3 Innovation

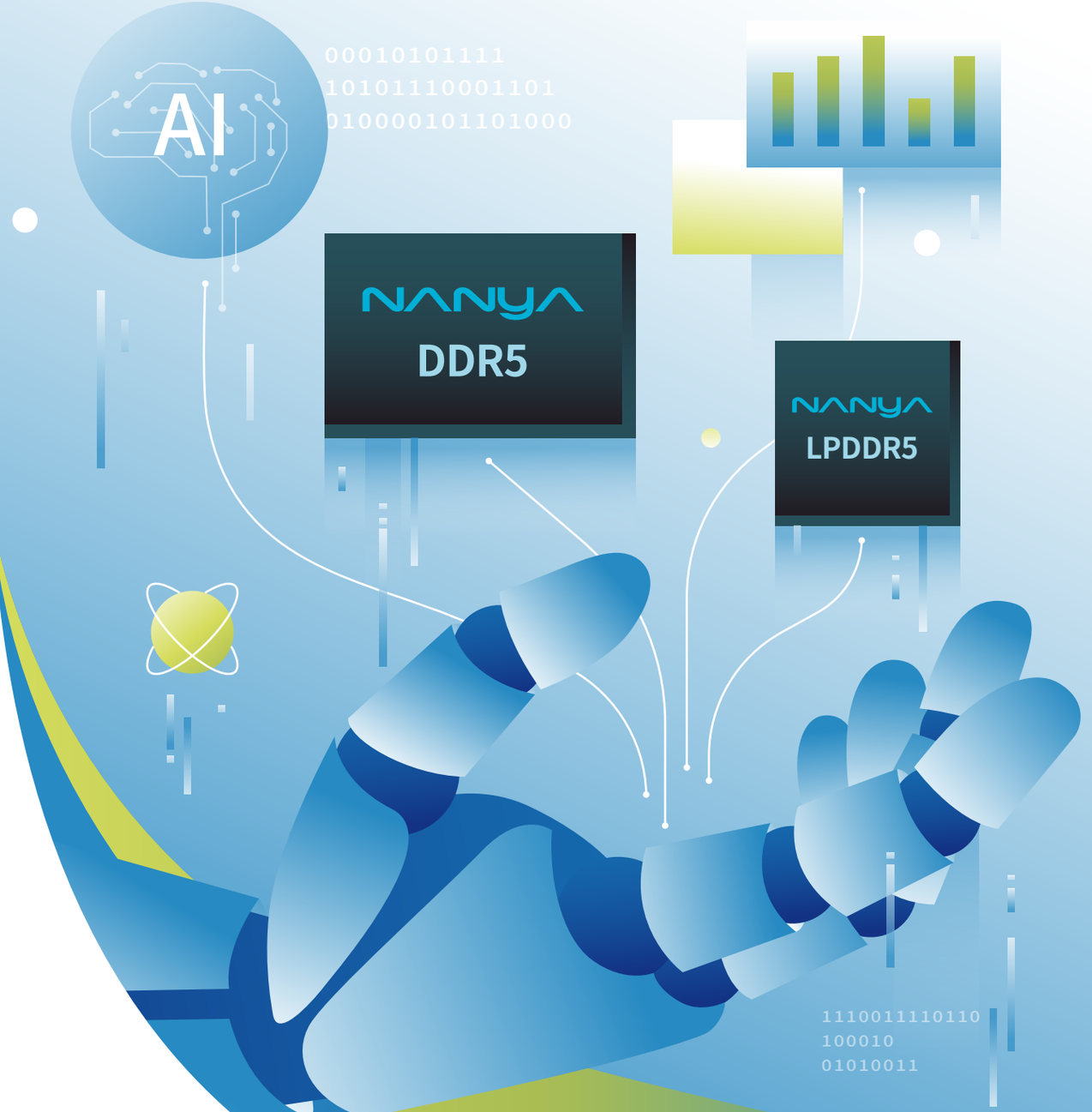
The Best Partner for Our Customers

"Innovation" is one of the driving forces for Nanya Technology Corporation's growth and competitiveness and one of our four core values. We shall strengthen product research, development, and manufacturing to satisfy customers' diverse demands and become the best memory partner for the smart generation.

25.3% In 2023, R&D expenses accounted for 25.3% of revenue and R&D personnel accounted for 28.9% of employees. These demonstrate Nanya's focus on technological development.

380 million A total of 110 AI applications were developed and accomplished as of the end of 2023, and the annual benefits reached NT$380 million.

953 cases A total of 953 patents were granted in 2023, an increase of 141 cases compared to 2022



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Strategy and Performance of Material Topics

Strategy of Material Topics	2023 Goals	Performance and Goal Achievement	2024 Goals
R&D and Innovation • Design new next-generation products • Develop 10nm-class process technologies • Enter the high-density server module market • Smart factory • Elevate numbers of patents newly patents	Second generation 10nm DRAM process 8Gb DDR4 products reach shipment verification standards	Note ◆ Completed the verification of the second generation 10nm DRAM process 8Gb DDR4 products and component technology reliability	Second generation 10nm DRAM process 8Gb DDR4 products reach shipment verification standards
	Complete design of second generation 10nm-class 16Gb DDR5 and enter pilot production	◆ Completed design of second generation 10nm 16Gb DDR5 products and had pilot-run wafers outputs	Second generation 10nm 16Gb DDR5 products reach shipment verification standards
	Cultivate a total of 450 engineers with AI theories and development capabilities	◆ Cultivated a total of 450 engineers with AI theories and development capabilities	Cultivate a total of 500 engineers with AI theories and development capabilities
	Complete a total of 110 items for AI application development	◆ Completed a total of 110 items for AI application development	Complete a total of 130 items for AI application development
	-	-	Obtain >250 newly granted patents in Taiwan
Eco-friendly products **Technology improvements** R&D of advanced and high-efficiency products to assist consumers in lowering energy consumption and reducing carbon emissions during the usage of products **Consider product life cycle** Improve the environmental friendliness of products on the environment **Hazardous substance management** Continue to promote replacement plans for hazardous substances in the production process	Ratio of 20nm and other advanced processes accounted for 96% and above	◆ 97.4%	Ratio of 20nm and other advanced processes accounted for 96% and above
	Complete product life cycle inventory on 100% of products	◆ 100%	Complete product life cycle inventory on 100 percent of products
	100% of products conform to hazardous substance free regulations and customers' specifications	◆ 100%	100 percent of products conform to hazardous substance free regulations and customers' specifications
	100% of materials contained zero perfluorooctanoic acid (PFOA) or related substances	◆ 100%	100 percent of materials contained zero perfluorooctanoic acid (PFOA) or related substances

