TOKYO ELECTRON

Investors' Guide

August 4, 2025

Tokyo Electron Limited

Contents

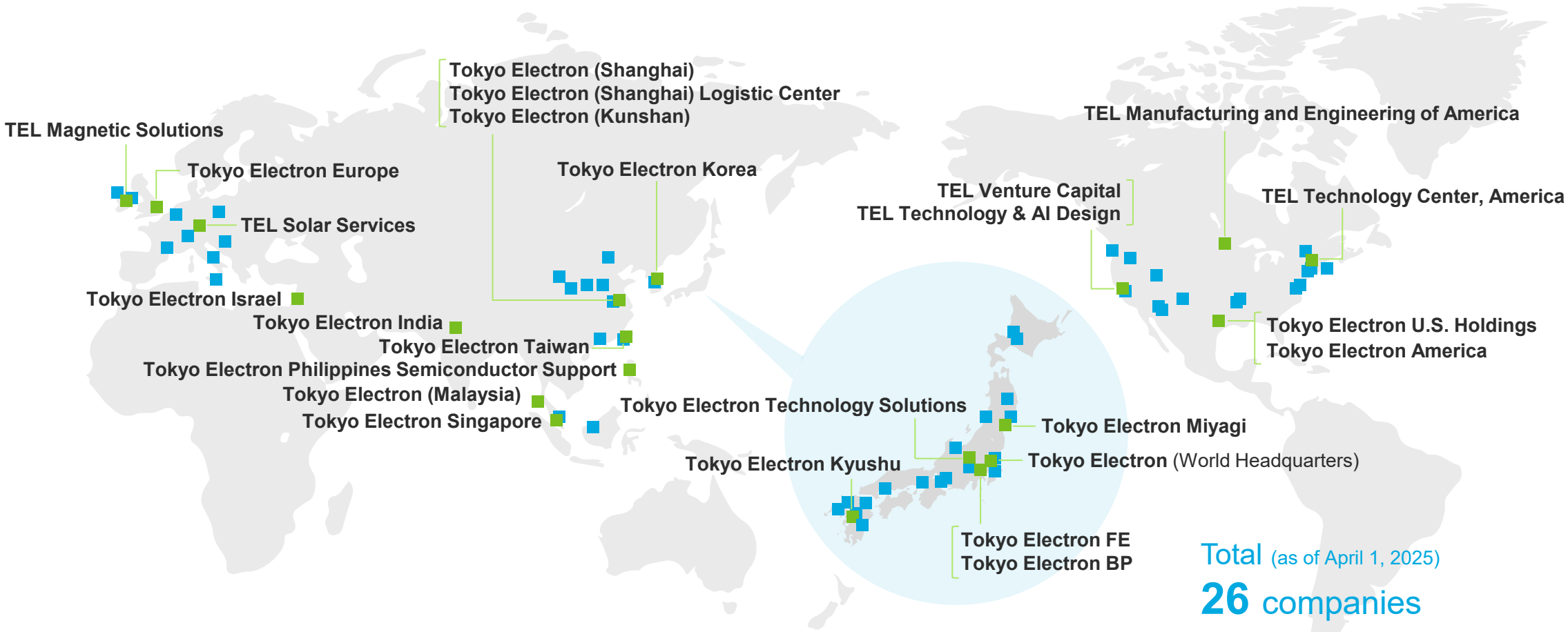
1. TEL Overview

Company Profile

Established	November 11, 1963
Major Products and Services	Semiconductor Production Equipment
Capital	54.9 Billion Yen
Sales/Profit	Net sales 2,431.5 Billion Yen / Operating income 697.3 Billion Yen / Operating margin 28.7% (Fiscal 2025)
Number of Employees	2,347 (non-consolidated) 20,273 (consolidated)
Global Network	Japan: 6 companies / 30 sites Overseas: 20 companies / 17 countries and regions / 65 sites Total: 26 companies / 18 countries and regions / 95 sites (consolidated) (as of April 1, 2025)

Worldwide Operations

(As of Apr. 1, 2025)



Total (as of April 1, 2025)

26 companies

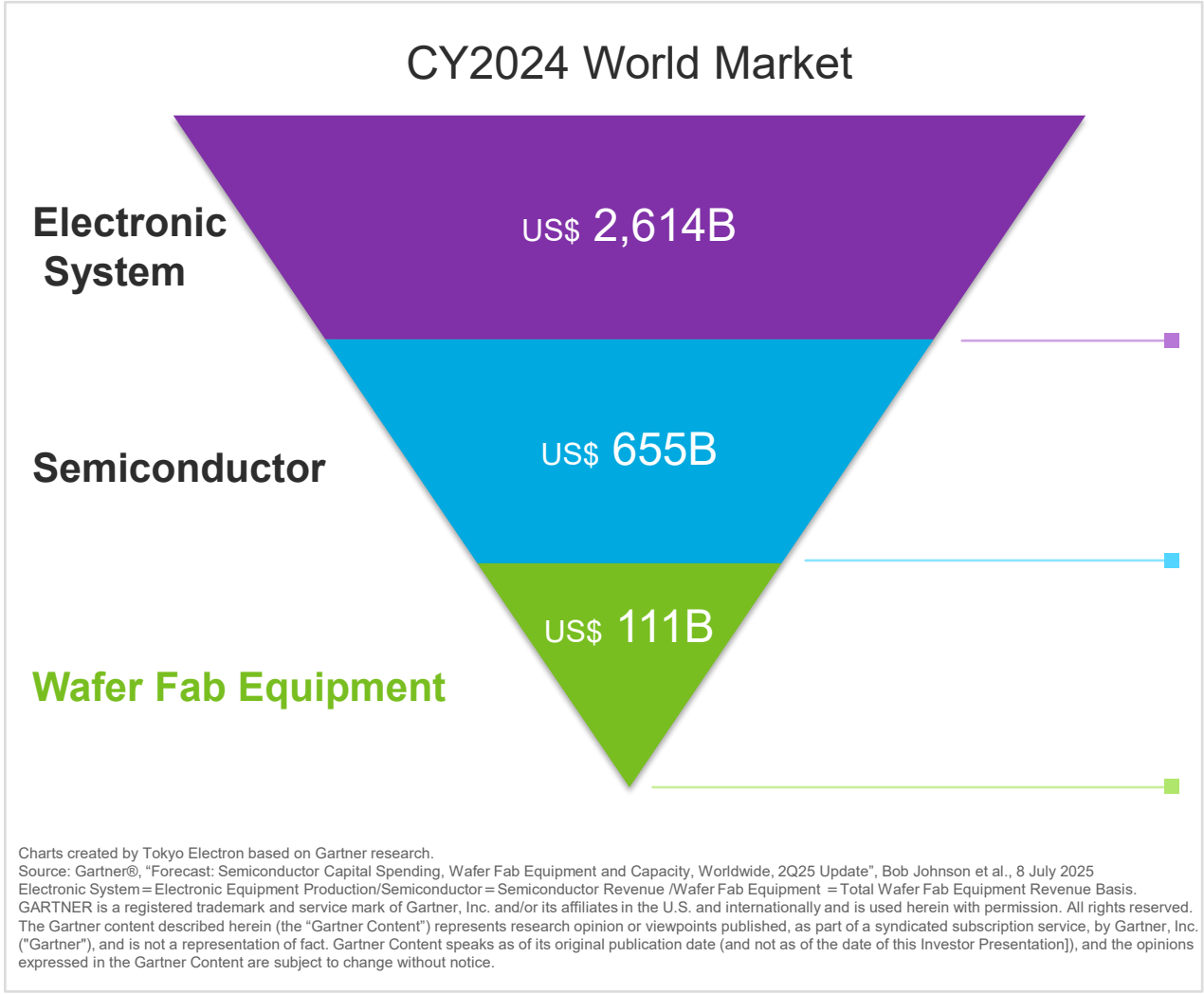
18 countries and regions

95 sites

- Head Office
- Branch, Office (including Field Service), Sales Office

*Group companies in the process of being wound up are not shown on the map.

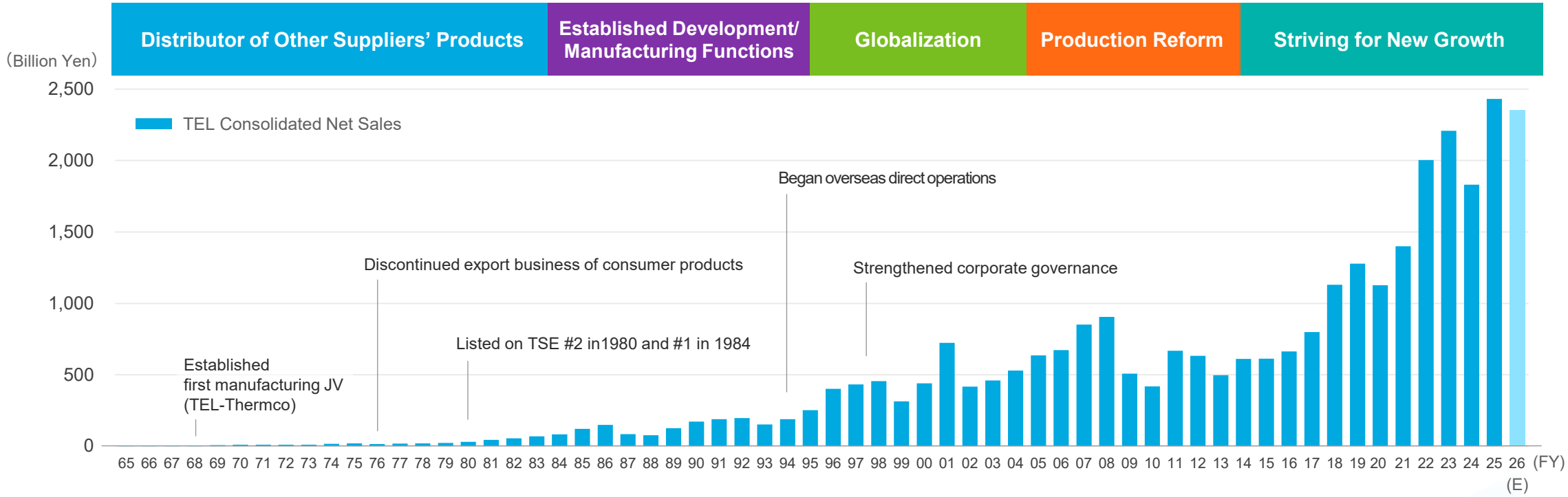
The Market TEL Participates in



The market TEL participates in

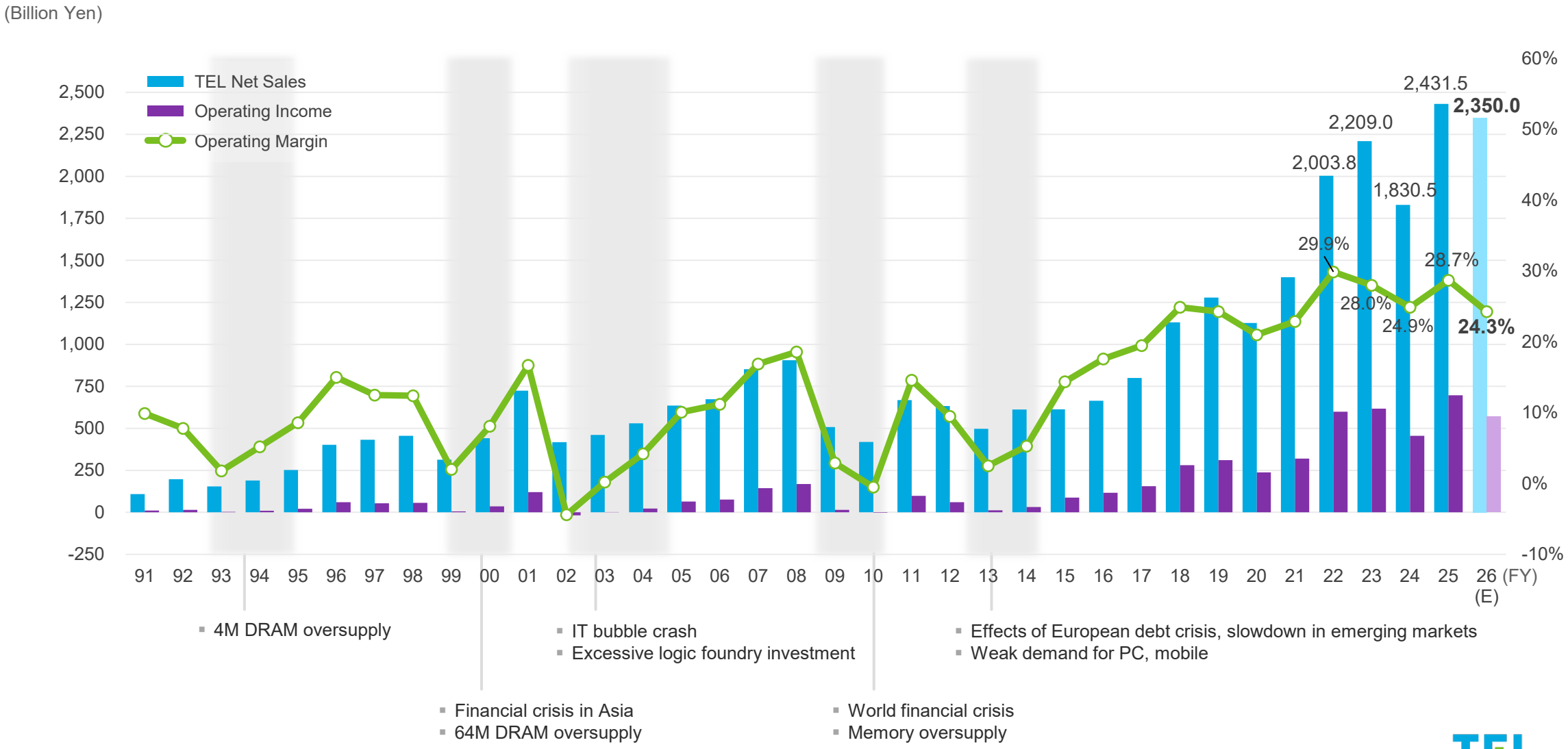
Charts created by Tokyo Electron based on Gartner research.
Source: Gartner®, "Forecast: Semiconductor Capital Spending, Wafer Fab Equipment and Capacity, Worldwide, 2Q25 Update", Bob Johnson et al., 8 July 2025
Electronic System = Electronic Equipment Production/Semiconductor = Semiconductor Revenue /Wafer Fab Equipment = Total Wafer Fab Equipment Revenue Basis.

TEL's Growth



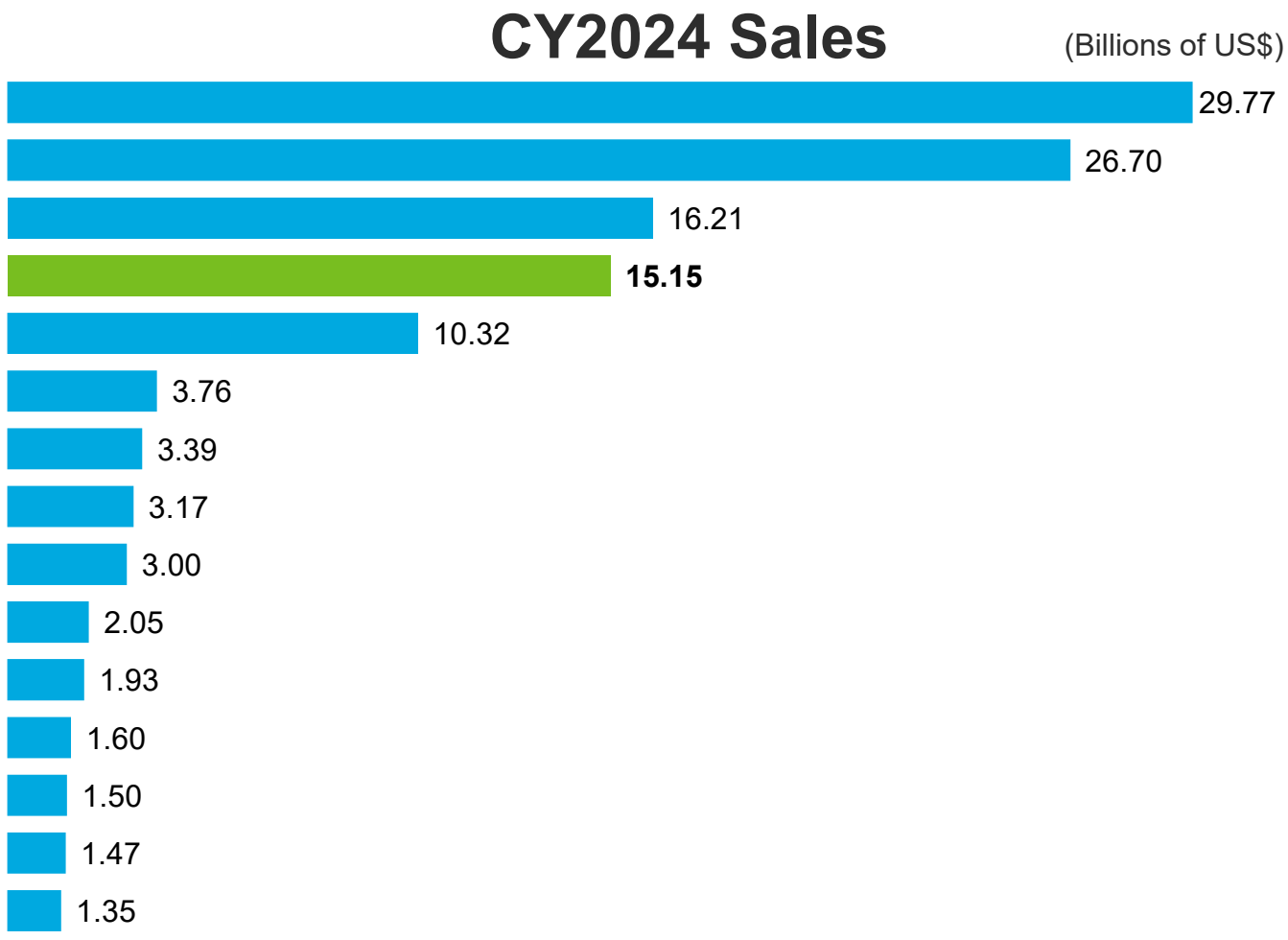
*The diagram is an image of the expanding use of semiconductors and does not indicate the actual number of semiconductors used.

Financial Performance: Sales and Operating Margin



CY2024 SPE Makers Top 15

1	ASML	29.77
2	Applied Materials	26.70
3	Lam Research	16.21
4	**Tokyo Electron**	**15.15**
5	KLA	10.32
6	Advantest	3.76
7	SCREEN	3.39
8	ASM International	3.17
9	NAURA	3.00
10	Teradyne	2.05
11	DISCO	1.93
12	SEMES	1.60
13	Hitachi High-Tech	1.50
14	KOKUSAI ELECTRIC	1.47
15	Lasertec	1.35



Source：TechInsights Inc., May 2025

Semiconductor Manufacturing Process

TELCC-SMP-003

Wafer Process (Front-end)
Assembly and Test process (Back-end)

Deposition

TELINDY PLUS™ NT333™ Episode™1

Lithography
(Photoresist coating, Development)

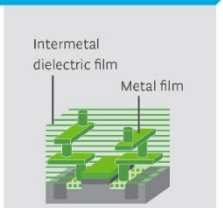
CLEAN TRACK™ LITHIUS Pro™ Z

Etching

Tactras™ Episode™ UL Certas LEAGA™

Cleaning

CELLESTA™-i



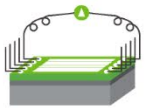
Completed Transistor and Wiring

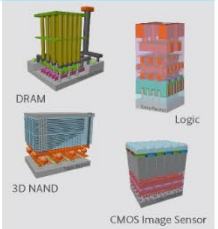
Bonding

Synapse™ Si Ulucus™ L / Ulucus™ LX

Wafer Probe Testing

Prexa™ Cellcia™





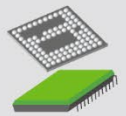
Completed Integrated Circuit

Wafer Bonding / Debonding

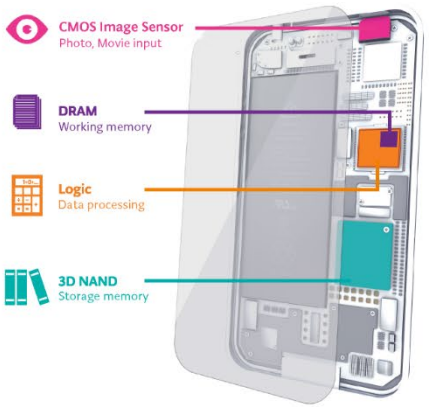
Synapse™ V / Synapse™ Z Plus

Inspection

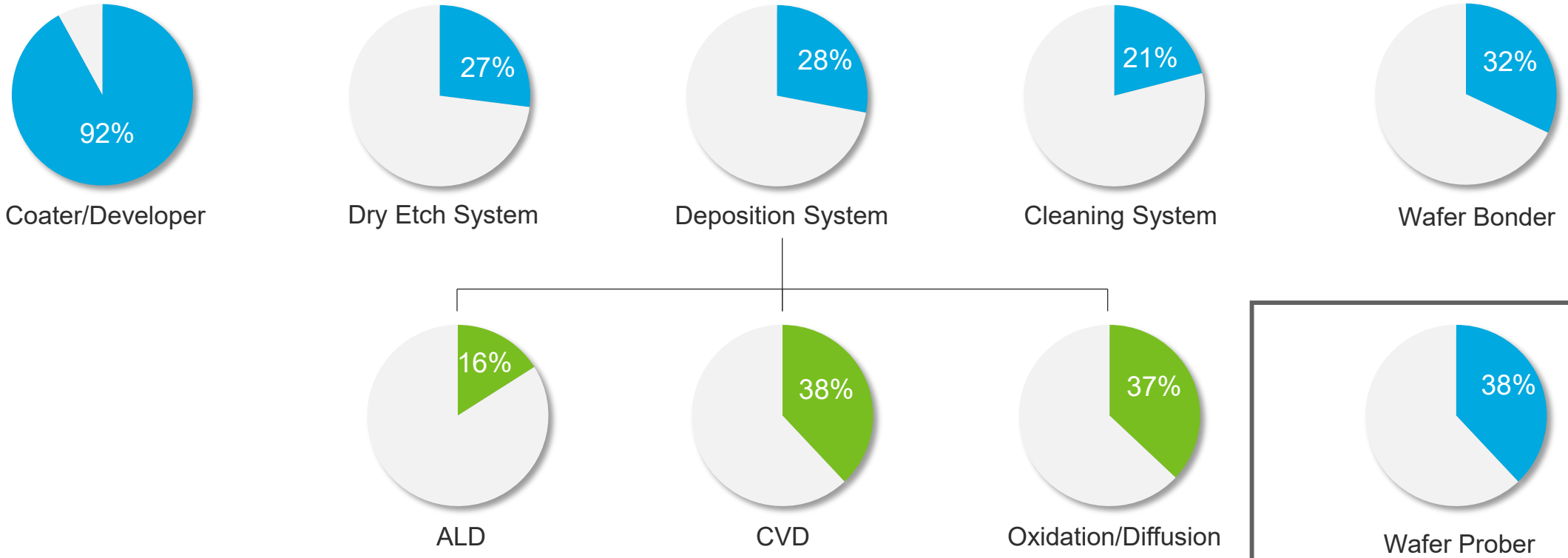
WDF™ 12DP+



Completed Semiconductor Packaging



World Market Share of Major Products （CY2024）



Source
SPE (excluding Wafer Prober) : Gartner®, Market Share: Semiconductor Wafer Fab Equipment, Worldwide, 2024, Bob Johnson and Menglin Cao, 21 April 2025, Revenue from Shipments basis. Chart created by TEL based on Gartner research. Gartner research. Calculations performed by TEL.
Coater/Developer: Photoresist Processing (Track), Dry Etch System: Dry Etch, Deposition System: Tube CVD + Atomic Layer Deposition Tools + Oxidation/Diffusion Furnaces + Nontube LPCVD, ALD: Atomic Layer Deposition Tools, CVD: Tube CVD + Nontube LPCVD, Oxidation/Diffusion: Oxidation/diffusion Furnaces, Cleaning System: Single Wafer Processors + Wet Stations + Batch Spray Processors + Scrubbers + Other Clean Equipment, Wafer Bonder: Wafer Bonder.

Source
SPE (Wafer Prober) : Auto Probers, TechInsights Inc., April 2025
Charts/graphics created by Tokyo Electron based on : TechInsights Inc.

TEL's Strengths

Have products in 4 sequential processes

Deposition | Coater/ Developer | Etch | Cleaning

No.1/No.2

Products with the world's No. 1 or No.2 market share

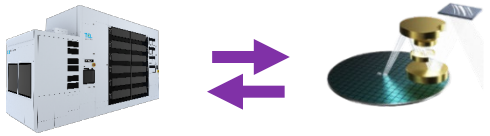
Major Products & Market Position*

#1	#2	#2	#1	#1	#1	#2	#1	#2
Coater/ Developer	Cleaning	Plasma Etch	Gas Chemical Etch	Diffusion Furnace	Batch Deposition	Metal Deposition	Prober	Bonding

*TEL estimate

100%

Market share of coater/developer for EUVL



Coater/ Developer | EUV Lithography

No.1

Worldwide installed base

Annual increase by about
4,000～6,000 units*1

Industry's largest installed base
97,000 units*2

*1 As of March 2025
*2 As of June 2025

R&D Map

(As of Apr. 1, 2025)

TEL Magnetic Solutions (Ireland)

imec (Belgium)

CEA-Leti (France)

TEL Technology Center Korea (Korea)

TEL Technology Center, Taiwan (Taiwan)

IME (Singapore)

TEL Digital Design Square
Tokyo Electron Technology Solutions
Tokyo Electron Miyagi
Tokyo Electron Kyushu
(Japan)

National Institute of Advanced Industrial Science and Technology
(Japan)

TEL Manufacturing and Engineering of America (U.S.)

TEL Technology Center, America (U.S.)

TEL Technology & AI Design (U.S.)

SUNY Poly/NY CREATES (U.S.)

BRIDG (U.S.)

Tokyo Electron America (U.S.)

TEL R&D base

Consortium

Strengthen R&D Capabilities

Yamanashi R&D building

Deposition system, gas chemical etch system, corporate R&D

(Established in July 2023)

Miyagi R&D building

Etch system

(Completion scheduled for spring 2025)

Kumamoto R&D building

Coater/Developers, surface preparation system, Bonder

(Completion scheduled for autumn 2025)

Miyagi Technology Innovation Center

Etch system

(Established in September 2021)

TEL Digital Design Square

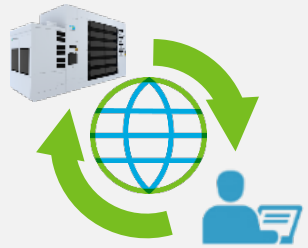
DX, Software

(Began operation in Novenmber 2020)

Continually Pursuing the Best Products and Best Service

Front-loading

Advanced field solutions



- Share roadmap for next several generations with customers
- Promote early engagement
- Realize maximum yield of customer devices and equipment availability from early stage of customers' mass production and reduce burden on the environment
- Further increase investment in human resources/R&D by raising operational efficiency and driving higher per-employee productivity

- Business development leveraging industry's largest installed base of 97,000 units*
- TELeMetrics™ remote maintenance
- Predictive maintenance with machine learning

* As June 2025

Maximize Utilization of TEL's Comprehensive Strengths

Sales

Customer trust

Broad product coverage

Market-ing

Advanced data collection and analysis abilities

FS

- **Largest installed base in industry: over 97,000 units***
- **Advanced FS**

* As of June 2025

R&D

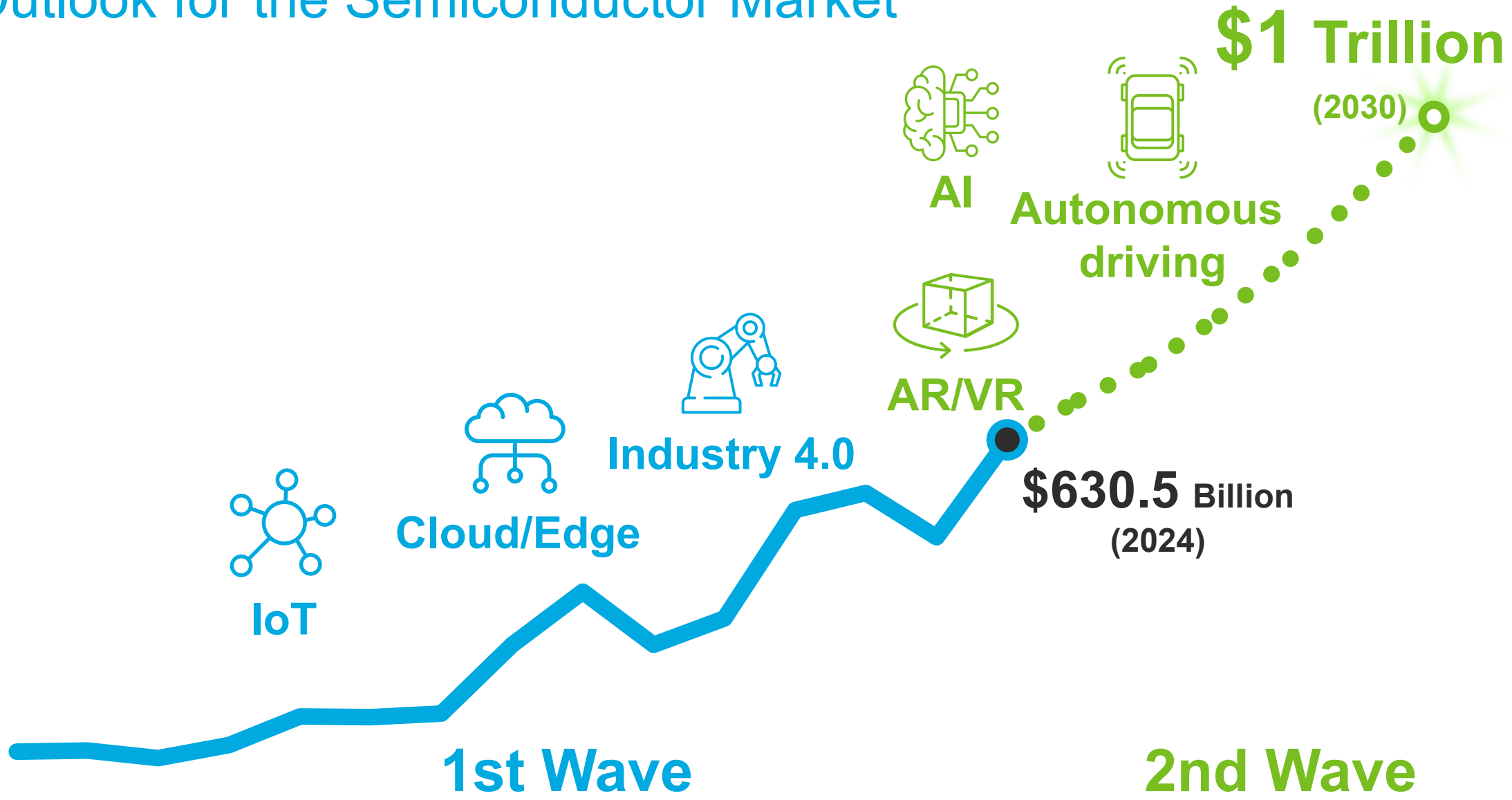
- **Strong next generation product development**
- **Process integration**

Manu-facturing

- **High quality**
- **Robust supply chain**

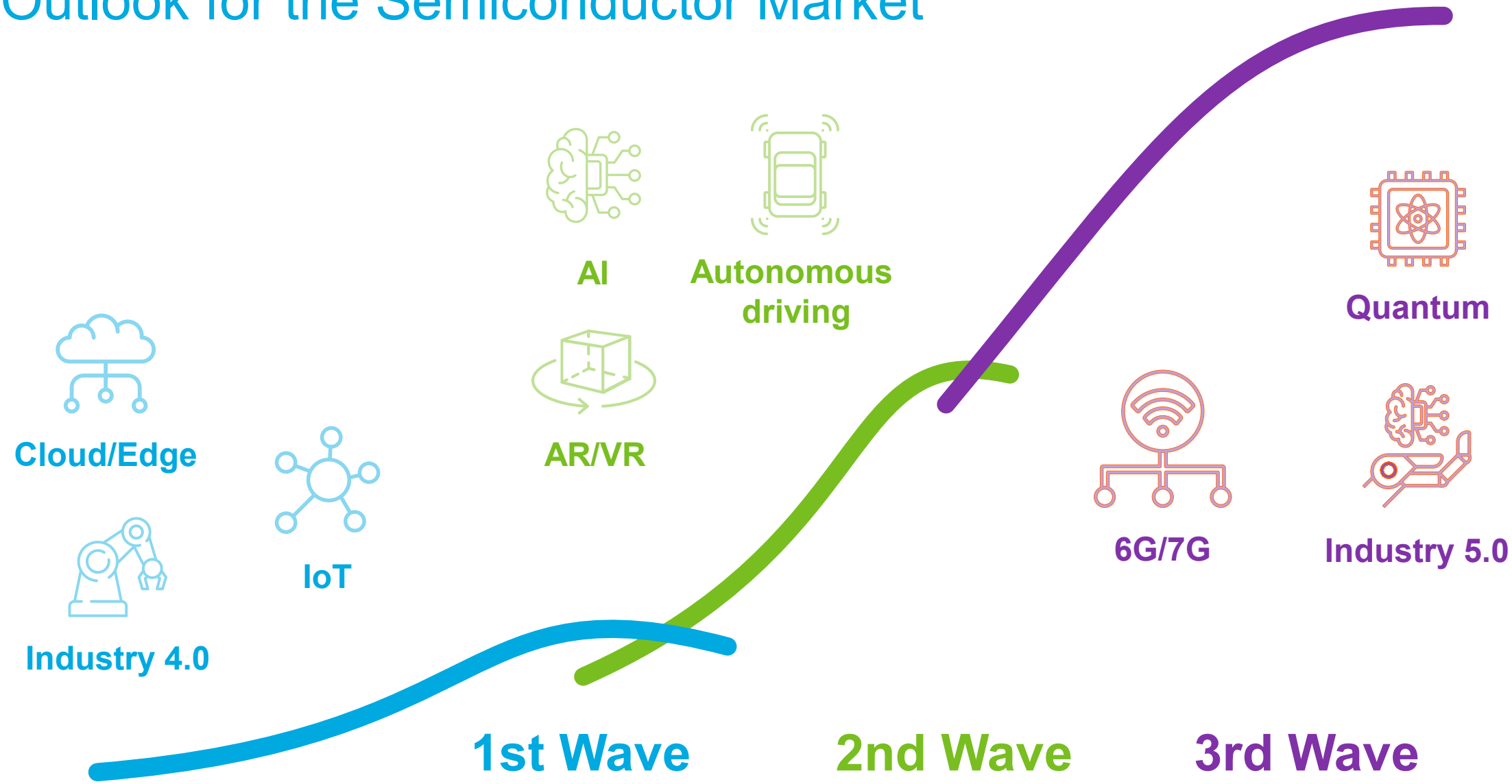
2. Semiconductor and SPE Market Outlook

Outlook for the Semiconductor Market



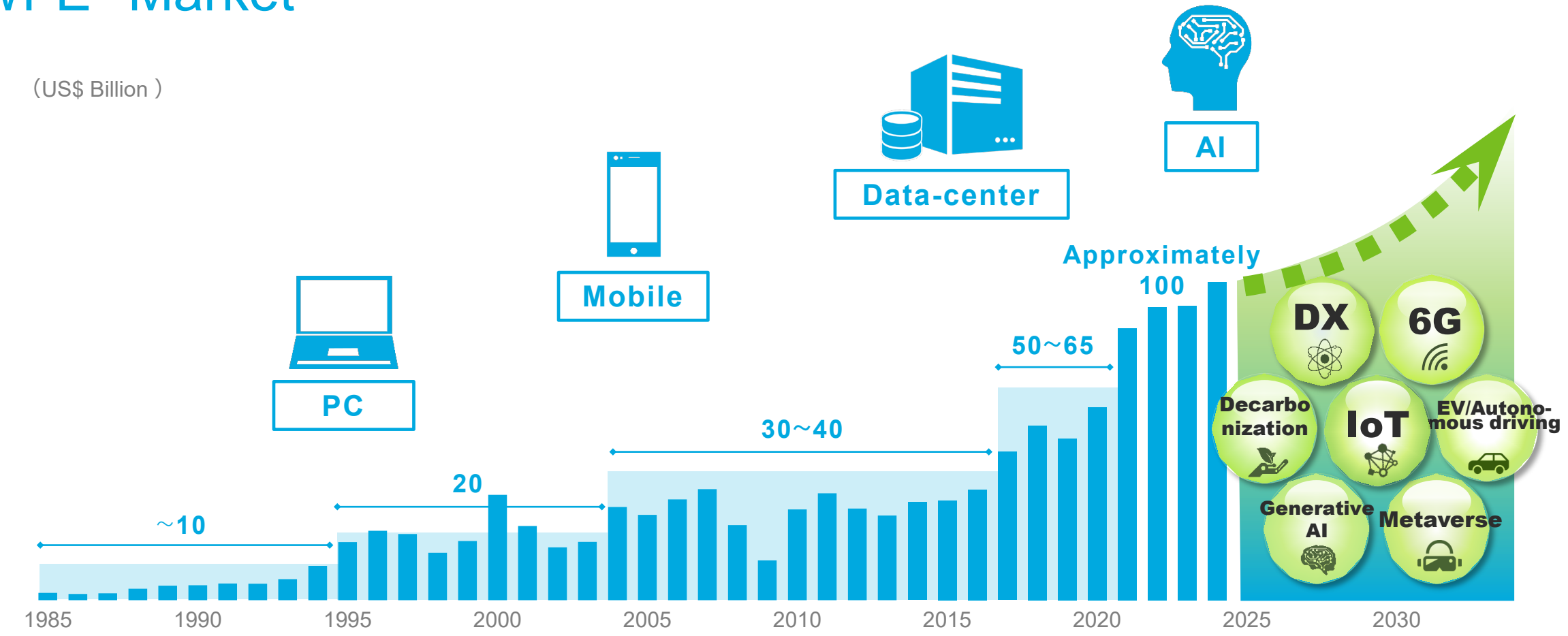
Source:1990-2024 (WSTS, May)／2025-2030 (IBS, May 2025)

Outlook for the Semiconductor Market



Source: SEMI 2024

WFE* Market



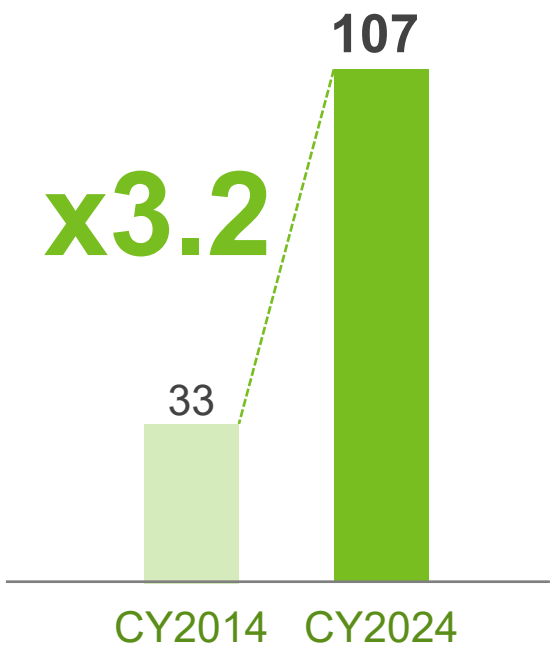
* WFE (Wafer Fab Equipment): The semiconductor production process is divided into front-end production, in which circuits are formed on wafers and inspected, and back-end production, in which wafers are cut into chips, assembled and inspected again. WFE refers to the production equipment used in front-end production and in wafer-level packaging production.

Source : TechInsights Inc. (1985~2024)

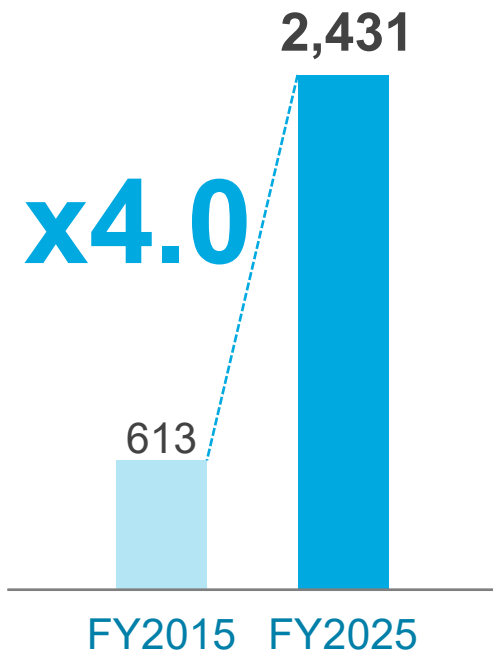
WFE Market will grow further with progress of digitalization and evolution of semiconductors

Market and Performance Growth (FY2015 to FY2025)

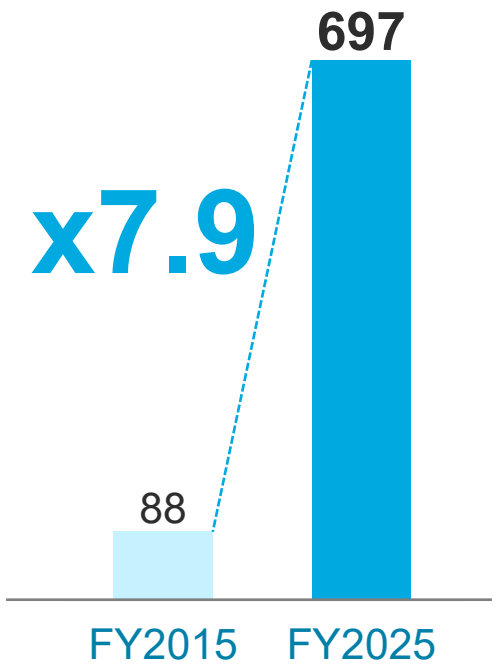
WFE market ($B)



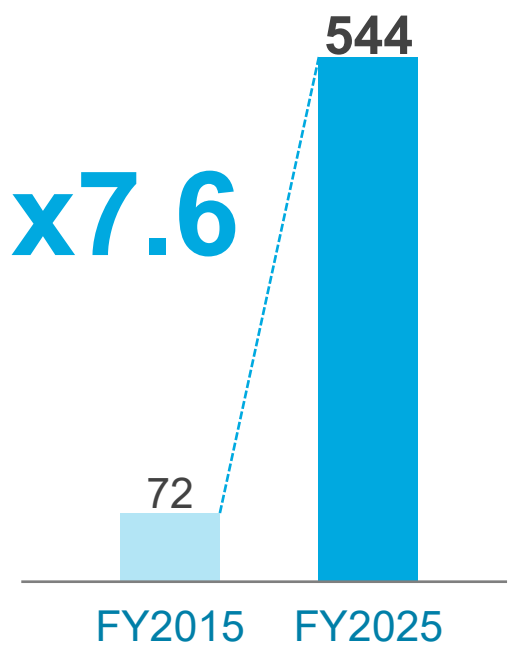
Net sales (B yen)



Operating income (B yen)



Net income attributable to owners of parent (Byen)



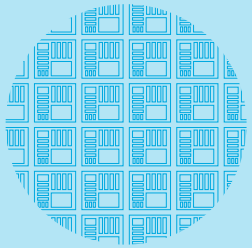
Significantly outperformed market growth

Source : TechInsights Inc.

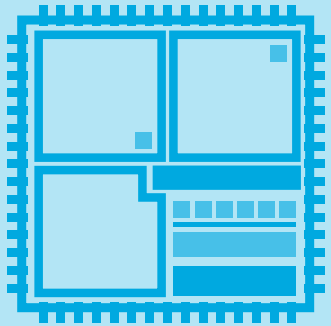
Green Future Through Semiconductor Evolution

Digital & Green

- Higher Speed
- Larger Capacity
- Superior Reliability
- Lower Power Consumption



Physical Scaling



Heterogeneous Integration

Physical Scaling x Heterogeneous Integration

Frontend

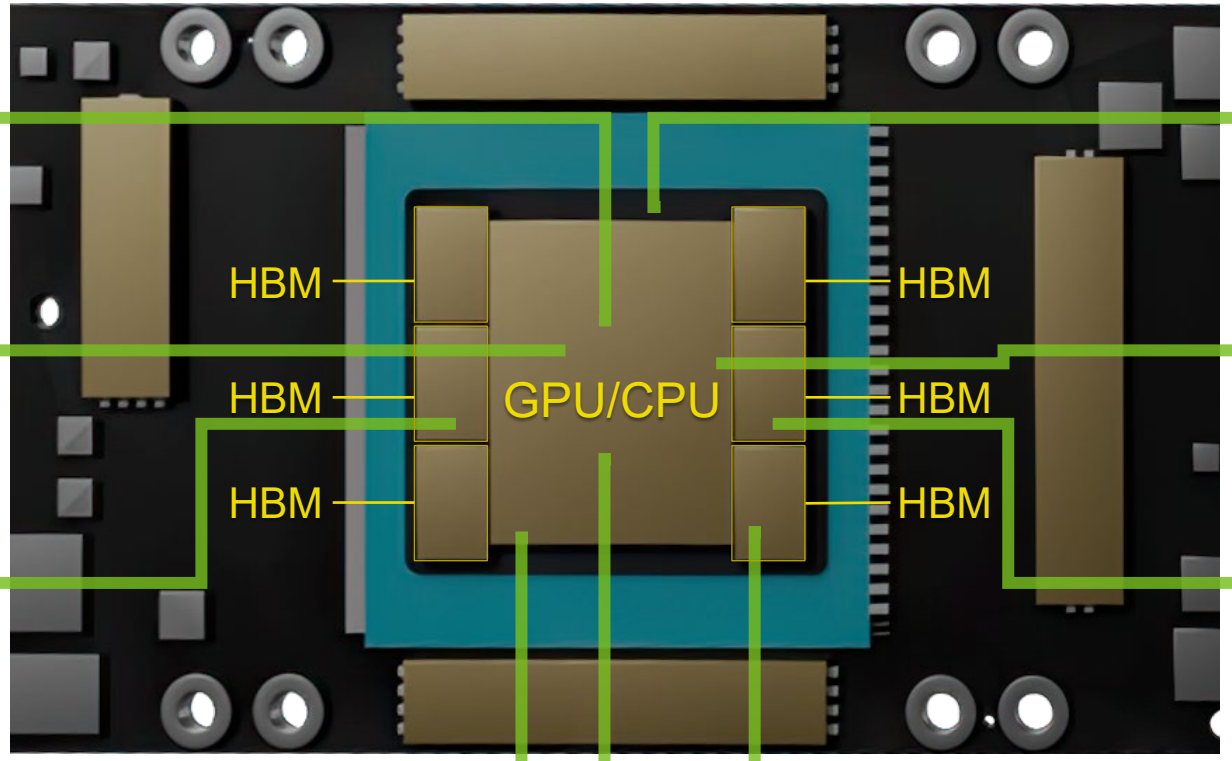
Logic
GAA * / CFET

Logic
Backside PDN *

DRAM
4F² VCT * / 3D DRAM

Super Flat Wafer

AI Semiconductor



Advanced Packaging

Heat Spreader

3DIC
Chiplet Integration

Stack Memory
HBM, etc.

