

# 2022 SUSTAINABILITY REPORT



UOTOWN

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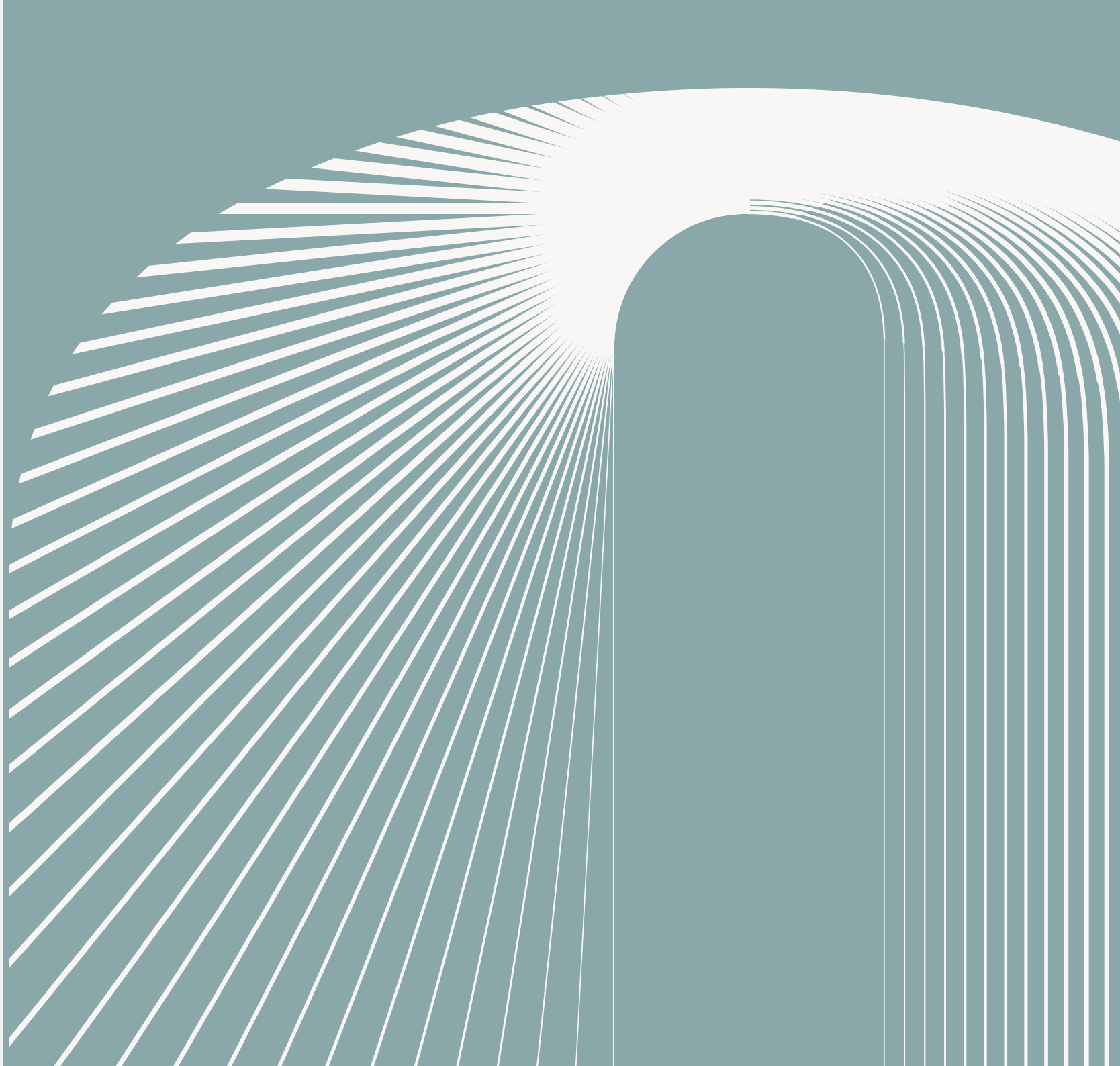
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Performance Highlights**



# About This Report

ABOUT THIS REPORT

WORDS FROM THE EXECUTIVES

EVOLUTION & COMMUNICATION

ETHICAL MANAGEMENT & CORPORATE RESILIENCE

GREEN PRODUCTS OF EXCELLENCE

ENVIRONMENTAL SUSTAINABILITY PERFORMANCE MANAGEMENT

SAFE WORKPLACE & TALENT CULTIVATION

COPROSPERITY WITH SOCIETY AND LOCAL ENGAGEMENT

Appendix



Nuvoton ESG Website

### Contact Information

Should you have any comment or suggestion regarding this Report, you are more than welcome to share your valuable feedbacks and contact us at:  
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 Address: No. 4, Creation Rd. III, Hsinchu Science Park, Hsinchu City, 300

Tel: +886-3-5770066 ext. 23246  
 Fax: +886-3-5792606

Nuvoton Corporation (hereinafter referred to as “Nuvoton,” “Nuvoton,” or “the Company”) has been voluntarily preparing and publishing CSR Report annually in reference to the guidelines of the Global Reporting Initiative (GRI) for non-financial information disclosure since 2012, and renamed the Report Sustainability Report in 2021. Also, the English version has been published since 2012 for a better information communication. SASB Standards released by the Sustainability Accounting Standards Board (SASB) was introduced in 2021, and the framework of Task Force on Climate-related Financial Disclosures (TCFD) is introduced this year, to offer stakeholders more comprehensive and transparent Environmental, Social and Governance (ESG) information.

### Scope and Boundaries

With a reporting period ranges from January 1 to December 31, 2022, this Report explains the actions of Nuvoton in the scope of sustainable development and the various performance data. Regarding the scope and content of this Report, since that Nuvoton mainly operates at the Taiwan Headquarters, the scope of disclosure primarily covers the operation sites in Taiwan. Nevertheless, the financial performance data herein is based on the consolidated statements, which cover not only the Taiwan Headquarters but also the offices worldwide (in Japan, the United States, Israel, Mainland China, Hong Kong, and India). The information is indicated in New Taiwan Dollars (NT\$), which has been audited and verified by Deloitte & Touche.

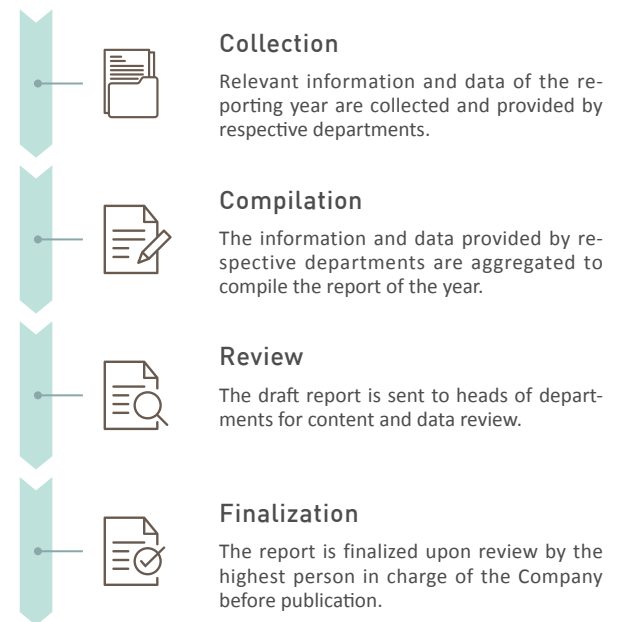
### Report Quality

This Report has been verified by SGS Taiwan Ltd., an independent, impartial third-party entity, commissioned to provide assurance and verification that the content herein is prepared in accordance with the GRI Standards (2021) and in compliance with AA1000AS Type 1 assurance at the Moderate level of

assurance. The Assurance Statement is included in the [Appendix](#) of this Report for reference.

### Flow of Report Review and Management

The information or data disclosed in this Report are provided by the respective responsible units. Upon compilation completed, the ESG Report is submitted to heads of departments for verification, followed by the review and approval by the Chairman and publication.



### Time of Publication

Current edition	June 2023
Previous edition	September 2022
Next issue	June 2024

# Words From The Executives

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- EVOLUTION & COMMUNICATION
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## Words from the Chairman

The world saw various political and economic impacts like inflation, Russia-Ukraine war, and lockdown in China in 2022. The macroeconomy was filled with uncertainty. The semiconductor industry suffered from impacts of inventory adjustments as well. Along with a reducing consumer momentum from the end market of electronic products, the industry sailed into a headwind. Nevertheless, we advanced steadily upholding the principle of “proactive development; prudent manufacturing.” For that, Nuvoton continued to invest ample R&D resources with the conviction that “innovation” makes the crucial key to maintaining its competitiveness. Meanwhile, through a careful production and inventory management, we stayed sensitive to the end market demand changes and strengthened our corporate resilience. In addition, we ceaselessly deepened our strategic partnership with clientele and proactively planned for the global sales landscape to seize business opportunities of different regions as the cornerstones of our ongoing growth. Through the joint efforts of our fellow colleagues and partners, we accomplished an historic achievement in 2022 with an annual revenue of NT\$41.872 billion, a gross profit margin of 41.7%, and even a record high net income after tax of NT\$4.221 billion.

As a corporate citizen, Nuvoton upholds its corporate vision “Be a hidden champion in providing sustainable semiconductors to enrich human life,” contributing to the sustainable well-being of humanity. With the sustainability concept of ESG combined, we focus on three facets, i.e. climate change, innovative technologies, and social impact, implementing relevant works in full scale within the Company. “Non-Use of Conflict Minerals” is practiced at Nuvoton. Through supply chain management, it extensively demands its suppliers to exercise the commitment to non-use of “conflict minerals,” thereby practicing the management of the use of conflict minerals. Meanwhile, through due diligence or demanding suppliers on the supply chain to emphasize human right issues, we probe into the implementation of the companies on human rights issues regularly and assign ratings as a reference for supplier selection. Besides, consultation is available if necessary to align them with the requirements in human rights. In addition, Nuvoton works with various stakeholders to consolidate the identification with and investment in environmental protection and social engagement in order to exert its social influence. Upholding the philosophy of “giving back to society,” Nuvoton constantly cares for the disadvantaged and promotes social welfare activities, aiming

to create a win-win society of common prosperity.

The related strategies and plans of Nuvoton for the future fully take the market demands and technological development trends into account to ensure the sustainable development of the industry. Hence, the Company shall continue to actively participate in the R&D and innovation of green energy technology and expand the applications in the fields of automotive, industrial control, and networking, so as to maintain its competitive advantages. Meanwhile, Nuvoton shall be actively engaged in the Green Energy Technology Industry Innovation and Promotion Action Plan of the Executive Yuan to ensure the alignment of its industrial plans with the policies so as to further its long-term development.

Nuvoton combines its advantages in sales pipeline and operational efficiency with the advantages of its Japanese subsidiary in technology and talent for the synergy in the sustainable business of the Company. In the meantime, by strengthening the strategy of “One-Team,” the Company shall realize the synergistic effect in value creation. Through culture learning, human resource policy integration, intellectual property sharing, and a focus on the sustainability goals, Nuvoton reinforces the formulation and implementation of its organizational culture to foster inclusiveness, elevate the competitiveness of the Company, and realize an enterprise of sustainable development.

The 2022 ESG Report is to faithfully disclose the ESG performances and activities of the Company as well as to elaborate on its approaches and prospects in these areas. With this Report, we aim to demonstrate our efforts in sustainable development to all stakeholders, so as to win their trust and attention and realize our vision: “Be a hidden champion (G) in providing sustainable semiconductors (E) to enrich human life (S).”



Yuan-Mou Su, Chairman

### Words from the President

Nuvoton fuses R&D and innovation with energy conservation and carbon reduction. While pursuing business growth, it improves product performance through R&D and design, becoming an enterprise of diversity that thrives with the environment together with its clientele to weave the concept of sustainable business perfectly into the operational vision. Committed to the promotion of innovation in green product technologies, it plans its industrial blueprint accordingly to ensure the long-term development of the Company.

Regarding product development, aside from constant innovation for the existing product lines, Nuvoton actively entered the fields of electric vehicles, smart manufacturing, and new energy solutions. Hence, it not only optimizes the product portfolio of the Company but also demonstrates the powerful strength of the Company in innovation and technical development. As such, Nuvoton fully showcases its expertise and experience in the field of green energy technology, which is aligned with the macro trend of sustainable development promotion in the world.

Through the advanced technological R&D, Nuvoton seeks to enrich the human life with technology as well as reduce the power consumption of products in running so as to march toward sustainability. In particular, the next-generation low-power microcontroller, the M251 series, adopted the process of low power consumption and low leakage. Compared to the prior generation of low-power microcontroller, it saves 15-20% in IC size and reduces the power consumption in running by 20-30%, offering the advantages of power conservation and miniaturization.

Nuvoton has secured numerous honors and awards for product innovation, including for the launch of NuMicro@M030G/M031G Series MCU, which offers a complete optical transceiver solution platform to the market. Thus, it received the honors of “AspenCore World Electronics Achievement Awards (WEAA)” and “2022 EE Awards Asia - The Promising Product of the Year.”

Through the pathway of improvement in green products and green processes, we are to realize the goal of sustainable business of the Company. On one hand, the Company unceasingly innovates product functions to enrich people’s life, either in the fields of MCU, automotive products, or IC security applications. On the other, Nuvoton has achieved excellence in business performance and presents responsible feedbacks to its investors, shareholders, and employees in order to attain a sustainable management of the Company.



*Hsin-Lung Yang*, President

### Words from the Sustainable Development Committee Chair

Nuvoton established the Corporate Social Responsibility Management Committee in 2012, which was renamed into the Sustainable Development Committee in 2021. The committee comprises 7 working groups, i.e. Corporate Governance, Labor and Human Rights, Environmental Safety and Health, Product, Energy Conservation, Supplier Management, and Social Participation, to promote works relevant to the sustainable development at the Company. Through such division of labor, it has been deepening relevant practices into the everyday operations.

Especially, we are facing new climate change risks, and the issues of which constitute one of the three facets of ESG at the Company. We are fully aware that net-zero emissions have become a global consensus, which is the mission and challenge we have to take on. Hence, the Company introduced the framework of the Task Force on Climate-related Financial Disclosures (TCFD) and assesses the risks and opportunities arising from climate change on a rolling basis. The long-term strategic blueprint for adaptation and transition has been formulated to actively tackle the shared challenges of the world. Nuvoton set Net Zero by 2050 as its long-term goal to actively respond to the global trend of Net Zero. We have the energy management system (ISO 50001) in place. Through energy management, we reduce the indirect emissions of CO2 from fossil fuel burning in the process of power consumption via an energy conservation plan that is systematic and traceable. Regarding Scope 1 and 2, Nuvoton examined its operations and manufacturing processes and added greenhouse gas (GHG) treatment facilities to reduce emissions, raise operational energy efficiency, lower energy consumption, and actively increase its installed capacity of renewable energy. As for Scope 3, the Company continued to collaborate with suppliers, collected GHG inventory data from the supply chain, and advanced on the path to energy conservation and carbon reduction hand in hand. By elevating the efficiency of products, it assisted its clients to reduce the energy consumption in product use to fulfill the purpose of energy conservation and carbon reduction. On the path to carbon reduction, what Nuvoton seeks is not just to go fast, but to go far jointly with its value chain. With regard to water resources, in the event of water shortage throughout Taiwan in 2021, thanks to the relevant water conservation and response measures in place, along with regular drills and testing, these efforts enabled us to effectively respond swiftly to maintain the production capacity. At present, we keep tabs on the status of water reclamation to lower the water consumption in production. The implementation of these measures helps ensure a sustainable and stable provision of products and services in the event of water shortage.

Now, the global warming is accelerating at an astonishing speed. The Company is actively implementing various carbon reduction measures as well. There will be a myriad of challenges ahead waiting for us in the future. Nonetheless, Nuvoton shall advance toward its goal one step at a time, committed to realizing the corporate vision of Nuvoton.



*Kuang-Lun Lin*, Vice President

## E Promotion of Green Technology

3 energy conservation measures enforced in 2022, saving power by approximately <b>111,000 kWh</b>	GHG emissions per product of 0.719 kg of CO2e/cm2 of wafer, reduced by <b>31.72%</b> compared to the base year level (2010)
Energy consumption per product of 0.0256 GJ/layer-wafer mask (equivalent to 7.11 kWh), reduced by <b>33.39%</b> compared to the base year level	Water usage per product of 40.1 liters/layer-wafer mask, reduced by <b>51.34%</b> compared to the base year level (2010)
Nitrogen usage per product of 0.59 m3/layer-wafer mask, reduced by <b>59.6%</b> compared to the base year level (2010)	Sulfuric acid usage per product of 64 grams/layer-wafer mask, reduced by <b>30.0%</b> compared to the base year level (2010)

## G Accountable Governance

A constituent in <b>TWSE RAFI® Taiwan High Compensation 100 Index</b>	
New record high in both consolidated revenue and profit in 2022, with a consolidated revenue of <b>NT\$41.872 billion</b> , a net income after tax of <b>NT\$4.221 billion</b> , and the earnings per share of <b>NT\$10.06</b>	
<b>Top 1</b> MOSFET supplier for smart-phones in the world	<b>1,526</b> participants for ethical management training sessions with a completion rate of <b>100%</b>
An overall satisfaction of <b>8.65</b> , according to the result of 2022 Customer Satisfaction Survey	CSR self-assessment required for suppliers, with all the results above <b>80 points</b> after the review by Nuvoton, which are in conformity with the requirement of the Company

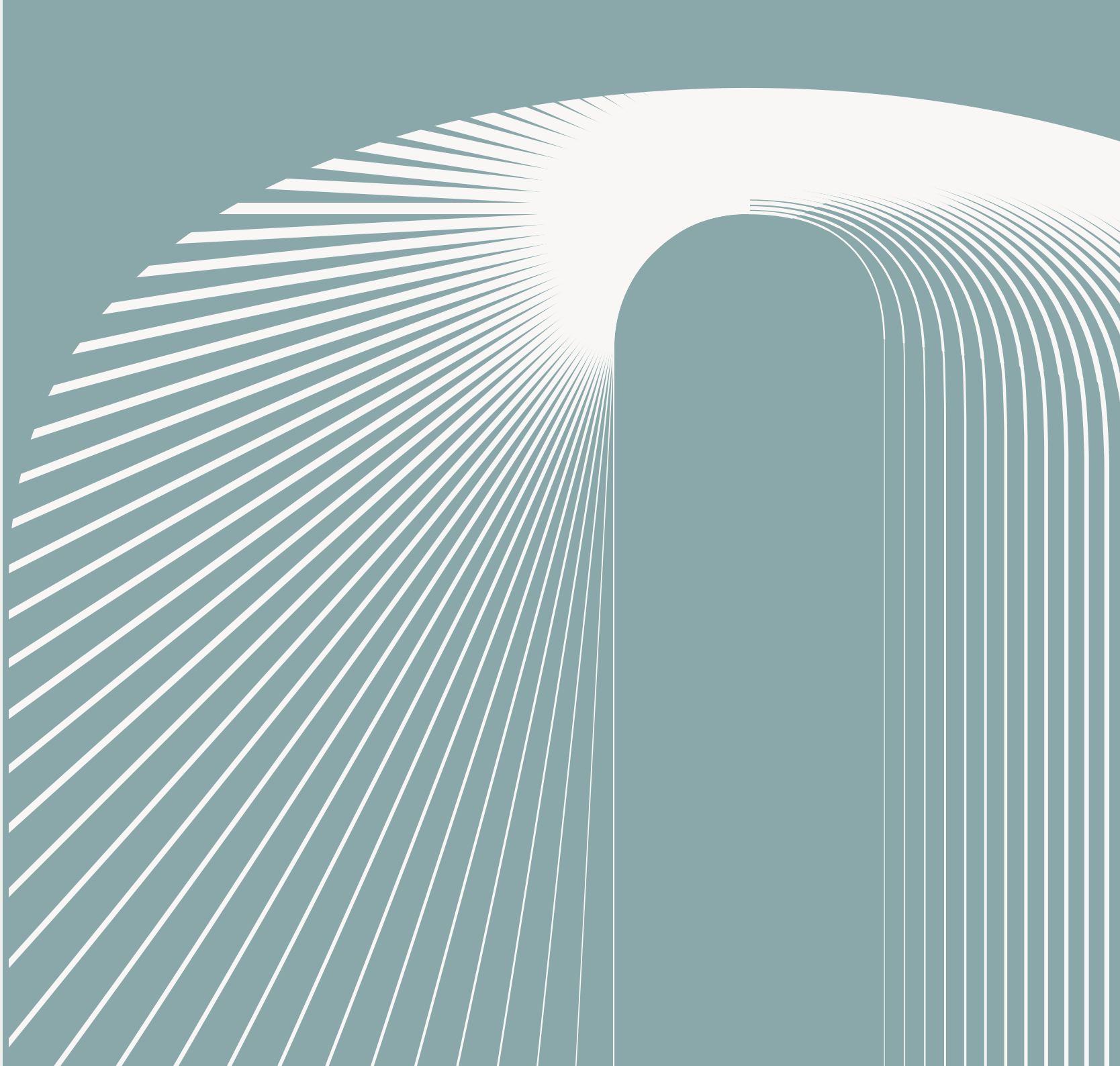
## S Creation of Happy, Safe Workplace

Childcare subsidies totaled approximately <b>NT\$11.35 million</b> disbursed in 2021-2022	Reinstatement rate of unpaid parental leave of <b>80%</b> ; retention rate of <b>83%</b>
<b>39,397</b> hours of employee trainings for <b>30,355</b> trainees in total, with the average training hours per employee of <b>25.42</b> hours	Contractor management and supervision enforced with <b>0</b> for the disabling injury frequency rate of contractors for <b>5 years</b> in a row
The abnormal rate in health checkup in 2022 reduced by <b>16.7%</b> compared to that of the previous result	<b>77</b> sessions of safety and health education and trainings for <b>1,924</b> trainees in total
<b>4 sessions</b> of Nuvoton campus tour lecture train organized, participated by <b>800</b> students in total	<b>551</b> second-handed books collected via Pay It Forward Campaign "Read in Love"
<b>NT\$325,000</b> contributed to Renai Children's Home	<b>25,200</b> medical masks donated to the NTUH Hsin-Chu Branch to protect the medical staff and the patients

## Evolution & Communication

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01





# 1. About Nuvoton



Nuvoton Worldwide

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## The Name Nuvoton

In the name of Nuvoton Corporation: Nuvoton is the combination of “Nuvo” and “Ton.” “Nuvo” in French is pronounced close to “Nouveau” (new). “Ton” in English is pronounced close to “Tang” as in the Tang Dynasty. The Tang Dynasty was one of the most prosperous dynasties in the history of China. The Tang Dynasty attained stellar achievements in international cultural exchange, economic trade, and technological innovation, making it the center of the world. Nuvoton shall uphold the innovation spirit of excellence in development and the close customer relationship as well as converge talents around the globe to live up to the vision of Nuvoton—Be a hidden champion in providing sustainable semiconductors to enrich human life. Meanwhile, it signals the spirit of Nuvoton to usher in the whole new epoch like the Tang Dynasty in the IC industry.

## Company Overview

Nuvoton Corporation was founded to bring innovative semiconductor solutions to the market in 2008. Nuvoton was spun-off as a Winbond Electronics affiliate in July 2008 and went public in 2010 on the Taiwan Stock Exchange (TWSE). Nuvoton focuses on IC products in microcontroller, microprocessor, smart home, cloud security, battery monitoring, visual sensing, IoT applications, and semiconductor components, pioneering in the industrial, automotive, communication, consumer electronics, and computer markets. In addition, Nuvoton owns a 6-inch wafer fabrication plant equipped with diversified process technologies to provide professional foundry services.

Nuvoton offers products with a high price-performance ratio to its clients by leveraging flexible technology, advanced design capability, and integration of digital and analog technologies. It attaches great importance to the long-term relationships with its partners and customers and is dedicated to unceasing innovation in products, processes, and services. Nuvoton has offices in the USA, Mainland China, Israel, India, Singapore, Korea, and Japan to strengthen regional customer support and global management.

On September 1, 2020, Nuvoton acquired the semiconductor business group under Panasonic Corporation in Japan as Nuvoton Corporation Japan. We not only value the technologies and products carefully developed by Panasonic Semiconductors over 6 decades but also pursue and care for the passion and integrity of the team. Hence, the whole new Nuvoton shall present the fruits of both parties’ efforts, offering products and services of better quality in the days to come.



## Company Profile

Profile of Nuvoton in 2022	
Entity Name	Nuvoton Corporation
Capital	NT\$4,197,652,680
Date of Establishment	April 9, 2008
Industry	Semiconductor
Nature of Entity Ownership	Publicly listed company
Stock Code	4919
Number of World-Wide Employee	3,987
Main Products and Technologies	Focus on the integrated circuit (IC) design, sales, and foundry business at the core, offering general purpose IC as the main products and professional foundry services.
Chairman	Yuan-Mou Su
Vice Chairman	Karen K Chiao
President	Hsin-Lung Yang
Location of Headquarters	No. 4, Creation Rd. III, Hsinchu Science Park, Hsinchu City, Taiwan
Countries of Operations	In addition to the Headquarters in Taiwan, operation sites are located in the USA, Mainland China, Israel, India, Singapore, Korea, and Japan. Nuvoton Corporation Japan was consolidated into the Company in 2020, further driving the profits of the Company.
Business Philosophy & Corporate Culture	With an agile capability in innovative technology, comprehensive product solutions, and excellent technical synergy combined, Nuvoton offers cost-effective products and better services to its clients on the basis of the existing solid foundation. It lives up the corporate culture of “Ethical Management; Responsible Teamwork; Enthusiastic Learning; Active Innovation; Sustainable Contribution” in the various business activities, working toward the vision “Be a hidden champion in providing sustainable semiconductors to enrich human life.”

## Departments

Department	Responsibilities
President Office	Analysis, formulation, and execution of corporate management strategies
Auditing Department	Planning and execution of internal audits; planning and execution of internal control and self-evaluation; review of company bylaws
Microcontroller Application Business Group	Operations of microcontrollers, microprocessors, development tools, and platforms of general purpose and applications
Smart Home Business Group	Planning, research and development, promotion, and operation of audio products
Cloud Security Business Group	Planning, research and development, promotion and operation of computer and cloud security platform products
Manufacturing Business Group	Fab operation and management; wafer production and manufacturing; wafer foundry services
Global Sales Center	Product sales, customer relationship management, and new customer development
Quality and Logistics Center	Production management and logistics management, contractor management, quality policy and system management
Advanced Technology Development Center	Advanced technology research and development and industry-academia cooperation management; IC design backend integration
Information Technology Center	Information system and information security management
Finance Center	Financial and accounting management; tax management; capital and asset management; strategic investment and investor relations; legal affairs and intellectual property management

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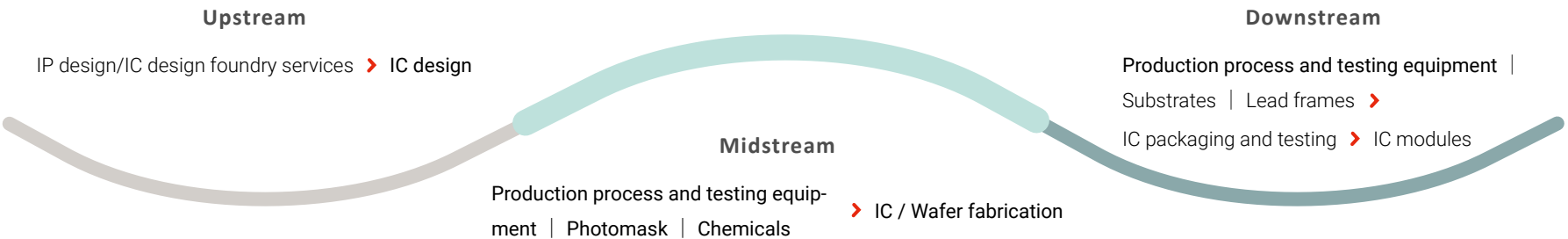
SAFE WORKPLACE & TALENT CULTIVATION

COPROSPERITY WITH SOCIETY AND LOCAL ENGAGEMENT

Appendix

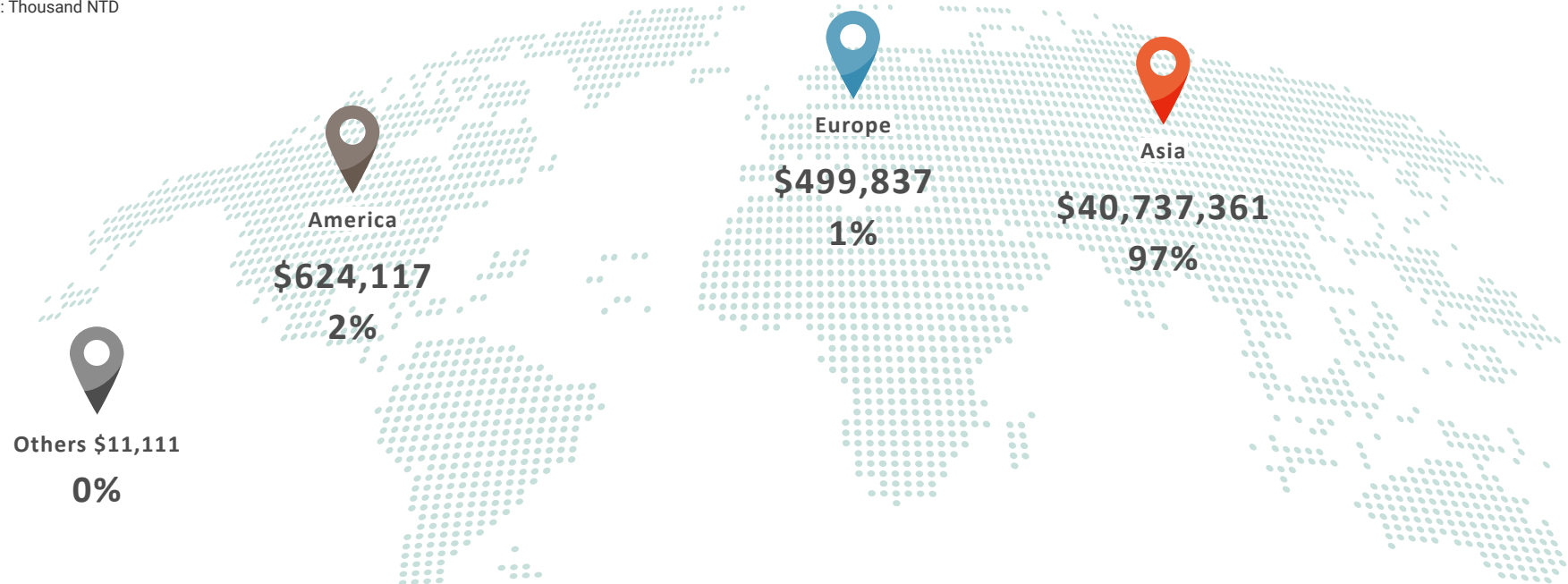
### Industrial Chain Positioning

The relationships between the upstream, midstream, and downstream of the semiconductor industry can be generally divided into upstream IC design companies, midstream IC and wafer fabrication, and downstream IC packaging and testing services. From the perspective of supply chain, Nuvoton's products form the control and computing core of end products. In terms of cloud computing ICs, Nuvoton provides downstream customers IC applications and semiconductors including MCU development, MCU, smart house appliance, cloud security, battery monitor, image sensing, and IoT. The Company have been working in these areas for years. In addition, Nuvoton owns a 6-inch wafer fabrication plant, producing IC products of its own and offering professional foundry services. As such, it established long-term, stable cooperation models with the upstream (suppliers of raw materials and equipment) as well.



### Main Product Sales/Service Regions in 2022

Unit: Thousand NTD



External Partnerships

Nuvoton takes initiative in participating in activities of industrial or technology R&D associations at home and abroad, building bridges for communication with members in the industry via regular or irregular meetings and exchanges of the associations involved.

Organization Participated	Title/Status
JEDEC Solid State Technology Association	Member/Participation in the member meeting
IEEE Enterprise	Member/Participation in the member meeting
Global Semiconductor Alliance (GSA)	Member/Participation in the member meeting
PIDA GaN Power and Microwave Alliance	Member/Participation in the member meeting
Taiwan Compound Semiconductor and Equipment Industry-Academia Alliance	Member/Participation in the member meeting
(Micro Sensors and Actuators Technology Consortium (μSAT) (MEMS Industry-Academia Alliance)	Member/Participation in the member meeting
The Allied Association for Science Park Industries (ASIP)	Member/Participation in the member meeting
Taiwan Electrical and Electronic Manufacturers' Association (TEEMA)	Member/Participation in the member meeting
The Chinese National Association of Industry and Commerce, Taiwan (CNAIC)	Member/Participation in the member meeting
Hsinchu Science Park Water and Electricity Supply Committee	Group member/Information reception
Hsinchu Science Park Chemical Accident Mutual Aid Group - Hsinchu City Team B	Group leader/Organization of the demonstration exercise of the 2022 Hsinchu Science Park Chemical Accident Mutual Aid Group - Hsinchu City Team B

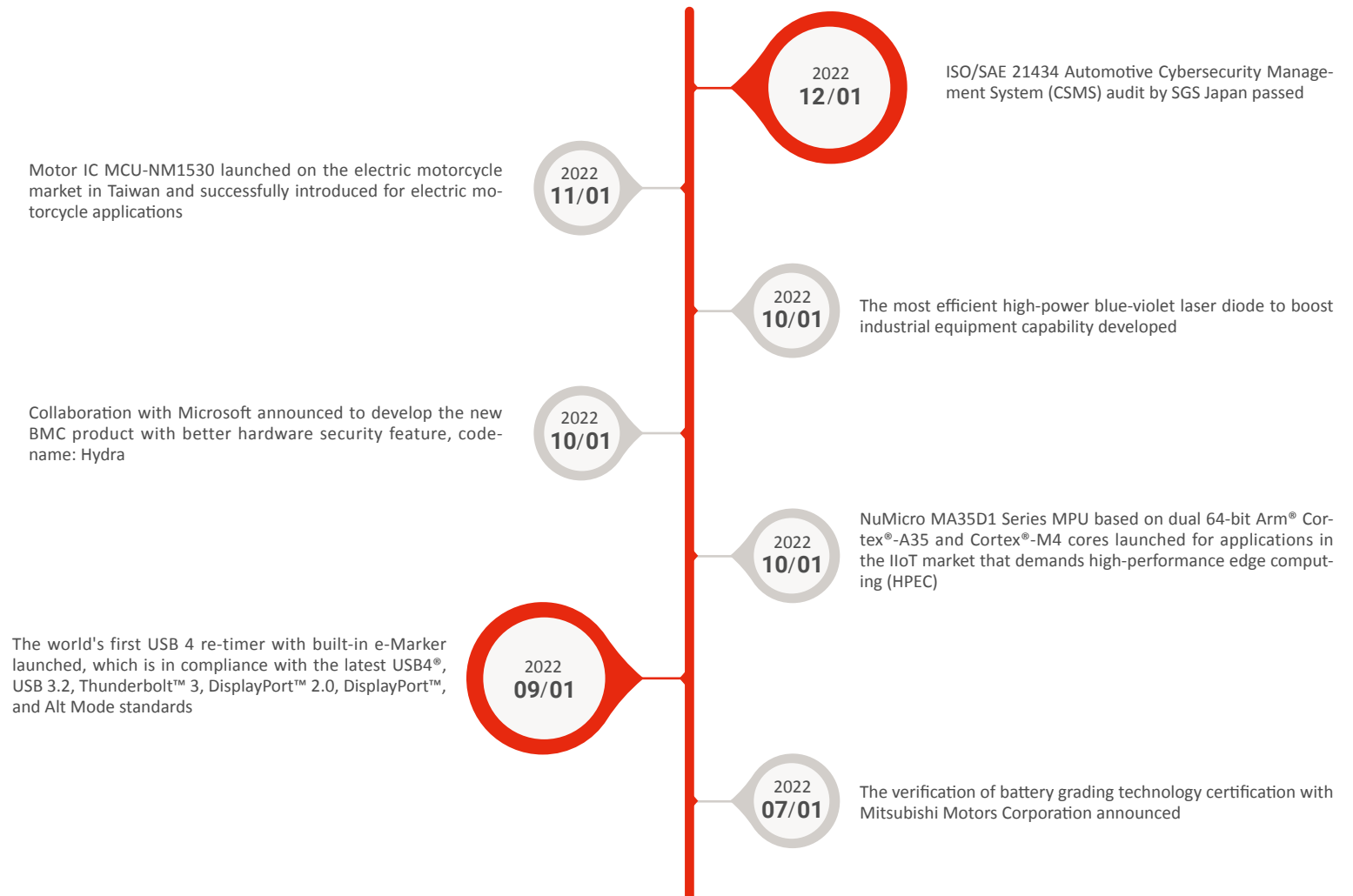
Milestones & Awards

Development Milestones

came into effect on December 15, 2009. Then, the Company was listed on the emerging stock market for trading on January 29, 2010, and officially listed on the Taiwan Stock Exchange (TWSE) on September 27. The acquisition of the semiconductor business group of Panasonic Corporation in Japan was concluded in 2020. The Chronicle of Nuvoton in 2022 includes information pertaining to the developments and major changes.



For more information on the milestones



## Awards & Recognitions

Aside from its stellar performance in the main business areas, Nuvoton also received various recognitions and awards. The honors in 2020-2022 include the awards received and the exhibitions participated.



more information on the awards



RBA VAP Certification



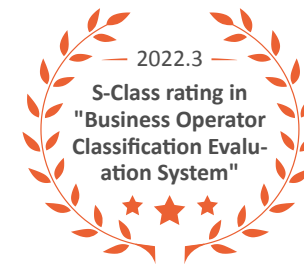
NuMicro M030G/M031G Series MCU focused on Optical Transceiver Solution awarded with the 2022 AspenCore World Electronics Achievement Awards (WEAA) in the Microcontroller/Interface category



Nuvoton recognized as "Excellent Enterprise with Sustainability Report Disclosure of Occupational Health and Safety Indicators" by the Occupational Safety and Health Administration (OSHA), Ministry of Labor



The audits of Responsible Business Alliance (RBA) & Validated Assessment Program (VAP) completed with full marks



S-Class rating in "Business Operator Classification Evaluation System" (SABC Evaluation System) of the Ministry of Economy, Trade and Industry, Japan, 3 years in a row



Representative M&A Award of the Year in the 2021 MAPECT Taiwan M&A Awards



NuMicro M2354 Series focused on IoT security awarded with the "2021 EE Awards Asia - The Promising Product of the Year"



Internal Compliance Program (ICP) of Bureau of Foreign Trade, MOEA, certified



2020 Outstanding Enterprise Award for Waste Reduction and Circular Economy by the Hsinchu Science Park

## 2. Stakeholder Communication

With reference to the five principles of AA1000 Stakeholder Engagement Standard (AA1000 SES) (responsibility, influence, tension, diverse perspectives, and dependency), Nuvoton inventoried the 7 major stakeholder groups, from which 6 important stakeholder groups were identified, including employees, customers, suppliers/contractors, government agencies/associations, shareholders/investors, as well as communities and NGOs. Diverse public communication channels have been established at the Company to faithfully capture the stakeholders' topics of concern and their specific feedbacks so as to respond to the suggestions of stakeholders in a timely manner.

	Employees	Customers	Suppliers/Contractors	Government Agencies/Associations	Shareholders/Investors	Communities and NGOs
Materiality	Employees are the crucial asset to Nuvoton and key to the competitiveness of the Company.	Customers constitute the main source of income of the Company, to which Nuvoton is committed to provide products and services of the best quality.	Suppliers provide raw materials necessary for the operation and production of the Company, together with which Nuvoton is committed to growth.	Nuvoton shall comply with the laws and regulations of local governments as well as actively conform to relevant policies and prevent any form of illicit act.	Institutional investors and individual investors that invest in or are willing to invest in Nuvoton	Nuvoton seeks the win-win prosperity for the society, cares for issues local to communities, and realizes a wonderful society.
Means and Frequency of Communication	<ul style="list-style-type: none"> <li>Labor-Management Conference (Quarterly)</li> <li>Quarterly Supervisors' Conference (Quarterly)</li> <li>Executive Management Wisdom Sharing Session (Quarterly)</li> <li>Employee Welfare Committee (Quarterly)</li> <li>Employee Suggestion Box (Intermittent)</li> <li>Complaint Mailbox and Hotline (Intermittent)</li> <li>Internal Website (Intermittent)</li> <li>Organizational Meetings (Intermittent)</li> <li>Training Courses (intermittent)</li> </ul>	<ul style="list-style-type: none"> <li>Customer Satisfaction Survey (Annually)</li> <li>Customer Questionnaires or On-Site Audits (Intermittent)</li> <li>Company Website – Members' Area (Intermittent)</li> <li>Technical Seminars (Intermittent)</li> <li>Phone and Email (Intermittent)</li> </ul>	<ul style="list-style-type: none"> <li>Supplier Evaluations (Semi-annually)</li> <li>Supplier ESG &amp; RBA self-assessment (Annually)</li> </ul>	<ul style="list-style-type: none"> <li>Official documents (Intermittent)</li> <li>Regulatory briefing sessions (Intermittent)</li> <li>Communication with the competent authorities through the ASIP (Intermittent)</li> </ul>	<ul style="list-style-type: none"> <li>Shareholders' Meeting (Annually)</li> <li>Investor Conference (Semi-annually)</li> <li>Financial Annual Report (Annually)</li> <li>Company Website (Intermittent)</li> </ul>	<ul style="list-style-type: none"> <li>Company Website (Intermittent)</li> <li>Email Mailbox (Intermittent)</li> </ul>
Topics of Concern	<ul style="list-style-type: none"> <li>Talent attraction and retention</li> <li>Occupational health and safety</li> <li>Equal Human Rights</li> <li>Manpower Cultivation and Development</li> <li>Labor-Management Relations</li> </ul>	<ul style="list-style-type: none"> <li>Customer satisfaction</li> <li>Information Security and Customer Privacy Protection</li> <li>Climate Change Governance Strategies</li> <li>Innovation and R&amp;D Management</li> <li>GHG Emissions</li> <li>Product Quality</li> <li>Occupational health and safety</li> </ul>	<ul style="list-style-type: none"> <li>Supplier sustainability management</li> <li>Waste management</li> <li>Climate Change Governance Strategies</li> </ul>	<ul style="list-style-type: none"> <li>Corporate governance and ethical management</li> <li>Wastewater and waste management</li> <li>Occupational health and safety</li> <li>Air Pollution</li> <li>Energy Resources Use and Consumption</li> <li>Climate Change Governance Strategies</li> <li>Legal Compliance</li> </ul>	<ul style="list-style-type: none"> <li>Corporate governance and ethical management</li> <li>Innovation and R&amp;D</li> <li>Management Strategy and Performance</li> </ul>	<ul style="list-style-type: none"> <li>Water resources management</li> <li>GHG Emissions</li> <li>Energy management</li> <li>Air Pollution</li> <li>Community Care and Public Welfare Activities</li> </ul>

A complete grievance mechanism is established at the Company. The responsible units collect and manage grievances, which are tracked by corresponding management units. Any major incident is to be deliberated on the respective functional committees. As for the material sustainability topics, the Sustainable Development members shall aggregate the execution results of ESG performance metrics and the material sustainability topics of the year, which are included in the agenda of the board meeting for communication and feedbacks to the Board. The Sustainability Committee reported the results of ESG performance metrics and the material sustainability topics of the year on the board meeting in November 2022.

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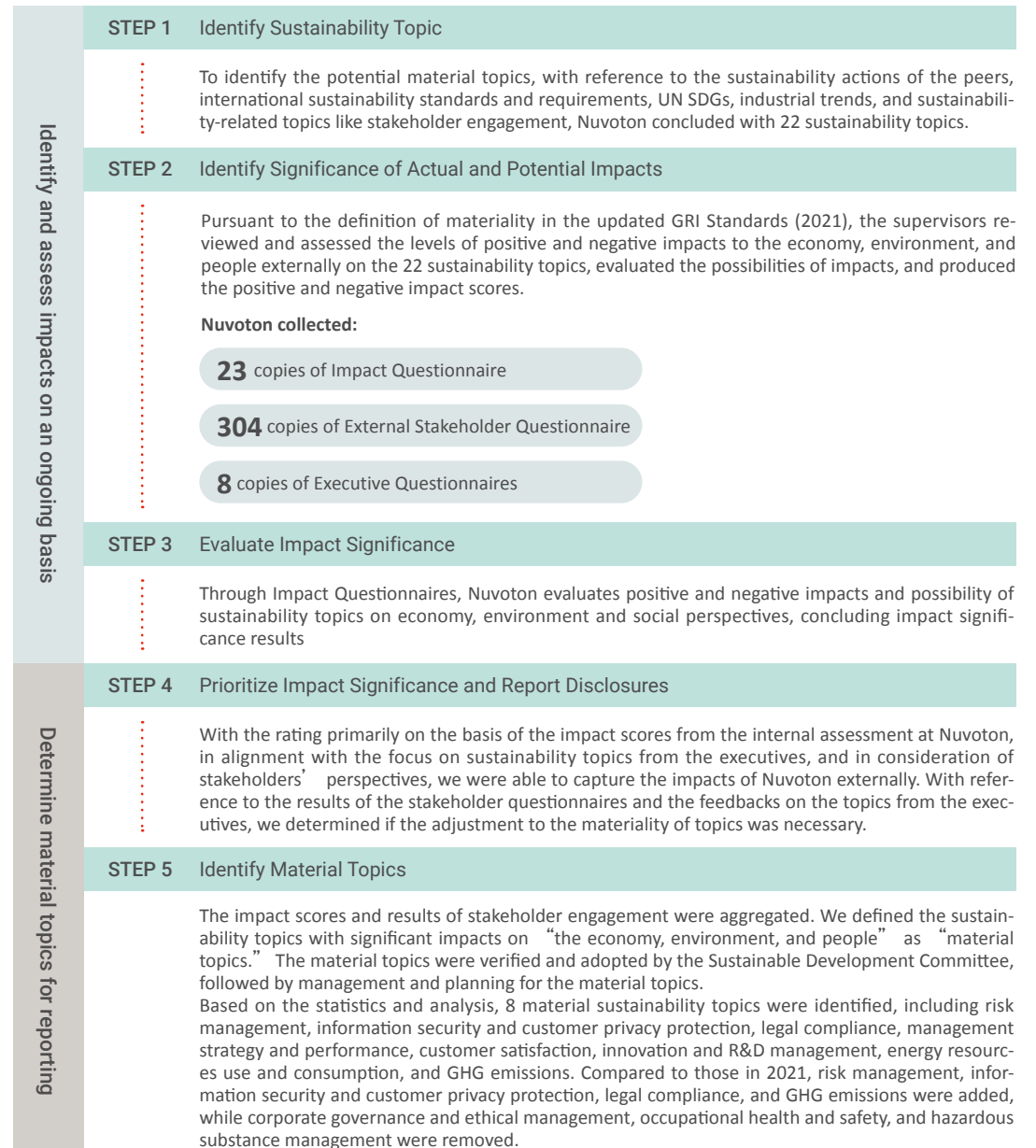
Appendix

# 3 Analysis and Management of Material Topics

To attain a sustainable development of the Company, Nuvoton assessed the global sustainability trend and collected the sustainability topics of stakeholders' concern, with reference to the GRI Standards and the Accountability Principles of AA1000, and identified the material topics in line with the principles of Inclusivity, Materiality, Responsiveness, and Impact. Also, pursuant to the Universal Standards (2021) GRI 3, all the operations and business relationships of the Company were assessed as well to determine the actual and potential impacts of the Company to the economy, environment, and people (human rights included) as the reference for the sustainable development strategies planning of Nuvoton.