◆ Exceed ◆ Achieved ◆ Partially Achieved

Note: The second-generation 10nm DRAM process 8Gb DDR4 products were originally scheduled to meet shipment verification standards by the end of 2023, but the design is currently being improved due to functional integrity, yield and system compatibility issues, and the products are expected to meet product shipment verification standards in the second half of 2024.

3.1 R&D and Innovation

Smart products have comprehensively improved the quality of life for human beings and assisted with energy conservation and carbon reduction. Therefore, every year, Nanya invests large amounts of resources in technological development of new DRAM products, next generation processes, and advanced 3D stacked packaging. We strive to provide value-added services, reinforce protection for intellectual property rights and trade secrets, and accelerate the move towards product diversification and the development of smart factories. Look forward to the future, Nanya will continue to devote itself to the developments of the advanced third/fourth generation 10nm DRAM process and DRAM products.

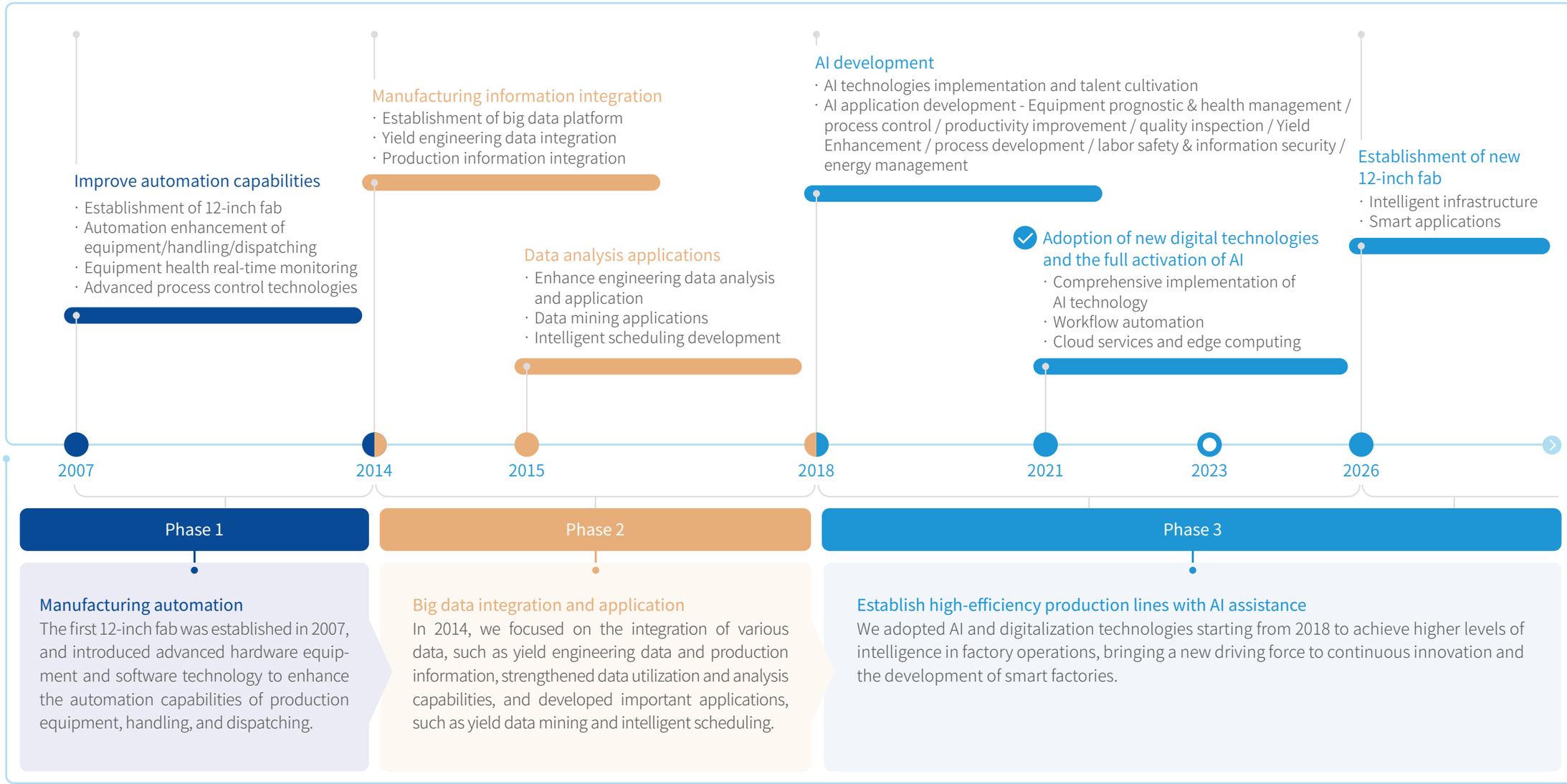
Innovation Committee

In order to implement innovation management, create a culture of innovation, and enhance the Company's innovative energy and value, Nanya specially set up the Innovation Committee, a cross-departmental unit, formed by the senior management and chaired by Executive Vice President (EVP). The Innovation Committee is positioned to coordinate and plan the overall innovation strategy, setting short, medium and long-term goals, and examine the progress of important projects, including management indicators of open innovation projects, product innovation projects, and process innovation projects. In 2023, Nanya completed the design of second generation 10nm 16Gb DDR5 products and had pilot-run wafers outputs; in addition, in AI applications, we cultivated a total of 450 engineers with AI knowledge and practical skills, and completed 110 AI systems between 2019 and 2023.