Known Good Die

* GAA : Gate All Around
* Backside PDN : Backside Power Delivery Network
* VCT : Vertical Channel Transistor

Expanding Opportunities: Wide Product Portfolio

Frontend | Advanced Packaging

Deposition | Lithography | Etch | Cleaning | Testing | Bonding / Debonding


Batch Deposition


Semi-batch Deposition


Single Deposition


Coater/ Developer


Plasma Etch


Gas Chemical Etch


Cleaning

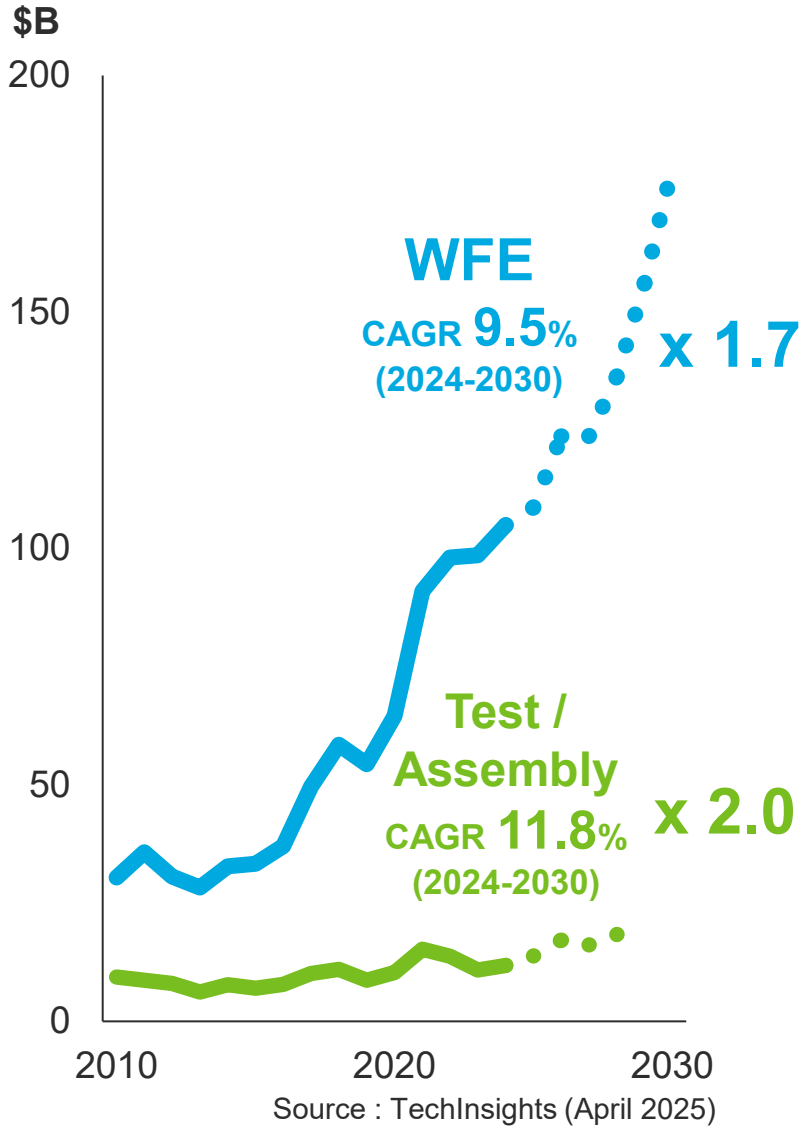

Prober


Wafer Bonder/ Debonder


Wafer Edge Trimming/ XLO*

*XLO: Extreme Laser Lift Off

Strategic Technologies for Future Growth



Source : TechInsights (April 2025)

Frontend

Logic : GAA, BSPDN

- EUV Coater/Developer
- Gas Chemical Etch
- Conductor Etch
- PVD Metal Overburden
- CFET/Inner Spacer Plasma CVD for filling film
- Double-sided scrubber
- Backside/bevel cleaning
- Pattern Shaping
- Wafer Bonder
- Laser Tool

DRAM: 2D & 3D DRAM

- EUV Coater/Developer
- Capacitor Mold Etch
- Batch High-k Capacitor deposition
- PVD Metal Hardmask
- Supercritical Cleaning
- Backside/bevel Cleaning
- Wafer Bonder
- Laser Tool

NAND: Beyond 4xx

- Slit Etch
- Channel Hole Etch (Plug)
- Batch Mo deposition
- Batch Cleaning WL Separation
- Wafer Bonder
- Laser Tool

Advanced Packaging

Logic Packaging

- Interposer, Polyimide & PR Coater/Developer
- TDV Etch
- Batch High-k Capacitor depo
- Wafer Bonder
- Laser Tool

HBM Packaging

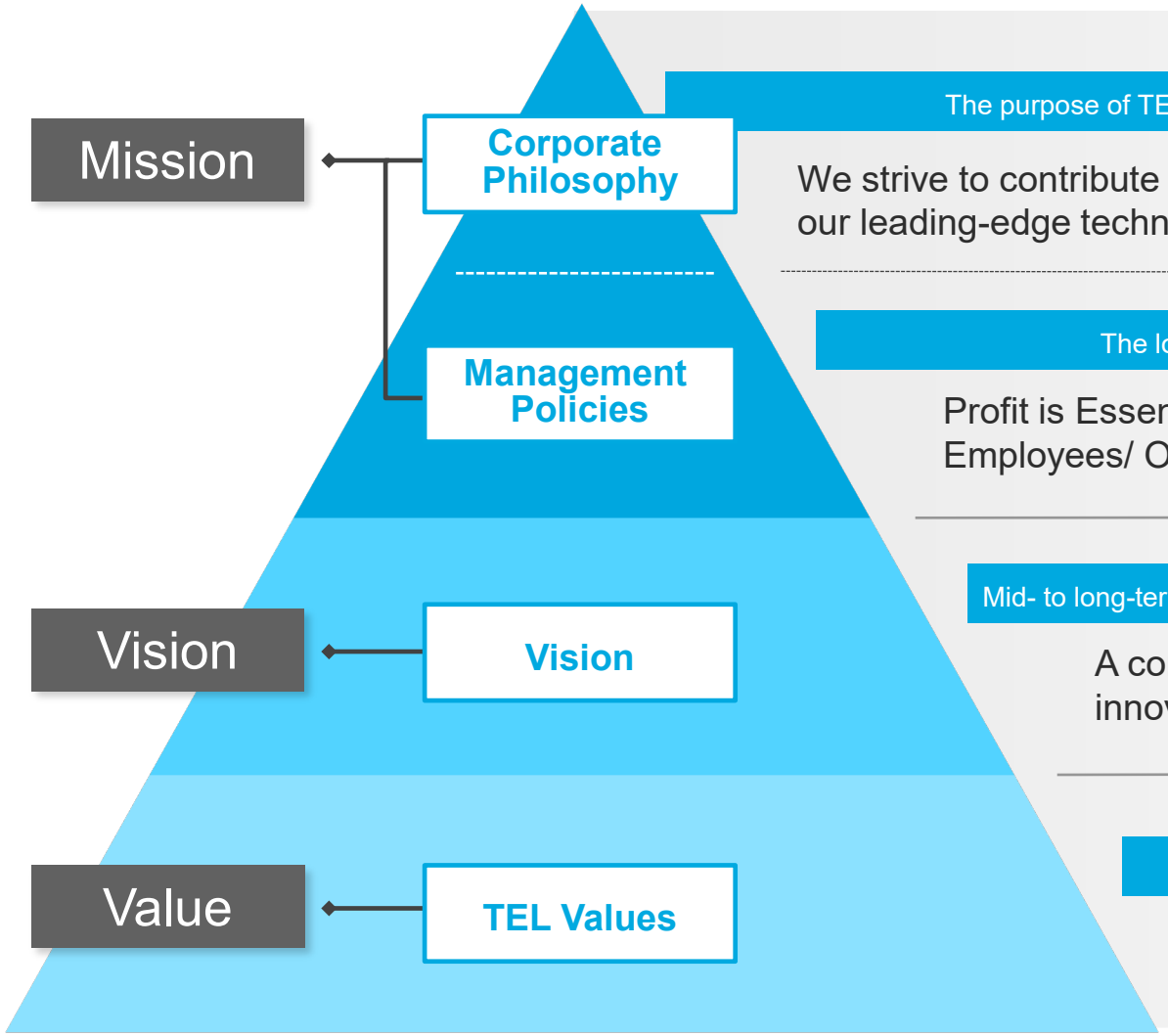
- Polyimide & PR Coater/Developer
- Metal Etch for HBM
- Aerosol Cleaning
- Temporary Bonder/Debonder

Advanced Logic / Memory Test

- Prober

3. Corporate Principles and New Medium-term Management Plan

Corporate Principles System



Corporate Philosophy

The purpose of TEL's existence and its mission in society

We strive to contribute to the development of a dream-inspiring society through our leading-edge technologies and reliable service and support

Management Policies

The logic that underscores general rules of management

Profit is Essential/Scope of Business/Growth Philosophy/Quality and Service/ Employees/ Organizations/Safety, Health, and the Environment/Social Responsibility

Vision

Mid- to long-term business aspirations based on our Corporate Philosophy and Management Policies

A company filled with dreams and vitality that contributes to technological innovation in semiconductors

TEL Values

Attitudes, codes of conduct, and values to be observed by each employee

Pride/Challenge/Ownership/Teamwork/Awareness

Vision

A company filled with dreams and vitality that contributes to technological innovation in semiconductors

Tokyo Electron pursues technological innovation in semiconductors that supports the sustainable development of the world.

We aim for medium- to long-term profit expansion and continuous corporate value enhancement by utilizing our expertise to continuously create high value-added leading-edge equipment and technical services.

Our corporate growth is enabled by people, and our employees both create and fulfill company values. We work to realize this vision through engagement with our stakeholders.

Technology Enabling Life

"Technology Enabling Life" is our corporate message that expresses the Corporate Principles which consist of our Corporate Philosophy, Management Policies, Vision and TEL Values.

CSV
(Creating Shared Value)

The concept is to create social and economic value by leveraging corporate expertise to solve social issues, hereby enhancing corporate value and achieving sustainable growth.

TSV
TEL's Shared Value

=

- Pursue technological innovation in semiconductors that supports the sustainable development of the world
- Continuously create high value-added leading-edge equipment and technical services
- Medium- to long-term profit expansion and continuous corporate value enhancement
- Engagement with our stakeholders

Realization of Vision = Creating Shared Value in TEL

Our Approaches to Social Issues

Sustainable development of the world / Diversification of values and happiness

Solutions

Online/Metaverse	AI diagnosis/Prevention/Robots	Smartification	EV/Autonomous driving/MaaS
			

Technologies

Higher speed communication (5G/6G)	Cloud/Edge Computing	AI	IoT	AR/VR/MR

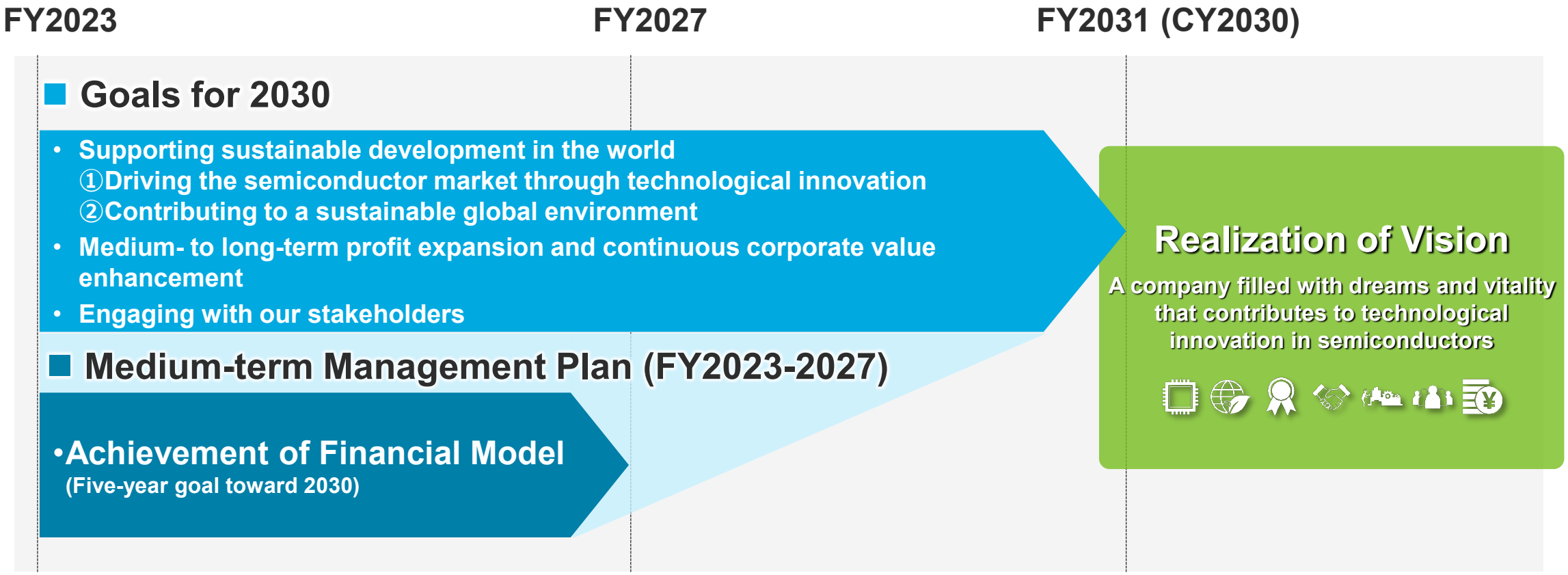
Semiconductors

Logic	Memory	Power	Analog	Sensor	Display

Pursue technological innovation in semiconductors：
Larger capacity/Higher speed/Higher reliability/Lower power consumption

Higher definition/Flexible /Lower power consumption

Vision & Medium-term Management Plan

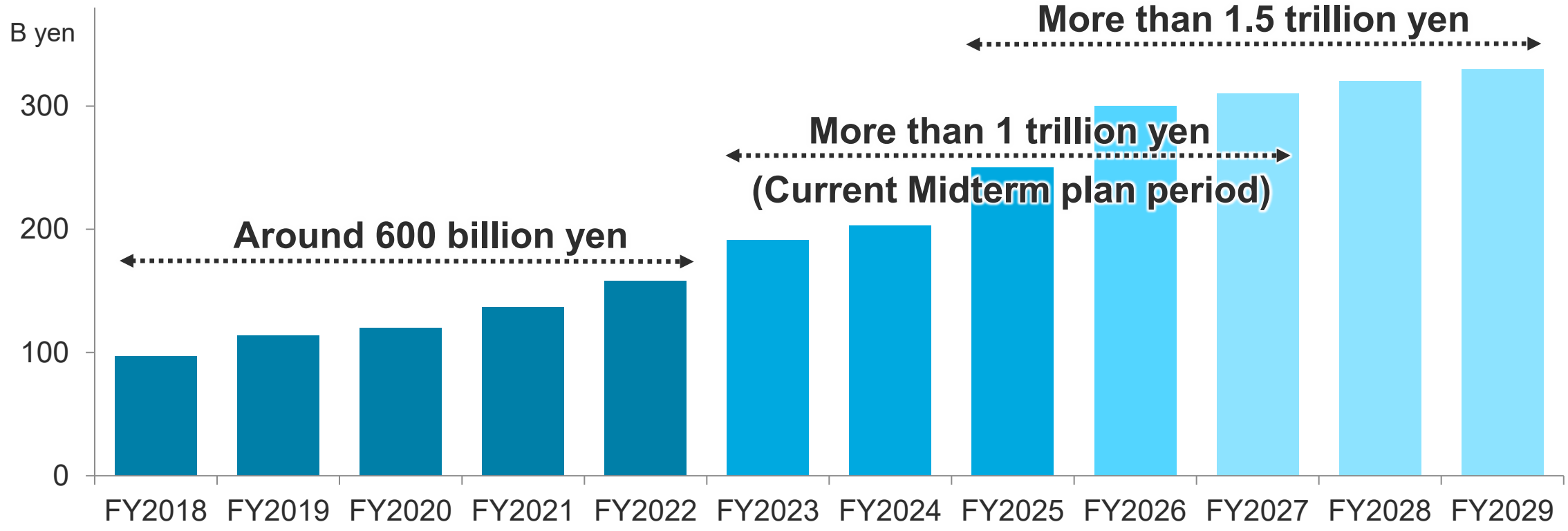


Aiming to achieve the Medium-term Management Plan
by FY2027 with a view to realizing Vision in 2030

The New Medium-term Management Plan : Financial Targets

Financial Targets (FY2023 - FY2027)	
Net sales	≧ 3 trillion yen
OP margin	≧ 35%
ROE	≧ 30%

Aggressive Investment in R&D

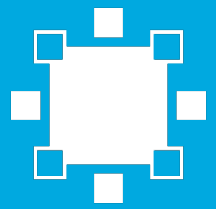


Driving the creation of high-value next-generation products through further growth investments

Investment for Growth Visioning beyond the Midterm Plan (FY2025 to FY2029)

R&D Investment

1.5
trillion yen



Capex

700
billion yen

Recruitment

10,000
people
2,000 people/year

4. Business Environment and Financial Estimates

Market Environment and Business Progress

- Q1 FY2026: Business progressed as planned
  - Both net sales and profit proceeded as planned
    - Net sales 549.5 B yen, Operating profit 144.6 B yen, Operating profit margin 26.3%
  - POR* acquisition and development of strategic products for future growth on track
    - New low-resistance metal deposition tool: evaluation in progress with multiple NAND customers
    - 3D integration tools including extreme laser lift off: negotiation underway
  - Construction of new development building in Tokyo Electron Miyagi completed
- H1 FY2026 business outlook: no change
  - Net sales 1.15 T yen, Operating profit 288.0 B yen, Operating profit margin 25.0%
- CY2025 WFE: In line with expectations
  - Reflecting currency fluctuations, etc., WFE forecast has been revised from $110B in April, to $115B

* POR (Process of Record): Certification of the adoption of equipment in customers' semiconductor production processes

Market Environment and Business Progress

- Trends in H1 CY2026 (January – June) ：

WFE growth rate of -5% for FY2026 due to productivity improvements resulting from improved customer yields, optimization of the supply-demand balance with an eye on profits, and a shift from upfront investments to more steady investments

- Some leading-edge logic customers are revising their capex plan
- Emerging Chinese chip manufacturers are scaling back their legacy investments
- NAND investment plans are changing based on careful considerations of supply/demand balance
- Although demand for HBM* is strong, investment plans are also being revised due to production technology and customer yield improvements
- Delay in full transition investment from DRAM DDR4 to DDR5

* HBM (High Bandwidth Memory)

FY2026 Financial Estimates

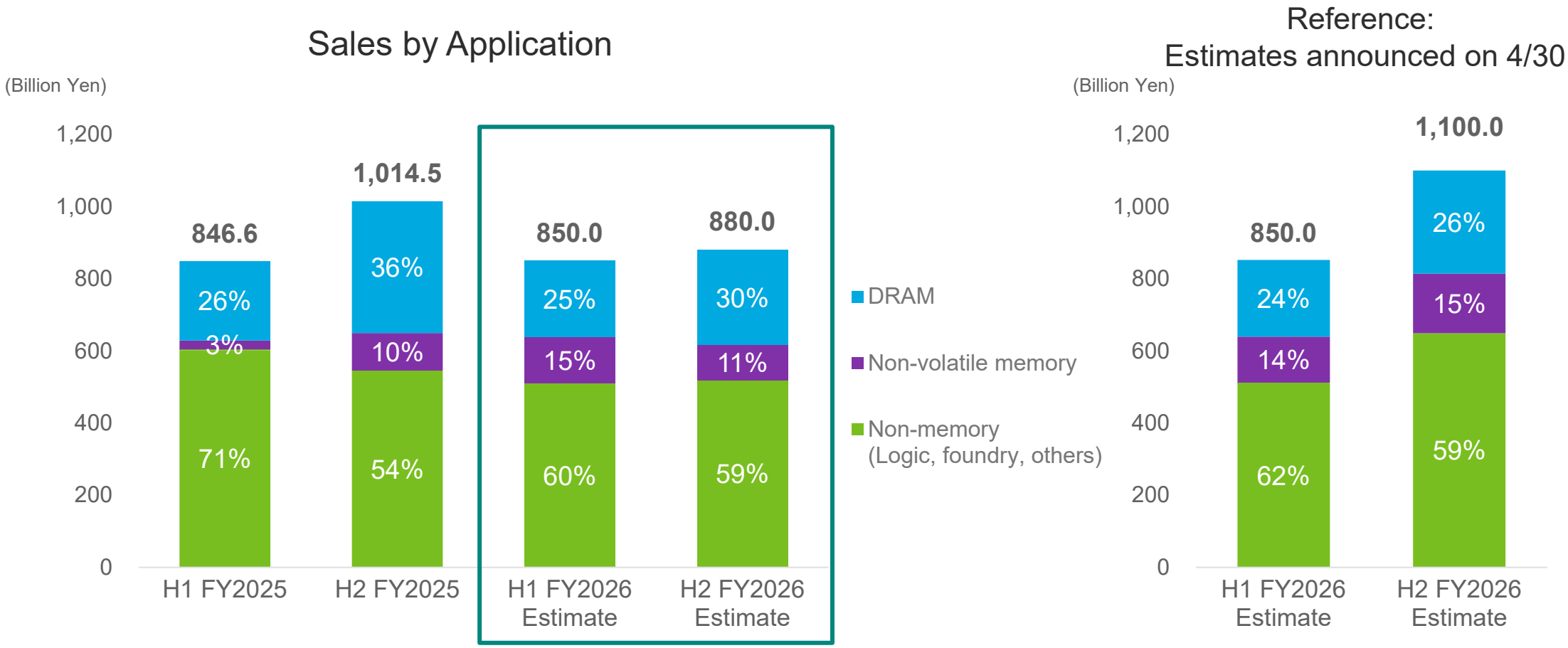
(Billion Yen)

	FY2025 (Actual)	FY2026 (New Forecast)					Reference: FY2026 (Forecast announced on 4/30)	
		H1	H2	Full Year	vs FY2025	Adjustments*	H2	Full Year
Net sales	2,431.5	1,150.0	1,200.0	2,350.0	-3.4%	-250.0	1,450.0	2,600.0
Gross profit	1,146.2	527.0	539.0	1,066.0	-7.0%	-162.0	701.0	1,228.0
Gross profit margin	47.1%	45.8%	44.9%	45.4%	-1.7pts	-1.8 pts	48.3%	47.2%
SG&A expenses	448.9	239.0	257.0	496.0	+10.5%	-5.0	262.0	501.0
R&D	250.0	140.0	155.0	295.0	+18.0%	-5.0	160.0	300.0
Other than R&D	198.9	99.0	102.0	201.0	+1.0%	0.0	102.0	201.0
Operating income	697.3	288.0	282.0	570.0	-18.3%	-157.0	439.0	727.0
Operating margin	28.7%	25.0%	23.5%	24.3%	-4.4pts	-3.7pts	30.3%	28.0%
Income before income taxes	706.1	293.0	286.0	579.0	-18.0%	-157.0	443.0	736.0
Net income attributable to owners of parent	544.1	224.0	220.0	444.0	-18.4%	-122.0	342.0	566.0
Net income per share (Yen)	1,182.40	488.93	-	969.12	-213.28	-266.39	-	1,235.51

* Changes from the figures announced on April 30, 2025

Revised forecast to reflect customer investment status

FY2026 SPE New Equipment Sales Forecast

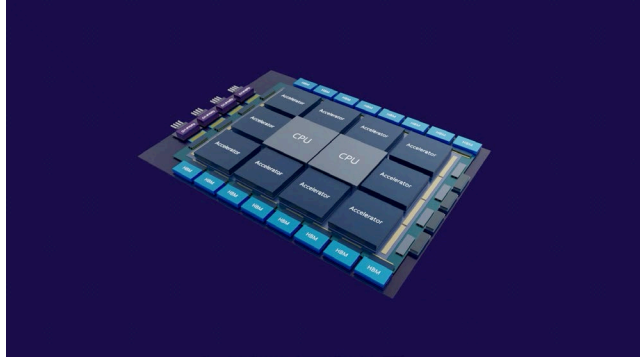


Percentages on the graph show the composition ratio of new equipment sales. Field solutions sales are not included.

Revised H2 FY2026 forecast reflecting the latest investment trend

Cutting-edge Chips Indispensable for AI Servers

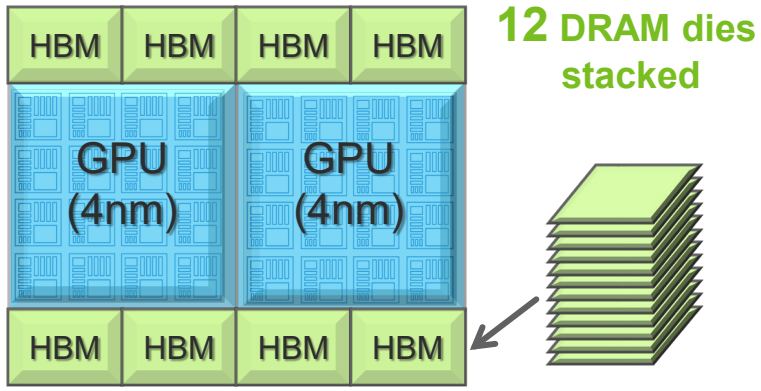
Growth Drivers for CY2026 (FY2027)



CY2025

200 billion transistors

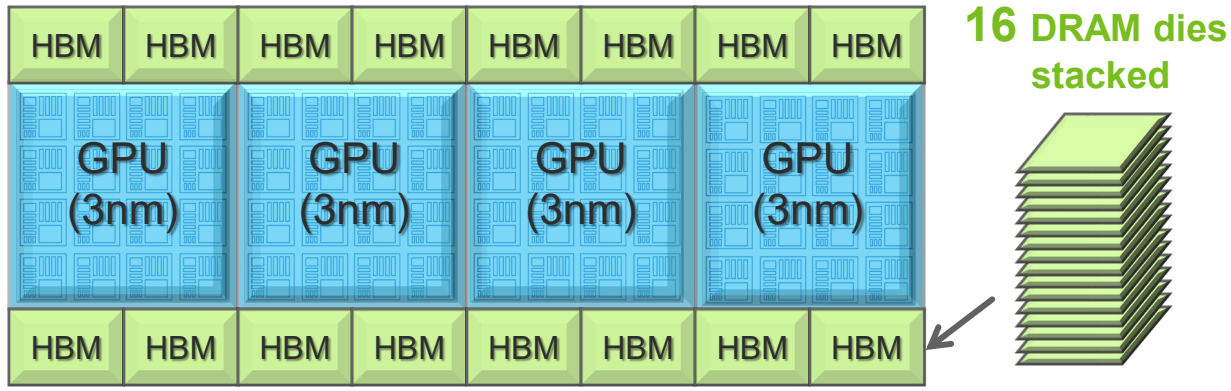
Memory capacity **288GB**



CY2027

500 billion transistors

Memory capacity **1TB** (1,024GB)



GPU : Graphic Processing Unit
HBM : High Bandwidth Memory

TEL estimates

Technology innovation proceeds, increasing the # of transistors by 2.5x, memory capacity by 4x, shifting from two 4nm-GPUs to four 3nm-GPUs, and 12- to 16-stack HBMs in 2 years to come

FY2026 R&D Expenses and Capex Plan

New Development Building

Etch system

Kurokawa-gun, Miyagi Prefecture

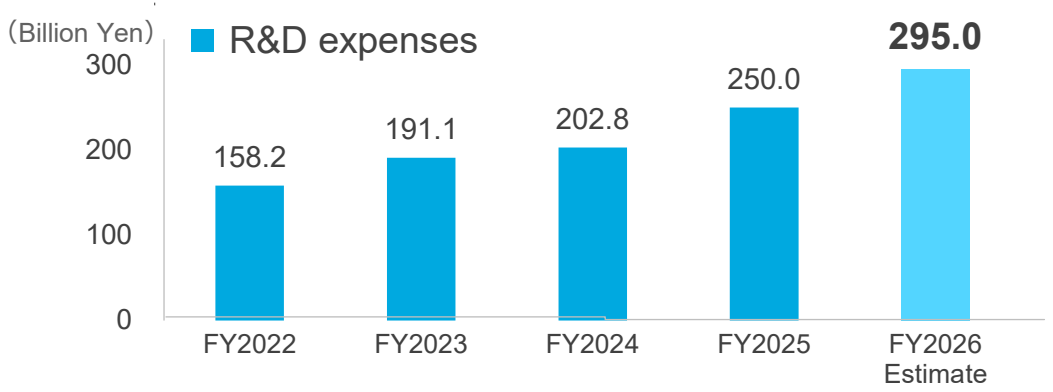
Completed in April 2025

New Development Building

Coater/developer, cleaning system, bonder

Koshi-city, Kumamoto Prefecture

Completion scheduled for autumn 2025



Tohoku Production and Logistics Center

Deposition system

Oshu-city, Iwate Prefecture

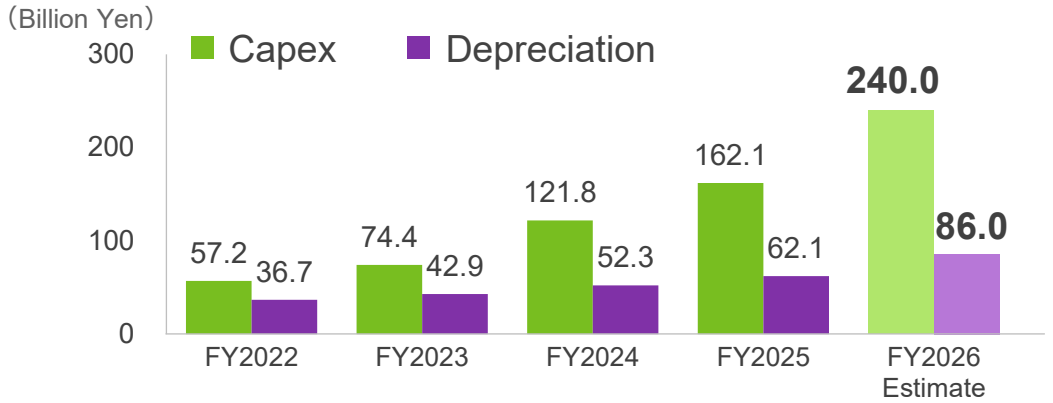
Completion scheduled for autumn 2025

New Production Building

Etch system

Kurokawa-gun, Miyagi Prefecture

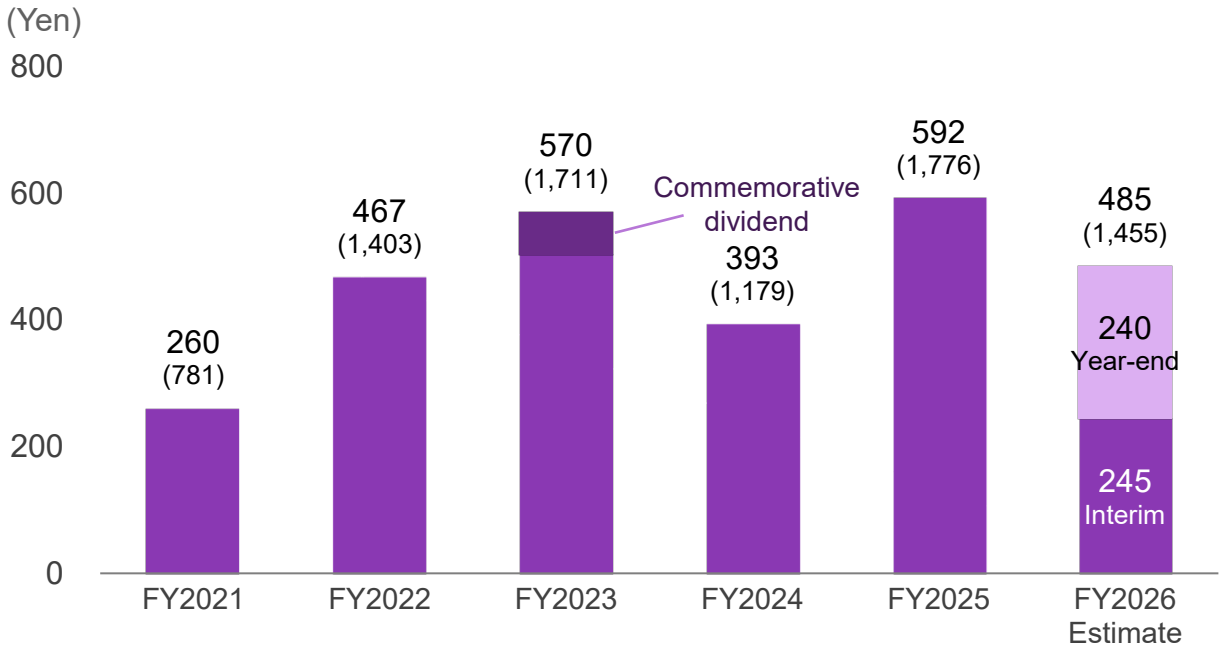
Completion scheduled for summer 2027



Semiconductors for AI servers drive technology innovation, fueling expanding demand.
R&D and capital investments to proceed as scheduled

FY2026 Dividend Forecast

Dividend per Share



- Dividends per share from FY2020 to FY2023 are calculated on the assumption that the stock split was conducted at the beginning of FY2020.
- FY2023 includes the 60th anniversary commemorative dividends.
- Amounts before the stock split are shown in parentheses.

TEL shareholder return policy

Dividend payout ratio: 50%

Annual DPS of not less than 50 yen*

We will review our dividend policy if the company does not generate net income for two consecutive fiscal years

We will flexibly consider share buybacks

*Due to the stock split on April 1, 2023, the amount has been changed from 150 yen to 50 yen.

Full-year dividends are expected to be 485 yen per share

5. Sustainability

Sustainability Initiatives

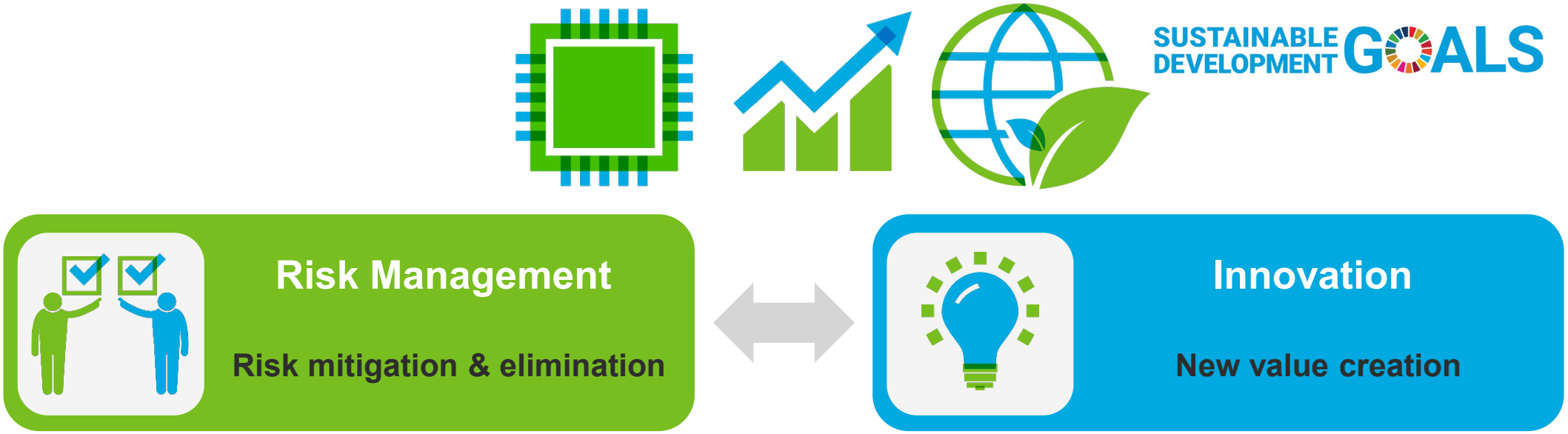
The 14 material issues (key issues) that require prioritized attention and actions are identified to implement sustainability initiatives through our business operation and contribute to the resolution of industrial and social issues.

SUSTAINABLE DEVELOPMENT GOALS

- Respect for Human Rights
- Climate Change and Net Zero
- Product Energy Efficiency
- Best Products with Innovative Technology
- Best Technical Service with High Added Value
- Customer Satisfaction and Trust
- Supplier Relationship

- Employee Engagement
- Safety First Operation
- Quality Management
- Compliance
- Ethical Behavior
- Information Security
- Enterprise Risk Management

Risk Management



TCFD TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

Sustainability-focused management aiming to remain a company that is loved and trusted by all stakeholders. Promotion of technological innovation of semiconductors and reduction of environmental impact in supply chain

Environmental Approaches

Net Zero

Target **Scope 1, 2 & 3 by 2040**

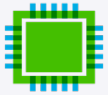
Scope 1&2: CO2 Emissions from energy use such as electricity in business activities

Scope 3 : CO2 Emissions from the use and disposal of sold equipment, material purchases and logistics, etc.

E-COMPASS

Environmental Co-Creation by Material, Process and Subcomponent Solutions

Semiconductors	Products	Business activities
Pursuing higher device performance and lower power consumption	Achieving both high process performance and environmental performance of the equipment	Reduction of CO_2 emissions in all business activities



Promoting technological innovation of semiconductors
and reducing environmental impact throughout the supply chain

Safety & Quality

Safety

Under the “Safety First” slogan, everyone at Tokyo Electron, from top management to field representative, is actively and continuously improving safety and promoting health, giving safety and health the highest priority when carrying out different types of operations such as development, manufacturing, transportation, installation and maintenance.

Safety Goals
(by FY2027)
TCIR ≤ 0.1

TCIR: Total Case Incident Rate（Number of workplace injuries per 200,000 work hours）

Incident Prevention Initiatives

- Experiential training and VR (Virtual Reality)
- Comprehensive safety inspections
- Feedback on safety specifications
- Safety activities for suppliers

Quality

The Tokyo Electron Group seeks to provide the highest-quality products and services. This pursuit of quality begins at development and continues through all manufacturing, installation, maintenance, sales and support processes. Our employees must work to deliver quality products, quality services and innovative solutions that enable customer success.

Quality Policy

1 Quality Focus

2 Quality Design and Assurance

3 Quality and Trust

4 Continual Improvement

5 Stakeholder Communication

TEL Values as codes of conduct

Engagement

Career

Corporate growth is enabled by people, and our employees both create and fulfill company values

Retention

Work-life balance

Diversity, Equity and Inclusion

3Gs

Global・Generation・Gender

Human Rights Initiatives

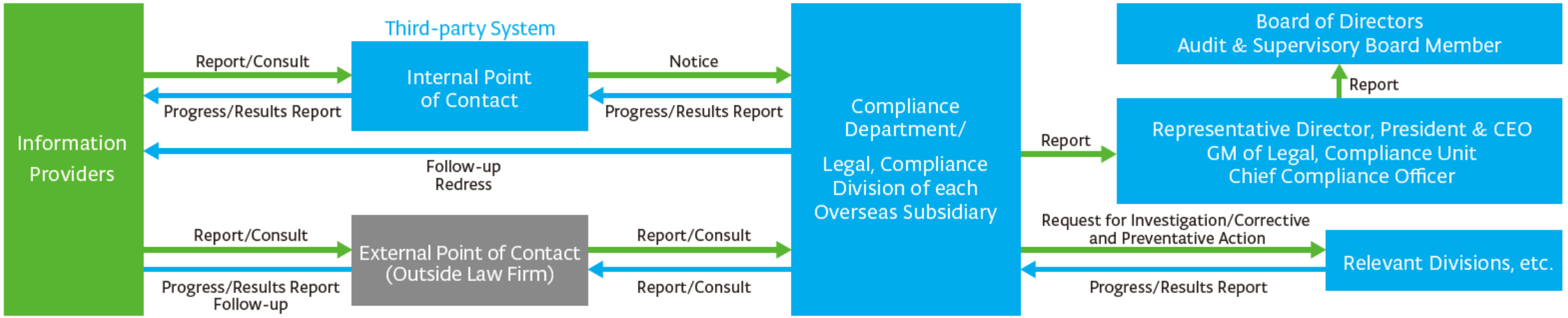
The five focus areas in human rights (Tokyo Electron Group Human Rights Policy)

- Freedom, equality & non-discrimination
- Freely chosen employment
- Product safety & workplace health and safety
- Freedom of association
- Appropriate working hours & breaks/ holidays/vacations

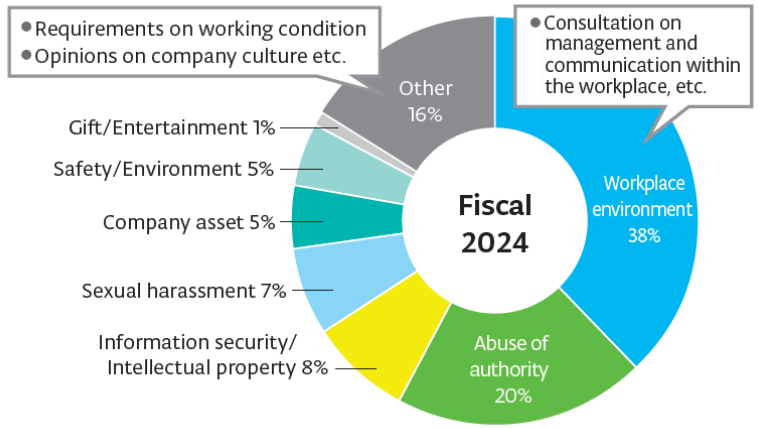
Human Rights Due Diligence

Commitment	Assessment	Remediation	Report
Commitment to respecting human rights	**Assessment of human rights risks in business and supply chains**	**Actions to reduce risks based on assessment results**	**Regular disclosure of information**
▪ Revision of Tokyo Electron Group Human Rights Policy ▪ Awareness and implementation ▪ Education	▪ Human rights risk assessment ▪ Human rights impact assessment	▪ Feedback sheet publication ▪ Program development and review according to issues	▪ Publication of the Integrated Report ▪ Postings on the website

Internal Reporting System



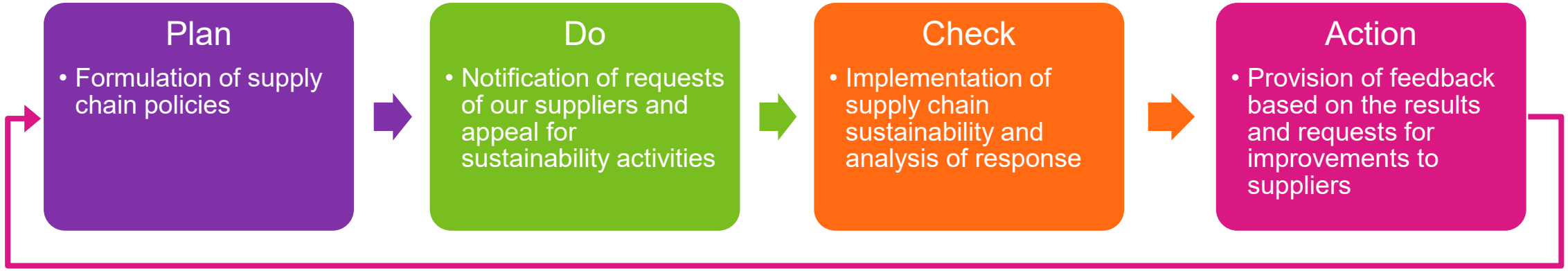
Breakdown of Report/Consultation Contents



Respect for human rights with a strong sense of integrity

Supply Chain Management

Supply chain sustainability process

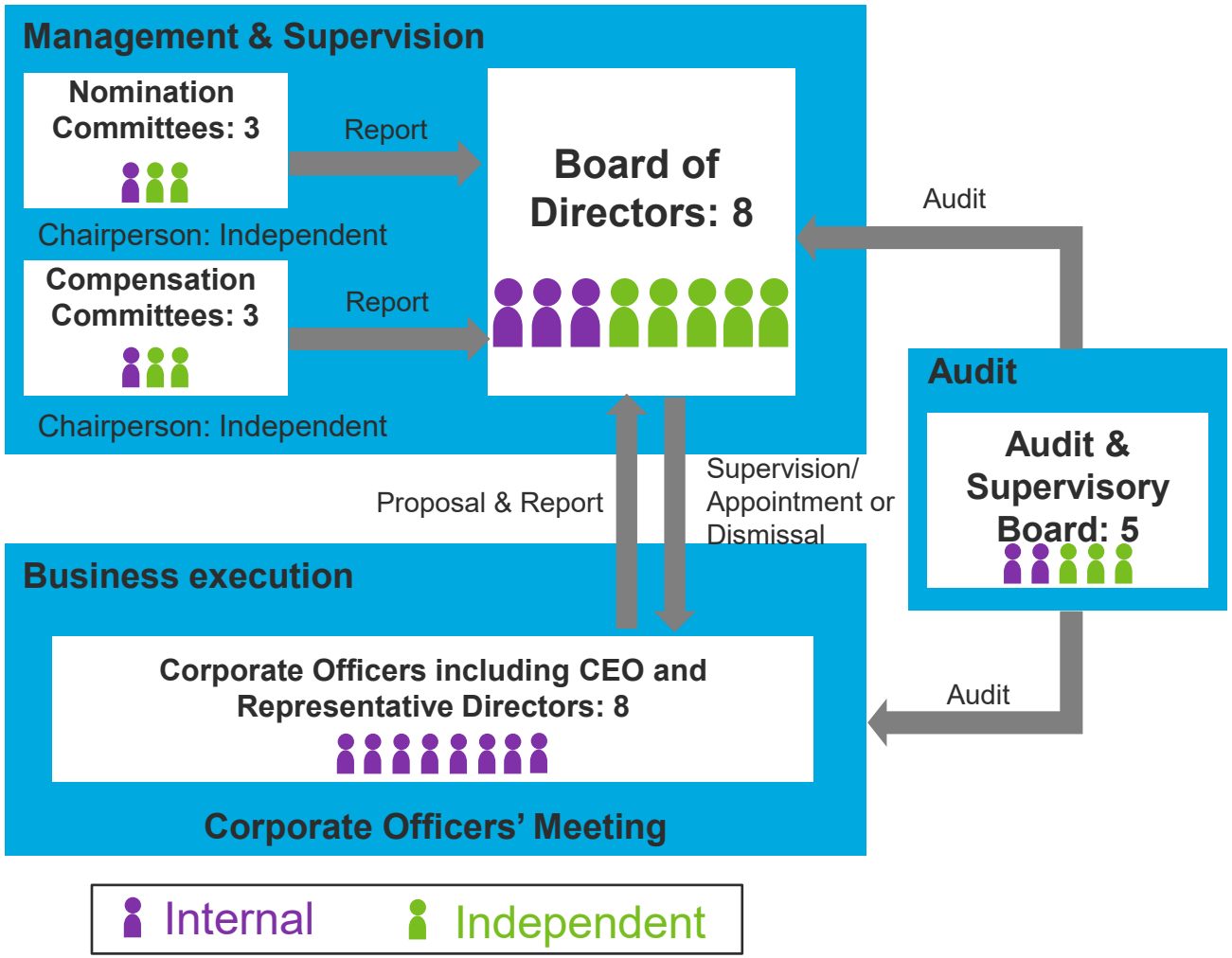


- Annual Sustainability Assessment
  - Assessment base on RBA code of conduct
  - Corrective Action Plans
- RBA Audit
  - At primary manufacturing sites
  - Continuous improvement in respective operations

Pursuit of sustainability conscious operations throughout the supply chain

Corporate Governance Framework (Audit & Supervisory Board System)

<Framework (Excerpt)>



The era of ultra VUCA

↓

Sharp growth of the semiconductor market

↓

Need to improve the **quality** and **speed** of decision making in both "**Management & Supervision**" and "**Business execution**"

↓

Strengthen and optimize 3 functions:
1) In-depth discussion of mid- to long-term growth strategies
2) Supervision of business execution
3) Decision-making on business execution

Accelerate "proactive management"

Growth of short-/mid-/long-term profits

Increase corporate value continually

Evaluation of the Effectiveness of the Board of Directors

Internal and external experts analyze and evaluate the effectiveness of the Board of Directors

Global Initiatives

Sustainable Development Goals (SDGs)