As the highest governance body of the Company, the Board of Directors (the Board) exercises its responsibilities in accordance with the laws and regulations and the corporate bylaws, including appointment and supervision of the corporate management, oversight of the corporate operational performances, prevention of interest conflicts, exercise of duties in line with the resolutions adopted by the Shareholders' Meeting. In addition to the meetings convened quarterly and from time to time to stay abreast with the reports from the management and the financial performance, the Board of Directors at the Company also demands managers to present analyses and reviews for major discrepancies. Hence, it may update the business plan and the annual budget in a timely manner and strengthen the communication between the management and the Board. It is committed to elevation of information transparency into the corporate business. Meanwhile, the economic, environmental, and social issues in relation to corporate governance are delegated for management on different levels or directly delegated to relevant units when necessary, which are to be reported to the Chairman or the Board of Directors from time to time subject to the materiality of issues.

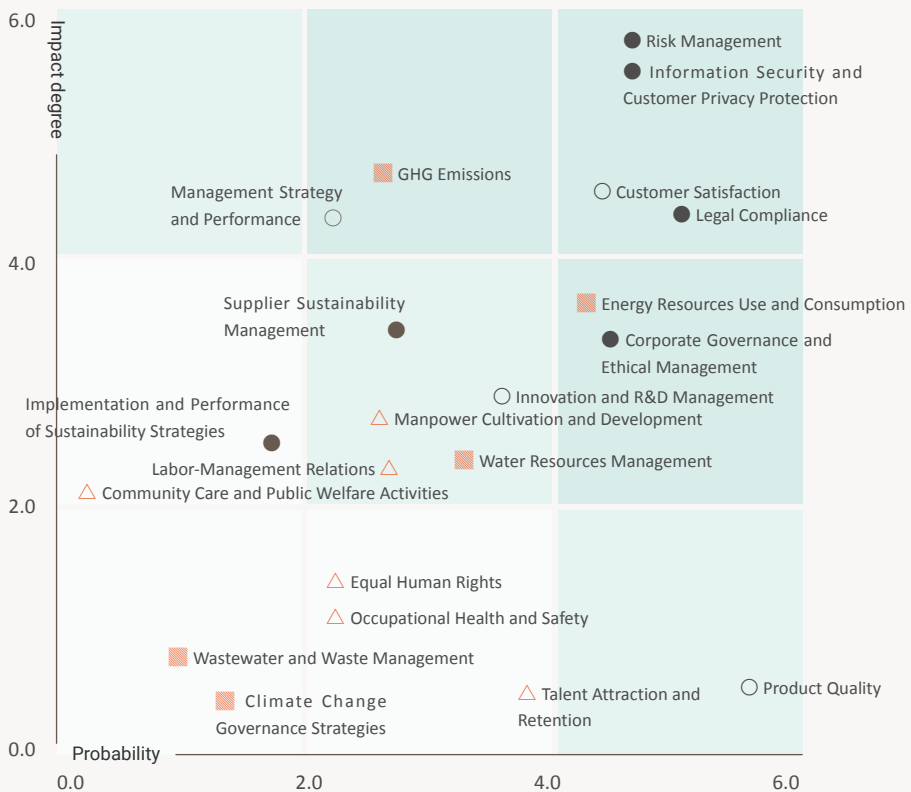
## Material Topic Identification Process



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**Positive Matrix**

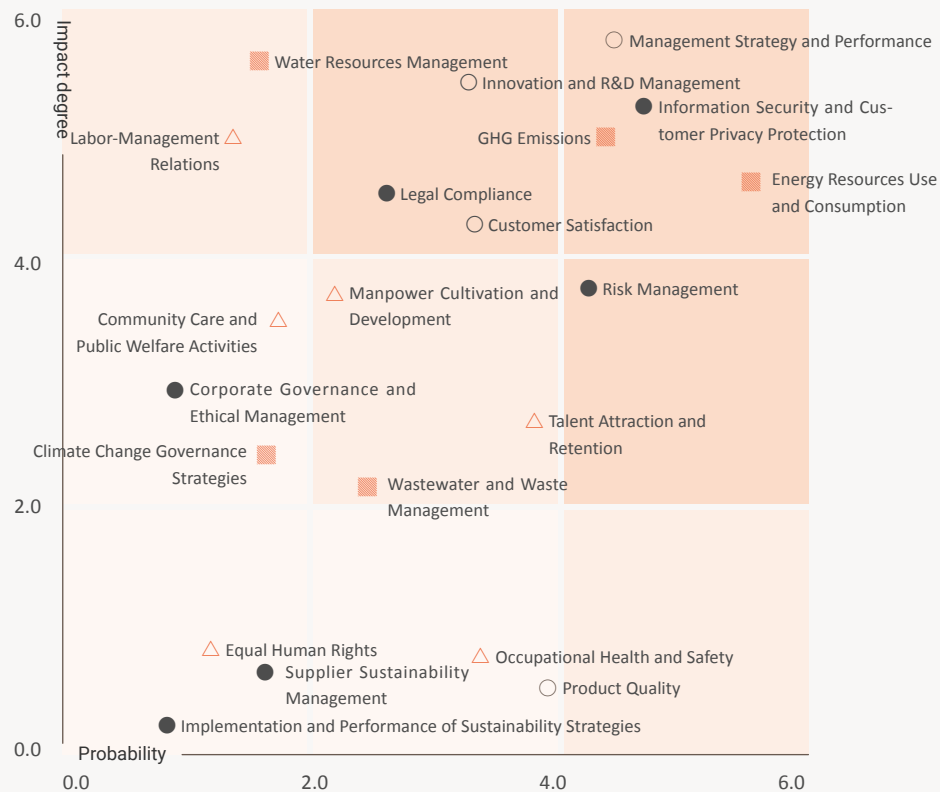


Positive Matrix: Demonstrates how a corporate evaluates sustainable topics when the topic is managed properly, the positive impacts and possibilities of the topics on external economy, environment and people (human rights included), e.g. with risk management properly handled, the corporate can manage operation risks, increase resilience, decrease potential impacts of economy losses, environmental pollution and human rights undermine.

- Governance**
- Corporate Governance and Ethical Management
  - Implementation and Performance of Sustainability Strategies
  - Risk Management
  - Information Security and Customer Privacy Protection
  - Supplier Sustainability Management
  - Legal Compliance

- Economy**
- Management Strategy and Performance
  - Product Quality
  - Customer Satisfaction
  - Innovation and R&D Management

**Negative Matrix**



Negative Matrix: Demonstrates how a corporate evaluates sustainable topics when the topic is managed well, the negative impacts and possibilities of the topics on external economy, environment and people (human rights included), e.g. with poor management strategy and performance, the corporate may lose opportunity making profits, negatively impacting internal and external economic profits and guarantee of employee rights.

- Environmental**
- Climate Change Governance Strategies
  - Energy Resources Use and Consumption
  - Water Resources Management
  - Wastewater and Waste Management
  - GHG Emissions
  - Air Pollution

- Social**
- Equal Human Rights
  - Talent Attraction and Retention
  - Manpower Cultivation and Development
  - Occupational Health and Safety
  - Labor-Management Relations
  - Community Care and Public Welfare Activities

Material Topics in Relation to Nuvoton Value Chain and Impacts to the Value Chain

Note: Actual positive impact ● ; actual negative impact ○  
potential positive impac ▲ ; potential negative impact △

	Material Topics	GRI Standards Aligned	Upstream	Nuvoton's Operation		Downstream	
			Suppliers(Raw materials/Equipment)	R&D and Design	Foundry Services	Packaging/ Testing	Customer Applications
Governance	Risk Management	Self-Defined Topics*	▲△	●○	●○	●○	●○
	Information Security and Customer Privacy	2 General Disclosures	▲△	●○	●○	●○	●○
	Legal Compliance	2 General Disclosures 205 Anti-Corruption 206 Anti-competitive Behavior	●○	●○	●○	●○	●○
Economy	Management Strategy and Performance	201 Economic Performance	●○	●○	●○	▲△	▲△
	Customer Satisfaction	Self-Defined Topics*	▲△	●○	●○	●○	●○
	Innovation and R&D Management	Self-Defined Topics*	▲△	●○	●○	●○	●○
Environment	Energy Resources Use and Consumption	302 Energy	▲△	▲△	●○	▲△	●○
	GHG Emissions	305 Emissions	●○	▲△	●○	▲△	●○

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Material Topic/Significance to Nuvoton/Impact Aspect

Material Topic	Significance to Nuvoton	Material Topic Aligned	Impact Aspect (Positive/Negative)	Impact Description (on economy, environment, and people (human rights included))		
Risk Management	Risk identification and adaptability improvement are the focuses in business management to seize the future development opportunities in order to realize the vision of sustainable development.	General Disclosures	<p><b>Positive:</b> Risk management enhancement; corporate resilience improvement</p> <p><b>Negative:</b> Loss from the negative corporate reputation</p>	<p><b>Economy:</b> Active response to customer needs, offering of best products and services with partners, and better competitiveness on the market</p>	<p><b>Environment:</b> Ongoing concern with the international trend and requirements on climate change and active disclosures on climate change responses</p>	<p><b>People:</b> Emphasis on talent cultivation with labor policies and human rights policies stipulated for rights of employees</p>
Information Security and Customer Privacy Protection	The significance lies in the warranty of a long-term steady corporate development and customer satisfaction as well as the protection of assets and reputation of the Company and customers.	General Disclosures	<p><b>Positive:</b></p> <ul style="list-style-type: none"> <li>Customer satisfaction improvement</li> <li>Creation of business values and reputation</li> <li>Compliance with information security and privacy laws and regulations to avoid penalties arising from violations</li> </ul> <p><b>Negative:</b></p> <ul style="list-style-type: none"> <li>Potential decrease in business efficiency</li> <li>Increased costs due to resources allocated to information security</li> <li>Potential impacts to customer experience from information security measures</li> <li>Information breach resulted from human errors, leading to security risks and loss</li> </ul>	<p><b>Economy:</b></p> <ul style="list-style-type: none"> <li>Better brand image and reputation for customers</li> <li>Further market share increase and exploration of new business opportunities</li> <li>Increased customer loyalty</li> <li>Avoidance of violation risks and legal liabilities to protect the corporate reputation and image</li> </ul>	<p><b>Environment:</b> Security maintenance and upgrade of information technology equipment to improve the efficiency and performance and lower energy consumption, promoting the development and application of green technology</p>	<p>People:</p> <ul style="list-style-type: none"> <li>Ensurance of no abuse, breach, and violation of personal information to protect the fundamental personal rights</li> <li>Ensurance of customer data from business advertisement or other illicit purposes to protect customer rights and human rights</li> <li>Positive impacts on the human rights aspect of the Company from information security and customer privacy protection enhancement, thus protecting the fundamental individual rights and corporate social responsibility as well as promoting the sustainable development of the Company</li> </ul>
Legal Compliance	Legal compliance is the most fundamental requirement to implement corporate governance and ethical management and protect stakeholders' rights. Regulation stipulation is not only to protect both parties but to gain trust of both parties.	General Disclosures; Anti-Corruption; Anti-competitive Behavior	<p><b>Positive:</b> Compliance with the relevant local laws and regulations</p> <p><b>Negative:</b> Fines for breach penalties, in addition to the potential impacts to corporate reputation, environment, and human rights arising from criminal liabilities</p>	<p><b>Economy:</b> Potential huge sum of penalties or damage to corporate image due to failure in complying with the laws or regulations pertaining to governance/economy</p>	<p><b>Environment:</b> Potential huge sum of penalties or irreversible environmental impacts arising from failure in complying with environmental laws or regulations</p>	<p><b>People:</b> Potential huge sum of penalties or damage to human rights arising from failure to comply with social-related laws or regulations</p>
Management Strategy and Performance	Ongoing energy conservation for environmental protection and value innovation are keys to the sustainable business and steady profit of the Company.	General Disclosures; Economic Performance	<p><b>Positive:</b> Formulation of complete short-, mid-, long-term business strategies and targets to effectively boost business performance and maintain market competitiveness</p> <p><b>Negative:</b> Failure to gain insights in market dynamics, losing business initiative, customers, and orders</p>	<p><b>Economy:</b> Collaboration with the academia on pilot R&amp;D and field practices to constantly maintain the momentum in AI R&amp;D</p>	<p><b>Environment:</b> Digital technologies introduced to energy conservation application and facility management</p>	<p><b>People:</b> Development of smart manufacturing applications to elevate work and production efficiency, process quality, and product yield rate</p>

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**Material Topic/Significance to Nuvoton/Impact Aspect**

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Material Topic	Significance to Nuvoton	Material Topic Aligned	Impact Aspect (Positive/Negative)	Impact Description (on economy, environment, and people (human rights included))		
Customer Satisfaction	Directions and goals for improvement are provided for improvement on customer satisfaction by the Company in order to substantively resolve issues of the Company.	General Disclosures	<p><b>Positive:</b> Provision of products and services in line with customer needs and expectations; establishment and maintenance of good interactions; improvement on customer loyalty</p> <p><b>Negative:</b> Inability to maintain long-term collaborative relationships arising from failure in capturing customer needs that undermines the competitiveness in customer service</p>	<p><b>Economy:</b> Business opportunities with customers gained and business performance improved</p>	<p><b>Environment:</b> NA</p>	<p><b>People:</b> An understanding of customer satisfaction and issues of concern so as to stipulate and execute corrective plans to raise customer satisfaction</p>
Innovation and R&D Management	The R&D and innovation capability makes the engine for the unceasing growth of the Company.	General Disclosures	<p><b>Positive:</b> Ongoing boosting of the corporate momentum in innovation and growth, offering of innovative products and services, and increasing market shares</p> <p><b>Negative:</b> Lowered market competitiveness arising from failure in maintaining advanced technologies and inability to provide innovative products or services in line with the market dynamics</p>	<p><b>Economy:</b> Realizing the notion of using innovation to share and create digital prosperity and symbiosis for the industry with the ideas of innovation, creativity, and entrepreneurship year after year</p>	<p><b>Environment:</b> Expansion and exploration applications with the environment and intelligence combined to facilitate an accelerated data integration and monitoring and lower impacts to the environment</p>	<p><b>People:</b> Encouragement to employees for them to contribute as much good creative ideas and awards to proposals selected and adopted, incentivizing proactive innovation by employees with strategies and actions on the ground</p>
Energy Resources Use and Consumption	Implementation of energy conservation and carbon reduction implemented shall continue to boost the energy use efficiency at the Company.	General Disclosures; Energy	<p><b>Positive:</b> Energy use efficiency of the Company improved; energy conservation and carbon reduction implemented</p> <p><b>Negative:</b> Increased operating costs and risk of business discontinuity arising from the improper management of energy resources consumption</p>	<p><b>Economy:</b> Establishment of environment management system to increase the use efficiency of energy resources via energy resources management implementation with planning, execution, and check</p>	<p><b>Environment:</b> Installation of PV system for energy conservation; elevation of the percentage of renewable energy use</p>	<p><b>People:</b> Strengthening the awareness of employees on environmental protection and energy conservation</p>
GHG Emissions	With the significant reduction of the indirect GHG emission intensity compared to the base year, the energy use efficiency is continuously improved at the Company.	General Disclosures; Emissions	<p><b>Positive:</b> Understanding of the GHG emissions from the Company, effective data management, and planning for the carbon reduction pathway and strategies for the future</p> <p><b>Negative:</b> Increased risks and expenditure from carbon tax levies in the future arising from failure in managing GHG emissions effectively</p>	<p><b>Economy:</b> Procurement of energy equipment in conformity to the low energy consumption standards or energy label of the Bureau of Energy, Ministry of Economic Affairs</p>	<p><b>Environment:</b> Conducting the organizational GHG inventory and planning of carbon reduction strategies</p>	<p><b>People:</b> Strengthening the awareness of employees on environmental protection and energy conservation</p>

Material Topics/Targets and Progress

	Material Topics	Policies/Commitments/ Responsibilities	Management Mechanism and Purposes	Targets and Progress in 2022	Short-, Mid-, and Long-term Goals	Goal/Resources/Action/ Grievance Mechanisms
<p>ABOUT THIS REPORT</p> <p>WORDS FROM THE EXECUTIVES</p> <p>EVOLUTION &amp; COMMUNICATION</p>	Risk Management	Reduce the negative impacts and loss arising from major risk incidents, protect the rights of stakeholders, and maintain the corporate image.	By implementing the risk management policy directions, reduce impacts to the operations of the Company and endeavor to turn risks into opportunities.	<p><b>Target(s) of the Year:</b> To assess risks related to corporate operations and report to the Board</p> <p><b>Progress(es):</b> The 2022 Target Risk Assessment completed and reported to the Board</p>	<ul style="list-style-type: none"> <li>Climate change-related risks to be included in the scope for corporate risk management (TCFD) and ongoing execution</li> <li>Report of risks to the Board at least once a year</li> <li>Audit units to present internal control audit results</li> </ul>	Regular assessment of the risks associated with corporate operations and the mitigation mechanisms, with mitigation measures executed by the responsible units, along with assessment of residual risks and verification of the effectiveness of relevant risk management to practically mitigate risks for the Company
<p>ETHICAL MANAGEMENT &amp; CORPORATE RESILIENCE</p> <p>GREEN PRODUCTS OF EXCELLENCE</p> <p>ENVIRONMENTAL SUSTAINABILITY PERFORMANCE MANAGEMENT</p>	Information Security and Customer Privacy Protection	Nuvoton is committed to the protection of the confidentiality, integrity, and availability of all physical and electronic information assets on the website to meet the regulatory, operational, and contractual requirements.	Stipulate policies, procedures, control measures and trainings. Ensure the protection of organization information and customer privacy.	<p><b>Target(s) of the Year:</b></p> <ul style="list-style-type: none"> <li>ISO/IEC 15408 Common Criteria Certification</li> <li>Information security training with a training completion rate &gt; 95%</li> </ul> <p><b>Progress(es):</b></p> <ul style="list-style-type: none"> <li>ISO/IEC 15408 Common Criteria Certified</li> <li>Information security training conducted over 97%</li> </ul>	To establish the Information Security Management System (ISMS) in accordance with ISO27001 and institute risk management and internal audit processes as well as improve information security and customer privacy protection via event monitoring, promotion, and drill exercises	<p>Protect the ISMS and the information system of the Company, identities, as well as the confidentiality, integrity, and availability of customer data.</p> <p><b>Resources</b></p> <ul style="list-style-type: none"> <li>Software: Information security software installed</li> <li>Hardware: Access control and monitoring systems</li> <li>Manpower: information technicians and dedicated information security supervisor</li> </ul> <p><b>Action</b></p> <p>Per the directions of the Company Protects the information security of the Company and clients, with comprehensive Regulations Governing the Reporting and Information security incident response procedures guidelines, Regulations Governing the Security and Maintenance Plan for the Protection of Personal Data Files</p>
<p>SAFE WORKPLACE &amp; TALENT CULTIVATION</p> <p>COPROSPERITY WITH SOCIETY AND LOCAL ENGAGEMENT</p>	Legal Compliance	Regularly conduct applicability identification and conformity check with the addition or amendment to the pertaining laws and regulations.	Regularly conduct regulatory checks to ensure a timely update of the applicable laws and regulations and management actions in accordance with the updated laws and regulations.	<p><b>Target(s) of the Year:</b> No significant breach of laws or regulations, corruption, or competitive behaviors</p> <p><b>Progress(es):</b> No significant breach of laws or regulations</p>	<ul style="list-style-type: none"> <li>Ongoing improvement of employees' awareness of legal compliance</li> <li>Legal compliance review via annual internal control and evaluation</li> </ul>	"Reporting Violations of Integrity Conduct Regulations" formulated to lay out the procedures to handle grievances over violations of ethical business practices at the Company
<p>Appendix</p>	Management Strategy and Performance	<ul style="list-style-type: none"> <li>Active global arrangement to raise the global presence of the Company</li> <li>Ongoing productivity elevation and cost reduction</li> <li>Development of market strategies and exploration of new markets to maintain leadership in the industry</li> </ul>	Stipulate comprehensive and forward-looking business strategies, enhance business performance of the Company, and take the responsibilities to shareholders.	<p><b>Target(s) of the Year:</b> Develop market strategies, explore new markets, and maintain business profits of the Company.</p> <p><b>Progress(es):</b> Record high revenue and profit achieved with an annual revenue of NT\$41.872 billion and a net income after tax of NT\$4.221 billion</p>	<ul style="list-style-type: none"> <li>Active global arrangement to raise the global presence of the Company</li> <li>Ongoing productivity elevation and cost reduction</li> <li>Development of market strategies and exploration of new markets to maintain leadership in the industry</li> </ul>	Ongoing creation of economic values via comprehensive corporate governance, rigorous risk control and management, and sound financial planning

Material Topics/Targets and Progress

	Material Topics	Policies/Commitments/Responsibilities	Management Mechanism and Purposes	Targets and Progress in 2022	Short-, Mid-, and Long-term Goals	Goal/Resources/Action/Grievance Mechanisms
<p>ABOUT THIS REPORT</p> <p>WORDS FROM THE EXECUTIVES</p>	Customer Satisfaction	Regular conduct customer satisfaction survey	Ceaselessly improve products and services provided by regular delivery of customer satisfaction survey, followed by measures corresponding to customer feedbacks and suggestions formulated to raise the satisfaction.	<p><b>Target(s) of the Year:</b> Satisfied in the Customer Satisfaction Survey <math>\geq</math> 90% (Total satisfaction <math>\geq</math> grade 4 of the overall customer number)</p> <p><b>Progress(es):</b> 92% Satisfied in the Customer Satisfaction Survey</p>	<ul style="list-style-type: none"> <li>Short-term goal (2023): 93%</li> <li>Long-term goal (2025): 95%</li> </ul>	Corrective plans formulated and proposed based on customer feedbacks as resources for adjustment to ceaselessly improve on satisfaction
EVOLUTION & COMMUNICATION	Innovation and R&D Management	Regularly disclose the R&D expenditures and the number of patents acquired.	Maintain the leadership of the Company in the industry by implementing innovation and R&D management and continue to supply products of cutting-edge technology to customers.	<p><b>Target(s) of the Year:</b> Develop product innovation and research and development.</p> <p><b>Progress(es):</b></p> <ul style="list-style-type: none"> <li>15-20% IC size reduction and 20-30% power consumption reduction achieved with the microcontroller process low in power consumption and leakage compared to the ICs of prior generation</li> <li>Key component development results of “high performance, high integration, and low power consumption” achieved for the power management IC manufacturing process</li> </ul>	Ongoing development of product innovation and R&D and of eco-friendly products; enrichment of human life using technology, improvement of products’ execution efficiency and reduction of power consumed in execution, and support to the world on the path to sustainability with advanced technological R&D	<ul style="list-style-type: none"> <li>Ongoing investment of R&amp;D budgets and recruitment of R&amp;D talent to expand the innovation and R&amp;D capacity</li> <li>Provision of incentives for anyone with new inventions, proposal adoption, patent application, and certification obtainment</li> </ul>
ETHICAL MANAGEMENT & CORPORATE RESILIENCE						
GREEN PRODUCTS OF EXCELLENCE						
ENVIRONMENTAL SUSTAINABILITY PERFORMANCE MANAGEMENT						
SAFE WORKPLACE & TALENT CULTIVATION	Energy Resources Use and Consumption	Stipulate the policies governing energy management.	Promote and analyze the significance of energy consumption management to the Company and strengthen the operation resilience of the Company in the face of climate change risks.	<p><b>Target(s) of the Year:</b> A 15% reduction in power consumption compared to the base year (2010)</p> <p><b>Progress(es):</b> A 16% reduction in the total power consumption achieved compared to the base year (2010)</p>	Ongoing annual power consumption reduction by 1%	<ul style="list-style-type: none"> <li>Installation of green energy equipment</li> <li>Installation of energy management system</li> <li>Adoption of energy-efficient equipment for equipment replacement</li> </ul>
COPROSPERITY WITH SOCIETY AND LOCAL ENGAGEMENT	GHG Emissions	For an effective compliance and response to climate change actions and mitigations, set carbon reduction targets in alignment with international standards and comprehensively take climate change mitigation actions.	Unceasingly cut the GHG emissions in line with the environment, health, and safety policies of the Company and through process optimization and participation of all employees.	<p><b>Target(s) of the Year:</b> Execute energy conservation and carbon reduction projects to unceasingly cut the GHG emissions by 3% compared to the 2021 levels.</p> <p><b>Progress(es):</b> The GHG emissions reduced by 3.1% compared to the 2021 levels</p>	<ul style="list-style-type: none"> <li>Short-term: Complete solar power equipment installation to 8% of installed contractual capacity</li> <li>Mid-term: Install process gas treatment equipment to reduce the emission of fluorine-containing gases by 60% compared to the 2010 level by 2030</li> <li>Long-term: Net-Zero by 2050 as the long-term emissions reduction goal</li> </ul>	Procuring equipment of energy conservation and carbon reduction to reduce GHG emissions
Appendix						

# 4. Sustainable Development Strategies and Performances

Nuvoton upholds the spirit of “Be a hidden champion in providing sustainable semiconductors to enrich human life,” committed to driving the environmental, social, and governance (ESG) performances. Meanwhile, it takes the Sustainable Development Goals (SDGs) released by the United Nations into account for its operational strategies. Tapping into the core competences and resources, Nuvoton endeavors to stand side by side with the world and strives to create a more sustainable future together.

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- Two major water conservation strategies, source reduction first and recycling at the back end, were proposed. For the source, the cleaning flow rate is optimized for process water, and the water change frequency is adjusted. For the back-end reclamation, the reclaimed water from the system is used as secondary water.
- The total use of municipal water (reclaimed water included) by Nuvoton in 2022 was approximately 768.042 million liters with a water use per product of approximately 40.1 liters/layer-wafer mask or 4.01 liters/cm<sup>2</sup>-wafer. The amount of water reclaimed throughout the plant was 518.25 million liters with a total reclamation rate across the plant at 67.5%.



Nuvoton is committed to designing green products with low toxicity, low carbon, and low energy consumption, ensuring that the products we design, manufacture, and sell meet or exceed the international environmental regulations for products. Also, it requires the upstream raw material suppliers and downstream packaging and testing vendors to working together to reduce the myriad of impacts from their products on the environment.



- Two climate change targets were proposed, i.e. complete the installation of PV equipment to 8% of the contract capacity in three years, with an annual output of 880,000 kWh, and install process gas treatment equipment. It is projected to reduce the Scope 1 GHG emissions by 20% in 2023 (compared to the 2022 levels).
- The GHG emissions per product in 2022 was 0.719 kg of CO<sub>2</sub>e/cm<sup>2</sup> of wafer, reduced by 31.72% compared to the base year level (2010).



- Both the consolidated revenue and profit hit the new record high in 2022, with a consolidated revenue of NT\$41.872 billion, a net income after tax of NT\$4.221 billion, and the earnings per share of NT\$10.06.
- The employment of all personnel is conducted via open selection in compliance with the provision of non-discrimination in the Employment Service Act.
- Regardless of any factors, all employees (regardless of gender, ethnicity, disabilities, etc.) are entitled to fair and equitable remuneration and promotion opportunities.

Towards Net Zero by 2050, committed to reducing environmental impact



Upholding the philosophy of giving back to the society, we continue to invest in the society, caring for the studies and growth of students in rural areas and children in poverty. In 2022, Nuvoton helped Renai Children’s Home in Hsinchu, assisted in community development, and donated 25,200 medical masks to the NTUH Hsin-Chu Branch to protect the medical staff and the patients, so as to exercise its corporate social responsibility.



- Nuvoton stresses on innovation and R&D, ceaselessly improving processes and technology. Take the next-generation low-power microcontroller, the M251 series, for example, through improvement to product power consumption and selection of the process of low power consumption and low leakage, it saves 15-20% in IC size and reduces the power consumption in running by 20-30% compared to the prior generation of low-power microcontroller, offering the advantages of power conservation and miniaturization of IC.
- In 2022, the number of patent applications filed by Nuvoton globally were >340. As of 2022, the number of patents granted worldwide hit 1,533.



- The professional code of ethics has been stipulated to demand 100% all employees of Nuvoton to abide by the highest ethical standard and comply with the laws and regulations for any violations.
- All employees (new employees included) are required to complete the courses on Social Responsibility Code of Conduct and Ethical Management, with the rate of completion for training at 100%.
- Nuvoton is committed to 100% non-use of “conflict minerals” and requires suppliers to follow suit.



- Monthly childcare subsidy for children aged 0-4 is available. Each employee is entitled to application per childbirth, totaled up to NT\$240,000 in 4 years. A total of 207 individuals applied, with approximately NT\$11.35 million disbursed, in 2021-2022.
- For workers in areas with chemical exposure, chemical sampling and testing is carried out. All the results of chemical substances monitored in the workplace were lower than the allowable concentrations for occupational exposure in 2022.

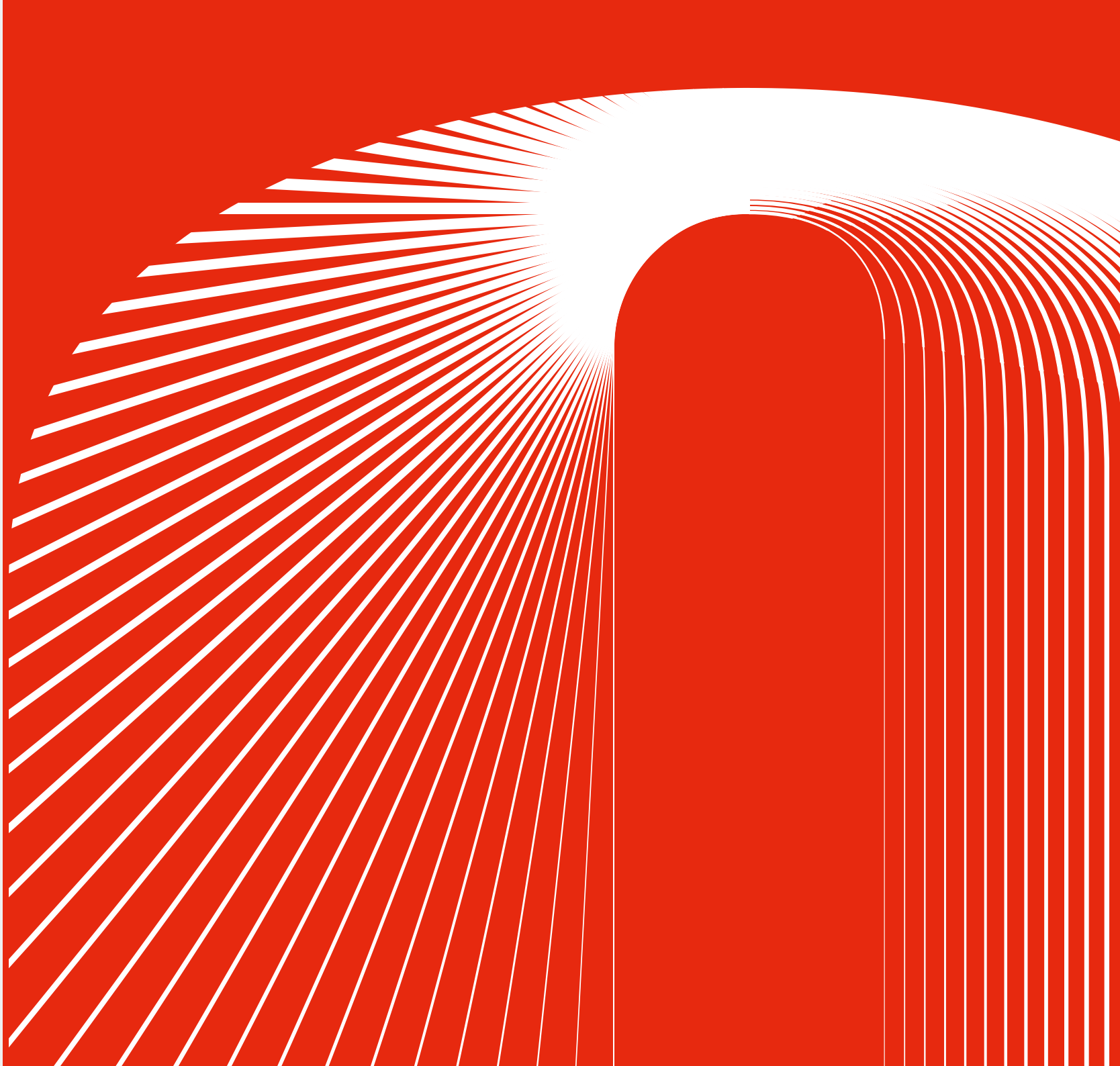


- With the establishment of a learning organization as the starting point, three diversified learning approaches and strategies (learning via hands-on work, learning in class, and learning by mentorship by others) were proposed. In 2022, employee trainings were delivered to 30,355 trainees in 39,397 hours in total, with the average training hours per employee of 25.42 hours.
- To cultivate cutting-edge talents in IC design, a scholarship program was launched in 2022 for outstanding students in master program to receive a monthly grant of NT\$30,000. A total of NT\$180,000 was funded in 2022.

## **Ethical Management & Corporate Resilience**

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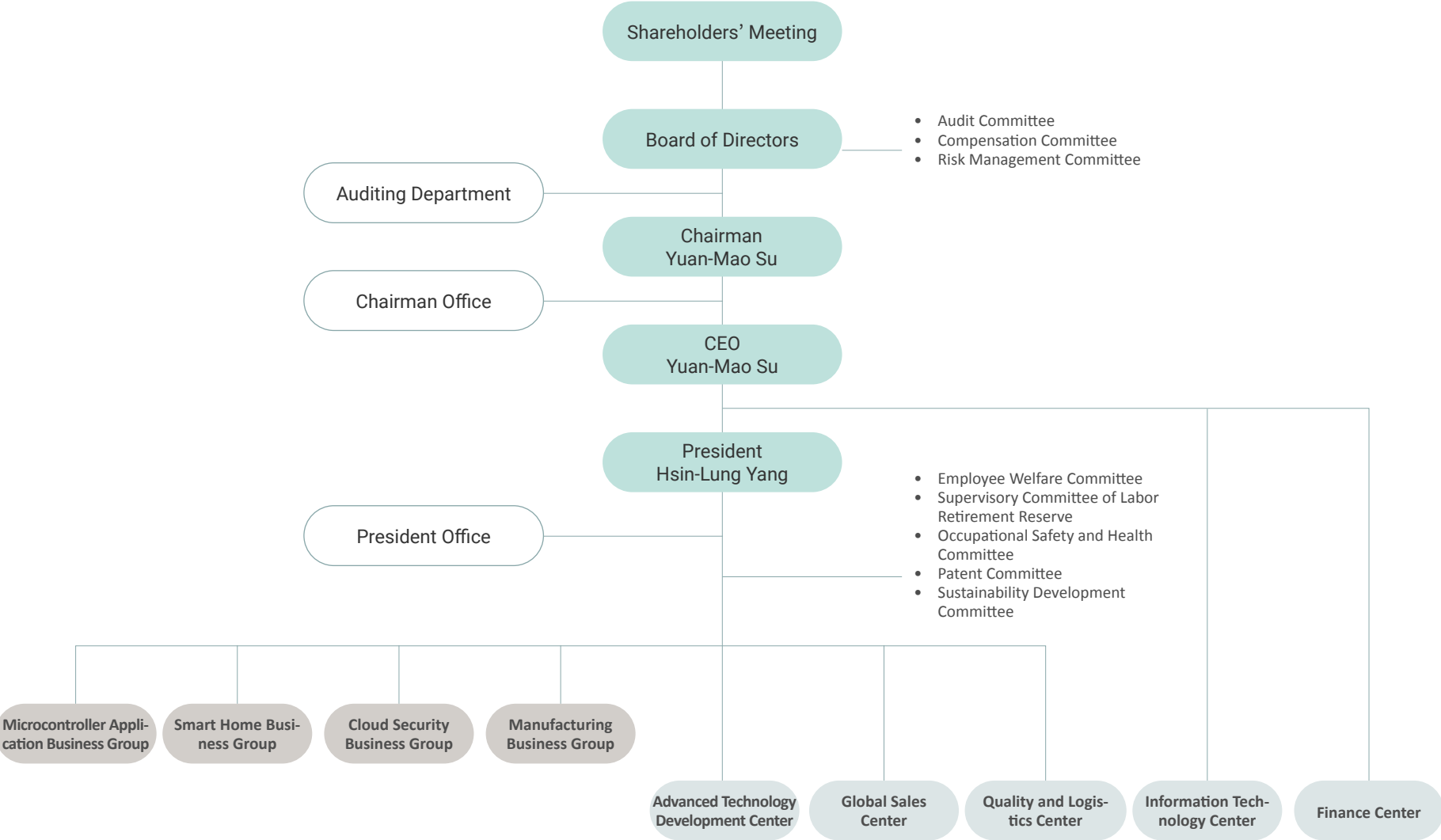
# 02





# 1. Organization Structure

The Board of Directors (Board) is the highest authority in Nuvoton, executing and overseeing various businesses at the Company through the Board led by the Chairman. The Chairman is concurrently the CEO of the Company. The President is a professional manager, who is not a member on the Board. The reason for the Chairman being the CEO is mainly to elevate the organizational operation performance and further shareholders' interest so as to attain the target vision of sustainable business of the Company. As to the avoidance and mitigation of relevant interest conflict, please refer to [P.57 of 2022 Annual Report](#) for details. The organizational structure at Nuvoton is mainly four Business Groups and five Centers, along with committees of various functions, to engage in different works and business promotion.



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EVOLUTION & COMMUNICATION

ETHICAL MANAGEMENT & CORPORATE RESILIENCE

GREEN PRODUCTS OF EXCELLENCE

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SAFE WORKPLACE & TALENT CULTIVATION

COPROSPERITY WITH SOCIETY AND LOCAL ENGAGEMENT

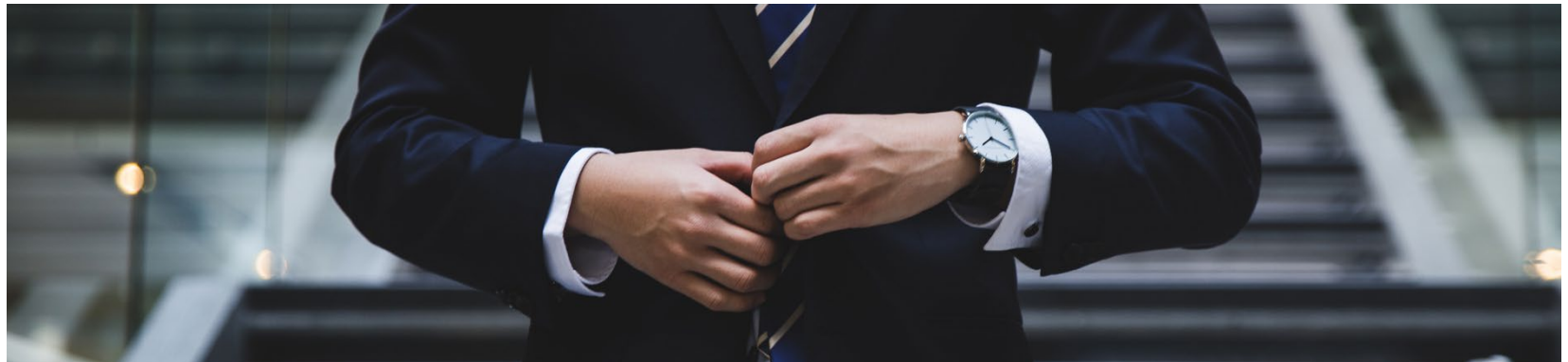
Appendix

The Board of Directors is the highest governance body of Nuvoton, performing relevant responsibilities in accordance with the laws and regulations of the government and the corporate bylaws, including appointment and supervision of the corporate management, oversight of the corporate operational performances, prevention of interest conflicts, exercise of duties in line with the resolutions adopted by the Shareholders' Meeting.

The 7th Board of Directors consists of 11 directors, including 4 independent directors and 1 female director. The directors that are not the managers or employees of the Company account for two thirds or more of the seats on the Board. There are 2 directors with a spousal relationship or a familial relationship within the second degree of kinship, accounting for less than half of the seats on the Board in alignment with Article 26-3 of the Securities and Exchange Act. The members on the Board of Directors are seasoned with business experiences in the industry and has a wide distribution in age as well as academic knowledge and professional experiences of various areas. Equipped with competences necessary for the seats on the Board, the directors are capable of supervision and provision of constructive opinions and strategies. Institutional Directors, Winbond Electronics Corporation and Chin Xin Investment Co., Ltd., are the major shareholders of the Company. Winbond Electronics Corporation is the parent company of the Company and the majority shareholder with over half of the shares as a director thereof to date.

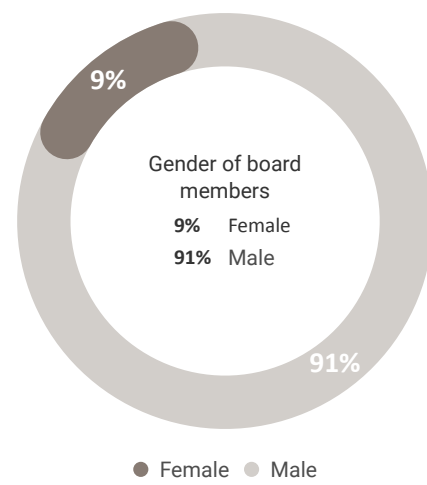
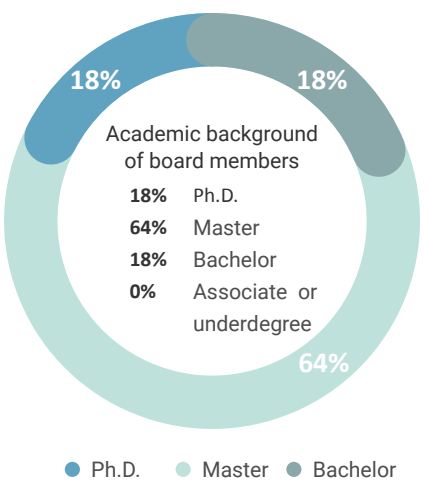
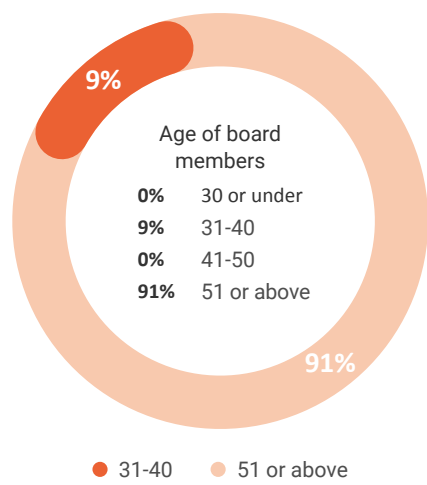
The structure of the Board of Directors is defined in the Corporate Governance Best-Practice Principles of Nuvoton, with the corporate business development scale, shares held by major shareholders, and board diversity, such as professional background, gender, field of work, etc., factored in. Professionals with backgrounds in finance or industrial experiences sit on the Board of Directors of Nuvoton. The academic and work backgrounds of the directors are beneficial to the corporate governance and sustainable development of the Company. Please refer to the [2022 Annual Report](#) of the Company for more information on diversity.

To improve on supervision and management, the Audit Committee, Compensation Committee, and Risk Management Committee are instituted under the Board of Directors of Nuvoton in line with the respective authorities and functions, so as to strengthen the framework of corporate governance. The functional committees are made of and participated by independent directors to render objective and impartial decisions and recommendations, effectively exercise the mechanism of independent supervision and checks and balances, and ensure the resolutions and actions of the Board of Directors. All proposals have been submitted, presented, and deliberated on the Board meetings. Where the interest of a director or the institution he/she represents is involved, the director is liable to recusal. Some proposals were even submitted to Shareholders' Meeting for presentation and deliberation in line with the best interests of stakeholders.



Title	Name	Gender	Core Items of Board Diversity				
			Business management	Leadership and decision-making	Knowledge of the industry	Finance and accounting	Information Technology
Chairman	Representative of Winbond Electronics Corp.: Yuan-Mou SU	M	●	●	●	●	●
Deputy Chairwoman	Karen K CHIAO	F	●	●	●	●	
Director	Arthur Yu-Cheng CHIAO	M	●	●	●	●	●
	Representative of Chin Xin Investment Co., Ltd.: Jen-Lieh LIN	M		●	●		●
	Chi-Lin WEA	M	●	●	●	●	●
	Royce Yu-Chun HONG	M	●	●	●	●	●
	Liang-Gee CHEN	M		●	●		●
Independent Director	Mark WEI	M	●	●	●	●	
	David Shu-Chyuan TU	M	●	●	●		●
	Allen HSU	M	●	●	●	●	
	Kuang-Chung CHEN	M	●	●	●	●	●

**Diversity of the Board**



## Audit Committee

The Audit Committee is composed of 4 independent directors, tasked with the primary responsibilities of assisting the Board in the performance of oversight of the Company's quality and integrity in the execution of accounting, auditing, financial reporting processes, and financial controls. In respect to external investors, it represents the supervision and independence at the Company, which effectively protects the rights and interests of investors.

The directors on the 7th Board of Directors were produced through the reelection on the Regular Meeting of Shareholders of Nuvoton on June 2, 2022. The 3rd Audit Committee assumed the responsibilities on the same date. The Audit Committee convened 7 meetings in 2022, of which 4 were before, and 3 were after, the reelection. The attendance (voting and non-voting) of the members on the Audit Committee was as follows:

## Compensation Committee

The Compensation Committee of Nuvoton is responsible for the formulation and review of the performance evaluations and the policies, systems, standards, and structures of remuneration of directors and managers as well as the respective remuneration. Also, Evaluation Measure for Directors/Managers' Remuneration and Board Performance are promulgated respectively to allow the Board of Directors to render the best long-term benefits possible, offer competitive remuneration as a whole, and improve business performances. The ratio of annual total compensation for the highest-paid individual at Nuvoton to the median annual total compensation for all employees\* (excluding the highest-paid individual) is approximately 22.9. The ratio of the percentage increase in annual total compensation for the highest-paid individual at Nuvoton to the median percentage increase in annual total compensation for all employees\* (excluding the highest-paid individual) is approximately 1.2.