Investment in Innovative R&D

Year	2020	2021	2022	2023
Operating revenue (A) 100 Million NTD	610	856	570	299
R&D and innovation expenses (B) 100 Million NTD	51.4	75.0	78.4	75.8
R&D expenses as a percentage of operating revenue (B/A)	8.4%	8.8%	13.8%	25.3%
Total number of employees (C)	3,542	3,554	3,685	3,647
Total number of R&D personnel (D)	922	953	1,000	1,054
R&D personnel as a percentage of all employees (D/C)	26.0%	26.8%	27.1%	28.9%

Nanya Smart Factory

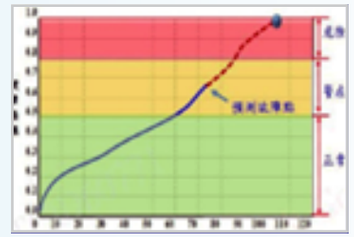


Nanya's 12-inch fab has all essential infrastructure that a smart factory requires, including highly automated production lines, Fab IoT, large numbers of sensors, and big data integration. The fab utilizes AI technology in eight important categories, including Equipment Prognostic & Health Management, Process Control, Productivity Improvement, Quality Inspection, Yield Enhancement, Process Development, Labor Safety & Information Security, and Energy Management. Currently, Nanya has developed several innovative applications in production lines, including the machinery diagnosis, advanced process control, optimization of production scheduling, wafer quantity prediction, smart handling, wafer probe testing, defect image recognition, wafer pattern recognition, and automatic measurement of engineering images. These applications can effectively enhance overall operation efficiency, and make important contributions for manufacturing key indices - Yield, Quality and Output.

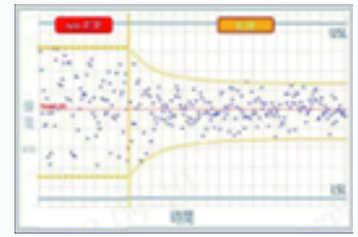
Infrastructure → Highly Automation | Fab IoT | Sensors | Big Data | AI

Application Category

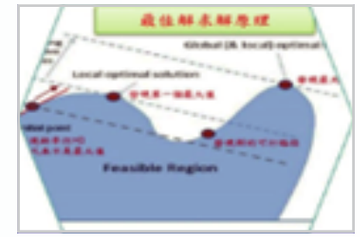
01 Equipment Prognostic & Health Management



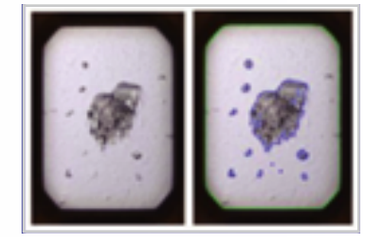
02 Process Control



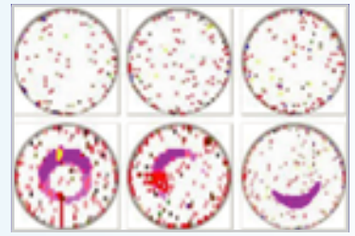
03 Productivity Improvement



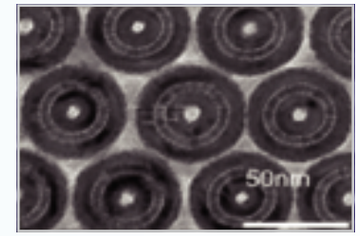
04 Quality Inspection



05 Yield Enhancement

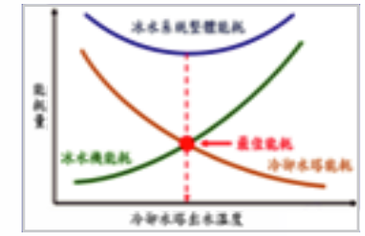


06 Process Development



07 Labor Safety & Information Security

08 Energy Management



• AI Development Benefits and Promotion

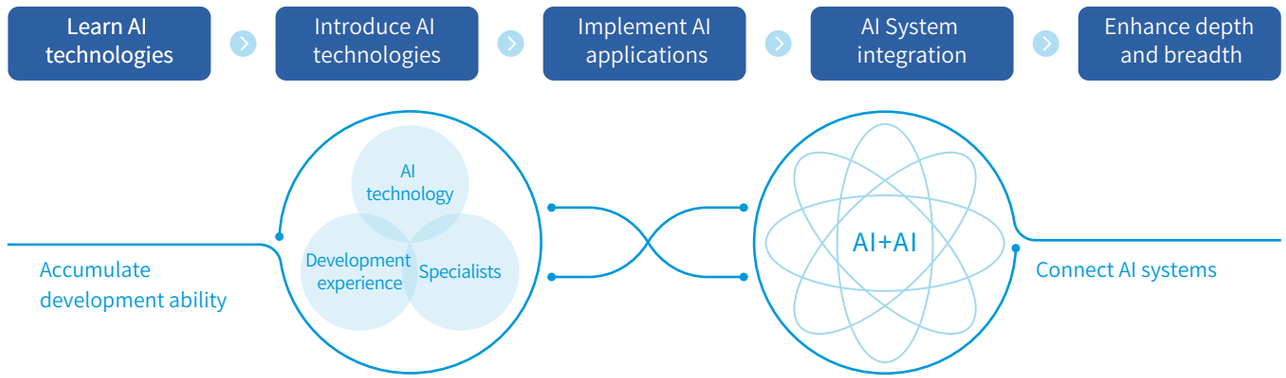
By the end of 2023, Nanya has completed 110 AI applications that can effectively improve yield and quality, reduce wafer scrap ratio, increase tool utilization, lower equipment maintenance costs and raw material consumption, increase production capacity and flexibility, and more effectively use human resources. The annual benefits reach NT$380 million. As we continue to develop new AI applications, we expect a total benefit to reach NT$2 billion in the next 5 years (2024-2028).

