The internal interest rate on the vertical axis is the assessment threshold. Leading businesses have an ROIC that exceeds the internal interest rate, while problematic businesses do not.
  - Use hypothetical thinking to assess the viability of problematic businesses.

On page 23, before explaining portfolio management, I would like to highlight the unique features of Murata's management control system.

A distinctive aspect is our management accounting system, which applies an internal rate of return that exceeds the capital cost. This approach to assessing the success of our businesses has been in place since the founder's era.

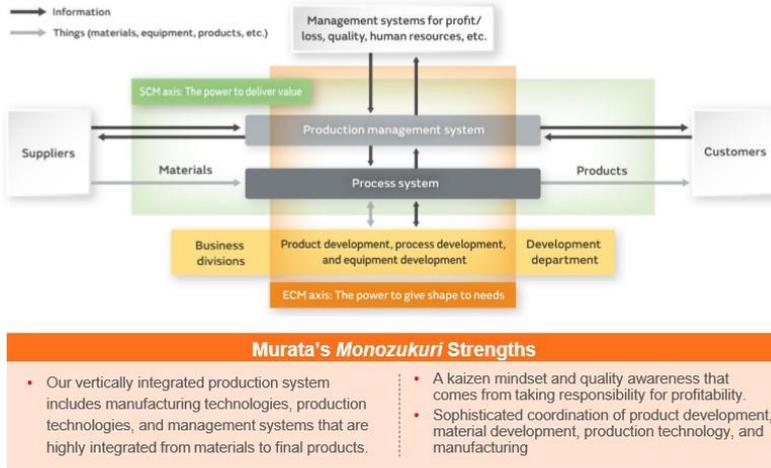
Before becoming President, I was in charge of a business unit and often grappled with this system. However, this has instilled a strong profit and loss management consciousness at the operational level. I believe that this mindset contributed to our reasonably good profit margins in the Q2 period of 2023.

Now, regarding our business viability assessment system using portfolio management, we plot business growth rate on the horizontal axis and ROIC on the vertical axis. Most of Murata's businesses are positioned on the right side due to market growth. The criteria for distinguishing between star businesses and problem businesses are based on our internal rate of return.

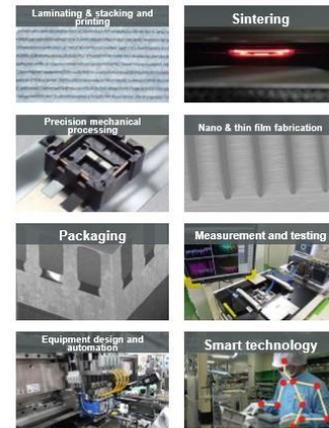
We regularly monitor and review problem businesses that cannot secure this rate. During these reviews, we scrutinize the quality of these problematic areas and formulate strategies for either exit or turnaround.

Alongside the creation of new businesses and expansion of existing ones, our portfolio management encompasses this rigorous scrutiny and assessment, balancing both positive and challenging aspects of our operations.

- Murata has generated growth by using advanced *monozukuri* to create solutions that markets and customers really want.
- Electronic components required by the expansion of the electronics field are also becoming more sophisticated. Having difficult manufacturing and technology that is not easily manipulated is a competitive advantage.



**Production technology domains**



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Moving forward, I'll discuss the strengthening of our management capital. Let's turn to page 24, which focuses on manufacturing capital.

Most of Murata Manufacturing's businesses adopt a vertically integrated production system. This approach, encompassing everything from materials to finished products, allows for highly sophisticated coordination. Our strength lies in this manufacturing technology, production techniques, and management systems.

Another key strength is the advanced collaboration between product development, material development, production technology, and manufacturing. We believe that our ability to handle complex manufacturing challenges and develop unique technologies that are difficult for others to replicate is a crucial competitive advantage.

Making both stronger is the starting point for achieving strong on-site capabilities (*monozukuri* capabilities)

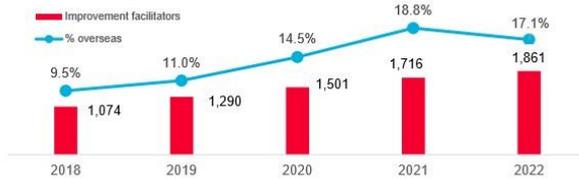


### Training of improvement facilitators

- Emphasis on training improvement facilitators who make on-site improvements using technologies that support the competitiveness of manufacturing



#### Number of Improvement Facilitators (Consolidated; FY)



### Training of maintenance engineers

- In Murata's equipment-oriented processes, maintenance engineers are important on-site personnel who support *monozukuri*
- Improve human resource development at major overseas production sites to strengthen *monozukuri* overseas

#### Maintenance Engineers (Consolidated)



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On page 25, we address the strengthening of our manufacturing, or *monozukuri*, human resources.

The core of our on-site capabilities lies in their ability to improve and maintain operations. We believe we have been able to demonstrate the success of these efforts through the rationalization effects disclosed in each of our financial reports.

Improvement capabilities involve members who engage in daily rationalization, quality innovation, and similar activities. Our improvement facilitators are the teachers in this area. The number of these experts is continuously increasing worldwide, and we are actively working to further expand and strengthen this group.

Maintenance capabilities are upheld by our maintenance technicians, and we are also increasing and enhancing their numbers globally.

Although not mentioned here, it's noteworthy that at the annual national convention for small group activities, almost all participants are from automotive production companies. Despite this, our group companies and manufacturing subsidiaries have been consistently participating in these conventions for several years.



**Murata's Vision for Manufacturing DX**



On page 26, we discuss the digital transformation in manufacturing.