Clarify initiatives through business by materiality and deploy company-wide

Tokyo Electron supports the SDGs

Participation in International Initiatives

Signed the UN Global Compact, joined the Responsible Business Alliance (RBA), endorsed the Task Force on Climate-related Financial Disclosures (TCFD)

WE SUPPORT UN GLOBAL COMPACT

Responsible Business Alliance
Affiliate Member

TCFD TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

External Evaluation on our ESG Initiatives

Highly rated by evaluation organizations around the world

Member of
Dow Jones Sustainability Indices
Powered by the S&P Global CSA

FTSE4Good

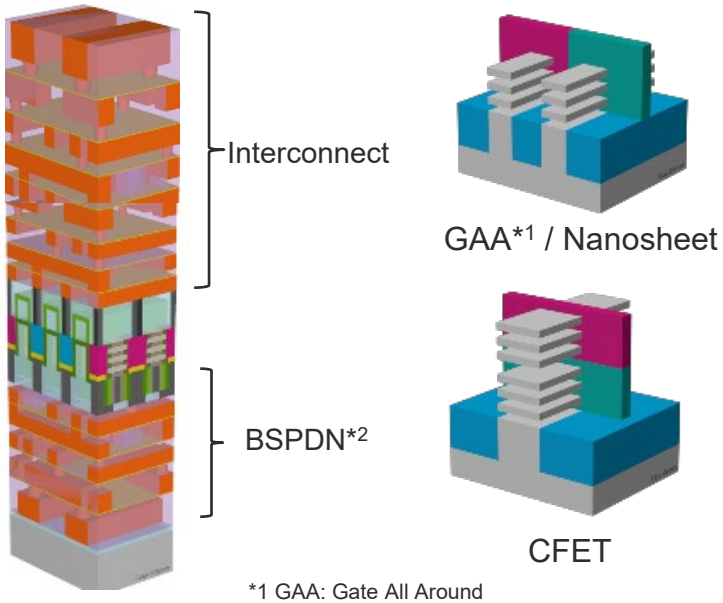
2024 MSCI ESG Leaders Indexes Constituent

6. Diversifying Semiconductor Technology

~ Technology Roadmap~

Semiconductor Devices: Direction of Development

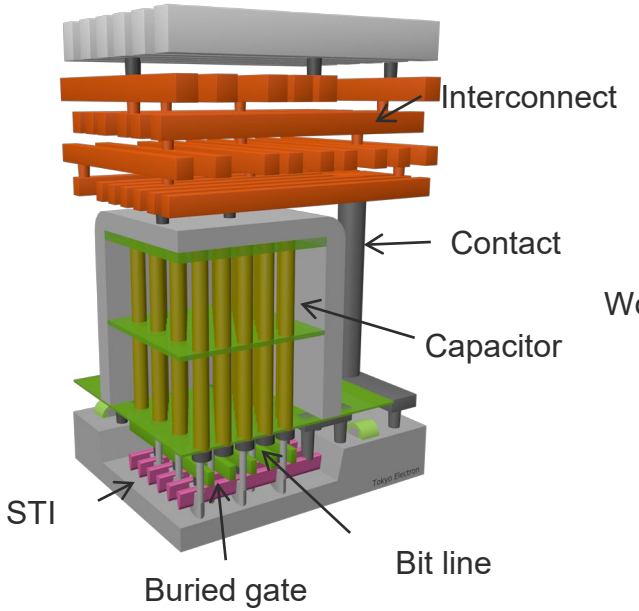
Logic



*1 GAA: Gate All Around
*2 BSPDN: Backside Power Delivery Network
*3 CD: Critical Dimension

Through miniaturization with structural changes
- Lowered cost per transistor
- Lower power consumption
- Higher speed

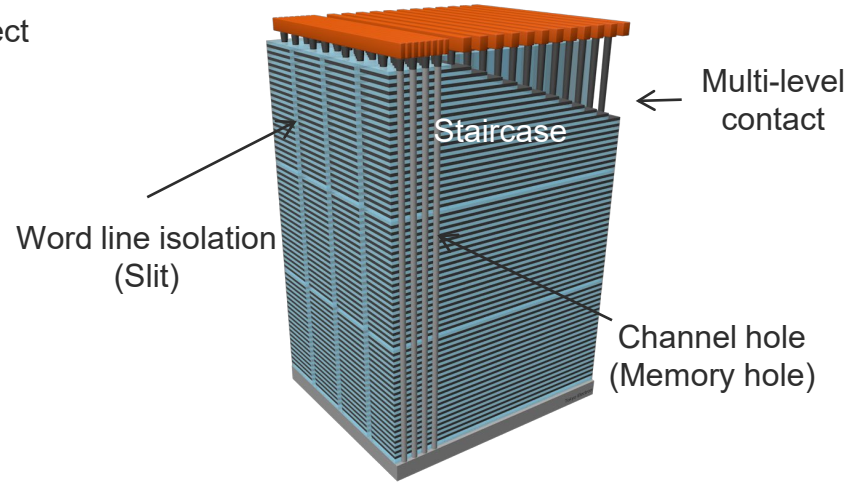
DRAM



Through miniaturization
- Lower cost per bit
- Lower power consumption
- Higher speed

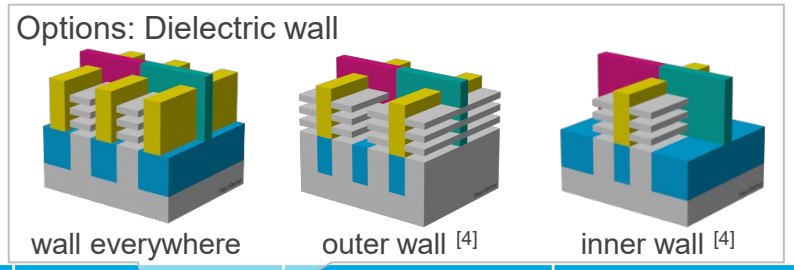
Through new structures
- Lower cost per bit

NAND



Through high stacking
- Lower cost per bit

Logic Technology Roadmap (Generic)



[1] Chih-Hao Chang (TSMC) et al., IEDM 2022
[2] Shien-Yang Wu (TSMC) et al., IEDM 2022
[3] Sandy Liao (TSMC) et al., IEDM 2024
[4] Mertens and Horiguchi (imec), EDTM 2024

Source: TEL estimates

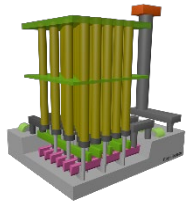
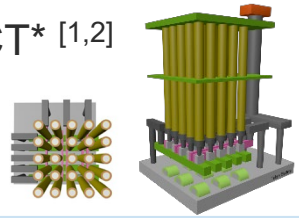
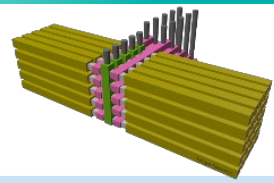
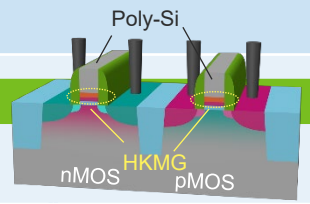
Year of HVM (20k/month)	2022~24	2025~2026	2027~28	2029~30	2031~32	2033~34	2035~36	2037~38
Node	3nm	2nm/18A/16A	14A	10A	7A	5A	3A	2A
Transistor	2~1 Fin	GAA NS	GAA NS scaling	GAA NS extension	CFET	2nd Gen. CFET	3rd Gen. CFET	2D material stack: IL/HK / IL/HK; 2D material: TMDC (MoS_2, WS_2, $MoSe_2$, WSe_2 etc.)
Poly Pitch [nm]	48~45 [1]		45~42		48 [3] ~42	45~39		36
Min. Metal Pitch [nm]	23 [2]		20	18	17	16	14	12
Interconnect booster	Cu Barrier/Seed CIP Backside PDN (HPC)			Cu CIP or Ru subtractive	Ru subtractive AR>3, Airgap	New alloy AR>5, Airgap, BEOL Transistor		
EUV Patterning Technology	EUV MP*1, SE*2			EUV MP, SE High-NA SE		High-NA MP, SE EUV MP, SE		
Resist	CAR*3			CAR (+MOR*4)	CAR+MOR			

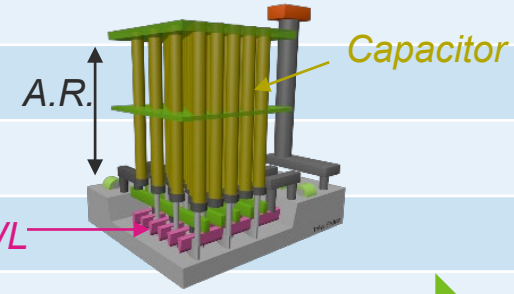
*1 MP: Multi-Patterning, *2 SE: Single-Exposure, *3 CAR: Chemically Amplified Resist, *4 MOR: Metal Oxide Resist

Logic scaling will continue by changing transistor structure and material evolution

DRAM Technology Roadmap (Generic)

Source: TEL estimates

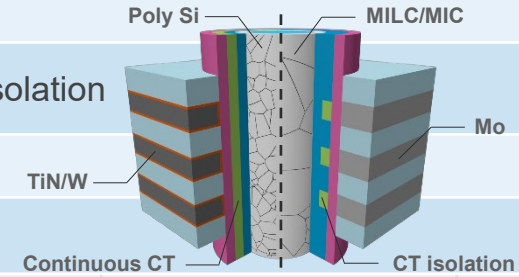
Year of HVM (20k/month)	2023-24	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Node	1b	1c	1d	0a		0b		0c	0d		0e	
Cell layout / Structure	2D											
	 6F²			4F² VCT* [1,2] 					3D 			
	* Vertical Channel Transistor [1] Seokhan Park (Samsung) et al., IEDM 2023 [2] Daewon Ha (Samsung) et al., IEDM 2023											
F [nm] in 6F²	13~12.5	12~11	10	9		8		7	(3D ~1xxL)		(3D >1yyL)	
Cap. pitch [nm]	39~37.5	36~33	30	27		24		21				
Cap. A.R.	>50	>55	>65	>70		>75		>80				
Cap. Mat.	ZrAlHfO			Alternative (HfZrO Anti Ferro. etc)								
WL	TiN			Low R metal								
Peri. CMOS	HKMG 			Bonding					FinFET			
HBM	HBM3E (8/12Hi,24/36GB)		HBM4 (12/16Hi,36/48GB)		HBM4E (16Hi,64GB)		HBM5 (16,20Hi, 64/80GB)		HBM5E		HBM6	

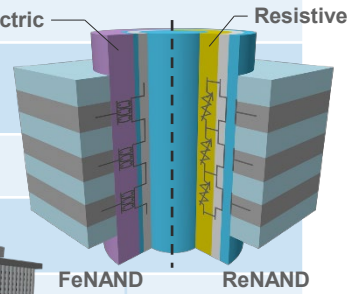


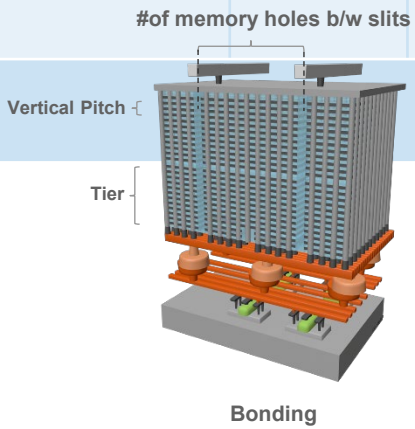
NAND Technology Roadmap (Generic)

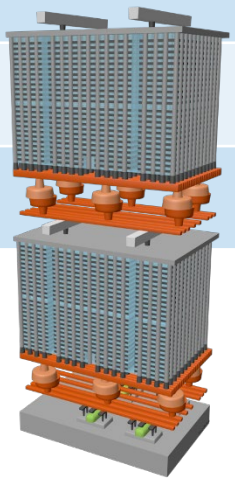
Source: TEL estimates

Year of HVM (20k/month)	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Stack (~1.3x/1.5years)	3xxL		4xxL	5xxL		7xxL	1xxxL		*1yyyL	*1zzzL		*2xxxL
Tier	2 or 3		3 or 4	3 or 4		3 - 5	4 - 6		5 - 7	6 - 8		7 - 10
Vertical pitch [nm]	39 - 45		38 - 43	38 - 42		37 - 41	36 - 40		35 - 39	34 - 38		33 - 37
Memory height [μm]	12 - 14		15 - 19	18 - 27		24 - 36	34 - 45		45 - 62	57 - 74		70 - 84
Charge trap (CT)	Continuous CT					CT isolation				Fe/Re NAND[3]		
Channel	Poly Si grain CIP			MILC[1]/MIC[2]								
WL metal	W or Mo		Mo									
Layout/Structure	Under array or Bonding		Bonding			Bonding or Multi Bonding						
Peri. CMOS	Poly Si Gate					HKMG						





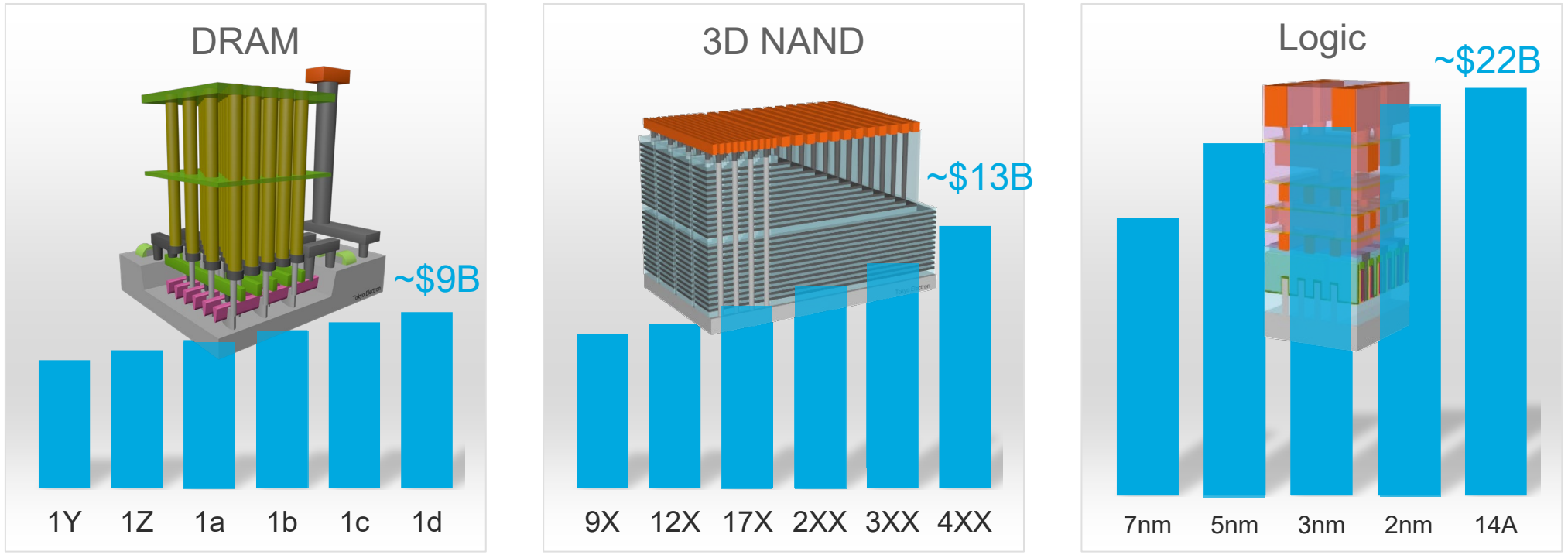




* Trend Extrapolation
[1] Metal induced lateral crystallization, N. Ishihara (Kioxia) et al., VLSI 2023
[2] Metal induced crystallization
[3] Jeehoon Han (Samsung) et al., IEDM 2023

Raising Added-value in SPE

WFE investment (100k WSPM*, Greenfield/TEL estimates)



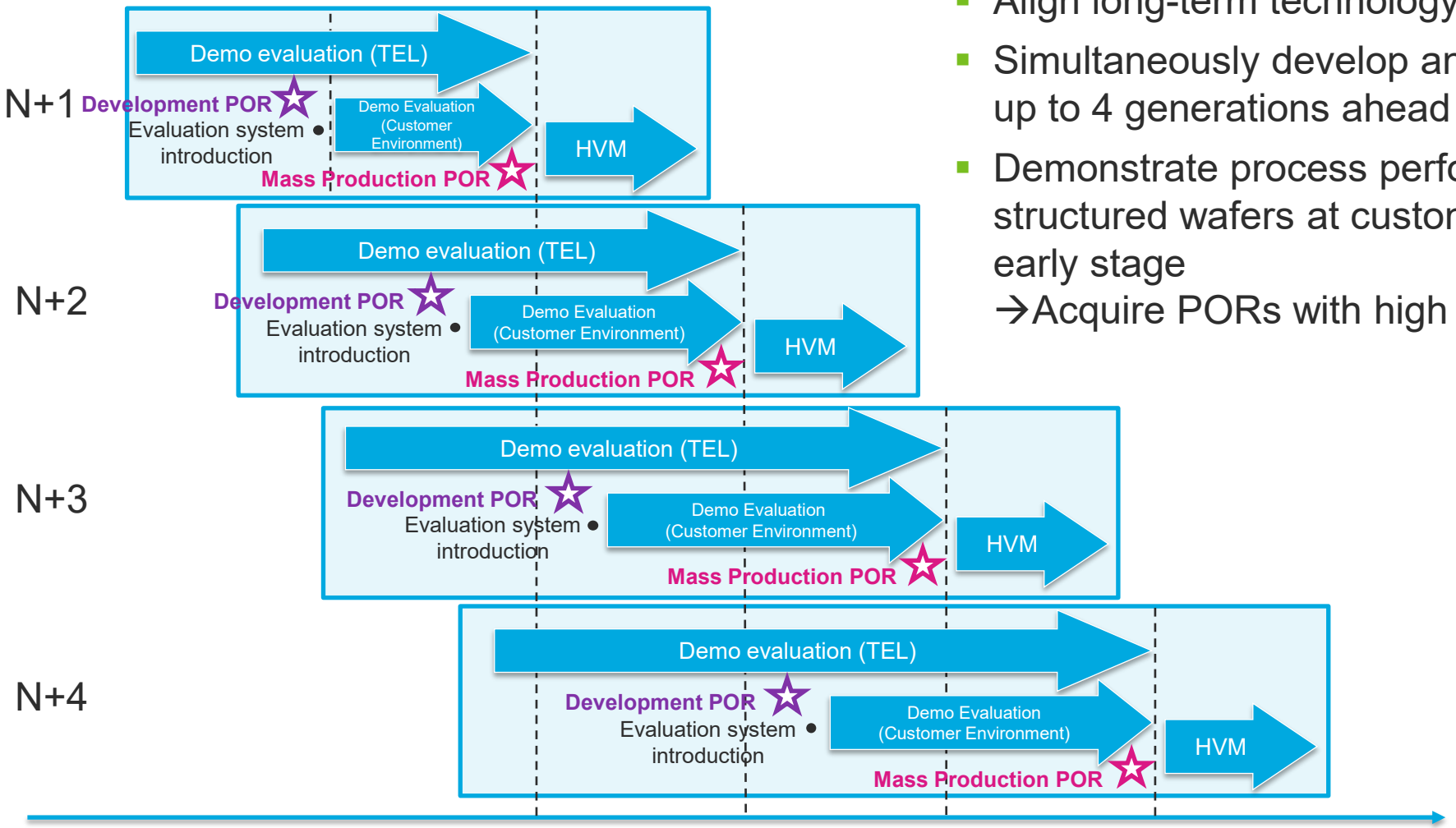
Expanding business opportunities for SPE manufacturers on arrival of new applications and rising level of technological difficulty

* WSPM: Wafer starts per month

7. SPE New Equipment Initiatives

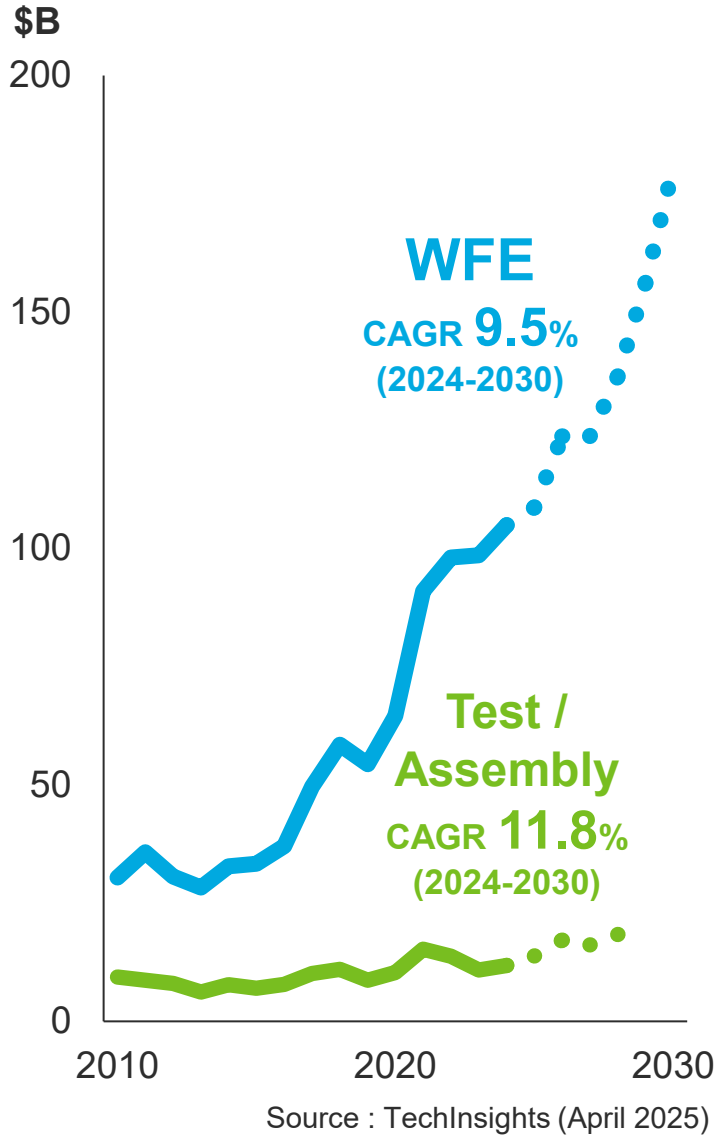
Development Efforts

Simultaneous 4-Generation Developments



- Align long-term technology roadmap with customers
- Simultaneously develop and evaluate technologies up to 4 generations ahead
- Demonstrate process performance on customer structured wafers at customer's environments at early stage
  →Acquire PORs with high value-added products

Our Growth Opportunities in the Frontend Market



Source : TechInsights (April 2025)

- CAGR driven by AI-related devices to continue to drive high growth of WFE's CAGR
- Leveraging TEL's strengths to address high-growth market areas:
  - Leading-edge logic: The etch market is expected to grow by 2.7 times, the deposition market by 2.5 times*
  - DRAM: The etch market is expected to grow by 2.3 times, exceeding the CAGR of WFE*
- By introducing new products focused on the key technological inflection points, we aim to further expand our areas of entry

* TEL Estimates

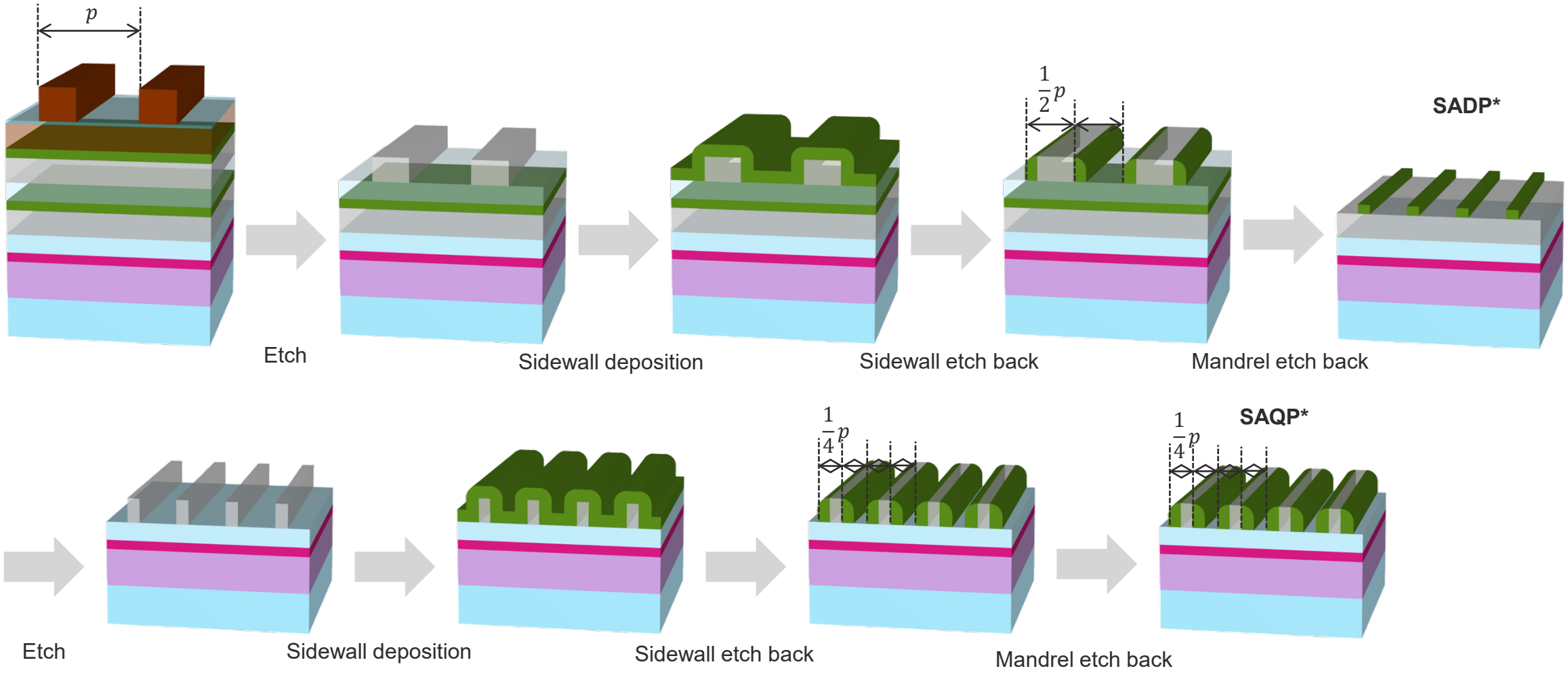
Growth opportunities at Technological Inflection Points in Frontend Process

- Logic: GAA*1, BSPDN*2, CFET
  - Adaption of High-NA lithography, combined with multi-patterning and MOR technologies, presents opportunities for new technology Acrevia™
  - Adoption of multi-patterning to increase demand for deposition, etch, and cleaning processes.
  - GAA and CFET transistors to drive an increase in gas chemical etch processes
  - New materials like ruthenium and structural innovations such as air gaps to generate fresh opportunities
- DRAM: HBM, VCT*3, 3D DRAM
  - Adoption of multi-patterning driving increased demands in deposition and etch
  - Capacitor formation remains essential, driving ongoing demand for advanced etch and deposition
  - 3D DRAM leading to increased processes in deposition, etch and gas chemical etch
- NAND: Beyond 4xx
  - Increased layer counts leading to higher investments in deposition and etching processes
  - High aspect ratio etch to become increasingly important
  - New materials such as molybdenum, and low-resistance channel silicon to be utilized

*1 GAA: Gate All Around
*2 Backside PDN: Backside Power Delivery Network
*3 VCT: Vertical Channel Transistor

7-1. Frontend, Patterning Technologies

Self-aligned Multiple Patterning to Supplement Lithography

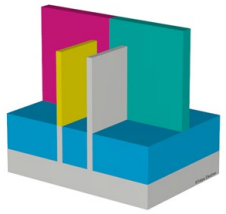
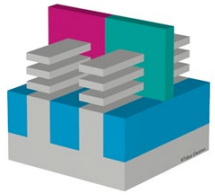
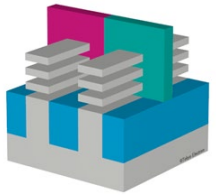
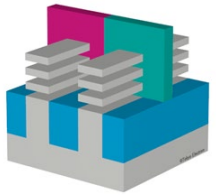
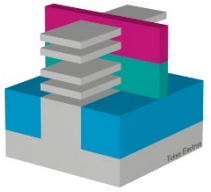
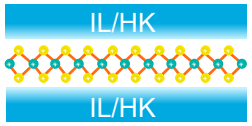


SADP: Self-aligned double patterning
SAQP: Self-aligned quadruple patterning

EUV Lithography Technology Roadmap in Logic

[1] Chih-Hao Chang (TSMC) et al., IEDM 2022
[2] Shien-Yang Wu (TSMC) et al., IEDM 2022
[3] Sandy Liao (TSMC) et al., IEDM 2024
[4] Mertens and Horiguchi (imec), EDTM 2024

Source: TEL estimates

Year of HVM (20k/month)	2022~24	2025~2026	2027~28	2029~30	2031~32	2033~34	2035~36	2037~38
Node	**3nm**	**2nm/18A/16A**	**14A**	**10A**	**7A**	**5A**	**3A**	**2A**
Transistor	2~1 Fin 	GAA NS 	GAA NS scaling 	GAA NS extension 	CFET 	2nd Gen. CFET 	3rd Gen. CFET 	2D material stack  2D material: TMDC MoS_2, WS_2, $MoSe_2$, WSe_2 etc.
Poly Pitch [nm]	48~45 [1]		45~42		48 [3] ~42	45~39		36
Min. Metal Pitch [nm]	23 [2]		20	18	17	16	14	12
EUV Patterning Technology	EUV MP, SE			EUV MP, SE **High NA SE**		**High NA MP, SE** EUV MP, SE		
Resist	CAR			CAR (+**MOR**)		CAR+**MOR**		

MP: Multi-Patterning, SE: Single-Exposure, CAR: Chemically Amplified Resist, MOR: Metal Oxide Resist

Enhancing versatility of coater/developer to respond to future EUV lithography technologies including MOR and high-NA EUV

Coater/Developer: CLEAN TRACK™ LITHIUS Pro™ Z for EUV

LITHIUS Pro™ Z released in 2012
(＞3000 systems shipped)

New features to support EUV CAR*1/MOR*2
to be released as on an ongoing basis

High Reliability
High share in EUV market

High Productivity
Maximizes output of EUV lithography tools,
and reduces chemical consumption

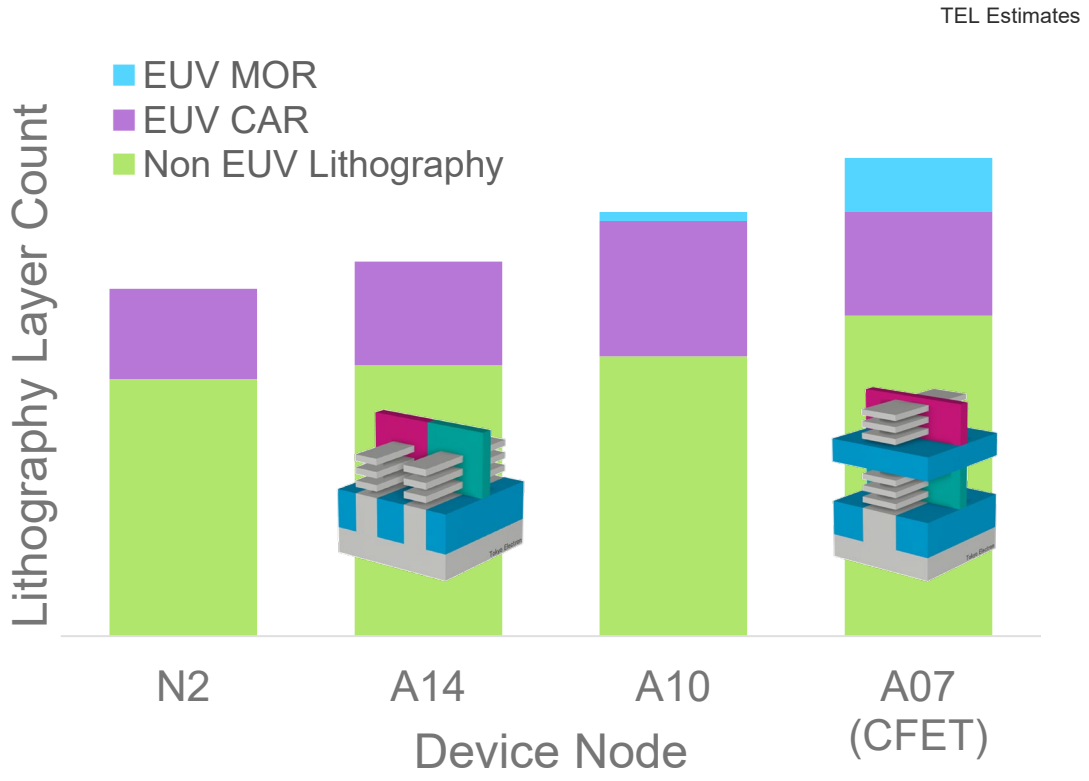
High Versatility
Supports CAR, MOR and underlayers

*1 CAR: Chemically Amplified Resist
*2 MOR: Metal Oxide Resist

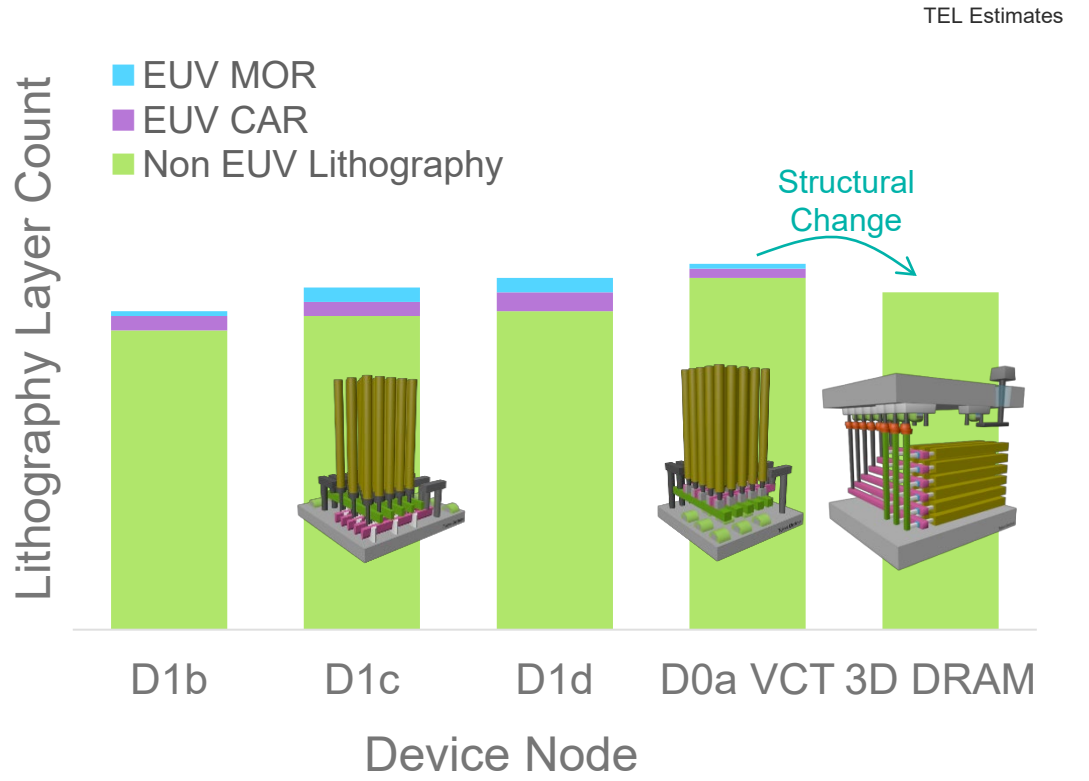
LITHIUS Pro™ Z platform with its proven mass production for various litho tools, ensures high reliability and productivity for EUV litho, along with high versatility for next-generation EUV

Outlook on Lithography Layer Count

Logic

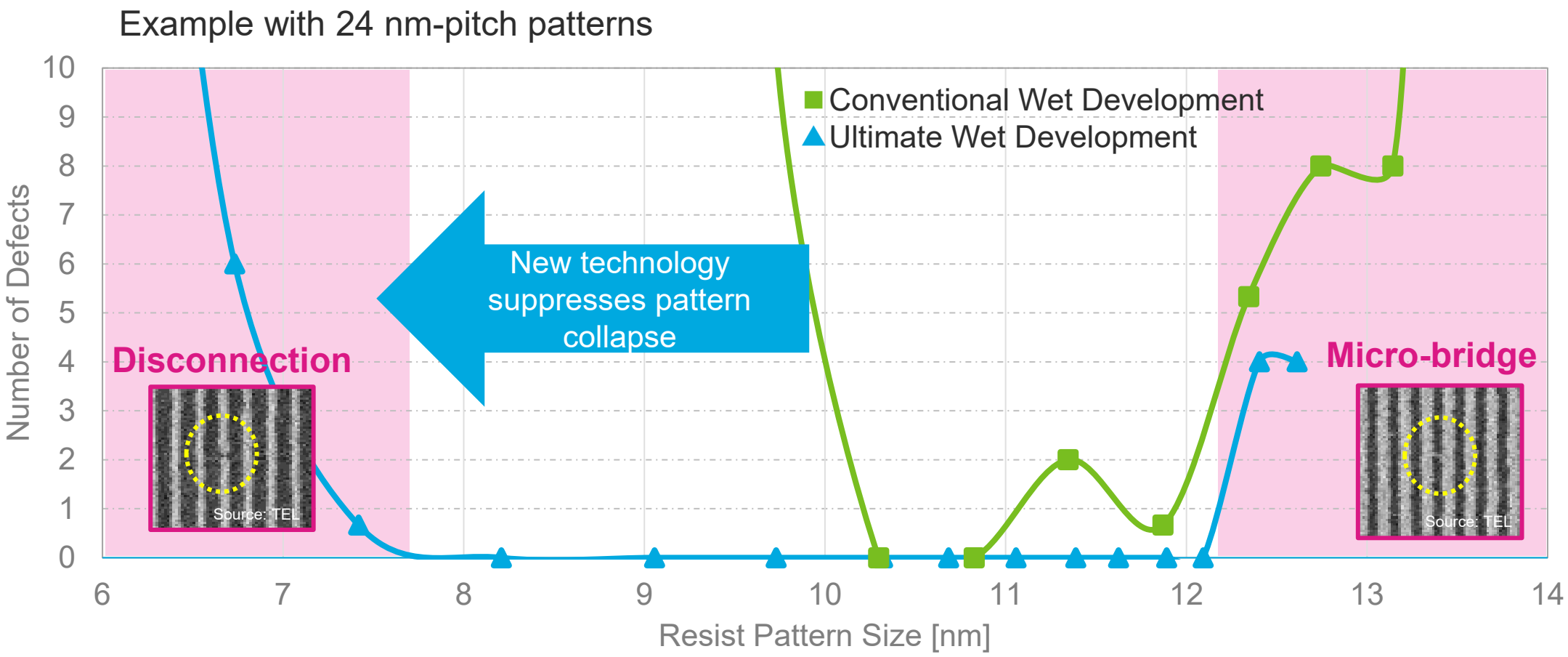


DRAM



MOR expected for Logic 10A/ DRAM D1b, development ongoing for MOR

Example of MOR Process: The Ultimate Wet Development



The Ultimate Development technology enables the suppression of pattern collapse

Example of MOR Solution: The Ultimate Wet Development

*1 Based on internal information and development targets
*2 Based on results of developing 24 nm-pitch lines

	Ultimate Wet Development Technology	Conventional Wet Technology	Alternative Technology
Base Technology	Coater/Developer	Coater/Developer	Etch
Process Ambient	Atmospheric	Atmospheric	Vacuum
Reaction	Chemicals	Chemicals	Corrosive Gas
Throughput*1	4x	4x	1x
Chemical Consumption*1	50% (vs. conventional)	100 %	N/A (uses gas) exhaust processed in combustion abatement post process
Anti-Pattern Collapse*1 Performance	< 8 nm*2	> 10 nm*2	< 8 nm*1
Footprint*1	In-Line	In-line	Additional Footprint

Evaluation of Ultimate Wet Development ongoing with key customers, with emphasis on productivity (throughput, footprint, maintainability, utilize existing facilities)

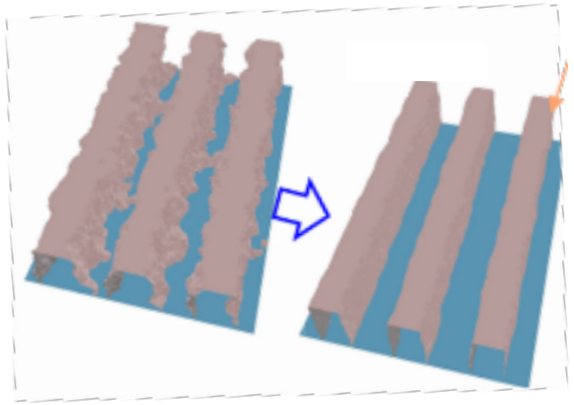
Acrevia™

TEL's Original Gas Cluster Beam (GCB) System

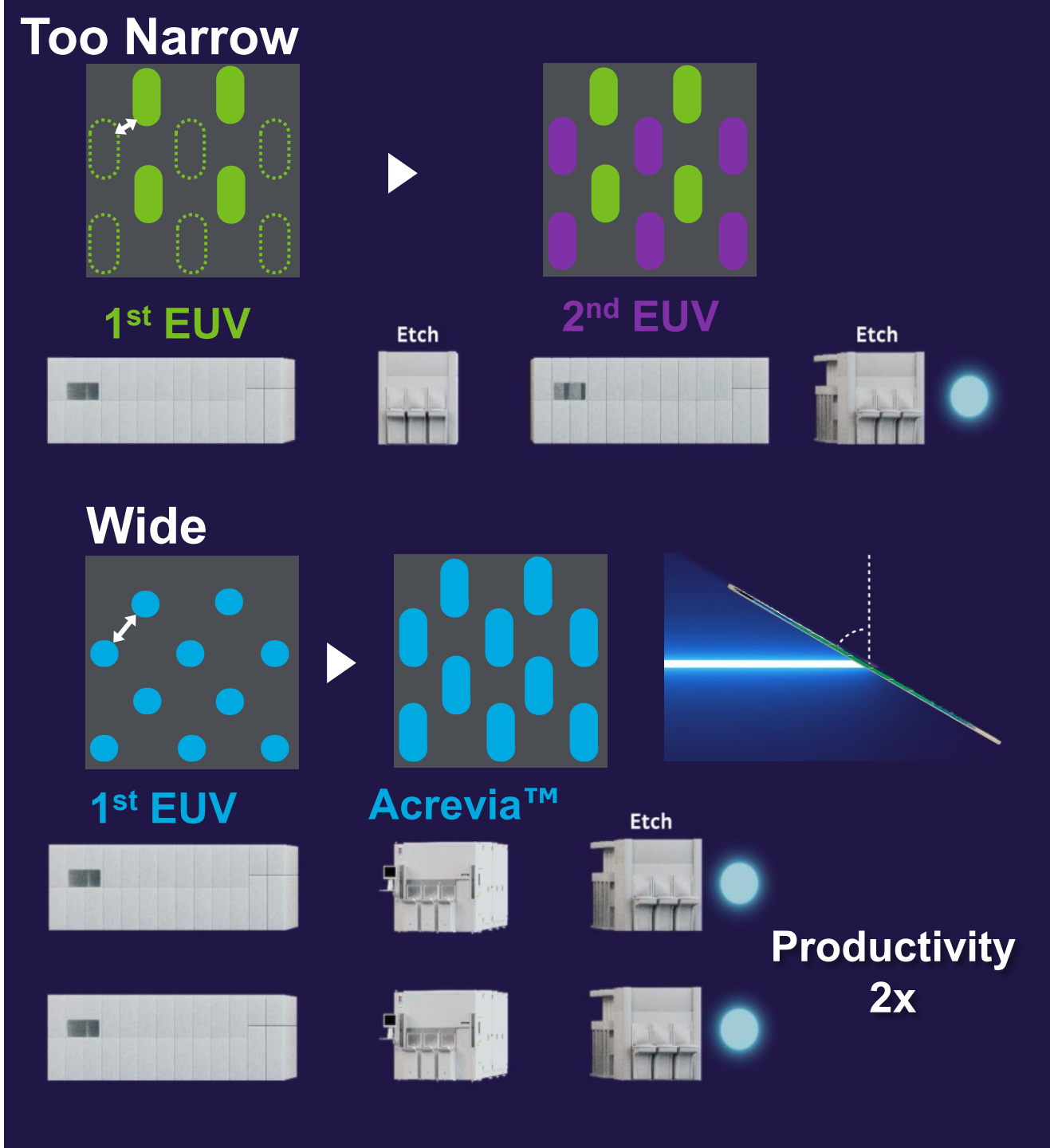
- Beam Angle is freely Adjustable
- LSP (Location Specific Processing) Wafer Scan
  → Enable 3 Dimetional Etching

✓ Drastically Improve EUV productivity by EUV step reduction with fine patterning

✓ Realize yield by removing defect between pattern and improving LER/LWR*



* LER/LWR: Line Edge Roughness / Line Width Roughness

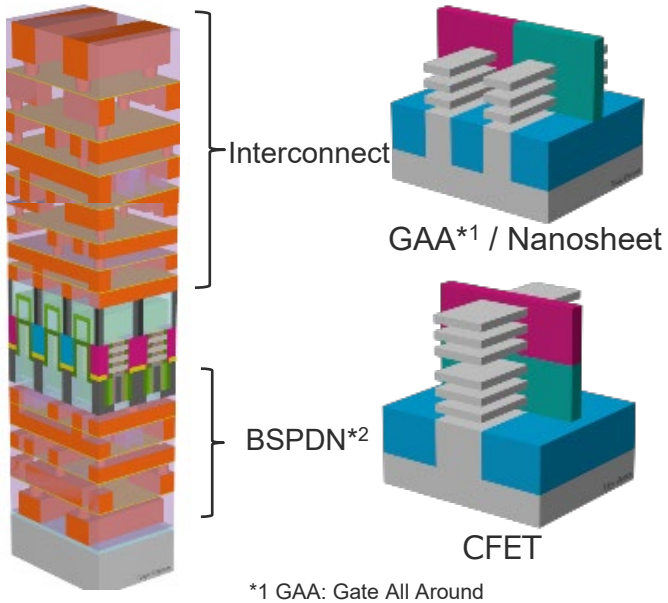


7-2. Frontend, Unit Process

7-2-1. Etch System

Requirements and Various Etch Technologies

Logic



*1 GAA: Gate All Around
*2 BSPDN: Backside Power Delivery Network
*3 CD: Critical Dimension

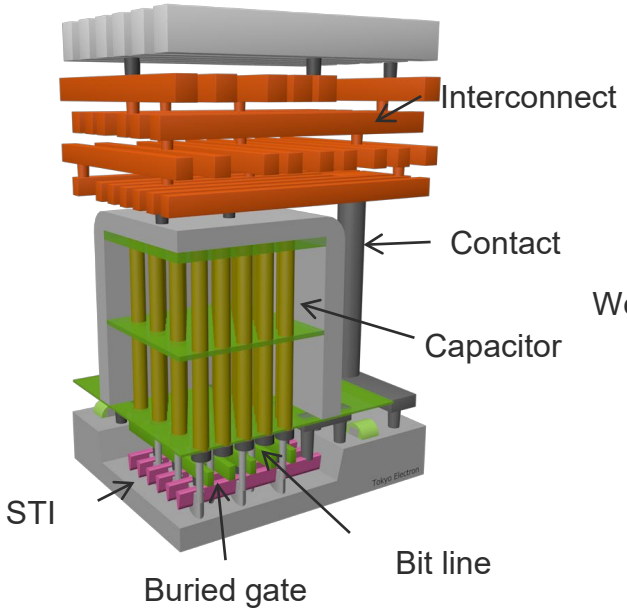
Device trend

Technology Required

Scaling/new structure

High selectivity through precise ion control
Low-damage process
Profile control (vertical, etc.)