Innovation and promotion are mainly carried out through three major platforms – AI application development, AI technology research, and AI education.

- AI application development platform: Integrated domain experts, IT experts and statistics experts, a total of 60 engineers to systematically develop AI systems.
- AI technology research platform: Strengthened AI team's technical capabilities, and systematically implemented machine learning, deep learning (CNN[1] , RNN[2] , object detection), and edge computing technologies.
- AI education platform: AI training courses were conducted by internal and external instructors, and trained a total of 450 engineers with AI theories and practical technical abilities.

[1] CNN :Convolutional Neural Networks
[2] RNN : Recurrent Neural Networks

AI Application Development Plan

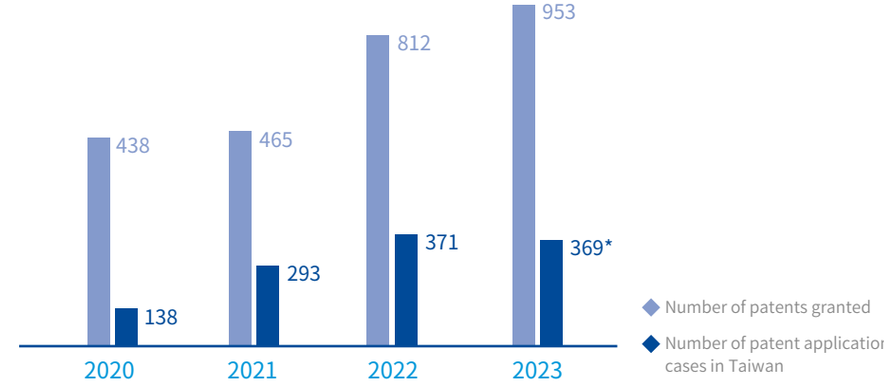


Nanya established an AI applications team in 2018, learned and introduced AI technology, gradually implemented AI in various departments, and connected more smart systems, such as yield enhancement system, smart production system, and general image recognition system that can make production line operate more effectively. In the future, we will continue to strengthen AI development, adopt advanced AI technologies, and expand AI applications to different departments. With that, Nanya can comprehensively improve overall manufacturing performance.

Status and Strategy of Intellectual Property

Besides working with world-class talents to adopt advanced technologies, Nanya has spared no effort in the development of proprietary technologies, and has accumulated considerable intellectual property over the years. As of the end of 2023, Nanya has accumulated over 6,800 patents, protecting technological development results and securing a competitive advantage, while flexibly utilizing intellectual property rights to effectively defend against frivolous patent lawsuits. This provides a powerful tool for technology and business competition.

Nanya's patent performance



*Does not include consolidated applications

Critical legal cases related to intellectual property involving Nanya were as follows

1. The U.S.-based Monterey Research LLC. accused Nanya and subsidiaries Nanya Technology USA and Nanya Technology Delaware in the U.S. District Court for the District of Delaware for patent infringement in November 2019. We have engaged legal counsel to properly handle the case to protect our rights and interests.

2. The Irish company Polaris Innovations Limited filed a lawsuit at the U.S. District Court for the Eastern District of Texas against the Company for patent infringement February 2023. We have engaged legal counsel to properly handle the case to protect our rights and interests.

Nanya intellectual property strategy

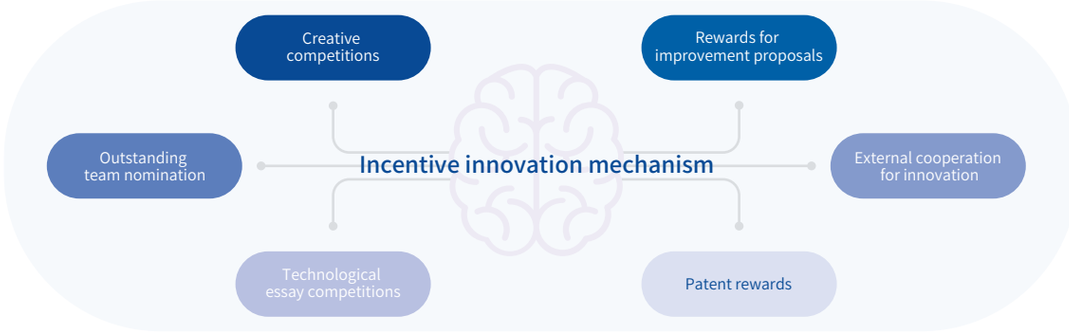
Create the most favorable R&D and production environment with intellectual property, and then use the results of excellent production and R&D to recreate intellectual property rights that are practical and good.

- Make full use of intellectual property to create a favorable environment for the Company and the industry.
- Manage intellectual property with a suitable system, and protect trade secrets with a rigorous network for information security.