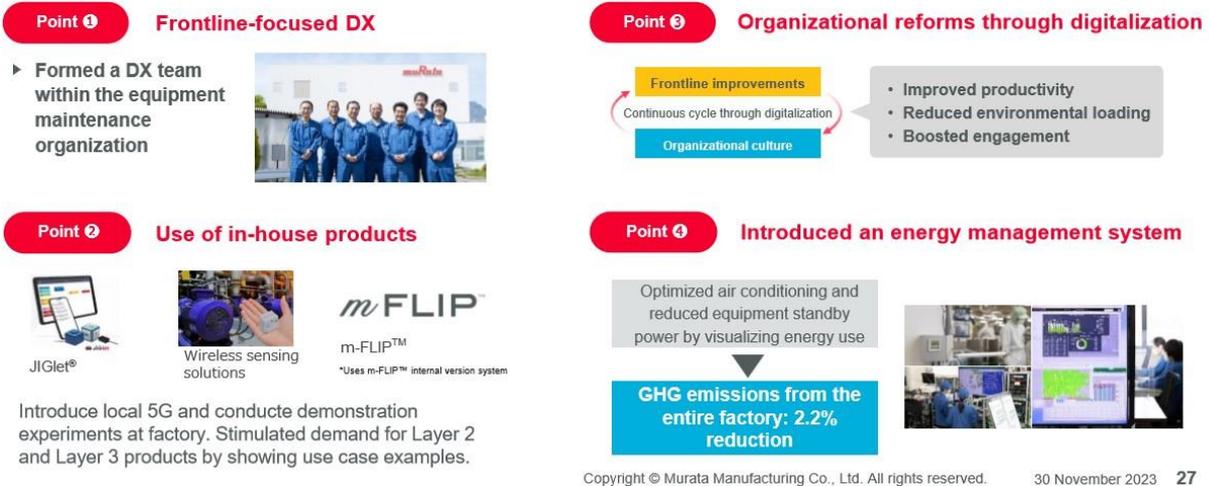
In our production sites, there is a vast amount of tacit knowledge accumulated from experience and intuition. Using digital technology to formalize this into explicit knowledge is increasingly important.

Transforming the functions and objectives of organizations and individuals through digital technology is at the core of Murata's approach to manufacturing DX.

## Enhancing *Monozukuri* Capital: Komoro Murata Manufacturing Co., Ltd. Case Study



- Komoro Murata Manufacturing (Nagano Prefecture) uses in-house products to promote smart factory initiatives
- Using digital technology to bring out the strengths of *monozukuri* capital and human capital



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Turning to page 27, I'll provide an example from the Komoro Murata Manufacturing facility in Nagano Prefecture.

Here, we have implemented DX driven by the production site, where all information—including production management, equipment operation status, preventive maintenance data, and energy management and conservation data—is made visible. To handle such big data, we have introduced a local 5G wireless communication network, showcasing its convenience.

We are also turning this facility into a showcase for our customers, demonstrating these activities in the hope that more of them will adopt similar systems. This approach is an example of turning social value into economic value, as we aim to commercialize these efforts.

## Quality Management System (M-QMS)



### Features of Murata's Quality Management

- Our quality governance system is implemented by an organizational matrix of the head office, divisions, and sites
- Systems and culture that promote collaboration between development and manufacturing
- Quality control technology and quality management systems that extend back to the origin

## Current State of Quality Control

- Addressing a wide array of business models as business scale grows
- Increasing quality requirements in the mobility business segment
- Increasing social responsibility including compliance with environmental regulations

## Core Initiatives

### 1 Improve governance for quality

- Strengthen internal controls and oversight by the Board of Directors
- Enhance quality risk management
- Address environment-related material issues (materiality)

### 2 Strengthen human resources base

- Quality education and awareness activities for all employees
- Developing human resources outside Japan

### 3 Structure quality assurance and quality control systems specifically for each layer of our 3-layer portfolio

- Developing a QMS to maintain and improve the business models and strengths of each layer
- Structuring quality assurance and quality control systems and strengthening quality risk management for third-layer businesses

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On page 28, we address our quality foundation.

As our business scale expands, the need to accommodate a wide variety of business models becomes increasingly essential. Particularly in the mobility business centered around automobiles, the weight of our operations has grown significantly.

This shift underscores the importance of strengthening quality governance, enhancing our quality personnel foundation, and establishing quality assurance and quality control systems tailored to each layer of our three-layer portfolio.

In conclusion, manufacturing and quality foundations are key aspects of our competitive advantage. We recognize that our manufacturing sites, which function as a kind of black box, are a source of high-value addition and the foundation of our earning power.

## Intellectual and Technological Capital



- Based on the knowledge we have acquired through integrated production, we will strengthening core technologies that are particularly competitive as well as promote innovation in our businesses by standardizing elemental technologies for entire processes as basic technologies
- By refining core technologies that differ for each product, we are able to create products that have strong competitive advantages and are differentiated from the products of other companies.

### Murata Technologies

Materials technology						
	Materials design	Materials processing				
Manufacturing technology						
	Laminating & stacking	Printing	Sintering	Surface treatment	Precision processing	Fine processing
	Packaging	Measurement & testing	Equipment design	Automation	Industrial engineering	
Device and product design technology						
	Passive devices design	Semiconductor and MEMS device design	High frequency design RF device design	Circuit design	Simulation	Modeling
	High reliability design Design for high reliability	Software				
Analytical technology						
	Materials characterization	Failure analysis				

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Moving on to page 29, we systematically present our technological capital.

We continuously refine our technology in material technology, production technology, design technology, and analysis and evaluation technology.

Our aim is to ensure that in these cutting-edge areas, we are second to none compared to our competitors.



