

Presentation on Electronics and IT materials Business

Sep. 2, 2021

【TSE 4401】



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- 2. Mid-term Management Plan *ADX 2023*** ... P13
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1. Overview of Electronics and IT Materials

Trends in Consolidated Performance

Fig.1 Net sales

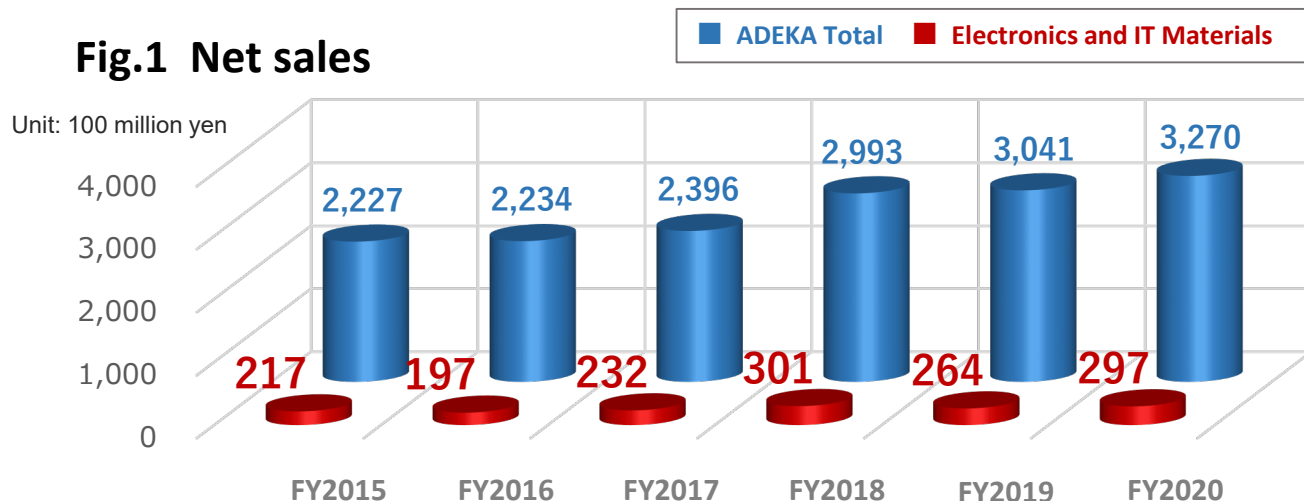


Fig.2 Operating Profit

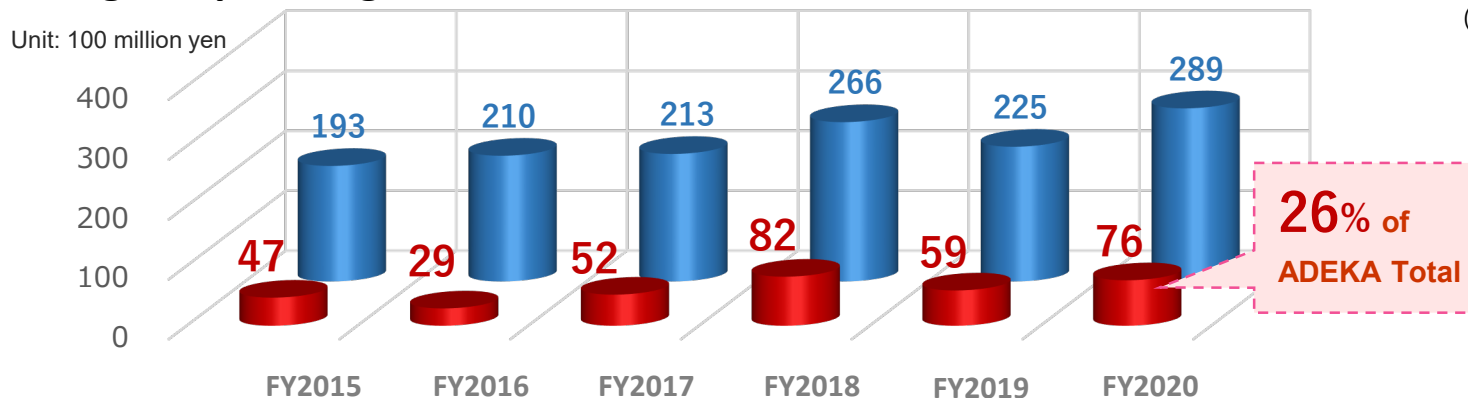


Fig.3 Analysis of Net sales

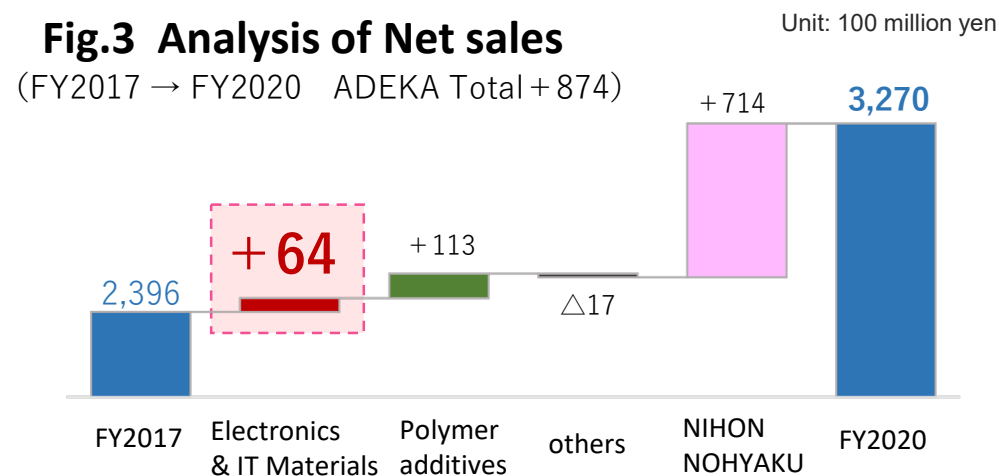
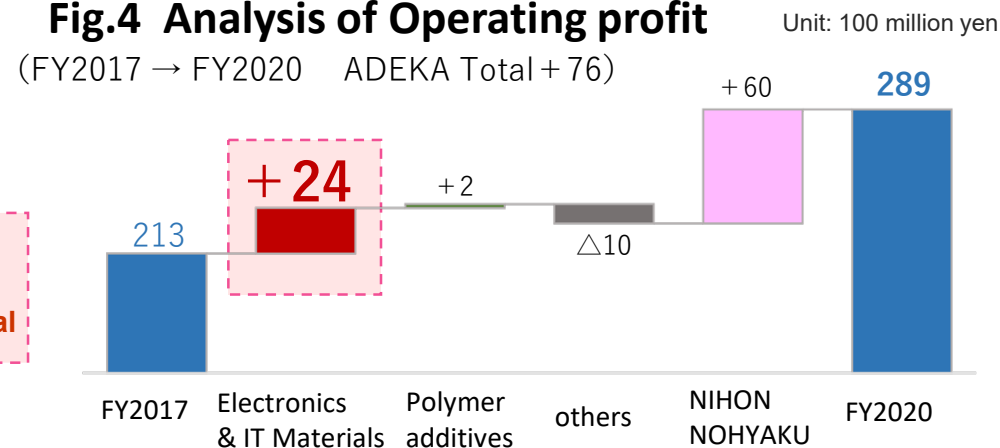


Fig.4 Analysis of Operating profit

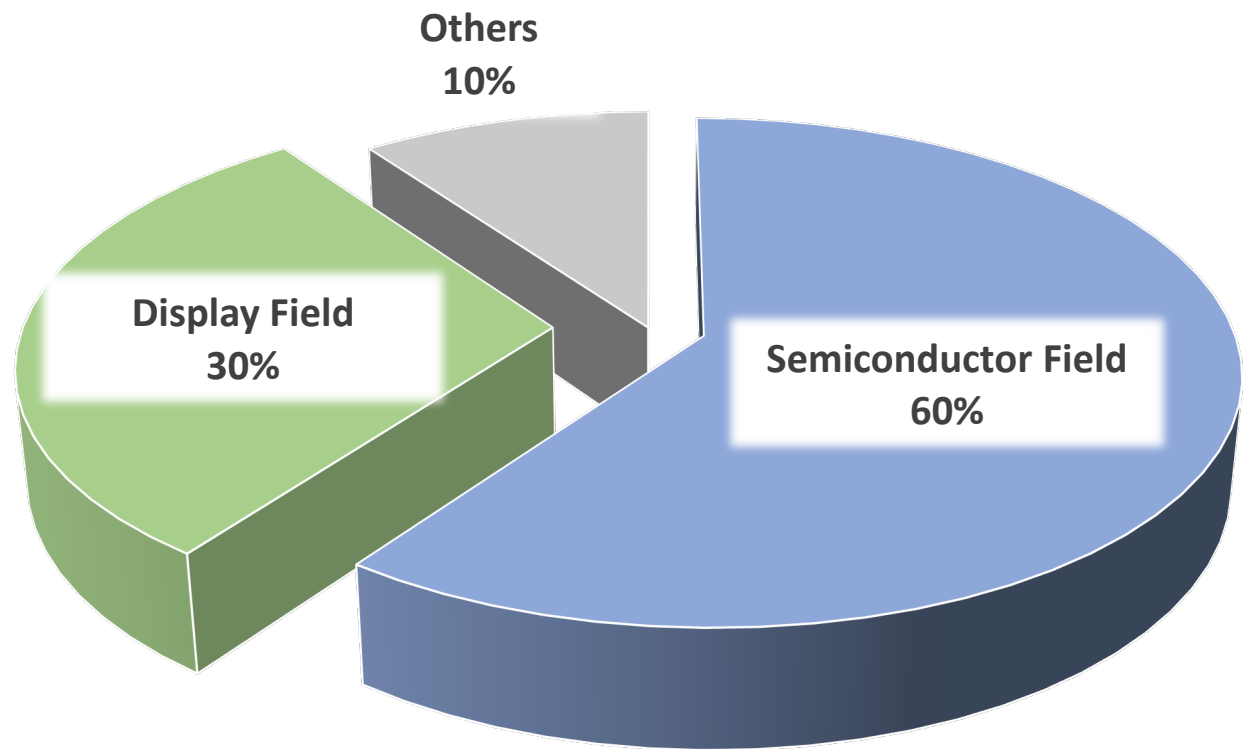


Electronics and IT materials

Net sales of 29.7 billion yen and operating profit of 7.6 billion yen in FY2020. Contributed to an increase of 2.4 billion yen in an overall increase of 7.6 billion yen in operating profit.

