



Business Outlook 2024

**Long-term Goals of
Shinhokoku Material Corp.
towards our 80th anniversary in 2029**

February 9, 2024

Shinhokoku Material

Business Outlook 2024

Market Outlook

Long-term

Semiconductors as Strategic Materials
Geopolitical Risks & Economic Security
Establishment of Reliable Supply Chain
Investment of Over 150B\$ in 10years

Diversifying Frontier Fields
Space, Aviation
and
Environmental

Explosion of Demand for Our Invar Alloys

Outlook 2024

Slight increase over the previous period, Total Sales : 6.6B¥

mainly due to delay in recovery in semiconductor-memory and to inventory accumulated in user side. Recovery is expected from the latter half with FPD equipment at the same level and a decrease in seamless-related products.

Outlook of 2024 Performance

We expect an increase in ordinary profit of 70M¥, which in turn is projected to boost in dividends by 10¥ to 40¥. This financial improvement is largely attributed to a substantial cost reduction achieved through quality improvement, despite a modest increase in sales. Note that this projection takes into account potential cost inflators such as transportation and electricity expenses.

unit=M¥

	2023 results	2024 plan		
	Full year	1st Half	2nd Half	Full year
Sales	6,484	3,200	3,400	6,600
Operating Income	628	270	430	700
Ordinary Profit	644	280	430	710
Net Income	476	210	320	530
Earnings per share	142¥	62¥	96¥	158¥
ROE	9.5%	—	—	9.5%
Dividend	40¥ Ordinary 30¥ Special 10¥	40¥ (Ordinary 30¥ + 10¥ Increased)		

Long-term Goals of Shinhokoku Material towards our 80th Anniversary in 2029

Long-term Goals of Shinhokoku Material

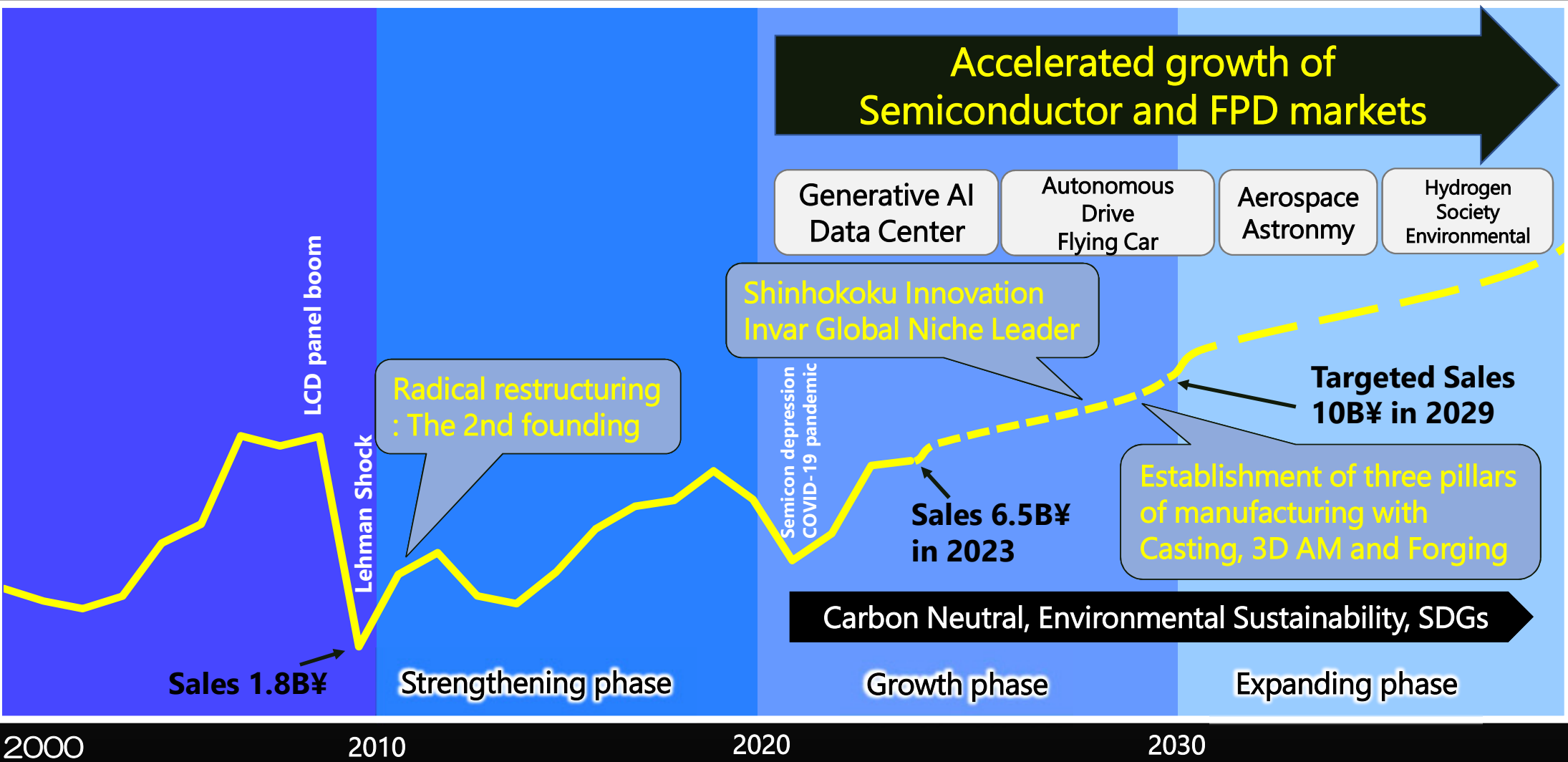
INVAR GLOBAL NICHE LEADER leads to further growth