**Organization**

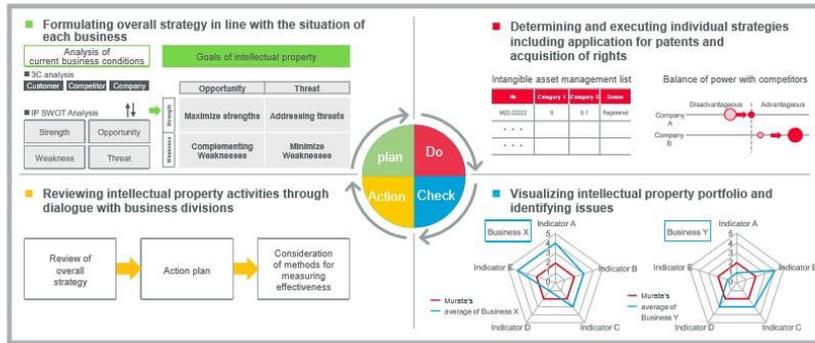


**The Function of Intellectual Property in Core Businesses**

	Role of intellectual property function	Direction of intellectual property strategy
1st layer Components	<ul style="list-style-type: none"> <li>Thorough protection of rights for platform technologies and core technologies</li> <li>Determination and execution of obtaining patent rights or keeping them confidential</li> </ul>	Control the rise of rival companies and the risk of Technological imitation
2nd layer Devices/modules	<ul style="list-style-type: none"> <li>Identification of technologies that differentiate us from rival companies and protection of our rights in focused areas</li> <li>Strategic use of intellectual property in accordance with the business Environment</li> </ul>	Improve business profitability by securing competitive Advantage for intellectual property

**Link between Management Strategy and Intellectual Property Strategy**

- Optimize intellectual property portfolio in line with 3-layer portfolio management and market needs.
- Leverage the IP landscape to create new businesses



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On page 30, we focus on our intellectual property activities, which support our technological endeavors.

Our approach to intellectual property is to align it with our management and business strategies, valuing the integration of these strategies with our IP strategy.

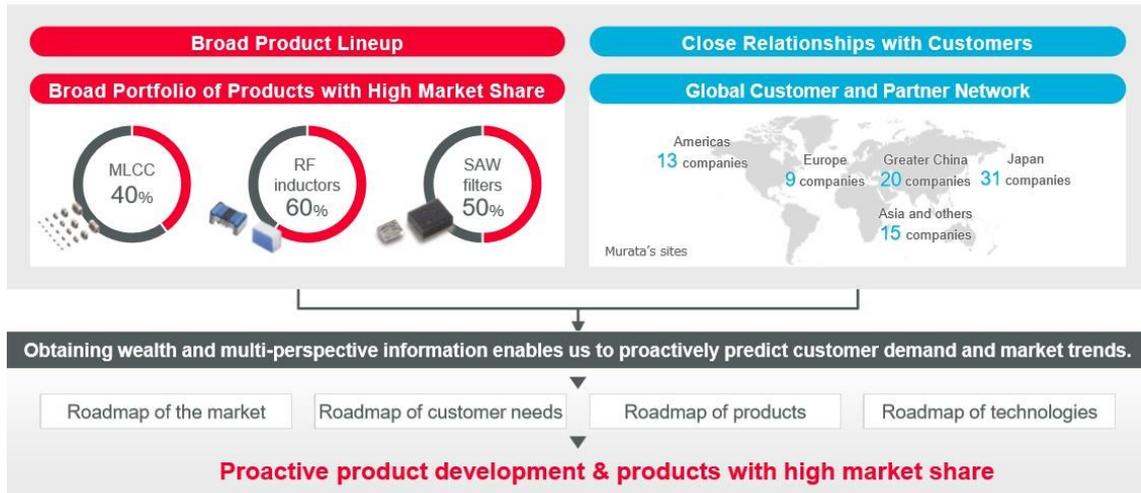
While optimizing our intellectual property portfolio to align with market needs and our three-layer portfolio management, we also put significant effort into IP landscape activities. This includes conducting IP due diligence for potential M&A targets and IP analysis to assess their value, which we then apply to creating new businesses or expanding existing ones.

This concludes our discussion on intellectual property and technological capital.

## Customer and Business Partner Capital



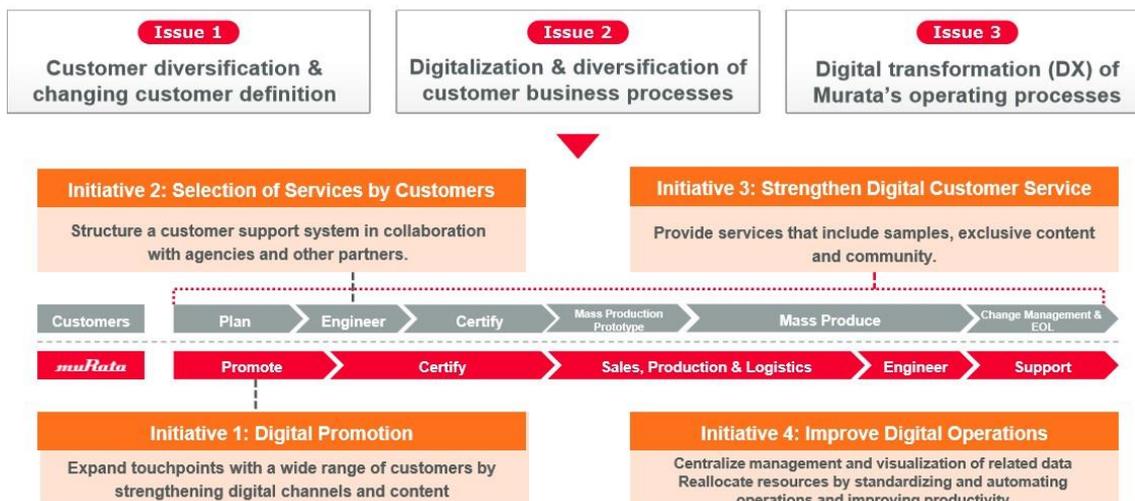
- Our strengths include multiple products with high market share, a global customer and partner network, and the close relationships we have built with customers, suppliers, and partner companies around the world.



On page 31, we discuss our customer and partner capital.

We have a strong global market share in products such as MLCCs, inductors, and SAW filters, among others. This extensive global customer base provides us with a wealth of information, enabling us to anticipate customer needs and market trends effectively.

## Initiatives to Enhance Customer & Business Partner Capital: DX for the Sales Process



**Support increased sales by providing maximum value to customers that emphasizes speed and efficiency**

Moving on to page 32, the focus is on the DX of our sales process.

The diversification of our customers and the digitalization of their business processes necessitate an acceleration in our own DX efforts. It's crucial to maximize the value we provide to customers who prioritize speed and efficiency in order to expand our sales.

This concludes the discussion on customer and partner capital.

By staying attuned to changes in customers and markets, we aim to enhance our selling power and build the trust referred to in our company credo.