Approximate Sales Composition Ratio (By Application)

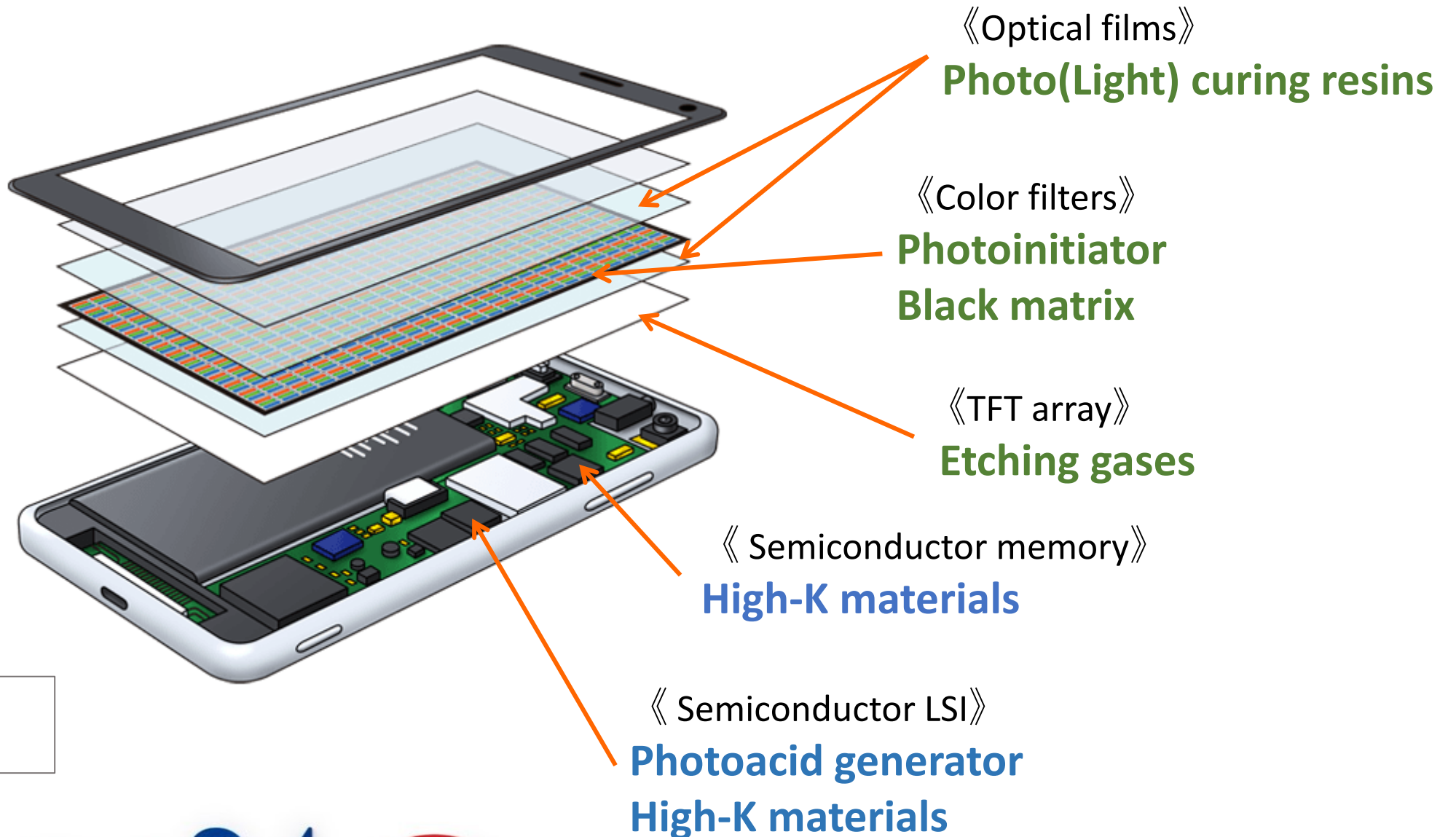
FY2020 Sales Composition Ratio



Major product group

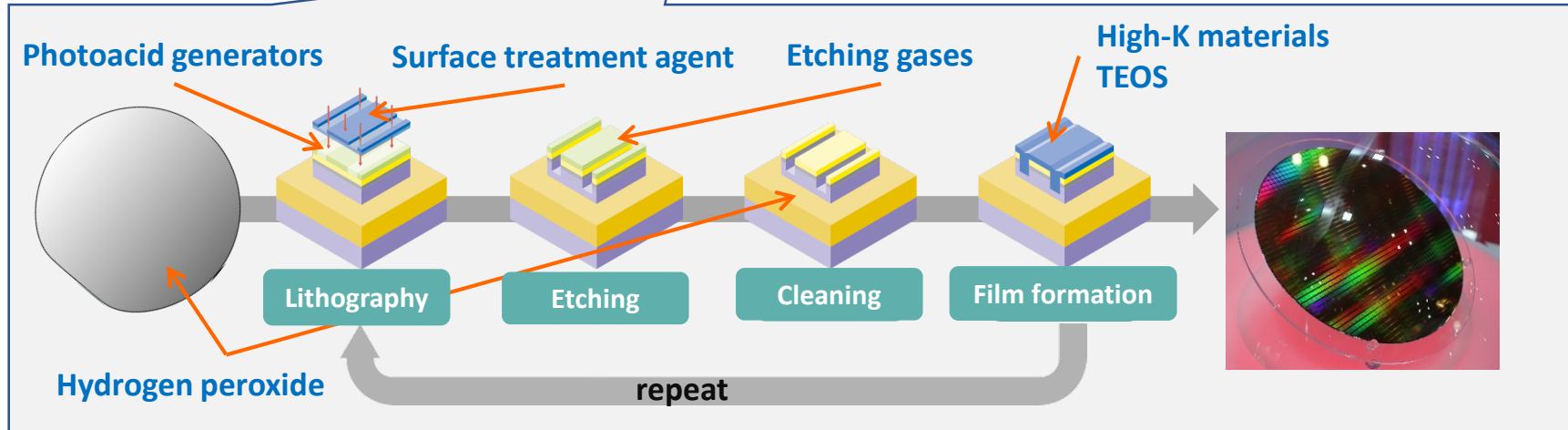
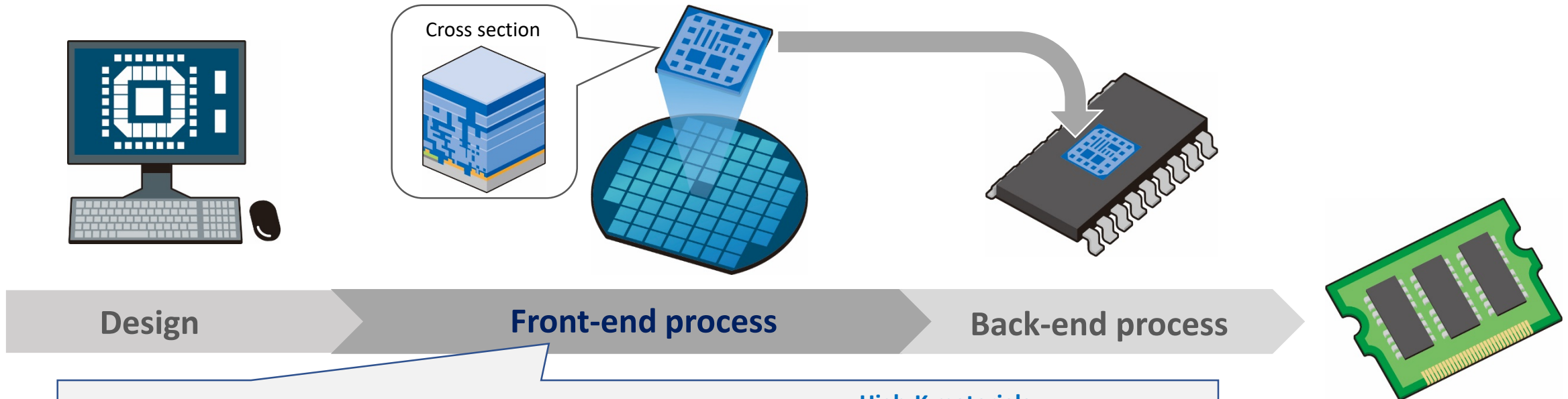
Field	Product group
Semiconductor	High-K materials
	Photoacid generator
	Etching gases
Display	Photo(Light) curing resins
	Photoinitiator
	Etchants
	Black matrix
	Developer