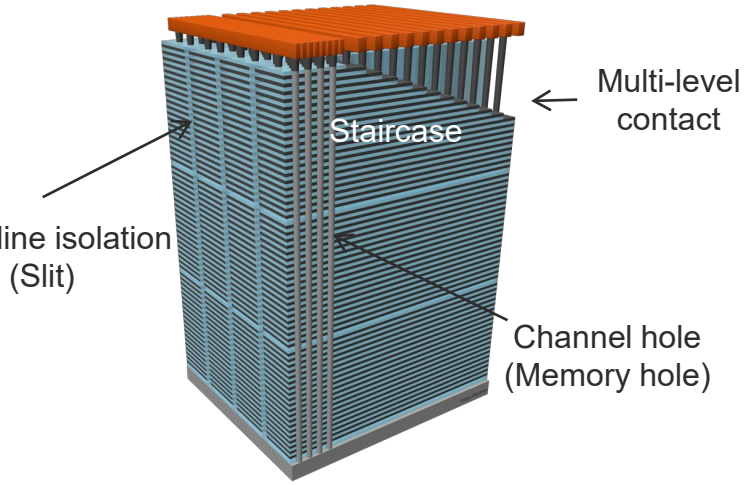
DRAM



Scaling/new structure

Small CD*3, high aspect ratio capacitor etch
Scaled mask etch (EUV, multi patterning)
HBM (increase in interconnect, etc.)

3D NAND

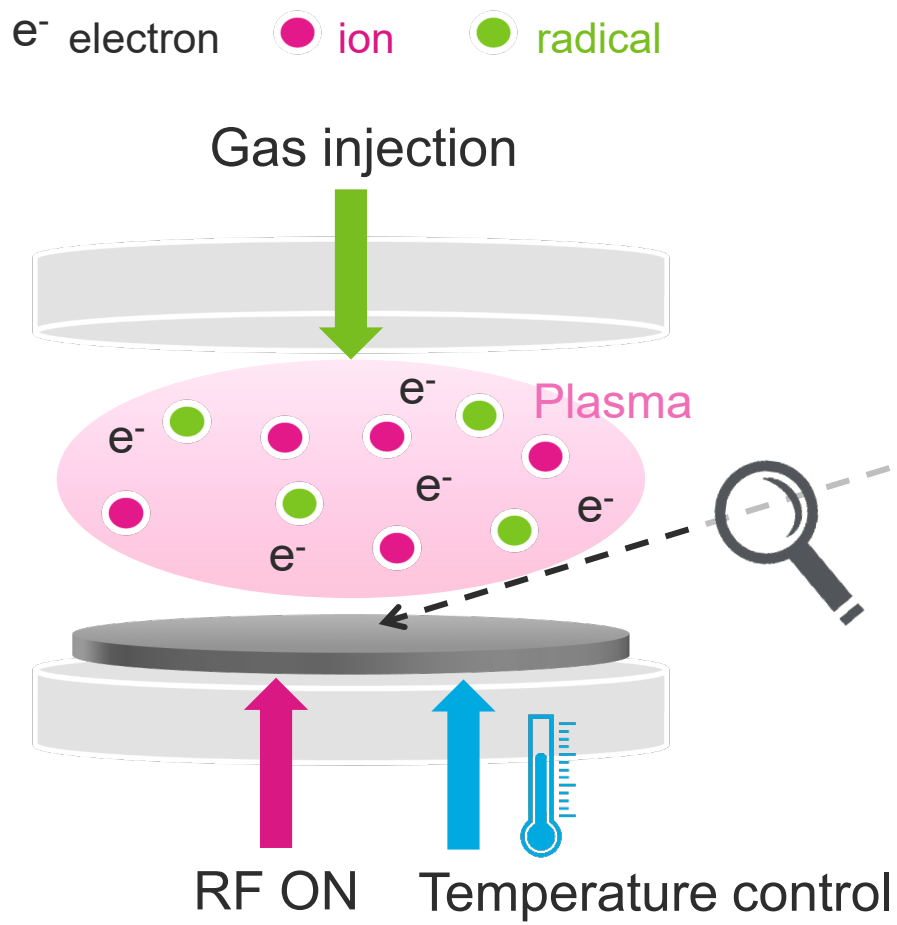


Stacking

Fast and vertical high aspect ratio etch
Depth monitoring and process control
Within wafer uniformity control

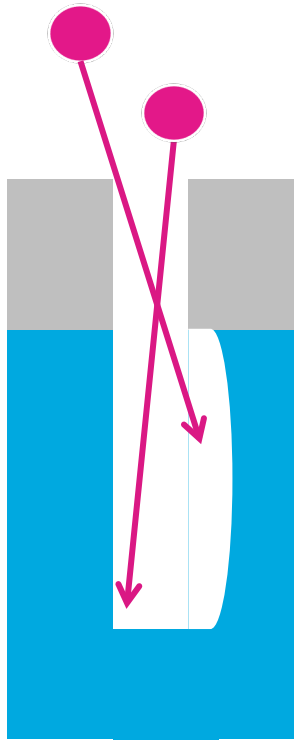
Etch technology with precise controllability is required for further evolution of devices

Overview of Etching and Key Parameters



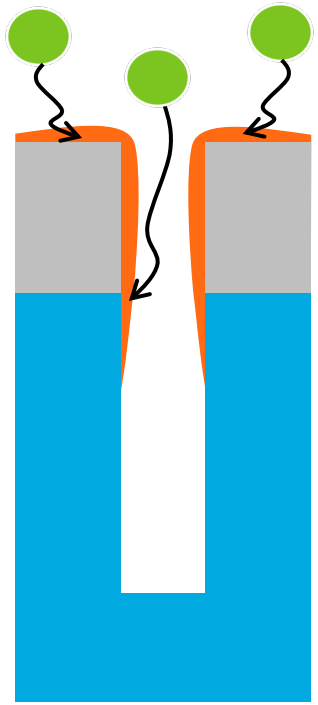
Key Parameters for Etch Controllability

Ion transportation



- Ion energy
- Ion incident angle

Radical transportation

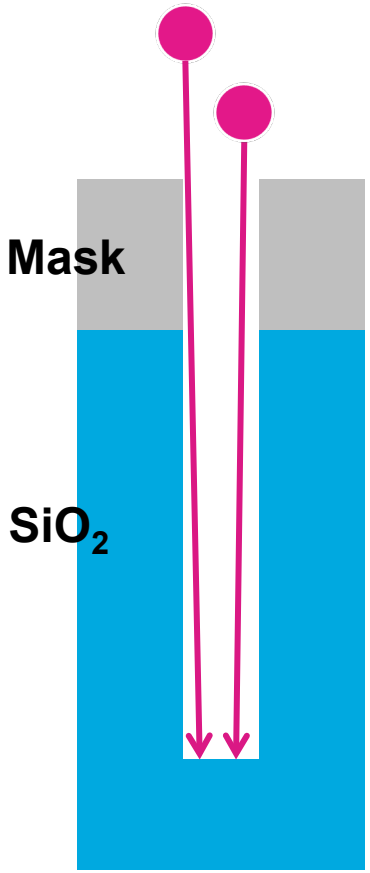


- Gas species
- Wafer temperature

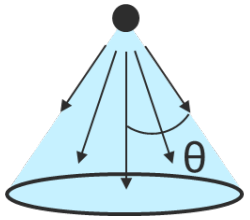
Our Unique Technology 1: HERB™

(HERB™: High Efficiency Rectangular Bias™)

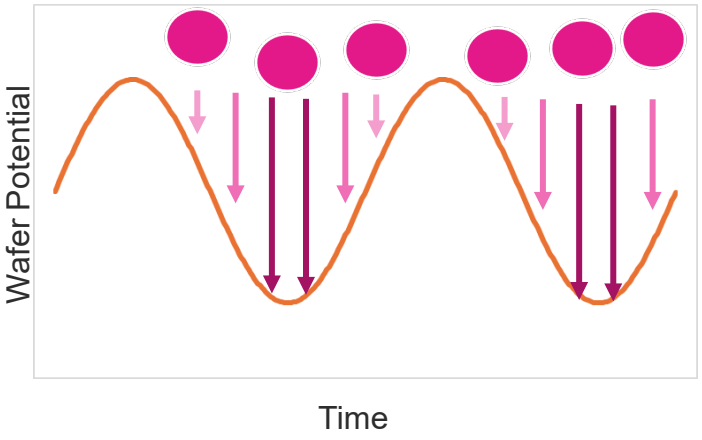
Ion transportation



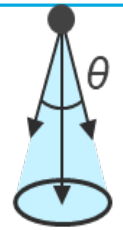
Conventional Technology (Sine wave)



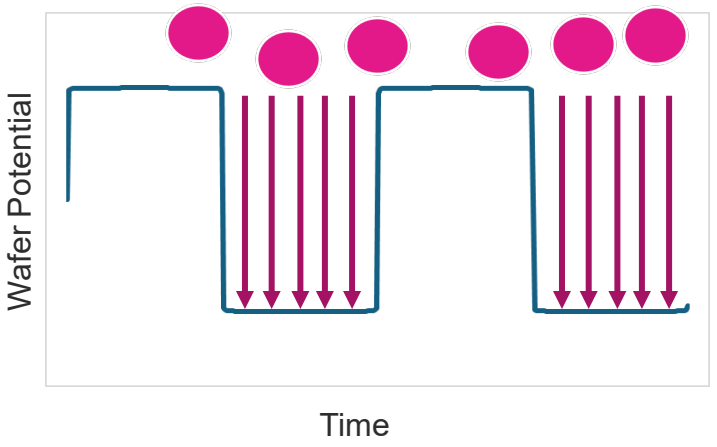
The force attracting ions varies
→incident angle varies



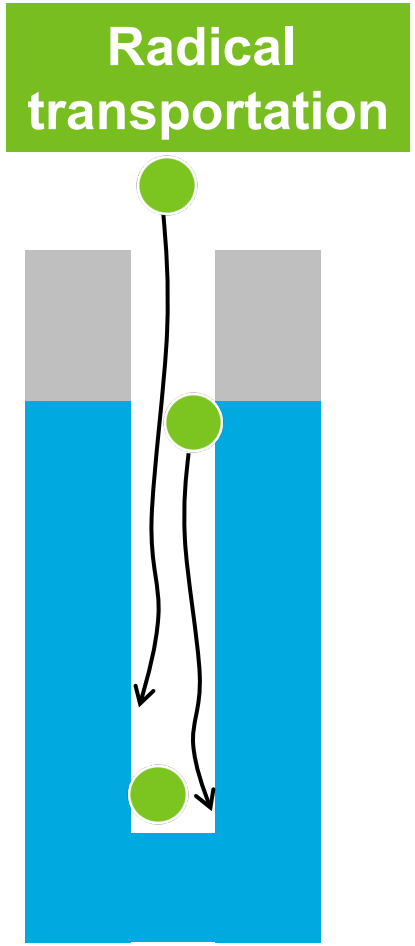
Novel Technology (HERB™)



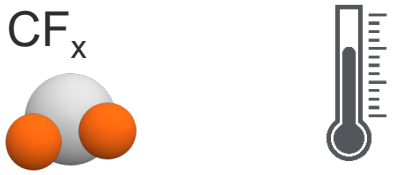
Force attracting ions are strong and consistent
→incidence angle becomes perpendicular



Our Unique Technology 2: PHastIE™

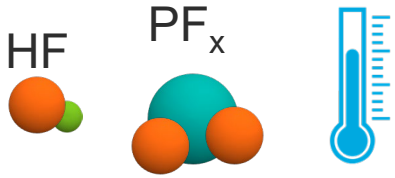


Conventional Technology (CF_x + room temp.)



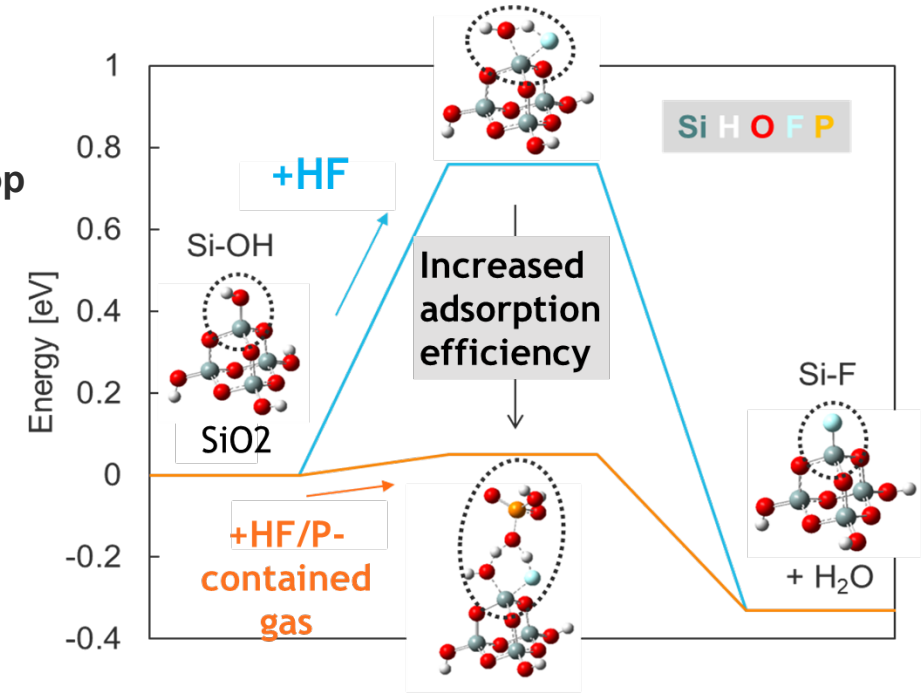
CFx tends to polymerize/adsorb easily
Hinders transportation when accumulated at top

Novel Technology (PHastIE™)



Resolved the issue with novel gas
Achieved high etch rate in combination with low temp.

(PHastIE™: Phosphorus + Hydrogen based "Fast" Ion Etch™)



Novel Cryogenic HARC Etch

Beyond

10μm

2.5x

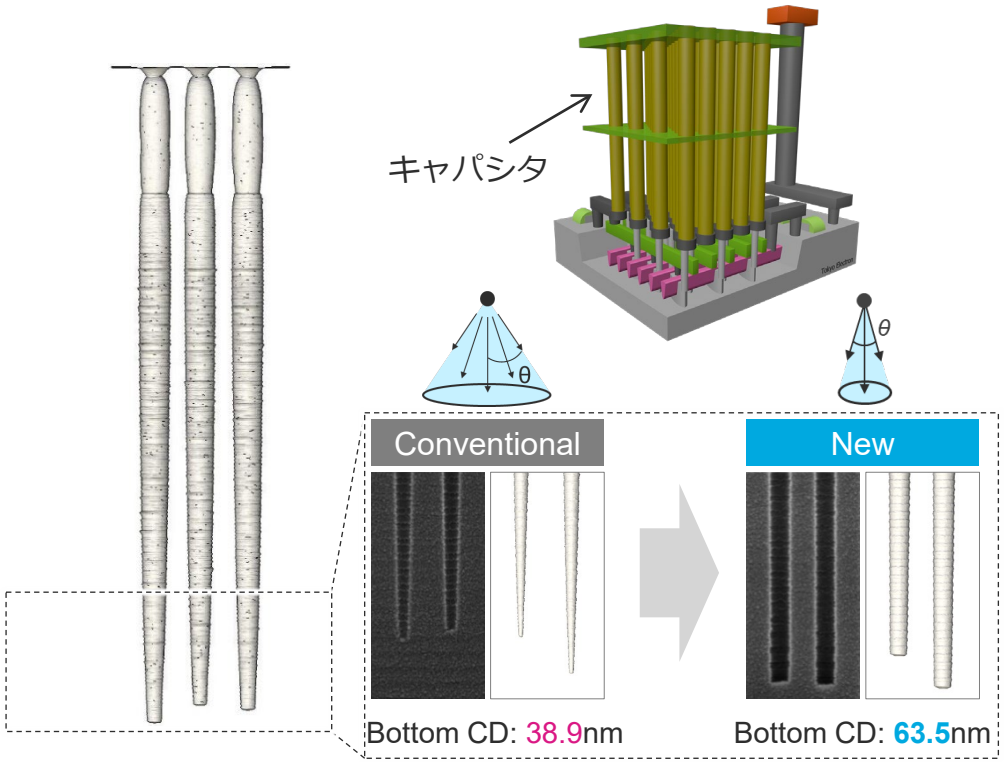
Faster

Process	Environment
Cryogenic temp.	**Power Consumption**
More Linear, Deeper & Faster	Less Power **-43%**
Plasma Control	**CO_2e** **-83%**
Deep-learning Optimization	Less Carbon Footprint

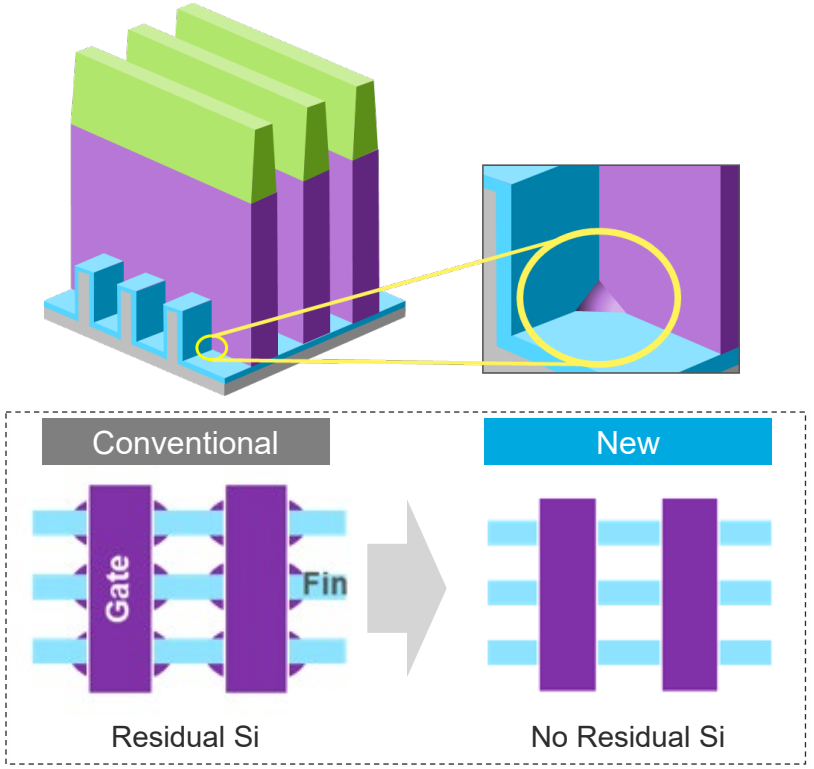
Presented world's first new cryogenic process in 2023 (@VLSI 2023), achieving both high process and environmental performance

Future of New Etch Technologies

DRAM: Capacitor SiO_2 Etch

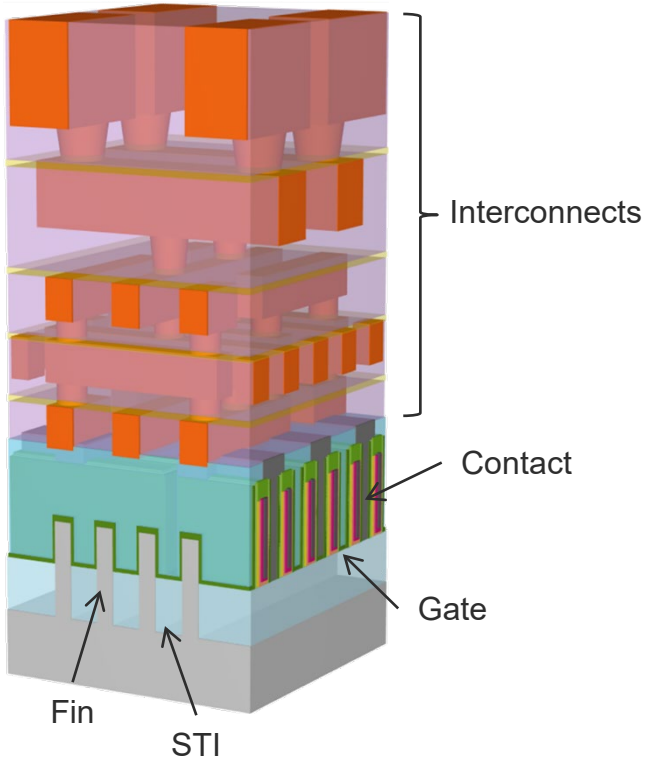


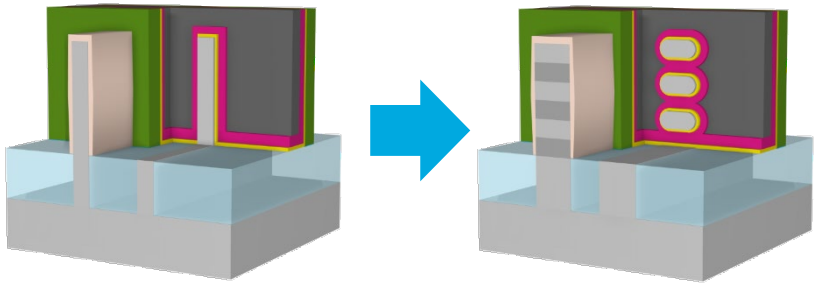
Logic: Gate Silicon Etch



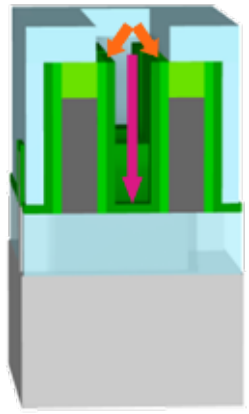
New technologies created through the development of ideal etching process development, will be applied to a variety of critical processes

Business Opportunities in Logic

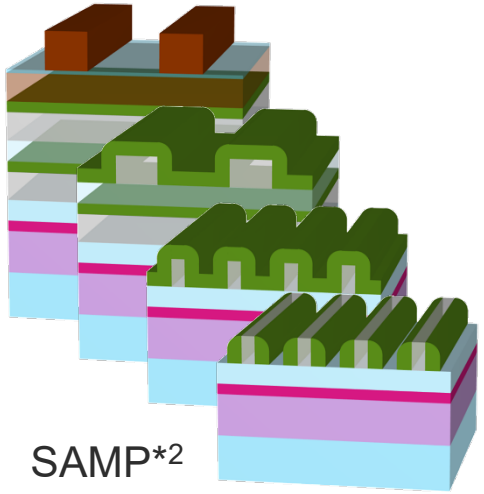




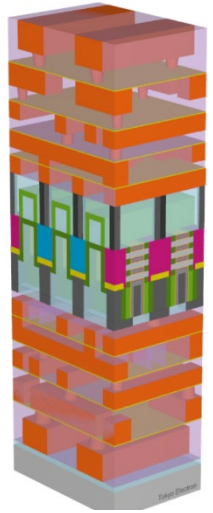
FinFET　　GAA*1 Nanosheet



Self-aligned Contact



SAMP*2



Backside PDN*3

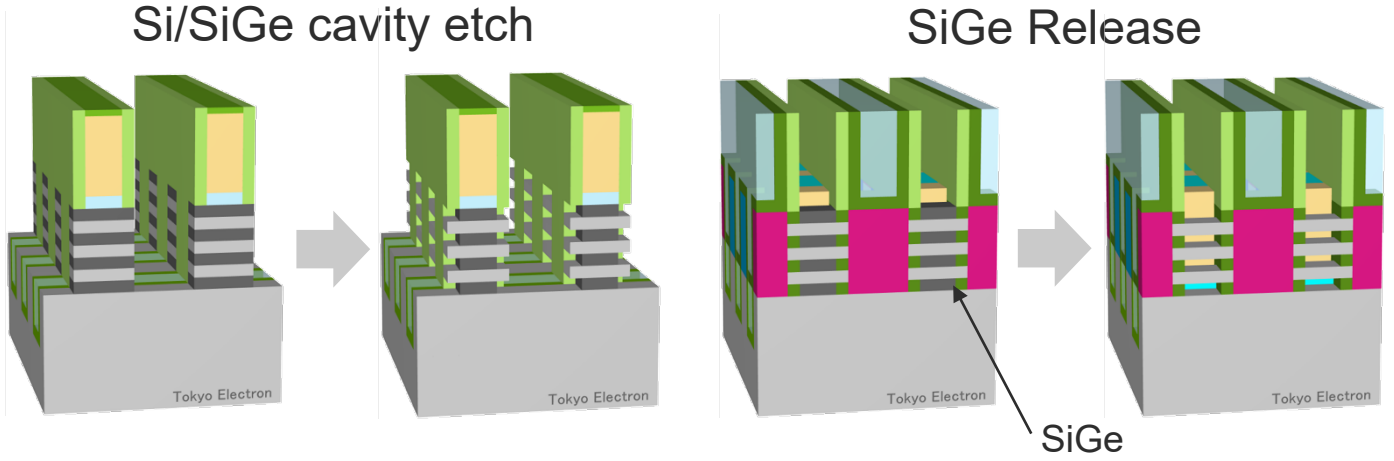
*1 GAA: Gate all around
*2 SAMP: Self-aligned multiple patterning
*3 PDN: Power delivery network

Respond to changes in device manufacturing and EUV lithography for further scaling

Initiative for GAA Nano Sheet Structures

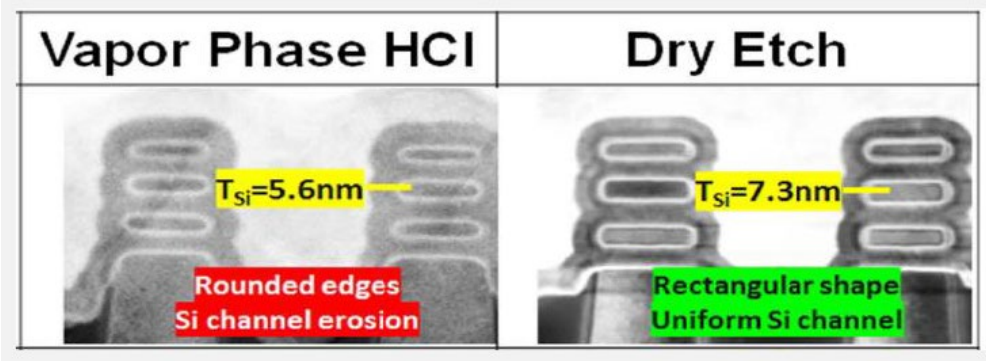
Nano Sheet process challenges:

- Uniformity in rectangle shape
- Mitigation of roughness/residue on patterned surface



TEL's initiative: Gas chemical etch

- High etch selectivity
- High uniformity
- Residue removal/decreased roughness



Source: N. Loubet, et al., IBM, TEL Technology Center, America (IEDM2019)

Leveraging the advantages of gas chemical etch to contribute to leading-edge processes

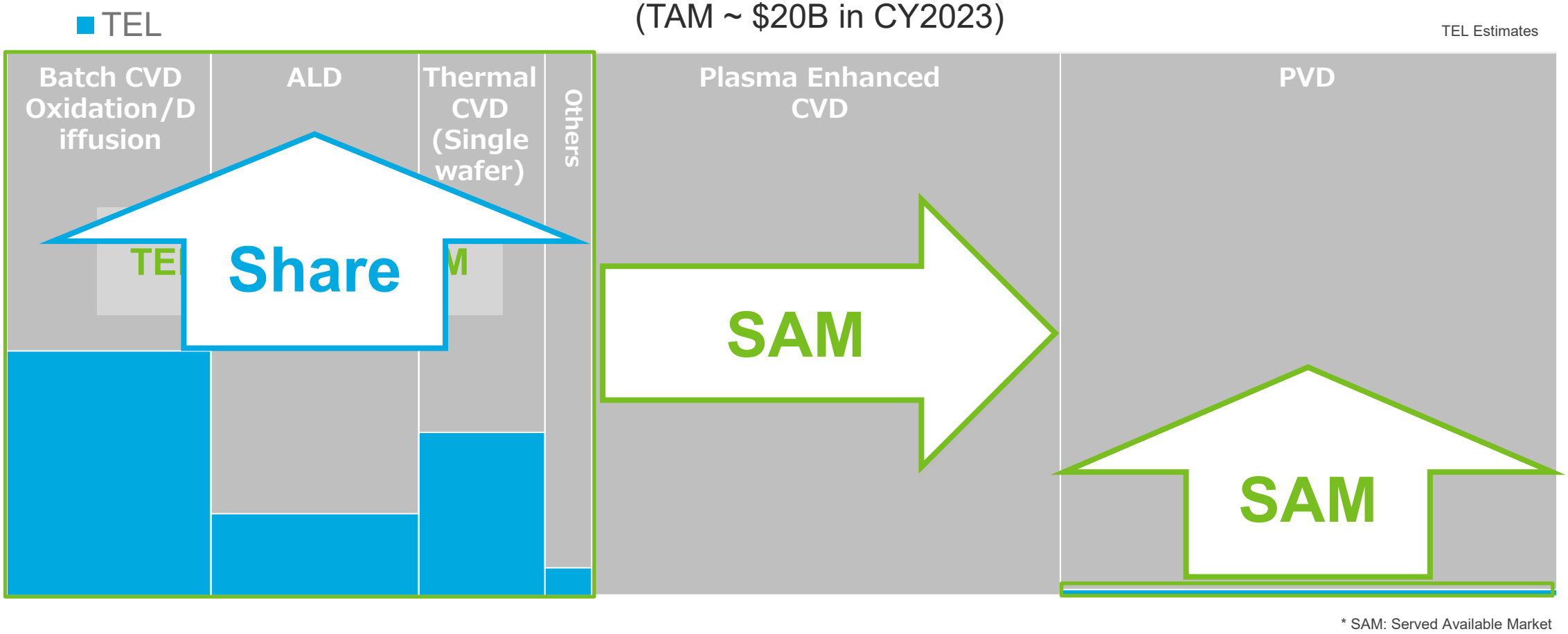
7-2-2. Deposition System

Business Strategy in the Thin Film Deposition Market

Expanding Market Share and SAM*

TEL's Market Share and SAM in Thin Film Deposition

(TAM ~ $20B in CY2023)



* SAM: Served Available Market

Strategies in the Film Formation Business 1:
Expand SAM with Single Wafer CVD

Triase+™

Single Reactor
Existing Platform

Episode™ 1

Single Reactor
Equipped with up to eight process modules

Episode™ 2 DMR*

***Duo Matched Reactor**
Achieved high productivity
by processing 2 wfs/PM

Released in July 2024

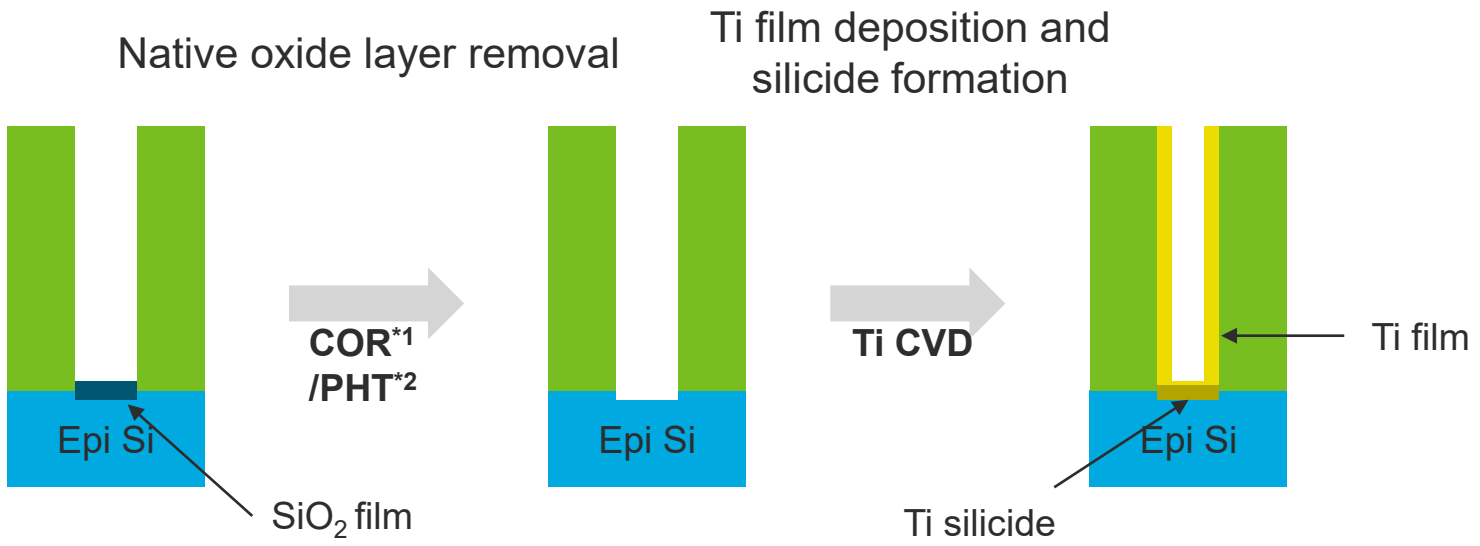
Episode™ 2 QMR**

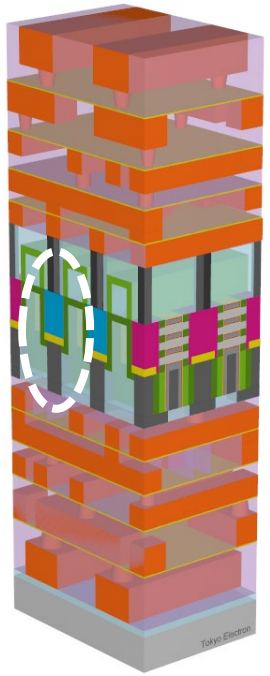
****Quad Matched Reactor**
Equipped with a newly developed
high-density plasma source

Scheduled for release in 2026

Episode™ 1: Contact Formation Process

- Example of process flow



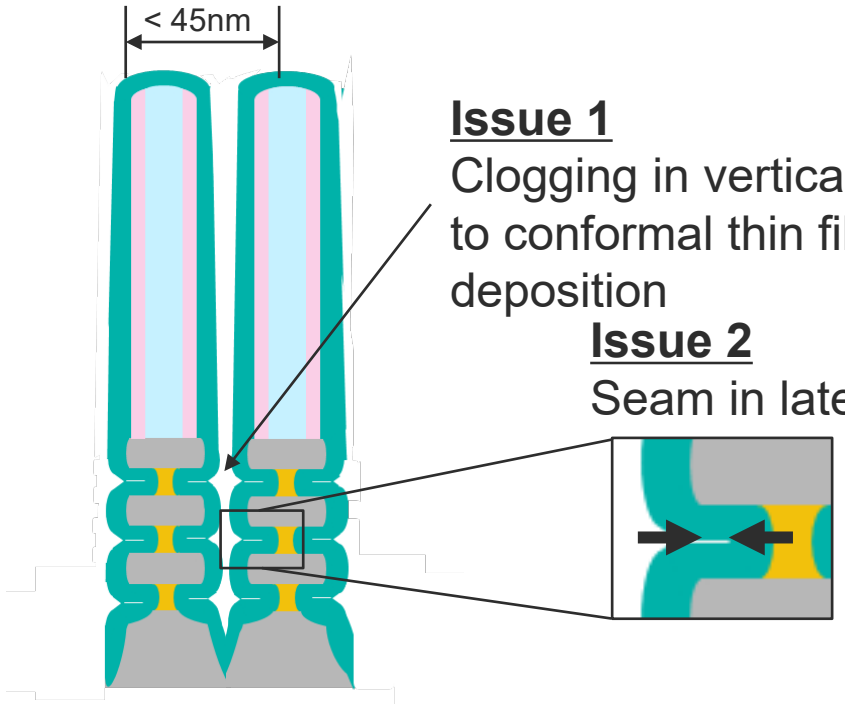


*1 COR: Chemical Oxide Removal
*2 PHT: Post Heat Treatment

Multiple types of process modules are equipped on a high-vacuum transfer module, and low-resistance contacts are achieved by sequentially processing native oxide layer removal and metal film formation

Episode™ 1: Inner Spacer Formation - Lateral Gapfill

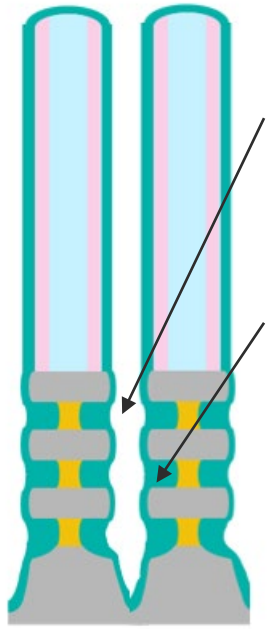
- Issues :
  Leak due to dielectric breakdown due to etching



Issue 1
Clogging in vertical gap due to conformal thin film deposition

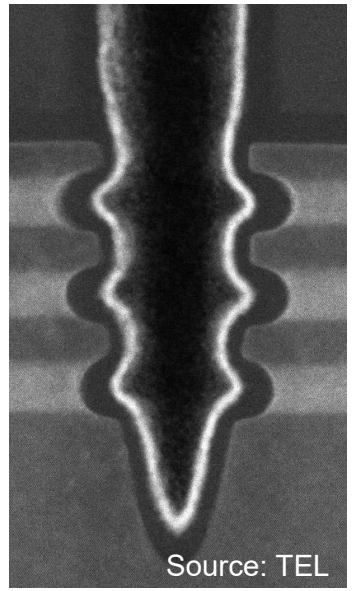
Issue 2
Seam in lateral gap

- Solutions :
  Improve lateral gapfill performance



Solution 1
Thinner film deposition on the side walls

Solution 2
Seamless gapfill in lateral gap



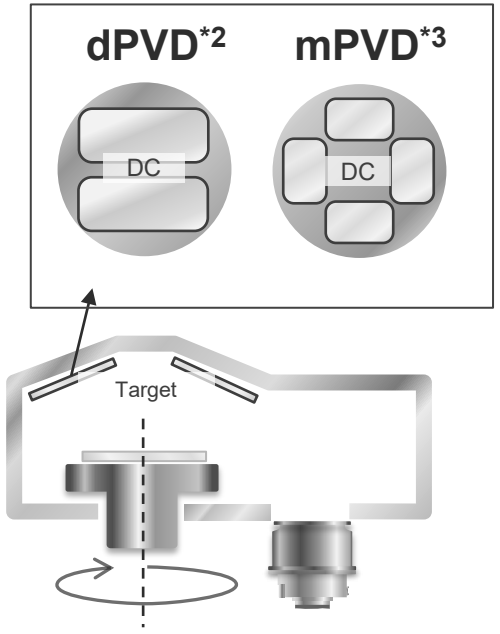
Realized seamless lateral gapfill using a unique thin film deposition technique and laterally uniform film modification using a newly developed high-density plasma

Strategies in the Film Formation Business 2:

SAM Expansion with PVD

LEXIA™ -EX **Released in December 2024**

- Oblique angle sputter with wafer rotation system
  - Excellent thickness uniformity (1σ 0.5%)
- Unique multi-cathode*1 configuration
  - High deposition rate
  - Capability of tuning film composition ratio with multiple materials
- High throughput (~100WPH)
- Significant footprint reduction vs conventional model



*1 Cathode: An electrode for material deposition
*2 dPVD: Dual cathode PVD
*3 mPVD: Multiple cathode PVD

Strategies in the Film Formation:
Growth in Batch Thermal Process/Deposition

- Major applications
  - Silicon process in general (dummy gate, channel Si, etc.)
  - Batch ALD high-k (capacitor dielectric)
  - Plasma/Thermal ALD-SiN/SiO_2
  - Batch molybdenum (word line)

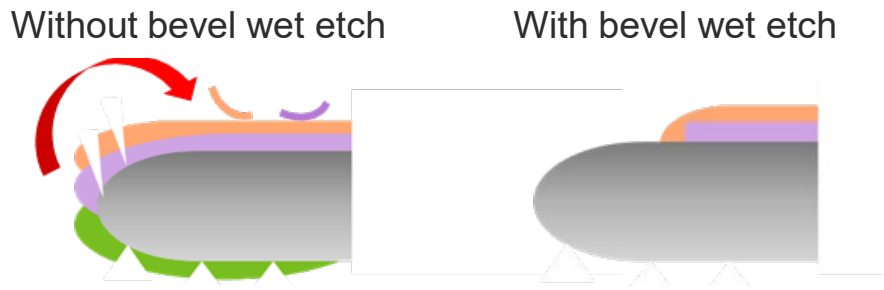
- Development plans
  - Increase load port size (8 lots, 200 wafers/batch)
  - Improve exhaust conductance to mitigate pattern loading effect
  - Enhance energy efficiency (elevate heater performance)
  - Enhance labor reduction (one-touch start-up, self-maintenance, DX)

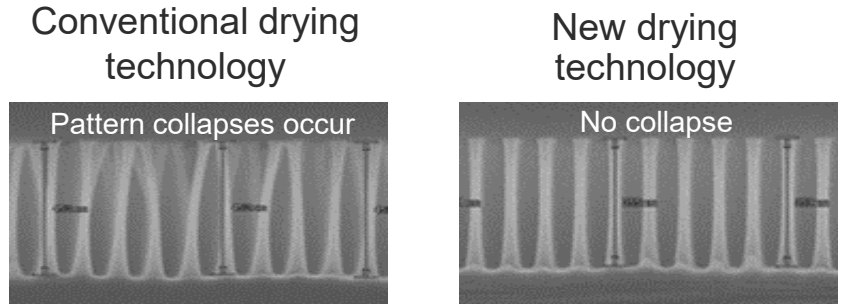
TELINDY™ PE-II

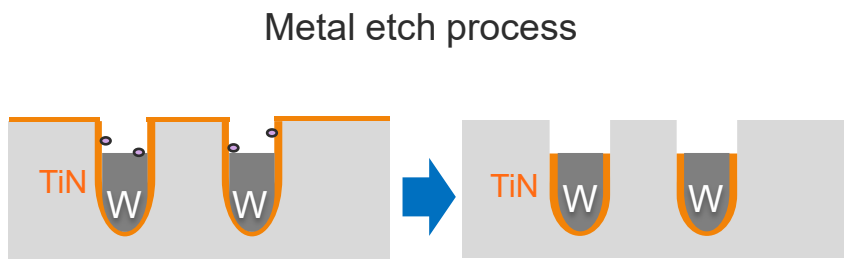
7-2-3. Cleaning System

Single Wafer Cleaning Strategy

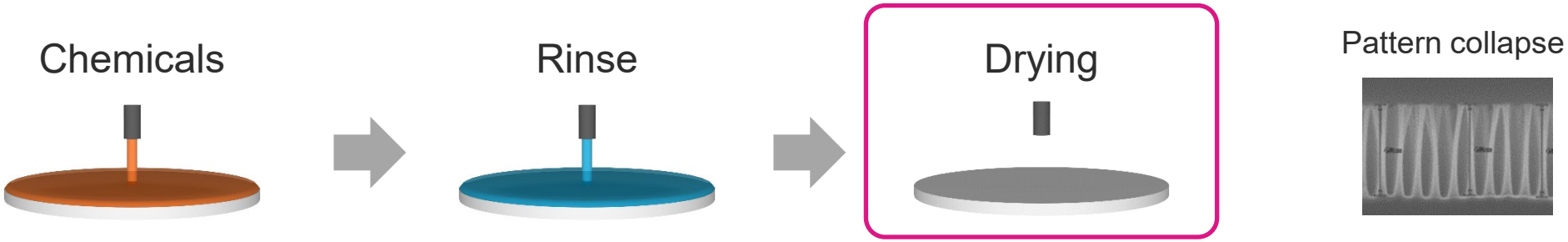
- Single wafer cleaning
  - Bevel wet etch
    - Expect annual market growth rate of around 10%
    - Contribute to improving customers' yields. Maintain a high market share by differentiating through performance in precisely removing film from the outer part of the wafer
  - Prevent pattern collapse
    Expand market share by TEL original technology to reduce collapse of high aspect ratio pattern
  - Metal etch
    Launched new dedicated SPM chambers for controlling selectivity for metal in order to solve reduced yield issues caused by dry etch damage and residue



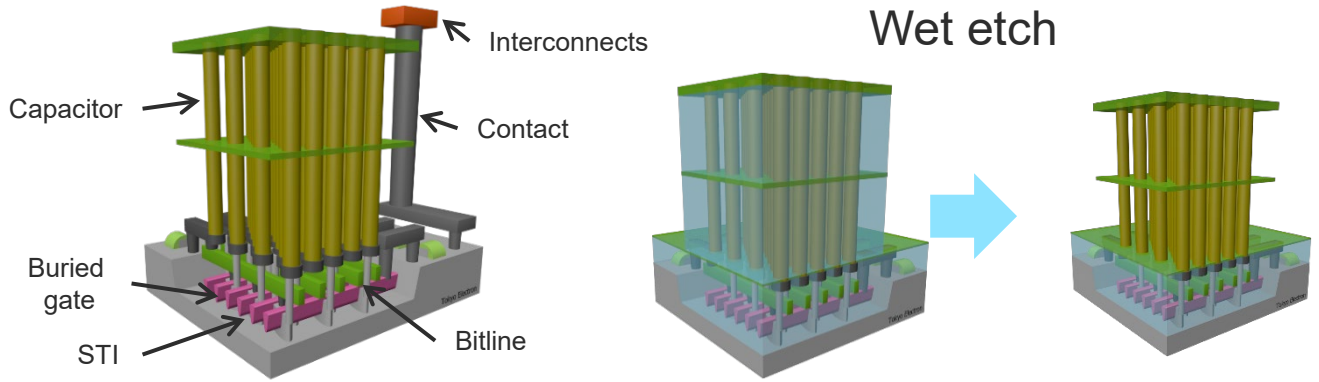




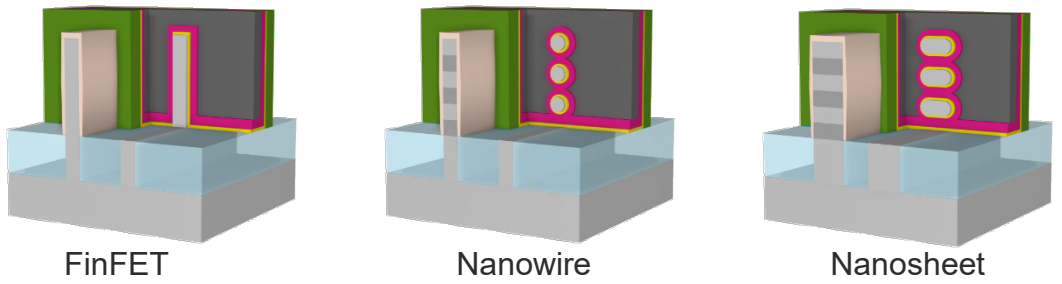
Technology Challenges in Cleaning for State-of-the-Art Devices



- DRAM
  - Post-STI etch cleaning
  - Mold wet etch after capacitor electrode formation