## Initiatives to Enhance Human Capital



- Aiming to realize a continuous cycle of social value and economic value, we will promote human capital management that empowers people to grow in tandem with the business and helps to resolve new issues.
- We will foster a culture that accommodates diversity and further bolster the organizational strengths that are a competitive advantage for Murata, while emphasizing a sense of organizational unity by instilling our management philosophy.

	Actions	KPI
<p><b>Leverage diversity in human resources</b> to sustain and enhance our collective strength</p>	<ol style="list-style-type: none"> <li>Promote global rotation</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>	<ol style="list-style-type: none"> <li>Percentage of overseas indirect employees with experience working at other sites</li> <li>Number of employees who were medium-career hires (including those from M&amp;A), percentage of employees with management responsibilities who were medium-career hires (including those from M&amp;A)</li> <li>Number of appointments to specialized managerial positions</li> <li>Percentage of women with management responsibilities, percentage of women among new hires, percentage of men taking childcare leave</li> </ol>
<p><b>Employee engagement that is born when employees are motivated and feel they are growing</b></p>	<ol style="list-style-type: none"> <li>Use global surveys 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>Safe and secure workplaces and health management</li> </ol>	<ol style="list-style-type: none"> <li>Employee engagement positive response rate</li> <li>Number of training sessions by executives, number of participants at the sessions</li> <li>Employee turnover rate</li> <li>Occupational accidents per 1,000 employees, self-rated health, others</li> </ol>
<p><b>Acquiring and developing human resources</b> to respond to a changing business environment</p>	<ol style="list-style-type: none"> <li>Attracting and acquiring human resources</li> <li>Developing human resources</li> <li>Continual training of candidates for next generation of management</li> <li>Acquiring and training DX human resources</li> </ol>	<ol style="list-style-type: none"> <li>Number of persons hired (planned fulfillment rate), turnover rate within three years</li> <li>Cost of investment in human resource development</li> <li>Percentage of persons taking selective training who are promoted to senior management, succession position fulfillment rate</li> <li>DX human resources hiring plan fulfillment rate, number of persons taking DX training</li> </ol>

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On page 34, we discuss our initiatives to strengthen human capital.

At Murata Manufacturing, one of our strengths lies in the strong sense of unity and belonging within our organization, fostered through the permeation and sharing of our management philosophy.

However, to actively pursue new initiatives and challenges, as introduced today, it's important to cultivate a culture that respects diversity. We believe in further strengthening our organizational power, which is a key strength of Murata.

This requires the active participation and engagement of a diverse workforce, along with the acquisition and development of talent suited to our business environment.

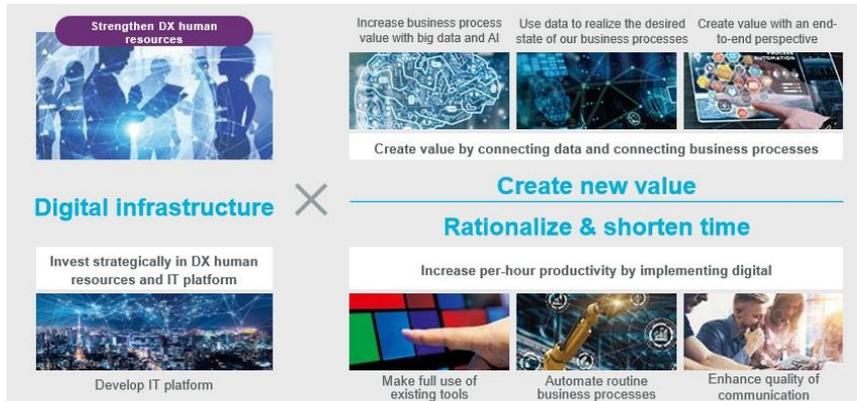
Regarding diversity, for example, we actively provide opportunities for our foreign indirect personnel to work in other countries. As part of our efforts to promote the participation of women, we have quantitative key performance indicators for the ratio of female managers.

In terms of engagement, we use a global survey as an assessment tool to identify areas for improvement and act accordingly.

# Progress on DX



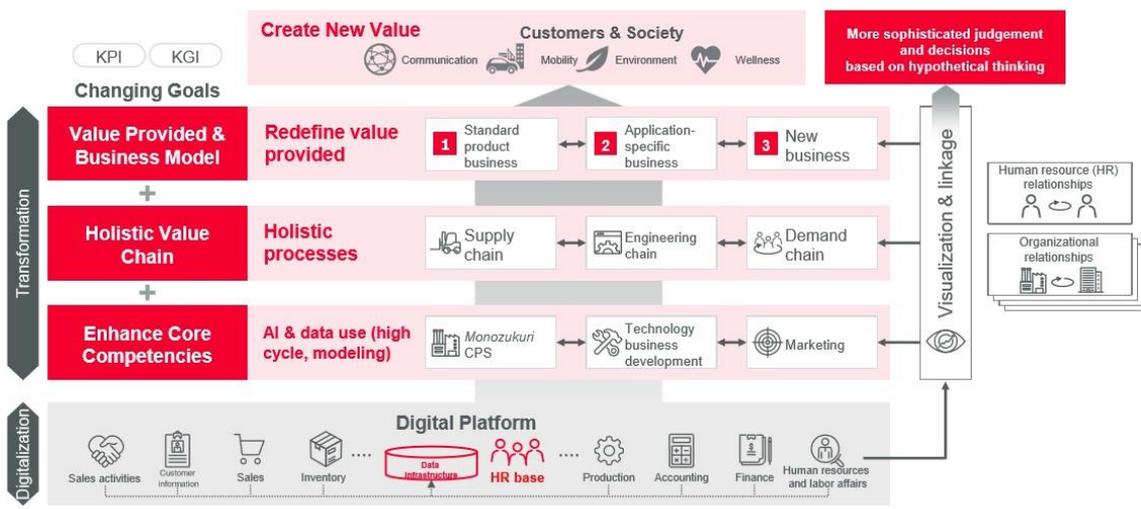
Murata Definition of DX	Murata DX Policy
Enabling people and organizations (business processes) both inside and outside Murata to connect digitally and freely, then make processes <b>shorter, faster, and more visible</b> , in this way <b>continually driving</b> dramatic increases in customer value and competitiveness	<b>Increase per-hour productivity</b> by continually investing in <b>digital infrastructure</b> and making full use of digital technologies. Encourage use of data, <b>connect business processes, and create new value</b> . Also contribute to Layer 3 portfolio domain. By executing and practicing these things, we will <b>foster a corporate culture of ongoing transformation</b>



On page 35, we talk about advancing DX at Murata.