The Compensation Committee of Nuvoton comprises 4 independent directors, responsible for the formulation and review of the annual and long-term performance targets of directors and managers as well as the policies, systems, standards, and structures of remuneration thereof. Meanwhile, it evaluates the achievement of performance targets of the directors and managers of the Company on a regular basis and stipulates the content and amount of their respective compensations. The Compensation Committee convened 4 meetings in 2022 (2 of which by the 4th Compensation Committee and 2 by the 5th). The committee attendance was as follows:



Audit Committee Charter



Compensation Committee Charter

### Members on the Audit Committee

Note: Attendance in person is calculated by attendance in person of the Independent Director in the duration of service.

Title	Name	Attendance in person	Attendance by proxy	Rate of attendance in person (%) (Note)	Remark
Independent Director	Allen HSU	7	0	100%	Reelected
Independent Director	Royce Yu-Chun HONG	4	0	100%	Relieved
Independent Director	David Shu-Chyuan TU	7	0	100%	Reelected
Independent Director	Jerry Hsu	4	0	100%	Relieved
Independent Director	Mark WEI	3	0	100%	Newly-elected
Independent Director	Kuang-Chung CHEN	3	0	100%	Newly-elected

### Members on the Compensation Committee

Note: Calculated with the number of attendances in person of the member divided by the number of meetings convened during the tenure of the member on the Compensation Committee.

Title	Name	Attendance in person	Attendance by proxy	Rate of attendance in person (%) (Note)	Remark
Convener	David Shu-Chyuan TU	4	0	100%	Reelected; 4 attendances required during tenure
Member	Mark WEI	2	0	100%	Newly-elected; 2 attendances required during tenure
Member	Allen HSU	4	0	100%	Reelected; 4 attendances required during tenure
Member	Kuang-Chung CHEN	2	0	100%	Newly-elected; 2 attendances required during tenure
Member	Royce Yu-Chun HONG	2	0	100%	Relieved; 2 attendances required during tenure
Member	Jerry Hsu	2	0	100%	Relieved; 2 attendances required during tenure

### Board Effectiveness

For implementation of corporate governance and improvement of Board of Directors’ functions, "Rules for Remuneration and Performance Evaluation of Directors" is enacted at Nuvoton to strengthen the works of performance evaluation. Starting from December 2017, the self-evaluation of directors has been conducted on a yearly basis in respect to Board operations, individual participation, personal development, and so on. The evaluation results are aggregated by the secretariat of the Board of Directors and presented to the Compensation Committee and the Board of Directors to assess the Board’s performance in steering the strategic directions of sustainable development and overseeing the Company’s operation and management so as to further the long-term values for the shareholders. Nuvoton has completed the annual evaluation in 2022, which was submitted to the Board on March 7, 2023. The external performance evaluation shall be carried by a third-party institution under commission in 2023. Internal self-evaluation: The Board performance evaluation is conducted regularly at least once a year, in which self-evaluation is conducted regarding the overall Board effectiveness, performances of Board members, and performances of functional committees’ operations. The relevant evaluation results are aggregated by the secretariat of the Board of Directors and submitted to the Compensation Committee and Board of Directors, serving as the basis for the formulation of the Board effectiveness improvement plan of the coming year to ongoingly strengthen the governance performance of the Company. The performance evaluation of the Board of Directors and the functional committees in 2022 were completed. All the results aggregated indicated that “the Board of Directors and the functional committees thereunder operated well.”

Evaluation by the independent, external institution: an independent, external professional institution will conduct the performance evaluation at least once every three years. The Chairman, directors and independent directors, convenors of functional committees, and the secretariat are interviewed in person. The evaluation result will be submitted to the Board of Directors. Scheduled to conduct an external evaluation in 2023, a third-party institution is commissioned by the Company to carry out the external performance evaluation.

### Board Evaluation Results

Performance Evaluation Category	Evaluation Cycle	Evaluation Period	Evaluation Scope	Evaluation Approaches	Evaluation Description	Average Score of the Aspects
Board of Directors	Once a year	January 1, 2022 to December 31, 2022	Board of Directors	<ul style="list-style-type: none"> <li>Internal Self-Evaluation of the Board</li> <li>Board Member Self-Evaluation</li> <li>Peer Evaluation</li> </ul>	The overall performance covered in the self-evaluation of the Board of Directors of the Company are five aspects as follows: 1. Involvement in the operations of the Company 2. Improvement of the decision-making quality of the Board of Directors 3. Composition and structure of the Board of Directors 4. Election and continuing development of directors 5. Internal control	The average score of the aspects in the performance evaluation of the Board of Directors is 97.5.
Individual Board Members			All members on the Board	<ul style="list-style-type: none"> <li>Board Member Self-Evaluation</li> <li>Peer Evaluation</li> </ul>	The performance evaluation of the members on the Board of Directors covers six aspects as follows: 1. Command of the goals and missions of the Company 2. Awareness of the duties and responsibilities of directors 3. Involvement in the operations of the Company 4. Internal relationship management and communication 5. Professional and continuing development of directors 6. Internal Control	The average score of the aspects in the performance evaluation of individual Board members is 97.3.
Functional Committees			<ul style="list-style-type: none"> <li>Audit Committee</li> <li>Compensation Committee</li> </ul>	<ul style="list-style-type: none"> <li>Internal Self-Evaluation of the Board</li> <li>Board Member Self-Evaluation</li> <li>Peer Evaluation</li> </ul>	The overall performance covered in the self-evaluation of the Board of Directors of the Company are five aspects as follows: 1. Involvement in the operations of the Company 2. Awareness of the duties and responsibilities of functional committees 3. Decision-making quality of functional committees 4. Functional committees' composition and member selection 5. Internal control	The average score of the aspects in the performance evaluation of the Functional Committees is 99.6.

## Risk Management Committee

The Risk Management Committee was set up at Nuvoton upon approval by the Board of Directors on August 2, 2022. Responsible for the overall risk management of the Company, the committee formulates the risk management policies and structure, establishes the qualitative and quantitative management standards, as well as makes changes in line with the actual develop needs of the Company or changes in the objective environment. The Risk Management Committee consists of the Chairman, several directors, and personnel appointed by the Chairman, among whom at least two members shall be the independent directors of the Company. One member is to be elected by and from all the members as the convenor and chair of the committee as well as the representative of the committee externally. The Risk Management Committee convenes at least twice a year in principle, which can be adjusted from time to time if necessary. A total of 1 meeting was convened in 2022.



Risk Management Committee Charter

### Members on the Risk Management Committee

Title	Name	Attendance required	Attendance in person	Attendance by proxy	Rate of attendance in person (%)
Chairman	Yuan-Mou SU (Convenor)	1	1	0	100
Director	Liang-Gee CHEN	1	1	0	100
Independent Director	Mark WEI	1	1	0	100
Independent Director	David Shu-Chyuan TU	1	1	0	100
Independent Director	Allen HSU	1	1	0	100
Independent Director	Kuang-Chung CHEN	1	1	0	100



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- Appendix

## Board Operation

Pursuant to the “Procedures for Election of Directors” and “Corporate Governance Best-Practice Principles” of the Company, the candidate nomination system is in force at Nuvoton to select members of diversity, sustainability, as well as capacities in relation with organizational impact and discharge of duties for the Board in a public and transparent manner for the benefit in corporate business decision-making and mid-to-long-term strategic planning. The latest reelection took place on June 2, 2022, which produced the members for the 7th (2022-2025) Board of Directors. Aside from maintaining the major shareholders, the involvement of female and independent directors is to include elites across generations and various field of expertise. Based on the result of reelection on the Regular Meeting of Shareholders in 2022, the policy of board diversity and goal of sustainable development are achieved. Please refer to the corporate website for relevant election procedures and regulations.

In addition to the quarterly meetings and the meetings called from time to time, the Board of Directors at Nuvoton convenes a strategic meeting on a quarterly basis as well for the report by the management regarding the operational and financial performances. In the event of significant discrepancies, managers are urged to present analysis and review for a timely update of business plan and annual budget. The communication between the management and the Board of Directors is strengthened. The Board is committed to the improvement of information transparency into the corporate business. Also, the sustainability issues with respect to economy, environment, and people (human rights included) pertaining to corporate governance are delegated for management on different levels or assigned directly to relevant units if necessary, which are reported to the Chairman or the Board of Directors from time to time subject to the materiality of issues. (Major resolutions adopted by the Board of Directors in 2022)

The dedicated investor relations unit responds to the calls or mails from investors from time to time. Also, the promotion and imple-

mentation of sustainable development in respect to stakeholders in 2021 have been submitted and reported to the Board of Directors in November 2022. Nuvoton concerns itself with sustainable business topics and engages mutual communication with stakeholders via channels in variety to capture the material topics of stakeholders’ concern.

With reference to AA1000 Stakeholder Engagement Standard (AA1000 SES), Nuvoton undertakes identification of stakeholders and material topics so as to capture the issues of economy, environment, and people (human rights included) of stakeholders’ concern and respond to the demands and expectations of stakeholders. The relevant stakeholders encompass six groups, i.e. employees, customers, suppliers, shareholders/investors, government agencies, and local communities. Meanwhile, diverse and public communication channels have been established to respond to the suggestions from stakeholders in a timely fashion. After communication with stakeholders and negotiation with relevant units, the responsible units shall follow up as to the materiality of issues before presentation to the Board of Directors.

In addition to the diverse and public communication channels established by the Company (e.g. customer section, juristic persons/ shareholders section, suppliers section, etc.), the ESG Mailbox (csr@nuvoton.com) is also available.

## Protection of Shareholders Rights and Interests

The Board of Directors is established at Nuvoton in accordance with the laws, with directors and independent directors collective responsible for the corporate governance and business strategies. While protecting the interests of shareholders, the Board of Directors adopts the protection of the interests of employees, customers, suppliers, government, and NGOs as the guiding principle.



Investor Conference



Shareholder Information

The Board of Directors of Nuvoton duly provides guidelines on various aspects of sustainability management and recommendations on the long-term sustainable development directions in the promotion of ESG and sustainable development and presentation of how to reconcile the rights and interests of stakeholders each year. The dedicated investor relations unit responds to the calls or mails from investors from time to time. Also, the promotion and implementation of corporate sustainability in respect to stakeholders in 2021 have been submitted and reported to the Board of Directors in November 2022.

The Board of Directors convenes a strategic meeting on a quarterly basis to review the corporate business performances, discuss important strategic issues and significant/critical incidents, including impacts, risks, and opportunities in terms of economy, environment, and people (human rights included). The meeting determines the responsible units for the management that after, with the progress thereof tracked on an ongoing basis. Prior to provision of proposals and report materials to Board members, the secretariat of the Board will examine the contents of presentation for any involvement of parties of interest that a recusal is duly required and give a reminder to the corresponding parties in advance.

Mr. Kun-Lung Chen is appointed as the Corporate Governance Officer by the Board of Directors of Nuvoton, responsible for the arrangement of time and agenda of Board meetings, planning of director development, provision of information in or out of Board meetings, reporting of director information regularly and irregularly, etc. The Corporate Governance Officer ought to appropriately shoulder the due responsibilities for the works of issues related to the Board of Directors and corporate governance.

Nuvoton regularly arranges professional development courses for directors on economic, environmental, and social issues related to the operations each year in order to support directors to improve various functions. For the continuing professional development (CBD) of directors, the Company sends materials and course information of economic, environmental, and social issues related to the Board of Directors from time to time.

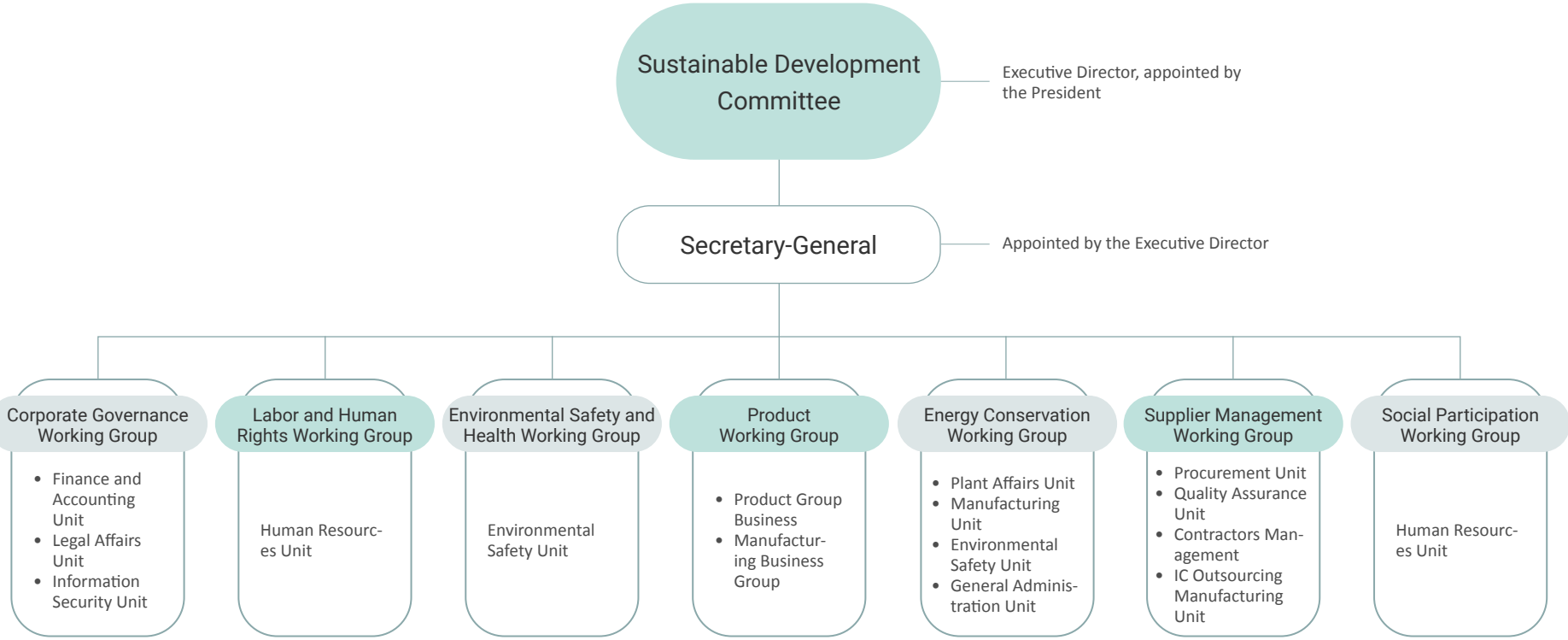
Title	Name	Gender	Main Job	Attendance on Board Meetings	Professional development courses in 2022
Chairman	Yuan-Mou SU	M	Director, Winbond Electronics Corp.	100% (8/8) in 2022	<ol style="list-style-type: none"> <li>1. Analysis of the Global Political and Economic Landscapes in 2023; Solution for Enterprises to Move towards Net Zero: Natural Carbon Sinks and Carbon Trading (4 hrs)</li> <li>2. 2022 Legal Compliance Promotion Session on Insider Equity Transactions (3 hrs)</li> </ol>
Deputy Chairwoman	Karen K CHIAO	F	Director and President, Callisto Holding Limited	100% (4/4, one proxy included) in 2022	<ol style="list-style-type: none"> <li>1. Opportunities of AI Development from the Perspective of Software/Hardware Integration; Digital Marketing Trend: Web3 + ESG (3 hrs)</li> <li>2. Rafting on the Long River of History of "Carbon" – a Brief Introduction to the Biology of "Carbon Footprint" (1.5 hrs)</li> </ol>
Director	Arthur Yu-Cheng CHIAO	M	Chairman and CEO, Winbond Electronics Corp.	100% (8/8) in 2022	<ol style="list-style-type: none"> <li>1. Analysis of the Global Political and Economic Landscapes in 2023; Solution for Enterprises to Move towards Net Zero: Natural Carbon Sinks and Carbon Trading (4 hrs)</li> <li>2. Opportunities of AI Development from the Perspective of Software/Hardware Integration; Digital Marketing Trend: Web3 + ESG (3 hrs)</li> <li>3. Rafting on the Long River of History of "Carbon" – a Brief Introduction to the Biology of "Carbon Footprint" (1.5 hrs)</li> <li>4. 2022 Research and Prospects of Important Economic and Trade Issues (3 hrs)</li> <li>5. From Deep Learning to Practical AI Application (3 hrs)</li> </ol>



Title	Name	Gender	Main Job	Attendance on Board Meetings	Professional development courses in 2022
Director	Chi-Lin WEA	M	Chairman, IBF Financial Holdings Co., Ltd.	100% (8/8) in 2022	<ol style="list-style-type: none"> <li>1. Corporate Ethical Management and Money Laundering Prevention (3 hrs)</li> <li>2. Corporate Carbon Thinking from the View of ESG Development Trend (1.5 hrs)</li> <li>3. International Anti-Tax Avoidance Regulations (1.5 hrs)</li> <li>4. Net-Zero Trend: Observations on ESG Decision-Making Practices of the Board of Directors (3 hrs)</li> <li>5. Information Security Governance Path under the Challenge of Legal Compliance (1.5 hrs)</li> <li>6. Emissions Reduction Risks and Green Energy (1.5 hrs)</li> </ol>
	Royce Yu-Chun HONG	M	Chairman and President, IPEVO Corp.	100% (8/8, one proxy) in 2022	<ol style="list-style-type: none"> <li>1. Analysis of the Global Political and Economic Landscapes in 2023 (4 hrs)</li> <li>2. Battle for Trade Secret Protection (3 hrs)</li> <li>3. Promotion Session on Insider Equity of Companies Listed on the OTC and Emerging Stock Market (3 hrs)</li> </ol>
	Liang-Gee CHEN	M	Independent Director, Everlight Electronics Co., Ltd.	100% (4/4) in 2022	<ol style="list-style-type: none"> <li>1. Risks and Opportunities with Climate Change (3 hrs)</li> <li>2. Information Security Governance Strategies of Listed Companies from the Perspective of Sustainable Development of ESG Enterprises (3 hrs)</li> </ol>
	Jen-Lieh LIN	M	Vice President, Winbond Electronics Corp.	100% (4/4) in 2022	<ol style="list-style-type: none"> <li>1. Opportunities of AI Development from the Perspective of Software/Hardware Integration; Digital Marketing Trend: Web3 + ESG (3 hrs)</li> <li>2. Rafting on the Long River of History of "Carbon" – a Brief Introduction to the Biology of "Carbon Footprint" (1.5 hrs)</li> <li>3. 2022 Research and Prospects of Important Economic and Trade Issues (3 hrs)</li> <li>4. Legal Compliance Promotion Session on Insider Equity Transactions (3 hrs)</li> <li>5. Climate Change Impacts and Global Carbon Risk Management Trends (2 hrs)</li> </ol>
Independent Director	Mark WEI	M	Vice Chairman, Capital Gateway Securities Investment Consulting Enterprise; Independent Director, Ainos Inc.	100% (4/4) in 2022	<ol style="list-style-type: none"> <li>1. Opportunities of AI Development from the Perspective of Software/Hardware Integration; Digital Marketing Trend: Web3 + ESG (3 hrs)</li> <li>2. Rafting on the Long River of History of "Carbon" – a Brief Introduction to the Biology of "Carbon Footprint" (1.5 hrs)</li> <li>3. 2022 Research and Prospects of Important Economic and Trade Issues (3 hrs)</li> <li>4. 2022 New Challenges in Information Security Protection for Enterprises (3 hrs)</li> <li>5. Latest Development Trends and Responses of International Carbon Tariffs (3 hrs)</li> </ol>
	David Shu-Chyuan TU	M	VP of Business Development and Strategy, Synnex Technology International Corporation	100% (8/8) in 2022	<ol style="list-style-type: none"> <li>1. Opportunities of AI Development from the Perspective of Software/Hardware Integration; Digital Marketing Trend: Web3 + ESG (3 hrs)</li> <li>2. Rafting on the Long River of History of "Carbon" – a Brief Introduction to the Biology of "Carbon Footprint" (1.5 hrs)</li> <li>3. 2022 Research and Prospects of Important Economic and Trade Issues (3 hrs)</li> </ol>
	Allen HSU	M	Chairman, Unus Tech Co., Ltd. and 3R Life Sciences Ltd.; Independent Director, Winbond Electronics Corp.	100% (8/8) in 2022	<ol style="list-style-type: none"> <li>1. Introduction to Disputes over Company Management Rights and Commercial Case Adjudication Act (3 hrs)</li> <li>2. From Deep Learning to Practical AI Application (3 hrs)</li> <li>3. Risks and Opportunities with Climate Change and Net-Zero Emissions Policies for Business Management (3 hrs)</li> </ol>
	Kuang-Chung CHEN	M	Independent Director, Diodes Incorporated	100% (4/4) in 2022	<ol style="list-style-type: none"> <li>1. Opportunities of AI Development from the Perspective of Software/Hardware Integration; Digital Marketing Trend: Web3 + ESG (3 hrs)</li> <li>2. Rafting on the Long River of History of "Carbon" – a Brief Introduction to the Biology of "Carbon Footprint" (1.5 hrs)</li> <li>3. 2022 Research and Prospects of Important Economic and Trade Issues (3 hrs)</li> <li>4. Digital Transition (3 hrs)</li> </ol>

## Sustainable Development Committee

The Sustainable Development Committee at Nuvoton is responsible for the sustainable development policies and systems as well as proposal and execution of relevant management approaches and specific implementation plans. The President serves or appoints a senior manager to serve as the chair on the committee, who put together various functional groups for promotion and execution of sustainable development policies. The Sustainable Development Committee stipulates the performance targets and specific implementation projects for sustainable development on a yearly basis and convenes one regular meeting every 6 months to review legal compliance performance and execution results of the plans. It also reports to the Board of Directors on the execution performance annually.



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# 2.Operational Performance

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## Financial Performance

Despite issues of the Russia-Ukraine conflict and lockdown in China, impacting the global market, Nuvoton ceaselessly establishes close relationships with its partners and stays abreast of the pulse and trends of markets, as well as improves its product portfolio and competitive advantages to ensure the growth momentum of Nuvoton.

Although Nuvoton was affected by the sluggish demand for consumer electronics products in 2022, with the relatively stable demands for industrial control, automotive, and servers, Nuvoton’s total consolidated revenue hit NT\$41.872 billion with an annual growth of 1% in 2022, setting another record high. The consolidated after-tax net income was NT\$4.221 billion with an annual growth of 44%. The earnings per share (EPS) of 2022 was NT\$10.06, and the cash dividend per share was NT\$7 (payout ratio: 70%). The total consolidated income tax expense was NT\$886 million (accounting for 2.1% of revenue) with an annual growth of 47%. The consolidated income tax payment was NT\$716 million with an annual growth of 82%.

	Amount (in NT\$ million)		
Item	2020	2021	2022
<b>Operating revenue</b>	20,668	41,456	41,872
<b>Gross Profit</b>	7,707	16,856	17,494
<b>Operating expenses</b>	7,385	13,529	13,016
<b>Operating profit</b>	322	3,327	4,478
<b>Non-operating income and Expenses</b>	421	218	629
<b>Profit before tax</b>	743	3,545	5,107
<b>Net profit after tax</b>	533	2,941	4,221

## Business Development Overview and Future Prospect

Nuvoton works in businesses of four major fields, i.e. automotive and industrial control, communication, consumer, and computer, as it continues to expand product applications. The diversification of product lines help mitigate the risk of recent sluggish demand for consumer electronics and enhance corporate resilience.

Regarding the trend of the semiconductor industry in 2022, after a year of global

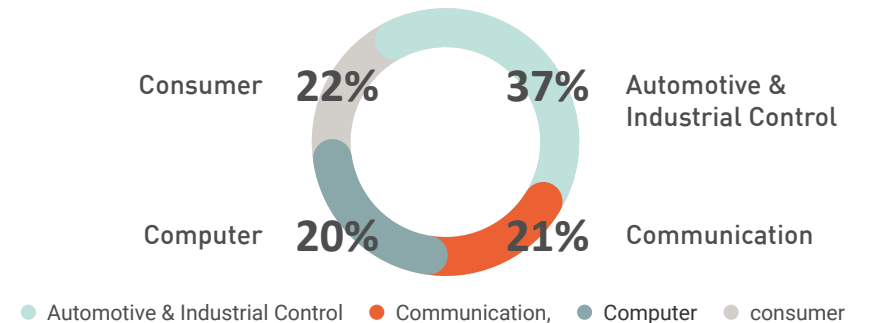
tightening in sync. 2023 is expected to be a year of policy divergence among global central banks, which will affect the economic growths in different regions. Facing the uncertainty in macroeconomics and the general environment in 2023, Nuvoton expects that the adjustment of channel inventory will persist for a period of time. Hence, the management of Nuvoton has set the strategy of "proactive development; prudent manufacturing" to cope with the current market environment.

In terms of business development, we plan to scale up our sales areas, set up new business offices around the world, deepen the strategic cooperation with customers, and actively explore the global market. Particularly, strengthening the partnership with important customers is the cornerstone to support the sustainable growth of Nuvoton. We engage dialogues with customers at all levels and provide long-term values.

In terms of product development, apart from the ongoing innovation and improvement of the existing product lines, in line with the global trend of promoting sustainable development, we also promote a series of solutions related to electric vehicle (EV), smart manufacturing, and new energy. As such, we not only optimize the product portfolio of the Company but also demonstrate the strength in innovation and technology development.

As for manufacturing, we closely monitor the agency system and the inventory on the channels, and actively adjust the projected targets for wafer start and production accordingly, so as to avert losing the sensitivity to changes in terminal demand. Especially, after the adjustment of the "dynamic clearing" policy in Mainland China, we expect that the next wave of change will arrive in this huge production base and end market soon, for which we have already made relevant preparations.

### Four major fields of Nuvoton



# 3. Ethical Management

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Nuvoton engages in business activities on the principle of integrity. In order to enforce the ethical management policy and actively prevent unethical conducts, the "Ethical Corporate Management Best Practice Principles" has been adopted by the Board of Directors and published on the external website of the Company. The document specifies matters the Company personnel ought to pay attention to in conducting businesses, which is included in the training contents pertaining to sustainability at the Company. In addition, Nuvoton adheres to the operating principles of integrity, information transparency, sustainable contribution, and shareholders' rights and interests as priority. To align conducts of all members on the Company with ethical standards and prevent deviation thereof, and enable stakeholders to better understand the ethical standards of the Company, "Rules for Ethical Corporate Management" "Code of Conduct for Corporate Social Responsibility," "Corporate Social Responsibility Best Practice Principles," "Regulations Governing Contributions," and other regulations and guidelines have been promulgated, which apply to all employees and encompass the entirety of the business activities of the Company. In addition, standards that defines misconduct as well as the procedures for reporting and handling have been established. The contents of the regulations are mainly as follows:

1. Avoid incident of personal interests at the cost of the interests of the Company.
2. Avoid any bribery, unfair competition, fraud, and abuse of Company resources.
3. Do not engage in conducts against the Company, society, or the environment.
4. Comply with laws and regulations.
5. Avoid any actions of improper influence on the decision-making of stakeholders, such as government officials, public servants, customers, suppliers, and contractors.

An effective accounting system and internal control system have been established in pursuance of regulatory requirements, and relevant directions have been formulated. Also, internal auditors regularly conduct audits to ensure that the ongoing effectiveness of the design and implementation of the systems.

## Legal Compliance

Nuvoton abides by the laws and regulations at home and abroad, avoids exposure to risks in the operations of the Company, avoids illegal and unfair competitive behaviors, establishes a good corporate image, and ensures a legal operation of the Company. The "Ethical Corporate Management Best Practice Principles" have been adopted by the Board of Directors of the Company, in which Article 2 demands that the directors, managers, employees, attorneys, or individuals with de facto control shall not directly or indirectly provide, promise, request, or accept any illicit benefit in business engagement, or engage in other unethical conducts that violate integrity or laws, or breach of fiduciary obligations, in order to gain or maintain benefits. It also includes provisions to forbid any offering or acceptance of bribes, acceptance of unreasonable presents or hospitality as well as to prevent damage(s) to stakeholders from products or services. The purposes of prevention are achieved through organization, responsibilities, education and training, and appraisals.

Nuvoton has customers worldwide. In order to ensure the implementation of ethical management and legal compliance, we keep tabs on policies, laws, and regulations at home and abroad that may affect business and finance of the Company as well as regularly promote the core value of ethical management.

In order to monitor and identify the applicability and compliance of laws and regulations pertaining to labor, ethics, environmental protection, health, corporate governance, and other requirements, the dedicated unit at Nuvoton conducts applicability identification and conformity checks with the additions or amendments to relevant laws or regulations quarterly. The identification results are reported on the meeting of the Sustainable Development Committee. The relevant information will also be updated on the internal ESG webpage of the Company for the reference of staff. In addition to regularly tracking and updating all policies and laws with potential impact on the operations of the Company, Nuvoton also reiterates the

importance of corporate governance, employee ethics, and other moral standards internally from time to time every year. In accordance with the updated Responsible Business Alliance (RBA) Code of Conduct, regulatory checks are carried out on a quarterly basis. The results of identification and checks with the applicability and conformity to the laws and regulations and changes thereto in 2022 have been verified. The audit unit audited the compliance with laws and regulations in line with the annual audit plan and presented the audit report. No major deficiencies were found in 2022.

Nuvoton was not involved in any incidents of ethical management, such as fraud, insider trading, anti-competitive behavior, antitrust and monopoly behavior, or market manipulation in 2022, nor was it subject to any relevant litigations or penalties.

### Human Rights Respect

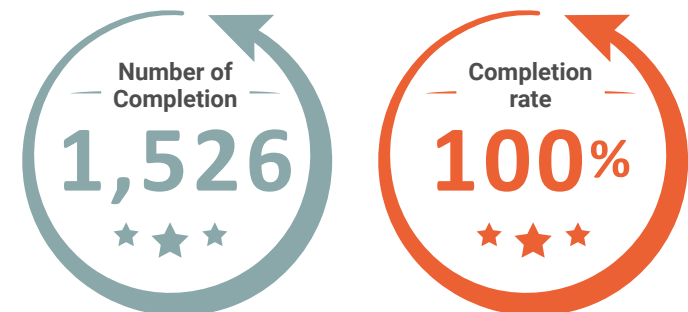
Nuvoton abides by the Labor Standards Act, respects and supports the protection spirit and fundamental principles in international conventions like UN Universal Declaration of Human Rights, UN Guiding Principles on Business and Human Rights, and ILO Declaration of Fundamental Principles and Rights at Work. It has formulated the Social Responsibility Code of Conduct and Ethical Management, with which the internal management policies and procedures were stipulated to protect the labor rights of employees, including freely chosen employment, no employment of persons under the age of 15 or involuntary labor (such as forced, bonded, debt bonded, or indentured labor, or slavery or trafficking of persons), protection of young workers, compliance with working hours, wages and benefits in alignment with laws and regulations, no use of conflict minerals, humane treatment and non-discrimination, and respect for the freedom of association of employees. Sustainability education and trainings are organized each year to foster the human rights protection awareness of employees. Nuvoton also demands all employees, directors, suppliers, and partners to comply with the standards. With incident reporting and handling procedures formulated, Nuvoton shall remain an enterprise that values human rights, diversity, and equal opportunities.

### Promotion via Education and Trainings

In order to exercise ethical behaviors and ethical management at the Company for the benefit of sustainable development thereof, Nuvoton has formulated and regularly promotes various codes of conduct, including Ethical Corporate Management Best Practice Principles, Rules for Ethical Corporate Management, Code of Conduct for Corporate Social Responsibility, Corporate Social Responsibility Best Practice Principles, and Regulations Governing Contributions. Meanwhile, ethics promotion, education, and training for all employees are carried out each year. All units are required to abide by relevant requirements, exercise ethical management, and incorporate ethical management into employee performance appraisal and human resource policies. Information of the regulations pertaining to ethics is disclosed on TWSE Market Observation Post System (MOPS) and the website of the Company to offer employees a clearer direction in dealing with stakeholders. Any person in violation of the ethical management regulations is subject to disciplinary actions in line with the severity of the violation and in pursuance of Reporting Violations of Integrity Conduct Regulations as well as the Work Rules and Regulations on Rewards and Penalties of employees, with relevant information and handling thereof disclosed on the internal website.

In order to improve the ethical management culture of Nuvoton, we regularly conduct corporate ethics education and training courses on "Sustainability Policy" and "Ethical Management" every year, in which laws and regulations are elaborated for

### 2022 Promotion on Ethical Management



the easy of understanding. Then, tests are delivered after the courses to deepen employees' understanding of compliance with relevant laws and regulations and strengthen the notion of compliance with sustainability and ethical values of all employees. In addition, all units are required to abide by relevant requirements, exercise ethical management, and incorporate ethical management into employee performance appraisal and human resource policies. Information of the regulations pertaining to ethics is disclosed on TWSE MOPS and the website of the Company to offer employees a clearer direction in dealing with stakeholders. Any person in violation of the ethical management regulations is subject to disciplinary actions in line with the severity of the violation and in pursuance of Reporting Violations of Integrity Conduct Regulations as well as the Work Rules and Regulations on Rewards and Penalties of employees, with relevant information and handling thereof disclosed on the internal website.

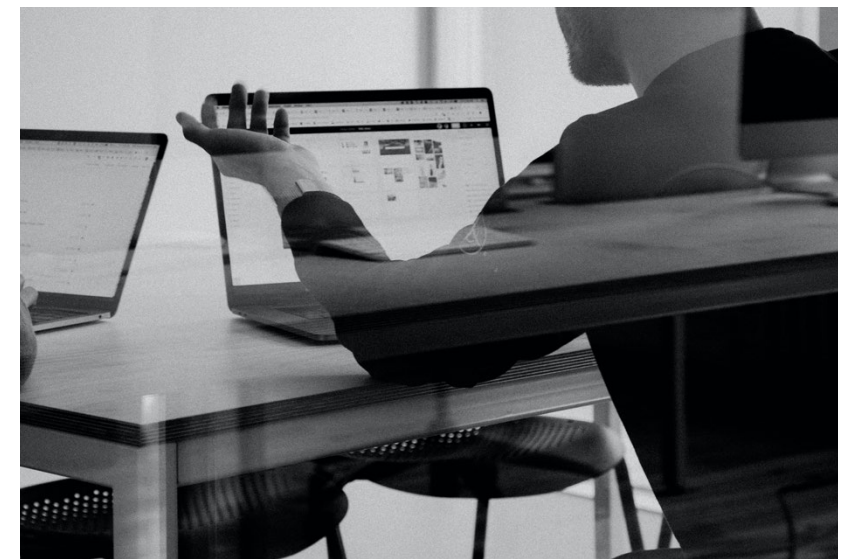
Nuvoton discloses the policies and regulations related to integrity on the official website as a declaration of ethical management policy of the Company. Also, ethical management assessment is conducted prior to establishing any business relationships. The ethical management policies are elaborated to business partners. Transactions with unethical operators are avoided. The partner vendors of the Company and the subsidiaries thereof are expected to work together on sustainability. In concluding contracts with other parties, provisions related to ethics are included in the contracts as well for customers and business partners to unequivocally understand the philosophy of ethical management. In order to promote compliance with our ethical management policies by the partner manufacturers, all suppliers on the e-procurement system of the Company are required to sign the "Commitment to Comply with the Code of Conduct" and "Confidentiality Agreement." The requirement of "compliance with the ethical transactions with the Company" is clearly stated in the terms on the transaction order of the Company.

Nuvoton has created the dedicated section for stakeholders on the corporate website to probe into the expectations and needs of stakeholders for the Company. Also, communication channels, such as spokespersons, acting spokespersons, institutional investor relations, stock affairs, and customer services, are disclosed.

The communication channels for employees are available for employees to express their opinions via mail, telephone, or internal discussion platforms.

### Grievance Mechanism

Reporting Violations of Integrity Conduct Regulations has been stipulated at Nuvoton, which specifies the procedures pertaining to the reporting of any violation of ethical management at the Company. Also, various reporting and grievance channels like the dedicated Complaint Mailbox, Employee Suggestion Box, and reporting mailbox disclosed on corporate website. For any illegal practices that are illicit or unfair, a dedicated reporting section is established on the internal/external websites of the Company. Persons in or outside the Company can file reports on an anonymous or real-name basis through the grievance channels and are entitled to confidentiality and protection measures for reporting. The grievances will be handled by the designated senior manager(s) of the Company personally. Should a violation of relevant laws or regulations, or the relevant policies or regulations of ethical management of the Company, be verified, the actor is required to immediately cease any relevant action and is subject to handling as appropriate. Meanwhile, indemnity for damage therefrom shall be claimed via legal proceedings to protect the reputation and rights of the Company.



# 4. Risk Management

In response to changes in the global economic, environment, and sustainability risks that have impacted the internal and external operations of the Company, the Sustainable Development Committee at Nuvoton identifies risks possibly impacting the sustainable development of the Company through three aspects, i.e. economy (including corporate governance), environment, and society (including human rights), and formulates the corresponding strategies that follow so as to implement the vision of sustainable development and conform to the material aspects and international trends of stakeholders' concern.



### Policies

- Commit to incorporation of the entire organization into the scope of risk management.
- Treat corporate risks as objects for management.
- Introduce best practices of risk management to achieve continuous management.



### Management Actions

- Provide resources as appropriate.
- Integrate risk management affairs.
- Establish and apply standard procedures.
- Regularly review risk management procedures and make necessary adjustments.
- Enhance the risk management culture at all levels.
- Communicate effectively internally and externally.
- Comply with laws and regulations.



### Definition

Risk refers to an undesired event that would adversely affect the operations and achievement of objectives of Nuvoton if it occurs. The scale of the risk is measured by the likelihood and consequences of the event.

## Internal Control

An internal audit unit has been set up under the Board of Directors at Nuvoton, of which the appointment or dismissal of the supervisor requires approval by the Audit Committee and the Board of Directors. Nuvoton has established an internal control system in accordance with the laws and regulations and has instituted the internal audit implementation directions based on the internal control system in order to implement and measure the effectiveness of the control system in place across all operations of the Company and the subsidiaries thereof.

The internal audit unit at Nuvoton formulates an annual audit plan based on the risk assessment results, which is approved by the Audit Committee and the Board of Directors. Prior to the end of December each year, the "annual audit plan of the coming year" is submitted to the competent authority. The internal audit unit undertakes its works in alignment with the annual audit plan. It proposes recommendations to correction for the deficiencies and anomalies of the internal control system found, prepares audit reports, and reports to the Audit Committee and the Board of Directors on a regular basis.

As for significant procures or special cases, the unit may send personnel for audit thereof any time or from time to time. After the completion of the audit report and the follow-up report, the internal audit supervisor reports to the independent director (the Convener of the Audit Committee) on a monthly basis, submits the reports to the independent directors for review by the end of the next month after the completion of the audit, and presents the audit work reports to the Audit Committee and the Board of Directors on a quarterly basis. The 2022 annual audit plan has been implemented per the regulations, and the audit results and correction tracking have been submitted and presented to the Audit Committee and the Board of Directors. Prior to the end of May each year, the deficiencies in the internal control system found in the internal audit and the corrective actions for anomalies in the previous year are reported.

The internal audit unit reviews the internal control system and various operations at the Company through the abovementioned audit processes to assist the Board of Directors and the management to reasonably verify the achievement of relevant targets for operations, reporting, and compliance: the effectiveness and efficiency of operations, including the achievement of operational and financial performance targets and protection of asset security; the reliability, timeliness, transparency of the internal and external financial reports and non-financial reports of the

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Company; or the compliance with relevant standards, laws, and regulations.

The internal audit unit supervises the internal units of the Company and subsidiaries to regularly check the effectiveness of the internal control system every year, followed by the reviews of the self-inspection reports of each unit and subsidiaries and the effectiveness of the internal control system by the internal audit unit. Then, the results of self-inspection are compiled as the basis for the Board of Directors and the President to present the Statement of Internal Control System.

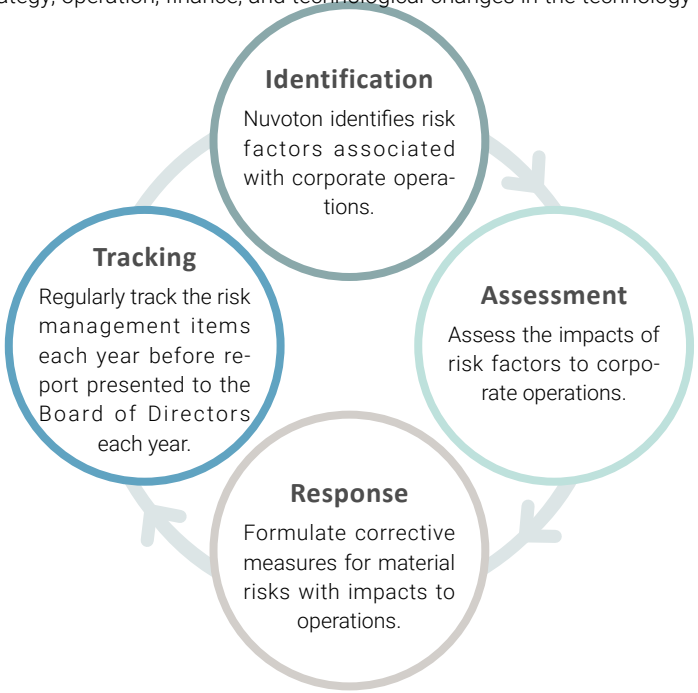


Statement of Internal Control System

**Risk Identification and Management**

Nuvoton conducts the identification, assessment, response, and tracking of risks based on the core businesses internally and the circumstances externally, covering the economic, environmental, and social aspects of sustainable development.

The Company identifies key risks and formulates countermeasures in areas such as strategy, operation, finance, and technological changes in the technology indus-



try, including significant risks pertaining to the environmental, social, or corporate governance issues related to the operations of the Company.

<b>Strategy</b>	Continuously track external changes in global regulations, politics, economy, etc., assess impacts thereof on the Company, and take necessary risk responses in a timely manner.
<b>Operation</b>	Fully grasp the key materials, equipment capacity statuses, and delivery timetable.
<b>Finance</b>	Reduce the exchange rate risk with appropriate hedging tools, and appropriately arrange the days of liabilities as well as the fixed or floating interest rate structure to lower the interest rate risk.





Risk Type	Risk Description	Management Strategies	Performance Indicators
<b>Interest rate changes</b>	<ul style="list-style-type: none"> <li>Liabilities and financial investments incurred from business activities</li> <li>Interest income and expenses affected by interest rate fluctuations in Taiwan and the United States</li> </ul>	<ul style="list-style-type: none"> <li>Keep tabs on the trend of future market interest rates, collect interest rate information of banks, and duly evaluate the existing loan interest rates.</li> <li>Establish good relationships with banks and obtain a relatively preferential loan interest rates with a good credit history for bank financing.</li> </ul>	<ul style="list-style-type: none"> <li>Nuvoton met its funding needs primarily with operating cash income and occasional issuance of long-term debts at fixed interest rates.</li> <li>In terms of financial investment, the Company mainly invested in fixed deposits to ensure the security of the principal and maintain liquidity.</li> </ul>
<b>Exchange rate changes</b>	<ul style="list-style-type: none"> <li>More than half of the raw material procurement expenditure paid in currencies other than NTD, such as US dollars</li> <li>Impacts to financial performance arising from international interest rate fluctuation due to revenue generated mainly in U.S. dollars</li> </ul>	<ul style="list-style-type: none"> <li>The Company employs derivative instruments (e.g. forward exchange contracts) to engage in foreign exchange hedging for the foreign exchange positions that have been recognized or are expected to have arising from transactions. These hedges offset most, but not the entirety, of the financial impact from foreign exchange fluctuations.</li> <li>The financial unit keeps abreast of the exchange rate change information and maintains close contact with major correspondent banks to capture the exchange rate tendencies for the relevant supervisors to fully grasp the exchange rate change tendencies and make adjustments in a timely manner.</li> <li>The "Procedures for Engaging in Derivatives Transactions" have been promulgated for the engagement of derivative financial product transactions, risk management, supervision, and audit so as to reduce the transaction risks arising from operating exchange rate-related derivatives.</li> </ul>	<ul style="list-style-type: none"> <li>Nuvoton mainly employed forward exchange contracts to reduce the exchange rate risks arising from assets and liabilities.</li> <li>In 2022, the good foreign exchange operations brought about positive exchange rate impact, resulting in a net exchange gain of NT\$181,181 thousand.</li> </ul>
<b>Inflation, deflation, and general market volatility</b>	<ul style="list-style-type: none"> <li>Huge impacts on the global economy due to changes in market expectations on inflation and deflation</li> <li>Lowering of market efficiency and interference with investment decisions due to high inflation or deflation</li> </ul>	<ul style="list-style-type: none"> <li>The Company is not subject to huge impacts from inflation or deflation thanks to the types of products and services thereof, and the Company actively manages costs and operating expenses to mitigate the impacts of inflation on operations.</li> </ul>	<ul style="list-style-type: none"> <li>The impacts of market price fluctuations on the profit of the Company were mitigated by the good relationships established with both suppliers and customers.</li> </ul>
<b>Financing risks</b>	<ul style="list-style-type: none"> <li>The financing ability of Nuvoton subject to the Company's future financial status, operating performance, cash flow, and market financing activities</li> </ul>	<ul style="list-style-type: none"> <li>The company maintains good relationships with correspondent financial institutions. Where financing is necessary, appropriate long-term and short-term bank loans or other financing instruments are planned in line with the actual capital needs, in order to minimize the risks arising from interest rate fluctuations and capital costs on the operations of the Company.</li> </ul>	<ul style="list-style-type: none"> <li>Regulations such as "Procedures of Acquisition or Disposal of Assets," "Procedures for Governing Lending of Funds," "Regulations Governing Endorsements and Guarantees," and "Procedures for Engaging in Derivatives Transactions" have been stipulated as the basis for related transactions so as to manage risks in financial transactions.</li> </ul>

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Risk Type	Risk Description	Management Strategies	Performance Indicators
<b>Environmental risks</b>	<ul style="list-style-type: none"> <li>The potential needs in remodeling or replacing relevant pollution control equipment in response to the ever-tightening environmental laws and regulations arising from global concerns over issues of environmental sustainability in alignment with the laws and regulations or the expectations from relevant stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>Stay abreast of the best available technology for pollution prevention and control in the industry.</li> <li>Strengthen the management and maintenance of existing pollution prevention and control facilities for effectively functionality.</li> <li>Keep tabs on the needs of stakeholders and the trend of regulatory changes for early knowledge thereof and to increase the buffer period for improvement.</li> </ul>	<ul style="list-style-type: none"> <li>Nuvoton ceaselessly stays abreast of the stipulations and amendments to relevant environmental protection laws and regulations and the best available control technology for pollution prevention and control in the industry. In 2022, the performances of all the existing pollution prevention and control equipment were within the manageable range after inspection.</li> </ul>
<b>Supply chain and key raw material risks</b>	<ul style="list-style-type: none"> <li>Risks of delivery, quality, and price changes with suppliers</li> </ul>	<ul style="list-style-type: none"> <li>Establish diversified product sources and procure raw materials from different suppliers and regions to ensure a secure supply of raw materials.</li> <li>The principle of supplies from multiple suppliers and locations is practiced for key raw materials, and long-term supply contracts with suppliers are signed. In addition to establishment of self-owned inventory, consignment is employed to warrant zero risk from supply.</li> <li>For items that is impossible to establish a second source, the supplier is required to have safety stocks at the place of origin and agencies, along with Just-in-Time (JIT) manufacturing, to reduce the supply risks.</li> </ul>	<ul style="list-style-type: none"> <li>No shortage of key raw materials was reported in 2022.</li> </ul>
<b>Intellectual property risks</b>	<ul style="list-style-type: none"> <li>Involving infringement of patents, trademarks, copyrights, and trade secrets</li> </ul>	<ul style="list-style-type: none"> <li>The product design and development department works with the intellectual property department to carry out search, research, and analysis regarding intellectual property, and avoid (deliberate) infringement to the best of our ability by means of designing around, obtaining legal authorization, etc.</li> <li>Actively tackle and resolve the means adopted by plaintiff(s) out of business considerations, protection of intellectual properties, collection of royalties, or other unknown purposes.</li> <li>Discuss with external attorneys at law, develop countermeasures, and interact rationally with mutual respect in pursuit of a win-win scenario.               <ol style="list-style-type: none"> <li>Comply with intellectual property laws and regulations and contract performance.</li> <li>Improve the organization's notion and competence of intellectual property.</li> <li>Enhance research and development &amp; increase the intellectual property investment.</li> <li>Encourage independent, autonomous innovation of employees.</li> <li>Recruit and develop professional technical personnel.</li> <li>Undertake systematic intellectual property management.</li> <li>Lay out a comprehensive intellectual property plan.</li> <li>Strengthen the management of intellectual property risks.</li> <li>Respect and protect the intellectual property rights of customers.</li> <li>Properly manage confidential and intellectual property documents.</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>The intellectual property management plan of the Company has been presented to the Board of Directors on November 1, 2022. The main results of implementation as follows:               <ol style="list-style-type: none"> <li>All new employees were required to complete education and training to ensure each employee's commitment to confidentiality in business engagement with customers, and social engineering education and training was conducted every 3 months to enhance employees' vigilance against phishing mails. In addition, information security promotion was also carried out on a monthly basis to enhance the awareness of information security defense of employees.</li> <li>Confidentiality agreements with the customers and related suppliers were signed to demand mutual protection of confidential information.</li> <li>Software checks using software tools were conducted from time to time.</li> <li>The patent portfolio was competitive among competitors in the industry with the comprehensive index scores in patent quality and value improved significantly.</li> </ol> </li> </ul>

## Climate Change Risk Identification and Management

In light of the possible financial risks that climate change may pose to corporate operations, the calls for companies to disclose climate-related financial risks internationally are growing louder. Pursuant to the Recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) released by the International Financial Stability Board, and the Taiwan Stock Exchange Corporation Rules Governing the Preparation and Filing of Sustainability Reports by TWSE Listed Companies stipulated by Taiwan Stock Exchange Corporation (TWSE), Nuvoton identifies climate change-related risks and opportunities and incorporates the results into the risk management framework of the Company as one of the sustainable development strategies.