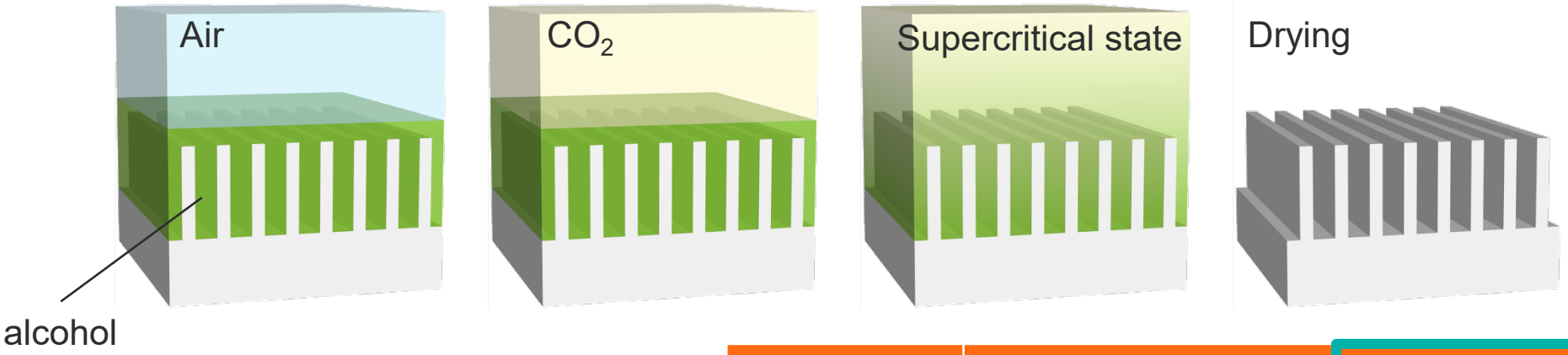


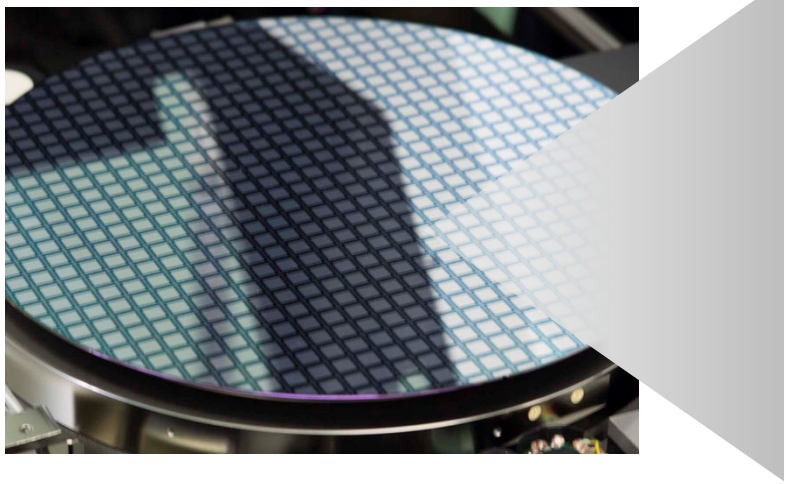
- Logic
  - Post-fin etch cleaning
  - Post-nanowire/nanosheet formation cleaning



Drying technology more difficult due to further scaling and higher aspect ratios in device manufacturing

Supercritical Drying Technology





	Traditional drying	TEL's supercritical drying
Top View		
Side View		

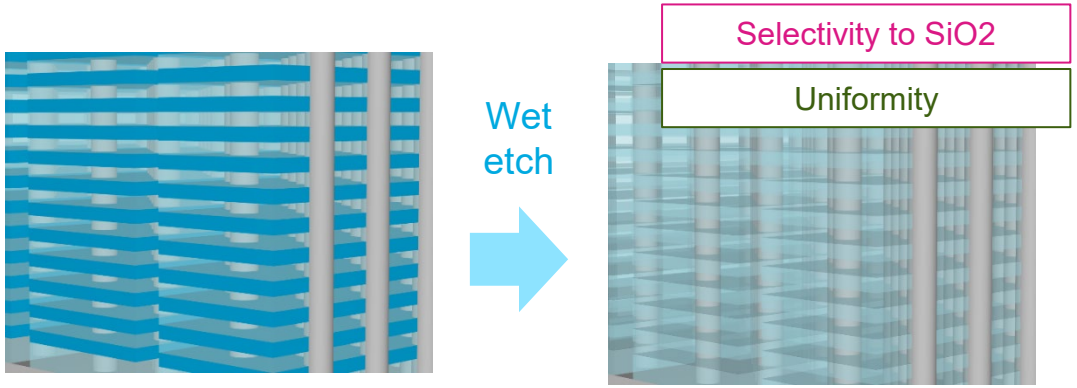
Supercritical drying technology prevents pattern collapse

Batch and Scrubber Cleaning Strategy

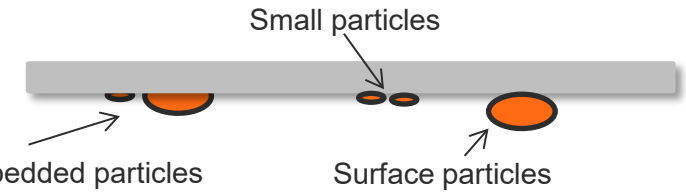
- Batch cleaning
  - SiN etch and W etch processes for 3D NAND
    Focus on processes that require long durations and advanced process technology. Differentiate by realizing high uniformity, high selectivity and high productivity in wet etch

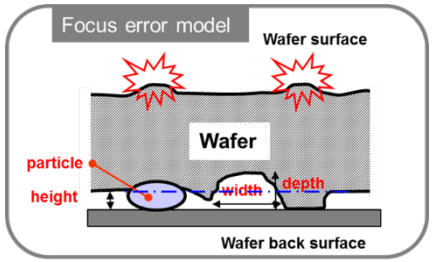
- Scrubber cleaning
  - Pre-lithography process
    Provide high-value solutions such as reducing particles brought in by wafers, contributing to the improvement of exposure tool availability which have grown increasingly important due to the introduction of EUV

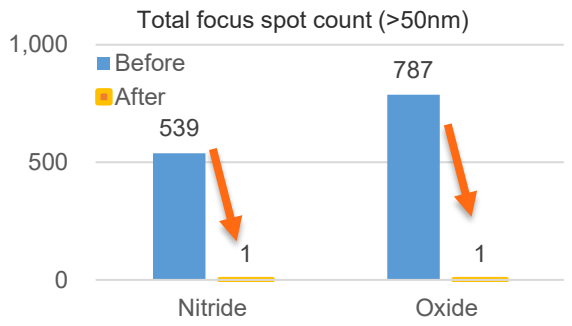
SiN etch process



Wafer back and defocus diagram

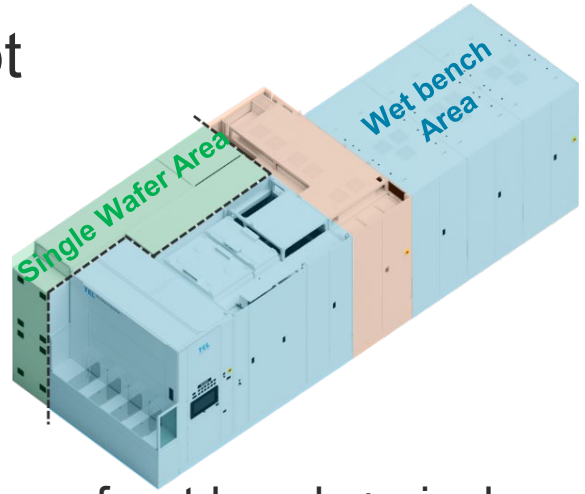






ZEXSTA™

- Concept



A combination of wet bench + single-wafer process

Method	Features
Wet Bench	High-temp/ long-duration process, wet etch
Single Wafer	Advanced drying technology, particle control

- Target Application
  - Advanced wet etch + advanced dry tech

    - Highly selective wet etch process will be required for also 3D DRAM in addition to 3D NAND
  - High throughput + surface cleanliness

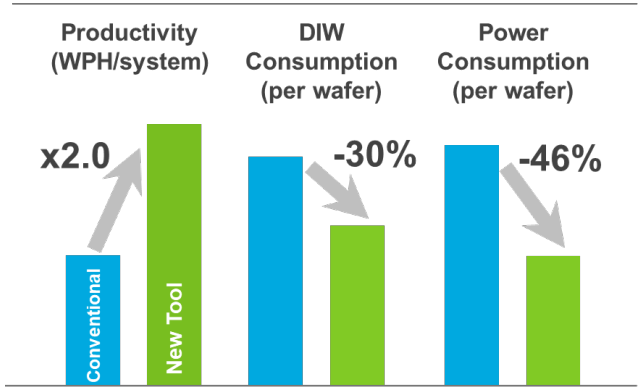
    - High surface cleanliness is required for logic and DRAM

TEL will contribute to customer technology development by continuing to create new value, overcoming the constraints of traditional equipment classifications

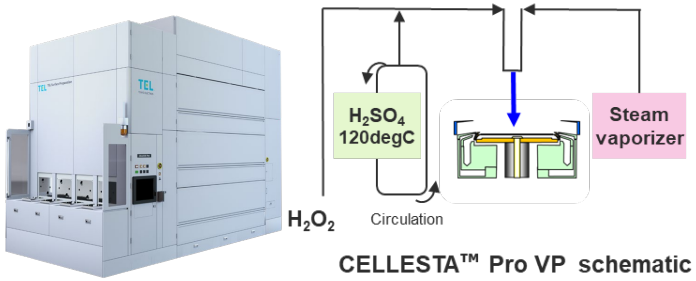
Development of Cleaning Systems

High Productivity Wet Bench (EXPEDIUS™-R)

Industry's first large-batch process (increased wafer counts)



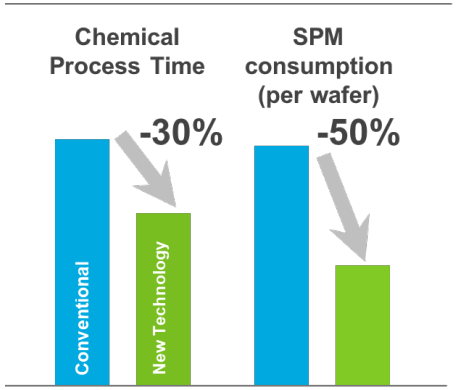
SPM*1 Vapor Technology (CELLESTA™ Pro VP)



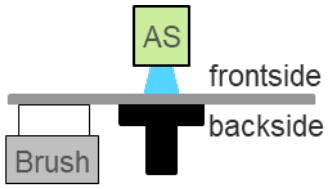
CELLESTA™ Pro VP schematic

Enabled higher temperature process due to a more effective rection by adding water vapor to chemicals

*1 SPM: Sulfuric Acid and Hydrogen Peroxide Mixture

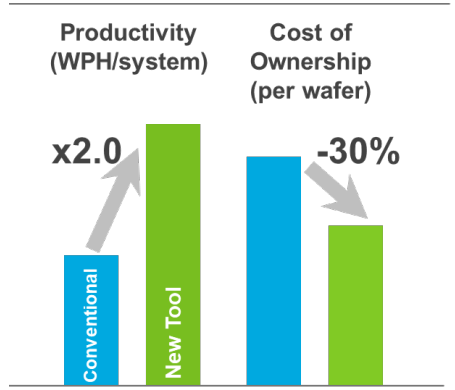


Simultaneous Scrubber (CELLESTA™ MS2)



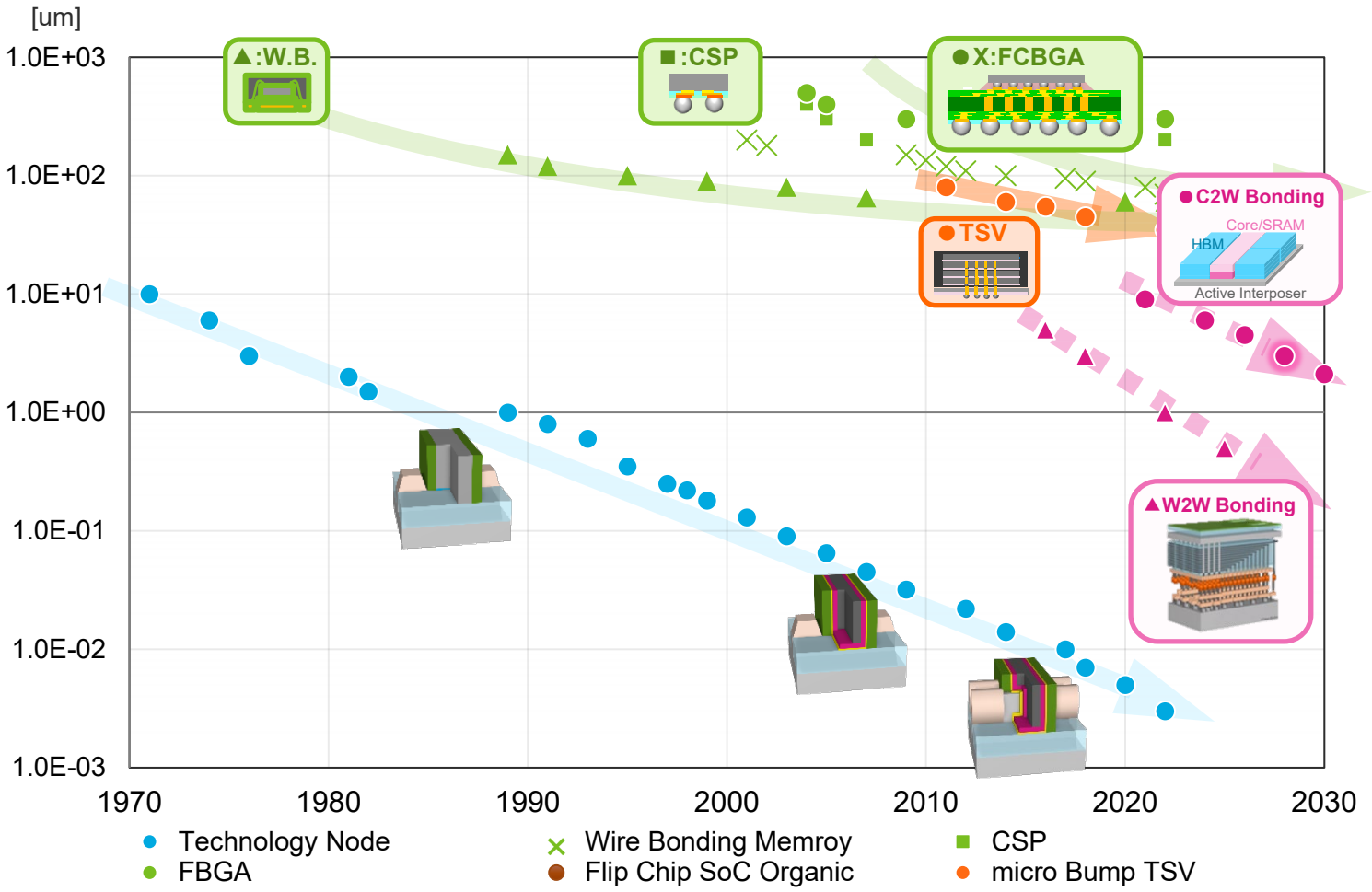
A tool enabling AS*2 process on wafer frontside and physical brushing process on wafer backside simultaneously in a single chamber

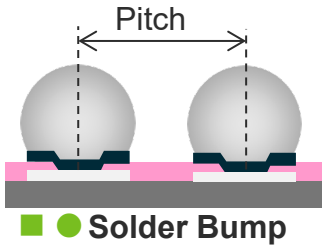
*2 AS: Atomized Spray

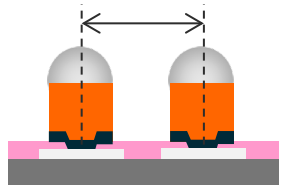


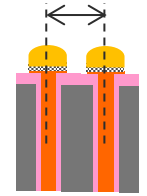
7-3. Backend Business Strategy

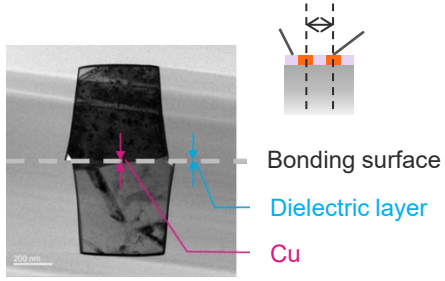
Semiconductor Technology Node and Bump Pitch











Introduction of wafer bonding technology accelerates further reduction of pitch

History of Product Launches in Assembly and Test* Systems

New Category Product　　Next Generation/Improvement Product

Synapse™ S
Fusion bonder

Synapse™ V
Temporary bonder

Synapse™ Si
Cu hybrid / Fusion wafer bonder

Prexa™
Wafer Prober

Ulucus™ L
Laser Edge Trimmer

Synapse™ Si (high accuracy)
Cu hybrid / Fusion wafer bonder

Ulucus™ LX
Extreme Laser Lift Off

Die Test Prober
Upcoming system for release

Year | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026

Synapse™ Z plus
De-bonder

Synapse™ ZF
Post bond re-worker

Ulucus™ G
Wafer Thinning

3DI
Upcoming system for release

Accelerating product development to prepare for the era of 3D integration

*Test : Prober for Advanced Packaging Test

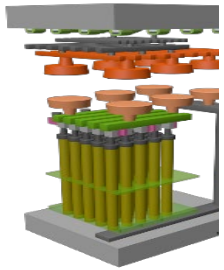
3DI / Test Business Expands Opportunities for HPC/AI Device

Frontend Process

Device Manufacturing

BSPDN*1

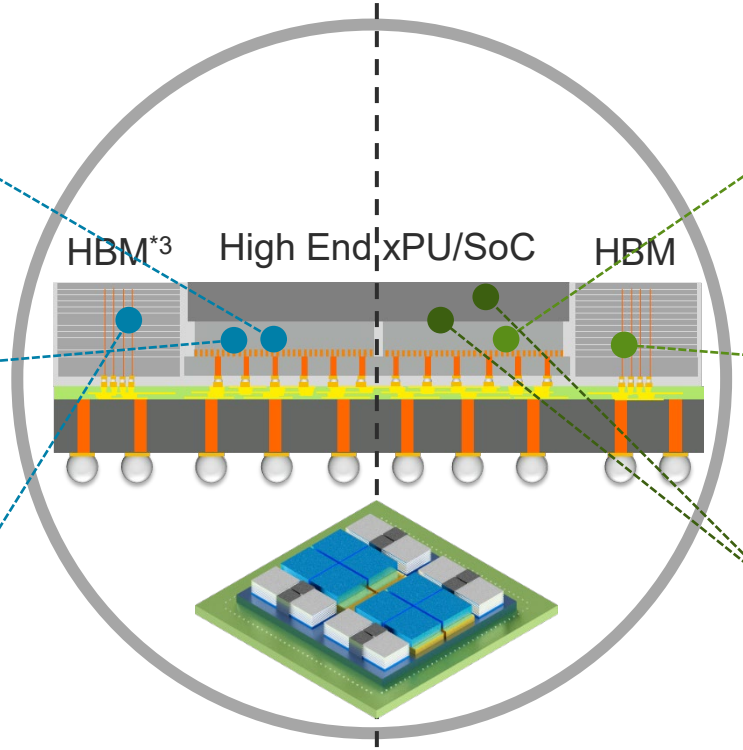
CFET*2



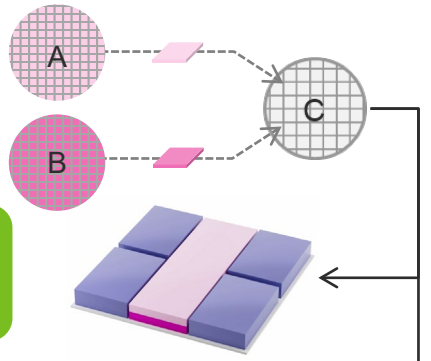
DRAM

Advanced Packaging

Assembly after Dicing/Singulation

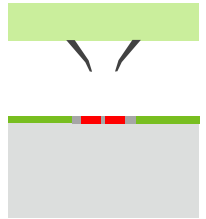


3DIC



Stack Memory

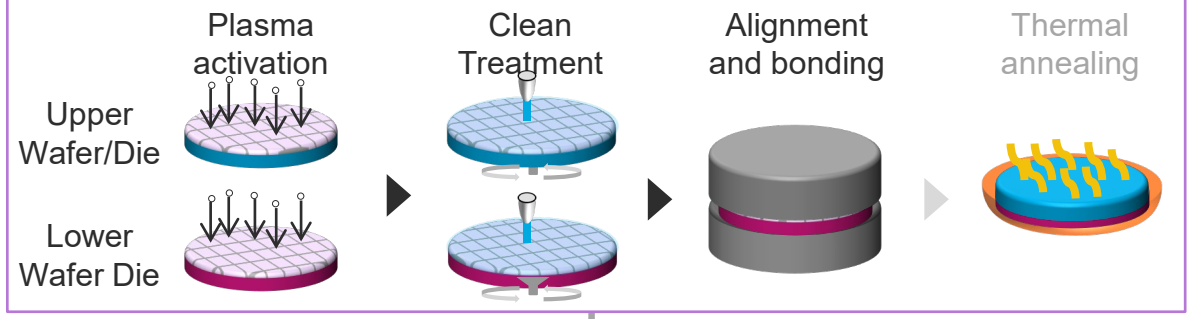
Die Test for KGD*4

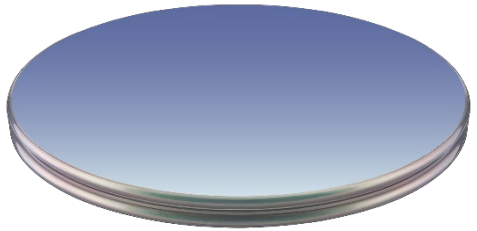


*1 BSPDN: Back Side Power Delivery Network
*2 CFET: Complementary Field Effect Transistor
*3 HBM: High Bandwidth Memory
*4 KGD: Known Good Die

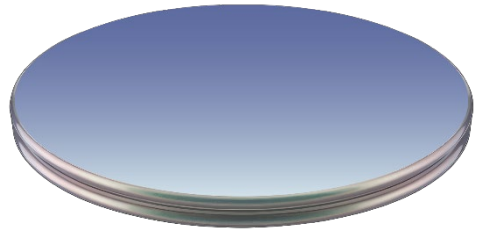
TEL's Opportunities for Bonding Technology

Bonding Technology

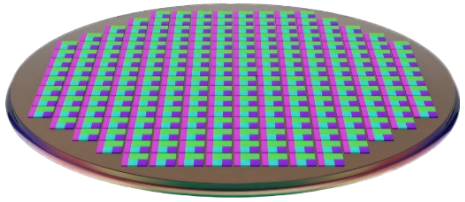




Wafer-to-Wafer Bonding



Wafer-to-Wafer Bonding



Die-to-Wafer Bonding

Benefits for Pitch scaling & Higher speed / Lower power consumption

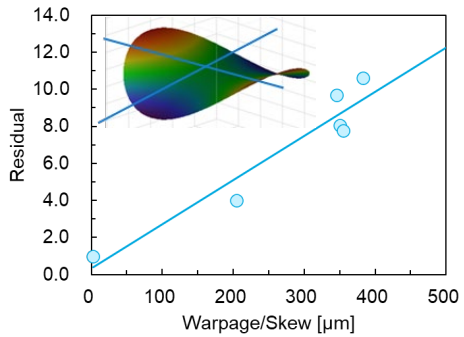
Frontend Process

Advanced Packaging

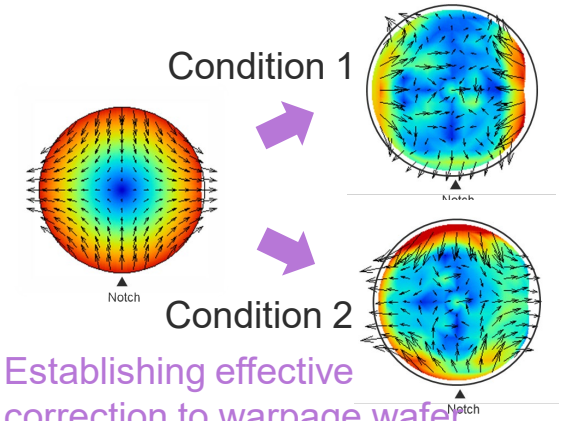
Wafer Bonder Technology Roadmap and Challenges

CY		2024	2025	2026	2027	2028	2029	2030	Beyond
Logic	Node	2nm	2nm	2nm+	14A	14A	10A	7A	5A
		Distortion ≤ 4nm （BSPDN）			Distortion ≤ 3nm （BSPDN）		Distortion ≤ 2nm （CFET）		
NAND		2-wafer-bonding				3-wafer-bonding		≥ 4-wafer-bonging	
		Wafer warpage < 500μm				Wafer warpage > 500μm			
DRAM		2D DRAM			2D/3D DRAM				
		Distortion ≤ 5nm / DxDy ≤ 70nm			Distortion ≤ 3nm / DxDy < 50nm				

Wafer Warpage Challenges and Actions

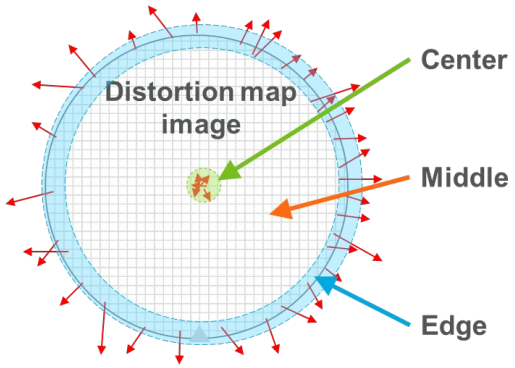


Relation between wafer warpage and residual (distortion)

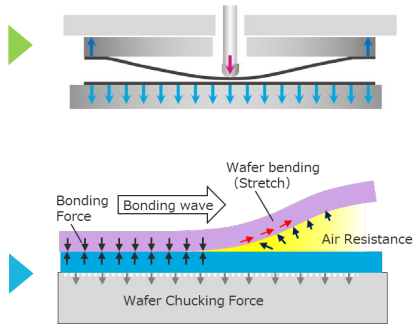


Establishing effective correction to warpage wafer

Distortion Challenges and Actions



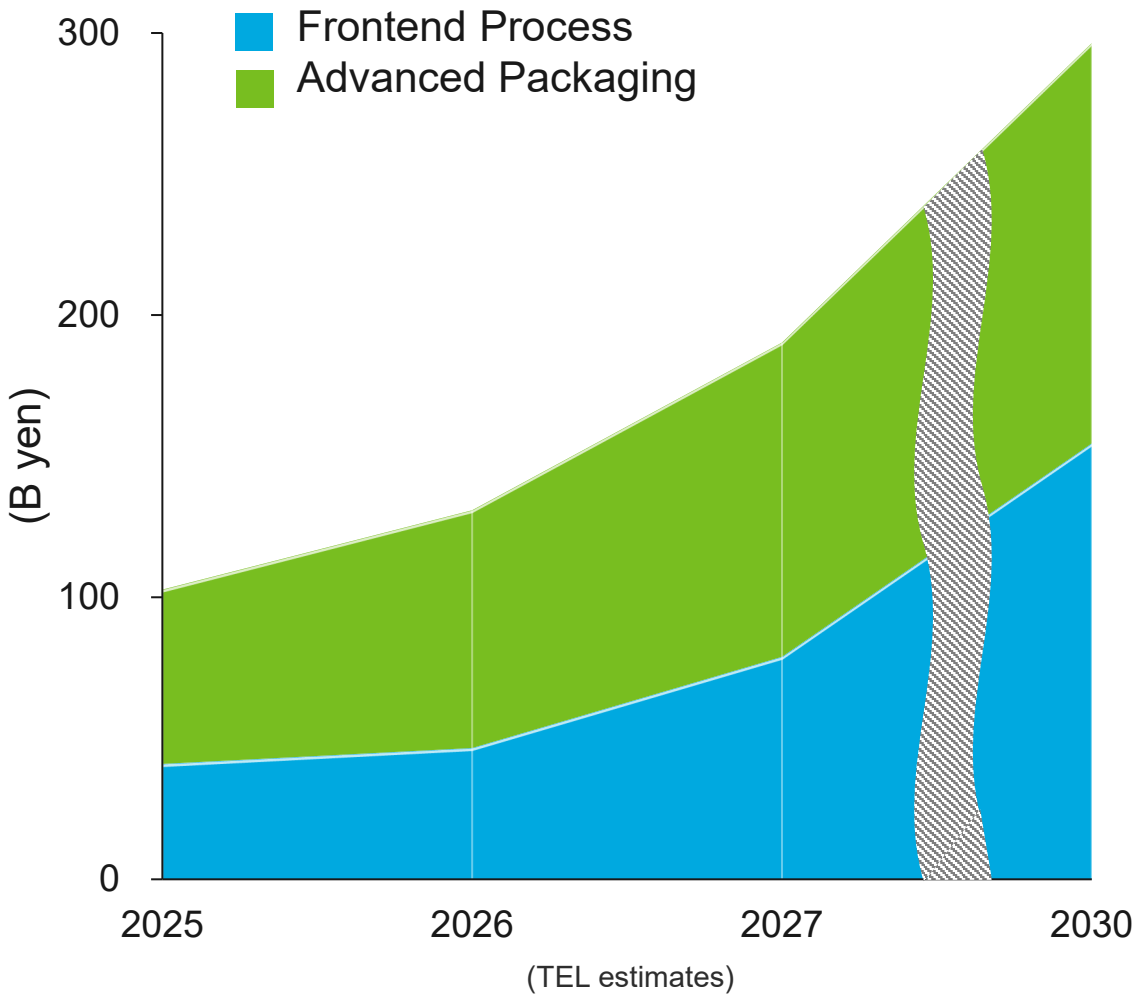
Distortion vector



Optimizing hardware and process

TEL is developing various technologies in advance to prepare for next-generation devices

Bonding Process Equipment TAM*

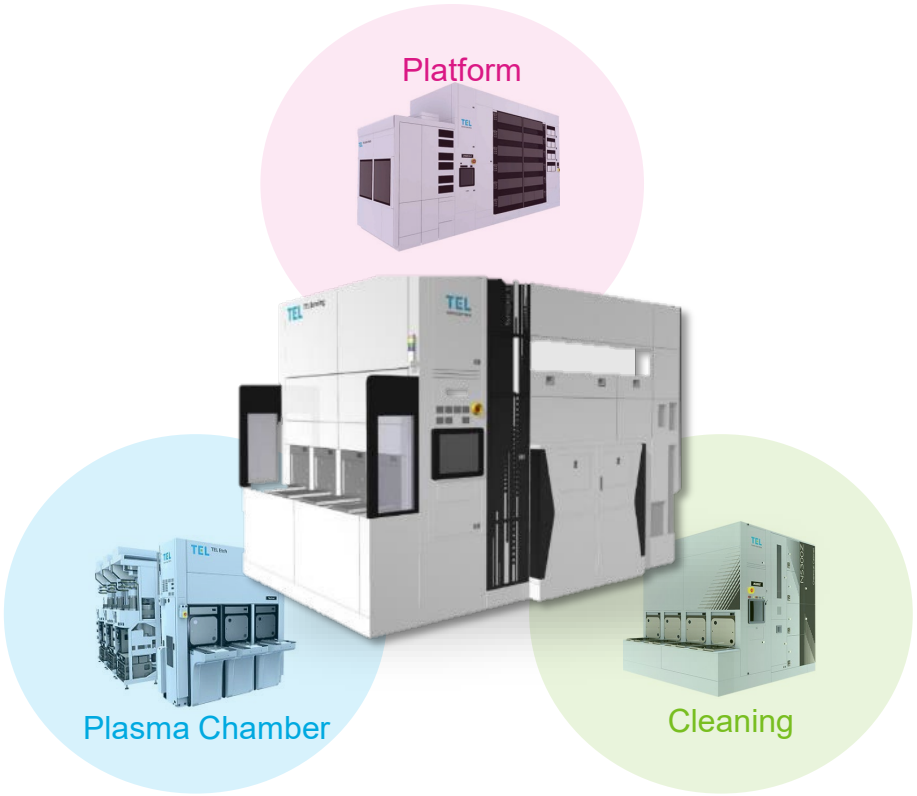


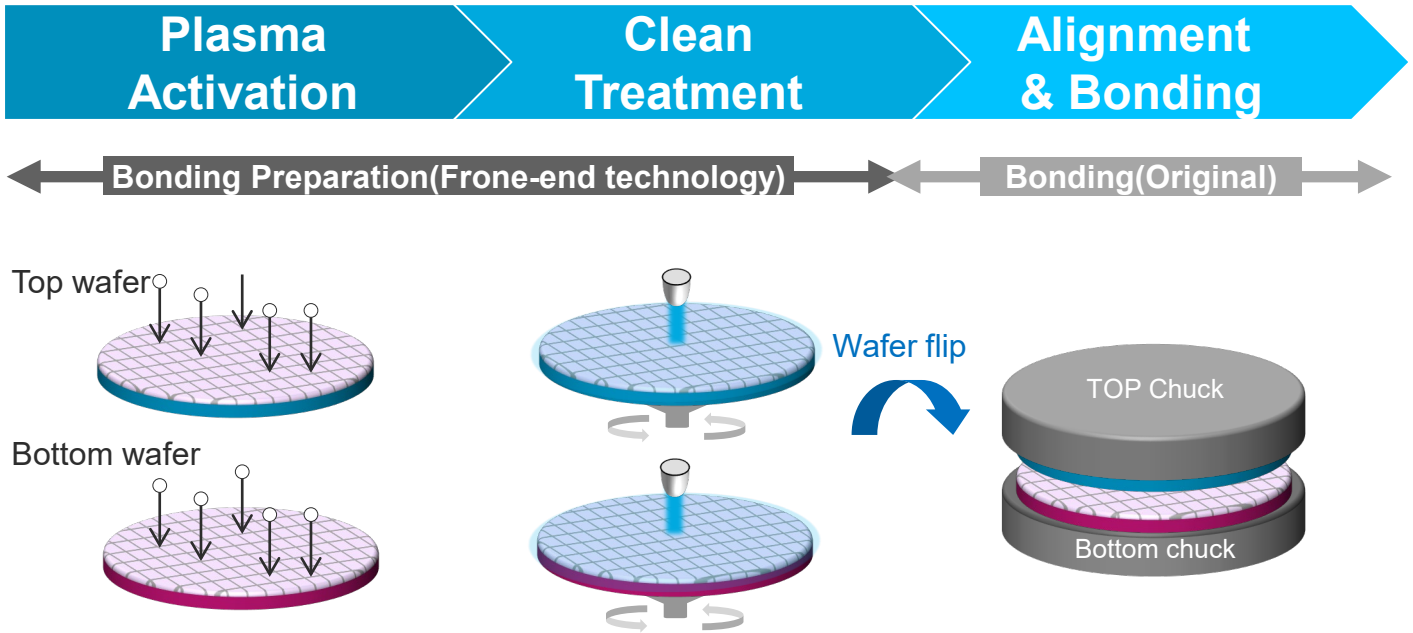
Anticipating a TAM CAGR of 24% from CY2025 to CY2030

- Projected to achieve 300 billion yen by CY2030
- Encompassing both frontend processes and advanced packaging equipment
- Addressing bonding/debonding, slicing, and thinning process equipment utilizing various technologies

* TAM : Total Available Market

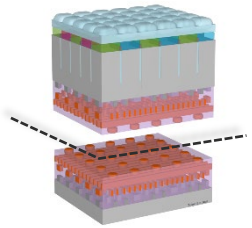
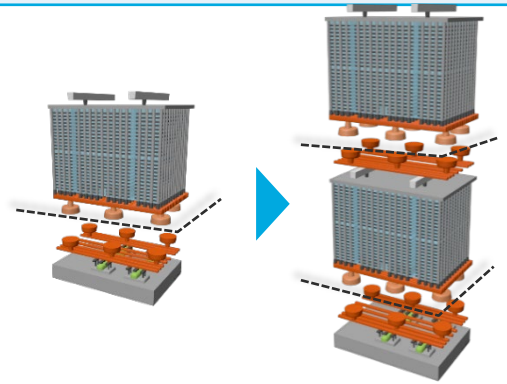
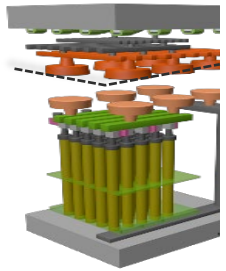
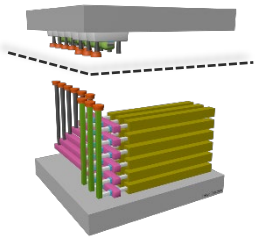
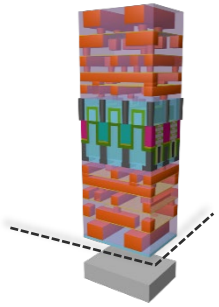
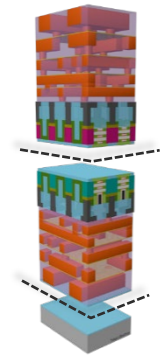
Wafer-to-Wafer Permanent Bonder Synapse™ Si





- TEL's existing broad technology and business contributing effective product development/CIPs
- Making good progress with major memory, logic customers towards high volume manufacturing
- Leading W2W Fusion/Cu hybrid bonding technology for next generation device manufacturing

Broad Applications and Expansion of Bonding Technology

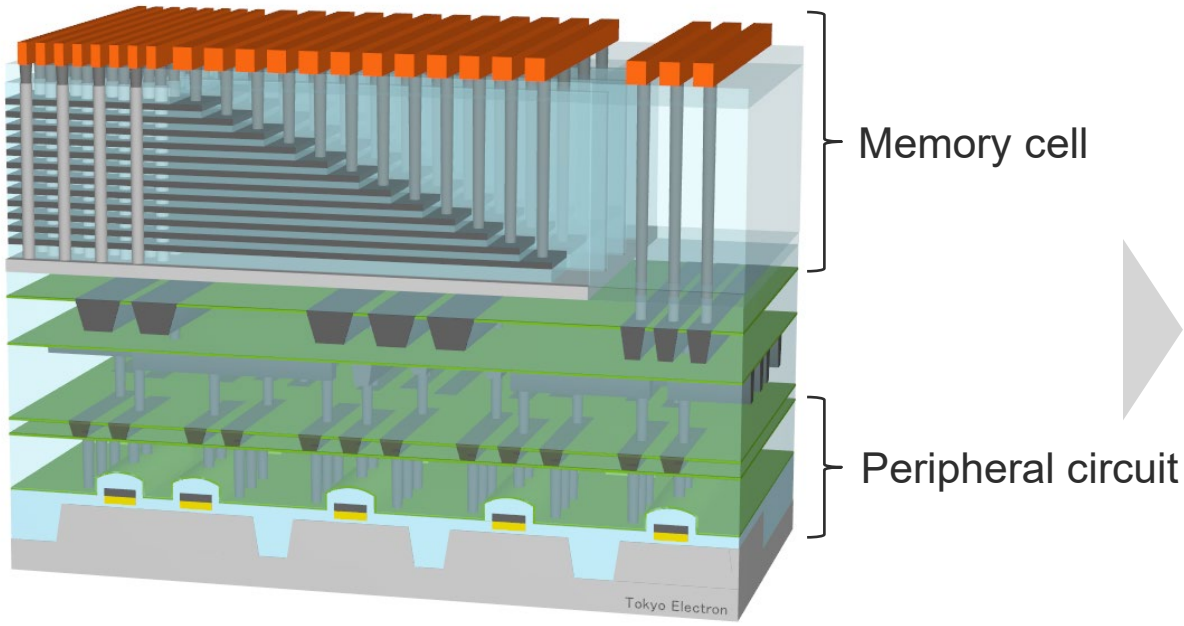
Application	Frontend Process					
	CIS[*1]	NAND		DRAM		Logic
Stacking Device	BSI[*2] Pixel + (Peripheral) + Logic	3D NAND Cell + Peripheral ⋮ + Cell + Cell + Peripheral		VCT[*5] DRAM (Si Substrate) + Peripheral + Cell + (Si Substrate)	3D DRAM (Si Substrate) + Peripheral + Cell + (Si Substrate)	BSPDN Logic + Si Substrate	BSPDN & CFET Logic + Logic + Si Substrate
Bonding	Wafer to Wafer (CHB[*3]/Fusion)	Wafer to Wafer (CHB)		Wafer to Wafer (CHB/Fusion)	Wafer to Wafer (CHB/Fusion)	Wafer to Wafer (CHB/Fusion)	
Structure							
Status	HVM[*4]	R&D~HVM	R&D	R&D	R&D	R&D~HVM	R&D

The design of future devices is transitioning from single bonding to multi-bonding structures

*1 CIS: CMOS Image Sensor
*2 BSI: Backside Illumination
*3 CHB: Cu Hybrid Bonding
*4 HVM: High Volume Manufacturing
*5 VCT: Vertical Channel Transistor

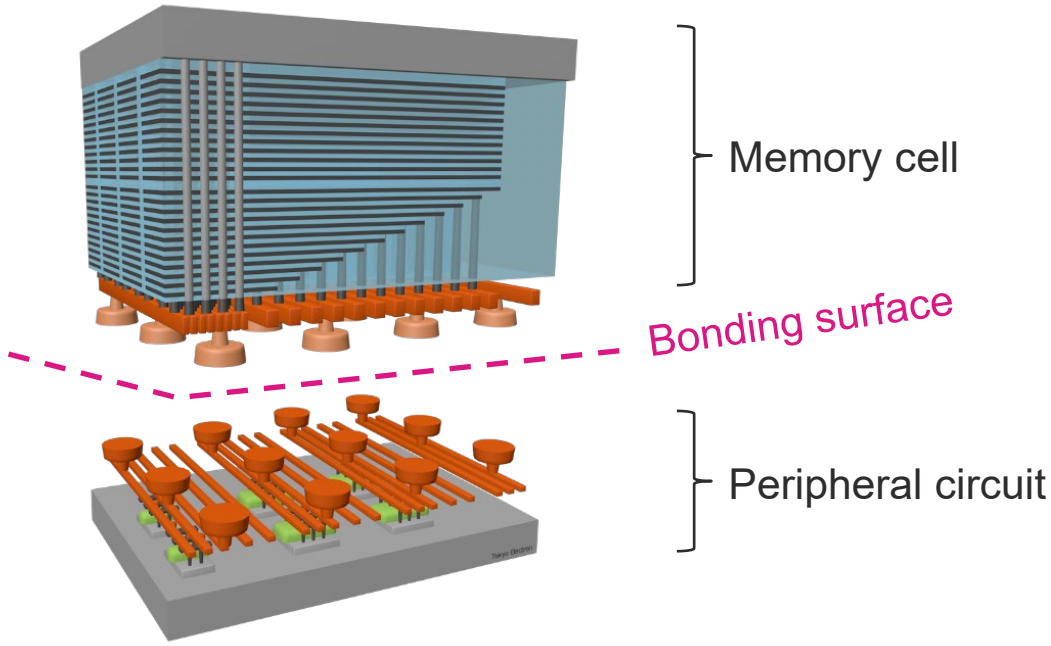
Wafer Bonding Application for 3D NAND

Current structure



- ✓ Peripheral circuit performance deteriorates due to exposure to high temperature during memory cell manufacturing
- ✓ Long interconnects wiring

New structure

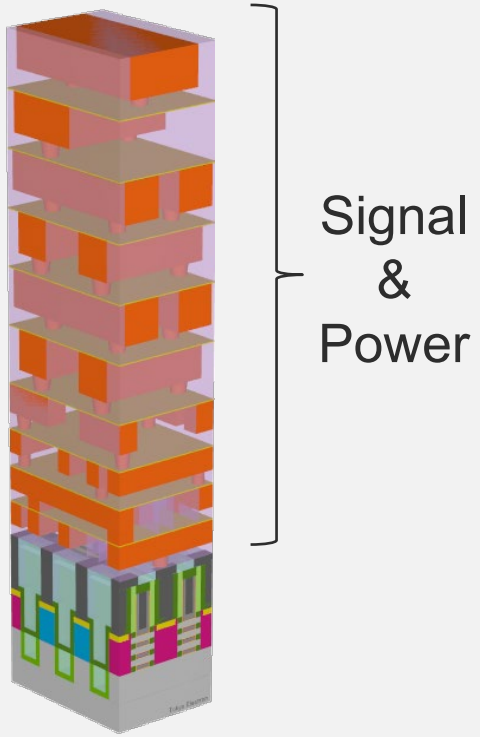


- ✓ Peripheral circuit is manufactured on the separate wafer and bond to the memory cell wafer
  - higher peripheral circuit performance
  - shorter TAT* process
- ✓ Shorter interconnects wiring

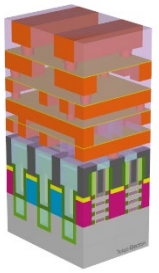
* TAT: Turnaround time

Wafer Bonding Application for Logic Backside PDN

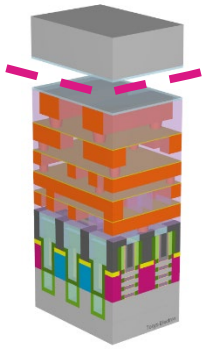
Conventional Structure



1. Signal BEOL (Front side)

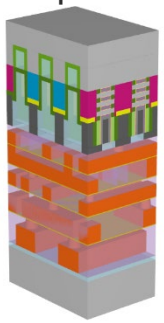


2. Si Wafer Bonding

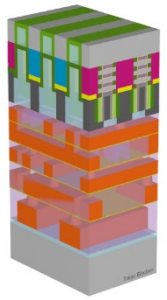


flip

3. Flip Wafer



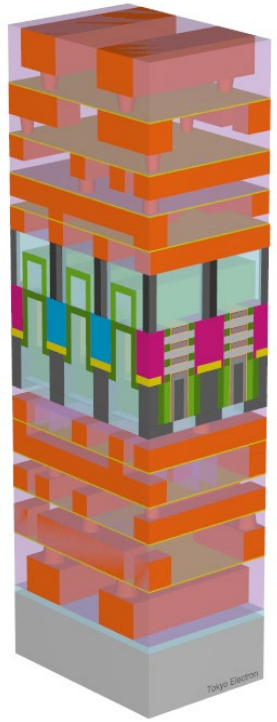
4. Backside Thinning



5. Power BEOL (Backside)

Backside PDN*

*Power Delivery Network



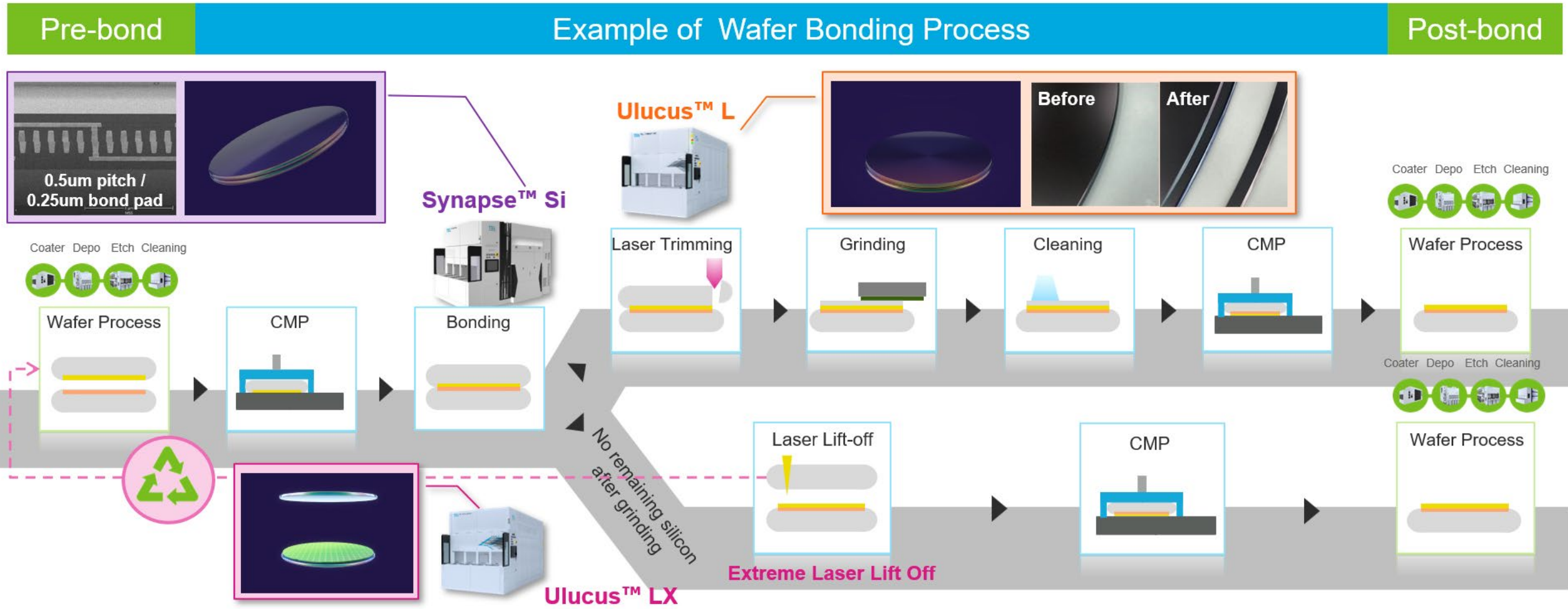
Can pursue further scaling without the bottleneck due to power wiring