Here, we define DX as digitally connecting people and organizations both within and outside Murata, making processes shorter, faster, and more transparent. This approach is aimed at dramatically enhancing customer value and competitiveness.

# Murata DX Policy

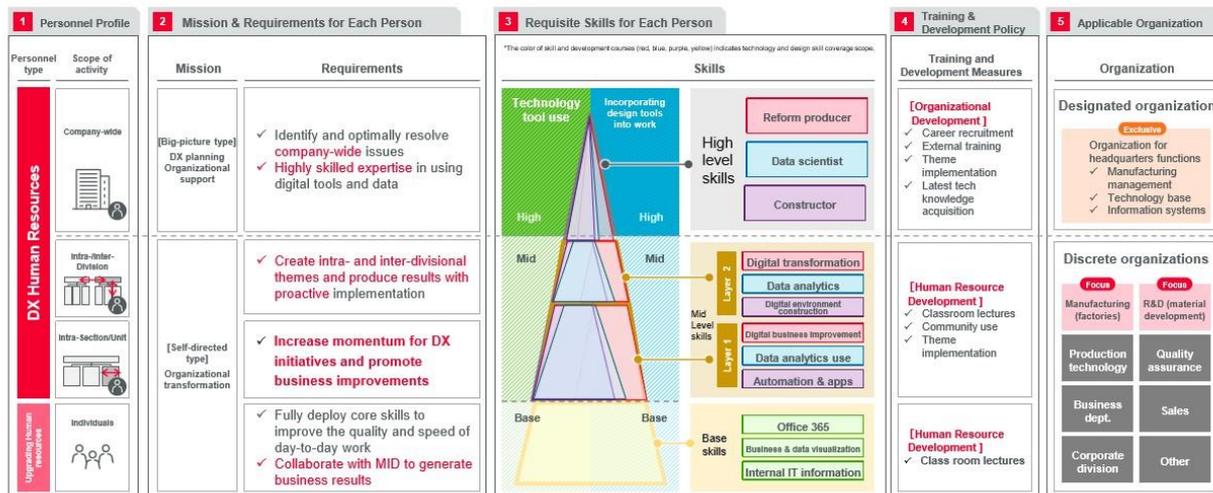


**Move forward with DX to generate increased corporate value by deepening and accelerating the value creation process.**

Turning to page 36, we focus on connecting the supply chain, engineering chain, and management information to redefine our key performance indicators and key goal indicators. This integration allows for cross-departmental collaboration on these KPIs and KGIs.

We are shifting from human-mediated business interactions to data-driven ones, where AI recognizes, analyzes, and optimizes processes. We believe this will lead to outputs of higher added value.

## Overview of Using DX for Human Resource Development



- Strengthen DX human resources by leveraging Murata’s strength in frontline execution
- Initiating DX themes across the Company enables us to identify needed changes centered on digitalization, then steadily drive this transformation with action.

On page 37, we outline the overall picture of developing DX talent.

We plan to enhance our DX personnel by leveraging the driving force of our on-site teams.

By initiating DX themes in various areas, we aim to identify what needs to change in this digital-first environment and methodically implement these changes. We consider this approach critical for a steady transformation.

This concludes my presentation.

As a company, we will continue to create new value through our intellectual and technological capital, enhance the added value of our products through our manufacturing capital, and maximize value delivery through our customer and partner capital. Strengthening our human and organizational capital is key to unlocking the full potential of all these capitals.

Further, we will continue to enhance these forms of management capital, driving our value creation process forward through the advancement of DX and the strengthening of our management control system, all in the pursuit of increasing corporate value.

I hope you will continue to look forward to and support Murata’s growth.

Thank you for your attention. This concludes my presentation.

## Question & Answer

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**Moderator [M]:** That concludes our presentation from the Company. We will now move on to the question-and-answer session.

Please note that a recorded version of today's briefing will be available on our website at a later date. We appreciate your attention to this matter.

We are currently confirming the list of participants who wish to ask questions. Please bear with us for a moment.

Now, we would like to take questions from Mr. Takayama from Goldman Sachs. Please go ahead.

**Takayama [Q]:** Thank you very much. I have three questions, and I'd like to start with a broad question, referring to slide 17, which I found very interesting.

It seems to me that since 2013, there has been significant growth in Multilayer resin substrates, as well as in RF modules in North America and China amidst the changing communication standards. I also imagine that the addition of battery sales has contributed to this growth. While it might be presumptuous to say it still seems somewhat weak, I believe there is potential for further growth.

What strategies are in place to grow the current second-layer product portfolio, as indicated by the arrows in the future direction? There was also a mention of a market out approach that you want to pursue, so could you please elaborate on what needs to be considered and implemented to accelerate sales growth and profitability expansion in this second layer up to 2030?

I wonder if focusing only on existing products like Multilayer resin substrates, RF modules, batteries, and sensors might be insufficient. Are there plans to significantly increase the revenue scale by adding one or two more substantial segments? I am very interested in this area, so I would appreciate any thoughts or insights you might have.

**Nakajima [A]:** Regarding communication, I believe the smartphone market is reaching a plateau, so our focus is shifting towards capturing communication opportunities in other areas, such as production equipment and infrastructure. The key lies in identifying the necessary technologies for this transition.

While it's a fine line between what falls under our second or third layer, mastering high-frequency technology is essential. We need to be prepared both in terms of hardware and the software required to utilize it. We anticipate that this market will be significantly larger than the current smartphone market, so our goal is to firmly capture this expanding market.