We aim to become a company which is an indispensable partner of our customers contributing to society prosperity and one filled with smiles of our employees, eventually achieving sales of 10 billion yen.

- 1. Indispensable to society**
- 2. Trusted by customers and society**
- 3. Supported by shareholders**

We are a company with the world's leading Invar alloy design and manufacturing technology, providing the best solutions with unique alloys tailored to our customers, making full use of casting, forging, and 3D additive manufacturing according to particular needs and continuing to grow through constant technological innovation.

Long-term Roadmap



Our Vision

Long-term Goals towards our 80th anniversary in 2029

**Future
Vision**

INVAR GLOBAL NICHE LEADER

**New Innovation by a small excellent R&D
leading to a world's leader in invar alloy development**

Corporate
Philosophy

Provide tailored solutions for our customers

Management
Philosophy

- ✓ Create innovative materials and develop their manufacturing process
- ✓ Establish advanced fundamental technology
- ✓ Contribute to sustainable society and human life and culture

Our credo

- ✓ Act honestly
- ✓ Continue challenging the status quo for achieving a better future
- ✓ Work diligently with honesty and put our heart and soul into our products
- ✓ Produce valuable products and contribute to sustainable society and the nation
- ✓ Contribute to all the stakeholders; customers, stockholders and our suppliers
- ✓ Make our employees and their family happy