Main products ① Ex. For Smartphone



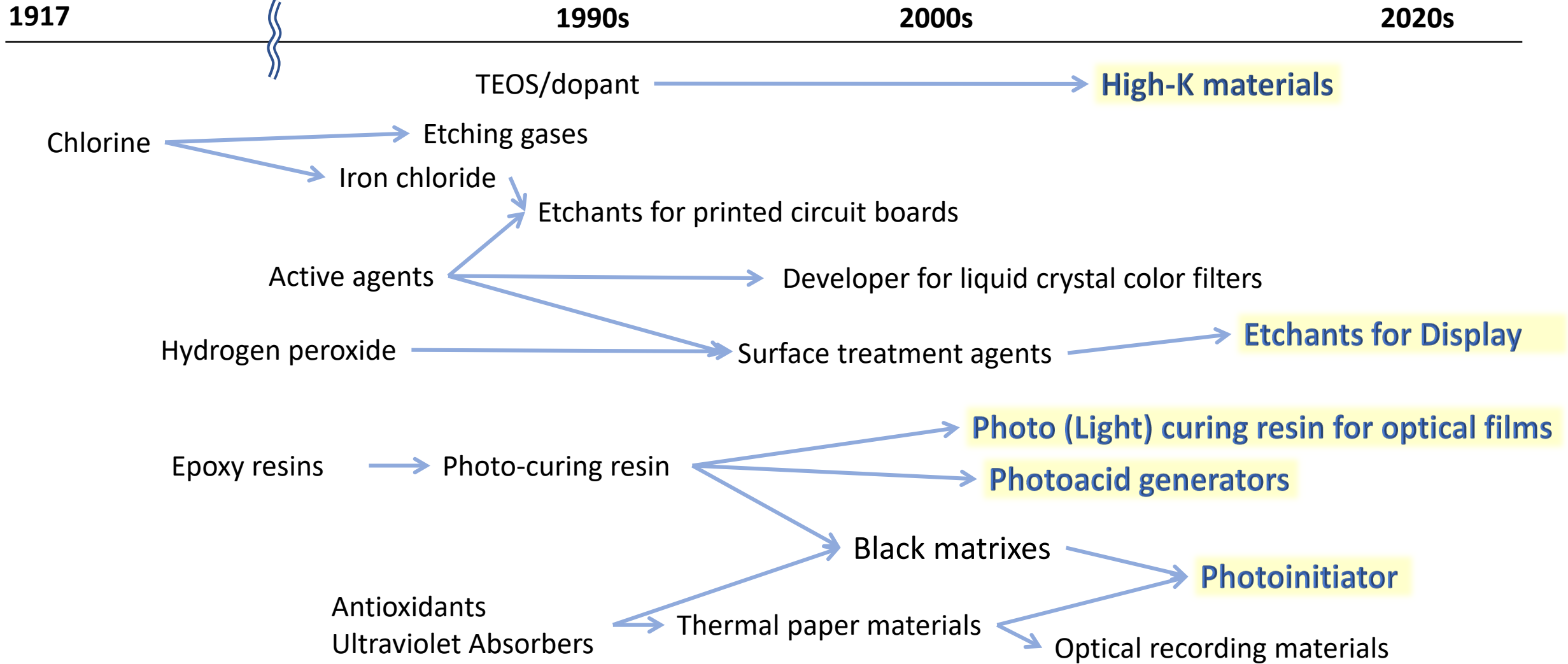
■ Display
■ Semiconductor

Main products ② Ex. In the Semiconductor manufacturing process



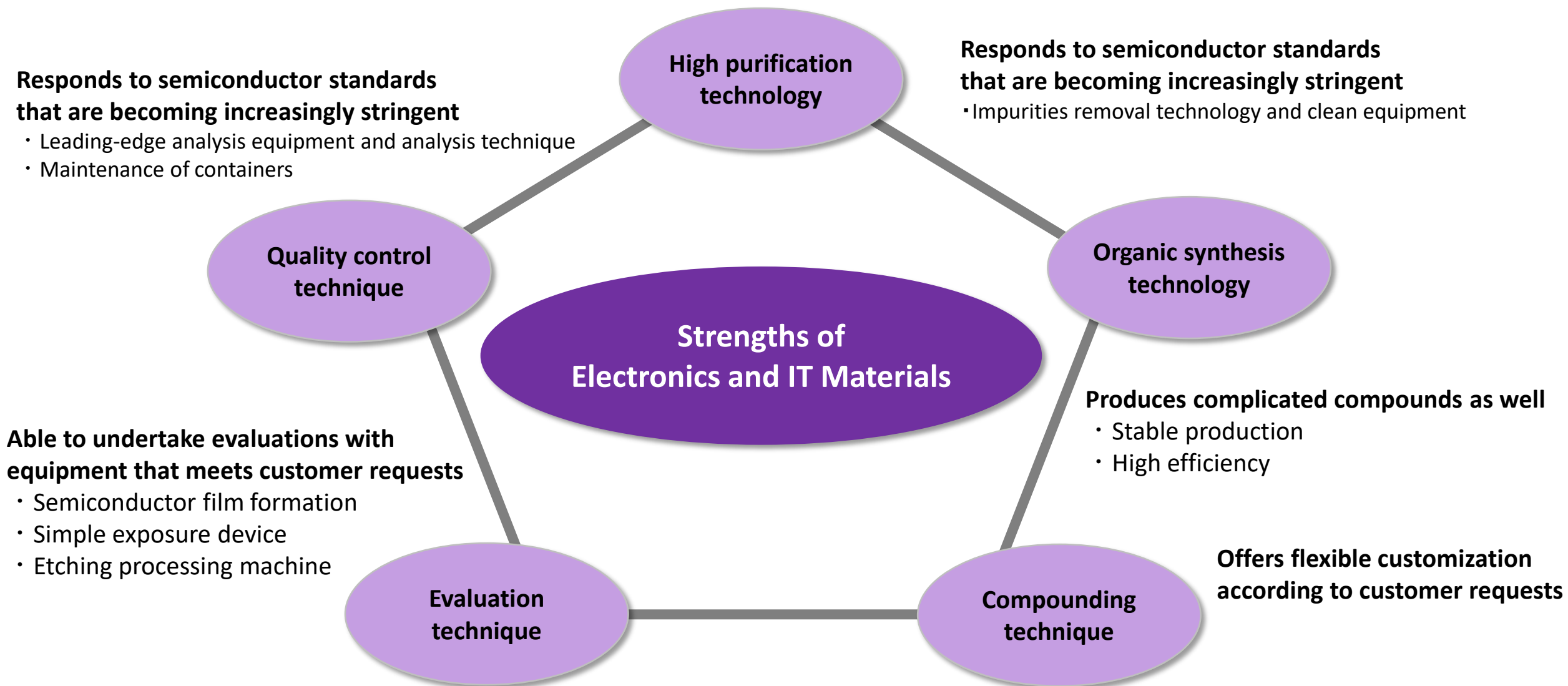
- Manufacture and sale of materials indispensable for the manufacture of semiconductors.
- Materials for the front-end process underpins the Company's strengths

Business history



Developing varieties of products from our core technologies to respond to market needs

Business strengths ①



**Evaluation
technique**

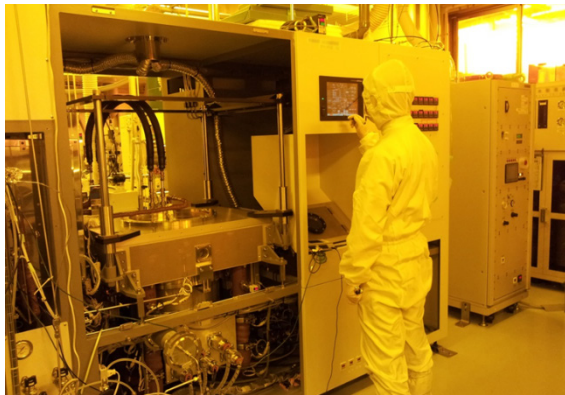
Owns evaluation equipment and technology that meet customer requests

- Able to undertake evaluations under conditions similar to those of customers from the early development stage
- Able to discuss our materials with customers based on the evaluation of working equipment



Able to move forward with development at the same pace as customers for IT and electronics materials, a business area characterized by rapidly evolving technologies