As for other areas, while our growth is largely organic, we have been actively preparing sensors for automotive applications. The unfolding of these sensors is largely supported by the progression from Level 2 to Levels 3 and 4 in ADAS technology. We possess a range of sensors with highly competitive features, and I believe sales growth in this area is where we can expect the most significant impact.

**Takayama [Q]:** Just to clarify, when you mentioned the social infrastructure, and its relevance to the second and third layers, were you suggesting that instead of just developing products internally, you're also envisioning securing larger-scale projects?

**Nakajima [A]:** Rather, it's about the expansion of the market. For instance, when we think about the world in 2030, beyond mobile devices like smartphones, I anticipate significant growth in lighter or wearable devices. We are considering what kind of network modules will be used in this "edge" world.

In the realm of virtual and AI worlds, data centers and servers are becoming the main hardware focus, and we are preparing for this shift.

**Takayama [Q]:** Understood.

My second major question is about the role of batteries in your portfolio management. They seemed to be in the problem child quadrant of the four categories. How are you positioning and managing batteries within these four groups?

**Nakajima [A]:** In terms of market segments, we see high growth rates in areas like power tools, cleaners, and energy storage systems (ESS).

As mentioned earlier, we set our internal rate of return as a benchmark, so in this sense, batteries fall into the problem child quadrant. Currently, they are under regular monitoring as a business whose success we are constantly assessing.

**Takayama [Q]:** Regarding the battery business, I believe there was a target set for achieving profitability, perhaps by last year. Can you share any updates on that timeline?

**Nakajima [A]:** Currently, we're making adjustments, but unfortunately, due to the downturn in the power tool market, we are targeting profitability by FY2025.

**Takayama [Q]:** Understood, thank you.

Lastly, I have a question about capital allocation, as mentioned on page 12. You outlined a thought process for shareholder returns, particularly in the lower right of the slide.

Depending on interpretation, it seems that strategic investments weren't as necessary in the previous and current fiscal years. If the recovery remains mild in the coming years, and if investments aren't significantly needed, focusing on organic growth could potentially increase funds available for returns after completing the mid-term plan. Is this a reasonable expectation?

Or, do you have any additional thoughts on shareholder returns, especially regarding future strategic investments?

**Minamide [A]:** I'll respond to that. Currently, our targeted cash position is set between 2.5 months to 3.5 months of sales revenue, and we are slightly above this range at the moment. We are in the process of preparing the budget for the final year of our mid-term plan. Although the progress of strategic investments has not been as advanced as we had hoped, we are considering the potential for this and the amount of capital required for the next mid-term plan in our decisions.

If the need for funds is not as high as initially expected in the mid-term, additional shareholder returns could be a viable option.

**Takayama [M]:** Understood. Thank you very much for your answer.

**Moderator [M]:** Thank you, Mr. Takayama.

Let's move on to the next question. Mr. Sato from Morgan Stanley, please go ahead.

**Sato [Q]:** Thank you. I'm Sato from Morgan Stanley MUFG Securities.

In your earlier explanation, you mentioned that manufacturing sites, being black boxes, are a source of earning power, which I believe directly contributes to the strengthening of first-layer profitability.

My first question is about how you plan to enhance the profitability of the second layer and how you intend to create businesses in the third layer. Could you explain this in a more understandable way?

**Nakajima [A]:** For the second layer, as I have mentioned before, the primary point of differentiation lies in technology. We have clear customers and clear competitors, and whether we can demonstrate a clear difference to them is key. Possessing or acquiring such technology is the most significant factor.

However, much like the first layer, our production is largely in-house, and we prepare our own facilities, so the strength of our manufacturing sites plays a large role as well.

As for the third layer, I think the business model shifts somewhat. It's not just about hardware. We need to add value in software. Advantages in software usability, customization for each customer, and other software-related benefits are becoming increasingly necessary.

**Sato [Q]:** Thank you for your response. This is somewhat related, but earlier you mentioned that strategic investments weren't as robust as desired.

Murata has made acquisitions like Resonant and Eta Wireless in the past. For further strengthening the second layer and creating new businesses in the third layer, could you share, within permissible limits, what areas or technologies might be targeted for strategic investments?

**Nakajima [A]:** Most of Murata's past strategic investments, particularly M&A, have revolved around acquiring intellectual property portfolios and technologies that we lacked or to expedite research and development efforts. In this sense, and somewhat as an excuse, some of these acquisitions were in technological areas where we had less familiarity, which led to longer post-merger integration periods.

Going forward, while these types of investments remain necessary, we also need to consider other aspects. The market growth rate is somewhat slowing, so we need to think about how we can increase our market share, or perhaps acquire entirely new business models.

**Sato [Q]:** Thank you.

Lastly, as Mr. Takayama previously asked, could you elaborate on the steps taken in the past few years towards revitalizing the battery business, and what improvements in profitability are expected from this fiscal year to the next?

**Nakajima [A]:** When we acquired the battery business from Sony Group in 2017, we considered its technological strengths, particularly for smartphones and consumer electronics, which were still strong at that time. However, given the technological landscape and the momentum of Chinese competitors in the same field, we realized that gaining a clear advantage in this market was unlikely, so we decided to move away from it.

We then targeted areas where we could leverage our material and process strengths, focusing on power-related applications like power tools, cleaners, and ESS that could utilize olivine-type phosphates. However, pivoting to these markets took more time than expected, which was one of the unforeseen challenges.

Currently, we face difficulties in increasing productivity due to the diversity of processes and materials. We are gradually standardizing these aspects. Once standardization progresses, we can apply our strengths in operational improvement, rationalization, and quality innovation to these areas.

We are dedicating considerable time and effort to this endeavor, and we are finally beginning to see a clear path forward.

**Sato [Q]:** So, depending on how the power tool market improves or expands, can we expect a reasonable improvement in profitability from this fiscal year to the next? Is that a correct understanding?

**Nakajima [A]:** We don't anticipate a dramatic increase in the top line since there is still considerable inventory in the market. Despite a modest increase in the top line, we are steering towards a structure that can generate sufficient profits.