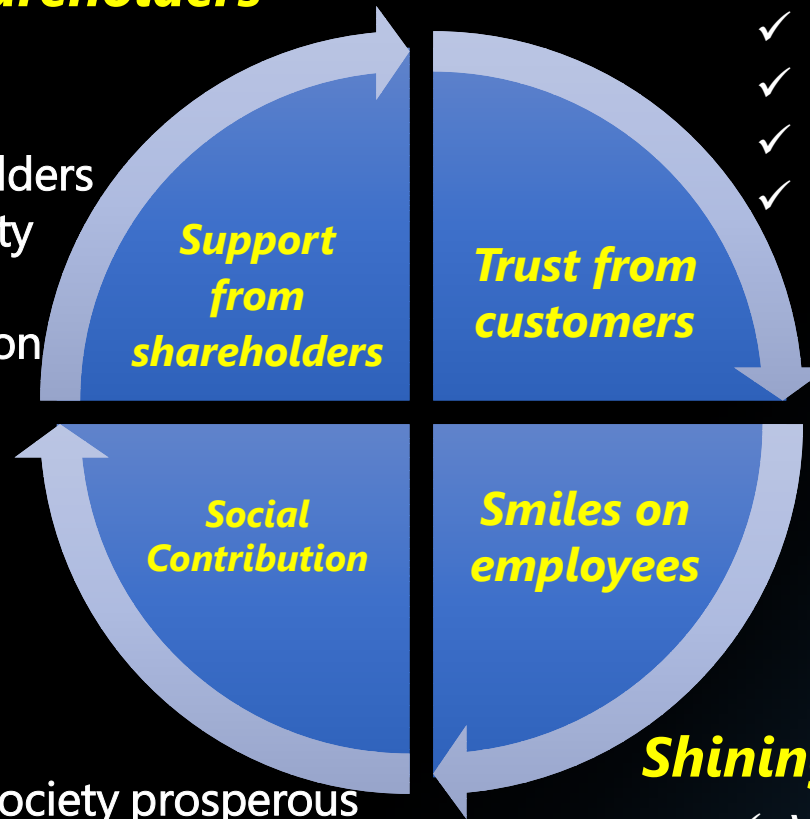
Company Image We Aim to

Strong Support from shareholders

- ✓ Continuous growth
- ✓ High profitability
- ✓ High Return to shareholders
- ✓ Increase in stock liquidity
- ✓ Strengthening IR
- ✓ Engaging communication on the website

Unwavering Trust from customers

- ✓ Quick response for diversified needs
- ✓ Steady supply with highest quality
- ✓ Prompt recovery upon an urgent issue
- ✓ Compliance with legal regulations



Social Contribution

- ✓ Alloy development for society prosperous
- ✓ Development and supply of sustainable resources
- ✓ Growing together with a local community
- ✓ Carbon reduction through SDGs activities

Shining Smiles on every employee

- ✓ Work with dreams, proud and fulfilment
- ✓ Strong trust relationship like a family
- ✓ Fair evaluation for efforts
- ✓ Top wage level in Japan