Nuvoton adopts processes of identification, assessment, treatment, and monitoring for climate change risks so as to manage and control the possible impacts from climate change.



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# Task Force on Climate-related Financial Disclosures (TCFD) Management Framework

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	Content of disclosures	Performance in 2022
<b>Governance</b>	<ul style="list-style-type: none"> <li>The Board of Directors is the highest supervisory body for climate change management, responsible for review of annual risk management reports, implementation reports, and audit reports to ensure the effective implementation of climate-related risk management systems.</li> <li>The Sustainable Development Committee is a promotional organization responsible for the implementation and management of climate change risks and opportunities, which reports to the Board of Directors the operational risk issues of corporate governance and sustainable development (issues of climate change included), risk assessment, and control measures of the Company each year for the Board of Directors to make decisions on the important issues.</li> </ul>	<ul style="list-style-type: none"> <li>The Sustainable Development Committee reported annually to the Board of Directors on the issues of carbon emissions, water resources, power supply risks, natural disasters, as well as laws and regulations related to climate change of the Company.</li> <li>The Chair of the Sustainable Development Committee reported to the Board of Directors on matters including GHG emissions, reduction measures of respective scopes, and the relevant and derivative environmental issues and activities on a quarterly basis.</li> </ul>
<b>Strategy</b>	<ul style="list-style-type: none"> <li>Identify the short-, medium-, and long-term climate-related risks and opportunities in line with the TCFD framework (definition of time horizons: under 3 years for short-term, 3-6 years for medium-term, and over 6 years for long-term.)</li> <li>Actively formulate solutions aiming to lower the operational and financial impacts from climate change so as to elevate the climate resilience of the organization.</li> <li>Introduce scenario analysis to probe into the impacts of climate change on Nuvoton.</li> </ul>	<ul style="list-style-type: none"> <li>The respective units identified results of climate risks and opportunities.</li> <li>Scenario analysis is expected to be introduced in phases in 2023 to analyze the impacts of climate change on Nuvoton.</li> </ul>
<b>Risk management</b>	<ul style="list-style-type: none"> <li>Identify climate change risks and opportunities in alignment with the TCFD framework.</li> <li>Plan and implement relevant responses in accordance with the results of climate risk identification.</li> <li>Integrate climate risk identification and assessment into the risk management processes of the Company.</li> </ul>	<ul style="list-style-type: none"> <li>Evaluate the qualitative financial impacts of material climate-related risks and opportunities identified by respective units.</li> <li>Manage potential climate risks using processes of identification, assessment, treatment, and monitoring.</li> </ul>
<b>Metrics and targets</b>	<ul style="list-style-type: none"> <li>Set the climate change-related management metrics.</li> <li>Disclose the GHG emissions and assessing impacts.</li> <li>Set climate change management targets and review progresses made on targets and performances.</li> </ul>	<ul style="list-style-type: none"> <li>Reduction of carbon emissions and energy efficiency improvement were set as the management metrics.</li> <li>Impact assessment was conducted based on the results of GHG inventory, and various energy conservation and carbon reduction measures were implemented continuously.</li> <li>A target was set to reduce scope 1 emissions by 3.2%, and the target in 2022 was achieved.</li> <li>For scope 1 GHG, installation of GHG reduction equipment to the process was the main reduction strategy. The installation of the first reduction equipment has completed in 2022, which will be officially in operation in 2023, projected to reach a reduction of 20% comparing to that of 2022. Moving forward, the amount of reduction shall increase following installations year by year.</li> </ul>

### Climate-Related Risks

Category	Climate-related risk factor	Potential financial impact	Coping strategy
Transition Risks	Green products	Increased operating costs	Improve the image and value of products for customers, so that customers are willing to absorb the necessary costs, which are reflected in the selling prices.
	Low-carbon manufacturing	Increased operating costs	Phase out high-efficiency and low-energy-consuming facilities to reduce GHG emissions.
	Net-zero emissions	Increased operating costs	Formulate the roadmap to net-zero emissions.
Physical Risks	Climate disasters arising from extreme weather events	Increased operating costs	Formulate Business Continuity Plan, BCP.
	Delayed delivery due to climate disasters	Increased operating costs	Diversify suppliers for risks diversification.

### Climate-Relate Opportunities

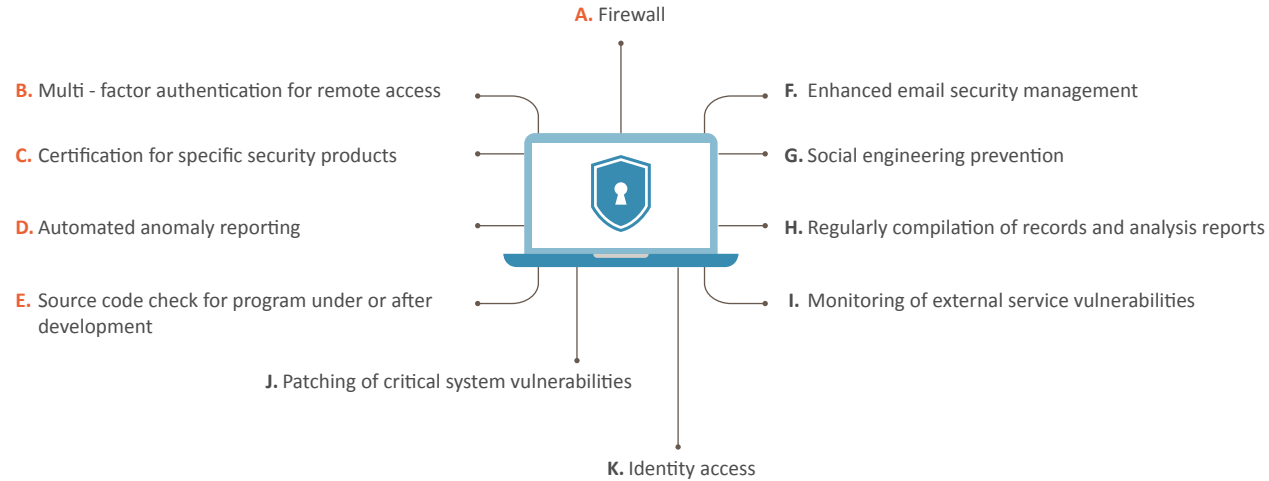
Category	Climate-related opportunity factor	Potential financial impact	Responses
Resource Efficiency	Water use reduction	Decreased operating costs	Reduce water consumption; raise the water recycling rate.
Products and Services	Development of low-carbon products	Increased revenue generated from products with better competitiveness	Move product to advanced manufacturing process gradually for energy consumption reduction.
	Development of more energy-efficient products	Increased revenue generated from products with better competitiveness	Develop the high voltage power process technology to reduce the power consumption in electronic products and raise the power conversion efficiency.
	R&D and Innovation	Better corporate competitiveness and industrial chain value	Ongoingly scale up research and development, encourage employees to contribute as many as good ideas, and reward proposals that pass the selection, and inspire employees to actively innovate with strategies and specific actions.
Energy Source	Regional energy integration policy	Decreased operating costs	Install PV panels for power generation and increase the share of renewable energy

# 5. Information Security

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## Information Security Risk Management Measures at Nuvoton

● A ~ E Newly Added Management Measures



“Nuvoton Security Policy” and “Information Security Management Regulation” have been stipulated at Nuvoton, with which control measures are established. to ceaselessly maintain a secure information environment so as to protect the information of Nuvoton and its customers from theft, computer crimes, industrial espionage, or other forms of damage and loss. We sign confidentiality agreements with our suppliers and customers for mutual protection of confidential information and avoidance of improper disclosure of sensitive information. In addition, pursuant to the internal control system for the information security matters, the Company conducts internal audits each year, regularly calls information security management meetings, undertakes information security operation reviews and regular tracking and improvement, and regularly carries out risk assessments on the related issues of stakeholders internally and externally, such as customers, suppliers, internal employees, competent authorities, etc.

The information security management system is in place with reference to the ISO 27001 information security management standard and the Cybersecurity Framework proposed by the National Institute of Standards and Technology (NIST), and the security control measures formulated by the Center for Internet Security (CIS), which regularly analyzes and evaluates information security risks, draws up management plans for and track regularly the items that may pose risks.

In December 2022, Nuvoton instituted the Chief Information Security Officer (CISO) and established the new dedicated information security unit – Cybersecurity Department, tasked primarily to assist and lead the Company in the enhancement of its information security capabilities and maintenance of information systems, identities, as well as confidentiality, integrity and availability of data.

The major information security projects planned for 2023:

1. Introduce and verify against the updated version of ISO 27001:2022 Information Security Management System per the requirements of customers.
2. Strengthen endpoint security protection, import and deploy Endpoint Detection and Response (EDR), and enhance the monitoring mechanism.

Hacker attacks and data breach are common issues nowadays. The information security team at Nuvoton unceasingly strengthens the defense-in-depth architecture. Through the security mechanism of cloud services, identity verification and abnormal login detection are strengthened to reduce the risk of breach. Through the self-built SIEM system, outsourced SOC services, and cloud monitoring services, the monitoring and reporting of suspicious behaviors are enhanced. In addition, system inspection, backup and recovery, remote backup, as well as drills for emergency response to information security incidents are conducted regularly to familiarize personnel with various operating procedures. Meanwhile, network security regulations and procedures are reviewed in the process to warrant the applicability and validity of various information security mechanisms.

Nuvoton unceasingly promotes the information security culture and raise the information security awareness. In 2022, at least 4 hours of trainings on information security were delivered for all employees, 6 hours for product security personnel, and 8 hours for information security personnel, while employees that failed to complete the courses were subject to termination of their access to networks.

Target	Training Program	Content	Frequency	Total Hours	Completion Rate
General Staff	General Course - Information Security Promotion	4 domains & 12 topics	Monthly	4	100%
	General Course - Social Engineering Awareness	Understanding phishing & social engineering techniques	Quarterly	4	98%
	General Course - Personal Privacy Protection	Personal data and privacy protection	Yearly	1	100%
Product Security Personnel	Product Security + General Course	Product security trainings	At least once a year	6	100%
Information Security Personnel	Product + General + Professional Courses	Contents of information and communication security technology as well as relevant laws and regulations	At least once a year	8	100%

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## Risk Management Measures in 2022

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Enhanced risk management measure	Description	Enhanced risk management measure	Description
Information security awareness improvement	<p><b>Practices:</b> Issue information security promotion monthly. Conduct information security education and training (social engineering training) quarterly. Undertake personal data protection education and training annually. Offer information security updates or critical event promotion from time to time.</p> <p><b>Results:</b> Results: In 2022, the implementation rate of social engineering education and training courses hit over 97%, while individuals that failed to complete the training were subject to termination of their access to network and browsing. Q1: 97.7% Q2: 98.2% Q3: 97.4% Q4: 98.3% A total of 12 information security promotions were issued.</p>	Identity access control	<p><b>Practices:</b> Cloud services: Employ conditional access and multi-factor authentication. Only qualified devices and use of specific programs are allowed. Remote connection: Employ identity recognition + multi-factor authentication + device whitelist, and only when the conditions are met can the connection be made.</p> <p><b>Results:</b> For the daily reports of cloud login and remote access information, analysis and investigation into unregistered devices and attempts to login were performed, and no critical/high-risk event was found in 2022.</p>
	Information security monitoring and anomaly reporting and handling	<p><b>Practices:</b> Provide monitoring records and analysis reports weekly. Conduct information security monitoring meeting for discussions, event review, and countermeasure adoption weekly.</p> <p><b>Results:</b> Strengthen the reporting mechanism, automate the anti-virus reporting and abnormal login behavior on cloud services, and directly notify the parties involved for handling to speed up the handling. No significant information security incident or impact was reported in 2022.</p>	Physical security
Vulnerabilities and Vulnerability Management		<p><b>Practices:</b> Local hosts: Perform vulnerability scan quarterly, and shutdown is scheduled monthly for major Microsoft updates and patches. External services: Monitor risks with the cloud security scanner of SSC.</p> <p><b>Results:</b> The local hosts and critical risks and vulnerabilities were patched as scheduled. The average total score of the SSC cloud monitoring platform: &gt; 90 (Level A), with a total of 27 risks patched, of which 15 risks were high/critical risks.</p>	Code security
			Email security



# 6. Legal Compliance

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Nuvoton has customers all over the world. In order to ensure legal compliance and ethical management practice, we ceaselessly stay abreast of policies, laws and regulations at home and abroad that may affect the business and finance of the Company and regularly promote the core values of ethical management. The specific approaches are to monitor and identify the applicability and conformity to the laws and regulations pertaining to labor, ethics, environmental protection, health, corporate governance, and other requirements (e.g. the Responsible Business Alliance (RBA) Code of Conduct). Applicability identification and conformity check with the additions or amendments to the relevant laws and regulations every six months are carried out by respective responsible units, and the identification results are reported on the meeting of the Sustainable Development Committee. The information is also updated on the sustainability section on the corporate website for employees' reference. The results of identification and checks with the applicability and conformity to the laws and regulations and changes thereto in 2022 have been verified.

The audit unit audited the compliance with laws and regulations in line with the annual audit plan and present the audit report. No significant deficiencies were found in 2022. In addition, no violations of corporate governance and ethical management related incidents involving fraud, insider trading, anti-competitive behaviors, antitrust and monopolistic behaviors, or market manipulation behaviors were found with Nuvoton in 2022, nor was there any litigations or penalties on the environmental or social levels (with a fine of NT\$1 million or more defined as a significant penalty).

Nuvoton regularly conducts trainings for employees on Ethical Corporate Management Best Practice Principles each year to reiterate the relevant contents of important regulations at the Company, strengthen the awareness of ethical management and ESG of employees, reminds employees of avoidance of interests and handling of illicit gains in business engagement, and promote the commitments of the Company to the exercise of labor human rights and professional ethics with relevant policies and welfare content.



## **Green Products Of Excellence**

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# 03



# 1. Product Application And Technological Innovation

Nuvoton aims to enrich human life with sustainable semiconductors. From design to manufacturing and delivery of products, products of low energy consumption, high efficiency, high quality and high durability, green operation, integrity, and services of high satisfaction shall be the direction for our ceaseless pursuit of optimization. Carbon reduction and waste reduction have already been in force at Nuvoton, as Nuvoton seeks to ultimately become a net-zero enterprise of empowerment.

Nuvoton cares about international computer security standards. In recent years, it has developed a variety of security chips in conformity to the computer security guidelines of the US National Institute of Standards and Technology (NIST), comprehensively strengthening the security of cloud servers, data centers, industrial computers, educational computers, and commercial personal computers. Regarding digital technology and education, Nuvoton’s Baseboard Management Controllers empower the computers used at the elementary and secondary schools in the U.S., offering the best balance between performance and energy efficiency for the computers of educational purposes.

With respect to the geopolitical supply chain management, product R&D, strategic high-tech product management, etc., multiple independent and dedicated systems are in place at Nuvoton for precise operations, responses to changes on the international market, reduction of corporate risks and hazards, and achievement of zero emissions from its products. Hence, the Company supports people to reduce the energy consumption of terminal devices, the demand for raw materials, and the amount of wastes generated so as to lower the burden on the environment.

**Mission of Nuvoton on Technology Innovation:**

**Becoming a trusted partner to customers**

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Nuvoton strives to become a trusted partner to customers by developing and understanding customers in depth and accurately designs and manufactures solutions catering to customer needs.



**Team collaboration**

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Nuvoton maintains the leadership and sustainable development of its multiple core technologies by collaboration across borders and teams in and outside the Company. The cross-border and cross-team collaboration within the Company enables learning from each other, drawing on experiences, jointly exploration of new opportunities, and bringing about new product directions.



**Talent development**

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By empowering employees and open learning, Nuvoton shall face market changes and challenges with more comprehensive directions and more agile actions.

Note: For 2022 industry-academia cooperation results, please refer to [5.2 Talent Recruitment & Development](#)



**Digital technology**

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Nuvoton stays abreast of the technological development on the market. The ceaseless introduction of various digital technologies and tools elevates the efficiency and quality of business operations, product design, and product manufacturing.



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## Microcontroller Applications Business Group

The MCU and MPU products must incorporate low power consumption, high performance, and security functions. Different applications demand specific peripheral needs, so a single product cannot satisfy all the needs. Therefore, the Company's embedded product plan focuses on the development of the MCU and MPU series, along with high confidentiality and security designs and software/hardware reference solutions. Also, the Company has introduced machine learning and launched the software/hardware development platforms of operating systems, network communication modules, and cloud software services fit for the IoT ecosystem to meet the demands for diversified market applications and rapid development of IoT devices. Meanwhile, the Company works in the special fields of application to provide customers with the best solutions.

23 online and onsite client seminars and workshops on new high-value products was hold on 2022

## Smart Home Business Group

### 1.Reduction in batteries used

Thanks to the launch of Nuvoton's 4-bit/8-bit one-battery speech solutions, the average annual usage of batteries in toy applications has reduced by nearly 20 million batteries. Over 100 million batteries have been saved thus far, significantly reducing the energy consumption in the battery manufacturing process and the risks of environmental pollution caused by negligence in recycling.

### 2.Reduction in ICs used

One single IC with smart integration can achieve the same functions and purposes in place of 2-3 ICs. The operating voltage ranging from 5V to 26V can accommodate most of the needs of customers. The high integration of external discrete components of inductors and capacitors also reduces the area of PCB materials used on the customer side, thereby reducing the environmental impact from customer's product manufacturing process.

### 3.Extension of product life & reduction of wastes generated

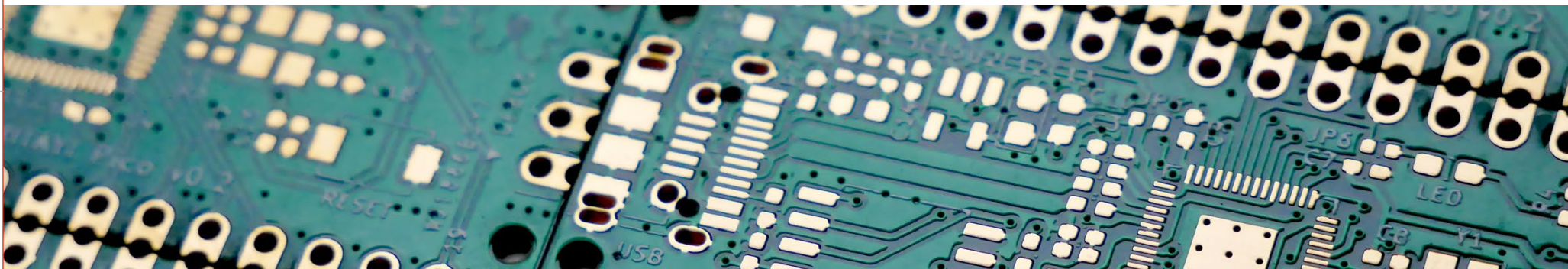
The existing CODEC is utilized on different platforms to reduce unnecessary waste of resources. For example, certain products have been produced for more than 7 years with over 100 million ICs produced so far. Nuvoton continues to work to maximize the life cycles of products.

### 4.Improvement in energy conversion efficiency

Smart toy is a Nuvoton exclusively designed product. The controllers include the boost converter and buck converter, which have achieved a conversion efficiency of 85% at present, and continuously increasing conversion efficiency in the future.

## Manufacturing Business Group

The wafer foundry offers Bipolar-CMOS-DMOS (BCD) process, Ultra High Voltage process, and High Voltage Integrated Circuit process. Meanwhile, with the focuses on "high performance, high integration, and low power consumption" as the key indicators for development, it provides higher efficiency and smaller size to increase the competitiveness of customers' products.

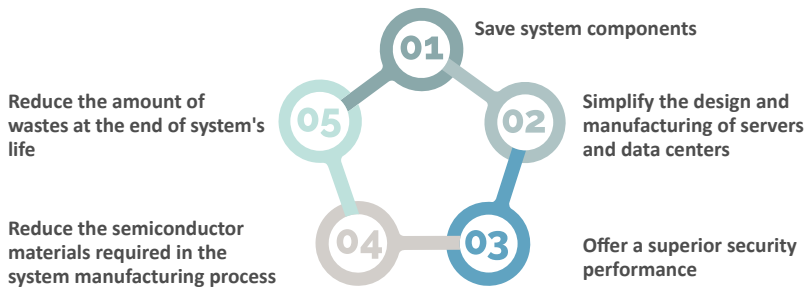
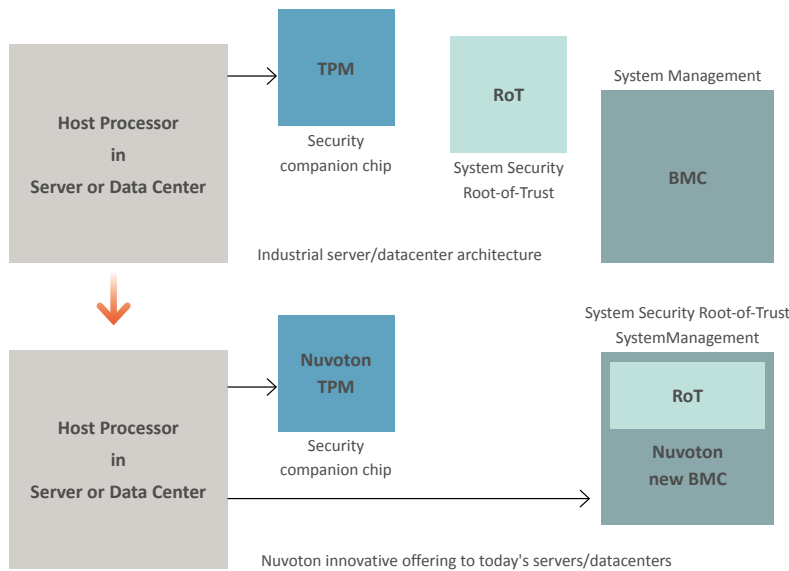


## Cloud Security Business Group

### Cloud Computing

Regarding servers and data centers, the baseband management controllers (BMCs) with Root-of-Trust (RoT) system security feature are offered. The Cloud Security Business Group deploys the security core capabilities that it excels at on the main BMCs of servers and data centers, successfully prompting the market to integrate BMC products with system security capabilities.

The new BMC products of the Cloud Security Business Group are shown in the figure as follows. The original design of 3 ICs can directly replace the independent RoT IC on the existing system through our innovative technology, not just becoming 2 ICs as a result, but also rendering benefits as follows:



### Personal Computer

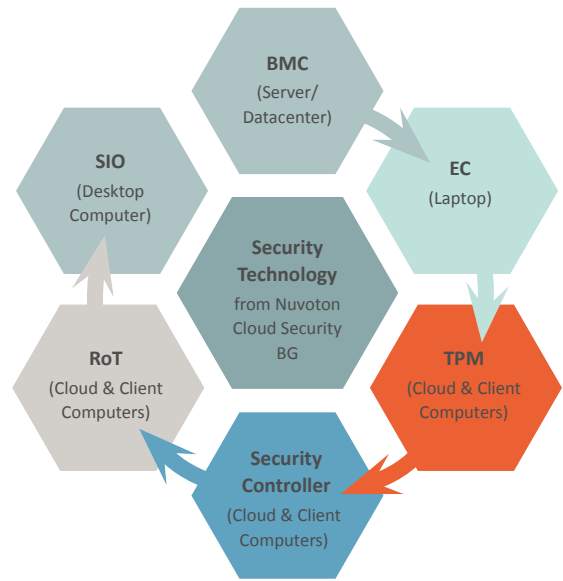
On portable laptops and high-productivity PCs, the Cloud Security Business Group works with computer system suppliers for innovation, developing multiple embedded controllers (ECs) of low power consumption, high computing performance, and high security performance. The EC product series of the Cloud Security Business Group has been certified to Project Athena, the highest honor for ultra-low power design of the third-party Intel Labs for its excellent energy-saving performance. The EC product series of the Cloud Security Business Group helps PC users achieve a higher productivity, while effectively saving power consumption of PCs and reducing the energy demand of PCs in the environment.



The various ECs of low power consumption, high computing performance, and high security performance have been certified to Project Athena, the highest honor for ultra-low power design of the third-party Intel Labs for their excellent energy-saving performance.

### Security Technology

For over a decade, the security technology of Nuvoton has been inserted in terminal devices, protecting people's assets. In the future, Nuvoton shall continue to maintain its leadership in security technology, unceasingly developing and providing people with safe and green semiconductors.



Boost in R&D And Technological Momentums

In 2022, Nuvoton continued to scale up its R&D with the annual R&D expenditure of NT\$9.1 billion, accounting for approximately 22% of its total revenue. Nuvoton ongoingly invests in technology with more than 20% of its annual revenue. Along with the 182 R&D personnel allocated for R&D capacity, product design and technology development, testing, or production efficiency improvement, our determination and commitment to product and technology innovation are demonstrated.

Unit: thousand NTD

	2020	2021	2022
<b>R&amp;D expenditure (A)</b>	5,516,242	9,451,500	9,104,501
<b>Net operating revenue (B)</b>	20,668,056	41,455,957	41,872,426
<b>Ratio % (A/B)</b>	<b>27%</b>	<b>23%</b>	<b>22%</b>

**The improvements and achievements in low-carbon process energy conservation innovation in 2022 include**

- High-efficiency 200 MHz microcontroller for IoT gateway, industrial control, telecommunications, data center, and HMI applications;
- Microcontroller featuring low power consumption, security, and built-in tactile keys and display;
- On hardware monitor: power consumption of product reduced to 50uA or even to 15uA;
- Electric vehicle (EV) is the trend of environmental protection in the future. Since EVs lack the sounds of the mechanical operation of engine of the convention ICE vehicles, the sounds arising from electric motor driving the gears and the noises from the road will be relatively more prominent. The one single IC offers intelligent and adaptable audio processing technology,

road noise cancellation (RNC) technology, speaker protection circuit, and integration of external discrete component circuits, along with certification to the rigorous automotive standard. The newly-developed NAU83G60 of Nuvoton can provide product development of high reliability, high convenience, and high audio quality for the clients, which can be configured flexibly in tune with the needs of products;

- Transition of green energy speech products from 8" to 12" plant was made, and totally 4 ICs were developed. The number of ICs in a single wafer has increased by 2.3 times, cutting the total number of wafers required, so as to reduce the carbon emissions in the semiconductor manufacturing process;
- Nuvoton has successfully trial-produced with the 120~250V process technology, and there have been clients that started trials and introduced such into new product development. Since the client's product was a motor-driven application, an especial design was required for reliability and anti-static capability. Nuvoton also provided related anti-static process technology to improve the competitiveness of client's product, reduce IC failure and loss in applications, and improve the sustainability of the product.



For more information on the innovative products and advanced applications, please visit the website of Nuvoton

Intellectual Property Protection



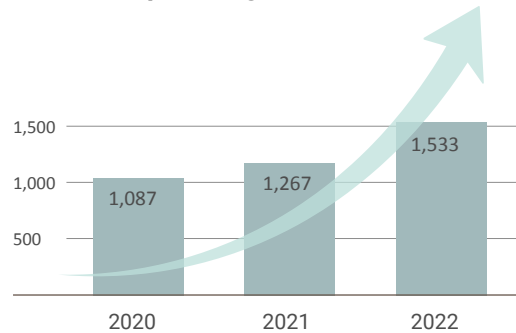
The corporate culture at Nuvoton encourages bold thinking and creativity. From senior managers to employees, we are committed to unceasing improvement and change. Nuvoton continues to hold patented technology sharing sessions and award ceremonies each quarter to ongoingly support and inspire more creative behaviors. Nuvoton owns the world-class intellectual property protection system and intellectual property professional team.

The fabs of Nuvoton are seasoned with years of experience in mass production of high-voltage process products. With a stable quality control process and reliability of components, it is capable of meeting the quality requirements of customers. The demand of a low number of mask layers of the process platforms helps customers reduce costs and shorten the process time for faster product delivery. With respect to the electrostatic discharge (ESD) protection design, the new design that does not affect component performance was developed under the premise of effectively utilization of component area. Nuvoton applied for related process technology and anti-static patents, transforming the innovative achievements into intellectual property rights to creating technical barriers and avoid intellectual property risks. At present, we have already obtained over 100 patents in high-voltage process technology cumulatively.

Meanwhile, Nuvoton stays focused on the field of microcontroller for ongoing R&D and works on patents in the relevant fields to protect the fruits of R&D and innovation, co-creating values with its clients and partners in the spirit of innovation.

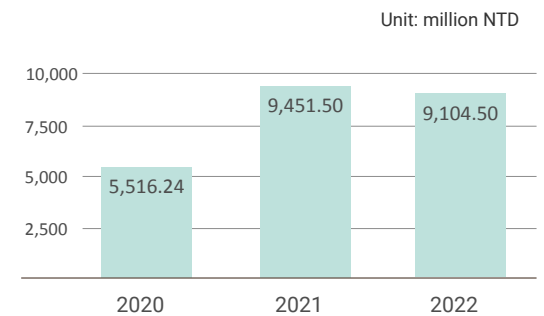
In 2022, the number of patent applications filed by Nuvoton globally are >340. As of 2022, the number of patents granted worldwide hit 1,533\*.

Number of patents granted



Note: The number of 1,533 patents is the cumulative number of valid patents since 2004.

R&D expenditure



Note: The scope of R&D expenditure in 2020 covers the regional offices and of Nuvoton Corporation Japan in the fourth quarter; that in 2021 and 2022 covers the regional offices and Nuvoton Corporation Japan.

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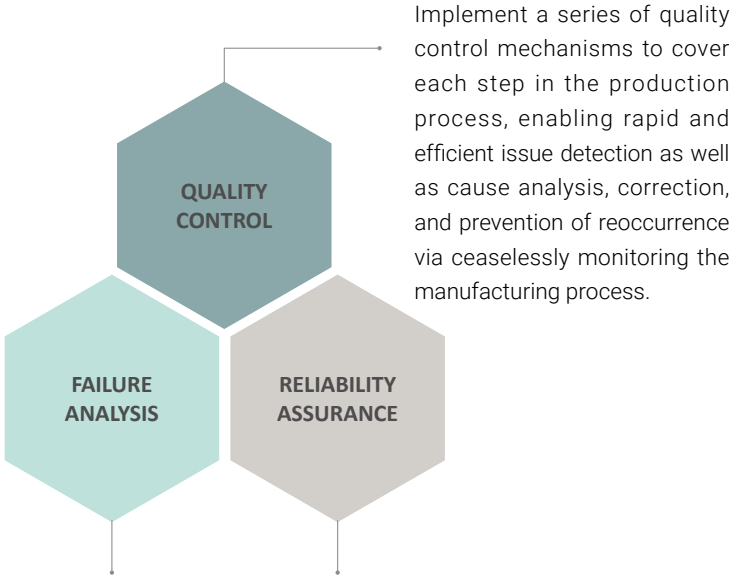
# 2. Quality and Responsibility



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In alignment with the management principles of IATF 16949, Nuvoton establishes, implements, maintains, and improves the quality management system on an ongoing basis, the required processes and their interactions included, in order to achieve results as expected, including improvement on the quality performance of the organization. All the bodies in the Company work together to continuously improve product quality and meet customer needs through quality control, reliability assurance, and failure analysis.

The purpose of quality management in place at Nuvoton is to establish the quality and reliability that warrants ultra-large scale IC products that fully meet the needs of customers. Committed to delivery of "zero defect" competitive products, the Company offers customers with immediate, professional services as well. All the bodies in the Company work together to continuously improve product quality and meet customer needs through quality control, reliability assurance, and failure analysis.



Nuvoton employs multiple advanced failure analysis instruments to determine the root cause of product failure and provide corrective actions. Also, the FMEA (Failure Mode and Effect Analysis) method is adopted for risk assessment, discovery of potential issues, and avoidance of any issue occurrence.

Each phase in manufacturing undergoes review, analysis, and assessment on an ongoing basis, along with feedbacks for correction, rendering improvement to quality and reliability in the future. Establish requirements in conformity to international standards on product quality and reliability from Joint Electron Device Engineering Council (JEDEC), Automotive Electronics Council (AEC), among others.



To ensure that all employees have the knowledge, technology, competence, awareness, and attitude to perform their duties, Nuvoton organizes education and trainings, identifies needs for training, and executes training plans.

1. **Competence:** the ability to apply knowledge and skills to achieve desired results
2. **Training for new recruits:** on the basic knowledge and attitude necessary prior to taking up their jobs with relevant training courses delivered jointly
3. **On-the-job education:** participation in the internal or external relevant education and training of the Company
4. **Professional training:** including instrument calibration, internal audit, equipment maintenance, regulatory checks, and so on, as well as training for personnel who require certificates per the regulations of government agencies

Nuvoton organizes internal training and external training courses to enhance the quality awareness of employees and the application of quality control measures, including Quality Control Circle (QCC) activities, seven quality control tools, statistical analysis methods, FMEA, and other quality-related trainings.

Course Type	Title	Hours	Total number of trainees
On-the-job education	QC 080000 Hazardous Substance Process Management (HSPM) system	1	944
	Basic Ideas of FMEA	2	1,074
	Basics of Statistics	6	271
	SPC	3	245
	QIT	3	477
	7 QC Methods	3	260

Nuvoton has stipulated the Regulations Governing Conflict Mineral Management with requirements as follows:

1. Suppliers are required to sign the “Declaration of Non-Use of Conflict Minerals” and enforce the provisions that prohibit the use of “Conflict Minerals.”
2. Relevant suppliers are required to carry out thorough investigations and verify that no metals from conflict zones are used in products on a regular basis.

**We have been conducting conflict mineral investigations since 2014. The Company declares that none of the metals used in the products manufactured come from conflict zones.**



Quality Management System Certification

To provide customers with excellent product quality and services, Nuvoton has established the IATF16949 quality management system and certified against IATF16949:2016 as the assurance of product quality. On the basis of international standards like IATF 16949, IECQ QC 080000, ISO 14001, and ISO 45001, Nuvoton established and enforces effective management systems in product quality, green products, environmental protection, occupational health and safety, etc. to raise operational efficiency and effectiveness, improve the quality of products and services, as well as ensure and uphold its responsibility in sustainability.

Quality Policy

In the spirit of ceaseless innovation, we offer excellent products as well as enthusiastic, fast, and quality services, becoming the best and irreplaceable partner for customers.

Emphasis on Innovation

- Positive innovation is the core spirit of Nuvoton. We fulfill our commitment to quality in the spirit of ceaseless innovation.
- Nuvoton not only realizes the spirit of innovation in product development and technology improvement, but also applies it at all levels to meet customer needs.
- Focus on Product and Service Quality.
- Nuvoton commits to not just provision of excellent products to customers, but also delivery of good service quality to customers.

“Becoming an absolutely necessary partner to industry leaders” is the vision of Nuvoton. We materialize our vision in our commitment to customer quality.

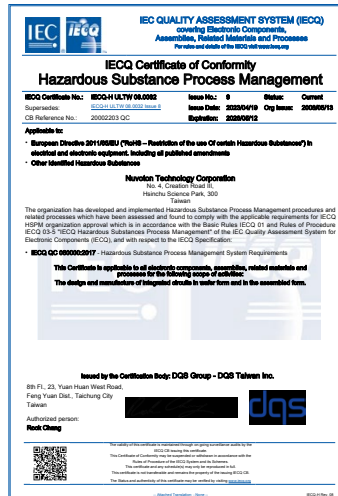
Certificates of Relevant System Certifications

IATF 16949



Automotive Quality Management System  
Valid by: 2024/05/12

IECQ QC 080000



Hazardous Substance Process Management System  
Valid by: 2026/05/12

ISO 14001



Environmental Management System  
Valid by: 2025/10/31

ISO 45001



Occupational Health and Safety Management System  
Valid by: 2025/10/31

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Nuvoton's quality control mechanism encompasses every step in the production process. By ceaseless monitoring the manufacturing process, it quickly and efficiently detects problems and ensures product quality. For the defective products returned by customers, it conducts comprehensive defect analysis, identifies root causes in the defective products for improvement, and delivers high-quality business and excellent quality in spirit of ceaseless innovation and ongoing improvement of products, processes, and services, becoming the best, irreplaceable partner to customers. In terms of customer grievance channels, the Company regularly conducts customer satisfaction survey to see whether the Company provides products and services to satisfaction, so as to improve the quality of the after-sales services of the Company.

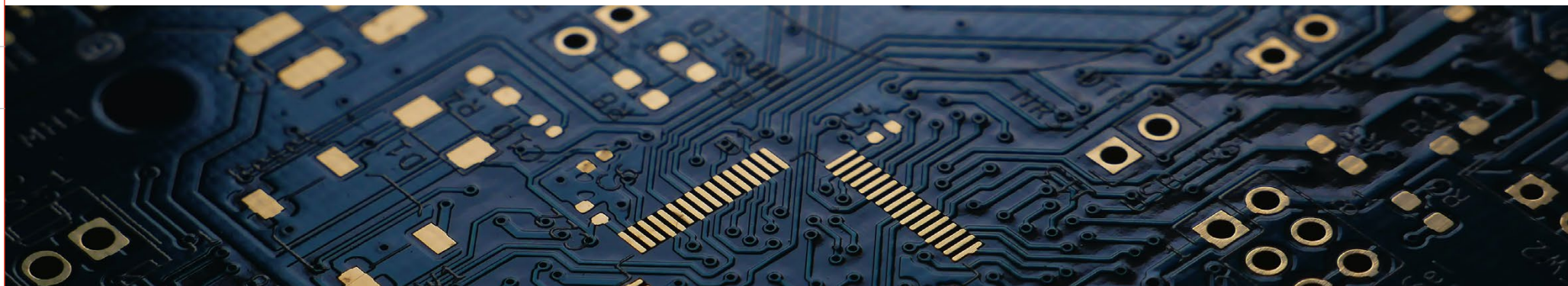
### Die Package

Nuvoton unceasingly monitors every step of the manufacturing process and collects feedbacks at every level, enabling fast and efficient issue detection, evaluation and analysis, and corrective measurement. With an emphasize on the attitude of "doing it right the first time" in every step of the manufacturing process, along with establishment of "zero defect" output, it thus renders a production line of high quality and reliability.

### Packaging Technology and Outsourcing Management

Nuvoton works closely with packaging companies to provide packaging forms that maximize the functionality of components and meet the special needs of customers. With rigorous demands regarding the selection, qualification, and management of the vast army of outsourcing companies, we ensure that outsourcing companies deliver high-quality products. In addition, Nuvoton has introduced a strict monitoring program to monitor package reliability so as to ensure that the various packaging forms from each packaging plant fully conform to the requirements.

Through improvement on the power consumption of products and selection of processes of low power consumption and low leakage, we achieve a 15-20% IC size reduction and a 20-30% power consumption reduction in running compared with the previous generation of low-power microcontroller, realizing the advantages of chip power conservation and size reduction. In addition to saving raw materials and improving product execution efficiency through process advantages, we also reduce power consumption in running through R&D technology. In the meantime, the processes adopted by Nuvoton, which are low in power consumption and in leakage, has been checked and verified by the quality department at Nuvoton for hazardous substances. A qualified supplier system has been established. Suppliers are also required to adopt manufacturing and design processes free of hazardous substances to ensure that the materials do not contain hazardous substances. Hence, we collectively put the vision of green semiconductor into practice.



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# Management of Hazardous Substances in Products

Nuvoton is committed to designing, procuring, manufacturing, and selling products without hazardous substances to meet the regulatory demands internationally and the needs of customers. Also, it endeavors to protect the environment to exercise its social and civic responsibilities. Nuvoton has compiled the Restricted Substance List (RSL) in alignment with international environmental regulations and the requirements of major customers for substances including Prohibited Substances, Restricted Substances, and Declarable Substances, which is amended yearly in line with the status. In establishing a new material assessment process, Nuvoton ought to verify that the newly developed products and materials conform to the hazardous substance management procedures of Nuvoton and the environmental, health, and safety requirements. Meanwhile, with respect to procurement and supplier management, Nuvoton also demands raw material suppliers and contractors to sign the "Certificate of No Use of Hazardous Substances" and to present the third-party testing reports yearly in order to ensure their products in compliance with the international environmental requirements. In addition to management of the materials on the plants and raw materials in the processes through the sourcing of suppliers, the contents of hazardous substances in wafers and ICs are checked randomly at Nuvoton each year. The operation is carried out by an impartial third party to measure and monitor prohibited substances in raw materials and products that have impact on and are hazardous to the environment.

With the rigorous self-discipline and regulations, all the regulations and requirements of Nuvoton have been recognized by customers. Also, it has been a SONY Green Partner since 2009 and continues to pass the regular certification of SONY Green Partners to date.

In 2008, Nuvoton obtained IECQ QC 080000, the Hazardous Substance Process Management System developed by the International Electrotechnical Commission (IEC) in accordance with the electronic parts quality assessment system. Based on ISO 9001 and IATF 16949 management systems, it seeks to minimize or eliminate hazardous substances in the products of the organization by applying a "process management" approach. Furthermore, hazardous substances are managed systematically to reduce or prevent generation of hazardous substances, while meeting the requirements of RoHS, REACH, WEEE, and other special needs of customers. In addition, we are certified against IECQ QC 080000 Hazardous Substance Process Management System to ensure an effective operation of the hazardous substances management system.

STEP 1

**Declaration of Hazardous Substances Free Policy**  
Nuvoton is committed to designing, procuring, manufacturing, and selling products without hazardous substances to meet the regulatory demands internationally and the needs of customers. Also, it endeavors to protect the environment to exercise its social and civic responsibilities.

STEP 2

**Creation of the List of Restricted Hazardous Substances**  
The Restricted Substance List (RSL) is compiled in alignment with international environmental regulations and the requirements of major customers for substances including Prohibited Substances, Restricted Substances, and Declarable Substances, which is amended yearly in line with the status.

STEP 3

**New Material Assessment System**  
In establishing a new material assessment process, it is required to verify that the newly developed products and materials conform to the hazardous substance management procedures of Nuvoton and the environmental, health, and safety requirements.

STEP 4

**Green Procurement and Supplier Management**  
Raw material suppliers and contractors are required to sign the "Certificate of No Use of Hazardous Substances" and to present the third-party testing reports yearly in order to ensure their products in conformity to the international requirements.

STEP 5

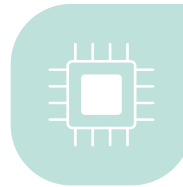
**Hazardous Substances Testing**  
The contents of hazardous substances in wafers and ICs are checked randomly at Nuvoton each year for substances like those listed in RoHS and halogen. The operation is carried out by an impartial third party to measure and monitor prohibited substances in raw materials and products that have impact on and are hazardous to the environment for the compliance with RoHS and halogen-free requirements.

# 3. Customer Service and Satisfaction



Upholding the philosophy of meeting customer needs, Nuvoton offers excellent and competitive product quality and services to gain trust from customers. Also, it is committed to the protection of the confidential information of customers to safeguard the rights and interests of the Company and customers.

On the ground of ensuring the quality and reliability of products and fully satisfying customers' needs, Nuvoton is committed to delivery of "zero defect" competitive products. The methods used include: quality control, reliability assurance, and failure analysis.



### Quality Control

Nuvoton implements a series of quality control mechanisms to cover each step in the production process. The major steps on the control mechanisms include incoming material check, wafer manufacturing process, testing of electrical characteristics, and die packaging. Through the unceasing monitoring of every step of the manufacturing process and collection of feedbacks at every level, it enables fast and efficient issue detection, evaluation and analysis, and corrective measurement. With an emphasize on the attitude of "doing it right the first time" in every step of the manufacturing process, along with establishment of "zero defect" output, it thus renders a production line of high quality and reliability.



### Reliability Assurance

At Nuvoton, the goal of reliability assurance testing is to ensure the performance of advanced products, which comprehensively covers the expected life cycle of the products. Each phase in manufacturing undergoes review, analysis, and assessment on an ongoing basis, along with feedbacks for correction, rendering improvement to quality and reliability in the future.