**Sato [M]:** Understood. Thank you very much.

**Moderator [M]:** Thank you, Mr. Sato.

Now, let's move on to the next question. Mr. Hirata from UBS Securities, please go ahead.

**Hirata [Q]:** This is Hirata from UBS Securities. Thank you for today's presentation.

I have a question regarding slide 19, specifically about the first layer. Last year, I believe the CAGR for automotive inductors and EMI filters was projected to be around 7%, but this year it's been revised to 14%, which seems quite strong. This may be due to the movements in 2022, but it appears that the outlook for FY2025 has also been raised.

Could you elaborate on the reasons and the background for this increased projection, especially considering the introduction of metal power inductors in this context?

**Nakajima [A]:** Previously, we provided market forecasts for all inductors and EMI filters in last year. This time, we revised our forecast specifically for automotive inductors and EMI filters.

**Hirata [Q]:** I see, so there's a difference in the definition?

**Nakajima [A]:** Yes, that's correct. My apologies for any confusion.

**Hirata [Q]:** Given this, and considering your explanation about metal inductors, has there been any change in your inductor technology or strategy over the past year?

**Nakajima [A]:** We certainly don't have the top share in the automotive market or in metal power inductors. While we can forecast market growth as shown here, we need to accelerate the development of new product lineups and improvements in rationalization and quality to match this growth.

In other words, we consider inductors and EMI filters within this segment as our focus areas.

**Hirata [Q]:** Thank you.

For my second question, regarding the second-layer business in communication modules, I believe there was a comment earlier about achieving differentiation. Considering the limited changes in major customers' platforms next year, President Nakajima mentioned a desire for growth starting from 2024.

I assume this involves technologies like XBAR and Eta Wireless. At this point, how confident are you about the prospects for next year?

**Nakajima [A]:** First, the use of XBAR is expected to change market compositions and competitive environments, especially with the evolution of Wi-Fi, like Wi-Fi 7 and Wi-Fi 8. These developments, moving towards higher frequencies and broader bandwidths, require filters that could not be produced with previous technologies. XBAR makes this possible, and we see this as a major differentiator.

Regarding smartphone platforms, as you mentioned, the changes in customer platforms will be a significant criterion. If such changes occur, it will be an opportunity for our differentiated technologies to come into play.

**Hirata [Q]:** Regarding XBAR and Eta Wireless, can we expect these to contribute significantly to your performance next fiscal year?

**Nakajima [A]:** While we can bring these technologies to market, I think we're still in the process of building a track record in the market, so it might not reflect as a significant number in our results yet.

**Hirata [Q]:** So, we should have expectations for the year after next?

**Nakajima [A]:** Yes.

**Hirata [M]:** Thank you. That's all from me.

**Nakajima [M]:** Thank you.

**Moderator [M]:** Thank you, Mr. Hirata.

Now, let's move on to the next question. Mr. Akizuki from Nomura Securities, please go ahead.

**Akizuki [Q]:** This is Akizuki from Nomura Securities. Thank you for taking my questions. I have two main points to discuss.

Firstly, I'd like to ask about capacitors, specifically MLCCs. From a technical standpoint, there has been significant progress in thin-layering of MLCCs and particle uniformization, moving towards 1-micron sheets or 0.8-micron sheets. However, my perception, from an external viewpoint, is that this progress seems to have somewhat stagnated recently. There have been improvements in detail, but no major breakthroughs, it seems.

On the other hand, considering your recent collaborations with material companies and the need for higher reliability and particle uniformity in automotive applications, I understand that there's a growing demand for a higher level of MLCC quality, different from what we've seen before.

Especially for new applications in automotive, are there significant advancements in MLCC manufacturing technology or processes that Murata is preparing to undertake over the next few years?

Also, in maintaining market share, particularly in markets like China, I understand that there's a strategy to lower prices. Does this reflect an anticipation of future improvements in the product mix, including new products? Is the focus currently on securing market share with the expectation that this will lead to pulling through with new products? I'd appreciate some clarification on these points as my first question.

**Omori [A]:** Thank you for your question. I'll respond to that.

First, regarding the progression of technology, although it may seem that the pace has slowed down, the advancement in thin-layering technology has been relatively steady.

For example, moving from 1 micron to 0.8 micron is already a 20% thinner. When it goes from 0.8 to 0.6 micron, although it's only 0.2 micron, the relative thinner. So, in that sense, technological progress has been consistent.

Regarding your question about the finer particle size requirements from customers, particularly in the automotive market, the answer is yes. Especially in the automotive sector, the shift from engines to hybrids and EVs has led to a significant increase in electronics, and consequently, a substantial rise in the number of components used.

As the number of components increases, even a single component's failure rate directly impacts the quality of the automobile. Therefore, uniformity in this aspect is crucial, and we are focusing on enhancing our materials and processes accordingly.

In terms of manufacturing, we are preparing for significant changes. This involves adapting to the changes in chip sizes and internal structures and making our manufacturing processes more efficient. This evolution in manufacturing is essential, and we are actively working on it.

As for the priority of maintaining market share, keeping a certain share is important for acquiring technological information and remains a critical factor. While maintaining our market share, we aim to improve profitability through enhanced productivity, as I mentioned earlier.

That's all from me.

**Akizuki [Q]:** Thank you for the explanation. May I ask for a clarification?

I wasn't fully aware of the changes in chip size and internal structure, though I understood there were changes in size. What are these changes responding to, and what is the direction of this evolution?

**Omori [A]:** Previously, our focus was primarily on gasoline vehicles, particularly in engine control units. With the transition to EVs, we're dealing with high-power electric motors and batteries, necessitating changes in the internal structure of components. Also, there's a shift towards using slightly larger sizes.

**Akizuki [Q]:** So, for ECU and circuits used in ADAS, where your company is particularly strong in reliability, the focus is more on particle uniformity and enhancing reliability rather than changes in the internal structure?

**Omori [A]:** Yes, that's correct.

**Akizuki [Q]:** Considering the trends in EVs and areas like industrial machinery, which are relatively straightforward, how soon do you anticipate these developments in ADAS, high capacity, high reliability, and miniaturization becoming more pronounced?