Shinhokoku Innovation

**Creative
Research
&
Development**

**Innovative
Manufacturing
technologies**

**Active
Sales strategy**

Invar Global Niche Leader

(Exploration of dream metals as the key technologies to achieve a prosperous society)

Our strategy
Creative Research & Development

Pioneering the new future by creative R&D
To become Invar Global Niche Leader

Creative R&D

1. Invar alloys

(1) Recent investment in R&D (-2023)

- ✓ Thermal expansion measurement equipment x 2 : 22M¥
- ✓ Vacuum arc button melting furnace : 16M¥
- ✓ High precision magnetic measurement equipment, VSM : 21M¥
- ✓ Inductively coupled plasma optical emission spectrometer : 20M¥



Thermal expansion measurement equipment



Vacuum arc button melting equipment

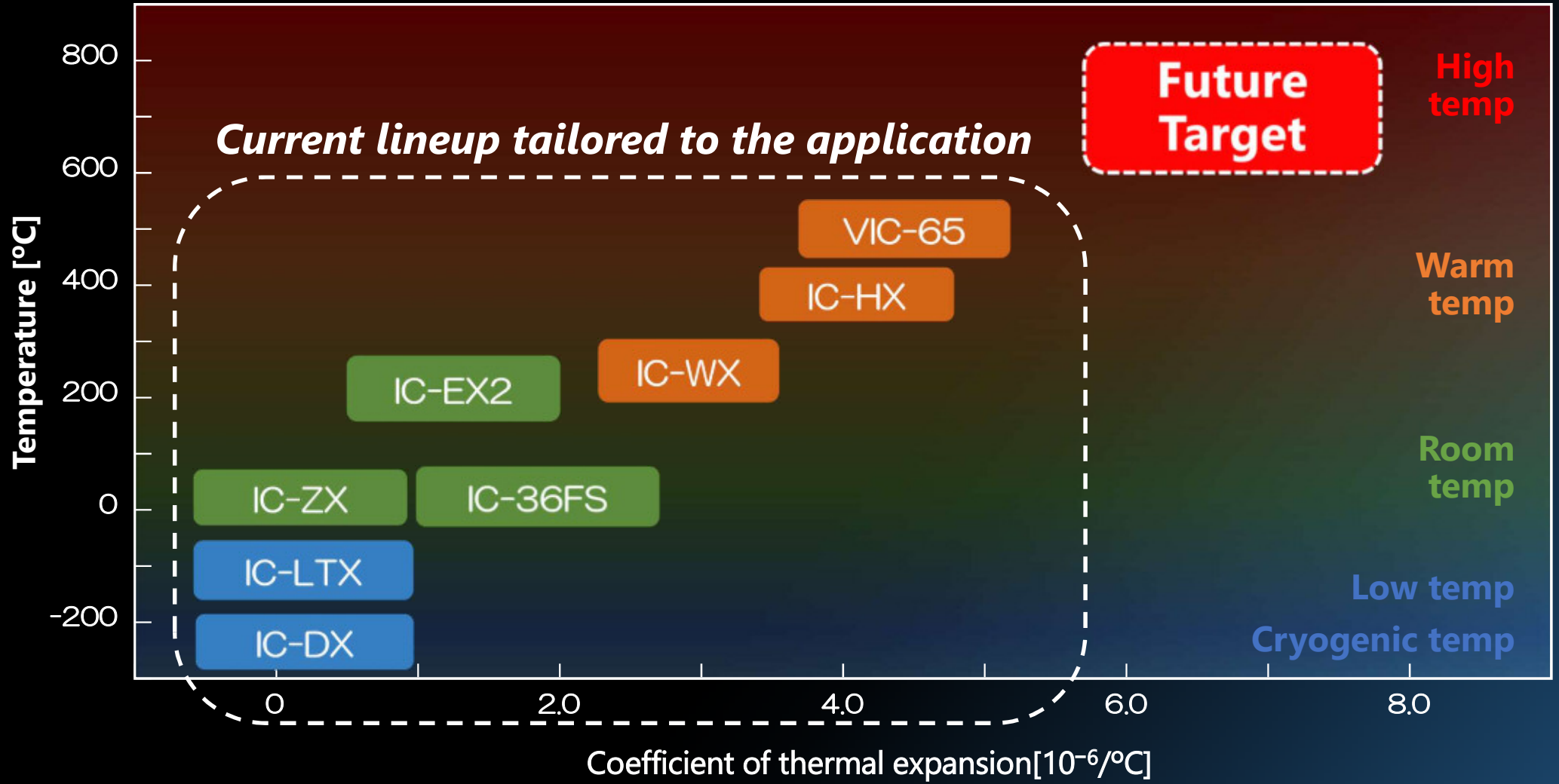
(2) Future investment in R&D (2024-2029)