In addition to patents, trade secrets are also an extremely important intellectual property in the semiconductor industry. Nanya has been actively implementing advanced process technologies and developing new products and innovative sales models in recent years. Besides applying for patents to protect the intellectual property, any technology, method, process, formula, program, design, or other information that can be used for production, sales, or business are trade secrets of Nanya strictly protected by information security systems, as long as they are confidential and possess economic value. Nanya obtained Taiwan Intellectual Property Management System (TIPS) Level A certification in December 2023, showing that our intellectual property management system has been recognized.

Incentives for Innovation

"Innovation" is one of the driving forces behind Nanya's technological growth and competitiveness enhancement and one of our core values. To encourage employees to propose innovative ideas, the Company holds annual innovation competitions, offers patent rewards and rewards for improvement proposals, and organizes essay competitions and outstanding team competitions. We recognize and reward innovative ideas proposed by each employee, hoping that all employees will internalize the spirit of innovation.

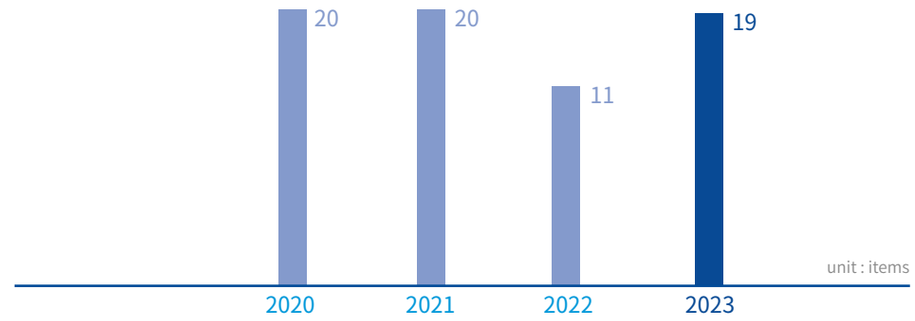


Results of Innovative Activities

Year		2020	2021	2022	2023
Patent rewards	Number of patents granted	438	465	812	953
Rewards for improvement proposals	Number of proposals	207	207	212	193
	Actual annual benefit (Thousand NTD)	1,583,318	882,517	756,744	755,784
Technological essay competitions	Number of entries	79	93	103	118
Outstanding team competitions	Number of entries	17	13	17	16

In addition, we attach great importance to technology R&D. We incorporate external innovation into our R&D in open and innovative ways, and accelerate and expand technology R&D. We have worked on basic research, product design, and product testing for next generation memory with National Taiwan University, National Tsing Hua University, National Yang Ming Chiao Tung University, National Central University, Ming Chi University of Technology, Chang Gung University, imec, Industrial Technology Research Institute, and testing equipment suppliers. We have also partnered with manufacturers of masks and machinery in joint development of 10nm process and materials. Through customized Wafer Level Packaging and multiple application products developed rapidly with downstream system developers, Nanya has launched new open innovation programs every year in the past four years in coordination with the Company's short, medium, and long-term R&D plans.

Technology R&D open innovation program



3.2 Green Product Development

Nanya and its clients both aim to protect our green Earth. We implemented the Life Cycle Thinking (LCT) and the Design for Environment. For a long time, we have made an effort to research and develop advanced and highly efficient eco-friendly products. We not only have helped clients develop products with low energy consumption design, but also have engaged in hazardous substance management and responsible minerals procurement management through our influence on supply chains. In order to continue improving the environmental friendliness level of products, we have formulated environmental health and safety performance indicators, promoting various waste reduction and resource reuse, greenhouse gas reduction and other projects. In coordination with the Green Product Promotion Committee (GPPC) on green product management, right from the start of product development, we consider seven aspects of environmental impacts, including procurement, manufacturing, transportation, product use, disposal, and recycling in order to identify improvement opportunities to increase environmental benefits.

Nanya green design matrix

	Procurement	Manufacturing	Transportation	Product use	Disposal and recycling
Energy efficiency	V	V	V	V	
Greenhouse gas emissions	V	V	V	V	
Material reduction	V	V	V		
Responsible mineral procurement	V				
Hazardous substances	V	V			V
Waste reduction		V			V
Water resources reduction		V			

Life Cycle Assessment

In response to environmental requirements, we used the Simapro, a life cycle assessment tool, to conduct life cycle assessment on 100% of our products, calculated environmental footprints of products, and identified directions for future improvements. In the meantime, the Company would use the product environmental data and coefficients accumulated through analysis processes to build a decision support system for green product development. The Company gave multiple considerations on the requirements, and conducted quantitative life cycle assessment on products in each life cycle stage. Pursuant to the contents of quantifying and communicating requirements and guidelines for the Product Environmental Footprint of the life impact assessment under the ISO 14040s series, the Company participated in product environmental footprint declarations, and referred to the regulations of ISO 14064-1 Greenhouse Gas Inventory and ISO 14067 Carbon Footprint International Standard to execute the declarations. The analyzed products were various DRAM we manufactured, and boundaries of the life cycle system included raw materials manufacturing, transportation, wafer manufacturing, packet packaging, module packaging, product use, and recycling/disuse. Because the Company's main production was memory wafer manufacturing, other system boundaries were outsourced. Therefore, the main system boundary was wafer manufacturing. Among 14 measures to improve environmental footprint sources, reductions in greenhouse gas emissions from the three main sources listed in the results of the 2023 product life cycle assessment are as follows:

Three main hotspots of greenhouse effect listed in the 2023 product LCA results

Electricity use

Percentage of product carbon footprint: 70.73%

Improvement plan	2023 Operation result	Direction for further improvement
Implement energy conservation improvement plans	• Completed 36 energy conservation management plans under ISO 50001, energy conservation benefits: 5,337 MWh • Purchased 24.49 million kWh of renewable energy	• Continue to implement the ISO 50001 Energy Conservation Plan • Continue to purchase renewable energy according to plan