**Omori [A]:** The timeline for these developments will largely depend on the evolution of autonomous driving levels and V2X, or vehicle-to-everything, connectivity. Over the past few years, these technologies have been advancing roughly every one to two years, so we expect this pace to continue.

**Akizuki [Q]:** So, in markets like China, there's an expectation to move towards these advanced technologies, particularly in ADAS?

**Omori [A]:** Yes, they will be used to a certain extent, especially in areas related to sensors and cameras. As more cameras are integrated into vehicles, the units processing this information will likely use these advanced technologies.

**Akizuki [Q]:** Thank you, that was very informative.

My second question is probably for President Nakajima. In your presentation, you spoke about Murata's strengths in business processes.

One concern I personally have is about the business process. This process, which starts from developing materials, goes through a production process, leads to mass manufacturing, and then to widespread global supply to customers, is incredibly effective in certain contexts.

However, not all areas grow exclusively in this manner. For example, in the area of wireless modules, which President Nakajima has long been working on, it seems that breakthrough technologies are required for significant improvement. If there's a breakthrough in these areas, circuits could improve dramatically, leading to an increase in market share. I believe there are opportunities for a kind of breakthrough or mastery in specific technologies.

So, my concern is that over-standardizing the business process might prevent the expansion of new products and new areas. Considering Murata's focus on growth in the second and third layers, as advocated by President Nakajima, how do you plan to create differentiated products within these business processes?

**Nakajima [A]:** That's a challenging question.

When you mention business process, I assume you're referring to the manufacturing aspect. What I've always emphasized, and what we have been developing in areas like high frequency and sensors, is what we call mass customization. It involves a variety of products in small quantities. However, if we approach mass customization in the same way as producing a wide variety of products in small quantities, it won't be profitable.

The key lies in standardizing processes and materials. Take Multilayer resin substrates, for example. We don't have a multitude of different materials. We have one standard process. The challenge is efficiently changing the colors or variations within this process. By creating a flow where different items appear to be standardized, we can ensure profitability.

Having a range of technological options is essential. For instance, our substrate technology varies from Multilayer resin substrates circuits to ceramic multilayer boards, each with its own process. However, products utilizing these core technologies all follow the same process. This approach, I believe, is crucial for enhancing the profitability of our second-layer business.

**Akizuki [Q]:** So, that is precisely why you want to integrate differentiated technologies into the platform, acquiring IPs and continuing M&A activities, and then standardize them to leverage your strengths?

**Nakajima [A]:** Yes, exactly.

**Akizuki [M]:** I understand, thank you very much.

**Nakajima [M]:** Thank you.

**Moderator [M]:** Thank you, Mr. Akizuki.

Now, let's move on to the next question. Mr. Katsura from SMBC Nikko Securities, please go ahead.

**Katsura [Q]:** This is Katsura from SMBC Nikko Securities. Thank you for today's presentation. I have two questions.

The first one is about slide 30, regarding intellectual property. This might be a bit vague, but could you share Murata's approach to KPIs or management strategy in intellectual property?

What I'm asking about is the management approach to IP within your company. For example, in some companies, IP is managed by employees based on the number of patent applications filed. As for Murata, considering there was a mention of a black box approach earlier, it seems that there is a decision-making process about what should be patented and what should not, possibly keeping some innovations internal rather than filing for patents.

I'm interested in understanding how Murata evaluates the value of its IP, especially in terms of this decision-making process. Are there specific KPIs or metrics that you use to assess the value of your intellectual property, both for patents and for technologies that are kept as trade secrets? I'd appreciate it if you could share details on this aspect.

**Nakajima [A]:** Well, it might sound quite general, but as part of our business flow for engineers, ensuring IP protection is a basic premise. We are not just focusing on what we are doing, but also considering the IP strategies and maps of our competitors in the industry. We have set KPIs for each business unit, and I think most of them have moved away from simply counting patent applications to focusing more on the quality of the applications.

However, I have discussed with our IP team about the quantifiable results of these efforts. Currently, we still face the challenge of properly evaluating how these intellectual properties contribute to our business and linking them with management data. That remains an area for improvement.

**Katsura [Q]:** Regarding licensing out or maximizing returns from IP not used internally, are you actively pursuing such strategies, or is it not a significant focus?

**Nakajima [A]:** We are doing this in some business areas. I believe that's also a result of our IP activities and should be counted. However, as I mentioned earlier, we haven't yet been able to quantify these efforts comprehensively, which is still a challenge for us.

**Katsura [Q]:** So, in that sense, is the income from licensing out less significant in terms of its overall contribution to the Company, with internal contributions being more substantial?

**Nakajima [A]:** Exactly. In reality, cross-licensing occurs more frequently than licensing out. Since we have a broad range of products, there are instances where we want to use a particular patent for one product, but in exchange, we might be asked to allow the use of another product group's patents.

I do believe this aspect is an important point of intellectual property management. We aim to find a way to quantitatively account for it in our overall strategy.

**Katsura [Q]:** Thank you for the explanation.

My second question, which may be a bit premature, is about the framework for the next mid-term plan, particularly as it relates to slide 12.

One aspect is the continuation of a dividend payout ratio of 30% and a DOE of 4%, which has been consistent in the past. However, considering the high equity ratio, I wonder if this figure is still appropriate. Also, regarding WACC, in light of potential inflation and increasing risk-free rates, are there any thoughts on changing the overall framework as we head towards 2030? Any hints on this would be appreciated.

**Minamide [A]:** Thank you for your question.

As of now, we do not plan to change this overarching approach. However, discussions about shareholder returns and the structure of our balance sheet are ongoing in the Board of Directors' meetings. These

discussions will naturally form part of our strategy as we head towards 2030 and will be a key element in our next mid-term planning.

**Katsura [M]:** Understood. Thank you very much. That's all from me.

**Moderator [M]:** Thank you, Mr. Katsura. If anyone else has a question, please press the raise hand button. Does anyone have further questions?

It seems there are none, so with that, we will conclude Murata Manufacturing's information meeting 2023.

Thank you very much for your participation today despite your busy schedules.

[END]

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