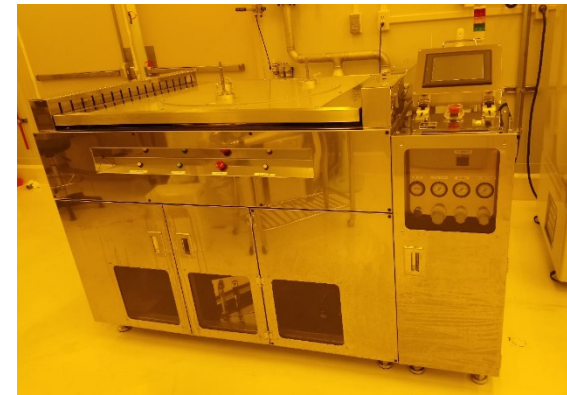
Semiconductor film formation machine



Resin black matrixes evaluation machine



Exposure equipment



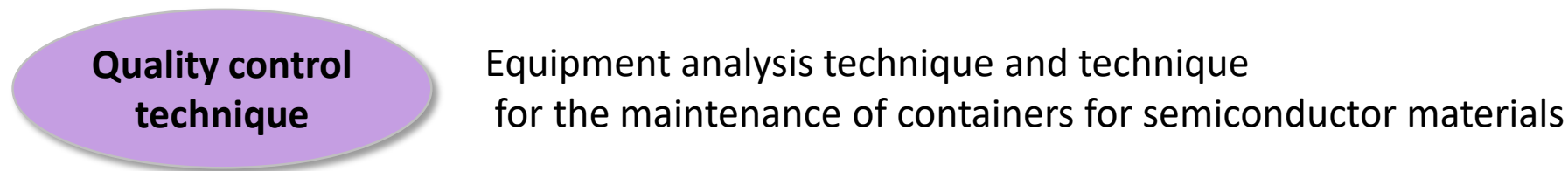
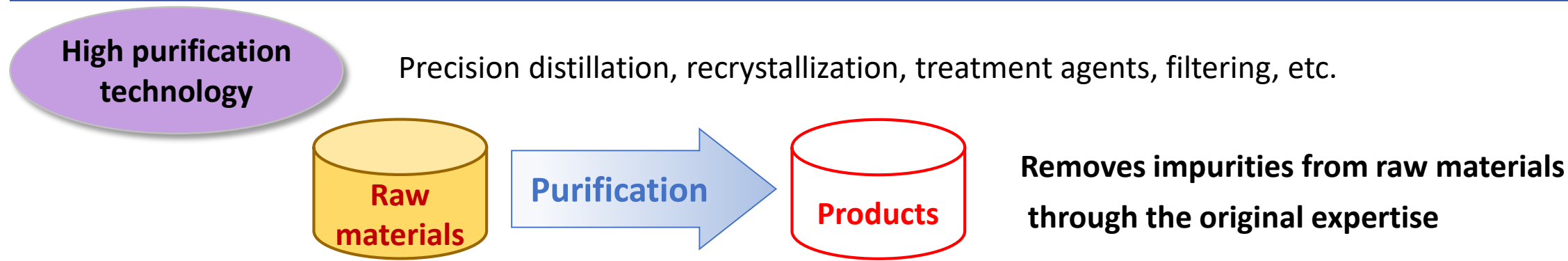
Spin coater

Etching processing machine




Large and small testers

Business strengths ③



Equipment analysis


Owens leading-edge analysis equipment
Always seeks to refresh analysis techniques



- Able to conduct a microanalysis of a range of elements
- Able to measure impurities

Maintenance of containers for semiconductor materials

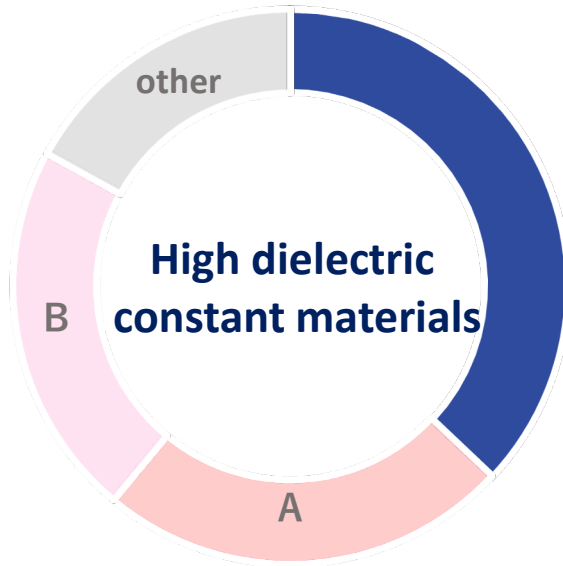
Established a precision cleaning and drying process of filling containers



Able to control impurity and metal concentration in filling containers

Responds to standards for semiconductors, which are becoming stricter with the miniaturization of semiconductors, by leveraging purification and quality control techniques

Top share products (Major products)

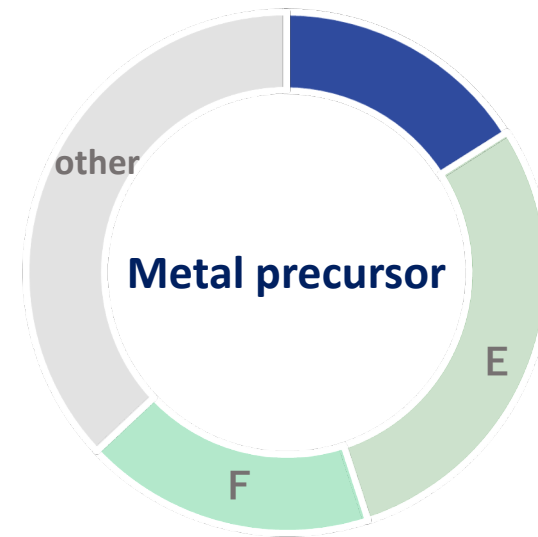


ADEKA

37%

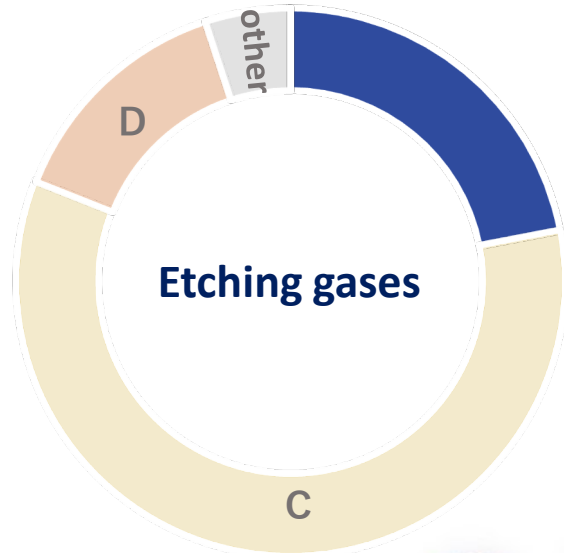
Over 50%

In materials for advanced DRAMs
(Based on the Company's assumption)



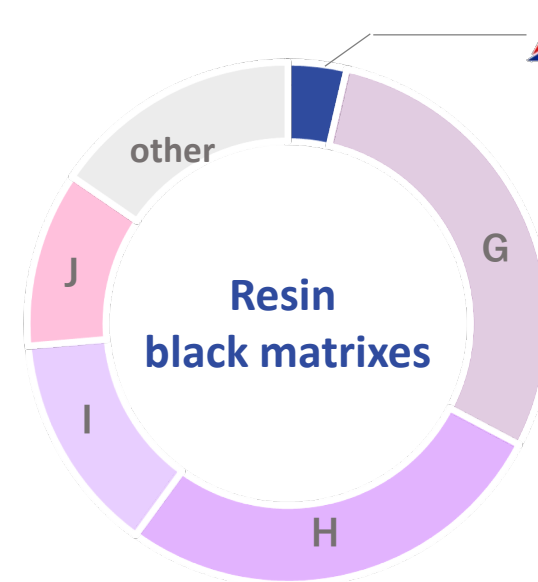
ADEKA

16%



ADEKA

22%



ADEKA

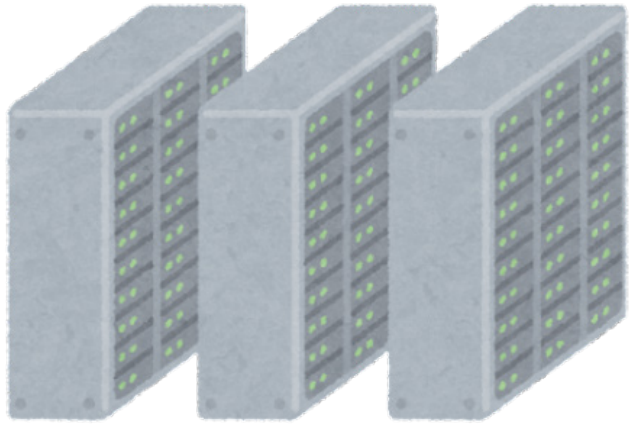
4%

*From the "2020 Current Status and Future Prospects of Semiconductor Material Market " and "2020 Current Status and Future Prospects of Display-Related Market" by Fuji Chimera Research Institute Inc.

2 . Mid-term Management Plan *ADX 2023*

Target areas of Electronics and IT Materials

Data centers and advanced devices are essential for the creation of an ICT-based society.



Data centers



PC



Smartphone



Next-gen. devices

Target

Semiconductors and display materials incorporated in data centers and advanced devices.