H_2O_2

Percentage of product carbon footprint: 5.52%

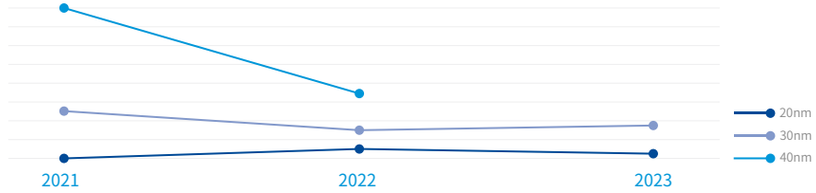
Improvement plan	2023 Operation result	Direction for further improvement
Require H_2O_2 suppliers to implement energy conservation and carbon reduction management plans	• Suppliers joined the SBTi and plan to reduce Scope 1+2 emissions by 25% in 2030.	• Continue to require H_2O_2 suppliers to implement energy conservation and carbon reduction management plans

NF_3

Percentage of product carbon footprint: 3.61%

Improvement plan	2023 Operation result	Direction for further improvement
Require NF_3 suppliers to implement energy conservation and carbon reduction management plans	• Suppliers joined the SBTi and plan to reduce Scope 1+2 emissions by 25% in 2030.	• Continue to require NF_3 suppliers to implement energy conservation and carbon reduction management plans

Trends in product carbon footprint 20nm/30nm/40nm processes



Product life cycle inventory for 2023 was completed. We used staple product SA30 memory to show the ratio of 14 items of environmental footprints in stages of raw materials and manufacturing process. Manufacturing process at factories accounted for about 81.86% of greenhouse effect, and procurement of raw materials accounted for around 18.14% of greenhouse effect.

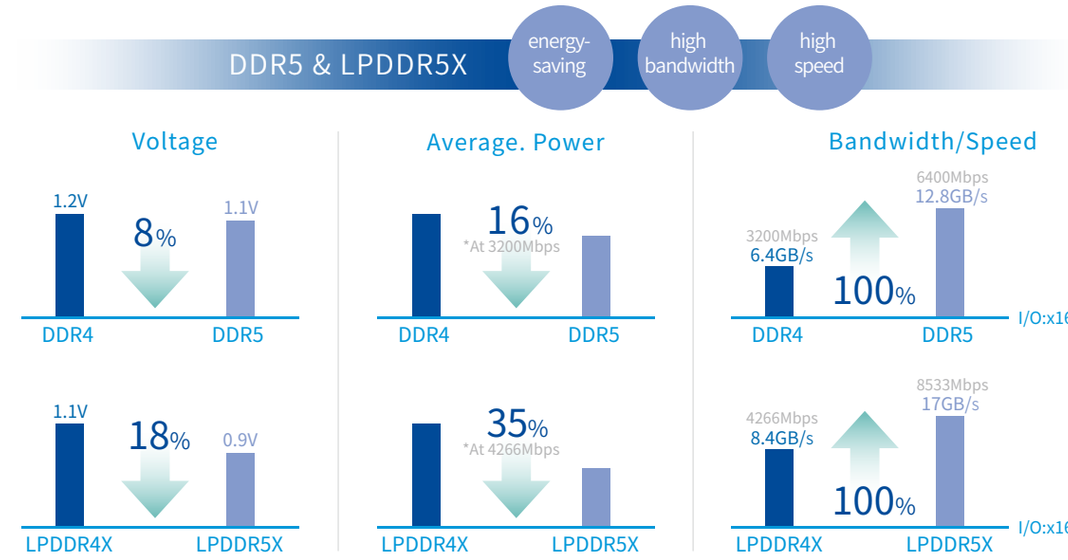
Proportion of total emissions accounted for by raw materials and manufacturing phases of SA30

	Total emissions in manufacturing stage	Total emissions in raw material stage
Greenhouse effect	81.86%	18.14%
Ozone depletion	20.94%	79.06%
Ionizing radiation-human health effect	75.40%	24.60%
Photochemical effect	64.37%	35.61%
Particulate substances/respiratory non-organic substances	52.63%	47.31%
Human toxicity-non-cancer effect	62.81%	37.17%
Human toxicity-cancer effect	64.64%	35.34%
Acid rain	64.88%	35.07%
Eutrophication-water body	80.36%	19.64%
Eutrophication-land	64.08%	35.91%
Freshwater ecotoxicity	68.20%	31.79%
Land use	57.19%	42.79%
Water resource depletion	41.26%	58.70%
Abiotic depletion - Fossil fuel and minerals	71.82%	28.18%

Green Product Design

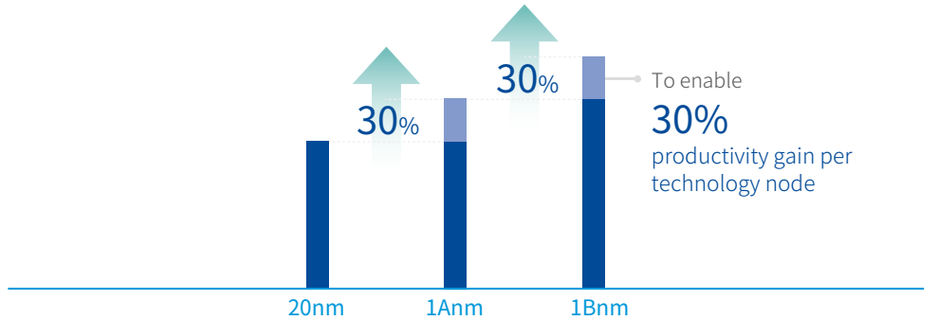
Nanya has been dedicated to the research, development, manufacturing, and sales of DRAM, becoming the fourth largest DRAM company worldwide. Moving towards the smart era, DRAM is a key component to be used in the applications of smart city, smart home, smart office, unmanned vehicles, internet of things (IoT), cloud, artificial intelligence (AI). With continuous promotion of independently developing process technology, Nanya started researching and developing 1A and 1B nanometer technologies in 2017, and planned the development of products with high integration, faster speed, and lower energy consumption, such as DDR4/DDR5. Different from the past methods of cooperating with other DRAM companies on technology development or technology licensing, Nanya independently developed 1A/1B technologies. Product verification for 1A technology was completed in 2022. 1A technology is the first 10nm-class DRAM technology of a Taiwanese company, proving that Taiwan's DRAM technology development ability is among the top companies across the world. Meanwhile, we have constantly expanded our existing product lines into diverse applications, providing clients with whole product solutions to become the best memory partner in the smart era. Product verification of 1B technology is expected to be completed in 2024. 1B technology is the second generation 10nm DRAM technology independently developed by Nanya Technology, and product development will focus on 16 Gb DDR5 and 16Gb LPDDR5/LPDDR4.