### Failure Analysis

Customers may return defective products. Nuvoton will conduct a comprehensive examination of the electrical and physical properties and failure analysis for the defective IC to determine the root cause of product failure. Corrective actions and improvement measures will be taken, along with a close monitoring to ensure an effective implementation. Then, the detailed failure analysis report is presented in writing to the customers.

Nuvoton regards customers as important strategic partners. Diversified communication channels and online customer service are available to listen to customer needs and value customer feedbacks. Hence, it offers customers with comprehensive product solutions and is committed to the provision of services of good quality.

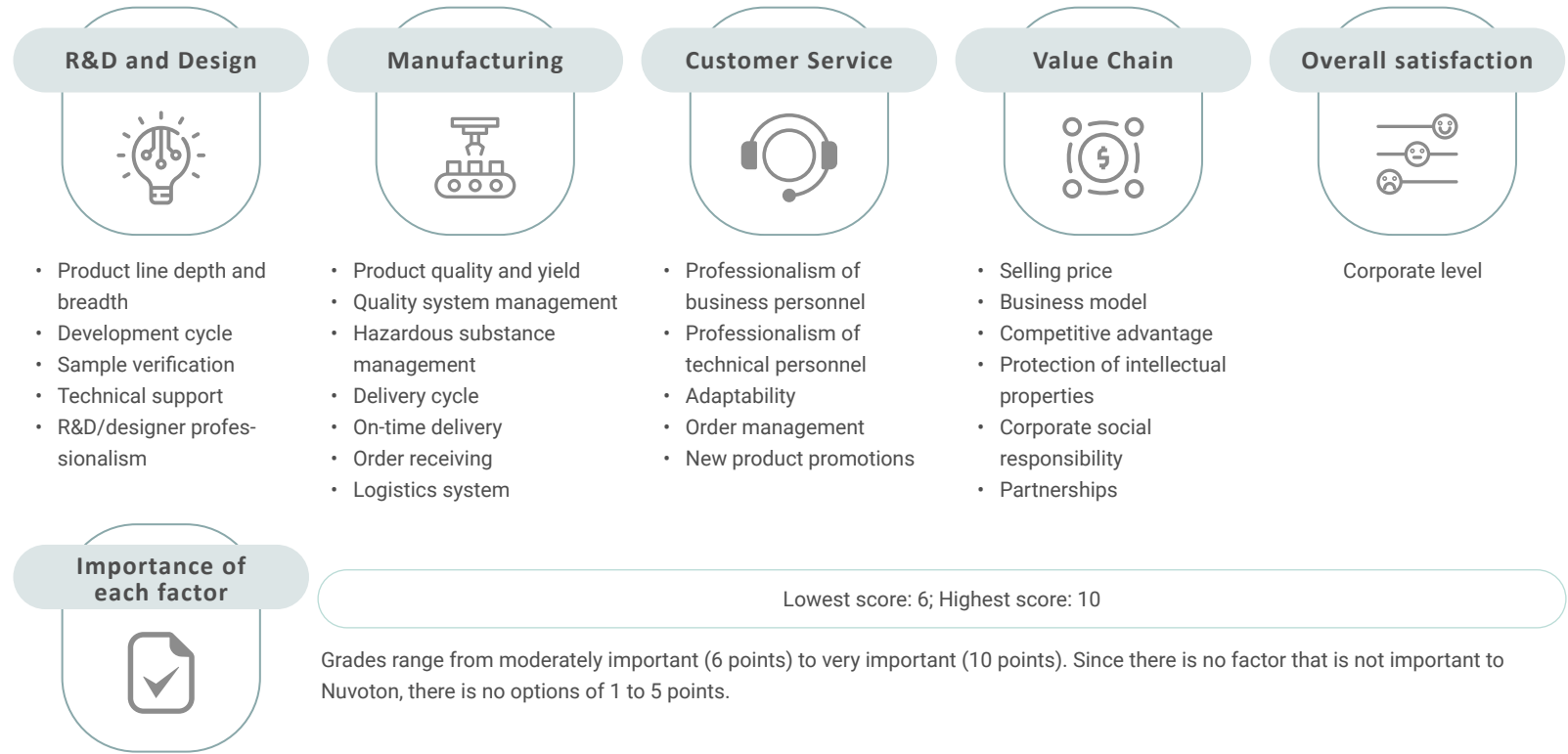
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Through its quality assurance unit, Nuvoton regularly collects customers' satisfaction and valuable suggestions on new product marketing/sales, delivery, quality improvement, technical support, and customer services, covering units like customer procurement, quality assurance, and R&D units. Aside from aggregation of customer evaluations, complaints, satisfactions, and suggestions for improvement, the Quality Assurance Section also convenes relevant units such as the Business Section, the Sales Section, the R&D Section, and the Production Management Section to formulate improvement plans for the issues reported by customers item by item. The improvement plans are to be proposed within one month. Replies are made to the interviewed customers, so that the customers can receive direct and immediate feedbacks. The final aggregated results of the quality assurance unit are submitted to the management as an adjustment resource to ongoingly improve the satisfaction.

The Customer Satisfaction Survey (CSS) at Nuvoton is divided into four major topics, including R&D and design, manufacturing, customer service, and value chain. The content encompasses facets like new product marketing/sales, delivery, quality improvement, technical support, customer service, and corporate image. Respondents are also asked to rate the importance of each factor for a ranking of the analysis results.

The results of the customer satisfaction survey of Nuvoton are analyzed through the Importance and Performance Matrix (IPM) to find the items in the recovered data that customers consider important, but that still have room for improvement, so that the senior management of the Company can determine the allocation of limited resources available. The result is presented in a visualized quadrant map for the convenience of stakeholders to read and understand.



### Customer Satisfaction Survey Result

The 2022 Customer Satisfaction Survey (CSS) of Nuvoton was conducted by an external body under commission in the first quarter of 2023, encompassing the list of customers who accounted for the top 63% of total sales. The result indicates that the performance in all aspects were higher than Satisfied in 2022. Also, the number of respondents that reported "Very Satisfied" and "Satisfied" account for 92% of the total number of respondents.

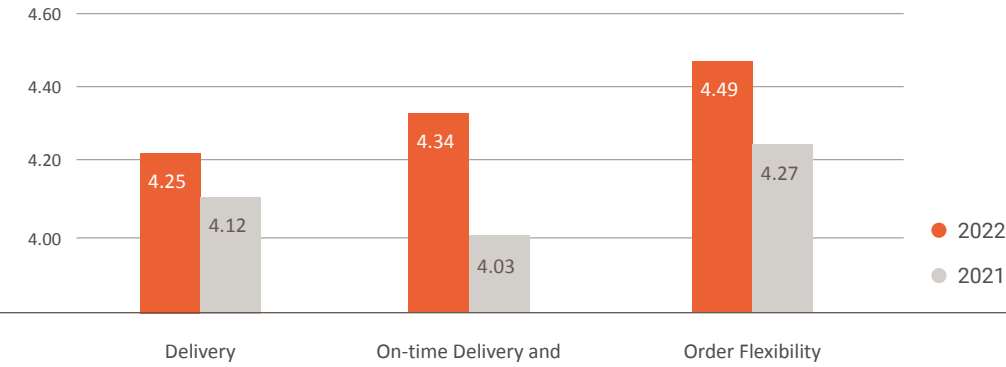
Nuvoton further conducted a cross-analysis. The customer concerns and improvement focuses include new product development speed and offering of cost-effective prices. Nuvoton shall expedite the development of more competitive products based on the customer feedbacks and opinions. Regarding the improvement focuses of customers' concern in 2021, i.e. "delivery," "on-time delivery and transparency," and "order flexibility," after strengthening of production management, shortening of delivery time, and stabilization of supply quantity, the satisfaction therewith in 2022 have all been improved.

#### Overall Satisfaction (Maximum: 10 points)

	Very unsatisfied	Unsatisfied	Normal	Satisfied	Very Satisfied
Overall Satisfaction				8.65	
R&D and Design				8.58	
Manufacturing				8.72	
Customer Service				9.12	
Value Chain				8.72	

Customer	Status in 2022	Description of Major Changes
Number of Customers	The customer satisfaction questionnaires were distributed to 66 customers in total, of which 51 customers responded with a response rate of 77.3%.	The response rate in 2021 is 71.4% (questionnaires distributed to 70 customers, of which 50 customers responded)
Main Products and Services	Focus on the integrated circuit (IC) design, sales, and foundry business at the core, offering general purpose IC as the main products and professional foundry services.	No major change

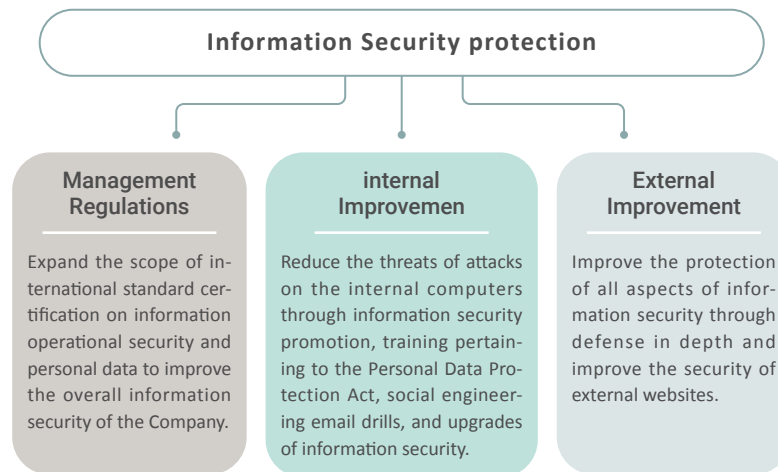
Chart of Satisfaction Trends in 2021 and 2022 (Lowest score:1; Highest score: 5)



Customer Privacy Protection

Nuvoton regards customers as important strategic partners, striving to meet customer needs and expectations. We also attach importance to customer confidentiality and information protection, and strictly management customer-related information. All business information such as documents and materials with customers are maintained by the internal high protection system of Nuvoton. Facing the ever-increasing threats to information security, Nuvoton strengthens information security protection and expands the scope of international standard certification for information security and personal data to improve operational security and personal data protection, ensuring that the Company protects customer privacy and prevent compromise or breach of business secrets and intellectual property rights. In addition to conducting regular audits and self-assessments for internal control every year, control points are set in line with the personnel, customers, and suppliers managed by the units, and regular checks and recording of implementation status of control points are executed. Also, reviews and audits are carried out yearly to establish a comprehensive Information security environment to avoid critical incidents and penalties and protect the reputations of the Company and customers. (For information security management measures such as information security management and risk control, please refer to [2.5 Information Security](#).)

Nuvoton passed the ISO 15408 Common Criteria EAL 4+ for product safety certification in 2014. The certification covers the stages of Design & Development, Production, and Delivery. In 2022, SERMA, a third-party



verification body, was entrusted to conduct an on-site inspection to the production site. After the review, it was rated as "passed." This represents that Nuvoton's management and control of product information security is in compliance with the requirements of the Common Criteria for Information Technology Security Evaluation. Thus, it is capable of producing reliable security products that meet international standards and protect customer information and assets.

Nuvoton has taken measures as appropriate to ensure compliance with the Personal Data Protection Act, the General Data Protection Regulation (GDPR), the California Consumer Privacy Protection Act (CCPA), and other privacy protection laws and regulations.

While improving customer services, Nuvoton emphasizes more on the protection of customer privacy and intellectual properties. It signs confidentiality agreements with customers to protect their confidential information. Also, the confidential data protection procedures are in place to ensure no risk of confidential information breach and a proper protection of customer privacy.

Generally, customer grievances were mostly about product quality issues. Customers may return defective products. Nuvoton will conduct a comprehensive examination of the electrical and physical properties and failure analysis for the defective IC to determine the root cause of product failure. Corrective actions and improvement measures will be taken, along with a close monitoring to ensure an effective implementation. Then, the detailed failure analysis report is presented in writing to the customers.

**Legal Compliance in Customer Privacy Protection and Product-related Laws and Regulations in 2022**

Category	Number of Case/Amount
Violation of regulations and voluntary codes regarding the health and safety impacts of products and services. Total number of incidents (during the life cycle of products and services)	0
Total number of substantiated grievances over breach of customer privacy and loss of customer data	0
The total amount of relevant significant penalties arising from violation of relevant laws and regulations on the provision and use of products and services	NT\$0

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# 4. Supply Chain Management

## Supply Chain Sustainability Policy

With regard to supply chain management, Nuvoton not only complies with basic industrial safety and environmental protection requirements, but also has formulated supplier sustainability management policies and incorporated ESG as part of the supplier evaluation and audit, in an attempt to exert its own influence. Together with its suppliers, Nuvoton values and promotes corporate sustainability so as to achieve the vision of sustainable supply chain development.

On the basis of the principle of international human rights protection, Nuvoton attaches great importance to the issue of conflict metals and is committed to no use of illegally mined metals in violation of human rights in its products, raw materials, and production processes. Also, relevant suppliers are required to sign the "Declaration of Non-Use of Conflict Minerals."

Nuvoton concerns itself with the labor rights in the supply chain, demanding suppliers to comply with the relevant laws and regulations in the countries they operate and the requirements of relevant international industry codes and standards, including the Responsible Business Alliance (RBA) Code of Conduct as well as any changes or amendments thereto. All the suppliers on the supply chain are required to sign the "Commitment to Comply with the Code of Conduct" and the "Confidentiality Agreement."

Nuvoton operates in IC design in the upstream and wafer foundry services in the midstream of the semiconductor supply chain. Thus, it needs to work closely with suppliers in the industry chain to form a partnership of professional division of labor and mutual cooperation. As an iconic company in the global semiconductor industry, it collaborates with its suppliers to create a sustainable supply chain, which is one of the key indicators for the sustainable development management at Nuvoton.

Category of Supplier



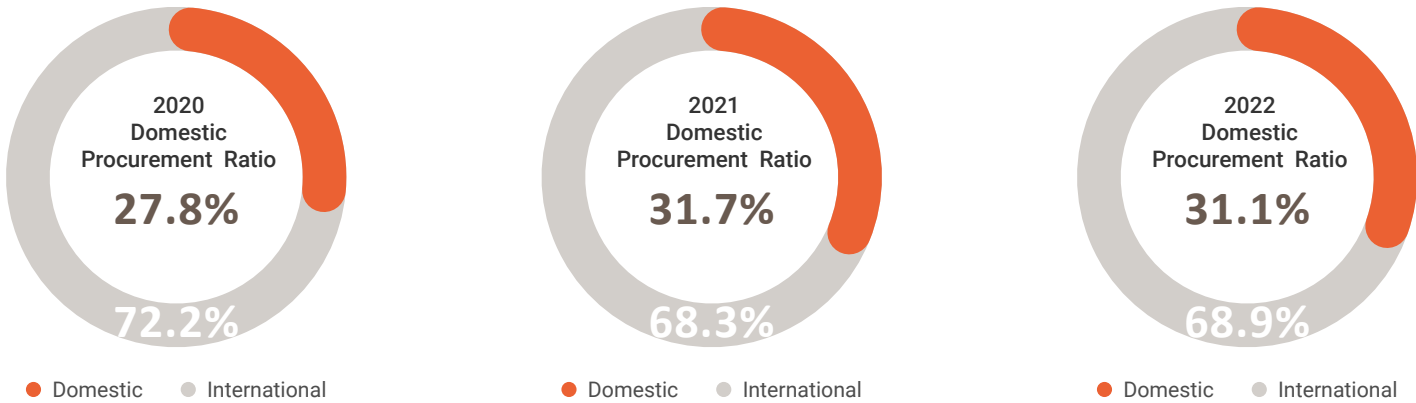
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Nuvoton regards suppliers as partners, verifying that the suppliers' regulations governing labor, ethics, environment, management systems, health and safety, etc. are in compliance with the latest regulatory requirements. Hence, we establish a solid supply chain and ensure the quality of raw material supply, and thus provide customers with high-quality services. As such, we aim to collectively achieve the vision of "peace, reassurance, and empathy."

Since its establishment, Nuvoton has been aiming to foster a long-term, stable supply chain for semiconductors business. In recent years, we have been committed to local manufacturing of raw materials with the goal of transportation cost reduction, risk diversification, and carbon emissions reduction. Furthermore, we seek to increase job opportunities by supporting local production. The ratio of local procurement of raw materials in 2022 was 31.1%, which is a slight decrease by 0.6% compared with that in 2021, due to the limitations of our industrial characteristics. We shall maintain a close relationship with local suppliers in the future. Upholding the prerequisite of a win-win scenario for all, we continue to work together to reduce costs and risks. Local procurement remains an important strategy at Nuvoton in supplier selection.

There are a total of 144 suppliers of raw materials, quartz, mask, subcontract processing, subcontract manufacturing, Known Good Die, and freight broker for Nuvoton. All the suppliers have maintained a long-term cooperative relationship

**Ratio of local procurement of raw materials**



Note: For the geographical definitions for "local" and "important operation sites," the domestic is defined as in Taiwan for local manufacturing and production, while the areas beyond is defined as international.

with Nuvoton with stable supplies. There were no major changes in the supply chain in 2022.

Main Raw Material	Main Sources	Supply Status
Wafer	Supplier K, Supplier A, Supplier I, and Supplier L	Stable quality, good yield, long-term partnership, and good supply delivery
Raw Wafer	Supplier C, Supplier J, and Supplier H	Stable quality and supply, long-term partnership, and good supply delivery

**Green Procurement Action**

Nuvoton is committed to environmental protection, ceaselessly implementing various energy-conservation and carbon-reduction measures in offices and other venues. Also, it supports the green procurement policy in Taiwan, prioritizing the selection and procurement of eco-friendly products that are "low pollution, resource saving, and recyclable." Meanwhile, the concept of green procurement is introduced into the procurement management system to achieve the purpose of energy conservation, carbon reduction, and operating cost reduction.

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## Selection of New Suppliers

Evaluations are conducted regarding quality, price, eco-friendliness, etc. Any supplier that meets the requirements of Nuvoton is to sign “Commitment to Comply with the Code of Conduct” and “Confidentiality Agreement” of the Company as well. Also, the supplier is required to faithfully execute all sales and transactions and shall not damage the interests and image of Nuvoton. As such, it may become a qualified supplier. In 2022, the selection process was done with 11 new suppliers.

<b>Environment Management System Verification</b>	Nuvoton encourages its supply chain vendors to obtain international certification, such as ISO 14001 and other environmental management systems. For any vendor that fails to obtain one in time, it is required to set a timetable for certification.
<b>Code of Conduct</b>	Nuvoton actively adopts the standards of RBA Code of Conduct, demanding all the vendors on the supply chain to sign “Commitment to Comply with the Code of Conduct” and “Confidentiality Agreement.” The vendors are also required to faithfully execute all sales and transactions and shall not damage the interests and image of Nuvoton.
<b>Conflict Minerals Management</b>	Request suppliers to sign the “Declaration of Non-Use of Conflict Minerals” , including wafer subcontract manufacturing suppliers, packaging suppliers and raw material suppliers.

## Supply Chain Management Approach

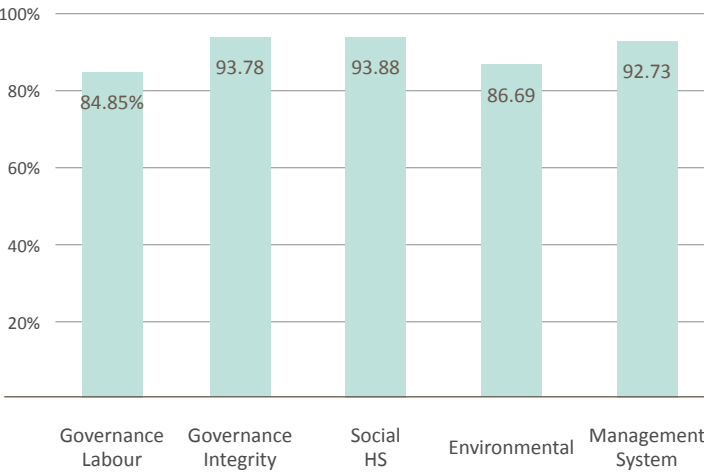
Nuvoton manages and mentor the qualified suppliers following the three aspects as follows. Meanwhile, suppliers are required to obtain third-party quality system certifications, such as ISO9001, IATF 16949, or QC 080000, sign the Commitment to Comply with the Code of Conduct, and undertake the written review of suppliers. A subcontract processing supplier is required to pass the on-site audit.

Any supplier with a self-evaluation result under 80 is subject to education and training to better their knowledge on the basic concepts of ESG & RBA so as to support suppliers in the ESG & RBA practices that follow. There was no supplier that failed the self-evaluation in 2022.

<b>New Supplier Selection</b>	Suppliers are evaluated regarding quality, price, eco-friendliness, etc. and are required to sign “Commitment to Comply with the Code of Conduct” and “Confidentiality Agreement.”
<b>Supplier ESG &amp; RBA Self-evaluation Management</b>	ESG & RBA self-evaluations are conducted for packaging and testing services and raw material suppliers that rank top 80% each year.
<b>Supplier Coaching</b>	Any supplier with a self-evaluation result under 80 is subject to education and training to better the knowledge on the basic concepts of ESG & RBA.

## Supplier Evaluations

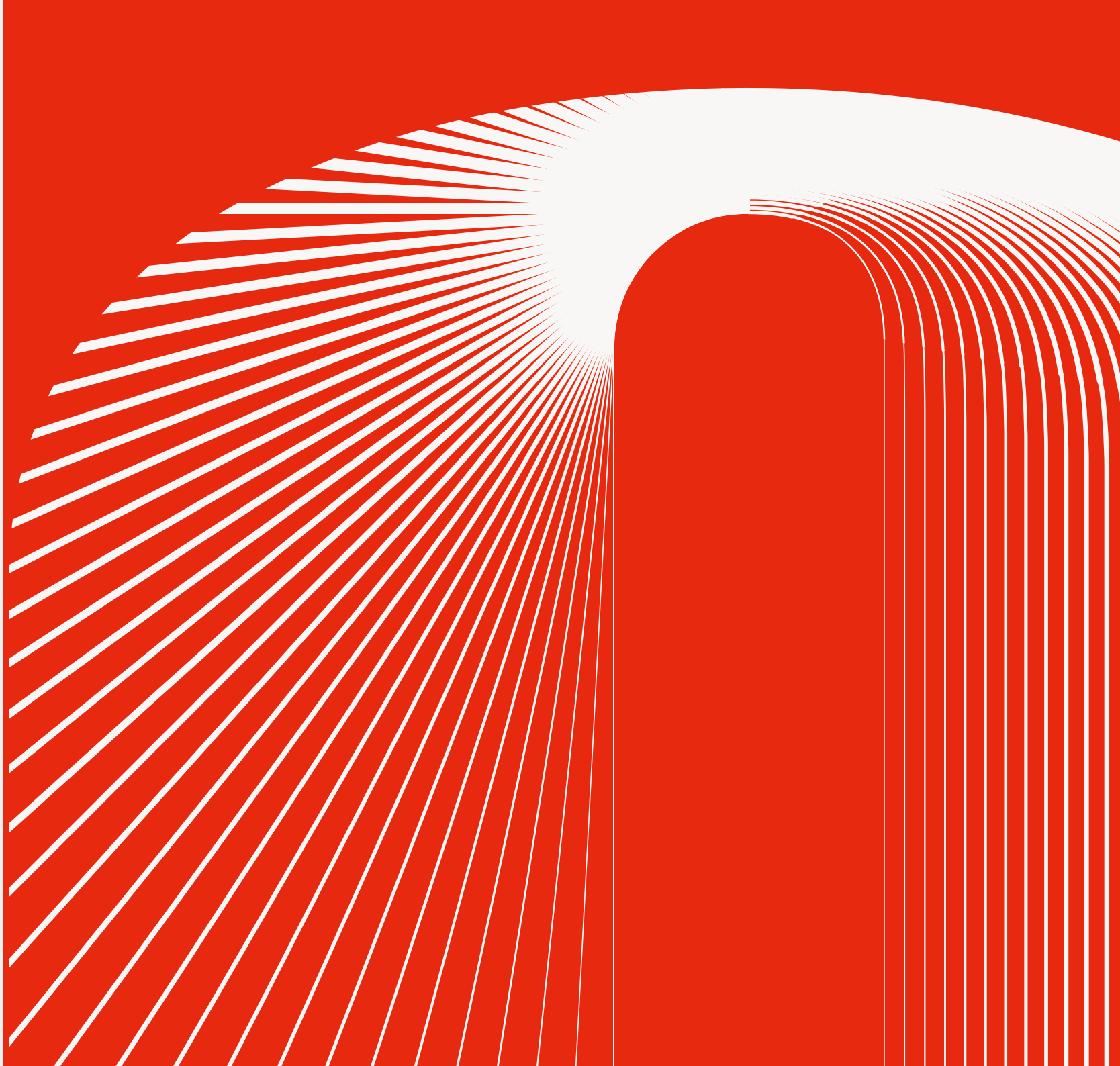
At present, approximately 94.1% of the suppliers on the raw material supply chain of Nuvoton have obtained environmental management system certification(s). A total of 11 packaging and testing services and top 80% suppliers of raw materials completed the ESG & RBA self-evaluations in 2022. After the review by Nuvoton, all the results of self-evaluations of suppliers are higher than 80 points, meeting the requirements of the Company. The percentage of the respective self-evaluation indicators in 2022 are as follows. Based on the chart, the suppliers focused on Social\_Health and Safety systems the most.



## **Environmental Sustainability Performance Management**

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04



# 1.Green Operations

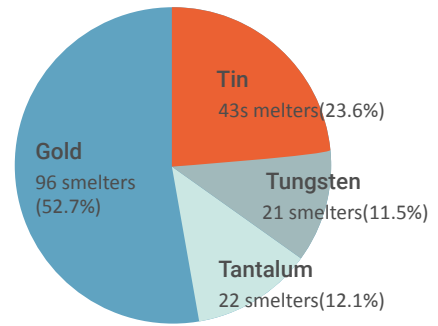


## Raw material use

Based on the principle of human rights protection, Nuvoton attaches importance to the issue of conflict metals, committed to avoiding the use of illegally mined metals in violation of human rights in its products, raw materials, and production processes. Nuvoton demands wafer subcontract foundry service providers, packaging service providers, and raw material suppliers to sign the “Declaration of Non-Use of Conflict Minerals,” declaring that the tantalum (Ta), tin (Sn), tungsten (W), and gold (Au) contained in the manufactured products did not come from armed organizations that violated human rights in the Democratic Republic of the Congo or its surrounding countries/territories. Similarly, suppliers are also required for the performance of the clauses prohibiting the use of “conflict minerals” so as to be listed as qualified suppliers.

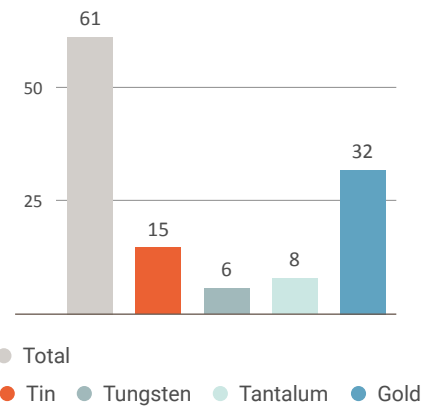
In addition, Nuvoton demands suppliers to investigate and disclose conflict minerals due diligence reports in detail, with the frequency of investigations subject to the update of RBA Code of Conduct. After the investigation on conflict minerals for the abovementioned suppliers (contractors included), all the suppliers were verified as compliant with the relevant regulations.

Nuvoton adopts the Conflict Minerals Reporting Template (CMRT) released by the Responsible Minerals Initiative (RMI) for due diligence on conflict minerals of tin, tungsten, tantalum, and gold, to ensure that the raw mineral materials used in products come from smelters, refiners, or countries recognized by the RMI. In 2022, the tin, tungsten, tantalum, gold, and other raw mineral materials used by Nuvoton came from 182 smelters in 61 countries, all of which were 100% smelters recognized by the RMI. None of the materials used came from the non-government, or illegal military factions, in areas controlled by the Democratic Republic of the Congo or the adjacent countries.



Number of RMI qualified smelters **Total 182**      Qualified ratio **100%**

Number of countries the smelters are located in



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The vision of Nuvoton is to "be a hidden champion in providing sustainable semiconductors to enrich human life." It echoes with the essence of ESG and sustainable development on one hand and conforms to the green energy industry development policy in Taiwan on the other. Through its ceaseless technological innovation and R&D capabilities, Nuvoton improves on the path of green processes (green semiconductor technology) and on green products.

The future-related strategies and plans of Nuvoton fully take the market demands and technological development trends into account. Nuvoton also actively participates in the R&D and innovation of green energy technology and continues to expand its applications in the field of automotive, industrial control, and networking. Meanwhile, Nuvoton is involved in the Green Energy Technology Industry Innovation and Promotion Action Plan of the Executive Yuan to ensure the alignment of its industrial plans with the policies, so as to attain the goal of sustainable development of the Company.

In 2022, Nuvoton continued to save raw materials and improve product execution efficiency through its advantages of green processes as well as reduced the power consumption in execution through research and development technologies. For example, by improving the power consumption in product and selection of processes of low power consumption and low leakage, compared with the previous generation of low-power microcontroller Nano100 series, the low-power next-generation microcontroller, M251 series, is 15% to 20% smaller in size and 20% to 30% lower in power consumption in execution, ushering in the advantages of power conservation and area reduction in IC.

### Product IC Miniaturization

The main products of Nuvoton are ICs, and ICs are extensively and diversely used in terminal markets and terminal devices. Therefore, Nuvoton is committed to taking the environment into consideration in the chip design stage. Targeting the manufacturing and disposal stages of terminal device, through the product IC miniaturization, it reduces the amount of raw materials used in terminal devices and the amount of wastes in discard, thus lowering the impact on the environment.

For cloud servers and data centers, personal desktop and laptop computers, etc. with high market demands, Nuvoton has performed improvements like green processes and miniaturization design for management IC, the key component in terminal devices. With the product ICs of Nuvoton in 2019 as the benchmark, the IC packaging used on the main management ICs of Nuvoton for computers since 2021 have mostly adopted smaller packaging, reducing the IC area by 75%.

The smaller IC packages enable smaller areas required for ICs on the PCB of terminal devices. The smaller area required on the PCB of terminal devices can reduce the environmental pollution of the PCB manufacturing process, lower the consumption of raw materials, and minimize the amount of PCB wastes upon terminal devices discarded. The IC miniaturization and green process design of Nuvoton help reduce environmental impacts.

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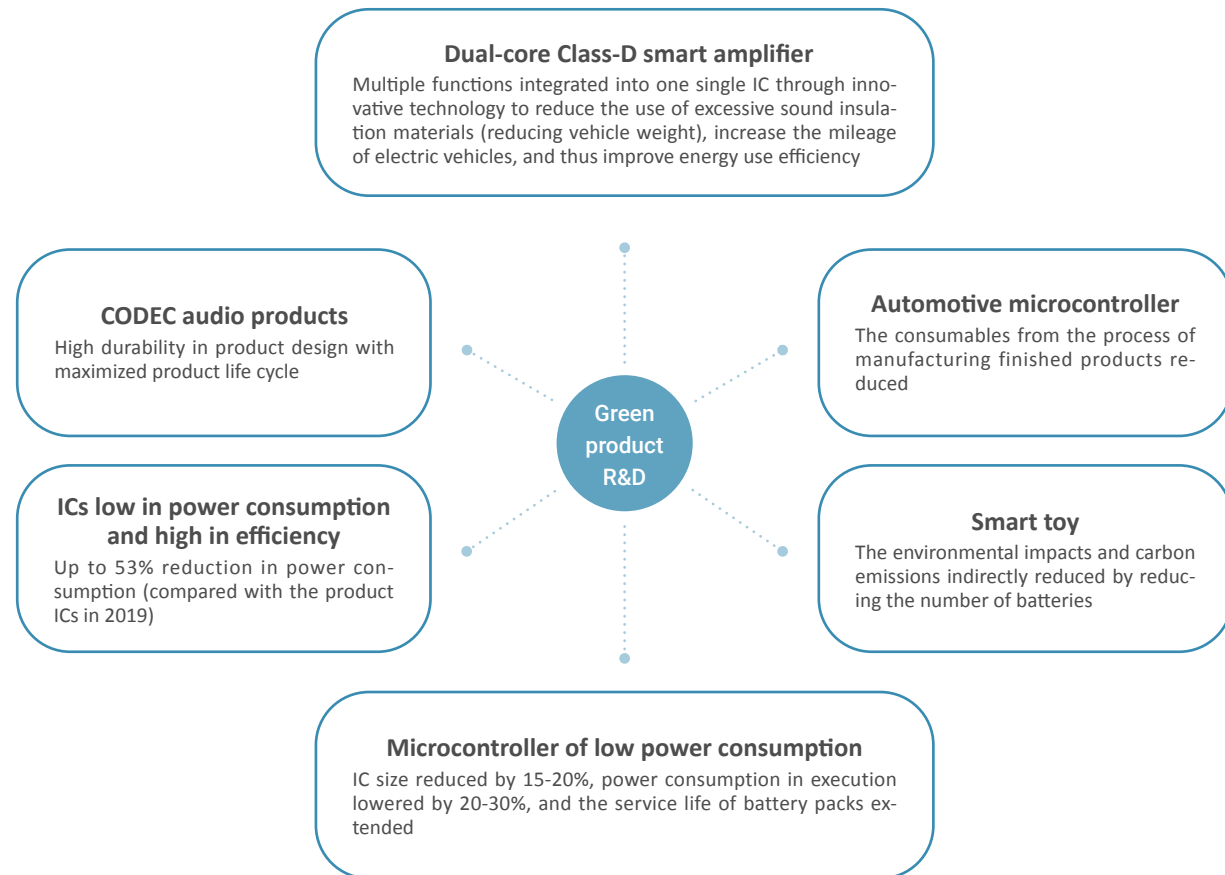
**Management IC for computers: 75% smaller for computer IC package**

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In line with the ongoing development of the net-zero emission trend, the markets of electric vehicles, power management, and energy storage are ever more booming. Nuvoton assists the traditional and EV manufacturers to develop more efficient vehicle control products with MCUs that are heat resistant, high noise resistant, and small in packaging. As for the power management and energy storage markets, it also uses microcontrollers of low power consumption to support markets such as electric bicycles, electric motorcycles, major appliances, and energy storage to extend the battery life of products, lower power consumption, and mitigate the damages of frequent charging to batteries.

Through ceaseless innovation for power-efficient microcontrollers, Nuvoton helps reduce the carbon emissions of global IC manufacturing. Especially for the EV and power management applications, the power-saving and high-efficiency designs are introduced into products at the early stage of development. Precise control design is made in line with user scenarios. Unnecessary circuit design is reduced. Logic gates are added in the design of each function to ensure that unnecessary leakage current, which results in draining the power of the entire microcontroller, is reduced in different use scenarios of individual microcontrollers.



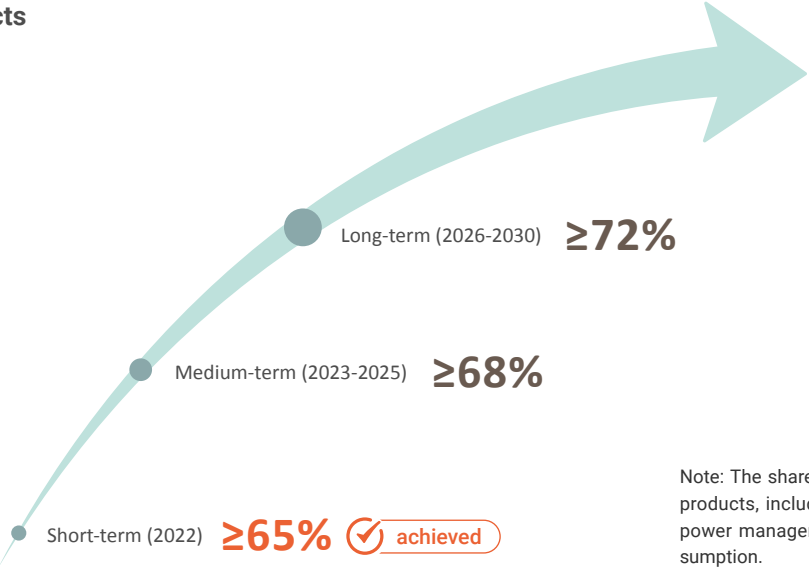
**The future directions for new products of Nuvoton**

1. The product design is aimed at lowering the operating voltage (reducing power consumption), improving the energy conversion efficiency and reducing the use of external parts via circuit design change.
2. OTP IC and flash version for smart toy products are projected to be launched in 2023 and 2024 in order to continue to increase the benefits of improvements on the environmental aspect.
3. Develop the customized standard components that are most streamlined and most practical for customer applications, so as to reduce the unnecessary design and waste of development costs.
4. Increase the extensibility of product functions through the combination of audio products, so as to reduce the rework in customers' design.

Nuvoton provides high-voltage technology process platforms to facilitate customers to realize green product manufacturing and produce power management ICs with lower energy consumption and high efficiency. The power management ICs are applied to management of the power consumption of electronic products, which determines the application of energy efficiency. The optimized power efficiency helps realize energy conservation and carbon reduction. The high-voltage integrated circuit (HVIC) process platform developed in 2022 raise the normal 48V voltage application to 120V-250V, enabling a higher conversion rate under the same power and providing customers with more innovative products to design with. At present, it is applied in the fields of consumer electronics and industrial control. Moving forward, we shall continue to develop higher voltage process technology to help customers secure a wider range of applications in automotive electronics. By producing sustainable products together with customers, we usher in material benefits to the environment.

The sustainable products produced by the process platforms of Nuvoton gradually take up an important share in the external foundry services. The share of revenue in 2022 has reached the short-term target (65%).

**Share of sustainable products**



Note: The share of sustainable products in the revenue of external foundry services; sustainable products, including products with high performance, high integration, low power consumption, power management, and so on that reduce energy consumption or size to save resource consumption.



Use and Recycling of Packaging Materials

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To protect the sustainable development of the ecological environment and reduce deforestation and use of plastics, Nuvoton works with suppliers to improve the reuse of chemical barrel packaging materials. Recyclable plastic pallets are used in place of wooden pallets. The barrel packaging is recycled instead of using disposable barrel packaging to reduce deforestation and use of plastics.

In terms of product packaging materials used, Nuvoton employs recycled cassettes entirely for IC shipment through the recycling mechanism of the outsourced packaging and test (OSAT) vendors. Recycled trays, instead of new ones, are used as many as possible for product shipments. The use cycle of packaging materials is extended, reducing the usage and costs in packaging materials, along with reduction of waste generated. As for the general cartons and other consumables (aluminum foil bags, bubble sheets, document envelope bags, etc.) are recycled and reused repeatedly until they can no longer be used. Then, direct incineration is avoided. The resources are processed into recycled products to achieve the dual benefits of source reduction and resource recycling.



# 2.Environmental Management

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Nuvoton is committed to the goal of becoming a green enterprise with sustainable development for the environment. We abide by environmental laws and regulations and relevant international standards. We pledge to continuous improvement, reducing the impact of production on the environment through source reduction and full participation. Also, we seek to eliminate any foreseeable risk of environmental pollution and properly protect the natural environment. Nuvoton pursues a balanced development of economy, society, and ecology while carrying out production activities.

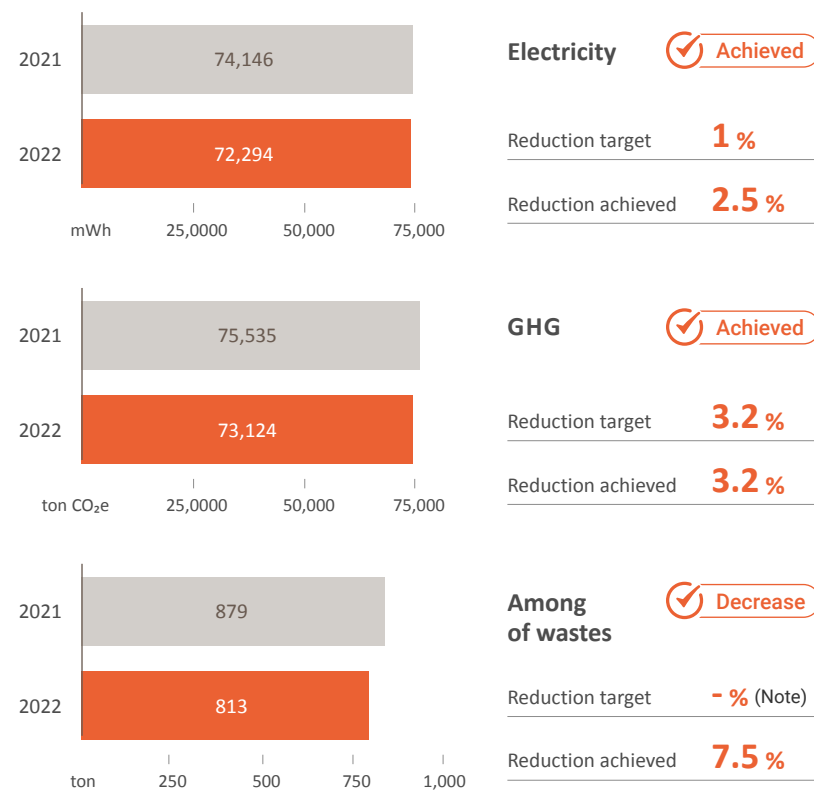
Upholding the eco-friendly attitude, Nuvoton has set three environmental protection strategic directions, i.e. "cherishing resources used," "reducing pollution emissions," and "development of green products" as a green enterprise of sustainable development.

The ISO14001 environmental management system is in place at Nuvoton to promote relevant environmental management policies. In the meantime, it implements various energy conservation policies to improve the efficiency of energy resource use and implement various environmental goals to achieve the sustainable development goal of energy conservation and carbon reduction. The environmental safety health and risk management committee was established to conduct regular reviews on regulatory compliance, topics of concern to stakeholders, and the ongoing improvement plans for the environment. Under the committee, specific functional groups were created as needed to develop reduction goals and guidelines for important environmental issues, such as energy conservation and GHG reduction, and enforce various relevant reduction plans. Meanwhile, we operate the environmental, health, and safety management system in the spirit of P-D-C-A for continuous improvement, comply with environmental laws and regulations, and ceaselessly reduce the use of key raw materials and pollution emissions/discharges through process optimization and the participation by all employees.

## Future Outlook for Net-Zero Emissions

With reference to Taiwan's Pathway to Net-Zero Emissions in 2050, the 4 major transition strategies of "Energy Transition," "Industrial Transition," "Lifestyle Transition," and "Social Transition" as well as the two governance foundations of "Technology R&D" and "Climate Legislation" are incorporated in the sustainable development and risk management at Nuvoton. Through the three major facets of governance(including economy ), environment, and society (including human rights), it identifies risks and opportunities that may have impacts on the sustainable development of the Company, in order to formulate the Net Zero policies and map out the pathway to Net Zero by 2050 of Nuvoton.

### Environmental Management Targets in 2022



Note: no reduction target set in 2021

# 3. Energy Management

## Energy Management Policies

In response to the global development trend of climate governance, Nuvoton has extended its carbon reduction goals and issues from the environmental protection aspect in the past to the industrial and energy transitions. Nuvoton introduced the ISO50001 energy management system in 2022, which is scheduled for verification in 2023. Through the establishment of the PDCA (Plan-Do-Check-Action) mechanism and establishment of related standards and methods, the Company strives to improve energy use efficiency, elevating its energy performance to the optimal level. Through the promotion of energy management policies and target plans, it aims to achieve reductions in energy use and costs as well as greenhouse gas emissions, so as to fulfill the goals of sustainable business and environmental friendliness

The energy conservation and carbon reduction projects promoted by Nuvoton in 2022 mainly focused on the installation of renewable solar energy and fluorinated gases (F-gases) reduction equipment to the processes. It is projected to complete 8% of the contracted capacity of renewable energy in 2023 (880,000 degree produced annually). The installation of first fluorinated gases reduction equipment completed at 2022, which is expected to reach a 20% reduction of fluorinated gases in the processes upon its official operation, with increasing reduction amount forward-looking.



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Nuvoton mainly focuses on IC design and sales and foundry services. The source of energy used at present is primarily purchased electricity, accounting for about 97.2% of the total energy consumption, followed by gas (natural gas and liquefied petroleum gas), for about 2.8%, and fuel oils (diesel and motor gasoline), for less than 0.1%. The electricity is all purchased from Taiwan Power Company, without any use of renewable energy like geothermal energy, wind energy, solar energy, hydropower, or biomass energy. In 2022, according to the inventory of the actual electricity use, the electricity consumption was 72,294,038 kWh, which is equivalent to 260,258.54 gigajoules (GJ), dropped by 2.5% compared with the level of previous year. The total energy consumption was 267,811 GJ with an energy intensity of 13.72 GJ per million NTD, decreased by 27% from the previous year.

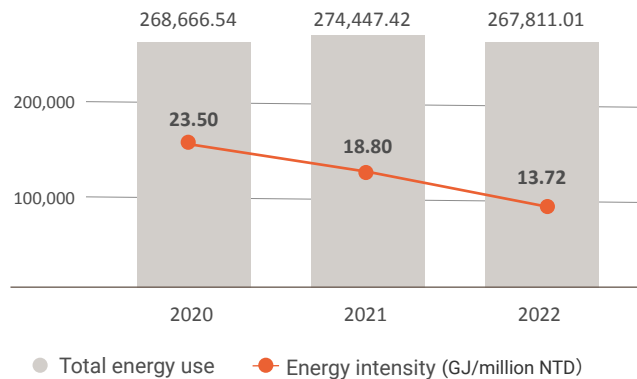
### Energy Use

Energy	Unit	2020	2021	2022
Purchased electricity	kWh	72,336,600	74,146,028	72,294,038
	GJ	260,411.76	266,925.70	260,258.54
Gasoline	L	1,192	1,140	805
	GJ	38.94	37.22	26.30
Diesel	L	4,800	n/a	n/a
	GJ	168.81	n/a	n/a
Natural gas	thousand m <sup>3</sup>	236,543	220,590	221.620
	GJ	8,047.03	7,484.50	7,526.20
<b>Total</b>	GJ	268,666.54	274,477.42	267,811.01

Note 1: Conversions are made based on the heating values on the Greenhouse Gas Emission Factor Table (6.0.4) published on the website of Bureau of Energy. Electricity: 3,600 (GJ/million kWh); gasoline: 7,800 (Kcal/L); diesel 8,400 (Kcal/L)

Note 2: 1 gigajoule (GJ) = 10<sup>9</sup> joules (J); 1 kilocalorie (Kcal) = 4,186.8 joules (J)

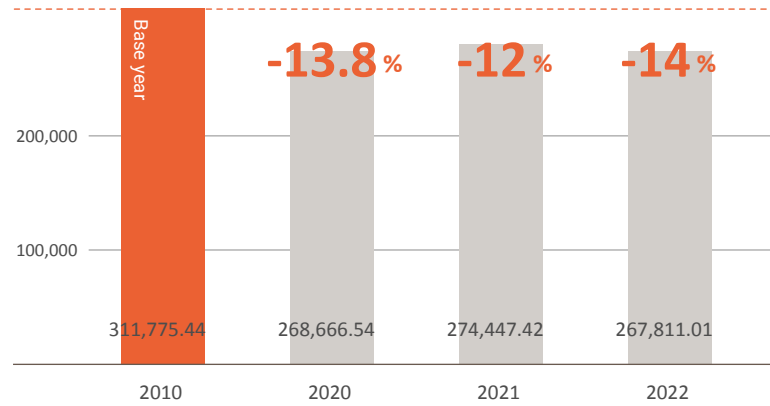
### Energy Intensity



	2020	2021	2022
Revenue (million NTD)	11,433	14,601	19,520
Energy intensity (GJ/million NTD)	23.50	18.80	13.72
Energy intensity (GJ/cm <sup>2</sup> of wafer)	0.00252	0.00239	0.00256
Energy intensity (GJ/layer-wafer mask)	0.02632	0.02529	0.02558

Note: Energy intensity = energy heating value/revenue (Since the GHG emissions are emissions from Taiwan, the revenue from Taiwan is used in the calculation.)