Fig.1 Net sales

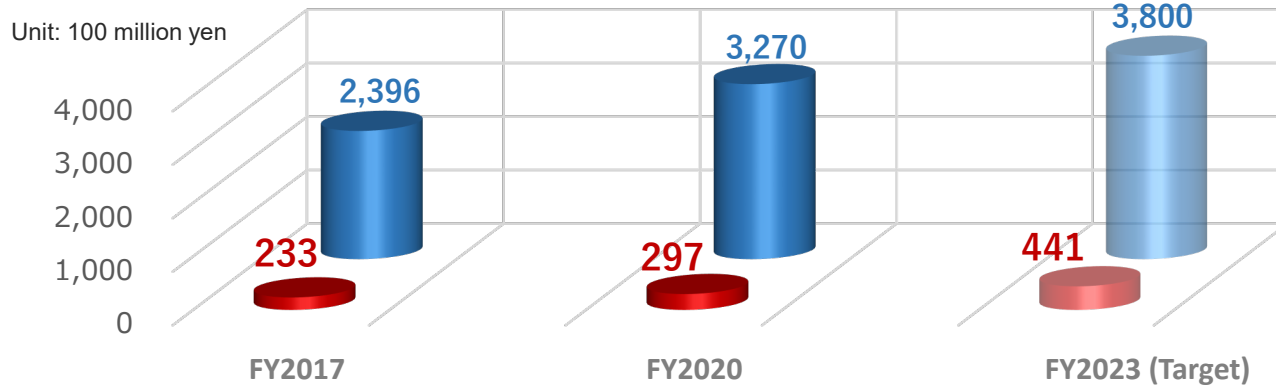
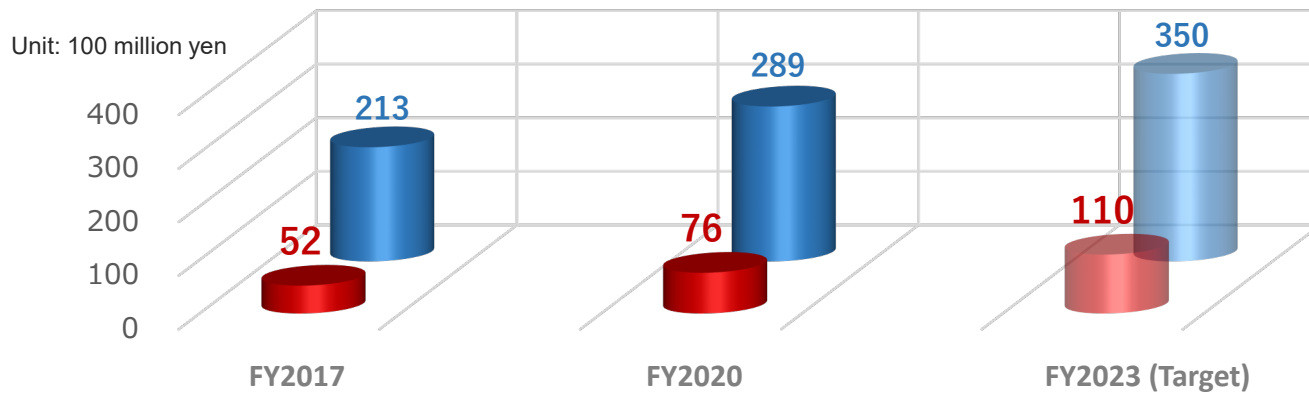


Fig.2 Operating Profit



FY2030 Vision

Underpin the development of an ICT-based society in the world that is changing significantly due to paradigm shifts, create new value with new materials and advanced materials, and supporting people's affluent lifestyle.



FY2023 The goal that should be pursued

Seize the mega trend of 5G- and IoT-related technological innovations as opportunities and continuously provide essential materials to top-ranking companies in the electronics and materials industries, thereby becoming a company that the world needs.

Capital investment amount	Major projects
<p>9.5 billion yen Overall ratio 19%</p>	<ul style="list-style-type: none"> ◆ <u>Construction of production facilities</u> Semiconductor peripheral materials ◆ <u>Strengthen production capacity</u> ALD materials

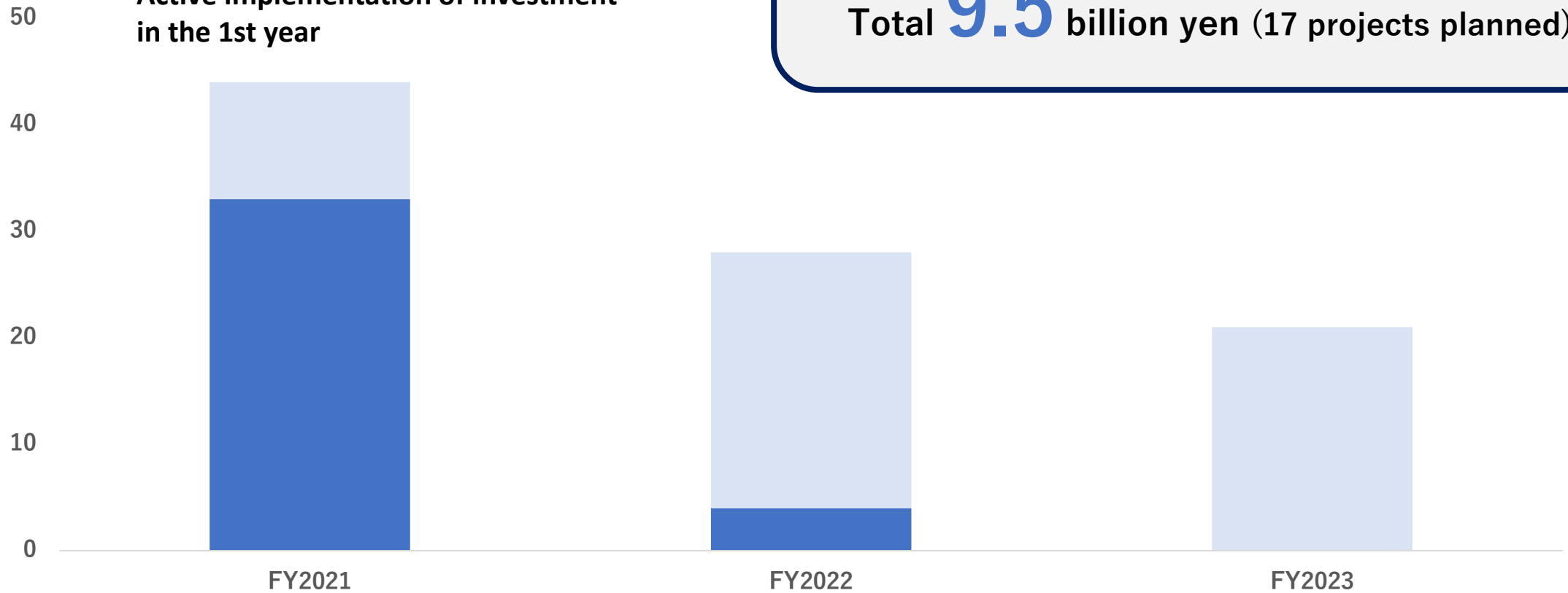
Aim to expand businesses with a focus on strategic products for the semiconductor and display areas

Capital investment plan

■ JAPAN ■ Overseas

Unit: 100 million yen

Active implementation of investment
in the 1st year



『ADX 2023』

< Electronics and IT Materials >

Total **9.5** billion yen (17 projects planned)

3 . Business Strategy

Demand forecast

Fig.1 Changes in data capacity (DRAM)

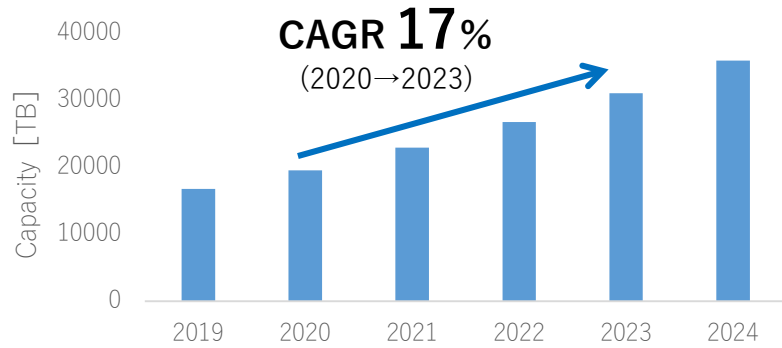
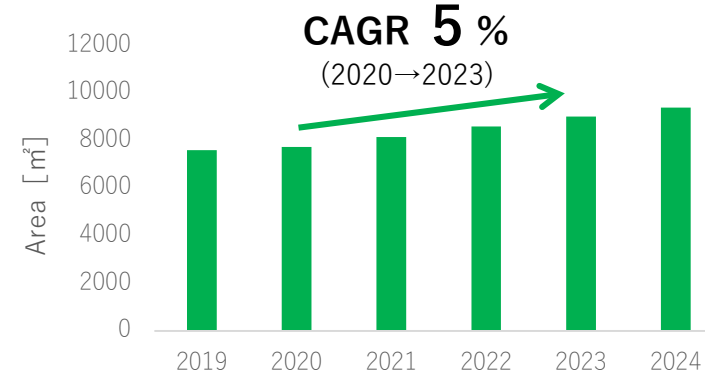


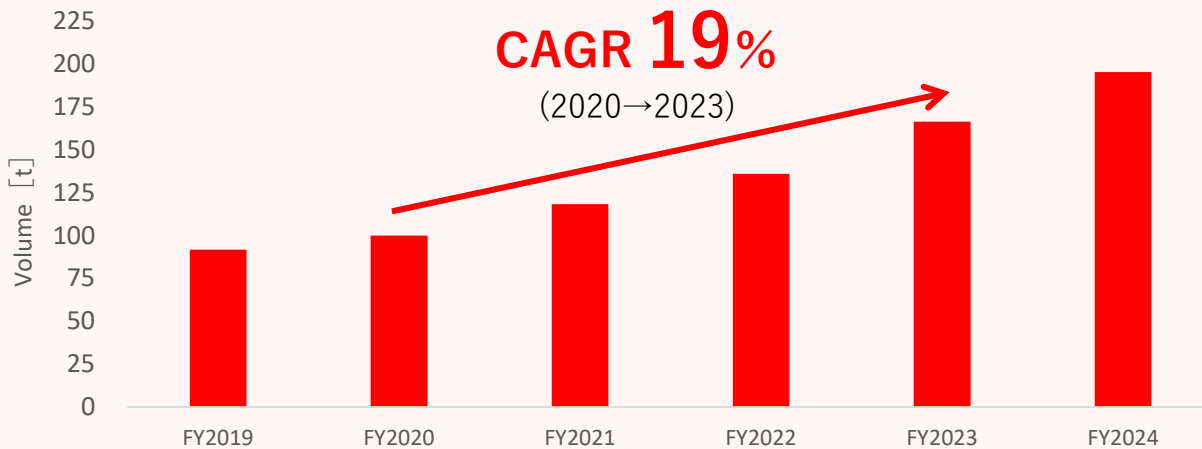
Fig.2 Total amount of wafers' areas sold



Increase due to the creation of an ICT-based society

Increase in wafers' areas + Semiconductors miniaturization and increased integration in terms of the structure thereof.
(Rise in the No. of manufacturing processes)

Fig.3 Sales plan of Our Semiconductor materials (high-K materials, photoacid generators etc.)