- ✓ High precision thermal expansion measurement equipment : 60M¥
- ✓ 3D additive manufacturing testing machine : 20M¥
- ✓ X-ray diffraction spectrometer : 30M¥
- ✓ Oxygen/Nitrogen analyzer, X-ray fluorescence analyzer : 40M¥



VSM magnetic measurement equipment

Shinhokoku's invar alloy lineup



Creative R&D *Future Targets*

1. Further R&D of invar alloys

a. Establish state of the art technology of invar alloys

Evolve into a professional of invar alloys as number one in development and measurement precision

Clarify the mechanism of invar properties nobody else would try to

- ✓ Origin of invar effect using VSM magnetic measurement
- ✓ Relationship between invar property and its substructure of invar alloy

b. Development of invar alloys for some particular environments

For advanced semiconductor manufacturing equipment

- ✓ Under high magnetic field
- ✓ Under ultra-high vacuum environment

For industrial machinery

- ✓ Under high stress field
- ✓ At cryogenic and under hydrogen environment

Creative R&D Future Targets

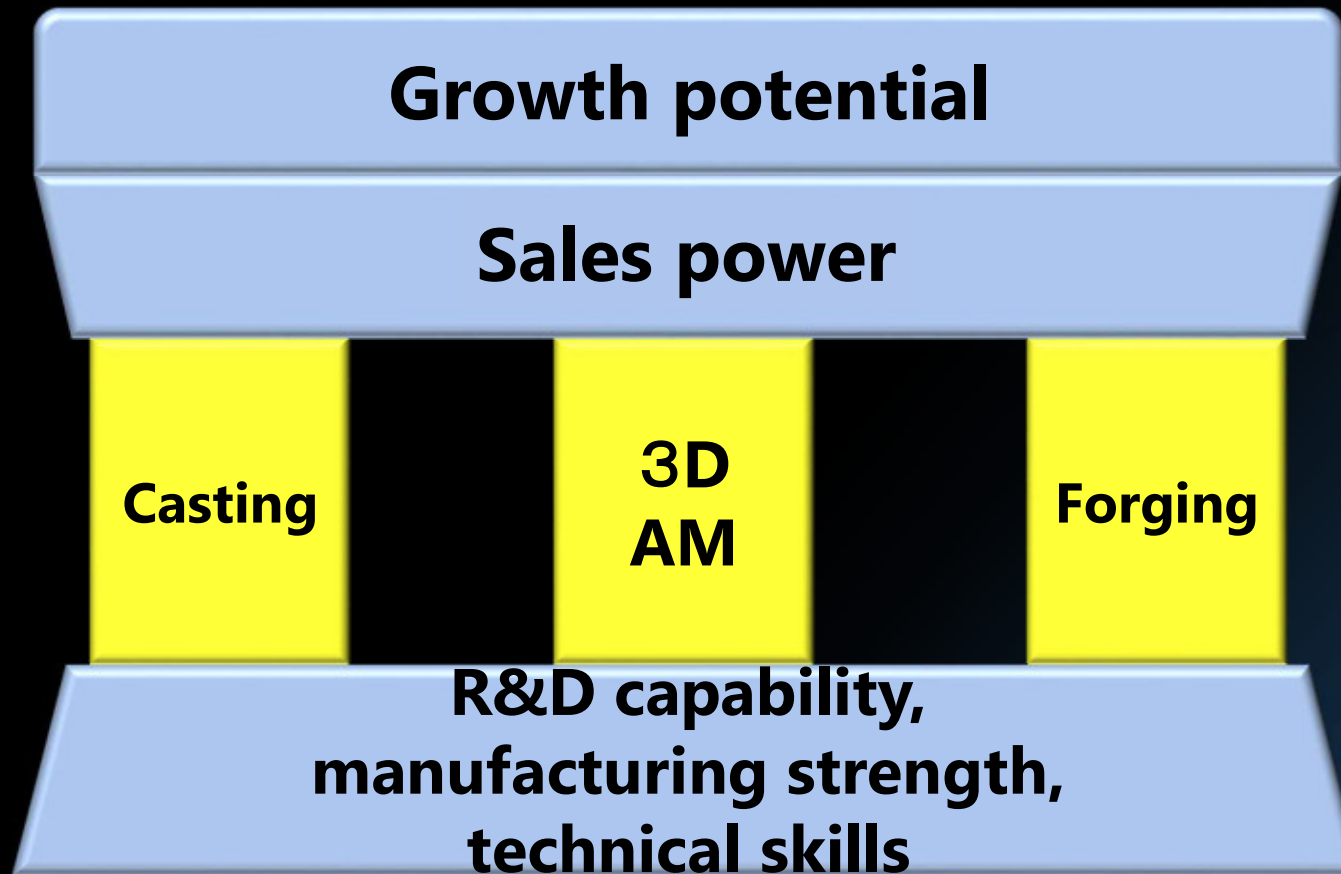
2. Environmental solutions

- ✓ **Grate material : Customize EGNIS series alloys to individual environment of each incinerator**
- ✓ **Spinning tray material : Achieve creep strength as well as corrosion resistance**
- ✓ **Hydrogen production material : High strength under hostile environments**

***Firm steps forward to
exploration of dream metals***

Innovative manufacturing technologies

Establish three pillars of manufacturing: casting, 3D AM and forging



***Innovative manufacturing technologies* Facility investment**

1. Investment during last 6 years (-2023)

- ✓ **Induction furnace for melting : 62M¥**
- ✓ **Carbon analyzer : 10M¥**
- ✓ **Shakeout machine : 30M¥**
- ✓ **High precision laser welding machine 50M¥**



2. Major planned investment (2024-2029)

- ✓ **3D additive manufacturing equipment : 400M¥ (phase 1-3)**
- ✓ **Automation and labor-saving investment : 300M¥**
3D sand molding machine, Learning machines for welding and sand mixing,
Automatic melting facility

Innovative manufacturing technologies **Casting**

1. Proprietary Casting Simulation Technology

- ✓ Optimal procedure of casting based on the fluid dynamics and metallurgy
- ✓ Significant reduction of set-up period based on high precision analysis (shorten lead time)

2. 3D Sand Mold Manufacturing

- ✓ Sand mold manufacturing without wooden mold frame using 3D printer

3. Restructuring of Melting and Casting Process by AI assisted system

- ✓ Introducing a learning system to the sand mixer (labor-saving)
- ✓ Feasibility study on automation of melting process (automation)

4. Innovative Welding & Repairing Technology

- ✓ High Precision Finishing using Sophisticated Laser Welding Machine (Shorten lead time from 2023)
- ✓ Automatic Welding based on the Teaching System (Labor-saving)