Broad Applications and Expansion of Bonding Technology

Application	Advanced Package		
	Stack Memory / HBM	3DIC	
Stacking Device	DRAM Wafer ⋮ DRAM Wafer + DRAM Wafer + Logic Wafer OR DRAM ( ) Die ⋮ DRAM ( ) Die + DRAM ( ) Die + Logic Wafer	SoC Disaggregation Device A Wafer + Device AorB Wafer OR A, B, C, Die, Wafer	Heat Spreader Heat Spreader + Device
Bonding	Wafer to Wafer / Die to Wafer (CHB/Fusion)	Wafer to Wafer / Die to Wafer (CHB)	Wafer to Wafer (Fusion)
Structure	**Micro Bump** → ***Cu hybrid*** (More stacks) Change • Thinner die / more stacks • High density connection • Better thermal conductance Cu	**Monolithic SoC** → ***3D Stack IC*** SRAM, CPU/GPU, I/O & Peripheral Change • Small formfactor (3D stack vs. 2D) • Higher speed (shorter wiring, no bump) • Lower power (shorter wiring, no bump) • Lower cost (higher yields, easy to mix processes) • Shorter time to market (matured IP block reuse)	Heat Spreader • Better thermal conductance
Status	R&D	R&D ~ HVM	HVM

The opportunity for CHB/fusion bonding is growing to encompass advanced packaging

Frontend Wafer Bonding Process and TEL Products



Integrating various TEL equipment enables next generation wafer bonding processes that deliver high performance and process efficiency

Laser Trimming System: Ulucus™ L

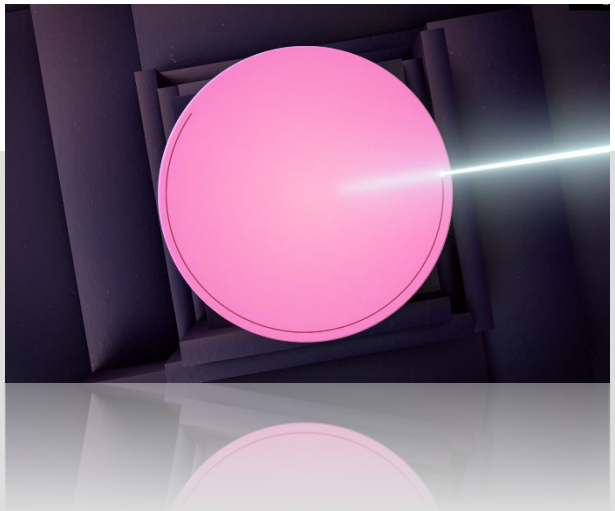
- Concept
  - Edge trimming on bonded wafer
  - Latest platform utilizing super clean technology from the front-end process, with the integration of laser control technology

Laser technology realizes high accuracy and quality trimming processes, and environment-friendly capability through the reduction of DIW usage

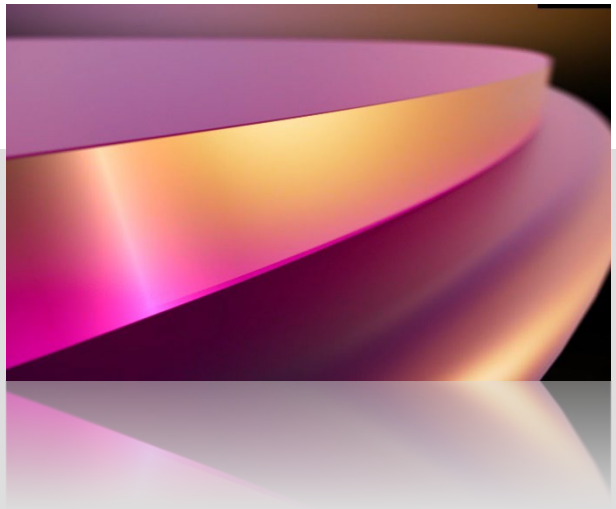
Laser Trimming System

Revolutionize wafer bonding process with laser technology

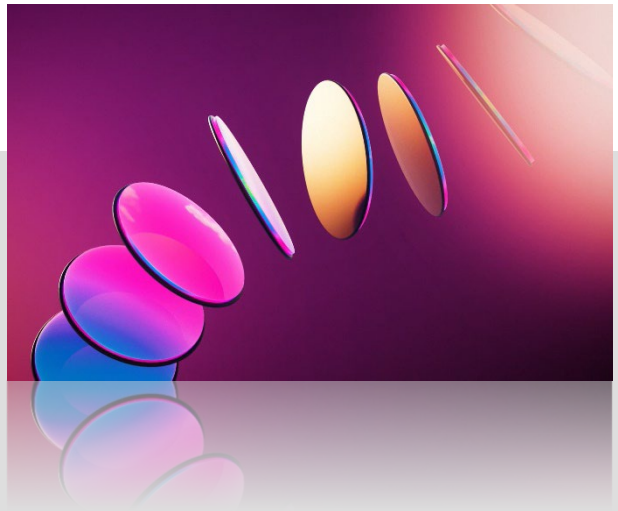
Enhance yield and significantly reduce the use of DIW in the edge trimming process



Higher Accuracy
Enabling narrower trimming width



Smooth Sidewall
Less damage, Better yield

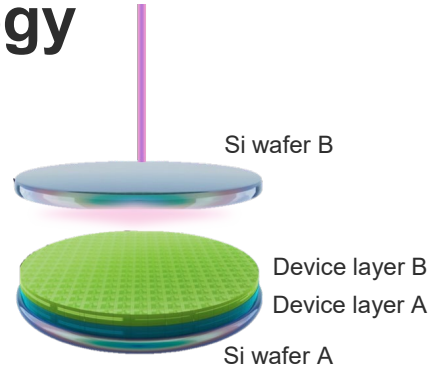


Higher Throughput
High productivity, Reliability

Save Water
Reducing DIW to 70% or more

Introducing Ulucus™ LX for Post-Wafer Bonding Process

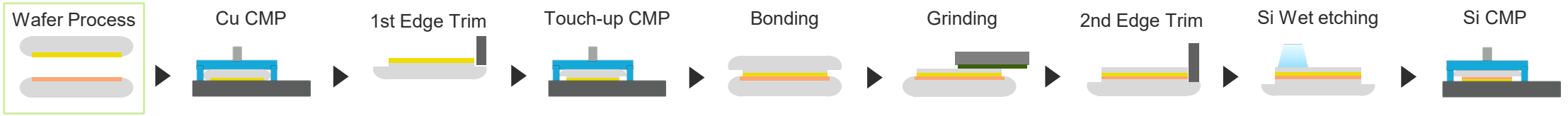
- **Extreme laser lift-off (XLO) technology**
  - Advanced thinning and critical technology for post-wafer bonding process
  - Unique laser technology enables separation of the Si-substrate from the device layer



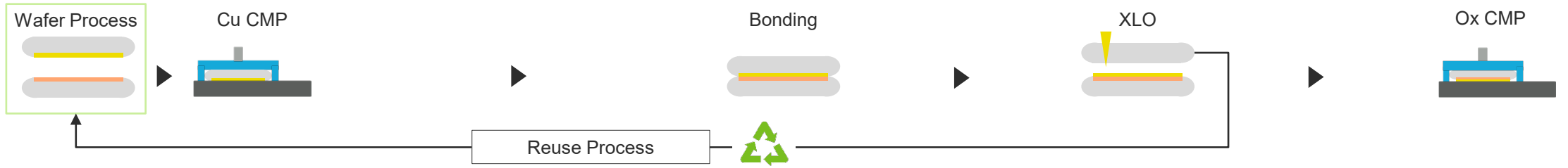
- **Advantages for process and environment**
  - Enhanced efficiency in silicon active areas
  - Fewer process steps required
  - Reduced need for DI water usage and CO_2 emission
  - Opportunity for wafer reuse
- **Equipment released in December 2024**

Ulucus™ LX Advantages

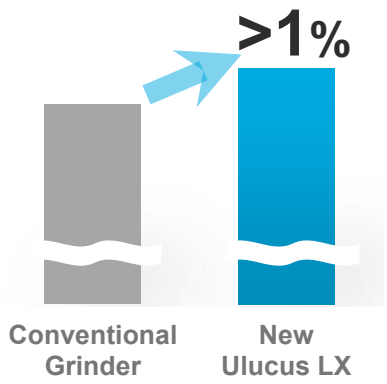
Permanent Bonding Process with Grinding & Blade Edge Trimming (Conventional)



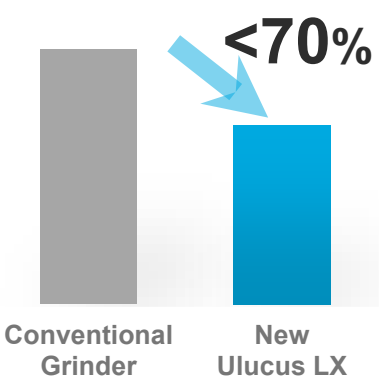
Permanent Bonding Process with XLO (Extreme Laser Lift Off)



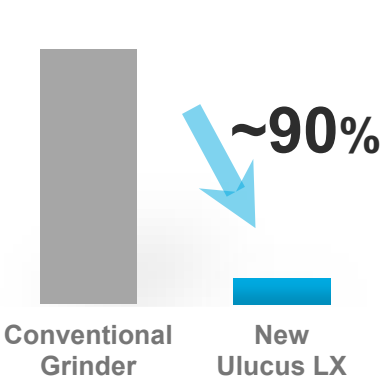
Active Silicon Area



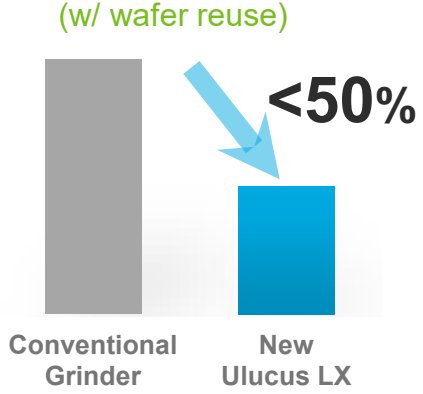
of Process Steps



DIW* Usage



CO_2 Emission
(w/ wafer reuse)



No Silicon Sludge
→ Advantage Over Grinder

Source: TEL

* DIW : De-ionized Water

8. MAGIC Market and Field Solutions Business Initiatives

MAGIC market

- Expected market growth of 2x
  (approximately $25B in 2023, projected $50B in 2030)
- Developing and supplying equipment for MAGIC
- Demo line ready for 200mm MAGIC
  - Yamanashi, Kumamoto, Miyagi
  - Massachusetts, Minnesota, Florida

Equipment for Mature Generations

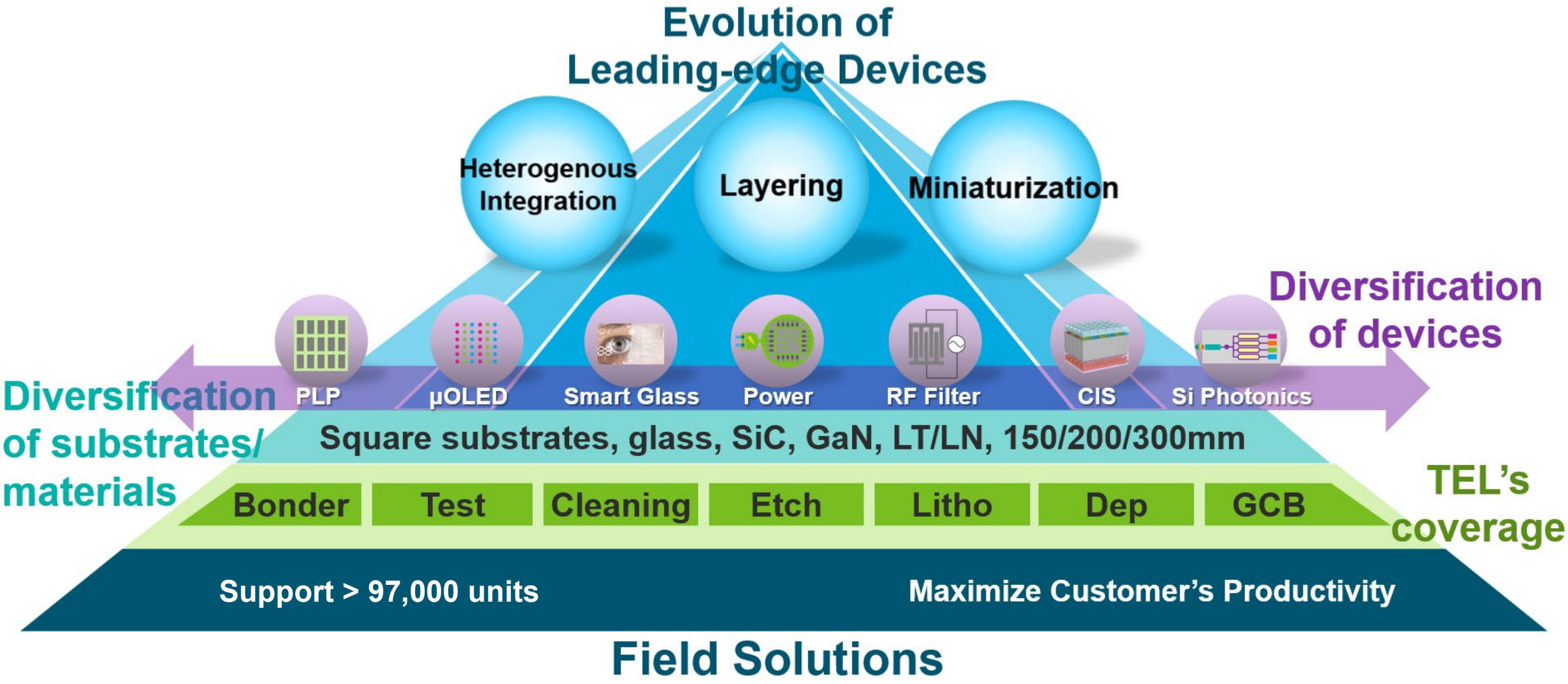
- Reengineered equipment for 200mm wafer
  - Thermal deposition systems, coater/developer, etch systems, etc.
  - Sales expansions not only for replacement demand of existing customers, for emerging customers and for emerging applications

- Equipment for power devices
  - Equipment for SiC wafer, 300mm etch system
  - Respond to the demand for power devices, such as for representative automotive, expanding usage across various fields.

SiC epitaxial CVD system

By integrating our technological assets with new technologies, improve productivity and reduce impact on the environment

Providing Diverse Systems and Solutions for Diverse Needs

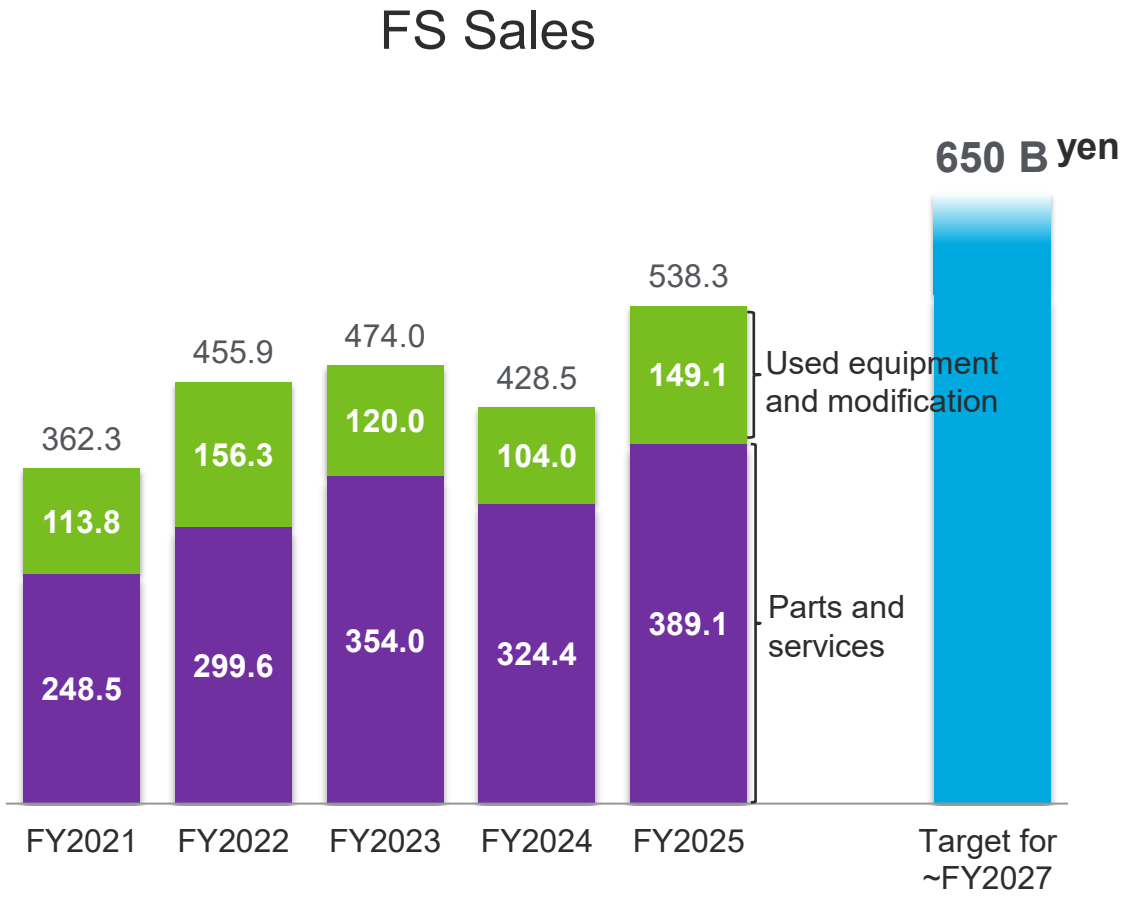


Basic Strategy for Field Solutions (FS)

- Deploying solution business based on installed base
- Development and promotion of advanced Field Solutions
  - Providing leading-edge and sustainable support that utilizes the latest technology, such as DX
  - Development of remote maintenance support and training tools
- Enhancing the front-lines engineers and capabilities
  - Continuous skill improvement for field engineers

Support customers to maximize their business operations through services with high added value

Field Solutions (FS) Sales Results and Business Contents



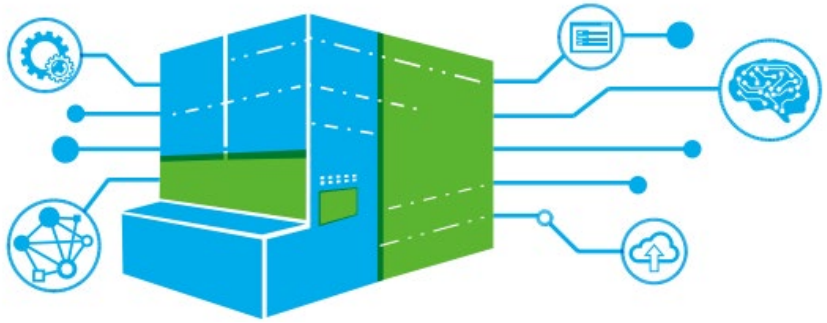
- Parts and repair
  - Predictive maintenance for parts deterioration
  - Appropriate parts inventory management and prompt delivery
- Services
  - Providing “comprehensive contract type” services that encompass everything from equipment delivery to after-care maintenance
  - Proposing solutions that address customer demands and maximizing equipment utilization rates
- Modification
  - Productivity improvement
  - Yield improvement

SAM*1 is expanding with 97,000*2 installed base currently and increasing by approx. 4,000 to 6,000 units each year

*1 SAM: Served available market
*2 As of June 2025

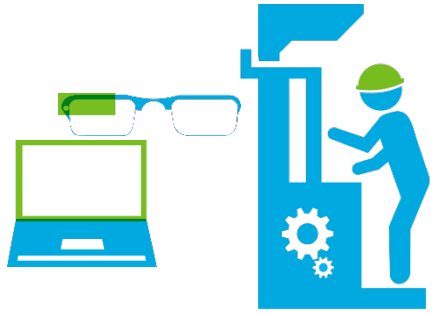
Advanced Field Solutions

TELeMetrics™



- Monitoring data on individual equipment
- Knowledge management and accumulation of problem case studies

Remote Support



- Minimization of downtime through predictive maintenance of equipment
- Remote support that enables prompt response even under travel restrictions

Proposing solutions with high added value
centered around “TELeMetrics™” that utilize DX

9. Digital Transformation (DX) Initiatives

Leveraging Digital Transformation (DX)

Best Product Dev. | Start up / Process Ramp up | Production | Best Service Delivery

MI (Materials Informatics)

Self-diagnostics (Sensors)

Robotics

PI (Process Informatics)

High Throughput Platform

AR/VR

Developing digital enablers for use throughout the business
to leverage productivity and profitability

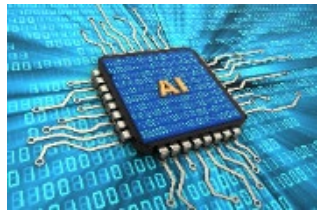
Leveraging Digital Transformation (DX) in Field Solutions

Maximize work efficiency for startup and maintenance in the Clean Room by using smart glasses and remote expert support. Use of AR/VR and DX including digital twin technology.

Use of robots for parts replacement without human assistance is expected to minimize downtime and improve the quality of engineering work.

TEL DX Vision

- The tide of DX ripples throughout the industrial world as a whole, and the semiconductor industry is no exception. It is positioned as a part of the solution toward further demands for die miniaturization and layering



AI Chip


Autonomous


Cloud Service

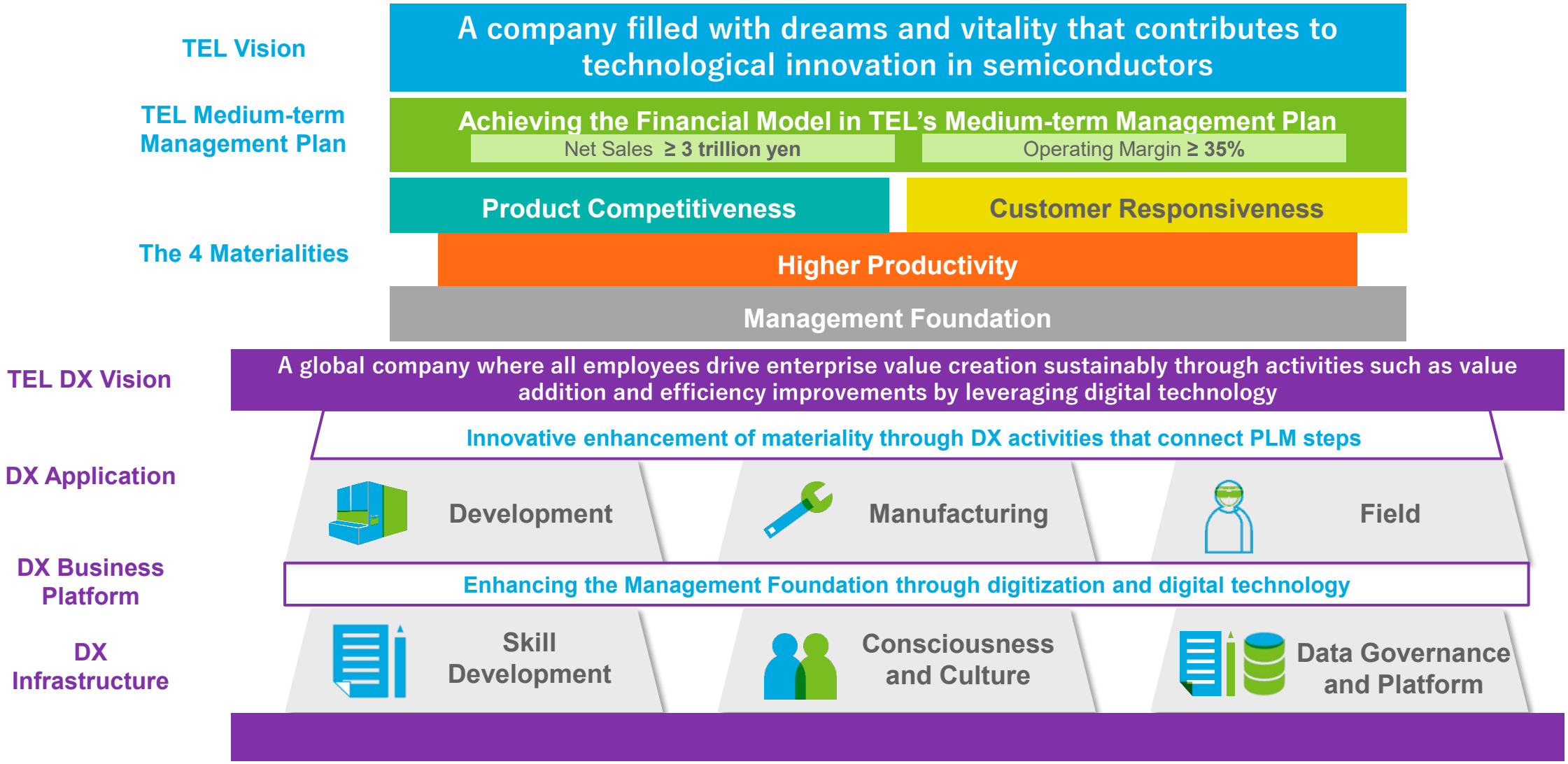

AR/VR

TEL DX Vision

A global company where all employees drive enterprise value creation sustainably through activities such as value addition and efficiency improvements by leveraging digital technology

DX activities are ultimately a method and an opportunity to realize sustainable creation of corporate value. We have defined the image we must achieve (our “To-Be Image”) in order to realize transformation

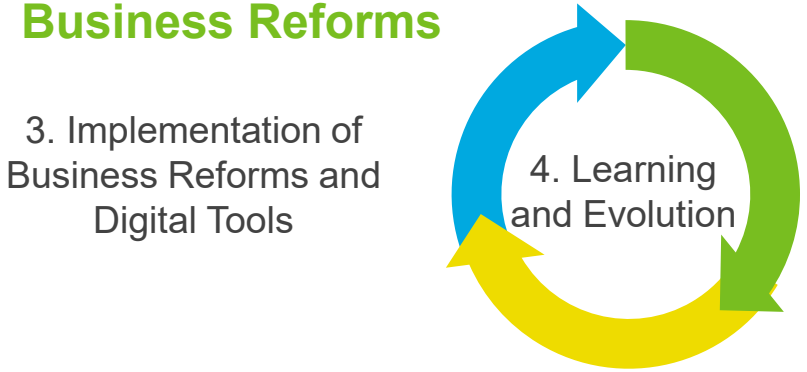
TEL DX Grand Design



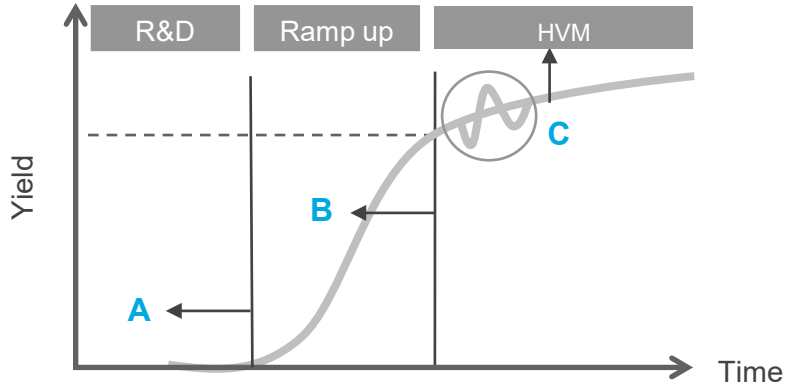
Steps of DX Activities

Product Innovation

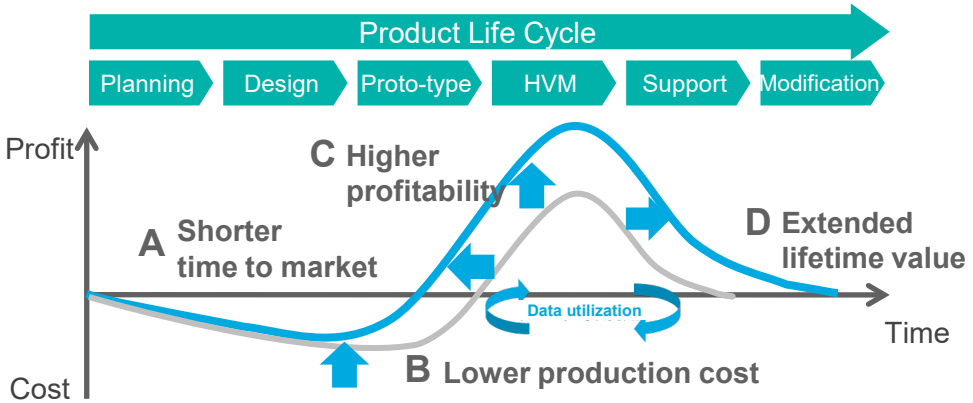
Business Reforms



DX in Contributing to Customers' Value Creation



DX in Raising Capital Efficiency



Solving issues of a higher dimension through digital transformation

Relationships between Projects in DX-related Developments

Equipment Foundation

- Development of equipment frames
- Development of equipment foundation technologies

Added Value Application

- Development of equipment AEPC*
- Development of service tools
- Development related to measuring instruments

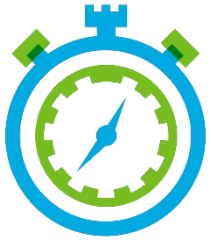
DX Foundation

- Company-wide DX training
- Data lake maintenance
- Maintenance of environments for DX development

Capital Efficiency/ Management Foundation Application

- Development of apps for equipment
- Development of apps for the field
- Development of apps for GBP

Quality



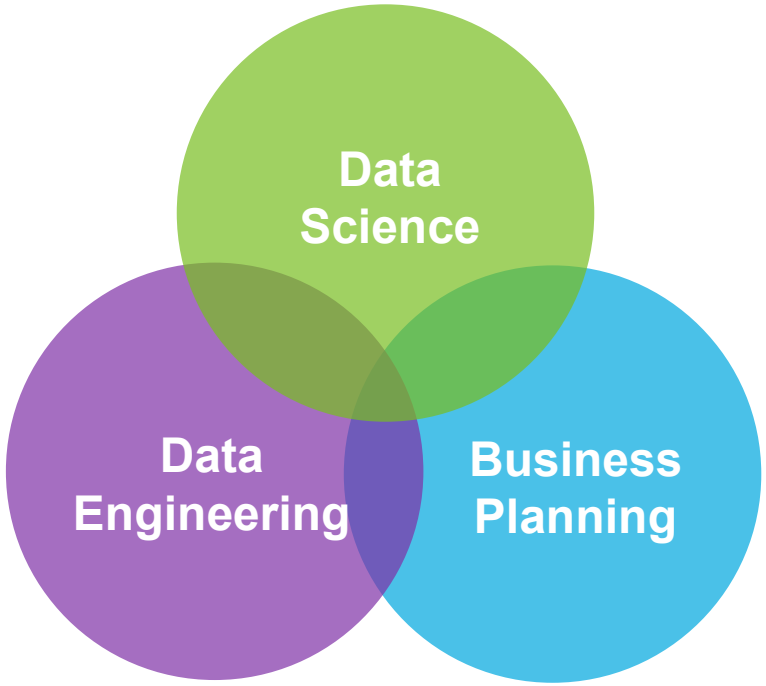
Time

Talents

Through a DX foundation and DX that improves capital efficiency,
we will improve the quality and speed of our work,
and transition toward a use of time that creates even greater value

*AEPC: Advanced Equipment control and Process Control, a general term for solutions and technologies that improve and optimize the performance of equipment and process control.

DX Engineer Training Plan



All Employees

The ability to understand and utilize knowledge of information science, such as cutting-edge information processing, artificial intelligence and statistics

The ability to realize a form of data science that meaningfully contributes to TEL's creation of corporate value, and to practice and operate data science in a manner that fits our purposes

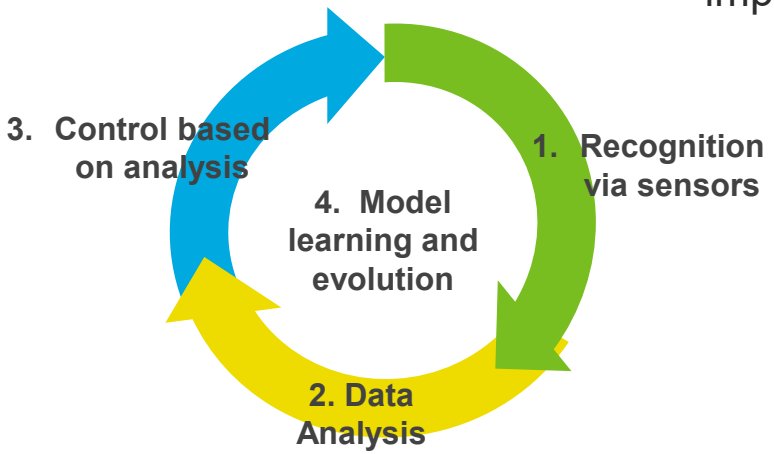
The ability to organize issues and their backgrounds, derive solutions, and connect them to our business

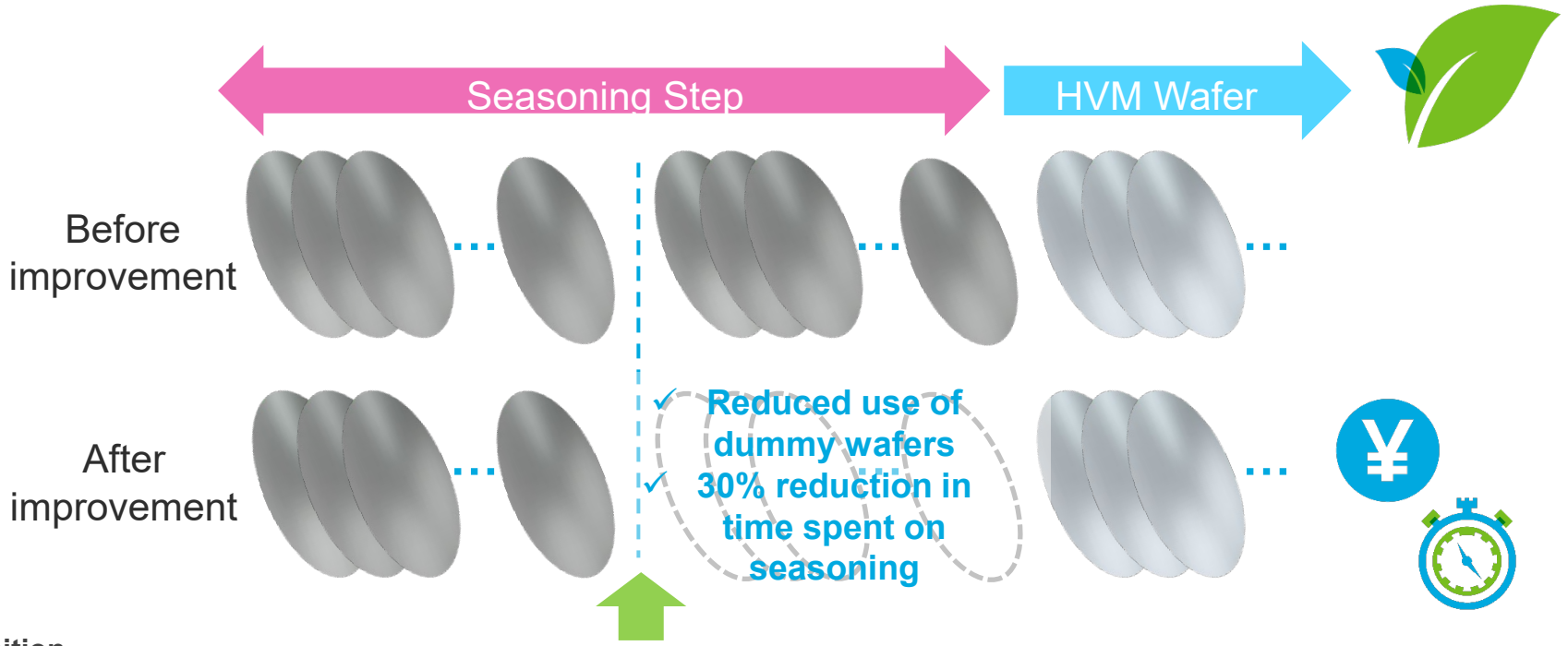
Utilizing data and digital technology in our day-to-day business operations in order to optimize our business operations and create added value

Engaging in planned training to foster personnel who can capitalize data science in TEL's business

Example Activity 1 – Increasing Productivity of Equipment:

Improving Utilization of Etch Equipment





Seasoning at the right time with endpoint detection

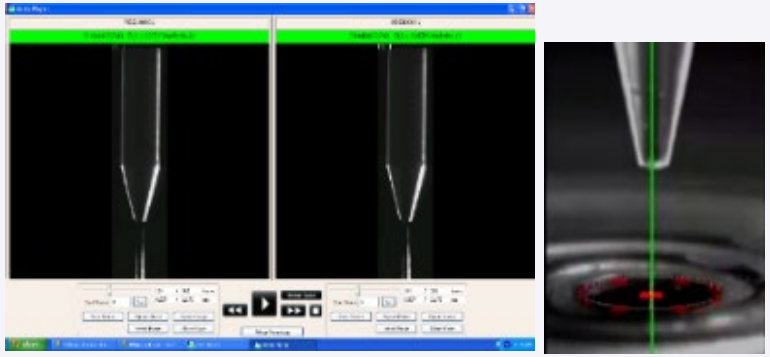
*ISSM 2020, from "Seasoning Optimization by using Optical Emission Spectroscopy," published by the Company

Feedback from the sensor provided an appropriate understanding of chamber conditions and improved utilization of equipment

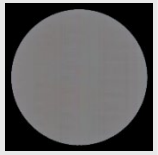
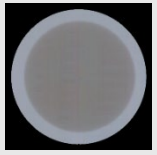
Example Activity 2 – Increasing Operation Cost of Equipment:

Reducing Chemicals of Coater/Developer

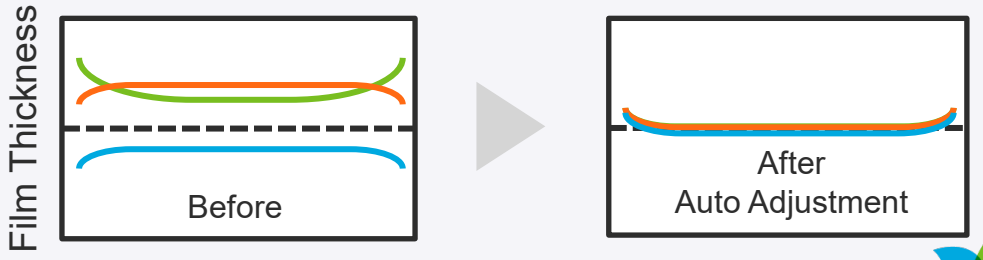
Monitoring of chemical discharge status
using image processing technology

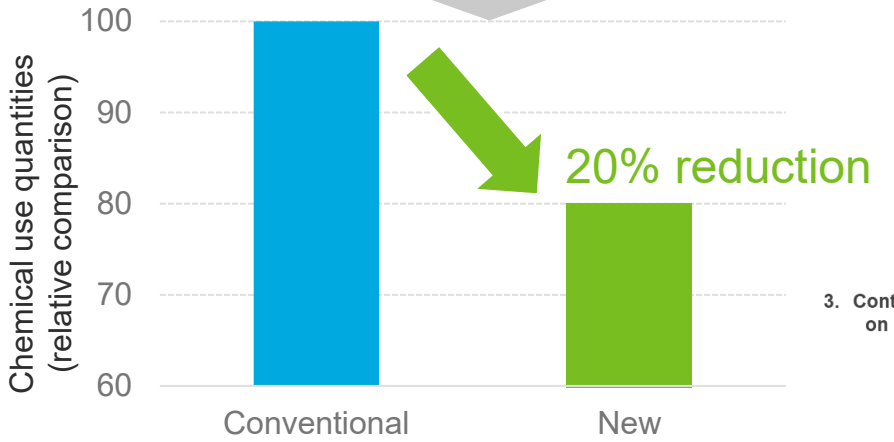


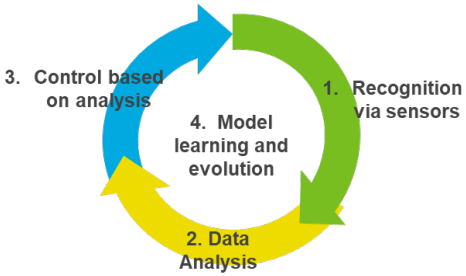
Monitoring of chemical coverage of interior of surfaces
using image processing technology

Dispense Volume	X ml	Y ml	Z ml	A ml
Judgement	Passed	Passed	Failed	Failed
Wafer image				

Automatic film thickness adjustment function

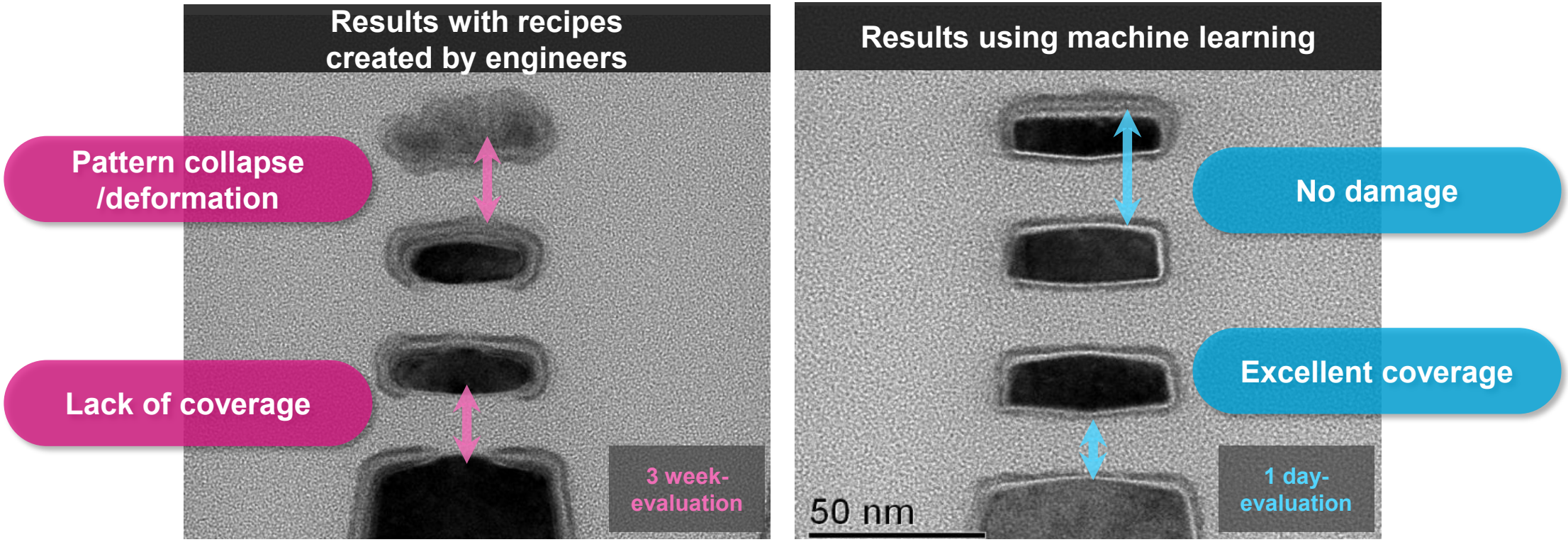






Contributed to customer operation costs
and the environment by using machine learning

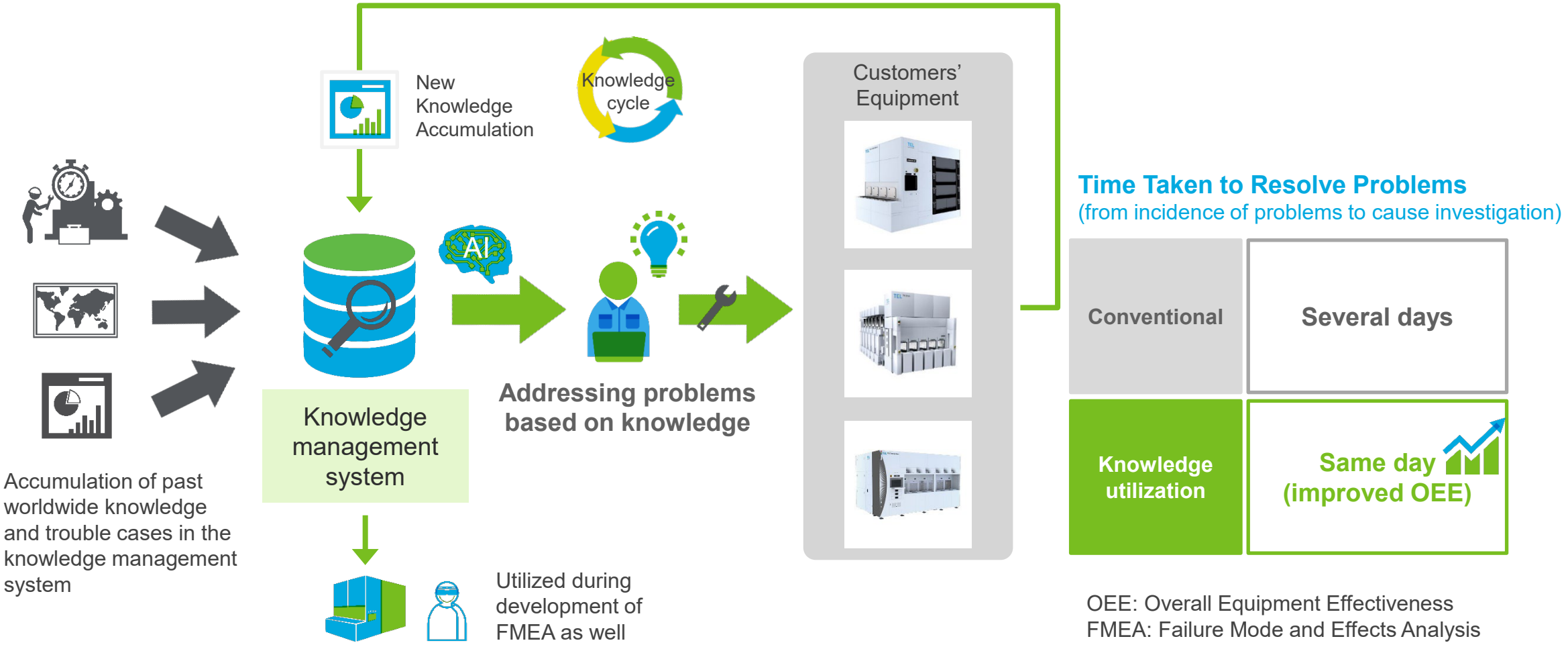
Example Activity 3 – Increasing Productivity of R&D:
Process Informatics



Source: Tokyo Electron Technology Solutions Limited / Tokyo Electron Limited

Achieved good step coverage with no pattern deformation in the ALD process by machine learning

Example Activity 4 – Improving Overall Equipment Effectiveness



Time Taken to Resolve Problems
(from incidence of problems to cause investigation)

Conventional	Several days
Knowledge utilization	Same day (improved OEE)