Demand for our Semiconductor materials for advanced devices will rise significantly with an increase in wafers' areas and a rise in the number of manufacturing processes

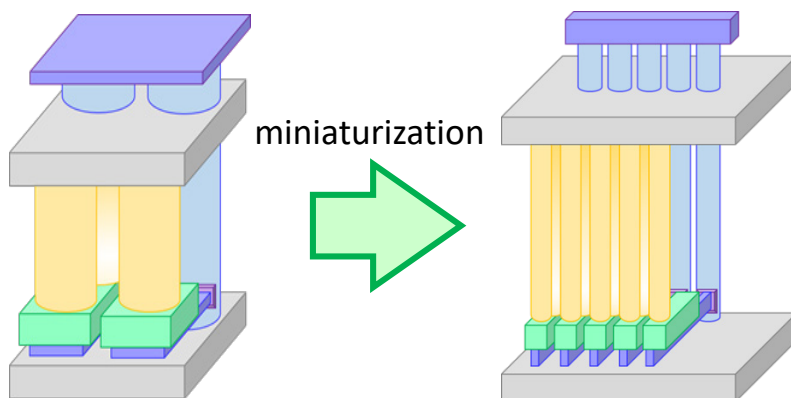
* CITATION : 2020 Semiconductor Materials Market Status and Future Prospects (Fuji Chimera Research Institute, Inc.)
* Sales plan : Quantity, set to 100 in 2020.

《Memory field》

DRAM

◆ Technology trends

The structure of DRAMs is changing with progress in miniaturization

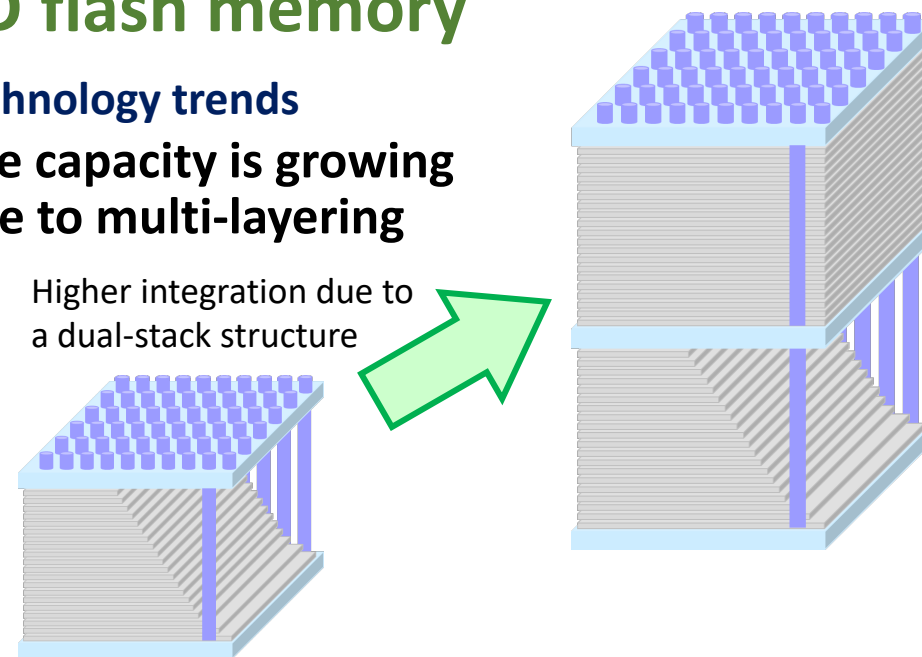


NAND flash memory

◆ Technology trends

The capacity is growing due to multi-layering

Higher integration due to a dual-stack structure

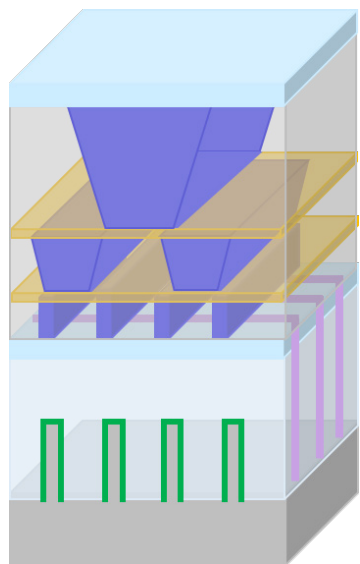


Basic policy

- Develop cutting-edge ALD materials for miniaturization, capacity increases and energy-saving
- Establish a supply system that meets customer trends (implementation of capital investments)

《Logic field》

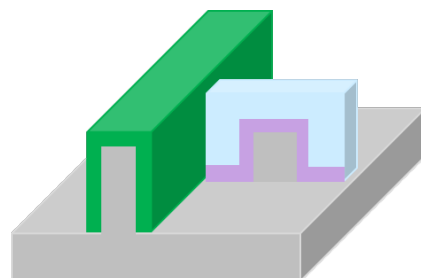
Logic IC



◆ Technology trends

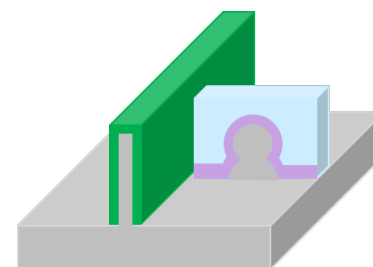
- The structure of transistors is changing with progress in miniaturization.
- New demand is being created due to multi-layered wiring as a result of change in the structure of transistors.

Current generation



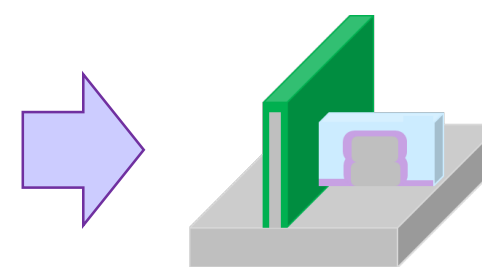
FinFET

Next generation



Nanowire

Next next generation

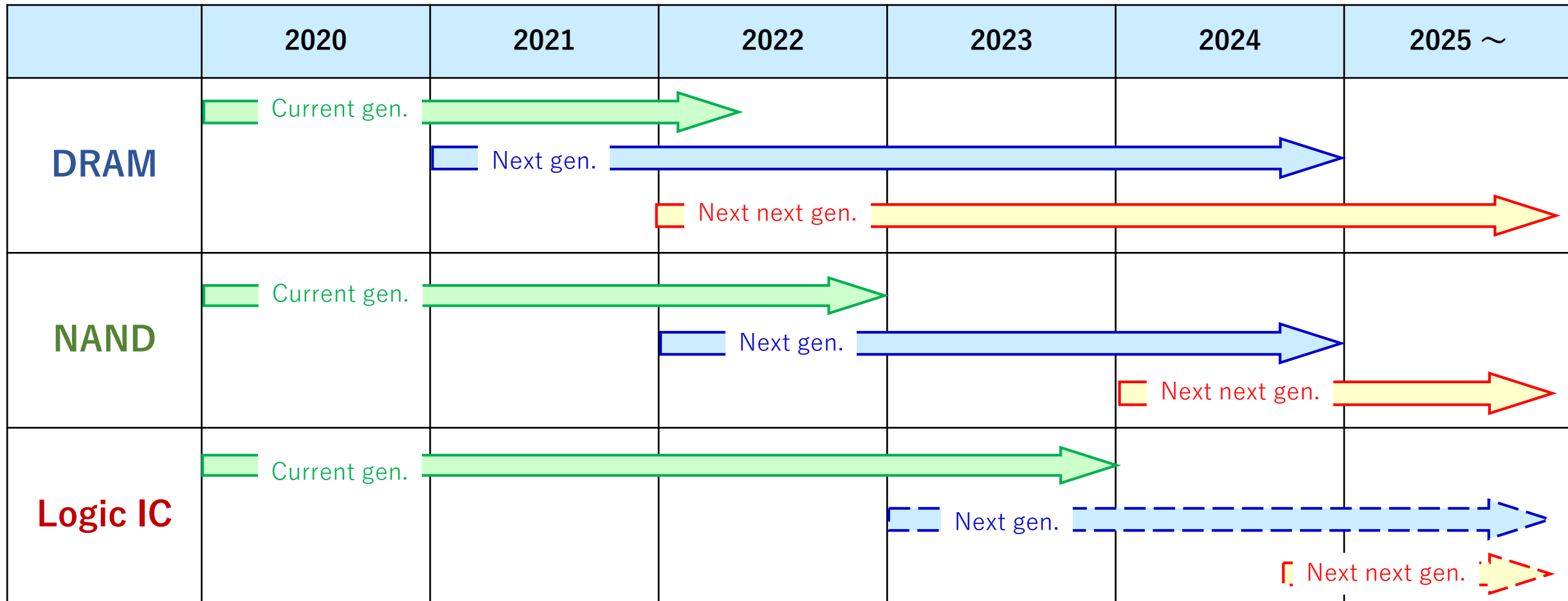


Nanosheet

Basic policy

- Develop products that respond to new demand arising from miniaturization and multi-layered wiring.
- Enhance the production capacity of ALD materials and step up efforts to contact the top-ranking companies in each industry.