### Energy Consumption Reduction



Note: Annual reduction rate is calculated base on base year 2010.

### Power conservation measures in 2022

Power conservation measures	Power saved (kWh/year)	Carbon emissions reduced (metric tons of CO <sub>2</sub> e)	Energy saved (KJ/year)
Replacement of OAC-4 motor (150 HP)	13,140	6.69	47,304
Phase-out of cooling water tower 2AB	83,950	42.73	302,220
LED light replacement for WAT	14,016	7.13	50,458
<b>Total</b>	<b>111,106</b>	<b>56.55</b>	<b>399,982</b>

Note 1: The carbon emissions are calculated based on the emission factor (EF) of electricity provided by the Bureau of Energy, Ministry of Economic Affairs, in 2022 which is 0.509 kg CO<sub>2</sub>e/kWh in 2021.

Note 2: The energy saved is calculated at 3,600 joules per kWh.

**There were 3 power conservation measures enforced at Nuvoton in 2022. The power difference before and after improvement is multiplied by the estimated operating hours in 2021. The power conserved was approximately 111 kWh, which is about 400,000 KJ reduced.**



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## Greenhouse Gas (GHG) Management

To capture the status of GHG-related activities on the Company and stipulate the reduction targets and priorities, Nuvoton has established the GHG inventory mechanism in alignment with ISO 14064-1 and the Guidelines for Greenhouse Gas Inventories of the Environmental Protection Administration, the Executive Yuan since 2009. The GHG emissions from the plants are inventoried regularly each year. Also, year 2010 is set as the base year for GHG emissions (Scope 1 and 2). To improve the credibility of the GHG inventory information and reports, as well as strengthen the data quality of GHG inventory, all the annual GHG inventory materials (Scope 1 and 2) are verified by a third-party verification body in accordance with ISO 14064-1 since 2009 to obtain the Verification Statement. Since 2020, scope 3 has been included in self-inventory and certification process.

The third-party verified total GHG emissions of Nuvoton in 2022 were 73,123.90 metric tons of CO<sub>2</sub>e, reduced by 2,411.15 metric tons of CO<sub>2</sub>e (3.19%) compared with the level of 2021. The total direct emissions (Scope 1) in 2022 were 36,326.24 metric tons of CO<sub>2</sub>e, accounting for 49.68% of the overall emissions. The total indirect emissions (Scope 2) were 36,797.67 metric tons of CO<sub>2</sub>e, accounting for 50.32% of the overall emissions. The emission intensity was 3.75 (metric tons/million NTD)Note4. In 2022, the other indirect emissions (Scope 3) totaled 18,392.73 metric tons of CO<sub>2</sub>e (6.13%). The scope of inventory encompassed the emissions from the transportation of raw materials, transportation and distribution of organization’s products, employee commuting, business travels, purchase of goods (main raw materials), and wastes generated from operations.

The process GHG of Nuvoton account for more than 90% of Scope 1 emissions. Therefore, the reduction of GHG emissions in processes is the main reduction goal. The reduction strategy in the early stage is mainly based on process gas replacement and process optimization. At present, the main reduction strategy is to install fluorinated gases reduction equipment into the processes. Since the existing plants has insufficient space for the installation of reduction equipment, Nuvoton plans to install process F-gases reduction equipment year by year through improving the treatment efficiency of the reduction equipment and space optimization.

Nuvoton enforced 3 measures to reduce greenhouse gas emissions (same as power conservation measures) in 2022, reducing approximately 56.55 tons of CO<sub>2</sub>e in total, and aims to achieve Net Zero by 2050 as its long-term reduction goal.



Greenhouse Gas Emissions

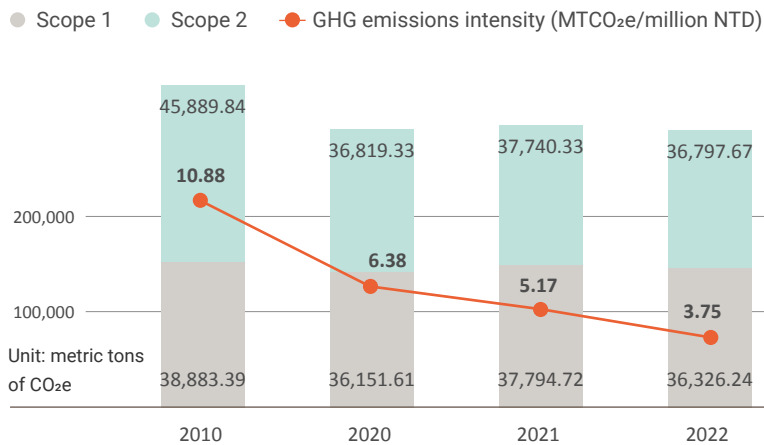
Item	2010 (base year)	2020	2021	2022
Scope 1	38,883.39	36,151.61	37,794.72	36,326.24
Scope 2	45,889.84	36,819.33	37,740.33	36,797.67
<b>Total</b>	<b>84,773.23</b>	<b>72,970.94</b>	<b>75,535.05</b>	<b>73,123.90</b>
Revenue (million NTD)	7,794	11,433	14,601	19,520
GHG emissions intensity (MTCO <sub>2e</sub> /million NTD)	10.88	6.38	5.17	3.75
GHG emissions intensity (kgCO <sub>2e</sub> /cm <sup>2</sup> of wafer)	1.053	0.707	0.677	0.719
GHG emissions intensity (kgCO <sub>2e</sub> /layer-wafer mask)	10.56	7.375	7.151	7.187

Note 1: The emission factors are based on the Greenhouse Gas Emission Factor Table (6.0.4) of the Environmental Protection Administration, Executive Yuan.

Note 2: The emission factor of electricity in 2022 is 0.509 kg CO<sub>2e</sub>/kWh based on the 2021 electricity EF of Bureau of Energy, MOEA. The emission factor of electricity in 2021 is 0.509 kg CO<sub>2e</sub>/kWh based on the 2021 electricity EF of Bureau of Energy, MOEA. The emission factor of electricity in 2020 is 0.502kg CO<sub>2e</sub>/kWh based on the 2020 electricity EF of Bureau of Energy, MOEA.

Note 3: GHG emissions intensity = GHG emissions/Revenue (since the GHG emissions are those in Taiwan, the revenue is calculated based on that in Taiwan.)

Note 4: GHG emissions intensity excludes Scope 3



Scope 1 Emissions

Types of Scope 1 Emissions	Emissions (MTCO <sub>2e</sub> )
Carbon dioxide (CO <sub>2</sub> )	489.0389
Methane (CH <sub>4</sub> )	128.3250
Nitrogen dioxide (N <sub>2</sub> O)	1,251.2603
Hydrofluorocarbons (HFCs)	11,355.3972
Perfluorocarbons (PFCs)	10,359.4410
Sulfur hexafluoride (SF <sub>6</sub> )	12,141.0000
Nitrogen trifluoride (NF <sub>3</sub> )	601.7760

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# 4.Resource Recycling & Pollution Prevention

## Air Pollution Management

With regard to air pollution control and air emissions, Nuvoton strictly abides by government laws and international regulations, committed to ongoing reduction of pollutant emissions. The pollutants produced from the manufacturing processes of Nuvoton include volatile organic compounds (VOCs), nitrogen oxides, sulfur oxides, ammonia, chlorine, hydrochloric acid, nitric acid, phosphoric acid, and so forth. For the treatment strategies for air pollutants, we first carry out source control and optimization of the consumption in the processes to reduce the air pollutants generated. Part of the process exhausts generated are effectively treated with high concentration by on-site air treatment equipment (Local Scrubber) in the first stage. Then, the exhausts are sorted based on the exhaust properties and collected in a closed manner to the central air pollution prevention equipment (Central Scrubber) for terminal treatment in the second stage. In addition to a close monitoring on the plants, a certified laboratory is also entrusted to perform testing every year, and the test results are reported to the competent authority. The test items include non-methane hydrocarbons (NMHC) as well as acid and alkaline gases like sulfuric acid (H<sub>2</sub>SO<sub>4</sub>), hydrochloric acid (HCl), nitric acid (HNO<sub>3</sub>), hydrofluoric acid (HF), phosphoric acid (H<sub>3</sub>PO<sub>4</sub>), chlorine (Cl<sub>2</sub>), ammonia (NH<sub>3</sub>), etc. Based on the test results of Nuvoton carried over the years, the emission concentrations of the air pollutants have been lower than the levels stipulated in the exhaust emission standards.

The air pollutant treatment system at Nuvoton operates 24/7. System monitoring and treatment are in force and operate normally at all times to treat air pollutants in line with the properties of the exhausts:

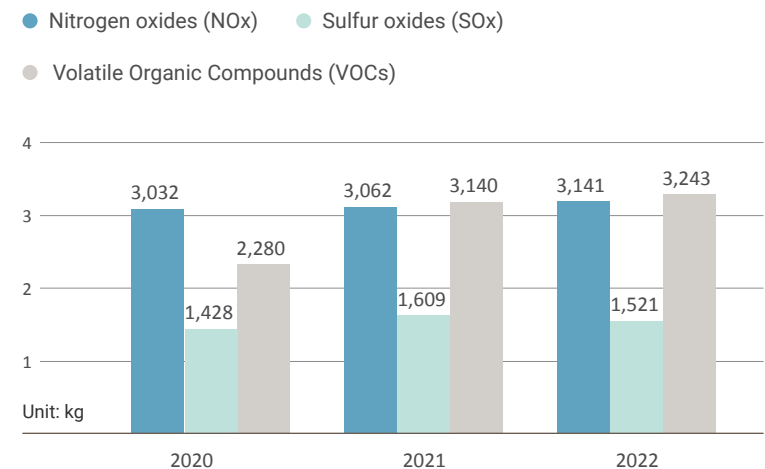
1. Inflammable and toxic gases and FCs are specially treated by the on-site air treatment equipment at the processes like the adsorption, electric heating or washing facilities to reduce hazard. The exhaust gases are discharged to the central exhaust scrubber in line with the acid or alkaline properties for neutralization.

2. The exhausts containing VOCs are firstly adsorbed by zeolite rotor, followed by discharge into direct-fired oxidizer for incineration. The organic exhausts with a high boiling point are condensed through temperature difference for collection. The emissions are tested regularly each year, and all of which are lower than the regulatory limit at 0.6 kg/hr.

**In 2022, in order to elevate the efficiency of FC treatment, additional on-site air treatment equipment was procured with an investment amount of NT\$12 million.**

### Air Pollutant Emissions

Air pollutant emissions of Nitrogen oxides (NO<sub>x</sub>), Sulfur oxides (SO<sub>x</sub>), and Volatile Organic Compounds (VOCs) shown as below, remaining equivalent amount as previous year.



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Climate change has brought significant changes in precipitation around the world in recent years. The issue of water scarcity is drawing international attention. Yet, the processes of the semiconductor industry are highly water demanding. The source of water for Nuvoton is municipal water supplied by water utilities. Also, small amount of rainwater and condensed water from air-conditioning are reclaimed as secondary water. The two main strategies for water conservation are source reduction first and recycling that after to reduce the consumption of water resources.

The main production and operation base of Nuvoton sits the Hsinchu Science Park. The source of water is the Baoshan Reservoir in Hsinchu. After the survey with the “Aqueduct Water Risk Atlas” of the World Resources Institute, both the total water withdrawal from and the percentage of water consumption from areas with high or extremely high level of water stress are zero. There is no groundwater or seawater used. The potential impact on local water use is assessed to be low. Also, the industrial wastewater and domestic sewage generated by the enterprises on the park are all collected via sewers and converted to the sewage treatment plant of the park. After treatment, the water with the quality better than the national effluent standards is discharged to the Keya Creek via the independent, dedicated pipelines, rendering no impact on the ecological environment or the water quality. The total water withdrawal of Nuvoton in 2022 was 409.722 million liters with a total water discharge of 312.09 million liters. All reports were made in accordance with the regulations, and there was no concern of wastewater leakage with impact on the surrounding environment.

The sources of wastewater are mainly process wastewater and domestic sewage. The sources of process wastewater may generally fall into washing, film formation, etching, development, diffusion, and other processes. The wastewater is divided into acid/alkaline wastewater, fluorine-containing wastewater, and grinding wastewater. Depending on the properties of the wastewater, the treatment may be neutralization or adding calcium chloride into fluorine-containing wastewater first,

followed by coagulation and sedimentation, and other related treatment technologies in complementary with each other, in order to comply with the sewer connection standards of the Water Pollution Control Measures and Test Reporting Management Regulations. Meanwhile, through the regular sampling and analysis every six months to verify that it is within the parameters, the wastewater is discharged to the wastewater treatment plant of Hsinchu Science Industrial Park for treatment, before discharged to the Keya Creek via the dedicated pipeline. As for the domestic sewage, it is directly discharged to the wastewater treatment plant of the park through the sewer.

**Water Usage**

Unit: million liters

	2010 (base year)	2020	2021	2022
<b>Water withdrawal</b>				
<b>Surface water/Others</b>	1.44	2.19	2.19	2.19
<b>Third-party water supply</b>				
<b>Municipal water</b>	661.3	400.73	389.29	407.53
<b>Total water withdrawal</b>	662.74	402.92	391.48	409.72
<b>Water discharge</b>				
<b>Third-party water/ Freshwater</b>	535.8	317.61	318.67	312.09
<b>Untreated</b>	27.399	19.742	17.07	15.24
<b>Secondary treated</b>	508.40	297.87	301.6	296.85
<b>Water consumption</b>				
<b>Total water consumption</b>	126.95	85.31	72.81	97.63

Note 1: The source of third-party water supply is Taiwan Water Corporation  
 Note 2: The third-party water is the Wastewater Treatment Plant of Hsinchu Science Park  
 Note 3: Note 3: The data above covers only the Hsinchu Plan  
 Note 4: Water rationing was implemented on H1 of 2021 due to drought, and resumed normal water supply in 2022, therefore water consumption increased in 2022 than that of 2021

Unit: million liters

	Sewer connection standard	H1	H2
Suspended particles (mg/L)	300	5.9	11.9
Chemical oxygen demand (mg/L)	500	74.2	32.1
Fluoride (mg/L)	15	6.56	3.48
Ammonia nitrogen (mg/L)	50	10.2	5.64
Nitrate nitrogen (mg/L)	50	1.11	0.5

**The treatment equipment for fluorine-containing sewage was replaced in 2022 with an amount of NT\$8.45 million invested.**

The total consumption of municipal water (reclaimed water included) by Nuvoton in 2022 was approximately 768.042 million liters with a water use per unit product of approximately 40.1 liters/layer-wafer mask or 4.01 liters/cm<sup>2</sup>-wafer. The amount of water reclaimed throughout the plant was 518.25 million liters with a total reclamation rate across the plant at 67.5%.

In compliance with the addition of -NMP concentration standard for sewer connection of the Hsinchu Science Park Bureau (HSPB) in 2021, our plant actively assesses and evaluates the appropriate methods. At present, we are employing the method of raw materials substitution with a 3-year reduction plan for NMP substitution. We have completed the verification of the new raw material with the products in 2022. It is scheduled to be adopted for substitution and use in 2023. Meanwhile, the effectiveness of this method will be verified through constant water quality sampling.

Unit: million liters

	2010 (base year)	2020	2021	2022
Water use on the plant (municipal water)	661.283	400.732	389.29	407.532
Total water use (reclaimed water included) on the plant	1,178.458	763.886	779.913	768.042
Reclaimed water on the plant	693.799	512.748	531.548	518.25
Water reclamation rate on the plant (%)	58.9%	67.1%	68.2%	67.5%
Total process water use (reclaimed water included)	957.422	653.623	670.504	657.077
Process wastewater	508.396	297.868	301.6	296.847
Water use per unit product (liter/layer-wafer mask)	82.4	40.5	36.9	40.1
Water use per unit product (liter/cm <sup>2</sup> -wafer)	8.21	3.59	3.83	4.01
Wastewater generated per unit product (liter/layer-wafer mask)	63.3	30.1	28.6	29.2
Wastewater generated per unit product (liter/cm <sup>2</sup> -wafer)	6.32	2.67	2.97	2.92

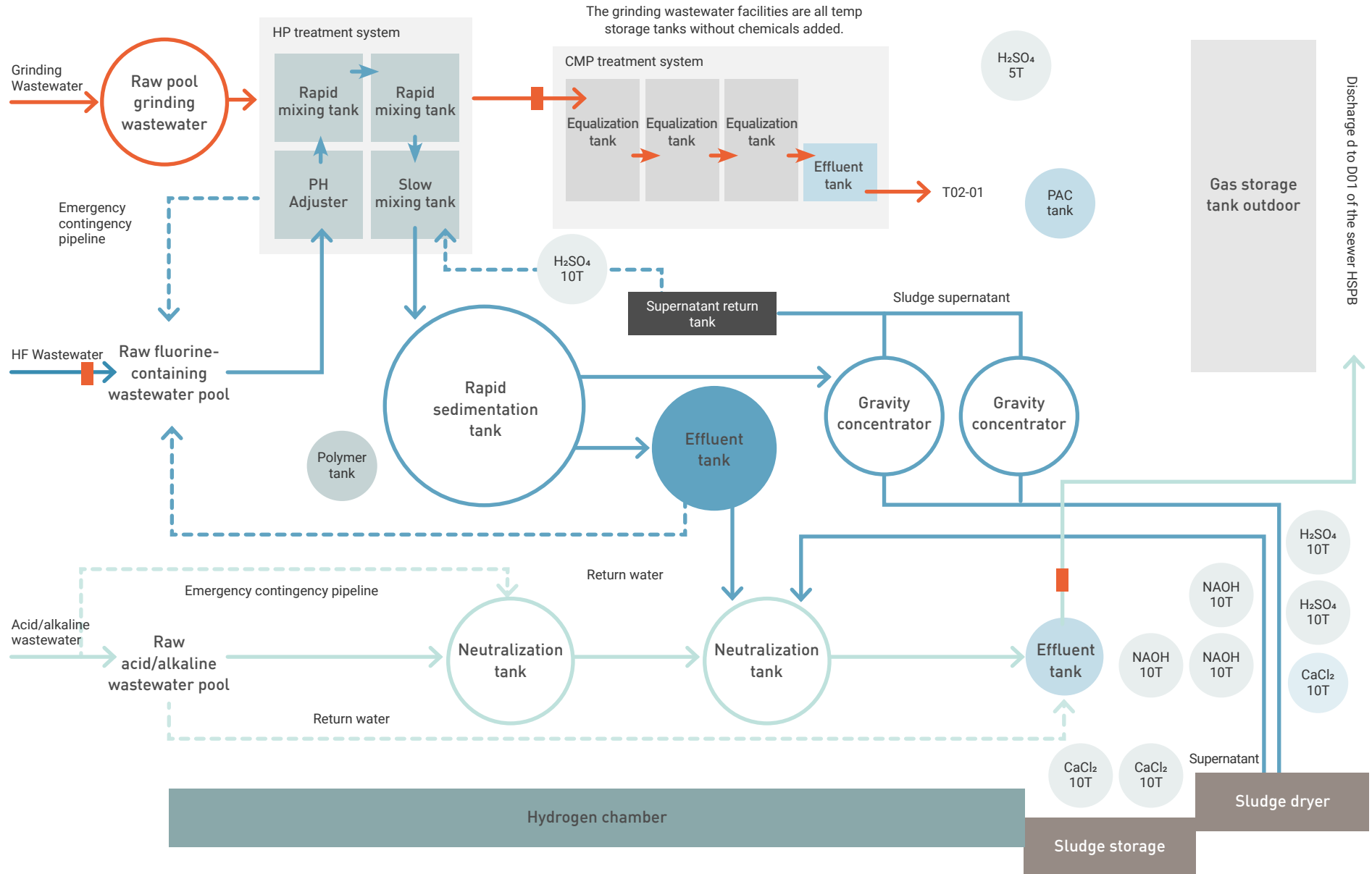
Note 1: The data above covers only the Hsinchu Plant.

Note 2: Water reclamation rate on the plant (%) = reclaimed water on the plant/total water use on the plant × 100%.

In 2022, Nuvoton's water conservation plan was taken for the reduction of DI Water used by the cassette cleaning machine. It was estimated to save 38% of water per operation, totaled about 0.015 million liters of water saved annually. In addition, to improve the sewage treatment efficiency and effectively remove pollutants in water, we replaced the whole set of treatment equipment for fluorine-containing sewage in 2022 with an amount of NT\$8.45 million invested.

**Wastewater Area System Schematics**

Flow meter Grinding wastewater HF wasw/atRaline Acid/alkaline wastewater



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Waste Management

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The IC designed and developed by Nuvoton as well as the components and products produced by foundry, are provided to customers for purposes of electronic product assembly and sales. The failure repairs, parts replacement, or disposal of the electronic products are carried out by the customers. Regarding the waste generated in the production of components and products at Nuvoton, source reduction and enhanced waste recycling are adopted within the organization to reduce the environmental impact of production. Also, we ensure the compliance of outsourced waste disposal services as well. Hence, we fulfill our responsibilities in both generation and sources of wastes.

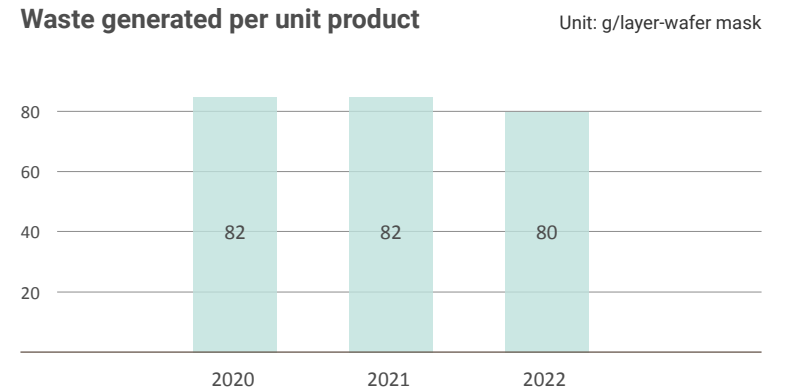
The waste management strategy at Nuvoton is “waste minimization and maximization of resource recycling.” Waste classification and reduction management at the source is practiced so as to minimize wastes generated per unit product and maximize wastes turning into resources. Material use extension at the source of production, optimization of production operations, recycling of packaging materials, and other reduction programs are promoted, along with ongoing assessment for waste recycling.

Nuvoton engages in waste classification and collection, storage and management, outsourced removal/disposal, and waste declaration pursuant to internal “Waste Disposal Management Procedures.” The on-plant audits precisely capture the output of each process so as to improve the process, reduce waste, and ensure legal/regulatory compliance. Legal waste cleaning and recycling service providers approved by government are selected to handle the wastes generated. Before entrusting the wastes, the service providers are verified as to whether the cleaning and recycling methods adopted thereby are appropriate and are required to pass inspection procedures. Also, the clearance status is continuously monitored. There was no report of Nuvoton being fined or otherwise punished for violation of environmental protection laws or regulations in 2022.

Each year, in line with the hazard of wastes, the amount generated, and the results of the previous audit score, the severity of the risk of impact on the environment and the level of likelihood thereof are assessed. Then, the severity and likelihood of risk matrix and regulatory requirements are employed to determine the frequency of waste clearance service provider audit. The annual waste service provider audit plan is formulated every 1 to

3 years to check the clearance service providers’ on-plant operation as well as its treatment/reuse facility operation. Also, the GPS trajectories check is performed immediately after service providers’ removal of wastes to ensure that wastes are properly disposed, so as to effectively manage the risks of waste disposal. A total of 26 audits were conducted in 2022. There was no service provider subject to suspension of cooperation due to violations of laws and regulations or relevant regulations, and no waste-related inappropriately handled incident was reported.

Nuvoton does not have waste input or output. Reuse is prioritized for waste disposal. The wastes that cannot be reused are disposed by means of incineration and landfill. The total waste generated in 2022 was 813 metric tons. The wastes can be classified into general industrial waste (including recycling waste and domestic waste from offices) (284 metric tons, 35%) and hazardous industrial waste (529 metric tons, 65%). The waste generated per unit product was 80 g/layer-wafer mask, which is less than that of 2021. The amount reused (recycled included) was 596 metric tons (74%), the amount incinerated about 198 metric tons (24%), and the amount for landfill treatment with a higher environmental burden 19 metric tons (2%), demonstrating the prioritization of eco-friendly methods for waste disposal by the Company. In order to maximize the resource recycling via entrusted reuse, it planned in 2022 to add another dedicated pipeline for waste sulfuric acid recycle of manufacturing machine, which is expected to improve on the recovery waste sulfuric acid upon project completion in 2023.



### Waste Disposal

Unit: metric ton

Waste Class	Mean of disposal	2020		2021		2022	
		Amount	Ratio(%)	Amount	Ratio(%)	Amount	Ratio(%)
General industrial waste	Incineration	170	21	163	19	173	21
	Landfill	70	9	38	4	18	2
	Reuse (recycling included)	80	10	105	12	93	12
	Sum	320	40	306	35	284	35
Hazardous industrial waste	Incineration	22	2	21	2	25	3
	Solidification	1	0	2	0	1	0
	Reuse	467	58	542	63	503	62
	Sum	490	60	565	65	529	65
<b>Total</b>		<b>810</b>	<b>100</b>	<b>871</b>	<b>100</b>	<b>813</b>	<b>100</b>

Note: The scope of waste data covers all the offices in Taiwan. It is the aggregated data based on the declared information of clearance/delivery manifests, waste recycling, and domestic waste. The domestic waste declared by the Tainan office was added in 2022. The Taipei/Zhubei Offices had nothing to declare, nevertheless, so they are counted as 0

### Waste Recovery

Unit: metric ton

Waste composition	2020			2021			2022			
	On-site	Off-site	Total	On-site	Off-site	Total	On-site	Off-site	Total	
Hazardous Waste	Reuse preparation	0	0	0	0	0	0	0	0	
	Recovery	0	467	467	0	542	542	0	503	503
	Other means of recycling	0	0	0	0	0	0	0	0	
	<b>Total</b>	<b>0</b>	<b>467</b>	<b>467</b>	<b>0</b>	<b>542</b>	<b>542</b>	<b>0</b>	<b>503</b>	<b>503</b>
Non-hazardous waste	Reuse preparation	0	0	0	0	0	0	0	0	
	Recovery	0	80	80	0	105	105	0	93	93
	Other means of recycling	0	0	0	0	0	0	0	0	
	<b>Total</b>	<b>0</b>	<b>80</b>	<b>80</b>	<b>0</b>	<b>105</b>	<b>105</b>	<b>0</b>	<b>93</b>	<b>93</b>

Waste composition		2020			2021			2022		
		On-site	Off-site	Total	On-site	Off-site	Total	On-site	Off-site	Total
Hazardous Waste	Incineration (energy recovery included)	0	0	0	0	0	0	0	0	0
	Incineration (energy recovery excluded)	0	22	467	0	21	21	0	25	25
	Landfill	0	1	0	0	2	2	0	1	1
	Other means of disposal	0	0	0	0	0	0	0	0	0
	<b>Total</b>	<b>0</b>	<b>23</b>	<b>467</b>	<b>0</b>	<b>23</b>	<b>23</b>	<b>0</b>	<b>26</b>	<b>26</b>
Non-hazardous Waste	Incineration (energy recovery included)	0	0	0	0	0	0	0	0	0
	Incineration (energy recovery excluded)	0	170	80	0	163	163	0	173	173
	Landfill	0	70	0	0	380	380	0	18	18
	Other means of disposal	0	0	0	0	0	0	0	0	0
	<b>Total</b>	<b>0</b>	<b>240</b>	<b>80</b>	<b>0</b>	<b>201</b>	<b>201</b>	<b>0</b>	<b>191</b>	<b>191</b>

**Description of Reuse/Recycling Process Flows of Nuvoton in 2022**

Unit: metric ton

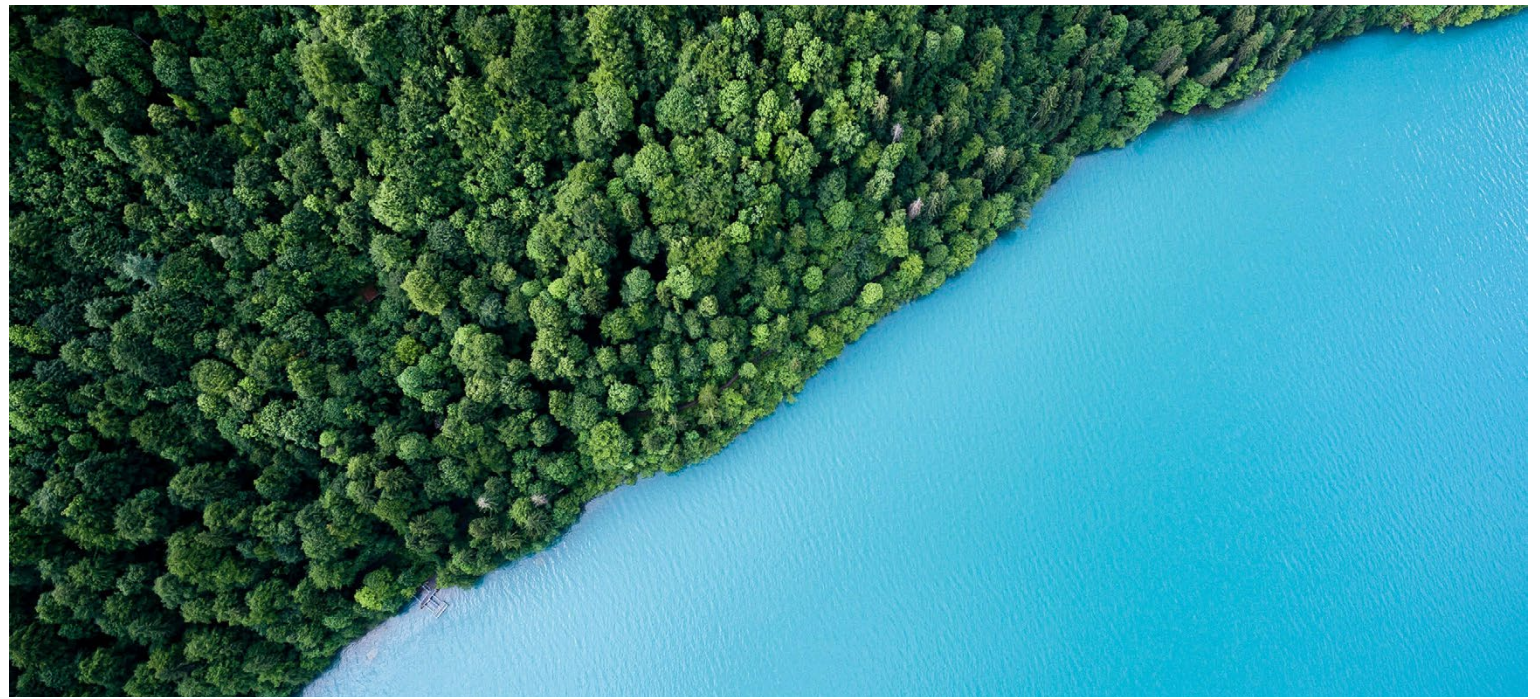
Type of Waste	Description of Reuse/Recycling Process Flows	Amount Recycled	Type of Waste	Description of Reuse/Recycling Process Flows	Amount Recycled
<b>Waste sulfuric acid</b>	Recovered and diluted into industrial-grade dilute sulfuric acid by service providers for industrial purposes (not intended for purposes of drinking water quality treatment, chemicals, or fertilizer additives)	407.18	<b>Waste empty chemical barrels</b>	Washed with patterns removed by service providers before made into recycled photomasks or photo materials	0.6317
<b>Waste hydrofluoric acid</b>	Recovered and made by service providers into a material for sodium fluorosilicate of industrial purposes as a flux	65.18	<b>Waste photomasks</b>	Recovered and processed by service providers to recycle the leads, plastics, etc.	None
<b>Waste isopropanol</b>	Recovered and distilled by service providers into industrial-grade isopropanol	21.05	<b>Waste lead batteries</b>	Treated with mercury distillation equipment by service providers to extract mercury for reuse	None
<b>Waste NMP</b>	Recovered and distilled by service providers into industrial-grade NMP	33.79	<b>Scrap metal</b>	Waste electronic components and parts, scraps, and defective products, etc. processed by service providers to recover precious metals and other metals	18.755
<b>Lubricating oil</b>	Recovered and distilled by service providers into secondary lubricating oil	None	<b>Recyclable wastes</b>	Waste paper, glass, scrap iron and aluminum, waste Styrofoam, aluminum foil bags, PET bottles, waste plastics, etc. delivered to recyclers for recycling	27.152
<b>Waste empty chemical barrels</b>	Recovered by service providers for reuse after cleaning, or as a material for plastics or glass after crushing	9.426	<b>General wastes</b>	Mixtures of waste plastic, waste paper, and waste wood sieved physically for recycling	12.73

**The reuse of waste photomasks generated an income of NT\$790,000 in 2022**

# Management of Toxic and Concerned Chemical Substances

Nuvoton expanded the management and control of chemicals with high health hazards and increased risks of environmental burden, including substances with environmental accumulation, persistent pollutants, carcinogenicity, mutagenicity, or reproductive toxicity as well as toxic and chemical substances of concern. In addition to regularly reporting the relevant operations in accordance with the regulations of the central competent authority, and strengthening risk control prior to potential accidents, the Company gives priority to the health and safety of employees and offers eco-friendly manufacturing services.

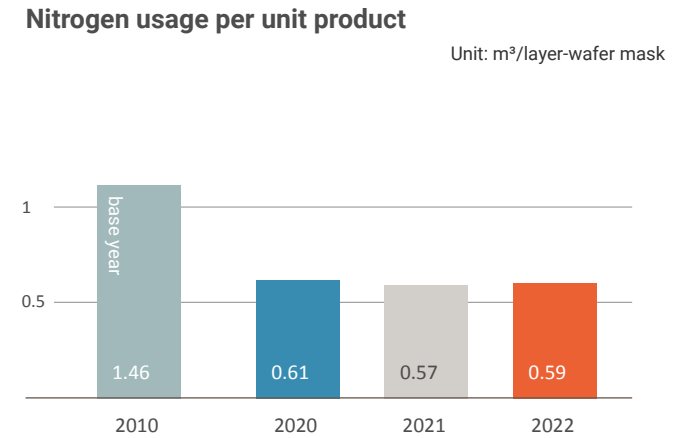
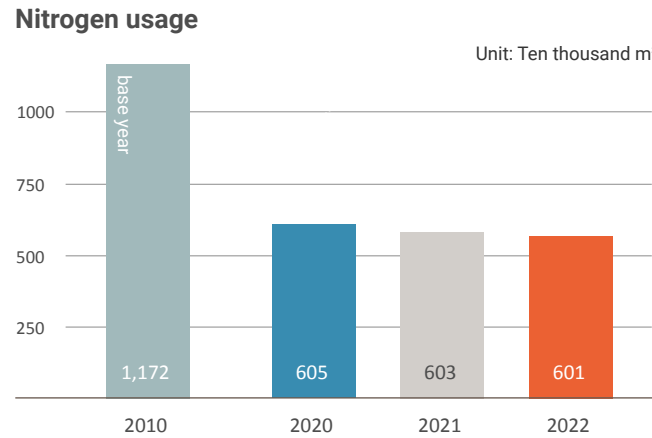
Work items	Specific actions
<p><b>Identification of laws and regulations</b></p> <p>Dedicated personnel from the safety and health management department identify the domestic laws and regulations governing toxic and concerned chemical substances on a monthly basis. Where there are any changes in the laws or regulations that are applicable to the Company, relevant units will be notified for responses.</p>	<p>The Environmental Protection Administration had newly listed hydrofluoric acid as a chemical substance of concern with management measures added and amended. Nuvoton formulated relevant response measures and reported the relevant operation on a monthly basis.</p>
<p><b>Operation of mutual aid group</b></p>	<p>3 drills with mutual aid groups were arranged to strengthen the familiarity with neighboring factories for supports in emergency response equipment and emergency response procedures.</p>



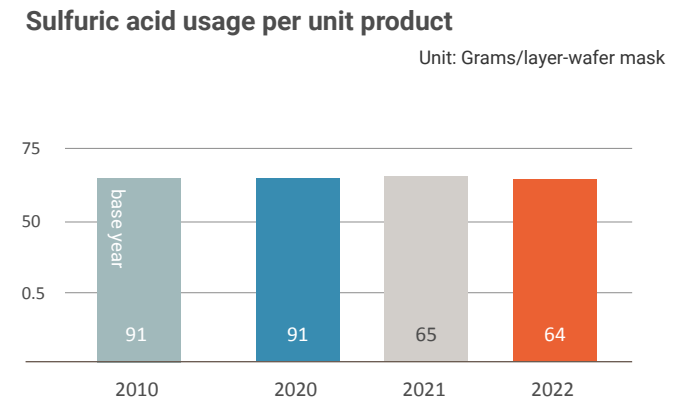
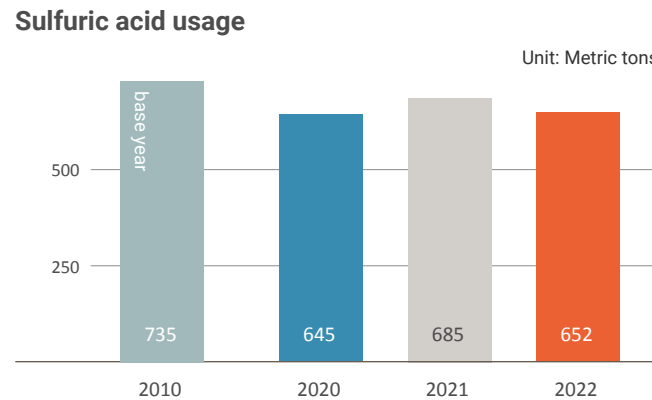
Key Chemical Raw Materials

Based on the results of the carbon footprint inventory in 2010, Nuvoton found that the use of nitrogen and sulfuric acid provided by suppliers has a relatively important impact on the carbon emissions in the overall product life cycle, which fall into Scope 3 Indirect Emissions. We have listed these two chemical raw materials as the main targets of long-term monitoring and reduction. Also, the year 2010 was set as the base year to actively promote reduction. Thanks to our efforts, we have achieved remarkable results against the performance in the base year.

The nitrogen usage per unit product in 2022 was 0.59 m<sup>3</sup>/layer-wafer mask, reduced by **59.6%** compared with the level of the base year 2010.



The sulfuric acid usage per unit product in 2022 was 64 grams/layer-wafer mask, also reduced by **30.0%** compared with the level of the base year 2010 .



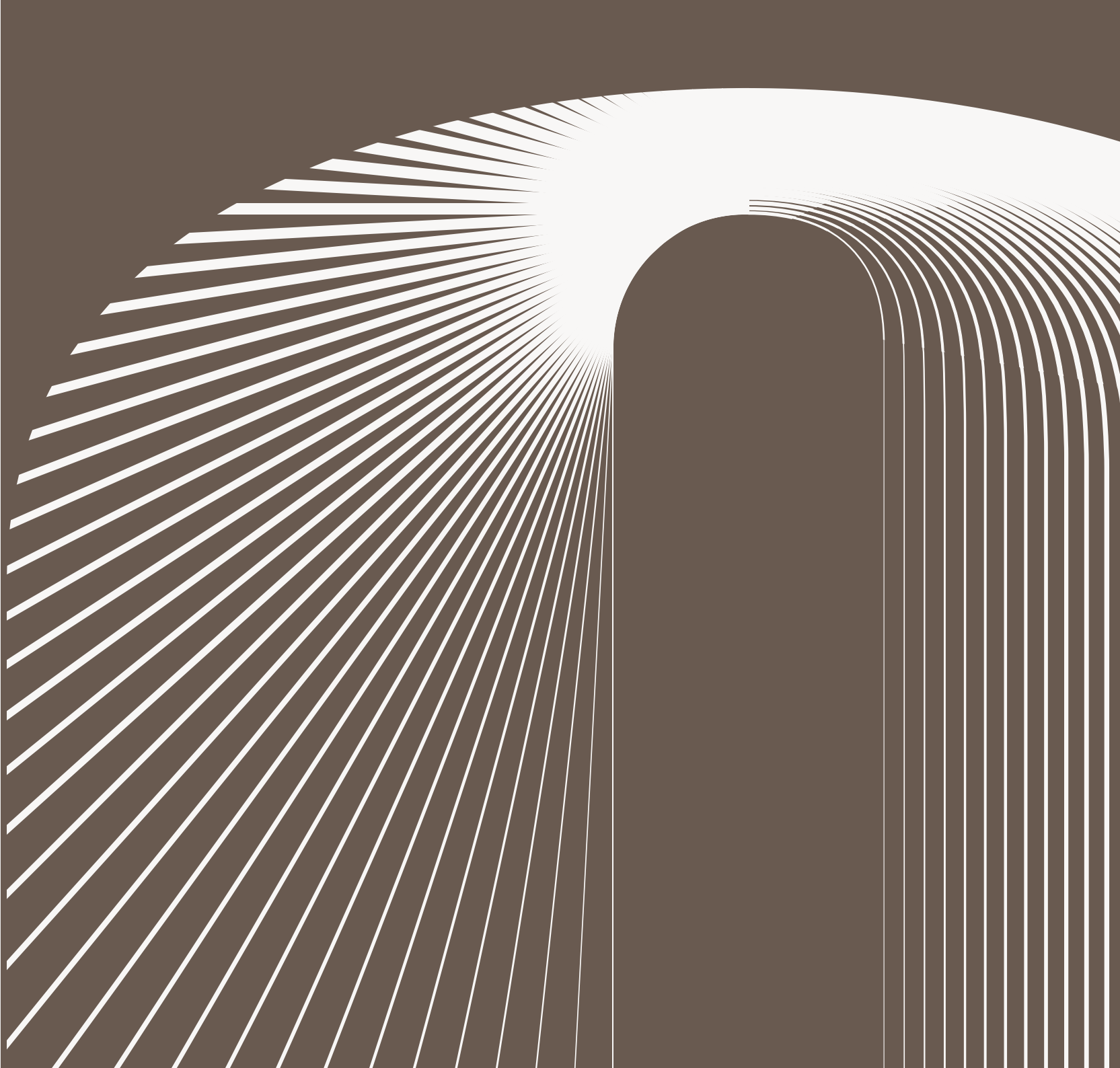
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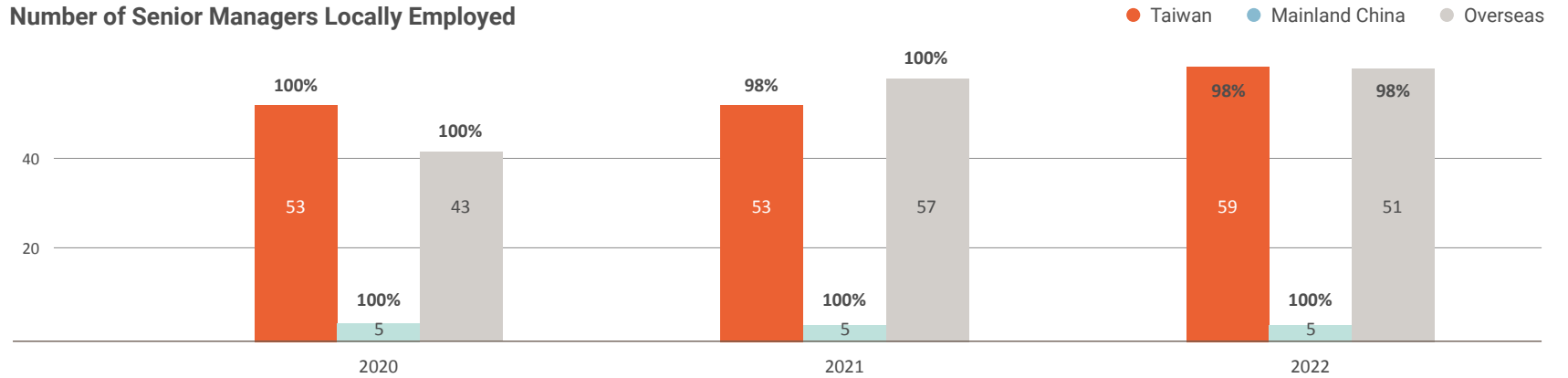


# 1. Workforce Overview and Talent Management

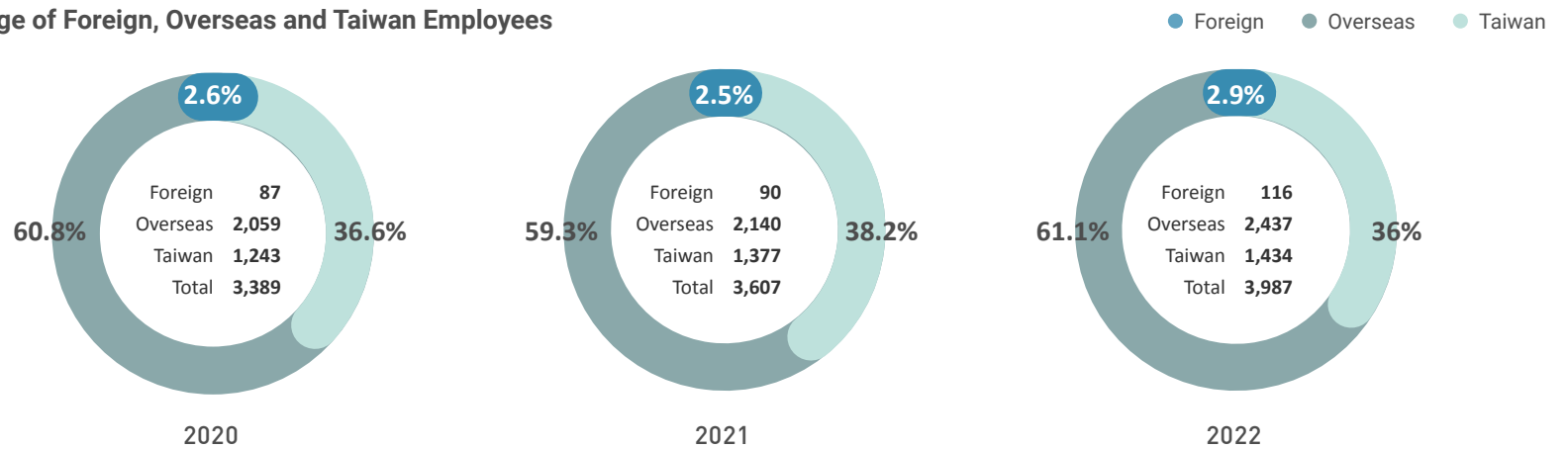
## Workforce Overview

As of December 31, 2022, Nuvoton had a total of 1,550 employees in Taiwan, of which female employees accounted for 43% and male employees for 57%. The reason for a higher percentage of male was due to the higher ratio of male in the student body in the departments of engineering profession in Taiwan. Nuvoton has been committed to globalization. In 2022, the total number of employees worldwide was 3,987, including 2,553 overseas and foreign employees, accounting for 64% of the total employees at the Company. The number of senior managers in Taiwan, overseas, and Mainland China were 60, 52 and 5, respectively, and the percentage for the employment of local residents as senior managers were 98%, 98% and 100% respectively. The non-employee workers included fixed-term contract workers such as security, cleaning services, F&B services, information engineering as well as other non-fixed contract contractors. Please refer to the total number of non-employees in organization in [5.3 Workplace Health and Safety](#) for the statistics in this category.