3D Additive Manufacturing Technology

1. Establishment of 3D Additive Manufacturing (AM)

- ✓ Best 3D AM machine, selected through a detailed comparison of the machines (quality and cost)
- ✓ Accelerating development of unique products through collaboration with manufacturers
- ✓ Achieving integration and weight reduction of complex shaped products (reducing machining, eliminating welding, shorten lead time and cost saving)
- ✓ Hybrid structure corresponding to customer's need

2. Accelerating Development of AMed and Powder Alloys Products

- (a) Commercialization of AMed invar type alloys
 - ✓ Optimization of raw material powders and establishment of supply chains
 - ✓ Prototyping and performance evaluation of model parts
 - ✓ Optimal performance and cost according to the respective usage
- (b) Long-term development of AM products
 - ✓ Development of ultra-lightweight integrated structure products
 - ✓ Development of high rigidity alloys

***Innovative manufacturing technologies* Forging**

1. Innovation of Forging Technology

Through collaboration with a forging manufacturer, we establish

- ✓ **Achieving optimal microstructure control technology of the alloys
(a combination of precise alloying elements control and forging technology)**
- ✓ **Establishing adequate plastic deformation technology for various shapes (plates, rods, pipes, wires, etc.)**

By utilizing the established manufacturing technology of large scale ingots, we aim to

- ✓ **improving quality, reducing costs, and expanding the product range**

Utilizing the established innovative manufacturing technology,

we provide the best solutions to the customers by three pillars with casting, 3D AM and Forging according to the respective need and desired properties.

Our strategy

Aggressive Marketing Strategy

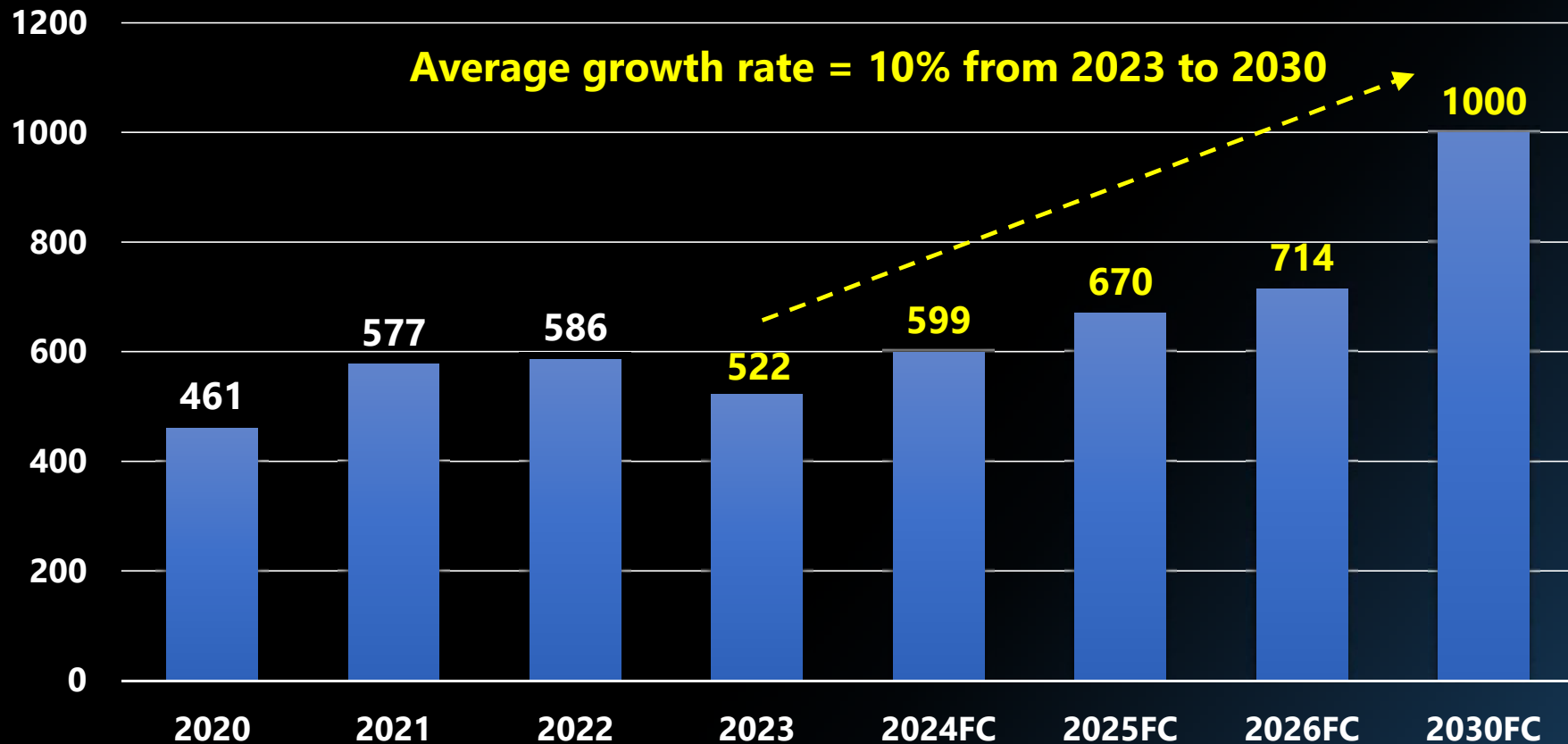
Further Expansion in Semiconductor and FPD Market