OEE: Overall Equipment Effectiveness
FMEA: Failure Mode and Effects Analysis

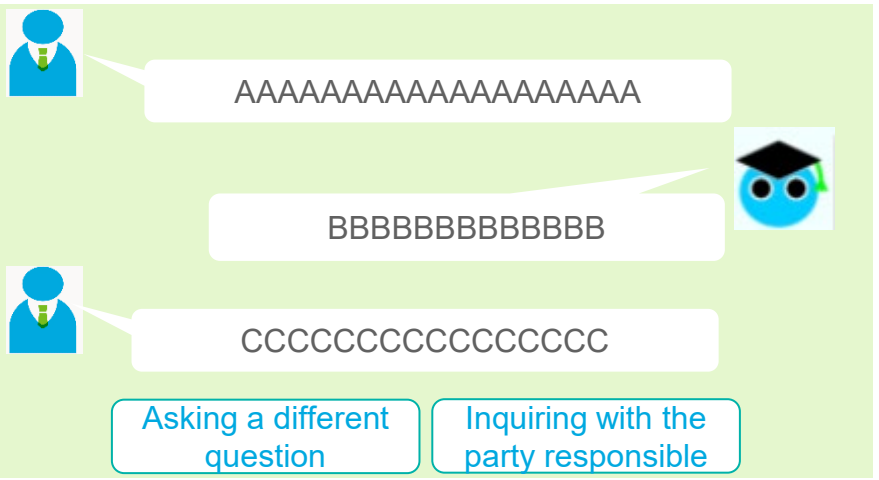
Using the Knowledge Management System to reduce the time taken to resolve problems and improve equipment operation rates

Example Activity 5 – Increasing Productivity of Operations:

Optimizing Business Operations by Implementing Chat-bots in Back-Office Work

Legal Department, Finance Department, Personnel Department, General Affairs Department

Responding department



Employee

- Reduce the number of inquiries, man-hours spent on inquiries
- Share know-how to resolve issue of tasks becoming too personalized, train younger employees

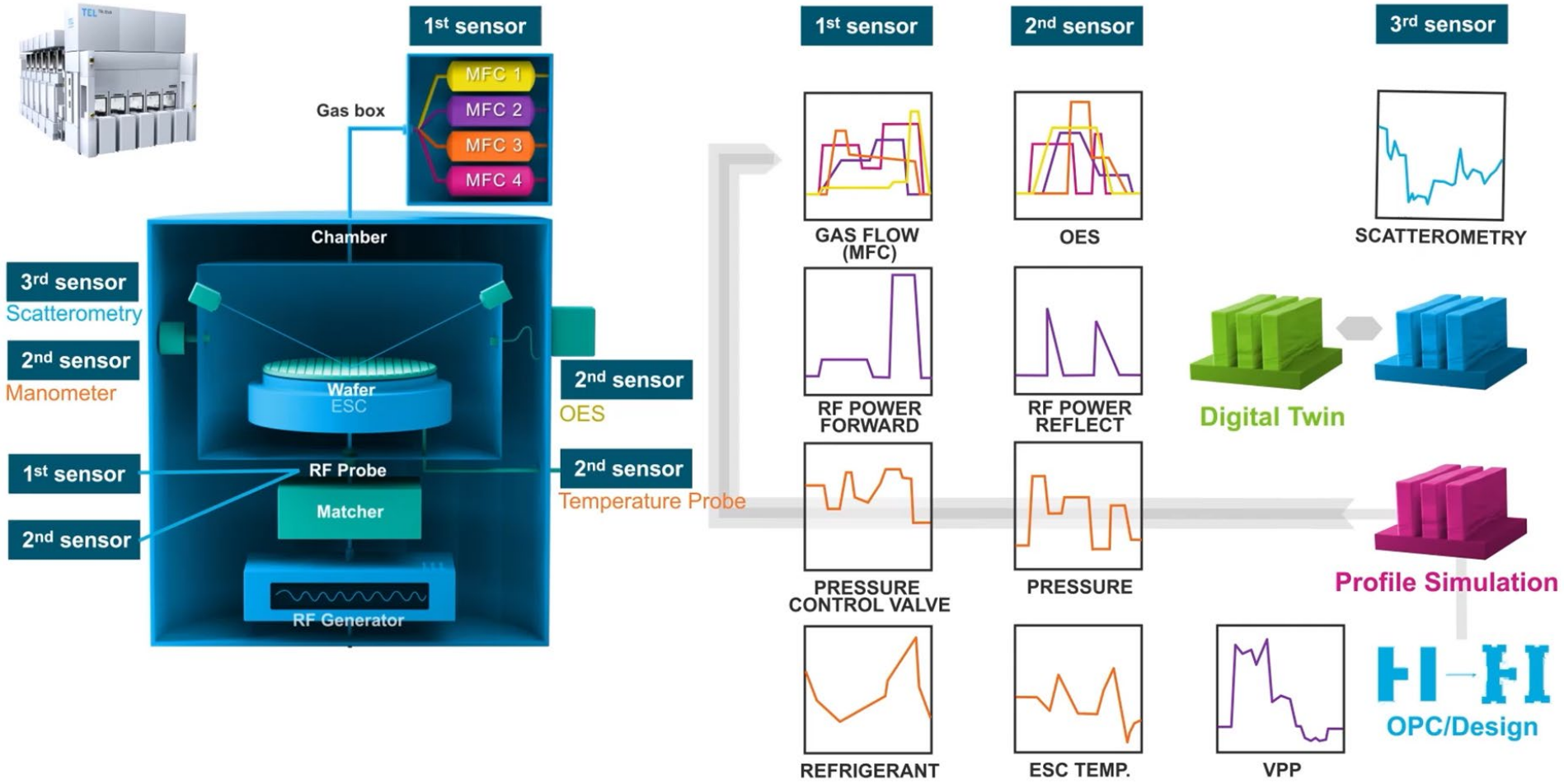
- Make it possible to answer using choices or free input
- If chat-bot cannot provide an automated answer, make it possible to use the system to engage in inquiries
- Realize a smarter system by analyzing user histories and adding FAQs

- Make it possible to ask questions any time without hesitation
- Clarify the departments responding to inquiries
- Reduce variability in answers based on the person in charge

Reduced the number of man-hours spent by employees answering questions with introducing chat-bots in multiple departments

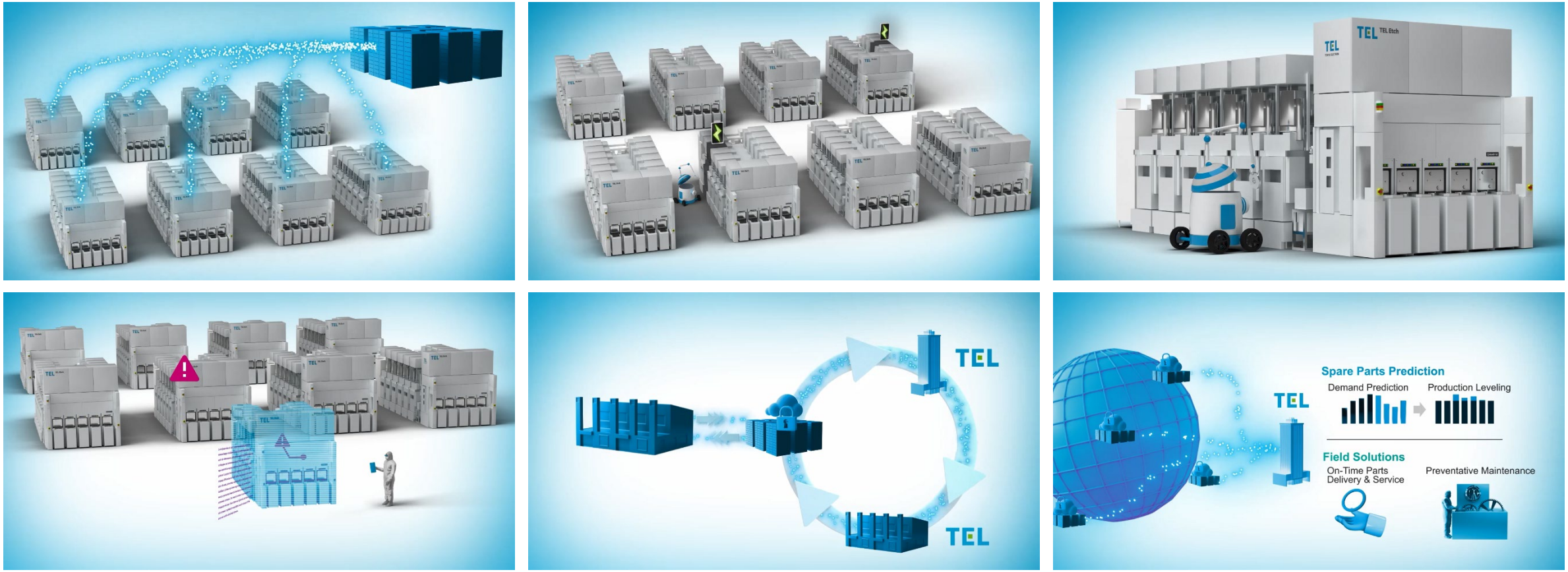
Digital Technologies to Increase Customer Value 1:

Example in Etch Equipment



Aiming to maximize customer value using all digital technologies

Digital Technologies to Increase Customer Value 2:
Example in Etch Equipment

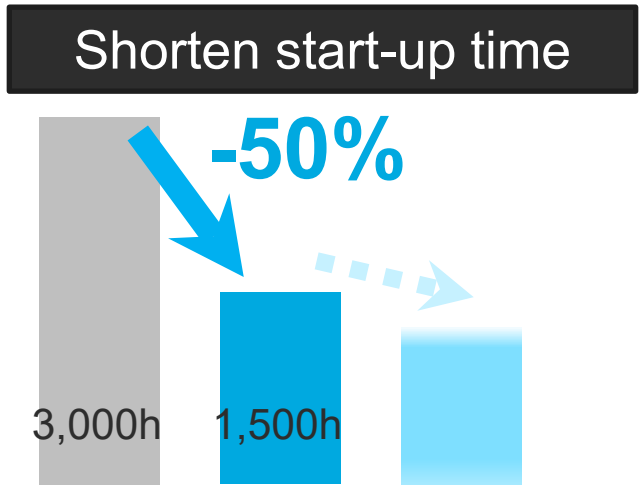


Aiming to maximize customer value using all digital technologies

10. Procurement and Manufacturing Strategy

Continuous Production Innovation in Pursuit of Safety, High Quality and High Reliability

- Build a production system able to quickly respond to market changes
- Shorten time from new product development to mass production
- Shorten production lead times: Achieve 100% module shipment
- Utilize DX and automation in manufacturing, and expand automated warehouse
- **Significantly reduce equipment start-up time (One-touch start-up)**
  - Reduce start-up time up to 75% (primary target), One-touch (final target)

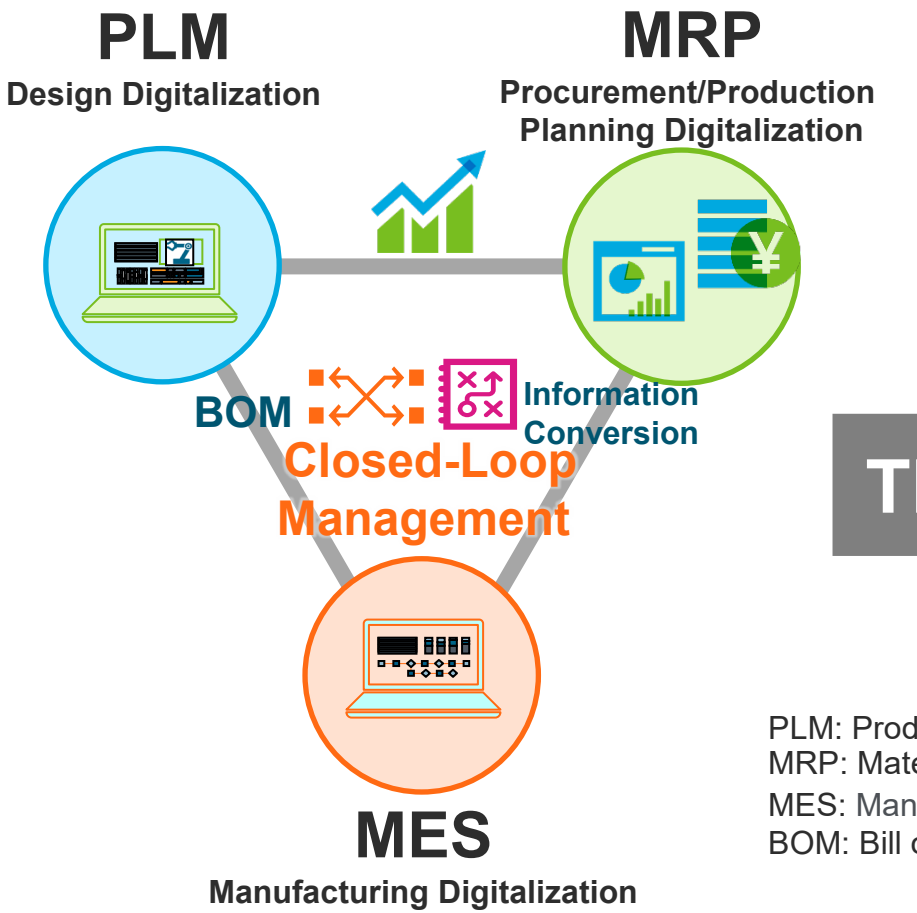


Conventional ➔ after production innovation

Expected outcome from shorten start-up time

- Enhance productivity and start-up quality
- Reduce accident risks
- Optimize resources and the work-life balance

Efforts to Utilize TEL PLM-DX and Improve Productivity and Efficiency



TEL PLM-DX

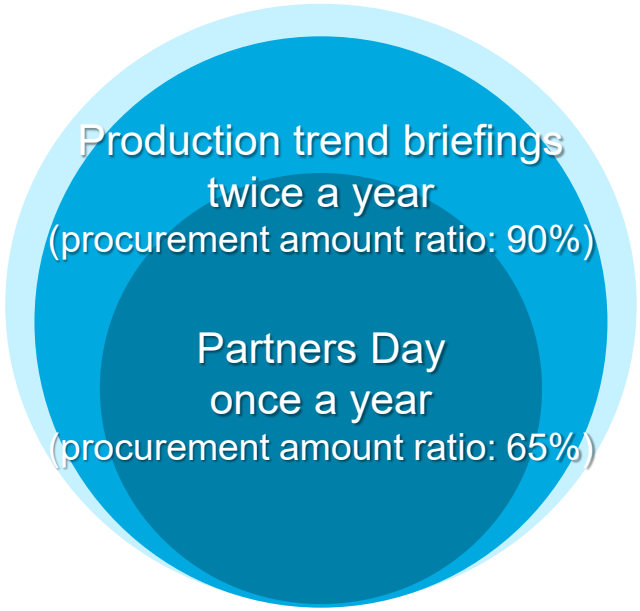
PLM: Product Lifecycle Management
MRP: Material Resource Planning
MES: Manufacturing Execution System
BOM: Bill of Material

- Improve core system
  - Production leveling < 12 months
  - MRP processing capability for procurement increased 10-fold
- Introduce PLM-DX and BOM concept
  - Enhance production capability up to 2 times within 3 years
  - Minimize manufacturing lead time
  - 3-fold increase in design efficiency
  - Reduce new product development period by half

"Shift Left" production plan toward the business scale of 1 trillion-yen procurement

Build a Sustainable Supply Chain

- Fair and transparent relationships and reliable trust relationship with our business partners
  - – Implement CSR/BCP assessments based on industry codes of conduct
  - – Share knowledge in such areas as safety, quality, the environment and compliance



E-COMPASS

Applaud environmental impact reduction activities, adding environmentally related items to assessment studies

- ✓ Reduce CO_2 emissions and the amount of energy usage
- ✓ Introduce renewable energy
- ✓ Promote resource conservation
- ✓ Promote waste reduction and recycling
- ✓ Promote activities for reducing the environmental impact of logistics

Procurement BCP and Proactive Procurement Activities

Mid- and long-term forecast
Promote “Shift Left” procurement strategy
Build BCP system resilient to procurement difficulty

Safety stock
Inventory liquidity

Oversee whole supply chain from upstream to downstream
Visualize and grasp risks

Visualize supply chain

Supply chain responsive to any kind of risks (Raw materials, parts, processing and assembly)
Strong and reliable supply chain

Risk management on business partners
Strengthen partnership

Measures for procurement BCP

Early procurement of parts

- Early procurement for long term
- Ensure inventory exchange flexibility among factories
- Inventory reductions in total

Secure semiconductor devices

- Secure semiconductor devices for our equipment
- Visualize and streamline distribution channel
- Collaborate with semiconductor makers

= TEL can be a customer of our customers

Parts and Suppliers

- Identify and analyze risk parts
- Multi sourcing of producing countries
- Standardization, centralization and decentralization of parts
- Measures to secure capacity for us

New Production Building Construction at Tokyo Electron Miyagi

- Total floor area: Approx. 88,600m^2 (planned; excluding the ancillary facility area)
- Structure: Steel frame structure with a base isolation system
- Number of floors: 5 above ground
- Construction cost: Approx. 104B yen
- Purpose: Manufacture of etch systems

New Production Building
(Completion scheduled for summer 2027)

Realize the Smart Production concept
by automating logistics functions and mechanizing manufacturing processes
to provide high production capacity/quality/efficiency production lines

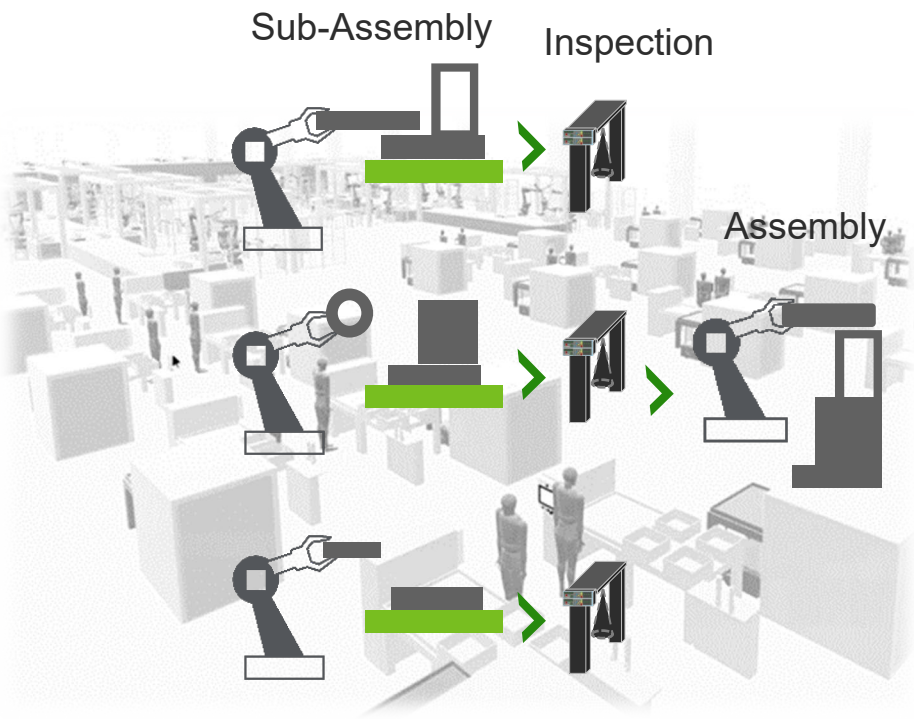
Smart Manufacturing to Achieve High Quality and Productivity

Development & Design

Feed Forward

Feedback

Smart Manufacturing



By centralizing development and production in TEL Miyagi,
we ensure continuous concurrent engineering and advanced manufacturing capabilities

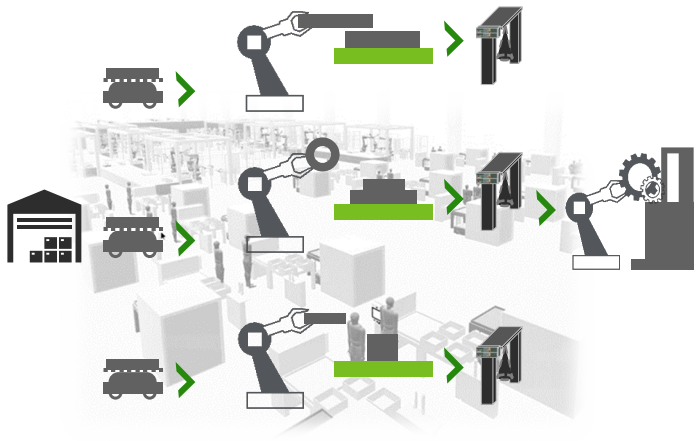
Vision for Smart Production

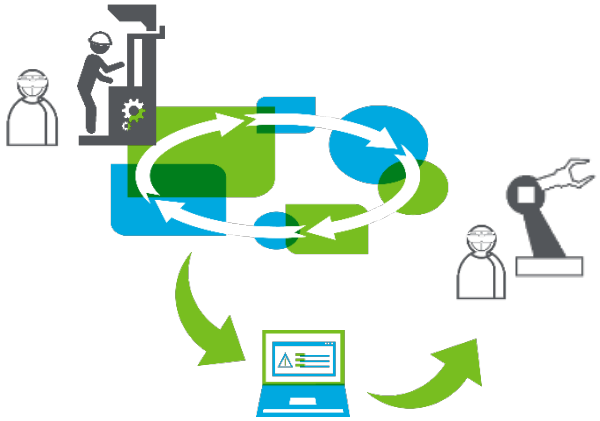
- Achieve sustainable manufacturing for the future

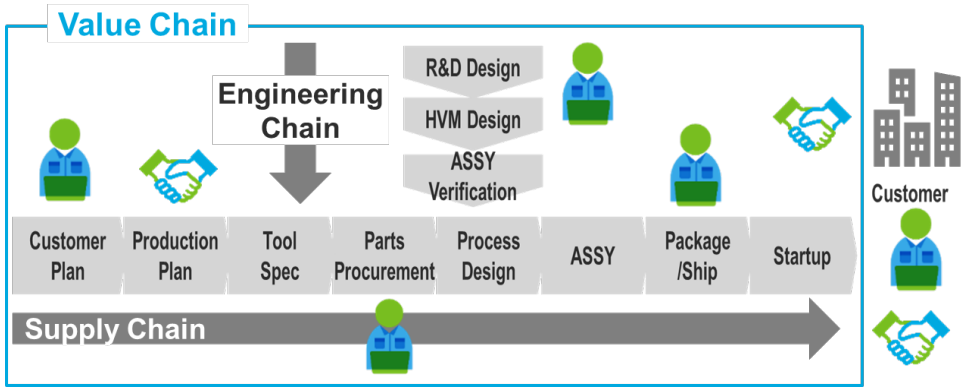
Overwhelming Efficiency
through automation and standardization

Enhancing Adaptability
to internal and external environmental changes

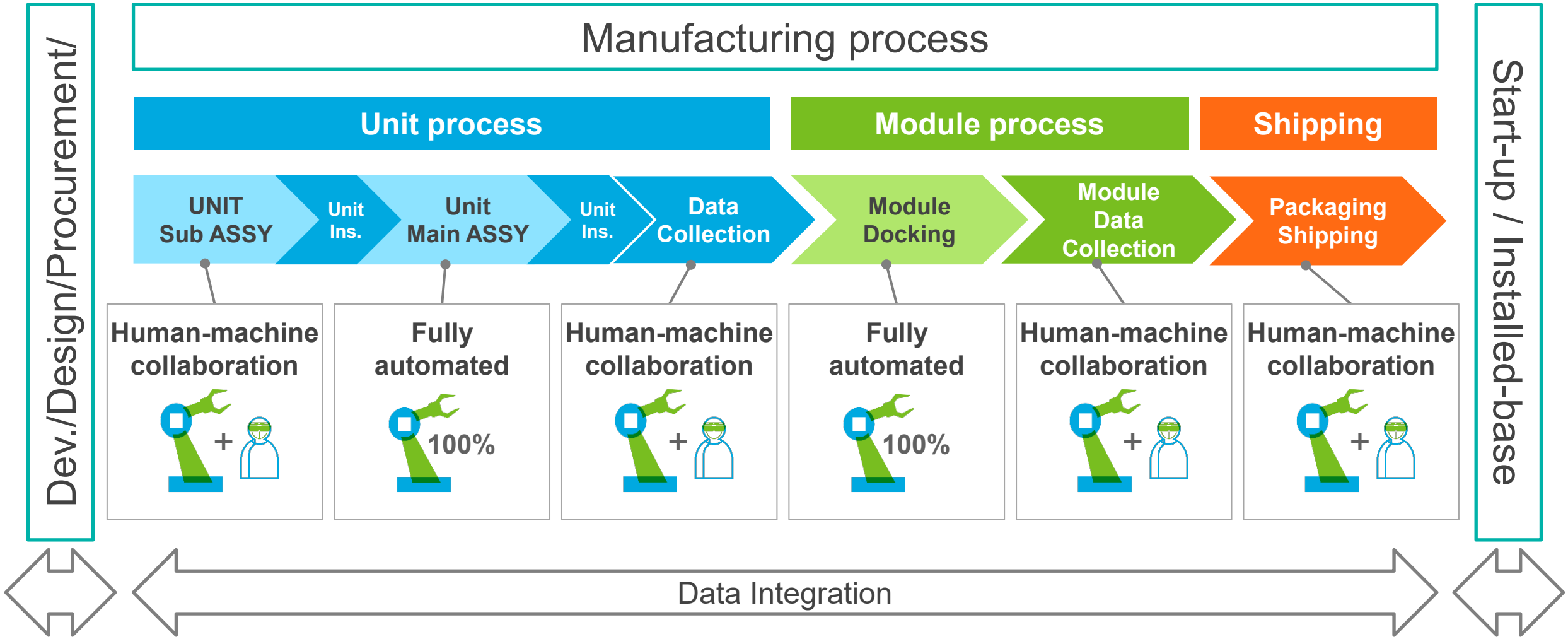
Product & Service Quality Improvement
through enhanced value chain







Concept of Smart Production



Appendix：Data Section

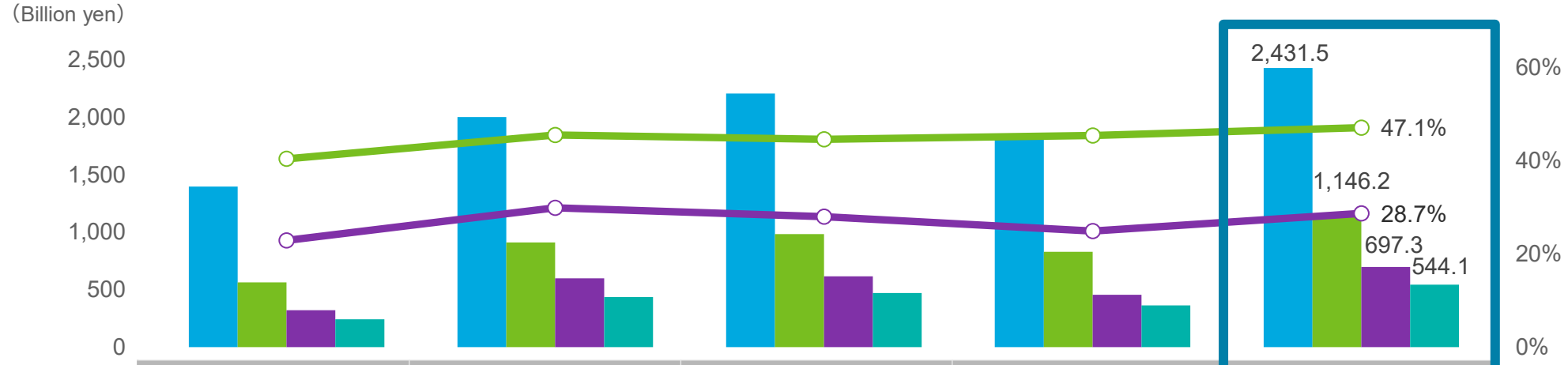
Financial Summary

(Billion yen)

	FY2024	FY2025	FY2025 vs FY2024	(Reference) FY2025 estimates announced on February 6, 2025
Net sales	1,830.5	**2,431.5**	+32.8%	2,400.0
Gross profit	830.2	**1,146.2**	+38.1%	1,129.0
Gross profit margin	45.4%	**47.1%**	+1.7pts	47.0%
SG&A expenses	374.0	**448.9**	+20.0%	449.0
Operating income	456.2	**697.3**	+52.8%	680.0
Operating margin	24.9%	**28.7%**	+3.8pts	28.3%
Income before income taxes	473.4	**706.1**	+49.1%	691.0
Net income attributable to owners of parent	363.9	**544.1**	+49.5%	526.0
EPS (Yen)	783.75	**1,182.40**	+50.9%	1,142.47
R&D expenses	202.8	**250.0**	+23.2%	254.0
Capital expenditures	121.8	**162.1**	+33.1%	170.0
Depreciation and amortization	52.3	**62.1**	+18.7%	63.0

1. In principle, export sales of Tokyo Electron's products is denominated in yen. Although some sales and expenses are denominated in foreign currencies, the impact of foreign exchange rate fluctuations on profits is negligible, unless extreme fluctuations occur.
2. Profit ratios are calculated using full amounts, before rounding.

Financial Trend (FY2021~FY2025)

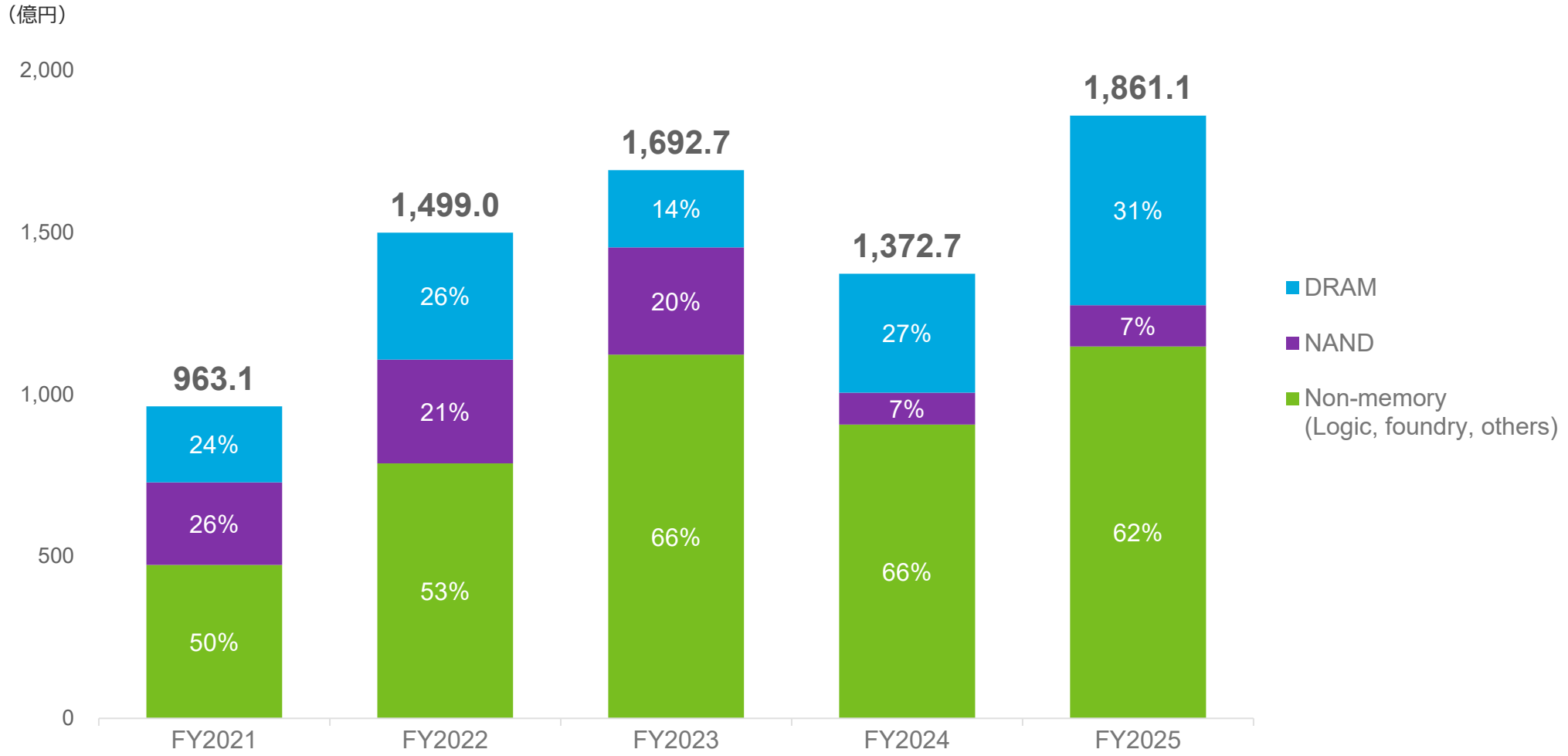


	FY2021	FY2022	FY2023	FY2024	FY2025
Net sales	1,399.1	2,003.8	2,209.0	1,830.5	**2,431.5**
Gross profit	564.9	911.8	984.4	830.2	**1,146.2**
Operating profit	320.6	599.2	617.7	456.2	**697.3**
Net income attributable to owners of parent	242.9	437.0	471.5	363.9	**544.1**
Gross profit margin	40.4%	45.5%	44.6%	45.4%	**47.1%**
Operating margin	22.9%	29.9%	28.0%	24.9%	**28.7%**
ROE	26.5%	37.2%	32.3%	21.8%	**30.3%**

From the beginning of FY2022, the Company applies “Accounting Standard for Revenue Recognition” (ASBJ Statement No. 29).

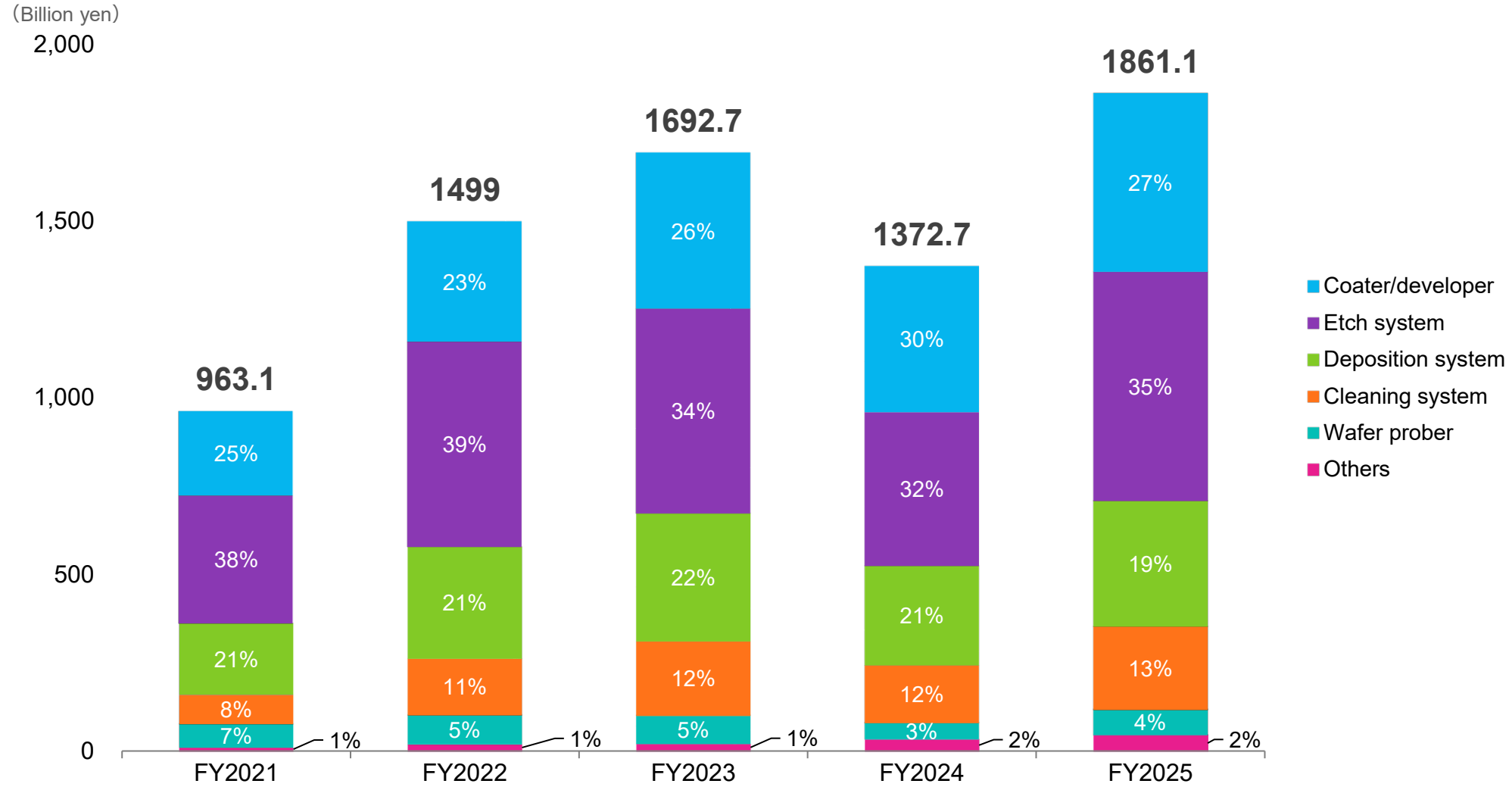
Net sales, gross profit, operating profit and net income reached record high

SPE New Equipment Sales by Application



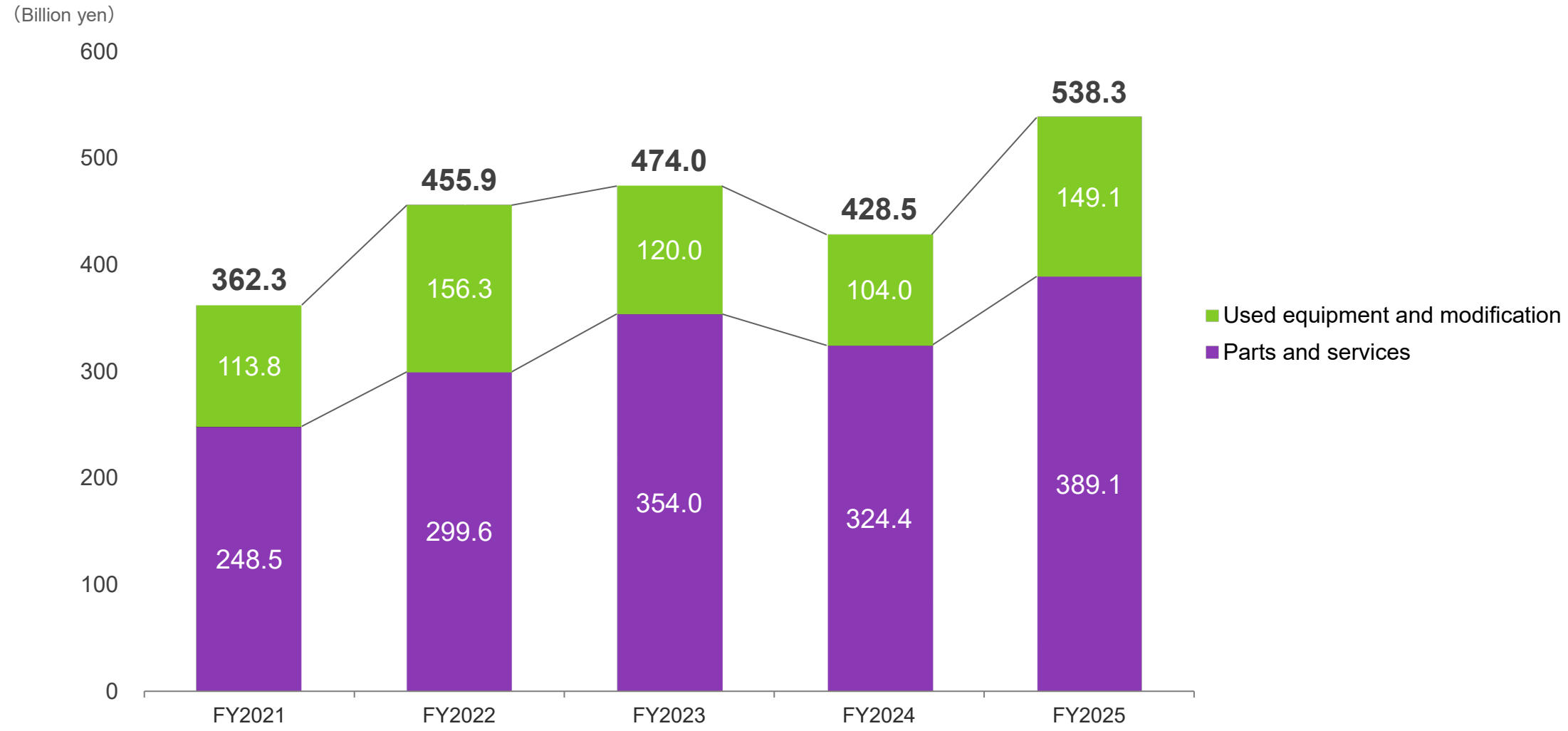
1. SPE: Semiconductor Production Equipment
2. Percentages on the graph show the composition ratio of new equipment sales. Field Solutions sales are not included.

SPE New Equipment Sales by Product

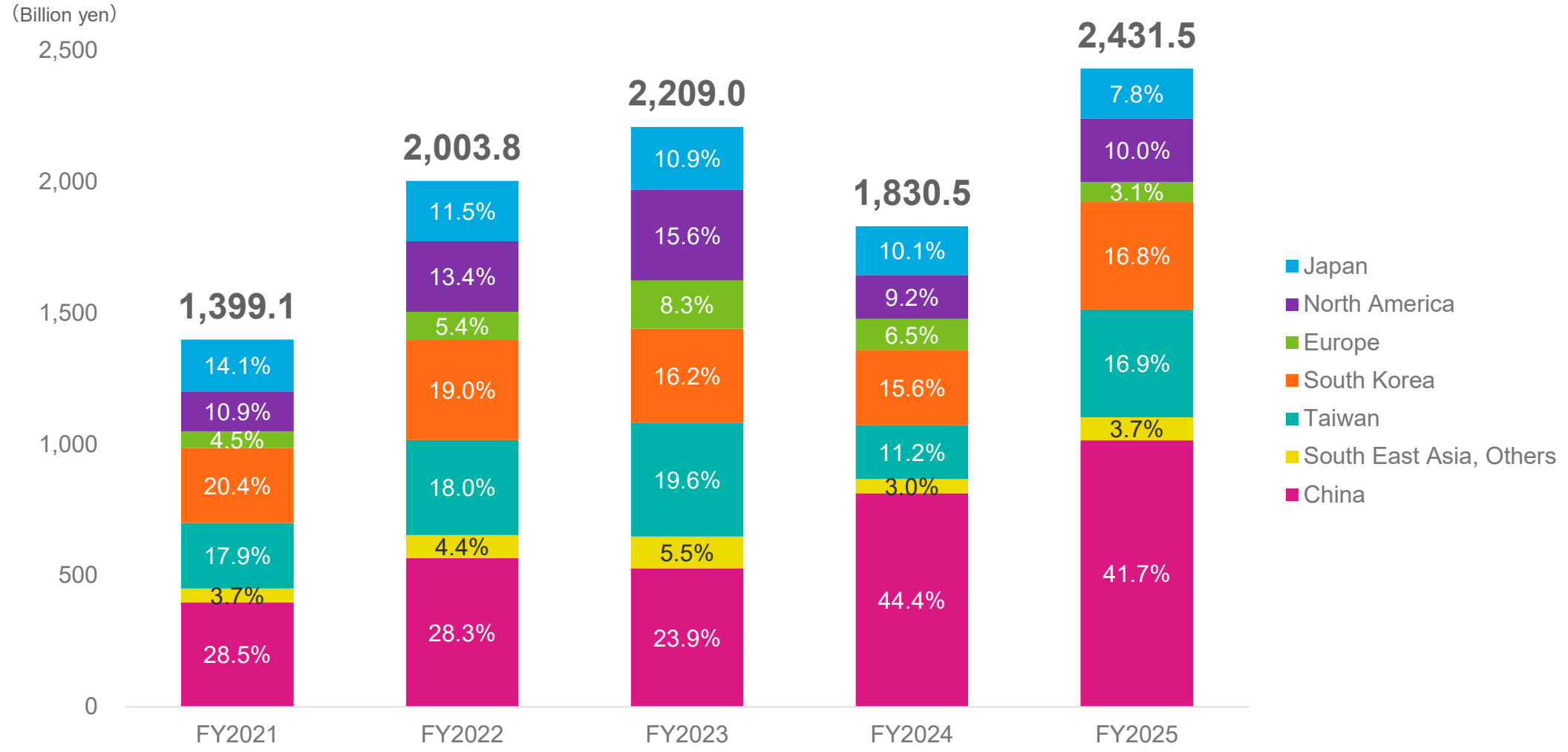


Percentages on the graph show the composition ratio of new equipment sales. Field Solutions sales are not included.