Number of Senior Managers Locally Employed



Percentage of Foreign, Overseas and Taiwan Employees



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	2020	2021	2022
<b>Full-Time Employees</b>	Full-Time Employees <b>640 : 801</b>	Full-Time Employees <b>643 : 814</b>	Full-Time Employees <b>662 : 873</b>
	Total 1,441	Total 1,457	Total 1,535
<b>Part-time Employees</b>	Temporary Employees (Contract Workers) <b>0 : 0</b>	Temporary Employees (Contract Workers) <b>1 : 5</b>	Temporary Employees (Contract Workers) <b>3 : 7</b>
	Total 0	Total 6	Total 10
	Temporary Employees (Foreign Workers) <b>0 : 0</b>	Temporary Employees (Foreign Workers) <b>0 : 0</b>	Temporary Employees (Foreign Workers) <b>0 : 0</b>
	Total 0	Total 0	Total 0
	Non-guaranteed Hours Employees <b>0 : 0</b>	Non-guaranteed Hours Employees <b>0 : 4</b>	Non-guaranteed Hours Employees <b>1 : 4</b>
	Total 0	Total 4	Total 5
<b>Employment Category</b>	Part-time Employees <b>0 : 0</b>	Part-time Employees <b>1 : 9</b>	Part-time Employees <b>4 : 11</b>
	Total 0	Total 10	Total 15

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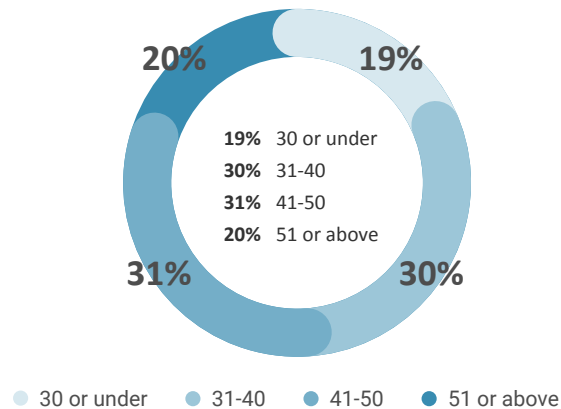
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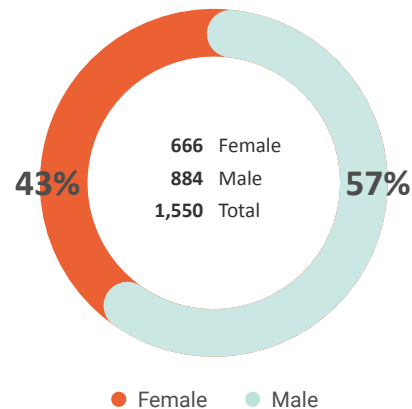


Of the employees of Nuvoton in Taiwan, the employees aged 30 or under accounted for 19%, those aged 31-50 for 61%, and those aged 51 or above for 20%. The number of employees aged 30 or under increased by 17% compared with 2021. In 2022, there were 234 new employees and 168 separated employees, with an increase in the new recruitment rate by 15% compared with 2021. The growth in the workforce in 2022, in addition to the thriving business of the global semiconductor industry, was attributable to the adjustment in the talent recruitment strategies of Nuvoton in recent years and the addition of talent recruitment channels. Nuvoton actively managed its relations on social media and with schools to reach out to key talents in advance and uncover talents with potential for the future.

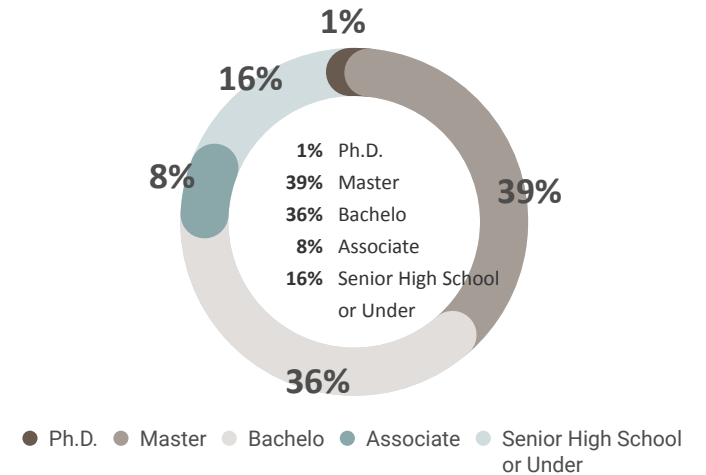
**Percentage of Employees by Age**



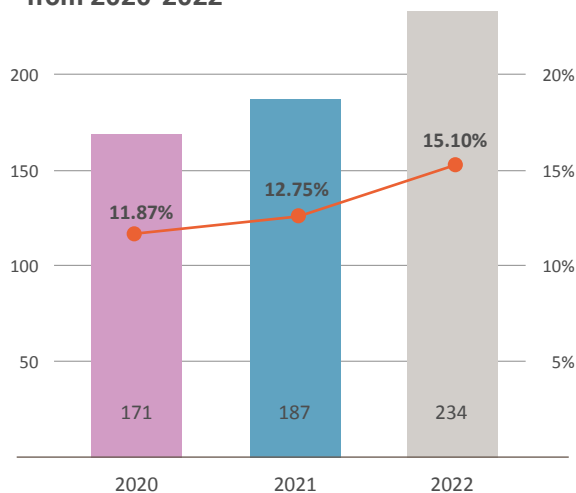
**Percentage of Employees by Gender**



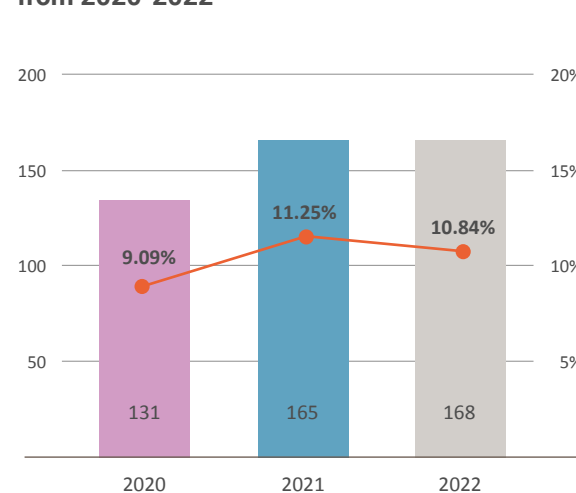
**Percentage of Employees by Education Background**



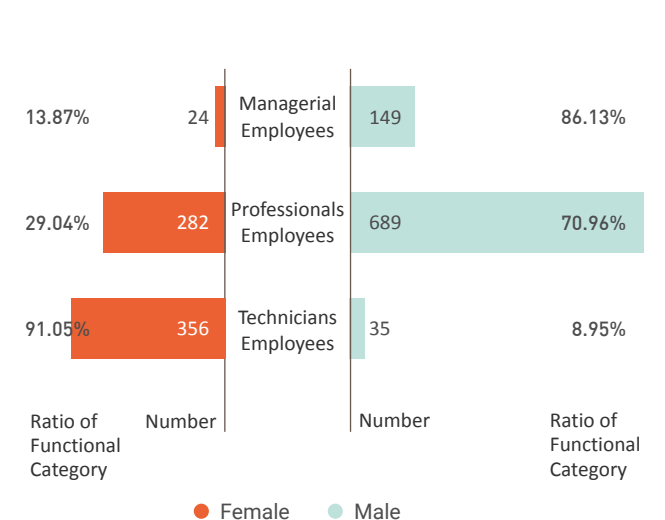
**Ratio of Newly Recruited Employees from 2020-2022**



**Ratio of Employees Separated from 2020-2022**



**Employee Functional Category**



Human Resources Policy

Talents are regarded as the key capital for the sustainable development of the Company at Nuvoton. Upholding the spirit of "people-oriented," Nuvoton attaches great importance to talent cultivation and development, committed to the creation of a friendly workplace and provision of a safe and healthy work environment for employees.

Nuvoton ceaselessly improves its human resource management system and optimizes the human resource integration system, such as recruitment and employment, compensations and benefits, and talent cultivation, etc. Also, the people-oriented corporate culture is communicated to elevate employees' sense of identity with Nuvoton. Ample resources are allocated either in talent recruitment or retention, with the expectation to fulfill the corporate social responsibility and exert the influence of Nuvoton. With the philosophy of ongoing contribution, i.e. giving back to the society with what it gains, Nuvoton thus maintains its good competitiveness in the rapidly changing global environment.

Nuvoton complies with international human rights conventions as well as the laws and regulations pertaining to human rights and labor rights. Also, Social Responsibility Code of Conduct and Ethical Management has been stipulated to ensure the equal rights of employees and protection of employees' rights to freedom of association and speech, regardless of race or national origin, color, age, sex, sexual orientation, gender identity, disability, pregnancy, religion, political affiliation, group affiliation, veteran status, protected genetic information or marital status, etc. The Company recruits diverse talents, committed to the creation of a workplace free from discrimination. Nuvoton rigorously abides by the laws and regulations in force where it operates worldwide and relevant international regulations and standards of human rights to protect the legal rights of employees so as to create a work environment of diversity, openness, and equality, free from harassment. In 2022, there was no child labor at Nuvoton, and no grievance concerning discrimination or forced labor was reported, either. To establish timely communication channels with employees, Nuvoton regularly holds labor-management meetings on a quarter basis, with totally 4 labor-management meetings convened in 2022.

Nuvoton regularly conducts human rights-related trainings and promotion each year to prevent any illegal discrimination. In 2022, the training completion rate of all employees was 100%. Meanwhile, all suppliers on the supply chain were required to sign the "Commitment to Comply with the Code of Conduct" and the "Undertaking to Confidentiality" in line with the RBA standards. Through the collective purchasing power, Nuvoton demands its suppliers to practice necessary human rights and social standards.

All the plants and offices of Nuvoton have a physical (anonymity available) Suggestion Mailbox for employees to provide feedbacks directly and indirectly. Also, the online grievance channels with various features are in place, offering dedicated grievance mailboxes for general affairs responses, ESG ethical management reporting, sexual harassment cases, etc. for direct feedbacks to the managers of human resources department and the representative of the Sustainability Committee. In addition, the members on the Employee Welfare Committee in various functions at Nuvoton conduct feedback solicitation regarding employee welfare-related activities on a regular basis as well.



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# 2. Talent Recruitment & Development

## Talent Solicitation & Retention

Nuvoton is convinced that talents make the key to the sustainable development of enterprises. Hence, aside from cultivation and retention of brilliant talents, it also provides multiple employment channels to attract outstanding talents. In addition to recruitment via job banks, we optimized the internal recruitment portal significantly in 2022 to offer a more convenient and fast mean for applications by talents. In order to train and recruit key talents in schools preemptively, Nuvoton was committed to school relation management. Apart from active participation in the job fairs of colleges and universities, Nuvoton also launched intern programs to offer students learning opportunities beyond classrooms; meanwhile, lectures on campus were held in spring and autumn to not just exchange knowledge and applications of semiconductor technology with students and professors at various schools, but also to allow students to gain practical experiences in class. The internal recommendation by employees has always been one of the crucial sources of outstanding talents at Nuvoton. To maintain an active recommendation by employees, generous referral bonuses and meal vouchers are available at Nuvoton as well.

Nuvoton regards talents as the most crucial assets of the Company, attaching great importance to employee compensation, benefits and talent development. Thus, it endeavors to provide employees with a sound and competitive remuneration system to retain first-tier talents of excellence. Also, regulations governing rank evaluation and promotion have been formulated as the basis to promote employees with outstanding performance.

In 2022, Nuvoton continued being a constituent in TWSE RAFI® Taiwan High Compensation 100 Index (HC 100), which is a sustainability index to encourage enterprises worldwide to emphasize employee compensation on the basis of quantitative criteria like “average employee compensation,” “profitability,” “book value per share,” and “total compensation amount of the company,” indicating Nuvoton is a company values employee compensation and commits on sustainability.

2 performance appraisals are conducted pursuant to the Performance Management and Evaluation Regulations. The employee assessment mechanism serves as one of the bases for employee promotion. The Company expects not just each employee to fully leverage their individual strengths, but also outstanding workers to lead the teams, willing to take responsibilities, participate in decision-making, serve as the bridge between the superiors and subordinates, perform tasks, and work as a team, so as to attain the goals of the Company.



HR Section of Nuvoton



Talent Recruitment Portal of Nuvoton

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The ranks and compensation of new employees are determined through negotiation between the labor and the management in line with job description, duties and responsibilities, and academic background and experiences. The employee remuneration level is reviewed regularly in terms of peer competitiveness and market salary level. The salaries are adjusted in the annual salary adjustment in consideration of the levels on the market, Company operations, individual performance, etc., with no differential treatment arising from gender of employees or their residing cities.

Nuvoton offers reasonable fixed compensations in line with the salary levels on the market. Also, it is specified in the Articles of Incorporation of the Company that where the Company makes profits, the Company is to allocate no less than 1% of the profits as employee remuneration to ensure a competitive overall remuneration of the Company. In addition to tying the Company's operating performance with employee remuneration, Nuvoton provides comprehensive career competence training programs. The performance and competence development of employees are assessed regularly. Remuneration is awarded in accordance with the respective performance and serves as the basis for promotion. Meanwhile, the dual-track system of management and professionalism is in place to offer employees better promotion pipelines to incentivize employees to grow together with the Company.

### Nuvoton Campus Tour Lecture Train

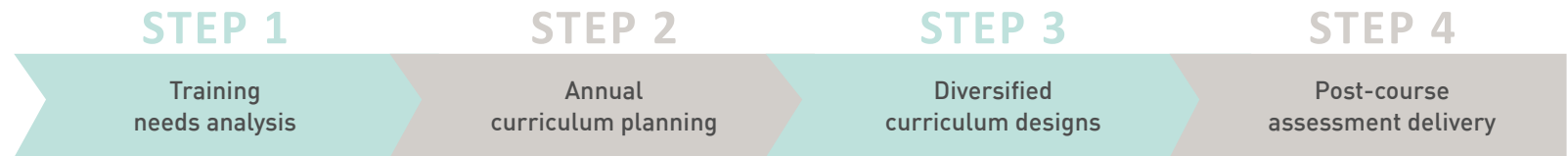
Nuvoton contacts with students face-to-face directly through the campus tour lecture train, so that students can better understand Nuvoton and the product applications and technologies of the Company, and the managers are also willing to share their own journeys and experiences at Nuvoton to inspire students on future career. In 2022, 4 sessions were organized and participated by a total of 800 students.

### Industry-Academia Cooperation

To ceaselessly accumulate the strength in innovation and R&D, Nuvoton conducts forward-looking technological research and development through industry-academia cooperation to promote the development of the semiconductor industry and the sustainable goal of talent cultivation.

Partner entity	Description
National Taiwan University	Professor Tai-Cheng Lee from the Department of Electrical Engineering, National Taiwan University was invited to deliver analog courses and training and engage in industry-academia cooperation from time to time. The industry-academia cooperation project on “low power consumption ADC” between Professor Tai-Cheng Lee from the Department of Electrical Engineering, National Taiwan University and the Advanced Technology Development Center Nuvoton contributes to energy conservation and carbon emissions reduction.
National Yang Ming Chiao Tung University	Through the cooperation with the National Yang Ming Chiao Tung University, the company assisted in handling the TCAD simulation. Aside from verification of its viability, we are also able to probe into the theoretical architecture of performance and further improve the performance of products.
Chung Yuan Christian University	Led by Professor San-Cheng Chang, the team from Chung Yuan Christian University is committed to the development of active noise cancellation algorithm. Especially for the open environment application, the team cooperated with Nuvoton to use Keil μVision IDE to develop the ANC algorithm (Feedback ANC), implemented in the ISD series. The MCU platform has successfully realized the basic functions of ANC algorithm. It is now actively realizing the development of application product of the next step [developing the device with ANC system for open environment]. Nuvoton cooperated with Professor Chang and signed the MOU, serving as collaborative IC partner for the project of the development team. Hence, it shall benefit the execution of the project and facilitate the opportunity for the cooperation between the two parties.

Nuvoton’s talent development policy employs the establishment of a learning organization as the starting point. Each employee is a dynamic learner of the organization. The Company attaches great importance to the learning and development of each employee. Through an annual survey and analysis of training needs, various learning channels and diversified learning methods are available with focuses on enriching and learning content that are tie with practices. In addition, internal and external learning and development resources are integrated, along with encouragement for active learning as well as sharing and inheritance, the Company provides employees with comprehensive and continuing learning. Encouraging acquirement of autonomous learning, Nuvoton strives to provide learning environments and development platforms of diversity and breadth to foster the work environment where employees are willing to share knowledge and learn from one another.



Nuvoton values the career development needs of talents with diverse attributes. A dual-track development mechanism for professional and management positions are in place. The relevant planning is tied with the development strategies of the organization and the short-, medium-, and long-term objectives of learning programs. Also, optimal learning journeys are designed catering to different positions. Blueprints for individual development of talents are mapped out as well. For example, in the cultivation and development of international talents, we continue to strengthen cross-border communication, global management, language and cross-cultural module training in line with the planning strategy. For all new recruits, professional talents from the vocational education system, and the management at all levels, we continue to provide resources such as efficient courses and online forums. Also, through courses, knowledge sharing, and on-the-job learning, we accumulate professional skills of employees and strengthen their functions in a systematic manner. With regard to employees’ career development, we provide one-on-one interview and design cross-field rotation opportunities in accordance with employee functions, so that talents can improve themselves ongoingly at Nuvoton and accomplish the goals of excellence together with the Company.

**Short-term Objectives**

- Training courses to enhance personal work efficiency and expertise to help employees improve their productivity and career development
- Training courses related to the management functions for the middle and low-level managers to enhance management leadership
- Training lectures on the global political and economic landscapes, AI field, etc. for senior managers in response to the future challenges and development of the Company

**Medium- and long-term objectives**

- Promotion of functional development for respective units and provision of various courses in line with functions
- Establishment of talent echelon and preparation of management talents for the future
- Ongoing organization of lectures on advanced technology management to support senior managers in the strategic planning for the Company

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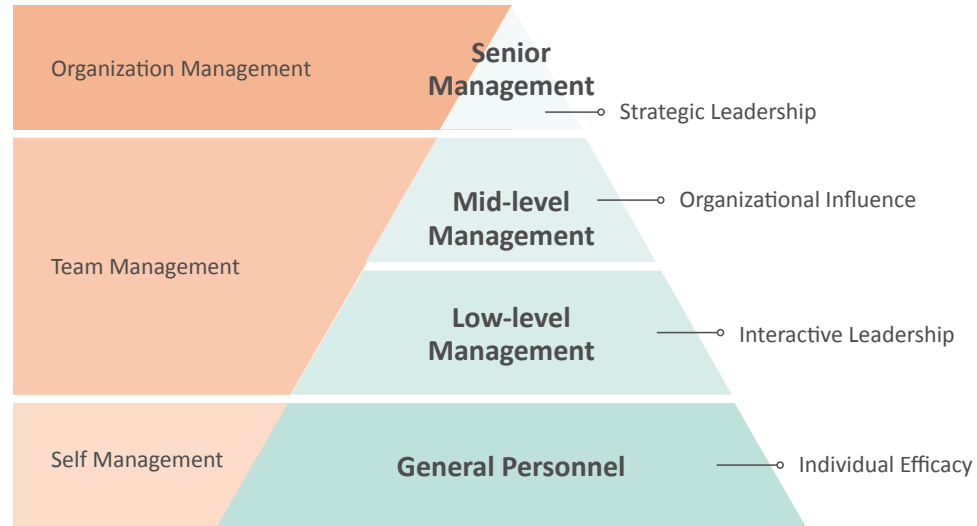
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The diversified and comprehensive education and training system at Nuvoton provides employees with appropriate learning content in line with their ranks, positions, and needs for competence development from new recruits to senior managers.

### Training Categories and Scopes



#### Self learning

External training/on-the-job education, Nuvoton Knowledge management center, and online learning system

#### General studies

General courses/seminars, subsidy plans for foreign language learning, general training on quality, and health and safety training

#### Management

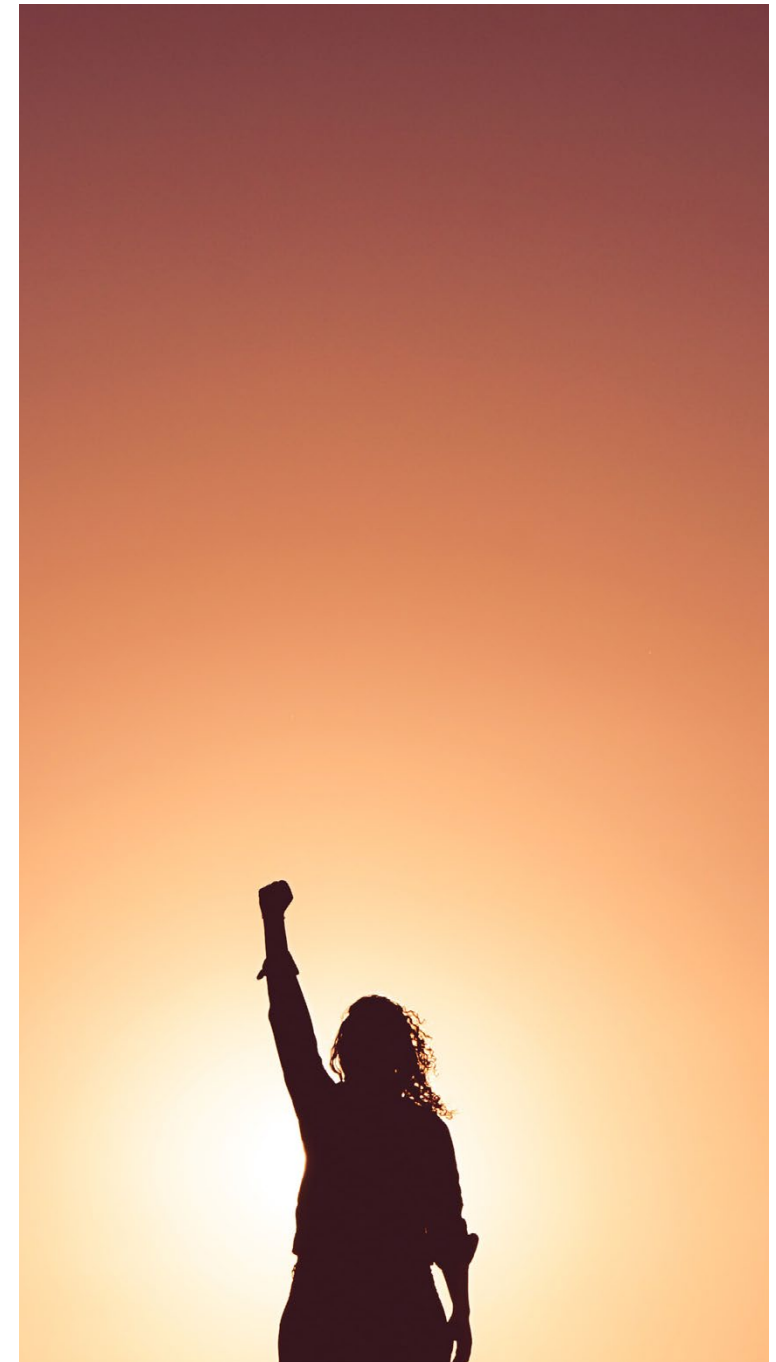
Senior-level manager training, mid-level manager and entry-level manager trainings, and work management

#### Professionalism

Professional skills trainings and department OJT

#### New recruits

General studies for new recruits



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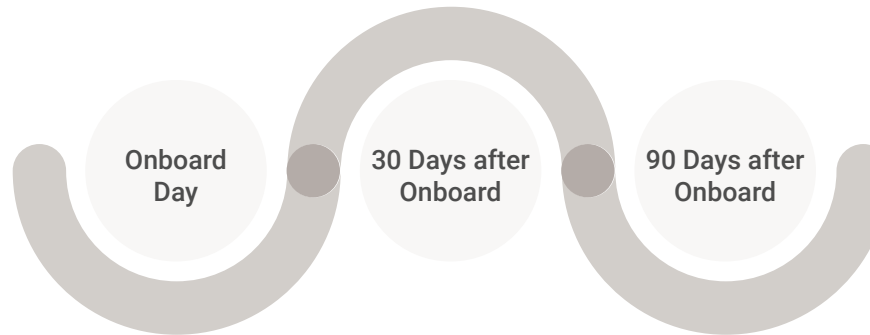
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Diversify learning channel

- ✔ E-learning
- ✔ OJT courses
- ✔ Internal trainings
- ✔ Self-directed learning
- ✔ Livestreaming courses
- ✔ In-person courses
- ✔ Managerial sharing session in the quarterly management meeting

Care for New Recruits



**Onboard Day**

- Provision of common and important information to new recruits
- Introduction to work environment and members on the department to alleviate the sense of strangeness and discomfort of new recruits toward a new workplace for a smooth integration into the Company
- Dedicated "Buddy" for new recruits to guide them and offer tips on the job, company, and life

**30 Days after Onboard**

- Completion of the basic training for new recruits (online courses)
- Completion of departmental on-the-job training (OJT)
- Understanding into the status and needs of new recruits 30 days since onboard through the new recruit survey and provision of timely care and assistance

**90 Days after Onboard**

- Completion of the 2-day in-person new recruit training program
- New recruit forum to offer opportunities to interact with the senior management
- Understanding and tracking of improvement results via the new recruit survey after onboard for 90 days

Pursuant to the performance management and evaluation regulations, Nuvoton conducts performance appraisal every six months of the employees after the probationary period to gain insight into the employee goal execution, employee practices, and improvements. Newly recruited employees are evaluated during the probationary period, and the evaluation results will be used as the basis for whether to continue their employment. In 2022, 100% of full-time employees received annual performance appraisal. (Those on leave without pay or in service for less than 3 months, engineering assistants, and fixed-term contract personnel were excluded.)

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### New recruits

Complete training programs are available upon the day of onboard for new recruits to help employees quickly blend in the corporate culture and work environment. In addition to the 13 online courses for new recruits, in-person new recruit training program is also arranged for them to understand the corporate vision and culture, organization’s overview, regulations and systems, and various business groups and the respective products as well as to learn the basic knowledge and skills necessary for the job. In the meantime, through the Buddy system and the new recruit support mechanism in place, we care for new recruits, provide necessary information and support, and build a fast and effective interpersonal network and support system for new recruits early on.



### Professionalism

In terms of professional courses, various certificate training courses are available at the plant in response to the needs with equipment. Meanwhile, in alignment with the strategic direction of the Company, courses related to tools of data science are offered, and professional speakers are invited internally and externally for lectures, and software tools are introduced as well.



### General studies

The general courses encompass mandatory courses on corporate vision/business mandates, corporate culture/values, corporate social responsibility, customer satisfaction, quality management, environment, health, and safety (environmental protection and fire drills), etc., regardless of employee ranks, positions, or departmental functions. In addition, external online English and Japanese learning platforms were introduced to the Company, and corresponding subsidy plans are available to raise employees' motivation for self-directed learning and cultivate multilingual talents in the organization.



### Management

In 2022, for senior managers to stay abreast with the latest trends and dynamics of the industry domestically and internationally, the advanced lecture series of "topical sharing on practical experiences" are organized on a quarterly basis to learn and exchange with internal and external experts, so as to align the development of the Company with the greater environment. In addition, the management trainings are mainly based on the Dale Carnegie Communication and intergenerational communication courses to equip managers from senior-level to low-level with practical management tools.



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In 2022, the total training hours at Nuvoton reached 39,397 hours with a total of 30,355 participants and an average of 25.42 training hours per employee.

### Average Hours of Employee Education and Training

Unit: Hour

	Managerial	Nonmanagerial
Female	33	30
Male	29	20
<b>Average Hours</b>	<b>31</b>	<b>25</b>

### Types of Education and Training Courses

Course Type	Trainees	Training Hours
<b>In-person</b>	10,868	<b>16,314.03</b>
<b>Online</b>	19,534	<b>23,193.71</b>

The sustainable operation and growth of the Company relies on a full leverage of the professionalism and management skills of employees. More than 90% of the engineering assistants at the 6-inch fab of Nuvoton are female. Nuvoton provides abundant training resources and OJT to employees to help them quickly adapt to the environment and the operation with the machines on site, develop their professional skills, and improve their efficacy. Facing the challenges of global competition for talents and the workforce of Generation Z entering the workplace, managers also need to learn and grow in line with the environment and the times. With the workforce of Generation Z introduced, managers play an even more important role in communication, leadership, and coaching. In 2022, management courses like Dale Carnegie courses, intergenerational communication, and lectures on illegal violations in workplace were organized at Nuvoton to help managers to improve their communication and management skills. Also, during the darkest hours of COVID-19, Nuvoton helped managers to see the challenges and opportunities introduced by the pandemic, so that they could adjust the management methods, motivate their teams, and raise the sense of unity.

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## Salary Appraisal

Nuvoton offers reasonable fixed compensations in line with the salary levels on the market. Also, it is specified in the Articles of Incorporation of the Company that where the Company makes profits, the Company is to allocate no less than 1% of the profits as employee remuneration to ensure a competitive overall remuneration of the Company. In addition to tying the Company's operating performance with employee remuneration, Nuvoton provides comprehensive career competence training programs. The performance and competence development of employees are assessed regularly. Remuneration is awarded in accordance with the respective performance, which serves as the basis for promotion as well. Meanwhile, the dual-track system of management and professionalism is in place to offer employees better promotion pipelines to incentivize employees to grow together with the Company.

Pursuant to the performance management and evaluation regulations, Nuvoton conducts performance appraisal every six months of the employees after the probationary period to gain insight into the employee goal execution, employee practices, and improvements. Newly recruited employees are evaluated during the probationary period, and the evaluation results will be used as the basis for whether to continue their employment. In 2022, 100% of full-time employees received annual performance appraisal. (Those on leave without pay or in service for less than 3 months, engineering assistants, and fixed-term contract personnel were excluded.)

### Percentage of Employees Receiving Regular Performance and Career Development Reviews in 2022

	Female	Male	Subtotal
<b>Number of individuals that should receive performance appraisal</b>	<b>Managerial Employees</b>	23	142
	<b>Nonmanagerial Employees</b>	272	668
	<b>Subtotal</b>	295	810
<b>Number of individuals that received performance appraisal</b>	295	810	1,105
<b>Percentage of Employees Appraised</b>	100%	100%	100%

In 2022, our female-to-male basic salary ratio has a gap due to the female-to-male ratio of the professionals was approximately 3:1. The students in the relevant professional engineering departments were still predominantly male and the salaries for professionals were higher than that for technicians. Therefore, there remained a slight gap in the female-to-male basic salary ratio. Please refer to below table for details.

Nuvoton values employee compensation benefits and talent development, and is a constituent in TWSE RAFI<sup>®</sup> Taiwan High Compensation 100 Index (HC 100).

### Salary Ratio

	Managerial Employees	Nonmanagerial Employees
<b>Female</b>	1	1
<b>Male</b>	1.2	1.27

Note 1: The important operation sites are located in Taiwan.

Note 2: The managerial employees are managers with the authority to manage a unit (section chief or above).

Note 3: Nonmanagerial employees are those without management authority.

### Employee Benefits



#### Salary & Benefits

- A complete and competitive salary system
- Mid-autumn Festival, Dragonboat Festival, and Year-end bonuses (in line with the operating performance of the Company)
- Dividends (in line with the Company profit, attainment of organizational goals, and individual performance)
- Gift vouchers for birthday, holidays, and International Workers' Day
- Subsidies for tourist, cultural, and sports activities

#### Leave System

- Seven days of LOHAS leave for new employees in the first year of onboard
- Human-centered flexible clock-in/out hours
- Paid COVID-19 vaccination leave

#### Employee Care

- Labor insurance, health insurance, and group insurance
- Annual employee health checkup
- Subsidies for wedding, funeral, and maternity
- Childcare subsidy for employees with children aged 0-4
- A sound retirement system
- Lunch and dinner allowances
- Parking lot for pregnant employees
- Comfortable and clean nursery rooms

#### Fun at Nuvoton

- Club activities, festivities and mingling, family day, and year-end banquet
- Afternoon tea and workplace snacks from time to time
- Recreational facilities (fitness equipment and aerobics classroom) provided
- Pentathlon Competition (with five sports competitions)
- Special offers by over a thousand contracted vendors

### Diversified Welfare System

In terms of welfare programs, aside from provision of various insurance benefits and pension contributions in accordance with the local laws or practices in various branches around the world, Nuvoton also offers group insurance better than the statutory standards to protect the work and life security of employees. With regard to encouragement for employees to marry and give birth, parking lots for pregnant women, nursery rooms, diaper bags, maternity leave, paternity leave, family care leave, wedding leave, and maternity gift money from the Employee Welfare Committee are available.

Meanwhile, regarding a work environment for the balanced development of employees for body and mind and to implement the leave management measures, we enforce a pre-scheduled leave management mechanism to help employees properly plan their leave. We also actively remind employees to take leave as appropriate and promote the notion of a healthy workplace.

#### Employee Welfare Committee

In addition, Nuvoton continues to cooperate with vendors on the mobile application for inquiry of contracted stores offering special discounts, which provides features like electronic ID, search for contracted stores (approximately 3,043 contracted stores with special discounts) and group buying at any time, so that employees of Nuvoton can better access discounts. Thus, the Company ensures that besides dedication to work, its employees can enjoy a variety of discounts in their daily life for food, clothing, housing, transportation, education, and entertainment.

In response to the pandemic in 2022, the Employee Welfare Committee gave out Electrolux Flow A3 Air Purifiers and the exclusive Nuvoton facial masks to employees.



### Employee Club Activities

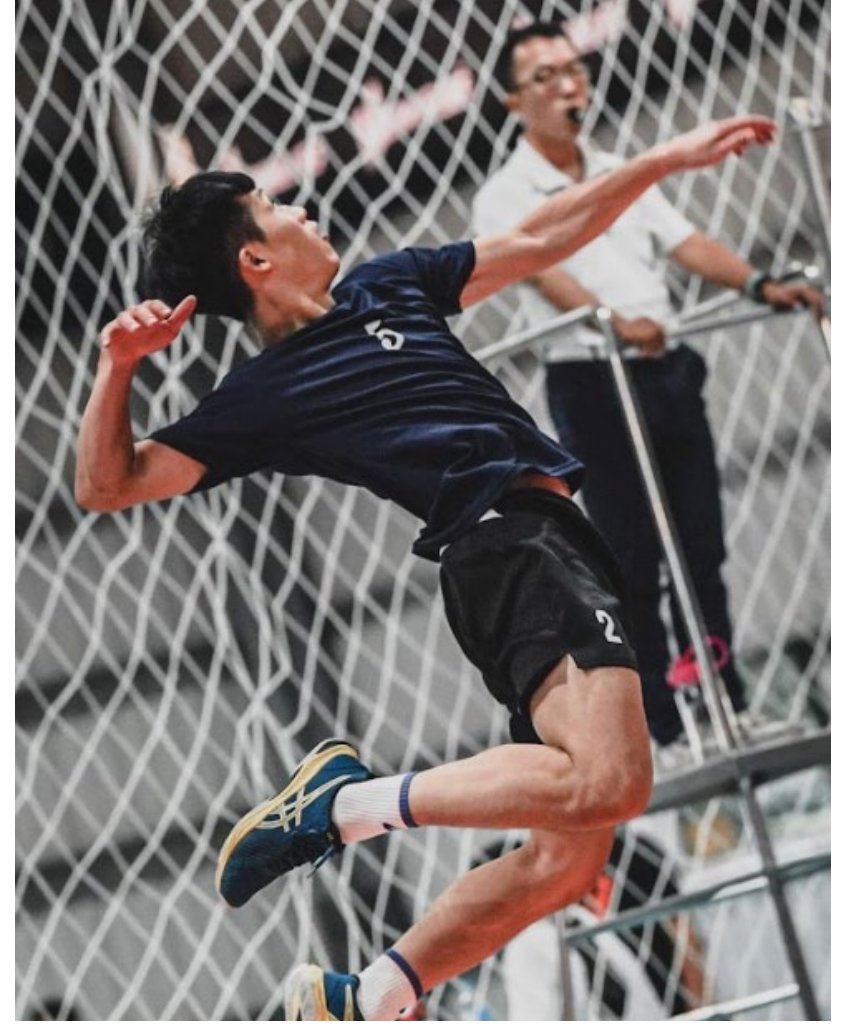
The employees of Nuvoton spontaneously formed different types of clubs. There are 18 different clubs, i.e. Badminton Club, Table Tennis Club, Cycling Club, Hiking Club, Road Running Club, Basketball Club, Board Game Club, Yoga Club, Bridge Club, Aerobics Club, Volleyball Club, Baseball Club, Bakery Club, Charity Club, Coffee Club, Healthy Exercise Club, Mixed Sports Club, and the Internazionale Walking Club.

Through the fee subsidization and evaluation system, Nuvoton encourages the clubs to actively organize a wide range of activities, so that employees can enjoy a relaxing and burden-free life off work through their common interests or professional development within the Company. Hence, employees can relieve their stresses from work, improve their health and energy, and usher in a new possibility for the exchanges between employees. In response to the ease-up of COVID-19 in September after the lingering pandemic till August, the clubs were allowed step by step to assess their epidemic prevention measures and apply for resumption of activities. Badminton Club, Volleyball Club, Basketball Club, Baseball Club, and Road Running Club participated in the Science Park Cup Sport Games and large-scale road running activities in line with the epidemic prevention regulations of the Company.

### Childcare Encouragement Program

The issue of declining birthrate in the society in Taiwan will lead to more serious social issues if not taken seriously. Nuvoton attaches great importance to this matter as a result. In order to resolve and alleviate the issue of declining birthrate in Taiwan, we encourage employees to marry and have children. In addition to offering maternity check-up leave, paternity leave, family care leave, marriage leave, etc., better than the statutory standards, we also provide monthly childcare subsidies to employees with children aged 1-4 years old. A 4-year subsidy totaled up to NT\$ 240,000 per child is available for individual employees. This policy did ease the life pressure and burden of employees, and some employees also applied for subsidies after giving birth to their second child. In 2022, a total of 49 employees applied for childcare subsidies with 207 applications cumulatively. (Application made by one individual for two children is counted as two applications.)

**The amounts disbursed in 2021-2022 totaled NT\$11.35 million.**



### Reinstatement and Retention after Parental Leave

Nuvoton respects the rights of workers endowed by the Act of Gender Equality in Employment and fully supports employees in need. Both male and female employees can apply for unpaid parental leave in accordance with relevant regulations to support these employees in their important stage of life. In 2022, 8 employees applied for unpaid parental leave. The number of employees to be reinstated in the year were 10 employees. At the end of unpaid parental leave, the number of employees choosing reinstatement were 8 employees with a reinstatement rate of 100%. Of the 6 employees who chose to reinstate in 2021, 5 employees continued their service for at least 1 year with a retention rate of 83%.

## Unpaid Parental Leave

Item	Female	Male	Total
Number of employees eligible to unpaid parental leave application in 2021	53	71	124
Number of employees applying for unpaid parental leave in 2021	7	0	7
Number of employees to be reinstated after unpaid parental leave in 2021 (A)	8	1	9
Number of employees to be reinstated that reinstated after unpaid parental leave in 2020 (B)	6	0	6
Number of employees reinstated after unpaid parental leave in 2020 (C)	7	0	7
Number of employees reinstated after unpaid parental leave in 2020 and in service for a year in 2021 (D)	5	0	5
Reinstatement rate of unpaid parental leave %= B/A	<b>75%</b>	N/A	<b>67%</b>
Retention rate of unpaid parental leave %= D/C	<b>71%</b>	N/A	<b>71%</b>
Item	Female	Male	Total
Number of employees eligible to unpaid parental leave application in 2020	58	60	118
Number of employees applying for unpaid parental leave in 2020	5	1	6
Number of employees to be reinstated after unpaid parental leave in 2020 (A)	7	0	7
Number of employees to be reinstated that reinstated after unpaid parental leave in 2020 (B)	5	0	5
Number of employees reinstated after unpaid parental leave in 2019 (C)	7	0	7
Number of employees reinstated after unpaid parental leave in 2019 and in service for a year in 2020 (D)	6	0	6
Reinstatement rate of unpaid parental leave %= B/A	<b>71%</b>	N/A	<b>71%</b>
Retention rate of unpaid parental leave %= D/C	<b>86%</b>	N/A	<b>86%</b>

Item	Female	Male	Total
Number of employees eligible to unpaid parental leave application in 2022	39	68	107
Number of employees applying for unpaid parental leave in 2022	7	1	8
Number of employees to be reinstated after unpaid parental leave in 2022 (A)	9	1	10
Number of employees to be reinstated that reinstated after unpaid parental leave in 2022 (B)	7	1	8
Number of employees reinstated after unpaid parental leave in 2021 (C)	6	0	6
Number of employees reinstated after unpaid parental leave in 2021 and in service for a year in 2022 (D)	5	0	5
Reinstatement rate of unpaid parental leave %= B/A	<b>78%</b>	<b>100%</b>	<b>80%</b>
Retention rate of unpaid parental leave %= D/C	<b>83%</b>	N/A	<b>83%</b>

Note 1: In compliance with the Act of Gender Equality in Employment, full-time employees are entitled to maternity leave, paternity leave, and unpaid parental leave. Therefore, employees who have applied for maternity leave and paternity leave in three years are eligible for unpaid parental leave.

Note 2: The employees who have been reinstated and stayed in service for less than 1 year were all voluntarily separated due to personal reasons.



# 3. Workplace Health and Safety

## Occupational Health and Safety Policy and Philosophy

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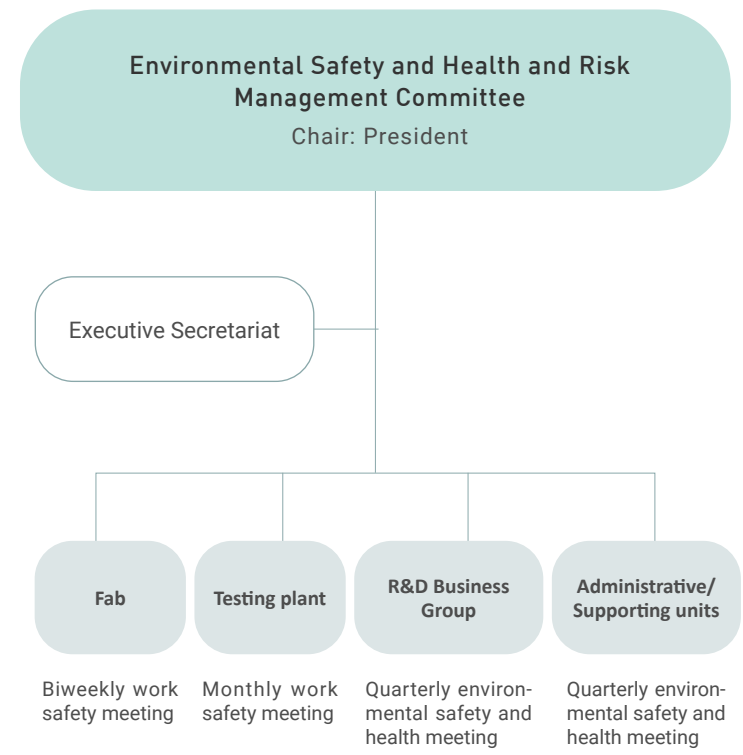
The physical and mental health and safety of employees is the most important management focus of the Company, and it is also the top priority in all operating activities. Hence, Nuvoton endeavors to comply with the advanced international safety and health standards and health promotion concepts. The Company is committed to the provision and maintenance of a work environment in compliance with the laws and regulations and industrial practices, along with ongoing improvement, so as to prevent any possibility of illness or injury to personnel. Nuvoton puts the concept and attitude of LOHAS in practice for the care of employees, committed to the creation of a happy enterprise.

Building a healthy and safe work environment makes the cornerstone for the sustainable development at Nuvoton. "Zero occupational accident" is employed as the management goal for occupational safety, health, and wellbeing promotion.

Pursuant to the Regulations Governing Occupational Safety and Health in Taiwan, a level-1 dedicated occupational safety and health management unit and a level-1 manufacturing unit have been set up at Nuvoton, along with establishment of occupational safety and health supervisors and managing personnel. There are 3 Class-A occupational safety and health supervisors, 4 occupational safety (health) managers, 2 occupational safety and health administrators, and 2 nurses. In addition, the "Environmental Safety and Health Management Committee" is instituted to hold regular meetings quarterly to discuss environmental, safety, and health issues. The President serves as the chair. The occupational safety, health, environmental protection/health management personnel, the management of various units, and labor representatives sit in the committee, totaled 14 members. There are 8 labor representatives, accounting for 57% of the committee. Relevant safety, health and environmental protection activities are promoted in

the meeting to ensure a thorough communication and consultation among employees and managers. Nuvoton abides by the laws and regulations. No violation of occupational safety and health regulations was reported in 2022.

### Organization Chart of Environmental Safety and Health Management Committee



The topics covered by the Environmental Safety and Health Management Committee encompass various environmental, occupational safety and health promotion, and management performances; legal and regulatory conformity; occupational disease prevention and health promotion; epidemic prevention management; and damage prevention results. In 2022, 4 committee meetings were called, with the items deliberated on the meetings recorded in minutes, which are tracked continuously for completion of corrective actions.