Driven by the demand for 5G communications, cloud, AI, and smartphone memory upgrade, DDR5 and LPDDR5 (low power double data rate memory) became the main supply of new generation memory. Compared with current mainstream memory, new generation memory possesses faster transmission efficiency while saving energy due to lower operating voltages. When comparing DDR4 with DDR5, average power is about 16% lower, but bandwidth is doubled.



Nanya has focused on the development of advanced processes, and began independently developing 1A process technology in 2017; trial production began in 2022. 1A process technology will significantly shrink the size of chips and increase the capacity of a single wafer by 30%. Furthermore, we also began developing 1B process technology in 2019 and expect to begin mass production in 2024. 1B process technology further shrunk chips made using 1A process technology and increased the capacity of a single wafer by 30%. This will allow factories to further achieve energy conservation and carbon reduction goals while achieving the same production capacity.

Nanya DRAM technology strategy



R&D policy for low energy consumption products

01 **Continues to develop advanced manufacturing processes**
The energy consumption of new generation products developed with new processes is reduced by 15% compared with the previous generation.

02 **Nanya cooperates with major chip customers**
To reduce back-end assembly and testing as well as energy consumption.

03 **Nanya strengthens the development of low energy consumption product lines and enlarges product portfolios**
To satisfy the need of various mobile devices and electronic products.

Environmental external benefits

When we develop new products, the environmental impact of the entire life cycle is considered. To electronic products, the energy consumption in use is one of the most significant indicators in environmental impacts. Nanya actively researches and develops low energy consumption products, and assists clients in lowering demand for energy during their usage of electronic products so that greenhouse gas emissions can be reduced.

Mainstream process products
(low power DRAM and 20nm consumer DRAM)

Scope Total sales equivalent volume in 2023
Calculation baseline Energy consumption of mainstream process products in the current year compared with that of the previous generation
Calculation method Totaling the power consumption difference between all products in that year and their respective previous generation product.

Benefits

Saved more than 514.15 million kWh of electricity, approximately 1,851 megajoules (1.851×10^{15})[Note 1], which is equal to saving the average annual electricity consumption of 142,000 households[Note 2]; and reduced greenhouse gas emissions by 254,508 tons of CO_2e[Note 3], equivalent to 653 times carbon absorption of Daan Forest Park for one year[Note 4].

Note 1: Based on the Energy Product Unit Heating Value Table updated in 2020 by the Energy Administration for unit conversion, 1 kWh = 860 kcal = 3.6 megajoules; 1 MWh = 3,600 megajoules.
Note 2: Estimated based on the actual monthly electricity consumption of 3,618 kWh/year by housing units in the statistics for housing units and small stores on the website of Taiwan Power Company (2024/1/17).
Note 3: The carbon emission factor of electricity is based on the announcement of the Energy Administration in 2023: 0.494 kg CO2e/kWh.
Note 4: According to the Energy Administration, Ministry of Economic Affairs, the CO_2 absorption of Daan Forest Park used for calculation is 389 metric tons per year.

Hazardous Substance Free Product Management

In 2005, Nanya Technology Corporation established the Green Product Promotion Committee (GPPC) to carry out hazardous substance free (HSF) management. During the product production process, we continued to implement the prevention and control of pollution, energy saving, waste reduction, and avoided using hazardous substances under regulatory restrictions. By integrating and connecting suppliers and subcontractors that supply raw materials and process materials, IC and DIMM assembly factories, and shipping packaging material suppliers, we enabled upstream and downstream manufacturers in the supply chain and Nanya Technology to form an effective green product supply chain that complies with current international environmental protection trends and laws. Through the Green Product Promotion Committee (GPPC), we have established the "General Principles for Environmental Management of Parts and Materials Substance Management" with reference to national laws in the EU and other regions as well as the hazardous substance management regulations of major international customers. Moreover, we continue to focus on raw materials and related effective control of material sources to meet green product standards and reduce our impact on the natural environment during product production. We have also established a Hazardous Substance Free Approval System to confirm that the product wafers, back-end IC and DIMM assemblies products, and shipment packing materials all comply with international regulations and customer specification on hazardous substance management.