Seek for Aerospace and Environmental Fields and Global expansion

Marketing strategy for Base Field

World outlook for semiconductor (unit: 10B\$)

Ref. SEMI Japan



Marketing strategy for Base Field

1. Semiconductor Manufacturing Equipment

- ✓ **Further expansion of demand for low thermal expansion alloys with increasing the demand for Generative AI, Data center, Autonomous driving, Next-generation communication**
- ✓ **Providing various high performance low thermal expansion alloys to the most advanced semiconductor manufacturers**

2. FPD (OLED and LCD panel) manufacturing equipment

- ✓ **The demand is steadily increasing due to investments in equipment for OLED panels for high-definition large-screen TVs, tablets, computers, etc.**

Marketing strategy for New Fields : Space / Aviation / Environmental / Hydrogen Society

1. Space / Astronomy, JAXA (invar type alloys)

(1) Space Rocket

- ✓ 'IC-DX' will be used for parts of the fuel supply line for space rockets very soon.
- ✓ 'IC-LTX' is scheduled to be installed in JAXA's projects, 'Mars Exploration Satellite-MMX' and 'JASMINE'.

(2) Flying Cars & Commercial Drones (Invar Alloy Mold)

- ✓ Completed the development of Invar alloy for CFRTP molding for mass-produced aircraft.


(3) Environment

- ✓ Invar type alloys applicable under cryogenic temperatures and hydrogen environments
- ✓ Developed 'EGNIS', corrosion-resistant alloy series for incinerator grates
- ✓ Developed 'G Alloy' for biomass power generation boiler floor nozzles
- ✓ New demand for seamless tools for decarbonization.

(The demand has expanded from traditional oil/gas drilling to new technology (CCS) that buries CO₂ underground.)

Numerical Targets

Unit: M¥

	2023 results	Further acceleration of aggressive management 	2029 targets
Sales	6,484	Base field Expansion of Semiconductor market Steady FPD market	10,000
Operating Income	644	New field New seamless-related demand Entry into aviation and aerospace sector Flying cars Contribution to decarbonization	1,500
ROE	9.5%		15%
PBR	0.7		> 1.0
Dividend	40¥ Ordinary 30¥ Special 10¥		Establishing three pillars with casting, 3D AM and Forging Invar Global Niche Leader Shinhokoku innovation
Investments	200		2000 in 6 years

Major facility investment in the past 6 years

Unit: M¥

Category	Facility and equipment	Amount
Manufacturing strategic R&D	Thermal expansion measurement equipment, 2 sets Vacuum arc button melting furnace, Magnetic measurement device (VSM), high precision laser welding machine, 2-ton induction furnace, carbon analyzer	400
Rationalization	Automatic polishing machine, etc.	60
Infrastructure strengthening	Shake out machine, Enhancement of power system for melting furnaces	140
Environmental	Factory heat countermeasure, etc.	140
	Essential facility enhancement for implementing BCP	
Facility renewal	Modernization of existing facilities, etc.	260
total		1,000