Semiconductor roadmap and sales period of our products



- Facilitate sales activities and research and development according to the semiconductor roadmaps.
- Focus efforts on the development of markets for the logic semiconductor area, as well as the memory area.

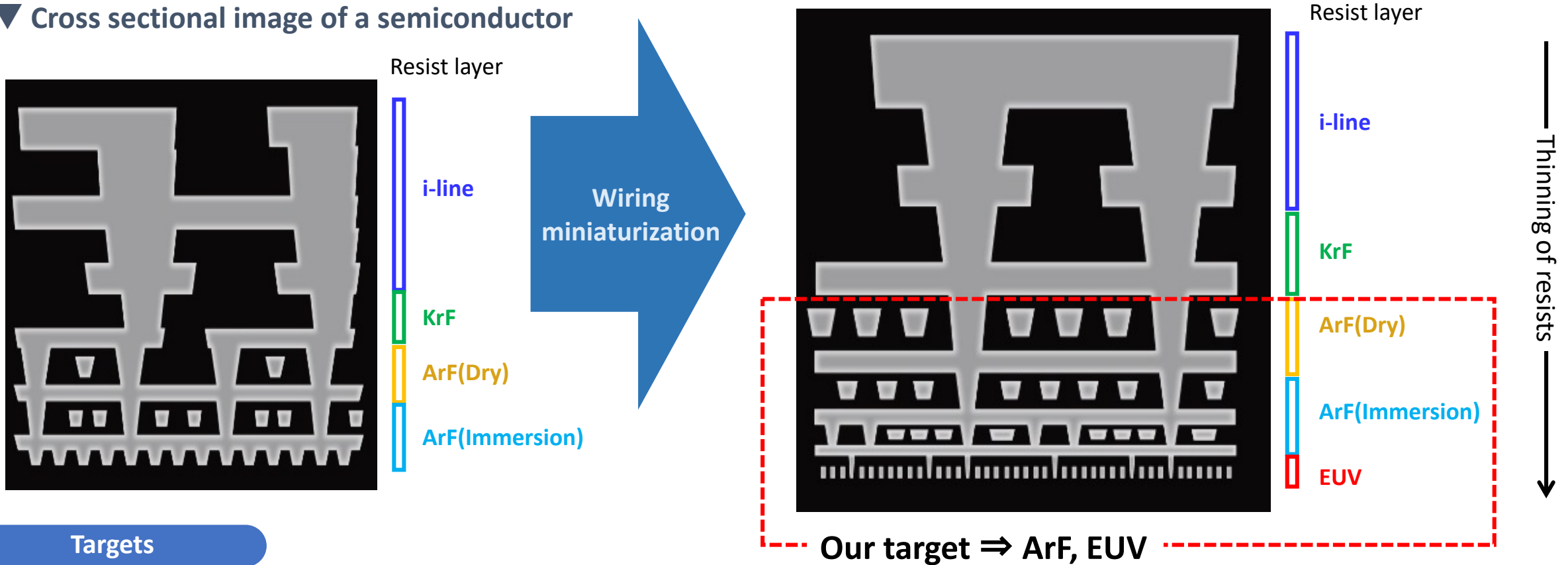
⇒ : sales period of our products

Photoacid generator business strategy ①

Photoacid generator

- Material indispensable to the formation of micro wiring in semiconductors.
- Added to photoresists when using.

▼ Cross sectional image of a semiconductor



Targets

Advanced photoresists (ArF and resists for EUV exposure) whose market is expanding in line with the miniaturization of semiconductors

Construction of a new plant

location	Chiba plant
Investment amount	2.7 billion yen
Equipment operation	Scheduled for fiscal 2023
Increased capacity	More than twice as much

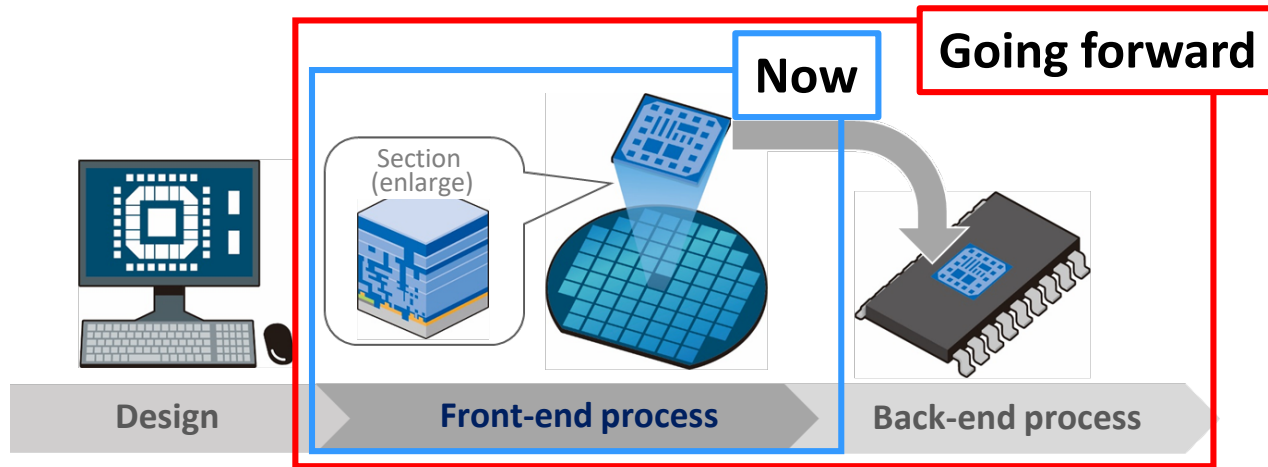


▲ Chiba plant

Decided to construct plants equipped with clean production facilities to facilitate the quality control of next-gen. Photoacid generators.

Aim for **The top market share** in Photoacid generators for advanced photoresists

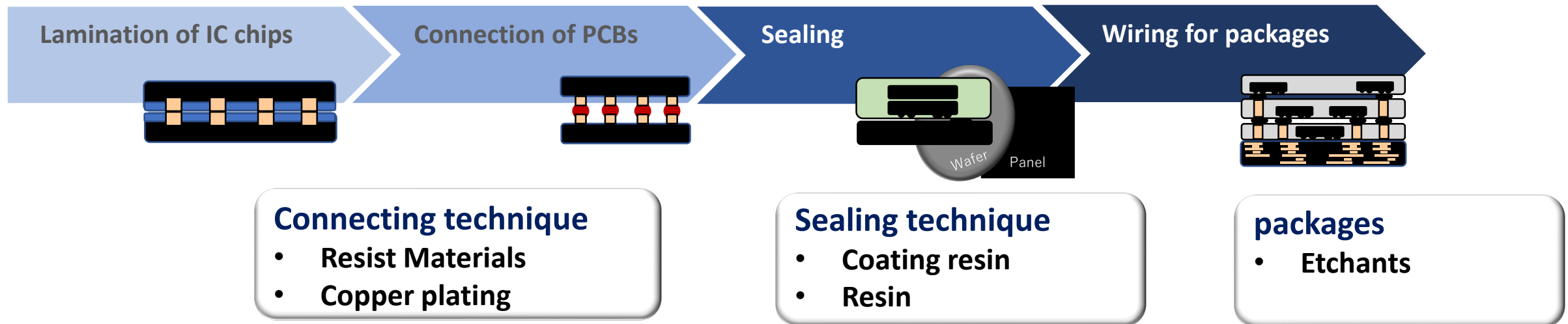
Expansion of the business area to the semiconductor back-end process



Expand the business area to the back-end process, demand for which is expected to rise.

- Improvement of the connecting and sealing techniques of IC chips and printed circuit boards.
- Innovation of techniques for combining IC chips and packages.

Advanced semiconductor package manufacturing process and applicable materials of A D E K A



Contribute to the innovation of back-end process

Overseas development (Expansion of business areas)



ADEKA (CHINA)

Strengthen the sales system for semiconductor materials

- Facilitation of localization of etching materials and insulation film materials



ADEKA USA

Facilitation of the adoption of new semiconductor materials

- Establishment of an office in the West Coast (plan)
- Development of techniques for next generation wiring materials



ADEKA KOREA

Promotion of the local production of semiconductor materials

- Acquisition of land for the plant (Aug. 2021, Wanju-gun)
- Strengthening of the technical support system



ADEKA FINE CHEMICAL TAIWAN

Promotion of businesses targeting logic semiconductors

- Construction of a new plant for semiconductor materials (plan)

Expand into Taiwan and the United States by leveraging the business expertise acquired in JAPAN and KOREA

Business policy in the Display field

《LCD》

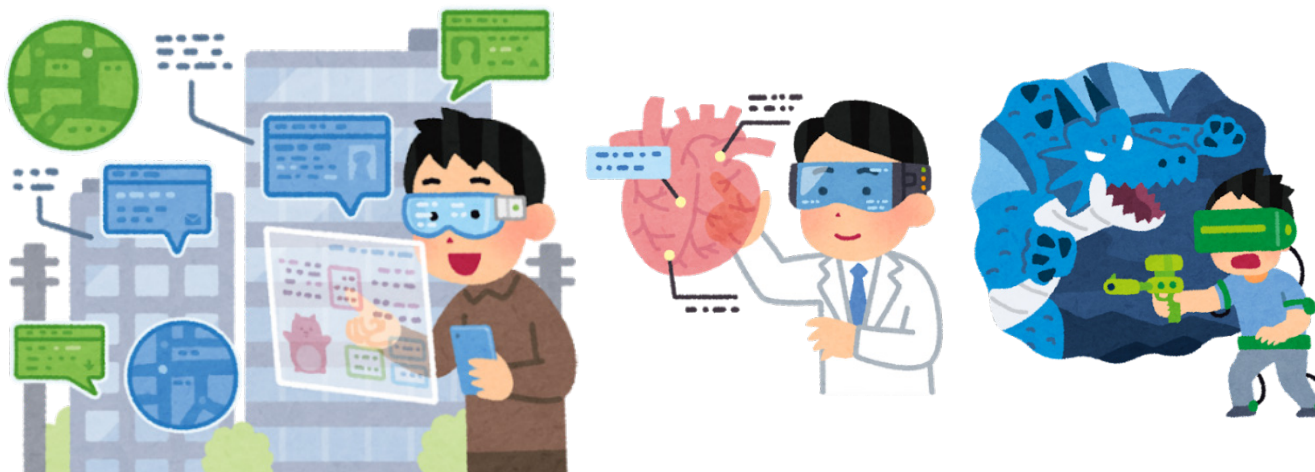
Approach to the Chinese market

Implementation of strict supply chain management.
Optimization of manufacturing.