Field Solutions Sales

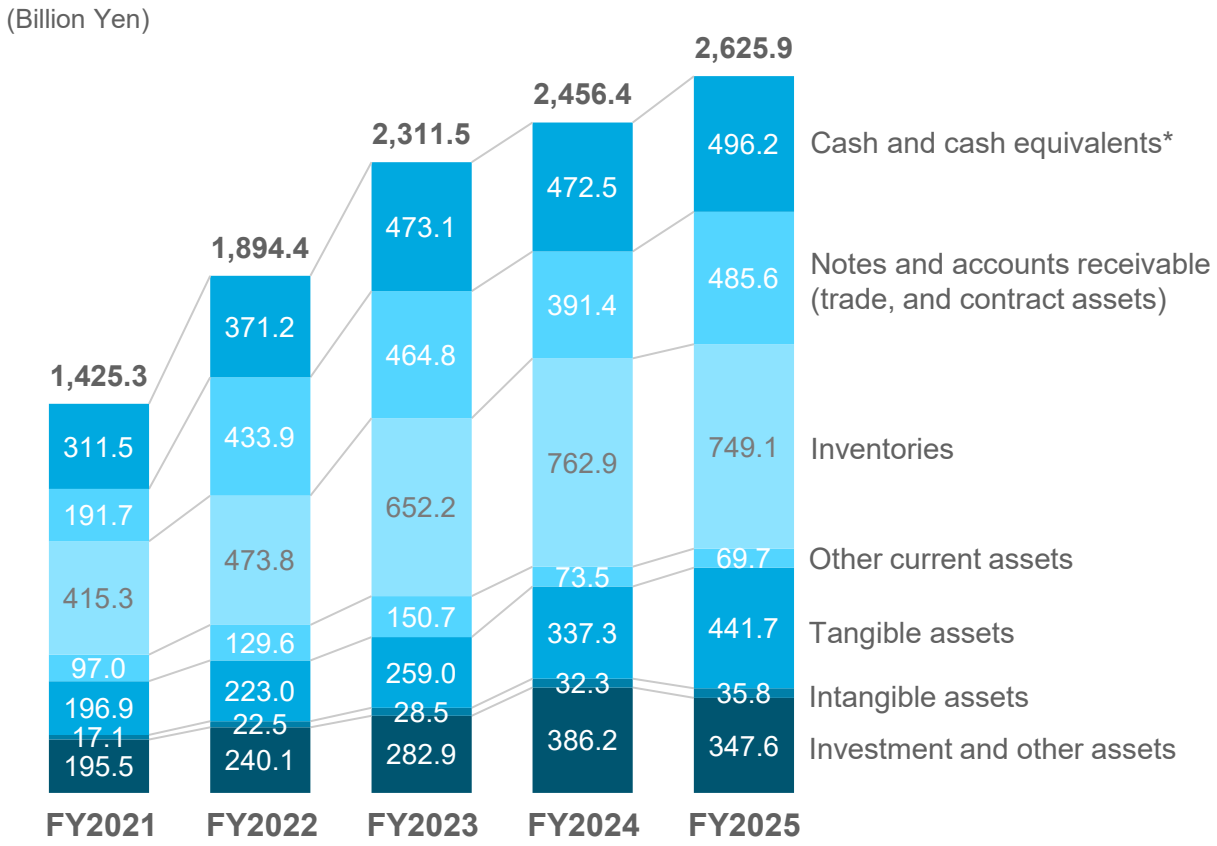


Sales by Region

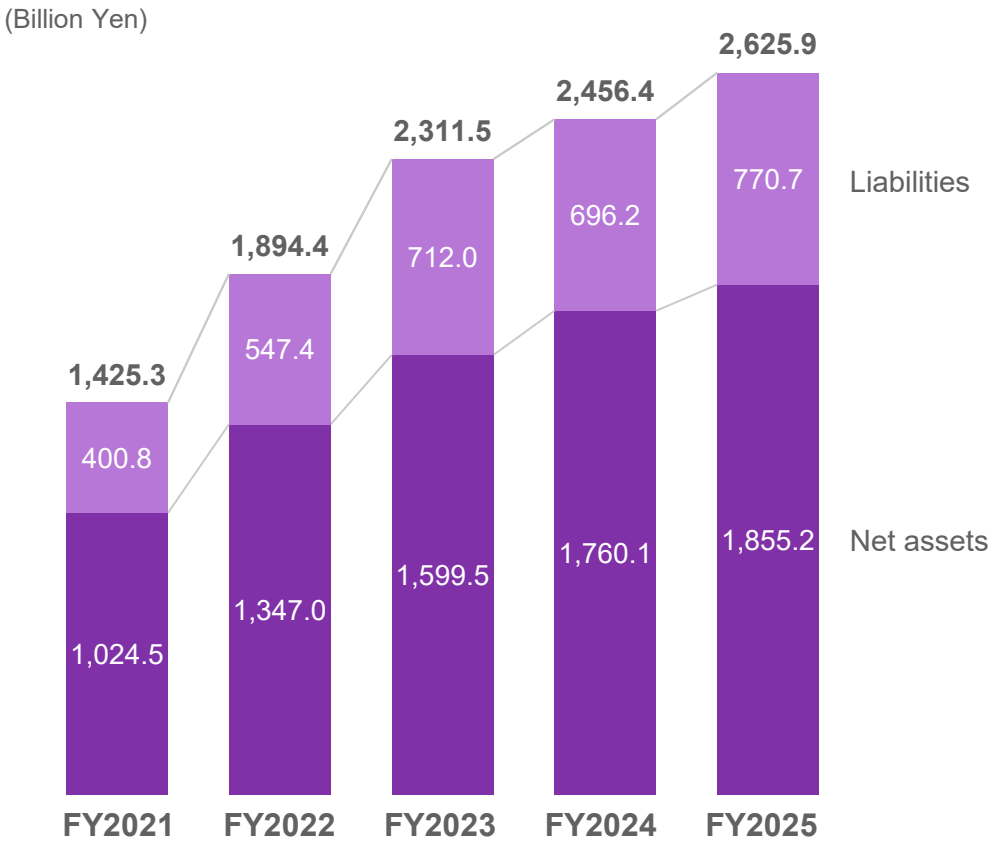


Balance Sheet

Assets

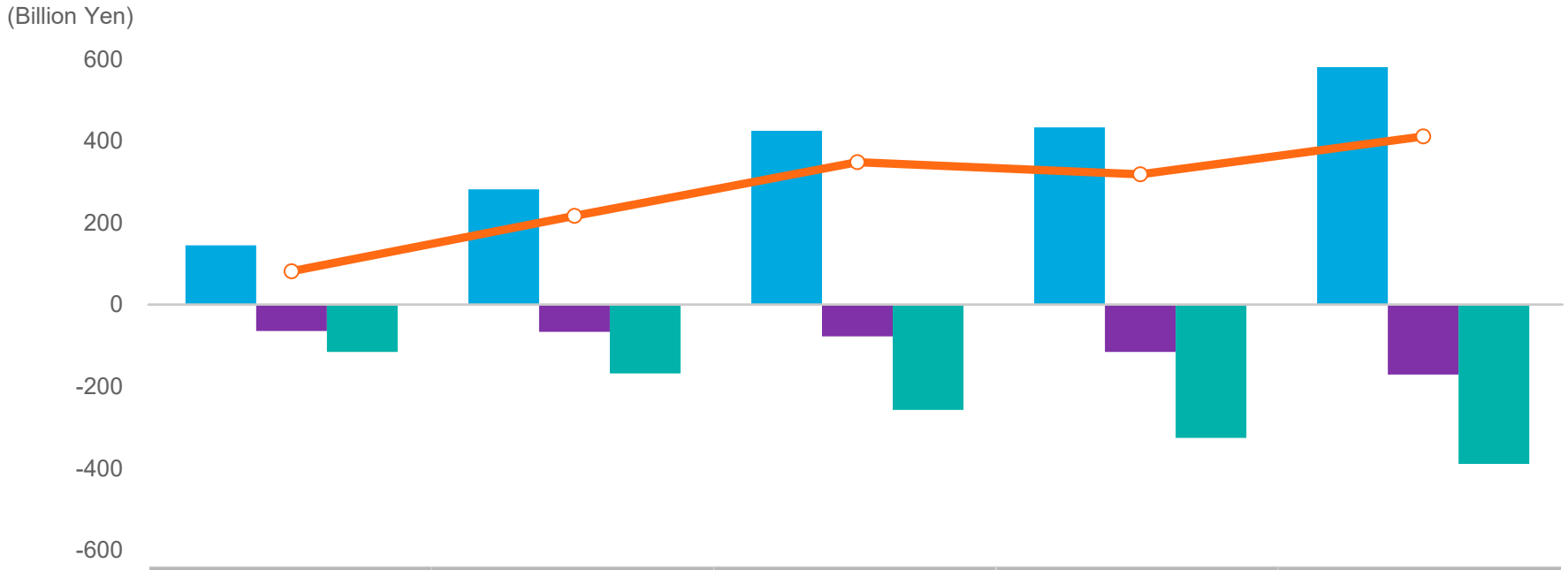


Liabilities and Net Assets



*Cash and cash equivalents: “Cash and deposits” + “Short-term investments”, etc. (“Securities” in Balance Sheet).

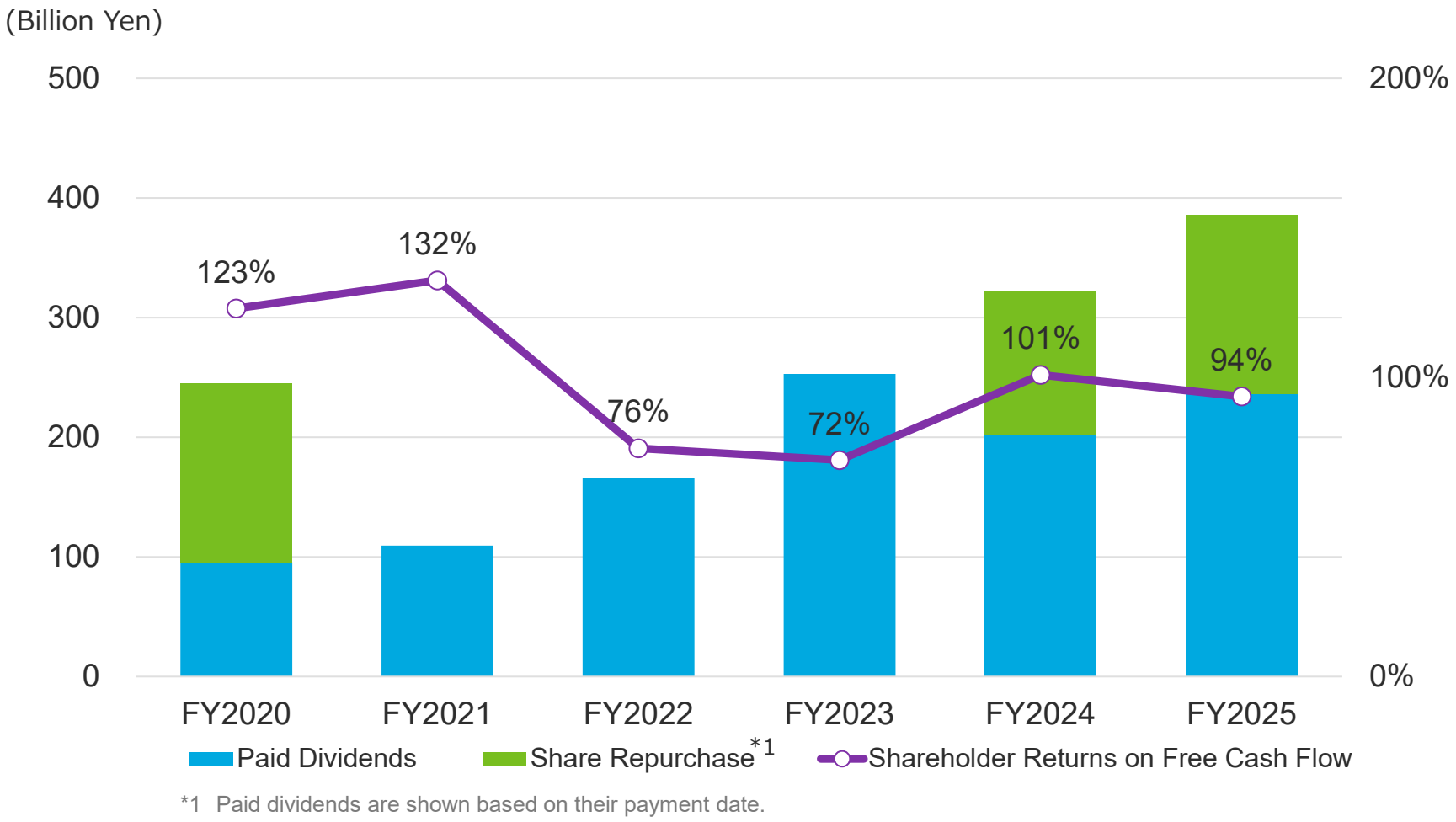
Cash Flow



	FY2021	FY2022	FY2023	FY2024	FY2025
Cash flow from operating activities	1,458	2,833	4,262	4,347	5,821
Cash flow from investing activities*1	-632	-656	-767	-1,150	-1,697
Cash flow from financing activities	-1,145	-1,672	-2,565	-3,250	-3,888
Free cash flow*2	826	2,177	3,494	3,196	4,124
Cash on hand*3	3,115	3,712	4,731	4,725	4,962

*1 Cash flow from investing activities excludes changes in time deposits and short-term investments.
*2 Free cash flow = “Cash flow from operating activities” + “Cash flow from investing activities” (excluding changes in “Time deposits” and “Short-term investments”).
*3 Cash on hand includes “Cash and cash equivalents” + “Time deposits and short-term investments” with original maturities of more than three months.

Shareholder Returns Trend



*1 Paid dividends are shown based on their payment date.

Aim for continuous high level of cash generation and shareholder returns

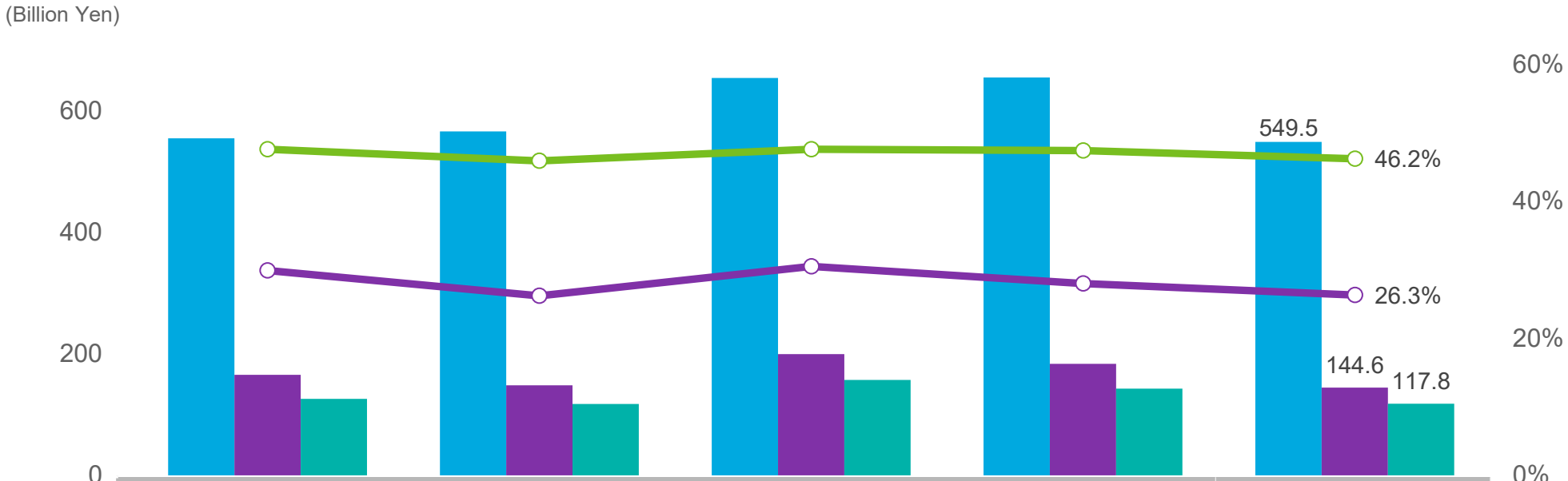
Financial Summary

(Billion yen)

	FY2025				FY2026	vs. Q4 FY2025	vs. Q1 FY2025
	Q1	Q2	Q3	Q4	Q1		
Net sales	555.0	566.5	654.5	655.4	**549.5**	-16.1%	-1.0%
Gross profit	264.0	259.9	311.7	310.5	**253.9**	-18.2%	-3.8%
Gross profit margin	47.6%	45.9%	47.6%	47.4%	**46.2%**	-1.2pts	-1.4pts
SG&A expenses	98.2	111.7	112.1	126.7	**109.2**	-13.8%	+11.2%
Operating income	165.7	148.1	199.6	183.7	**144.6**	-21.3%	-12.7%
Operating margin	29.9%	26.2%	30.5%	28.0%	**26.3%**	-1.7pts	-3.6pts
Income before income taxes	167.2	153.6	200.1	185.1	**151.9**	-17.9%	-9.1%
Net income attributable to owners of parent	126.1	117.7	157.2	142.9	**117.8**	-17.6%	-6.6%
R&D expenses	53.4	62.0	61.8	72.7	**62.1**	-14.5%	+16.3%
Capital expenditures	23.9	53.3	50.2	34.6	**52.8**	+52.7%	+120.2%
Depreciation and amortization	13.2	14.5	16.0	18.3	**17.1**	-6.6%	+30.0%

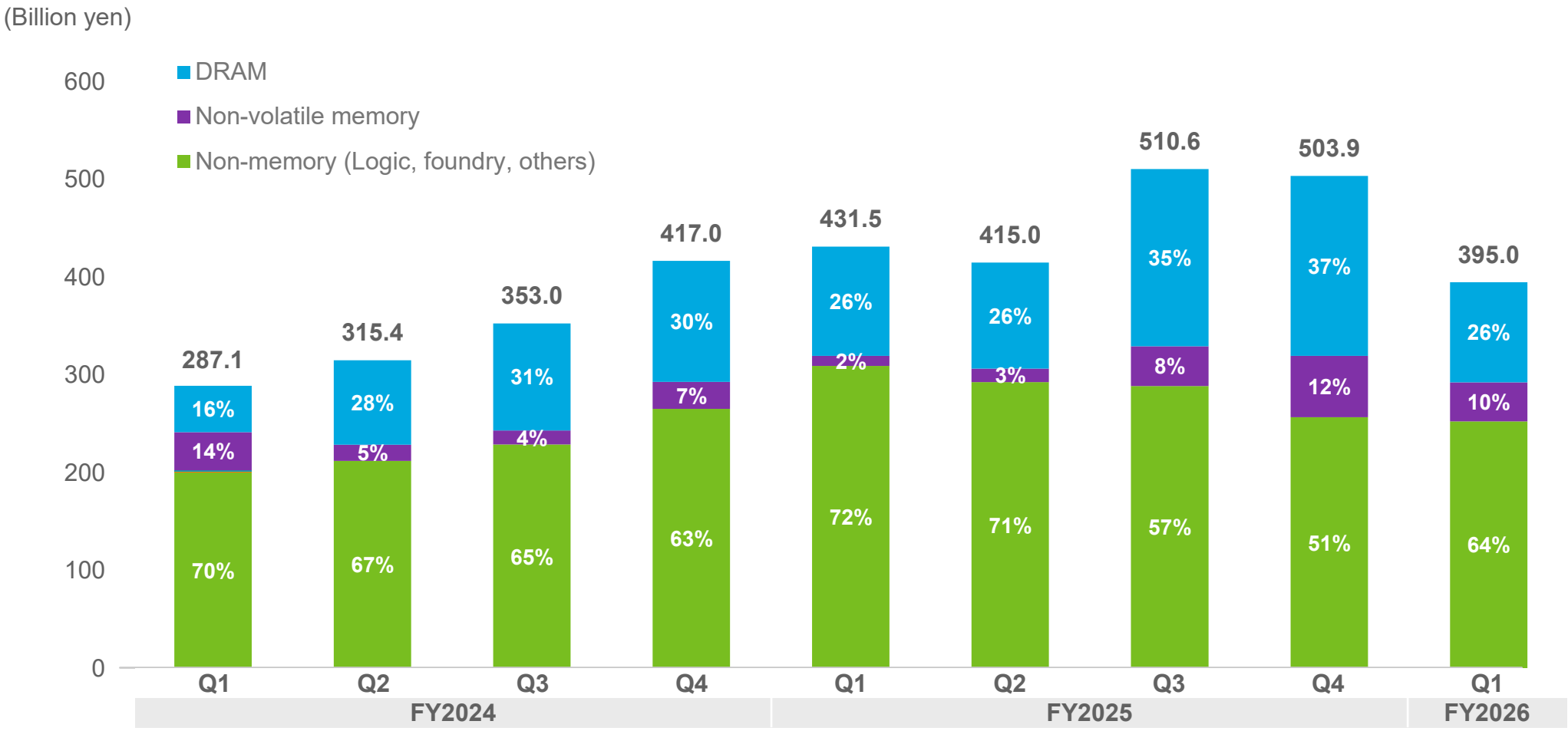
1. In principle, export sales of Tokyo Electron's products is denominated in yen. Although some sales and expenses are denominated in foreign currencies, the impact of foreign exchange rate fluctuations on profits is negligible, unless extreme fluctuations occur.
2. Profit ratios are calculated using full amounts, before rounding.

Financial Performance



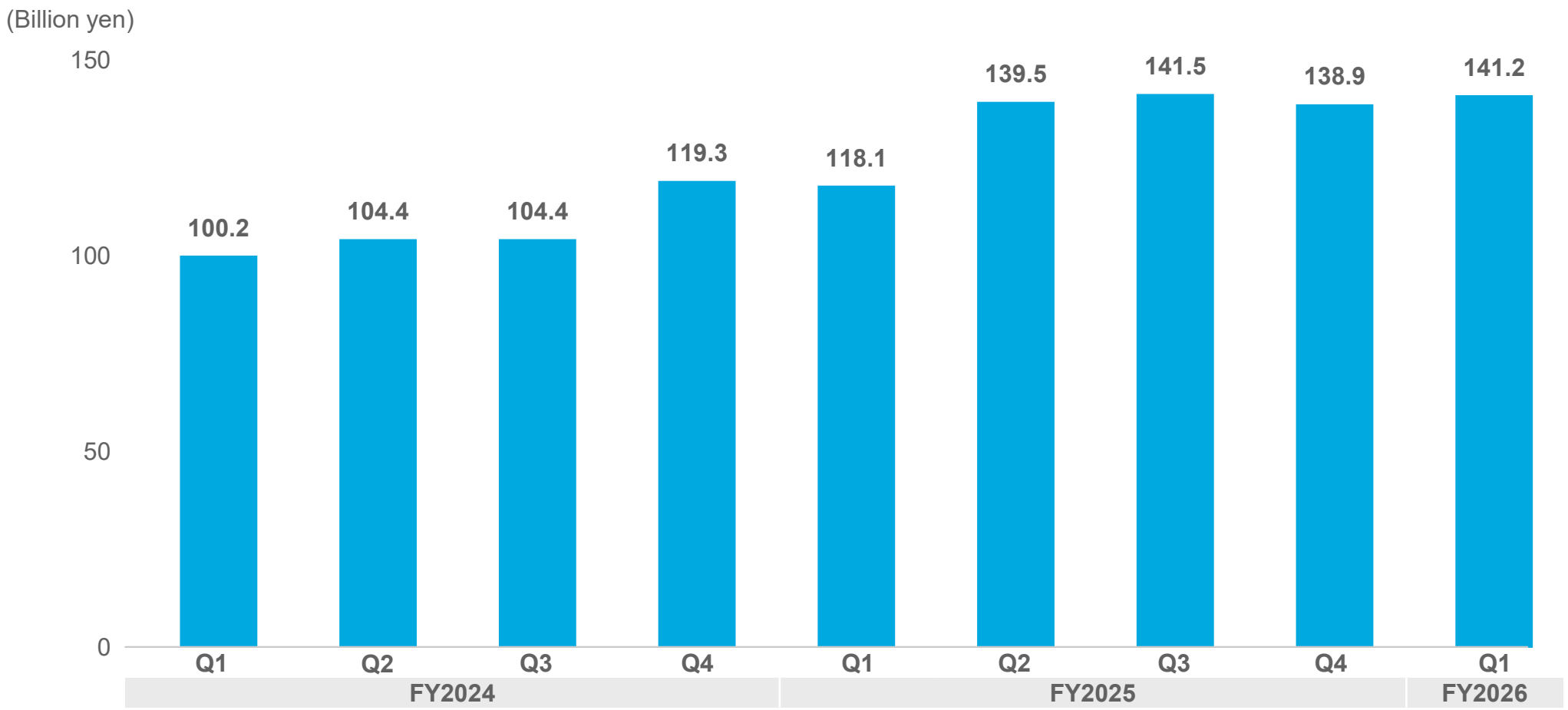
	FY2025				FY2026
	Q1	Q2	Q3	Q4	Q1
Net sales	555.0	566.5	654.5	655.4	**549.5**
Operating income	165.7	148.1	199.6	183.7	**144.6**
Net income attributable to owners of parent	126.1	117.7	157.2	142.9	**117.8**
Gross profit margin	47.6%	45.9%	47.6%	47.4%	**46.2%**
Operating margin	29.9%	26.2%	30.5%	28.0%	**26.3%**

SPE New Equipment Sales by Application

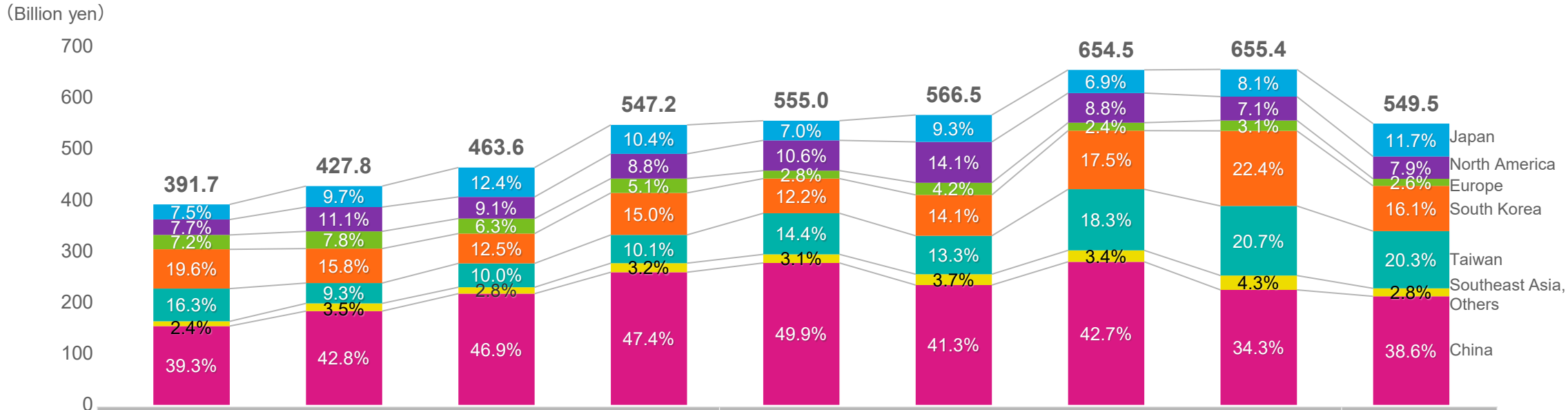


1. SPE: Semiconductor Production Equipment
2. Percentages on the graph show the composition ratio of new equipment sales. Field Solutions sales are not included.

Field Solutions Sales



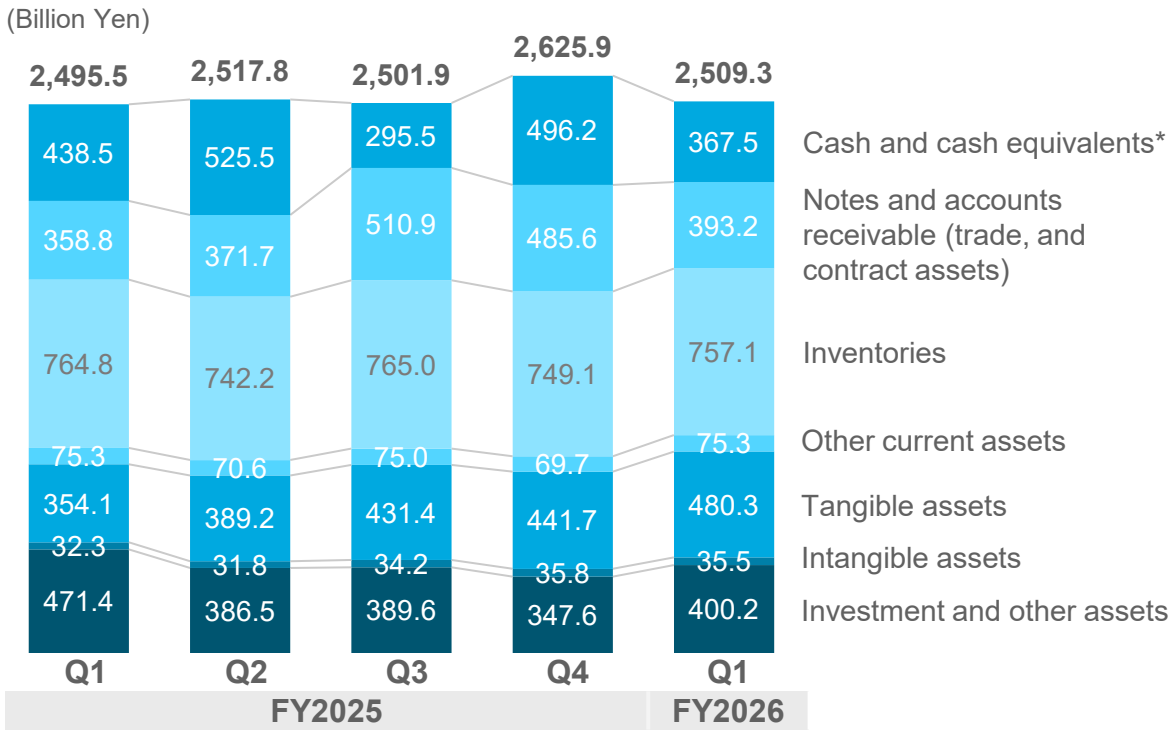
Composition of Net Sales by Region



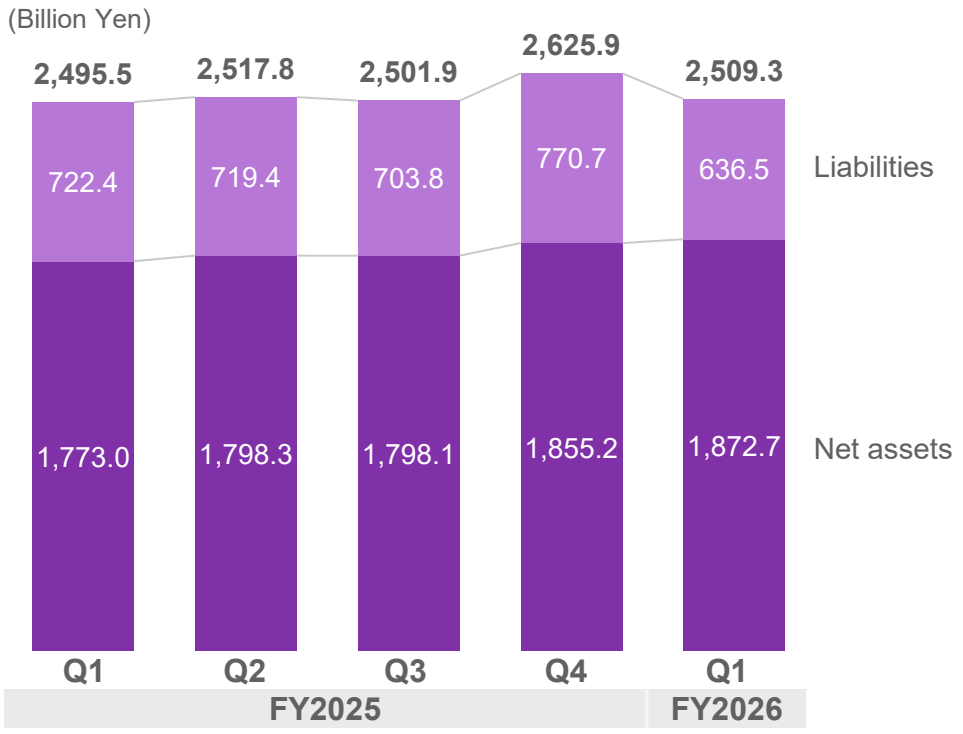
	FY2024				FY2025				FY2026
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Japan	29.5	41.2	57.4	56.7	38.5	52.6	45.3	53.4	**64.3**
North America	30.1	47.4	42.1	48.3	59.0	79.9	57.7	46.2	**43.4**
Europe	28.1	33.5	29.4	28.1	15.5	23.8	15.7	20.3	**14.0**
South Korea	76.7	67.4	58.2	82.0	67.8	79.5	114.5	147.0	**88.3**
Taiwan	63.9	39.9	46.3	55.2	80.0	75.3	119.3	135.8	**111.5**
Southeast Asia, Others	9.2	15.1	12.7	17.5	17.0	21.2	22.3	27.8	**15.6**
China	153.9	182.9	217.2	259.1	277.0	233.9	279.4	224.6	**212.1**

Balance Sheet

Assets

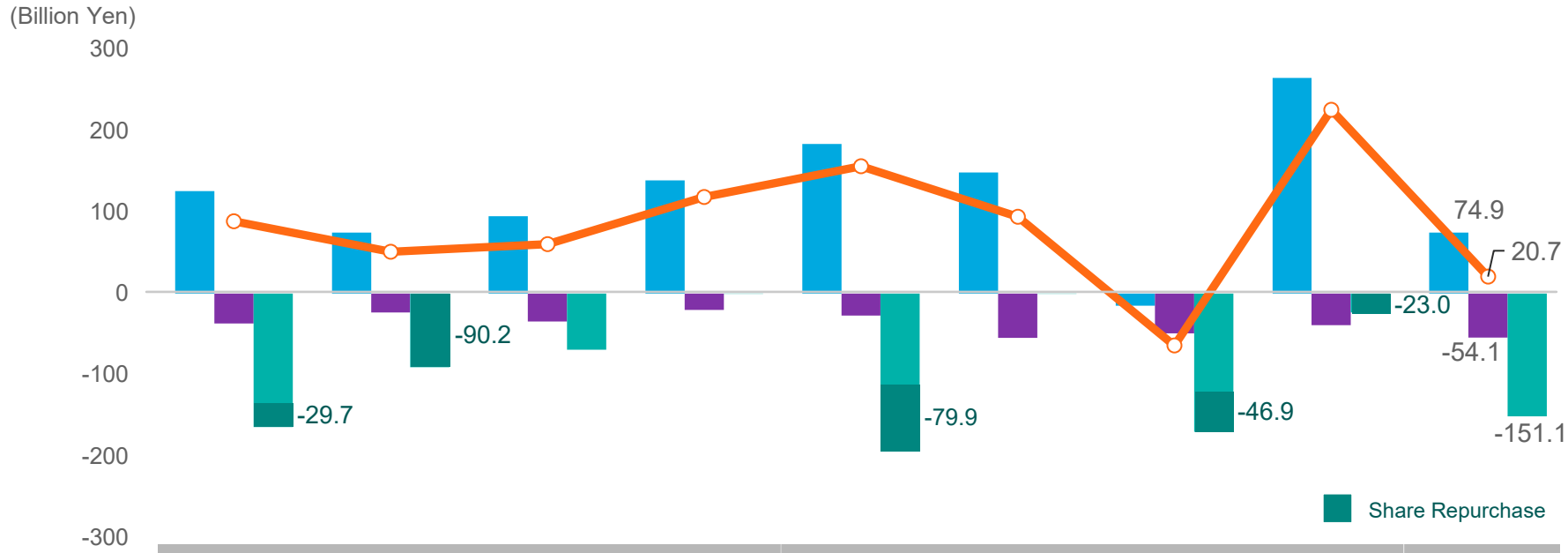


Liabilities and Net Assets



*Cash and cash equivalents: “Cash and deposits” + “Short-term investments”, etc. (“Securities” in Balance Sheet).

Cash Flow



	FY2024				FY2025				FY2026
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Cash flow from operating activities	125.7	74.8	95.0	139.0	183.7	148.6	-15.0	264.8	**74.9**
Cash flow from investing activities*1	-36.8	-23.4	-34.4	-20.3	-27.3	-54.4	-49.0	-38.9	**-54.1**
Cash flow from financing activities	-164.1	-90.8	-69.3	-0.6	-194.4	-0.6	-170.1	-23.5	**-151.1**
Free cash flow*2	88.8	51.4	60.6	118.7	156.4	94.1	-64.1	225.8	**20.7**
Cash on hand*3	401.0	362.6	352.4	472.5	438.5	525.5	295.5	496.2	**367.5**

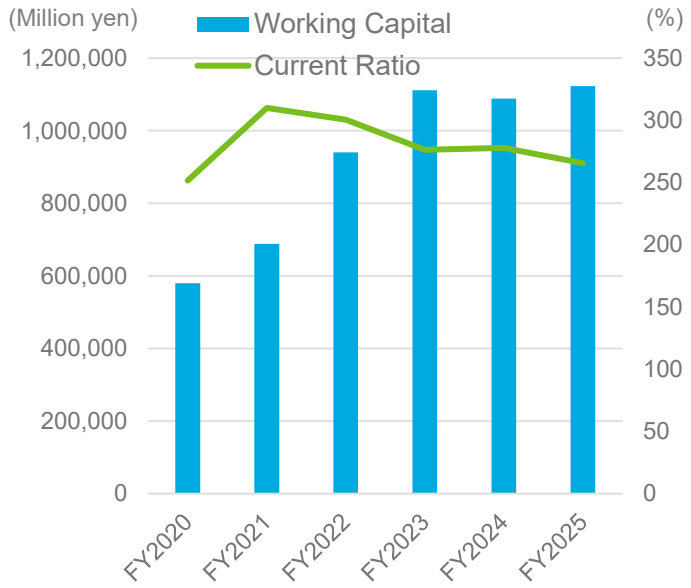
*1 Cash flow from investing activities excludes changes in time deposits and short-term investments.

*2 Free cash flow = “Cash flow from operating activities” + “Cash flow from investing activities” (excluding changes in “Time deposits” and “Short-term investments”).

*3 Cash on hand includes “Cash and cash equivalents” + “Time deposits and short-term investments” with original maturities of more than three months.

Asset Related Indices

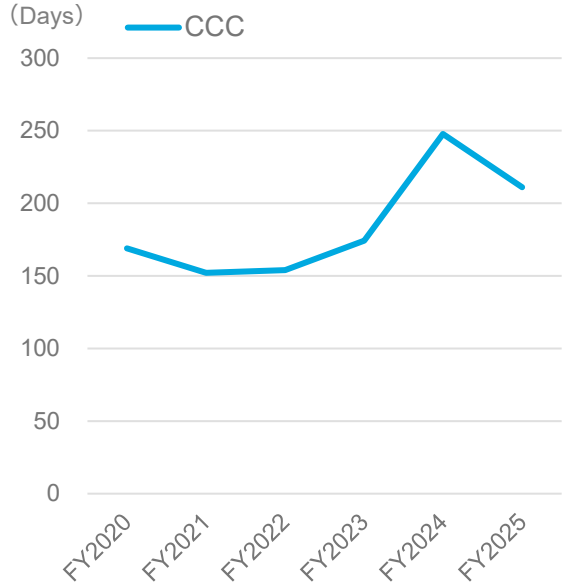
Working Capital and Current Ratio



	Working Capital (Million yen)	Current Ratio (%)
FY2020	579,905	251.6
FY2021	688,035	310.0
FY2022	940,124	300.6
FY2023	1,111,065	276.4
FY2024	1,088,552	277.9
FY2025	1,122,830	265.6

Working capital = Current assets - Current liabilities
Current ratio = Current assets / Current liabilities × 100

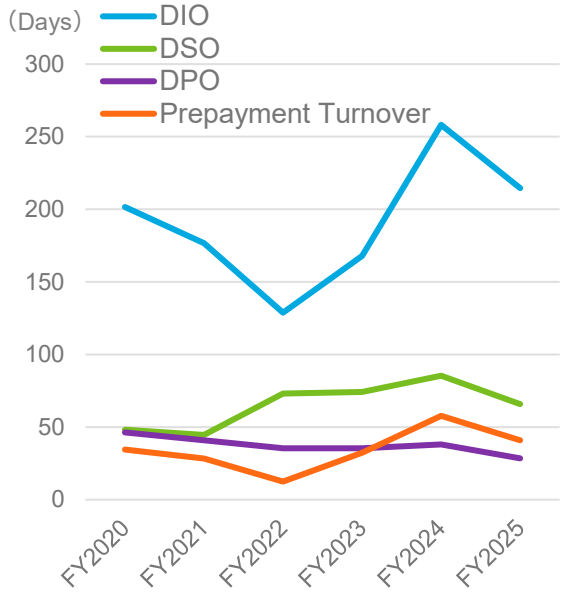
Cash Conversion Cycle (CCC)



	CCC (Days)
FY2020	169
FY2021	152
FY2022	154
FY2023	174
FY2024	248
FY2025	211

Cash conversion cycle
= DIO + DSO - Advances turnover - DPO

Inventory (DIO) / Receivable (DSO) / Payable (DPO) / Advances Turnover



	DIO (Days)	DSO (Days)	DPO (Days)	Advances (Days)
FY2020	202	48	46	34
FY2021	177	45	41	28
FY2022	129	73	35	12
FY2023	168	74	35	32
FY2024	258	85	38	58
FY2025	215	66	28	41

DIO = Average inventories / Cost of goods sold *365
DSO = Average accounts receivable* / Revenue *365
*Accounts receivable includes contract assets
DPO = Accounts payable / Cost of goods sold *365
Advances turnover = Average advances received / Revenue *365

*From the beginning of FY2022, the Company applies “Accounting Standard for Revenue Recognition” (ASBJ Statement No. 29).

Consolidated 10-year Financial Summary

(Millions of yen)

	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025
Net sales	663,949	799,719	1,130,728	1,278,240	1,127,286	1,399,102	2,003,805	2,209,025	1,830,527	2,431,568
Gross profit	267,209	322,291	475,032	526,183	451,941	564,945	911,822	984,408	830,269	1,146,287
Gross profit margin	40.2%	40.3%	42.0%	41.2%	40.1%	40.4%	45.5%	44.6%	45.4%	47.1%
SG&A expenses	150,420	166,594	193,860	215,612	214,649	244,259	312,551	366,684	374,006	448,967
Operating income	116,789	155,697	281,172	310,571	237,292	320,685	599,271	617,723	456,263	697,319
Operating margin	17.6%	19.5%	24.9%	24.3%	21.0%	22.9%	29.9%	28.0%	24.9%	28.7%
Ordinary income	119,399	157,549	280,737	321,662	244,979	322,103	601,724	625,185	463,185	707,727
Income before income taxes	106,467	149,116	275,242	321,508	244,626	317,038	596,698	624,856	473,439	706,114
Net income attributable to oweners of parent	77,892	115,208	204,371	248,228	185,206	242,941	437,076	471,584	363,963	544,133
R&D expenses	76,287	83,800	97,103	113,980	120,268	136,648	158,256	191,196	202,873	250,017
Capital expenditures	13,341	20,697	45,603	49,754	54,666	53,868	57,288	74,432	121,841	162,171
Depreciation and amortization	19,257	17,872	20,619	24,323	29,107	33,843	36,727	42,927	52,339	62,148
Interest-bearing debt	-	-	-	-	-	-	-	-	-	-
Equity	562,369	643,094	767,146	880,748	819,301	1,012,977	1,335,152	1,587,595	1,746,835	1,839,929
Total assets	793,367	957,447	1,202,796	1,257,627	1,278,495	1,425,364	1,894,457	2,311,594	2,456,462	2,625,981
Debt-to-equity ratio	-	-	-	-	-	-	-	-	-	-
Equity ratio	70.9%	67.2%	63.8%	70.0%	64.1%	71.1%	70.5%	68.7%	71.1%	70.1%
ROE	13.0%	19.1%	29.0%	30.1%	21.8%	26.5%	37.2%	32.3%	21.8%	30.3%
Cash flow from operating activities	69,398	136,948	186,582	189,572	253,117	145,888	283,387	426,270	434,720	582,174
Cash flow from investing activities	-150,013	-28,893	-11,833	-84,033	15,951	-18,274	-55,632	-41,756	-125,148	-169,609
Cash flow from financing activities	-138,600	-39,380	-82,549	-129,761	-250,374	-114,525	-167,256	-256,534	-325,012	-388,836
Net income per share (Yen)	153.70	234.09	415.16	504.53	390.19	520.73	935.95	1,007.82	783.75	1,182.40
Cash dividends per share (Yen)	79.00	117.00	208.00	253.00	196.00	260.00	468.00	570.00	393.00	592.00
Number of employees	10,629	11,241	11,946	12,742	13,837	14,479	15,634	17,204	17,702	19,573

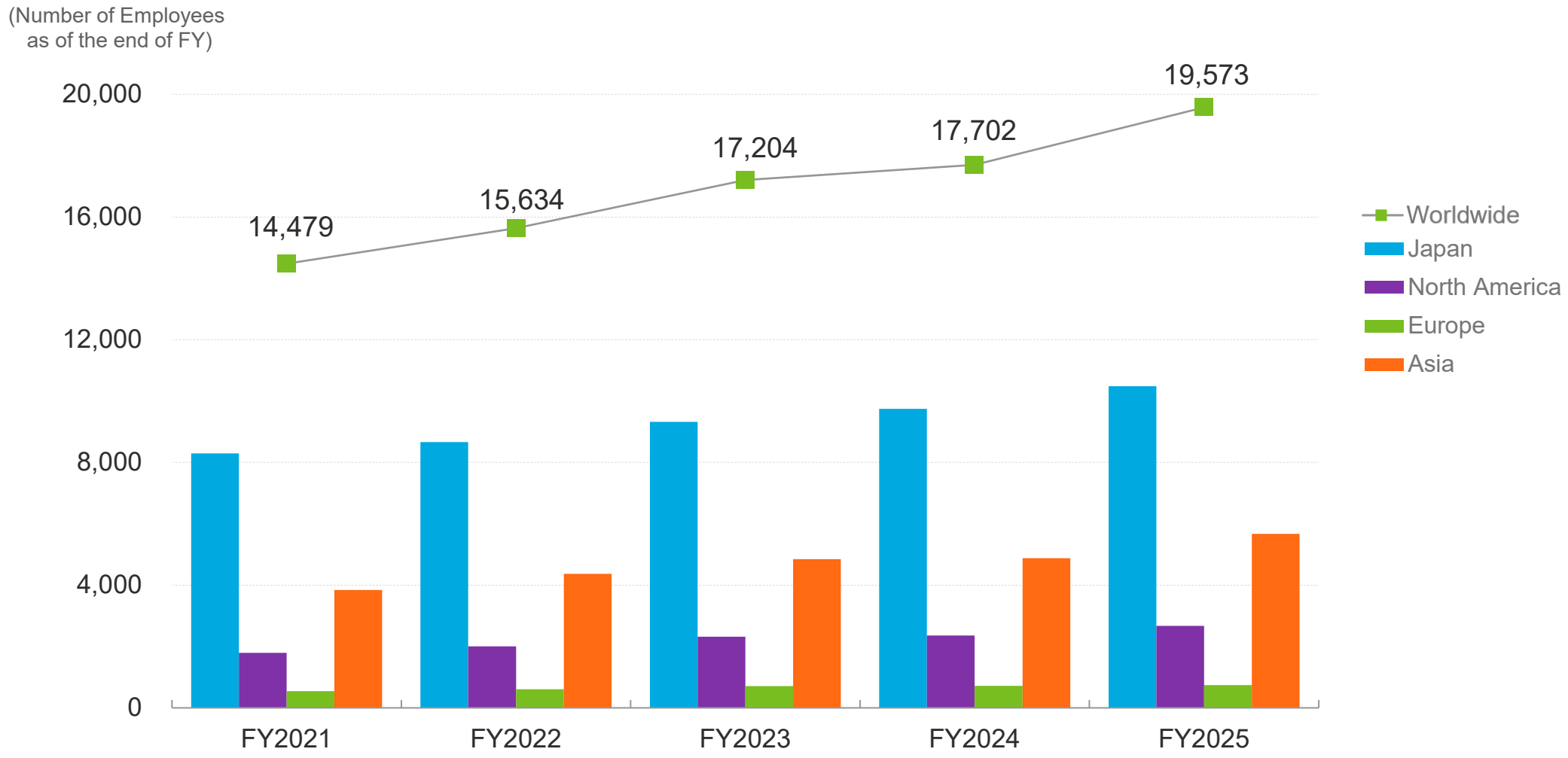
1. From FY2019, the Company adopts “Partial Amendments to Accounting Standard for Tax Effect Accounting” (ASBJ Statement No. 28, revision on February 16, 2018). “Total assets” and "equity ratio" for FY2018 have been restated in the table in accordance with the revised accounting standard.

2. From the beginning of FY2022, the Company applies “Accounting Standard for Revenue Recognition” (ASBJ Statement No. 29).

3. The Company implemented a 3-for-1 common stock split on April 1, 2023. Net income per share and dividend per share (yen) are the figures after the stock split.

4. Some of the data featured in this Investors’ Guide is available for download in Excel format from the "Data Book" section on our website.
https://www.tel.com/ir/library/fb/

Worldwide Employees



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- Processing of numbers
  For the amount listed, because fractions are rounded down, there may be the cases where the total for certain account titles does not correspond to the sum of the respective figures for account titles. Percentages are calculated using full amounts, before rounding.

- Foreign exchange risk
  In principle, export sales of Tokyo Electron's products is denominated in yen. Although some sales and expenses are denominated in foreign currencies, the impact of foreign exchange rate fluctuations on profits is negligible, unless extreme fluctuations occur.

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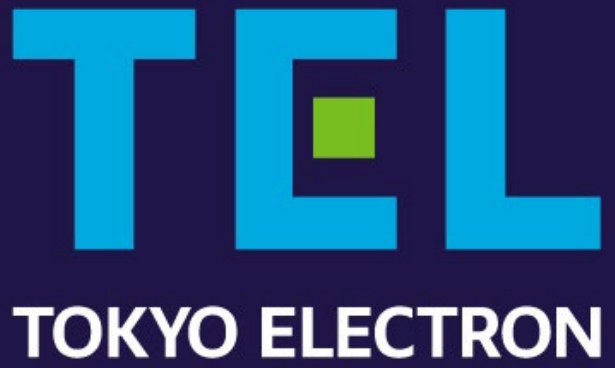
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