Facility investment plan in the next 6 years to 2029

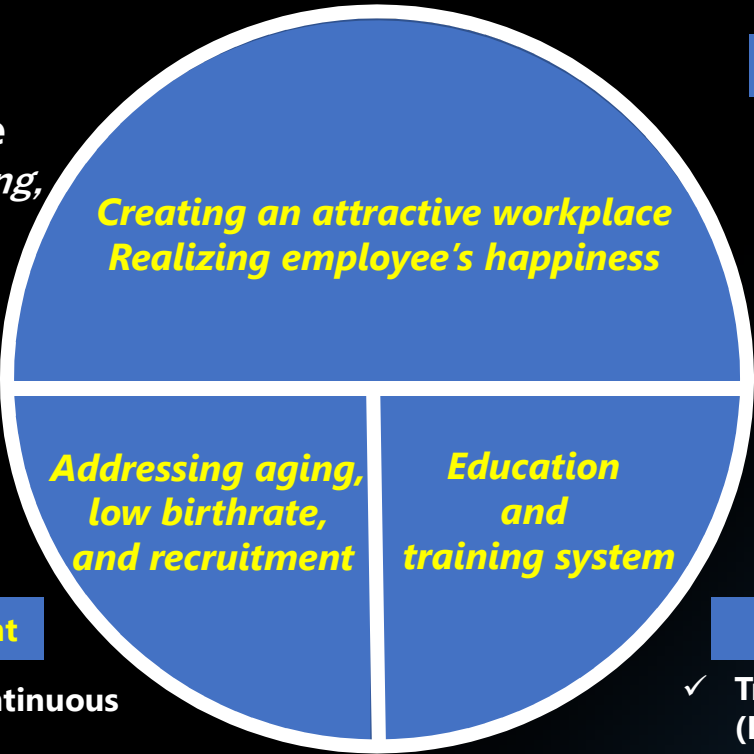
Unit: M¥

Category	Facility and equipment	Amount
Manufacturing strategic, R&D	3D printers for additive manufacturing, phase 1 to 3	600
	High precision thermal expansion measurement device, etc.	
Rationalization	3D printer for sand molds	400
	Automation and labor-saving in melting, molding and welding process, etc.	
Infrastructure strengthening	X-ray transmission device, etc.	400
Environmental	Decarbonization and SDGs	300
	Facility enhancement for implementing BCP, etc.	
	Cleanliness improvement in the casting factory, etc.	
Facility renewal	Strengthening and renewal of power receiving facilities, etc.	300
total		2,000

Human Resource Strategy *to create an attractive workplace for every employee and hence to achieve sustainable growth even with a small but elite workforce.*

Creating an attractive workplace

- ✓ Rewarding and engaging workplace
*Based on a wage system for stable living,
An evaluation system that appreciates efforts and contributes to motivation*
- ✓ Aiming for top level wage in Japan



Creating an attractive workplace

- ✓ Continuing to improve compensation
(Closely supporting each employee)
- ✓ Further improving the workplace environment
(Making it cleaner)

Addressing aging, low birthrate, and recruitment

- ✓ Transition to diverse work styles based on continuous employment system
- ✓ Diverse recruitment regardless of gender or nationality
- ✓ Multiskilling (Job rotation)
- ✓ Automation, labor-saving, and systematization through the use of AI, etc.
- ✓ Enhancement and expansion of outsourcing
- ✓ Promotion of health management
- ✓ Advancement of diversity

Education and training system

- ✓ Transforming tacit knowledge into explicit one
(Passing on technology and knowledge, sharing throughout the company)
Making individual's inner knowledge visible
- ✓ Further skill improvement
(Internal and external training)
- ✓ The company fully supports obtaining a doctoral degree at university

Efforts towards Carbon Neutral in 2050

Direct Reduction

- ✓ Energy-saving activities
- ✓ Company cars transition to EV, HEV, FCEV
- ✓ Utilization of renewable energy
- ✓ Recycling of in-house materials (process scraps)
- ✓ Reduction of high CO₂ raw materials

Indirect reduction

- ✓ Use of carbon offset
- ✓ Participate in international initiatives (CDP, SBT)
- ✓ Develop materials contributing to carbon neutral
- ✓ Collaboration with local communities
- ✓ Educational activities in collaboration with industry and academia

**with the Community
Contributing to Decarbonization**

Background: A relaxing forest (open to the public) adjacent to the Kawagoe headquarters.

The performance forecasts, plans, and future predictions contained in this document are based on the information available as of the date of this document's release and assumptions related to uncertain factors that may affect future performance as of the date of this document's release. Please understand that actual performance may vary significantly due to various factors in the future.