《Next gen. Display》

Development of new products to respond to technological needs.
Promotion in markets in JAPAN, TAIWAN and KOREA.

Next gen. Display ... OLED, QDOLED, μ -LED



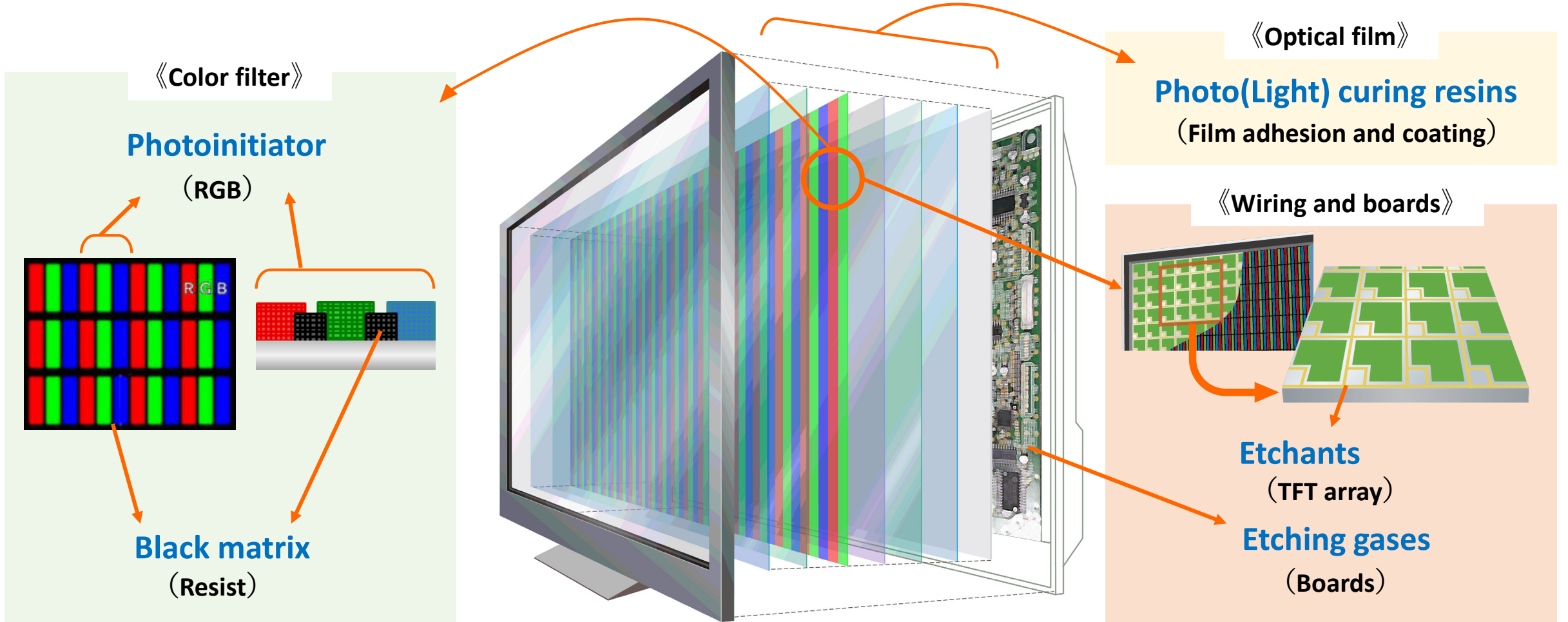
Technological needs

- Free forms
- AR/VR
- Non-contact
- Response to bright, dark and environmental conditions
- High brightness and high resolution
- Thin and durable

Policy

Concentrate resources to tap into the Chinese market and facilitate development for next gen. Displays

Major products in the display field



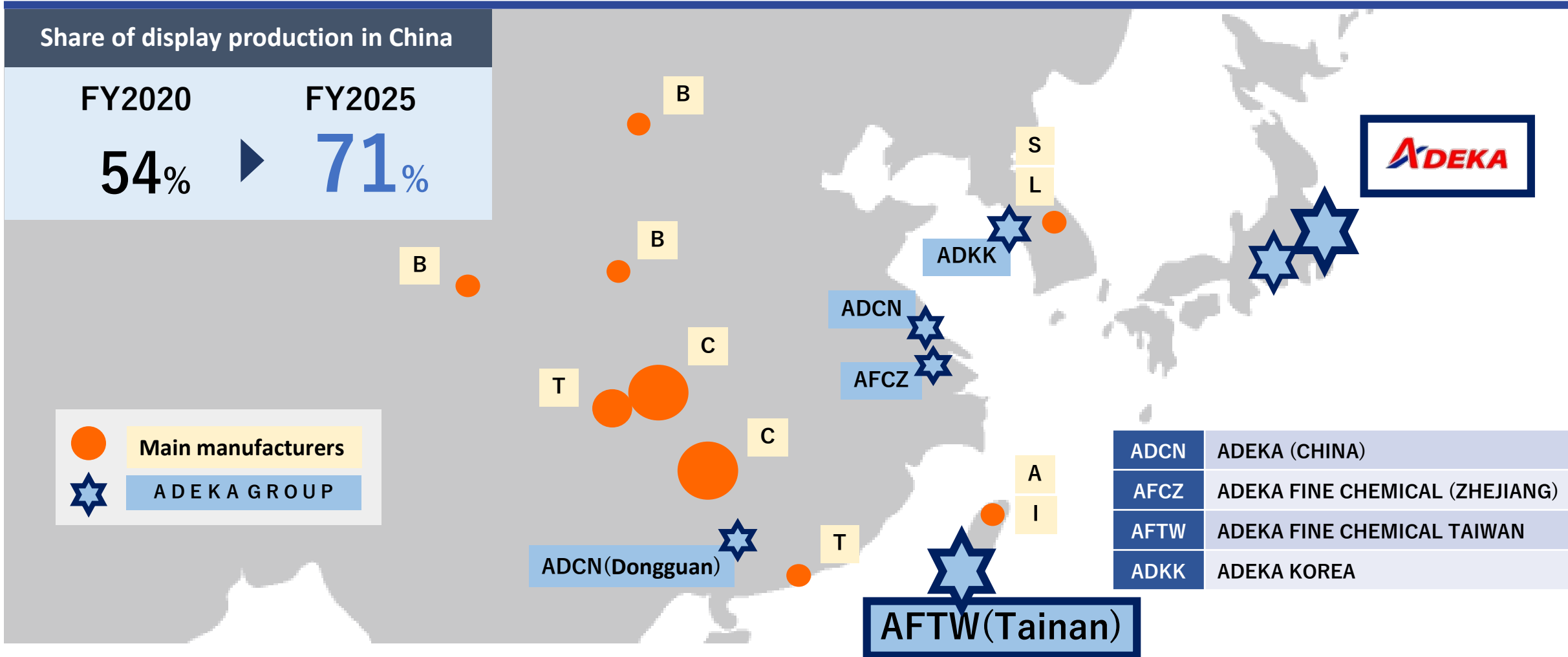
Display roadmap and our products

Use	Our Products	LCD		Next gen. Display		
		4K/8K LCD	16K LCD	WOLED	QDOLED	μ -LED
Optical film	Photo(Light) curing resins	○	○	○	○	○
Color filter	Black matrix	○	○			
	Next-gen. black materials			○	○	○
	Photoinitiator	○	○	○	○	○
	Latent additives	○	○	○	○	○
	Photoacid generators	○	○	○	○	○
Wiring and boards	Insulating film materials	○	○			
	Etching gases	○	○	○	○	○
	Etchants (TFT、 FPC) *	○	○	○	○	○

Apply expertise developed for LCD to next gen. Displays

*TFT: Thin Film Transistor
FPC: Flexible Printed Circuits

Overseas development in the Display field



- Facilitate the development of the Chinese market through collaboration between development bases in CHINA, TAIWAN and JAPAN.
- Establish a local support system for the supply of our Display-related products in China in FY2021.

Unit: 100 million yen

	<i>BEYOND 3000</i>	Mid-term Management Plan <i>ADX 2023</i>		
	Electronics and IT materials			ADEKA Total
	FY2020 Result	FY2023 (Target)	Elongation rate	
Net Sales	297	441	48.5%	3,800
Operating profit	76	110	44.0%	350
Capital investment		95		500

Sales Composition Ratio

FY2020