The green products referred to by Nanya Technology Corporation that comply with the requirements of BNDCU-0012 General Principles for Environmental Management of Parts and Materials and Substance Management, and meet the following requirements:

Comply with requirements of the EU WEEE and RoHS 2011/65/EC & 2015/863 (recast)

Substance Name	RoHS requirements
1. Cadmium	<100ppm
2. Lead	<1000ppm
3. Mercury	<1000ppm
4. Hexavalent Chromium	<1000ppm
5. Polybrominated biphenyls (1-10 bromine)	<1000ppm
6. Polybrominated Diphenyl ethers (1-10 bromine)	<1000ppm
7~10. 4 Specific Phthalates (DBP, BBP, DEHP, DIBP)	<1000ppm

Comply with requirements of IEC 61249-2-21 Halogen Free (HF)

Substance Name	Halogen-Free requirements
11. Chlorine (Cl)	<900 (Cl+Br<1500)
12. Bromine (Br)	<900 (Cl+Br<1500)

Comply with requirements of EU Directive 94/62/EC PPWD

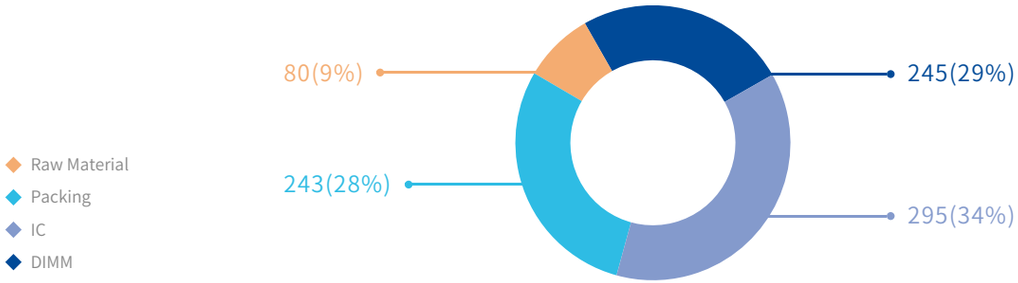
Substance Name	PPWD requirements
1. Cadmium	The total concentration of 4 heavy metals is <100ppm
2. Lead	
3. Mercury	
4. Hexavalent Chromium	

Comply with requirements set forth in Section 6(h) of the U.S. Toxic Substances Control Act to not use 5 PBT (Persistent, Bio-accumulative, and Toxic) substances

Substance Name	CAS No.	Applied Materials Field
Decabromodiphenyl ether (DecaBDE)	1163-19-5	Flame retardants are used in plastics of TVs, computers, and audiovisual equipment, textiles, and wires of communications or electronic equipment
Phenol, Isopropylated Phosphate (PIP)(3:1)	68937-41-7	Used as a plasticizer, flame retardant, anti-wear agent, and anti-compression fluid; used or added to hydraulic oil, lubricating oil, industrial coatings, adhesives, plastic products, etc.
Pentachlorothiophenol (PCTP)	133-49-3	Intermediates or reactants in processing or formulas that may be present in additives such as fuel, gasoline, or lubricants
Hexachlorobutadiene (HCBD)	87-68-3	Additives or by-products in the manufacture of rubber compounds or lubricants
2,4,6-Tris(tert-butyl)phenol (TTBP)	732-26-3	Used in rubber manufacturing processes to make it more flexible

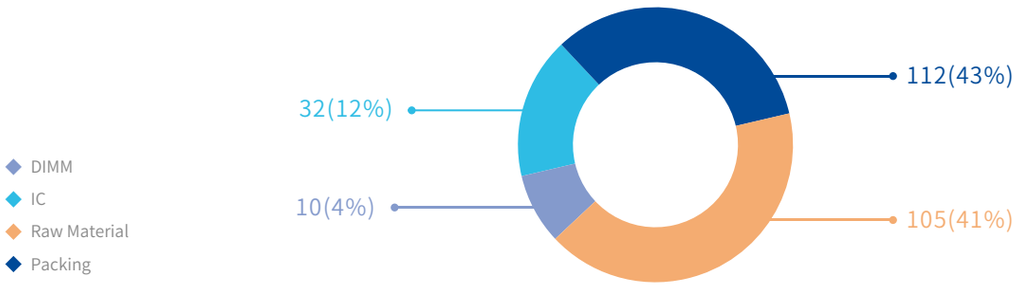
2023 TEST REPORTS

In order to complete the relevant requirements for green product compliance confirmation, a total of 863 test reports were reviewed in 2023. Completed as follows:



2023 The concern substances survey of supply chain:

Comply with requirements of other substances banned/restricted by customers/regulations, such as substances of concern that are banned or restricted in homogeneous materials or finished products in accordance with the EU REACH SVHC/EU POP/GADSL scope, and conducted surveys of substances of concern in the supply chain for 6 versions, The investigation includes EU REACH SVHC compliance investigation on substances of high concern (once every 6 months), customer concern hazardous substances investigation and responsible mining due diligence. A total of 259 investigation reports were completed as follows:



- Two versions of REACH SVHC V.28 & V.29 survey (HS Survey V.51/V.51.1/V.53) were completed while 177 HS survey reports were reviewed. The completion rate was 100%.
- Completed a HS survey (HS Survey V.52) required by clients, while 4 HS survey reports were reviewed. The completion rate was 100%
- Completed 2 versions of responsible mineral sourcing survey (HS Survey V.54/V.55), while 78 HS survey reports were reviewed. The completion rate was 100%.

Green Chemistry Laboratory

Quality is one of the key conditions that determine technical capabilities. Nanya's chemistry laboratory keeps investing in improving testing technologies and methods to ensure that process yield and product reliability meet customer’ s requirements and standards. Our goal is to improve green manufacturing capabilities and quality capabilities.

• Implementation of automated data processing to improve chemistry laboratory quality and efficiency

In response to Nanya's continued expansion of production capacity, we implemented a data automation system in 2023 to enhance the management abilities of multiple fabs, replacing manual input of the chemistry laboratory's analysis data with automated input, improving data quality through electronic information for management, and achieving the goal of verifying the accuracy of uploaded data In addition to improving work efficiency, this reduced the amount of paper used for report-printing by 25%, and will become paperless. In 2024, we will continue to improve laboratory management capabilities and implement fault detection and classification (FDC) system to manage the machine availability of laboratories in each fab.