**Major Resolutions adopted by the Environmental Safety and Health Management Committee in 2022**

**Major resolutions concerning safety and health**

- Ongoingly promote safety culture;
- Execute supervisor operation observation;
- Promote the environmental, health, and safety management platform for different regions to build a safe work environment;
- Conduct chemicals risk assessment and management; implement regular operating environment monitoring and other measures;
- Execute safety and health education and training;
- Implement contractor management and operation safety control;
- Carry out improvement of fire and explosion-proof zoning;
- Continuously phase out old hardware with new ones to improve level of security protection.

**Major resolutions concerning well-being**

- Actively prevent the epidemic and protect the health of employees;
- Continuously manage the four major plans of overwork, ergonomics, maternity protection, and illegal violation prevention;
- Promote the health management plans for middle-aged and elderly workers;
- Provide health examination and personalized assessment consultation to personnel at risk;
- Enhance cancer prevention and reduce the severity.



### Number of individuals covered by the occupational health and safety management system

Nuvoton was certified against the ISO 45001 occupational health and safety management system again in 2022. The occupational health and safety management system covers all the operation sites of Nuvoton in Taiwan (Taipei, Hsinchu, Zhubei, and Tainan). The management system encompasses all the necessary processes and the interactions in between, which is put into practice. It is continuously promoted following the P-D-C-A cycle and the spirit of ceaseless improvement on a yearly basis. Hence, it seeks to attain the goal of establishing a quality workplace and prevent personnel hazards, environmental pollution, and asset losses.

		2020			2021			2022		
		Unaudited	Internally audited	Audited by an external organization	Unaudited	Internally audited	Audited by an external organization	Unaudited	Internally audited	Audited by an external organization
<b>Number of individuals covered by the management system</b>	Employees*	0	1,429	1,429	0	1,464	1,464	0	1,513	1,513
	Non-employees**	0	547	547	0	389	389	0	501	501
<b>Total number of individuals</b>	Employees*	0	1,429	1,429	0	1,464	1,464	0	1,513	1,513
	Non-employees**	0	547	547	0	389	389	0	501	501
<b>Percentage</b>	Employees*	-	100%	100%	-	100%	100%	-	100%	100%
	Non-employees**	-	100%	100%	-	100%	100%	-	100%	100%

\*The number of employees is the monthly average number of employees subject to occupational accidents reported to the Ministry of Labor.

\*\*The number of non-employees is the total number of individuals that completed the engineering courses for contractors of the year.

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## Safety Culture

It is the responsibility of Nuvoton to go for zero occupational accidents and promote the health of employees, actively establishing and promoting a culture of environmental, health, and safety: "When engaging in any activities, services or production, consider environmental, health, and safety matters in advance." The managers and engineers on production units are in charge of the monthly operation observations. By analyzing the actual operation of colleagues, they empower colleagues to discover potential hazards in the workplace, encourage and recognize their colleagues for their safety behaviors, establish safe operating methods after consultation, discussion, and correction of unsafe items, and improve continuously to prevent hazards. The safety culture and habits are put into practice in daily operations, and managers at all levels are to hold meetings with the work safety units for review, conduct safety and health management and communication, so as to improve operation and environmental safety.

## Risk Assessment and Management

To continuously identify and assess various activities, products or services, the use of materials or energy resources involved, and the possible risks

and opportunities for personnel safety and health and impacts on the environment arising from operations, Nuvoton has formulated the "Environmental Safety and Health Risk Assessment Procedures." To ensure the effectiveness in the implementation, internal audits are executed regularly, followed by reviews by the "Environmental Safety and Health Management Committee." Each unit conducts risk level assessments at least once a year in line with their duties and responsibilities, processes, and systems, and classifies the identified safety and health risks for management. Also, risk levels are assigned based on the severity and frequency of hazard events to formulate risk control measures. Regarding hazards of high level, measures are assessed for improvement, while the rest of the risk levels serve as reference metrics for ongoing improvement or management plans to improve and reduce risks in accordance with the following order of risk control measures: elimination, substitution, engineering controls, sign/warning/administrative



controls, and personal protective equipment (PPE). Meanwhile, prior to any temporary or permanent changes, or upon occurrence of an accident, risk assessment shall be performed again, and the risks assessment prior to the implementation of countermeasures to prevent recurrence will be carried out, to ensure no new hazard or risk derived.

The key to risk assessment lies in the preemptive control of change information to prevent deviation of environment or operating conditions away from the original safety range and control due to any change. Nuvoton demands all units to actively report change information. Also, combined with digitalization, the application for risk change assessment case is available. The sample material identification procedures, PCN (Process/Product Change Notice) of raw material suppliers, meetings of the Process Change Review Board, and the procurement management systems, among others, enable a swift grasp of change information. In the event of any addition of or change into material risks or impacts in the assessment results, relevant protective measures would be taken. Where there are derivative needs in operational control, relevant documents would be formulated or revised, and relevant personnel training would be completed. In 2022, there were 24 PCNs from raw material suppliers and 16 applications for change risk assessment.

## Hazardous Chemical Management and Work Environment Monitoring

To reduce the use of hazardous substances and the impact on the health of employees, Nuvoton continues to prioritize the use of low-hazardous chemical assessments. In 2022, it endeavored to carry out the hazardous substance NMP substitution plan and conducted new chemical testing and related product verification with the goal of NMP reduction in 2023.

To provide workers with a comfortable and healthy work environment, Nuvoton has established quality standards for the operating environment. In compliance with the "Enforcement Regulations Governing Job Site Monitoring," the work environment monitoring is carried out according to the potential physical properties (noise, lighting, and radiation), carbon dioxide, and chemical hazards of the operation sites across Taiwan every six months. Through the exposure analysis before detection, it formulated the work environment monitoring plan. For workers located in areas with chemical exposure, chemical sampling and testing is to be carried out to

ensure that all high risks of potential exposure to chemicals are included in the monitoring. In the event of any anomaly in the monitoring data, the occupational safety department shall formulate relevant improvement plans or adopt administrative management. In 2022, all the results of chemical substances monitored in the workplace were all lower than the allowable concentrations for occupational exposure.

In addition, Nuvoton formulated various protection management plans for different operation groups in accordance with the laws and regulations. From hazard identification and assessment to work suitability arrangement, outcome assessment and correction, the management is implemented on a rolling basis, aiming to offer employees a safe work environment for operations. The monitoring results of work environment are all compiled into records by the safety and health management department, which will serve as the basis for the special health checkup of workers and the reference for worker dispatch by managers of respective unit in the future, so as to avert occurrence of occupational diseases on the plant.

Furthermore, if an employee finds any concern of danger presented in the work environment, under conditions in which the safety of fellow employees is not jeopardized, he or she may stop working and withdraw to a safe location. Meanwhile, Nuvoton will never impose unfavorable treatment on such employee. Also, employees are encouraged to take the initiative to report any potentially hazardous environment.

Sound environmental, health, and safety incident reporting, handling, investigation, and correction measures as well as tracking and promotion system are in place at Nuvoton. The “Environmental Safety and Health Management Committee” tracks and verifies the results of correction of incidents on a quarterly basis to prevent recurrence of accidents and protect the safety of employees, visitors, contractors, and other personnel.

In 2022, Nuvoton improved the safety of work environments with results of implementation as follows:

- In the chemical storage area, plant supply area, and process equipment area, gas detectors superior to the statutory standards are installed to detect the concentrations of the gases to be detected in case of emergency leakage and to prevent chemical hazards and ensure the safety of operators on site. In 2022, a project was proposed to inventory the gases used on the plant respectively and the list of detectors. Of the 314 points compared, 14 points were found with anomaly to be corrected. Detectors were added/deleted in line with the actual needs, and a management mechanism was established to avoid possible misjudgments in anomaly handling.
- In the chemical storage, supply, and operation areas, shower and eyewash facilities are installed for the injured to remove pollutants in case of accidents. In 2022, the existing 24 shower rooms were re-examined, and 6 of which underwent compartment optimization and personnel flow integrity improvement to enhance the safety of the environment on site.

Subject of Disclosure	Risk Assessment & Monitoring Methods	Employee Safety and Health Protection Measures
<b>Short-, Medium-, and Long-term Plans</b>	Prior to chemicals entering the site, through change assessment, the hazard characteristics of chemicals are evaluated in advance. Hazard identification is performed for chemicals on site; exposure assessment is executed. Based on the assessment results, the work environment monitoring is implemented in conformity to the hazard level and statutory items.	General health checkups and special operation health checkups are conducted regularly. In addition, for high-risk operation areas, engineering controls are employed to reduce employee exposure, and relevant protective equipment is actively provided for use.
<b>Laboratory Staff</b>	Testing is carried out for CO <sub>2</sub> , noise, and illuminance on a regular basis. For laboratories that use chemicals, assessment will be conducted before enforcement of chemical monitoring of the work environment.	Relevant protective equipment is actively provided, and engineering controls are employed to reduce employee exposure if necessary.
<b>Office Personnel</b>	Testing is carried out for CO <sub>2</sub> , noise, and illuminance on a regular basis.	Relevant protective equipment is actively provided, and engineering controls are employed to reduce employee exposure if necessary.

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## Occupational Injury

The statistical analysis of occupational accidents covers all plants in Taiwan. Recordable disabling occupational injuries are calculated based on the disabling injuries in the occupational accidents reported to the Ministry of Labor, and the number of traffic accidents of employees commuting to and from work are excluded.

In 2022, there were no occupational accidents, serious occupational injuries, or occupational diseases involving the death of employee or non-employee.

In 2022, the disabling injury frequency rate was 0.66, and the disabling injury severity rate was 2.31. There were 2 accidents of disabling injuries to employees (work-related falls and trips) with 2 individuals involved, accounting for 0.011% of the total number of employees in 2022; 3 recordable incidents without occupational injury or property damage (2 non-work-related impacts and 1 work-related physical collision); and no occupational injuries to non-employee worker. Accident investigation and cause analysis have been carried out for each incident. The responsible units were requested to formulate corrective measures to improve the unsafe environment. We strive to build the hazard awareness and the ability for immediate response to unsafety of all workers for ongoing improvement to ensure that all workers can work in a safe and secure environment.

		2020		2021		2022	
		Employees	Non-employees	Employees	Non-employees	Employees	Non-employees
<b>Work hours</b>	Male	1,603,488	13,888	1,619,184	14,328	1,705,528	13,584
	Female	1,231,672	547	1,262,656	3,952	1,321,720	3,832
	<b>Total</b>	<b>2,835,160</b>	<b>17,856</b>	<b>2,881,840</b>	<b>18,280</b>	<b>3,027,248</b>	<b>17,416</b>
<b>Rate of fatalities arising from occupational injuries</b>	Male	0	0	0	0	0	0
	Female	0	0	0	0	0	0
	<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Rate of serious occupational injuries</b>	Male	0	0	0	0	0	0
	Female	0	0	0	0	0	0
	<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Recordable occupational injuries</b> (No. of disabling injuries)	Male	1	0	2	0	0	0
	Female	1	0	3	0	2	0
	<b>Total</b>	<b>2</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>2</b>	<b>0</b>
<b>Recordable occupational injuries</b> (Frequency of disabling injuries)	Male	0.62	0	1.23	0	0	0
	Female	0.81	0	2.37	0	1.51	0
	<b>Total</b>	<b>0.70</b>	<b>0</b>	<b>1.73</b>	<b>0</b>	<b>0.66</b>	<b>0</b>

		2020		2021		2022	
		Employees	Non-employees	Employees	Non-employees	Employees	Non-employees
<b>Recordable occupational injuries</b> (No. of non-disabling injuries)	Male	1	0	1	0	1	0
	Female	1	0	1	0	2	0
	<b>Total</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>3</b>	<b>0</b>
<b>Recordable occupational injuries</b> (Frequency of non-disabling injuries)	Male	0.62	0	0.61	0	0.58	0
	Female	0.81	0	0.79	0	1.51	0
	<b>Total</b>	<b>0.70</b>	<b>0</b>	<b>0.69</b>	<b>0</b>	<b>0.99</b>	<b>0</b>
<b>Lost days due to recordable occupational injuries</b>	Male	25	0	6	0	0	0
	Female	11	0	18	0	7	0
	<b>Total</b>	<b>36</b>	<b>0</b>	<b>24</b>	<b>0</b>	<b>7</b>	<b>0</b>
<b>Disabling injury severity rate</b>	Male	15.59	0	3.70	0	0	0
	Female	8.93	0	14.25	0	5.29	0
	<b>Total</b>	<b>12.69</b>	<b>0</b>	<b>8.32</b>	<b>0</b>	<b>2.31</b>	<b>0</b>
<b>Occupational disease rate (ODR)</b>	Male	0	0	0	0	0	0
	Female	0	0	0	0	0	0
	<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

1. Rate of fatalities arising from occupational injuries = fatalities arising from occupational injuries / work hours × 1,000,000 (three digits after the decimal point not counted)

2. Rate of serious occupational injuries = serious occupational injuries (fatalities excluded) / work hours × 1,000,000 (three digits after the decimal point not counted)

3. Recordable occupational injuries (disabling / non-disabling injuries) = Recordable occupational injuries (disabling / non-disabling injuries) / work hours × 1,000,000

4. Disabling injury severity rate = lost days due to disabling occupational injuries / work hours × 1,000,000 (three digits after the decimal point not counted)

5. Occupational disease rate = number of occupational diseases / work hours × 1,000,000 (three digits after the decimal point not counted)

6. Work hours of non-employees: calculated with the full-time workers directly under the instruction and oversight of Nuvoton.

## Education, Training, and Emergency Response

To establish employees' understanding of the Company's safety and health management system, and to regulate and improve their operational competences, so as to reduce the impact on the environment and improve the operational safety of personnel, Nuvoton planned the environmental, health, and safety education and training contents. For instance, for new workers or in-service workers before change of work, they are to receive a minimum of 3 hours of general safety and health education and training necessary for the work. 3 additional hours are required for those that handle or use hazardous chemicals. A proper awareness of safety and health is improved by education of concepts such as work safety and protection and promotion of emergency response skills in the event of an emergency. In accordance with the annual training plan, regular or intermittent in-person courses or digital teaching materials and course videos are delivered to break through the limits of space and time to strengthen the risk perception of employees in service as well as their knowledge and skills for hazard prevention and emergency response ability and develop employees' emergency response ability and safety notions.

In 2022, a total of 77 education and trainings for safety and health were organized (including new recruits and personnel of special operations and chemical use) were conducted with 1,924 individuals trained in total.

Nuvoton has established emergency response procedures for possible emergencies such as anomalies in various areas internally and natural disasters externally for internal units to formulate the emergency response processes for individual scenarios, grouping of response personnel, drills, and training, so as to minimize the impact of personnel injury, asset loss, and production disruption arising from various emergencies. Also, all employees are required to receive retraining of firefighting practices every 3 years. 4 sessions were held in 2022. Through practices with fire extinguishers, fire hydrants, and emergency escape, employees' concepts of disaster prevention and escape are strengthened. In addition, emergency response drills



are planned each year for various accidents that may occur in the Company. Also, emergency response team retraining is conducted every 2 years, so that employees are familiar with the notification procedures, on-site control, casualty care, and emergency equipment operation and support. The Company has stipulated a composite disaster emergency response and post-disaster recovery plan. Multiple emergency scenarios are simulated for an ongoing improvement of the disaster response measures. A total of 68 sessions of emergency response drills, such as fire rescue, chemical leakage, gas leakage, and emergency evacuation, were conducted in 2022. The Company actively participates in the mutual aid group of the park every year. In 2022, the Company orchestrated the drill of HSP Mutual Aid Group-Hsinchu City Group B for the observation by the neighboring factories for emergency response reference.

In addition, various accident reporting, emergency response procedures, and handling specifications have been established at Nuvoton. Sufficient emergency response equipment and medical kits are prepared across the plants. A total of six AEDs (Automated External Defibrillators), two emergency care equipment such as forced oxygen supply are installed in the public areas. The function check and supplement of emergency equipment are executed regularly. Also, managers and emergency personnel are required to complete on-the-job education and training to raise the emergency care efficiency. Nuvoton goes further to promote that all employees of the Company must receive the trainings for cardiopulmonary resuscitation (CPR) and Automated External Defibrillator (AED) to strengthen the concept and skills of employees in emergency care.



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## Contractor Management and Operation Safety Management

Operational safety precautions and emergency response procedures are strengthened. Combined with routine inspection mechanisms, the Company implements safety policies via management by wandering around (MBWA). The disabling injury rate of contractors in the past five years is zero.

The safety and health management unit of the Company stipulated the rights and obligations of contractors related to matters of safety, health, and environmental protection as the basis for contractor management. In order to prevent occupational accidents, the Company conducts inspections, work communication, and adjustments to the workplaces of contractors.

Prior to construction, the safety and health management unit conducts education and training for contractor personnel; informs construction personnel of the occupational laws and regulations related to safety and health, general hazards and protection principles; provides guidance and assistance for safety and health education between relevant contractors. Contractors can obtain operation qualifications only after passing the safety and health training.

In line with the nature and scale of an operation area, the project contractor shall formulate appropriate items for hazard notice, and inform contractor personnel of the work environment, the hazard factors, and the safety and health protection measures to be taken according to the relevant safety and health regulations before operation. In the event of construction content change or hazard characteristics due to work environment change, the hazard notice items shall be revised, and the contractors shall be informed thereof.

### Workplace Health Management

Healthy employees bring forth high creativity, high efficiency, and high productivity to the Company. The potential impact on the Company from employees suffering occupational injuries due to work or decline in productivity due to illness or poor personal health should not be underestimated. Hence, we must actively improve any health and safety incidents and avoid recurrence. Nuvoton firmly believes that healthy employees are the most precious asset of an enterprise. Therefore, we have listed employee health management and health promotion as an important strategy in our operations, which in turn can enhance the competitiveness of the Company. The blueprint of health management and promotion plan of Nuvoton

took reference with the Occupational Safety and Health Act and various guidelines, combined with safety and health management units, human resources and units for talent allocation. It conducts workplace health risk assessment and health management and adopts health promotion-related measures to evaluate implementation effectiveness and improvement. Through various activities, the Company improves employee health and fosters a “Healthy Workplace and Friendly Company.”

Nuvoton have employed and reports two nurses to handle labor health services in compliance with the laws, manages and promotes the health of workers pursuant to the laws, and ensures a safe and healthy work environment for workers, so as to elevate employees’ health knowledge and reduce the abnormal rate in health checkups and the incidence of diseases.

The “Health Center” is positioned as a health management unit that provides care services, which actively cares for employees and provides timely/appropriate care. The on-site services/interviews with doctors are provided to facilitate recovery from injuries. Together with the workplace inspection by the safety and health management units, a safe and healthy work environment is provided. In addition to complying with the laws and regulations to formulate the health management plans, Nuvoton implements special and general health checkups better than the statutory standards. The health quality of employees is improved by means of:

#### Workplace Protection Plan

Nuvoton has formulated various protection management plans for different groups of workers, such as overwork, ergonomic hazards, maternity protection, middle-aged and elderly employees, etc., for an ongoing promotion, aiming to provide all employees with a work environment that is safe, peaceful, and healthy.

#### 24 Hours All-Day Professional and Real-Time Health Services

The nurses at the Health Center of the Company provide services and emergency care support 24/7. The comfortable, cozy, and discrete space unwinds employees physically, mentally, and spiritually.

#### Convenient Health Management System

The “My Health Management” platform is set up on the homepage of the corporate website. Employees may log in with their personal accounts and passwords to check their personal health checkup reports and trends, healthcare

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clinic appointments, and registration to various health promotion activities and lectures on the system. The safe and convenient management system offers convenience and ease to our employees. The number of visits reached 27,572 as of the end of 2022.

**On-Site Services/Healthcare Clinic**

Three sessions of occupational disease specialists are arranged monthly, better than the statutory standards, to provide health education, medical consultation, as well as care support. Regular visits to workplaces at least twice a year by doctors to detect potential health risks of employees, provide immediate advice and assist in problem solving, ensure the safety of work environments, and improve the health of employees directly and closely.

**Health checkups**

Health checkups by the hospital of medical center level arranged on the site of plant each year in accordance with health management needs to offer customize checkup items, which is better than the statutory standards. The concept of three stages and five levels of preventive medicine are introduced for early diagnosis and early treatment. In collaboration with the health examination team of the medical center for nearly 2 decades, the chief physician of the health examination center has won high level of trust and satisfaction from our employees, and the service quality has been improved. The special health checkup categories at the Company cover the four major types of operations, i.e. ionizing radiation, arsenic, particulate matters, and nickel. Good monitoring and regulations are in place for the work environment and operating procedures. In 2022, a total of 35 employees underwent relevant checkups, and none of them entered the statutory Level-3 or Level-4 Management List in the Labor Health Protection Regulations (see Note 1). The company-wide “free” abdominal ultrasound examination once every three years took place in 2022, and 7 employees were arranged for follow-up checks at the hospital to verify their symptoms. Thyroid ultrasound examination was carried out with 11 employees arranged to have follow-up checks at the hospital for early diagnosis and treatment as well. (Note 1: The Statutory Level-3 Management: Some or all of the items in the results of special health checkups or follow-up examinations are abnormal, which are determined as abnormal without any clear

correlation with work by doctors after comprehensively evaluation and therefore require consultation with a specialist in occupational medicine. Statutory Level-4 Management: Some or all of the items in the results of special health checkups or follow-up examinations are abnormal, which are determined as abnormal and correlated with work by doctors after comprehensively evaluation.)

**Health Management Standard Operating Procedures (Sops) Formulated**

Based on the health checkup, the employees with abnormality(-ies) are counted, analyzed, and managed in levels. There are five levels of management for general health checkups according to our internal regulations, and four levels of management for special operations in compliance with the Labor Health Protection Regulations. Immediate medical follow-up and treatment are arranged for those with serious abnormalities, while consultation and health education and advice are provided by specialists in occupational diseases at the healthcare clinics of the Company to those with minor abnormalities, so as to protect the health of our employees. In 2022, 35 employees with serious abnormalities were found in the general health checkups, who went to hospital to verify their health issues. The issues were not work-related. Care and support were actively provided to employees for treatment and management.

**Emergency/First Aid Responses**

Accident reporting and handling regulations were established; sufficient emergency response equipment and medical kits are in place; and emergency care personnel are required to complete on-the-job education and training on a regular basis. Together with the topical learning through e-learning, we strive to reduce personnel injuries in the event of emergency. Six AEDs, 2 sets of forced oxygen supply, and other advanced emergency care equipment are in place at the Company. Furthermore, the cardiopulmonary resuscitation (CPR) and Automated External Defibrillator (AED) courses are promoted for training in order to strengthen the concept and skills of employees in emergency care.

## Health Activities and Care

Now that most of the employees are office workers. Sedentary and inactive are the main health concerns, which may easily lead to diseases related to obesity and metabolic syndrome. Therefore, employees are encouraged to eat less and exercise more to be healthier. In 2022, due to COVID-19, the organization of large-scale health promotion activities remained restricted. Hence, Nuvoton mainly encouraged sports clubs to hold outdoor activities. The Walking Club, Cycling Club, Badminton Club, Basketball Club, and so forth organized outdoor activities in compliance with the epidemic prevention policy for health and avoidance of infection. Also, the groups on the app were used to motivate each other to encourage employees to keep regular exercise habits. For groups with metabolic syndrome and abnormal health, either the employees or workers that work at the Company and subject to the supervision of the Company, consultation with clinic doctors, health lectures, and monthly announcements via health e-newsletters and posters are available. Three sessions of online health lectures on hypertension, cardiovascular health care, and diet were held in 2022, participated by a total of 200 employees, who raised questions enthusiastically, Hence, we improved employees' awareness of disease and health care.

Health Checkup Management in Levels	Definition	Management Approach
<b>Level 1</b>	Checkup results are determined by doctors to be within the normal range.	Health promotion
<b>Level 2</b>	Some of the items in the checkup results are determined by doctors as abnormal but with no impact to health and therefore no need for follow-up check.	Health education and instructions/Health promotion
<b>Level 3</b>	Checkup results are determined by the doctor as abnormal, and the health risks and health education must be informed.	Health education and instructions /Clinic consultation
<b>Level 4</b>	Checkup results are determined by the doctor as seriously abnormal, and follow-up checkup or medical treatment is required.	Clinic consultation or follow-up check at hospital
<b>Level 5</b>	Checkup results are determined by the doctor as extremely serious abnormal, which requires immediate treatment.	Medical treatment



### Ergonomic Hazard Prevention Plan

To avoid musculoskeletal injuries caused by repetitive work or incorrect postures of employees. The Nordic Musculoskeletal Questionnaire (NMQ) is conducted with an online survey each year during the annual health checkup. The 41 people with a score  $\geq 4$  points, representing more serious conditions, are arranged for clinic consultation, or for on-site visit by specialists of occupational medicine to undergo hazard identification and assessment, followed by health education and instructions and support in line with individual conditions. In addition, plans are made to prevent musculoskeletal soreness and pain, such as stretching exercises in the office every day, consultations with physical therapists, visually-impaired masseurs hired to provide massage services for about 1,400 people a year, and holding stretching classes, etc. to relieve the sore symptoms, which were well-received by employees.

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### Prevention Plan for Ailments Induced by Exceptional Workload

To protect the physical and mental health and safety of employees, we prevent employees who work in shifts, at night, or for long hours from cerebral and cardiovascular diseases arising from abnormal workload through planned management measures. In 2022, among the 241 people to be managed, 3 individuals at high-risk and 4 at moderate-risk completed consultation with doctors, along with regular care about the status of medication and follow-up appointment. Compared with the abnormal results of the previous health checkup, the one in 2022 saw a reduction in the abnormal rate by 16.7%.



### Prevention of Illegal Violation at Work Plan

Pursuant to the guidelines of the Ministry of Labor on the prevention of Illegal violations at work, Nuvoton promulgated its prevention strategies and management procedures, along with promotion, education, and training conducted each year. In the training of new recruits, employees will be made aware of how to protect themselves and the grievance channels. The position of "zero tolerance" for illegal violations in workplace of the Company is declared. Meanwhile, a workplace culture of safety, dignity, non-discrimination, mutual respect and tolerance, and equal opportunities is established.

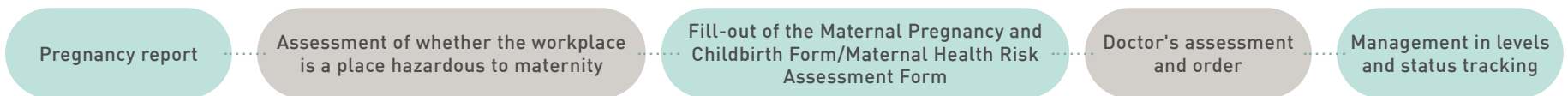


### Maternal Health Protection Plan

For female employees who are pregnant or postpartum for less than one year, consultations with doctors are arranged to care for the physical and mental health of the entire pregnancy and postpartum period, work environment, and hazard assessment of work content, as well as work suitability suggestions and risk management in levels provided. Furthermore, to encourage employees to give birth, we provide well-equipped nursery rooms, dedicated parking spaces for pregnant women, pregnant mother gifts and maternity subsidies. In 2022, a total of 17 employees reported their pregnancy, and the mother gifts were given, which were well received. According to the employee feedbacks, these measures were very considerate and met their needs.



### Encourage employees to give birth and build a maternity-friendly environment



## Cancer Prevention Program

According to the statistics of the Ministry of Health and Welfare, cancer has ranked first among the top ten causes of death for the people in Taiwan for nearly 40 years consecutively. Therefore, Nuvoton has been actively promoting the cancer prevention program for years. With reference to the top ten cancers of the people in Taiwan published by the Health Promotion Administration, the employees with a family history, the middle-aged and elderly employees, the employees that smoke or eat betel nut, and other groups with high risks are selected for free or subsidized checkups for the purpose of early diagnosis and early treatment. In 2022, there were about 1,300 accesses cumulatively to checks for the prevention of colorectal cancer, lung cancer, cervical cancer, breast cancer, liver cancer, nasopharyngeal cancer, thyroid cancer, oral cancer, and prostate cancer. Those with anomalies have been tracked without anything particular to report at present.

<b>Colorectal Cancer</b>	Fecal occult blood test and gastroscopy subsidized for 25 individuals
<b>Lung Cancer</b>	Free low-dose CT for 25 individuals
<b>Oral Cancer</b>	Oral exam for individuals that smoke or chew betel nuts
<b>Breast Cancer</b>	Subsidy for breast ultrasound and mammography
<b>Gynecological Cancer</b>	HPV virus (at own expense) and gynecological ultrasound
<b>Liver Cancer</b>	Abdominal ultrasound for all personnel
<b>Nasopharyngeal Carcinoma</b>	Nasopharyngeal carcinoma indicators in health checkup at own expense and nasopharyngoscopy subsidized for high-risk groups
<b>Prostate Cancer</b>	Screening at own expense in health checkup
<b>Thyroid Cancer</b>	Ultrasound at own expense

## Employee Assistance Program

Should any employee seek support from the Health Center due to stresses from family, work, romantic relationship, finance, legal affairs, etc., aside from attentive listening, care, and support, the nurses will also refer such employee to external partnering EAP experts to provide comprehensive consultation services when necessary. Nuvoton hopes to help employees have a healthy and happy mind. Cooperating with external professional mental health institutions for years, it offers at least 3 free consultation opportunities per year to each employee. In 2022, psychologist consultation service was accessed for 21 hours (by 14 individuals), mostly about career development, workplace relationships, family and parenting, emotional stress, legal issues, among others.

To understand the stress status of employees in various departments, the questionnaires of fatigue and stress index are collected every year before the health checkup for a psychological status survey. The high-risk employees are identified based on the results. Individual interviews and assessment are conducted by nurses. After several care talks with nurses, some subjects were satisfied and had improvements, and trust was born. This is the positive feedback gained by the nurses of the Health Center for caring for the employees and protecting the privacy thereof.

## Health Management Plans for the Middle-aged and Elderly Workers

The average age of Nuvoton employees is 43 years old. The management plans have been formulated to track and assess the health status of employees. The assessment of the risks and hazard variables in employees' work environment has been 100% completed. For the medium- and high-risk subjects, 39 employees have completed one-on-one personal health consultation with advanced resident doctors, without further assignment or referral of cases needed. As such, we ensured the health of our employees and maintained our workforce.

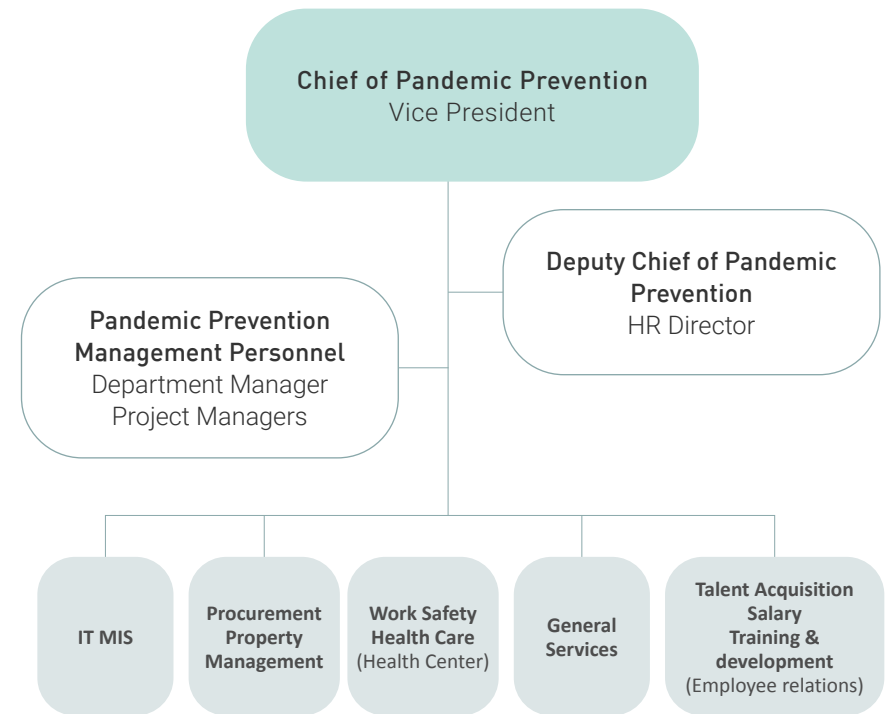
## Influenza Vaccination

To care for the health of employees and enhance herd immunity, the Company provides “free” influenza vaccination for all employees. In 2022, we went for a more comprehensively upgrade, planning to arrange vaccination with the German-made cell-cultured quadrivalent vaccines to not only reduce the risk of vaccine allergies, but also help improve the herd immunity and lower the possibility of severe COVID-19 infection. A total of 748 individuals were vaccinated in 5 sessions, with an inoculation rate of 49% and an increase of 13% compared with 2021.

## Epidemic Prevention Measures

In response to the ongoing spread of the COVID-19 epidemic, the pandemic prevention taskforce of Nuvoton adhered to the government’s epidemic prevention policies and held epidemic-prevention meetings on a weekly basis to actively plan various epidemic prevention measures. The members on the pandemic prevention team included the vice president of the Manufacturing Business Group as well as the departments of human resources, talent acquisition, work safety, medical care, procurement, property management, and information technology, and the organization chart thereof is as follows:

## Dedicated Pandemic Prevention Taskforce



In line with the latest epidemic information released by the Central Epidemic Command Center, the epidemic prevention management measures SOP was adjusted from time to time. The epidemic prevention and management measures as appropriate in 2022 are as follows:

Category	Policies and Measures	Category	Policies and Measures
Supplies Preparation	<ul style="list-style-type: none"> <li>Procure epidemic prevention supplies, e.g. masks, rapid test kits agents, ear thermometers/probes, forehead thermometers, alcohol, hand sanitizers, etc. for sufficient quantities and set the safety stocks, which are to be inventoried weekly. Resources of highly accuracy and convenience were provided for employees that were confirmed cases, under quarantine, or on business trips.</li> <li>Provide rapid test kits for employees who were confirmed cases or in contact with or living with family members who were confirmed cases, to relieve employees from the trouble of supply shortage and challenge in procurement.</li> </ul> <p><b>In 2022, the costs of supplies were about NT\$9 million.</b></p>	Personnel Management and Care	<ul style="list-style-type: none"> <li>Formulate SOPs: management procedures for various scenarios such as employees as confirmed cases, family members living with them who are confirmed cases, contact with confirmed cases, and overlapping footprints; and protect the personal information of employees.</li> <li>Management measures and SOP for cluster infection.</li> <li>Provide care for confirmed patients, send care boxes to employees’ homes, so that the employees unable to go out due to quarantine can have the necessary food. The contents include vitamins, chicken essence, alcohol, rapid test kits, oximeters, etc. The employees were both surprised and delighted upon receiving the care boxes, expressing their gratitude for the measures of the Company. In 2022, a total of 707 care boxes were sent out.</li> </ul>

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Category	Policies and Measures	Category	Policies and Measures
<b>Split Working and Personnel Management</b>	<ul style="list-style-type: none"> <li>Plan for split working in Group A and B, reducing the risk of infection by splitting the crowd traffic across different sessions, which encompasses the long-term personnel and vendors stationed to the plants.</li> <li>Compartmentalization with different cars and rooms is enforced for the commuter services and lounges for direct labor.</li> </ul>	<b>Dining</b>	<ul style="list-style-type: none"> <li>Add partitions to the dining tables. Open the external windows in the dining area for ventilation during meals.</li> <li>Employees access the dining area in groups across different times to reduce the crowd density in dining to 50%.</li> <li>Post signs and warnings to promote no talking in dining and remind people to comply with epidemic prevention measures.</li> <li>The kitchen staff dish out the food of buffet to reduce the risk of cross-infection.</li> </ul>
<b>Visitor and Vendor Management</b>	<ul style="list-style-type: none"> <li>Visitors and vendors are required to fill out the questionnaire, take their body temperature, and wear a mask before entering the plants. The visitor or vendor that exhibits symptoms of fever or cold or with an international travel history is advised not to enter the Company so as to reduce the risk of infection.</li> <li>Partner vendors need to ensure the enforcement of health management for their employees.</li> </ul>	<b>Plan for Work-from-Home</b>	<ul style="list-style-type: none"> <li>During the darkest hours of COVID-19, R&amp;D or sales personnel in offices of Zhubei, Taipei, and Tainan Offices worked from home.</li> </ul>
<b>Environmental Epidemic Prevention Control</b>	<ul style="list-style-type: none"> <li>Add UV sterilization equipment to the air conditioners of the Company.</li> <li>Replace the faucets in the pantries and toilets with automatic sensor faucets.</li> <li>Install partitions to the office area to avoid infection with office seats rearranged to reduce cross-infection.</li> <li>Increase the lounge area for direct employees; enforce smoking area grouping and real-name system and increase social distance.</li> <li>Add hand sanitizer dispensers.</li> </ul>	<b>Foreign Employee Management</b>	<ul style="list-style-type: none"> <li>Care and support the management units of the foreign employee dormitories, in accordance with the “Foreign Worker Employment Guidelines in Response to Severe Pneumonia with Novel Pathogens (COVID-19)” of the Ministry of Labor, such as: compartmentalization and division, assistance to foreign employees in purchasing food or daily necessities to reduce the need for foreign employees to go out, preemptively plan the accommodation with 1 room for 1 person, etc.</li> <li>Reduce the number of foreign employees sharing a dormitory from 8 people to 4 people in a room.</li> <li>Strengthen the personal hygiene: Wash hands frequently, take temperature, avoid touching eyes, mouth and nose, wear a mask at all times in and out of the hospital (including during the physical examination and medical treatment), and abide by the Company’s epidemic prevention measures.</li> <li>Masks, ear thermometers, and hand sanitizing alcohol are available at the dormitories for use.</li> <li>Disinfect the public areas of the dormitories 4 times a day, such as the lobby, meeting room, restaurant, passenger elevator hallway, wooden floor area, etc.</li> </ul>
<b>Epidemic Prevention Promotion</b>	<ul style="list-style-type: none"> <li>One day of paid vaccination leave is available for each dose of vaccine for employees to rest fully.</li> <li>NT\$100 gift card of convenience store is available for anyone that receives the third dose (booster shot).</li> <li>Employees are encouraged to get vaccinated to boost their immunity. As of the end of December 2022, 1,510 people throughout the Company had 1 dose of vaccination, accounting for 98%; 1,497 people had 2 doses, accounting for 97%; and 1,410 people had 3 doses, accounting for 97%.</li> </ul>	<b>Conferences and Trainings</b>	<ul style="list-style-type: none"> <li>Education and training: Based on the principle of epidemic prevention first, avoid contact and clustering of people, postpone training courses for &gt;10 people, or adopt teams or e-learning instead.</li> <li>Conferences: Suspend large meetings, enforce checkerboard seating for meetings of &gt;10 people, and cut the capacity of meeting rooms to no more than 50%, or conduct online meetings to avoid the risk of clustering.</li> <li>Postpone non-essential external trainings; application is required for any occasion that is time-sensitive or for certificate renewal; confirm whether the organizer has sufficient epidemic prevention measures in place, while the participants must be well-prepared for epidemic prevention.</li> </ul>
<b>Encouragement to employees to vaccinate</b>	<ul style="list-style-type: none"> <li>Carry out the epidemic prevention promotion twice a week to strengthen employees’ knowledge of epidemic prevention.</li> <li>Promote the epidemic prevention policies and measures of the Company.</li> </ul>		

In 2022, up to NT\$12 million was allocated for the management of the epidemic prevention environment and the care for confirmed cases. One day of paid vaccination leave

# 4. Employee Care and Communication

## Employee Communication and Grievance

### Employee Communication and Grievance

Nuvoton is committed to creation of a work environment that allows employees to stay healthy in body, mind, and spirit. In addition to taking care of the physical health of employees, it plans a variety of activities, put the mind of care for employees into practice, and build a friendly and happy workplace and a LOHAS culture. In order to enable an effective communication and mutual response between employees and the Company, we have established and provided multiple bilateral communication channels to foster a harmonious and sustainable labor-management relation.

Nuvoton regularly holds labor-management meetings to promote communication between labor and management. In 2022, a total of 4 labor-management meetings were held to present to the labor representatives the quarterly revenue performance of the Company and labor-related dynamics as well as discuss the annual calendar of employees (for coordinated arrangement of holidays) and the adjustment of the biweekly flexible work hours of Four-Two Shift Schedule. In addition, representatives of various units of the Employee Welfare Committee at Nuvoton also conduct regular consultations on employee welfare activities.

Nuvoton attaches great importance to opinions from employees. All the plants of Nuvoton have a physical (anonymity available) Suggestion Mailbox and various online grievance channels. General affairs responses, CSR ethical management reporting, sexual harassment cases, etc. are handled directly by the managers of human resources department and the representative of the Sustainability Committee. To promote a friendly communication at workplace, seminars for the life of new recruits are organized for managers of human resources to answer questions for new employees on the front line to demonstrate the emphasis on the feedbacks of employees. Also, the opinion communication channels are promoted continuously during the training for all staff to encourage employees to share suggestions, big or small, with the Company. A total of 8 employee comments were received in 2022, with a **response rate of 100%**.

Nuvoton holds management communication meetings quarterly and follows “Procedures for Handling Material Inside Information” of Nuvoton to ensure the consistency and accuracy of the information released by the Company externally.

### Employee Care

To promote a healthy and happy workplace, flexible work hours have been adopted in the regular shift system since 2019, and 7 days of LOHAS leave were available in 2022 to encourage employees to use the annual leave, which were available to new recruits immediately upon onboard. In 2022, we arranged one-on-one caring and random visits to new employees. In line with the buddy system for new recruits, we cared for the onboard status of employees, promoted EAPs and various corporate benefits, and assisted employees to accelerate their integration into the new environment.

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## Lecture Series for Prevention of Illegal Violation at Workplace

External professional lecturers are invited to share and help managers understand the characteristics and differences of employees of different generations in the workplace, and improve managers' sensitivity and communication skills, reduce interpersonal conflicts at workplace, effectively prevent workplace bullying and protect themselves and others. In 2022, a total of 3 lectures on the prevention of illegal violations at workplace were held, with 141 participants and an average satisfaction of 4.6 points (a five-point scale is used for satisfaction).

## Epidemic Care Questionnaire

To probe into the changes and needs of employees in various aspects such as work, life, and health during the pandemic, Nuvoton conducted the "Epidemic Care Questionnaire Survey" on the internal employees for two consecutive years (2021-2022). Measures that met the needs of employees from their perspectives to create a positive and friendly workplace culture and a safe work environment.

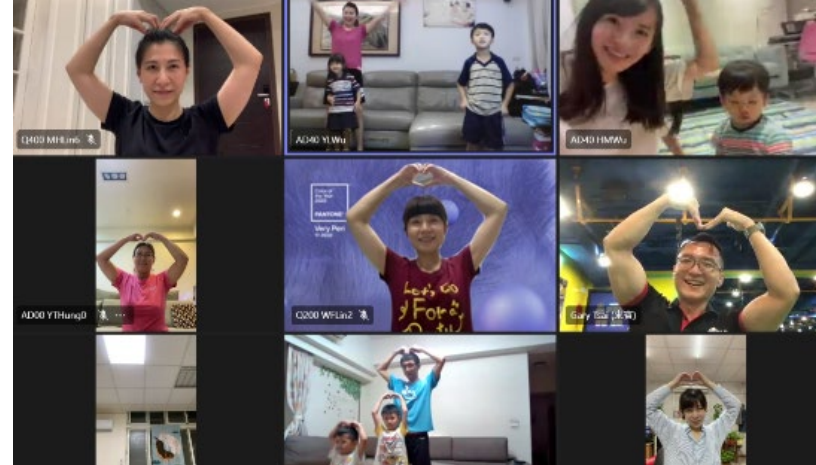
## Online Lectures on Epidemic Prevention

In the era of coexistence with viruses, eminent doctors were invited to promote correct knowledge and concepts of epidemic prevention, reduce the anxiety caused by the epidemic among employees, avoid unnecessary panic, and maintain life as it was. In 2022, there were 152 participants, with an average satisfaction of 4.9.

**新疫情時代  
您準備好了嗎**

時間 | 9/29(四) 15:00-16:30  
地點 | Teams 線上講座

馬偕兒童醫院兒童感染科 主治醫師  
**講師 黃璣寧 醫師**



## Online Aerobic Classes

Through the new form of online activities, employees were free from concerns of the risk of going out in contact with others. They could also engage in healthy exercise at home as well as motivate, communicate, and interact with partners and family members to maintain a social life. In 2022, there were 39 participants with an average satisfaction of 4.7.

## Epidemic Prevention Care Section

In response to the rapid changes of various information during the pandemic and to allow employees to clearly grasp the accurate information in real time, the epidemic prevention section has been set up on the internal platform of the Company to aggregate and publish health education and promotion for dummies concerning the pandemic and vaccination. Meanwhile, the EAPs were available still, giving support and positive force of warmth to our employees.



## Green, Convenient Digital Vouchers to Cut Carbon Footprints

The Employee Welfare Committee introduced the electronic gift vouchers in 2022 to phase out the conventional hardcopy gift counterparts. The digitization of gift vouchers not only provides employees with more convenient and diverse welfare options, but also reduces the carbon footprint generated in the process for issuance of hardcopy gift vouchers. In 2022, about 13,950 of hardcopy gift vouchers were reduced, estimated to have cut the carbon emissions by approximately 29.6 kilograms (calculated with approximately 16 A4 sheets in 1 square meter and 1.46 kilograms of carbon emissions per 1 kilogram of Dowling paper, based on the common Dowling paper, 70 pounds).

## Post-employment Benefit Plans

### 1. Defined Contribution Plan

The pension system of the “Labor Pension Act” is applicable to Nuvoton in Taiwan, which is a defined contribution pension plan managed by the government, and 6% of employee’s monthly salary is contributed to the individual account of the Bureau of Labor Insurance.

The employees of the consolidated Company in the subsidiaries in the United States, Hong Kong, Israel, Japan, South Korea, Singapore, and Mainland China are members on the retirement benefit plans operated by the local governments. These subsidiaries are required to contribute a specified percentage of payroll to the retirement benefit plans to fund the plans. The consolidated Company’s obligation to such government-operated retirement benefit plans is only to contribute a specified amount.

### 2. Defined Benefit Plan

The pension system of Nuvoton in Taiwan in accordance with the “Labor Standards Act” is a defined benefit retirement plan managed by the government. The payment of employee pensions is calculated based on the years of service and the average salary of the six months before the approved retirement date. In both 2022 and 2021, Nuvoton contributed 2% of employee’s total monthly salary amount to the employee retirement fund, which will be deposited into the designated account at the Bank of Taiwan in the name of and by the Supervisory Committee of Labor Retirement Reserve. Before the end of each year, if the amount of the designated account is inadequate to pay pensions calculated for workers retiring in the following year, it is required to make up the difference in one appropriation before the end of March of the following year.

## Senior Employee Commendation

Nuvoton awards seniority gifts to senior employees each year to express the appreciation of the Company to these employees. In 2022, the senior foreign employees of the first year were specifically invited to the commendation activity, realizing the workplace culture of diversity and inclusivity.



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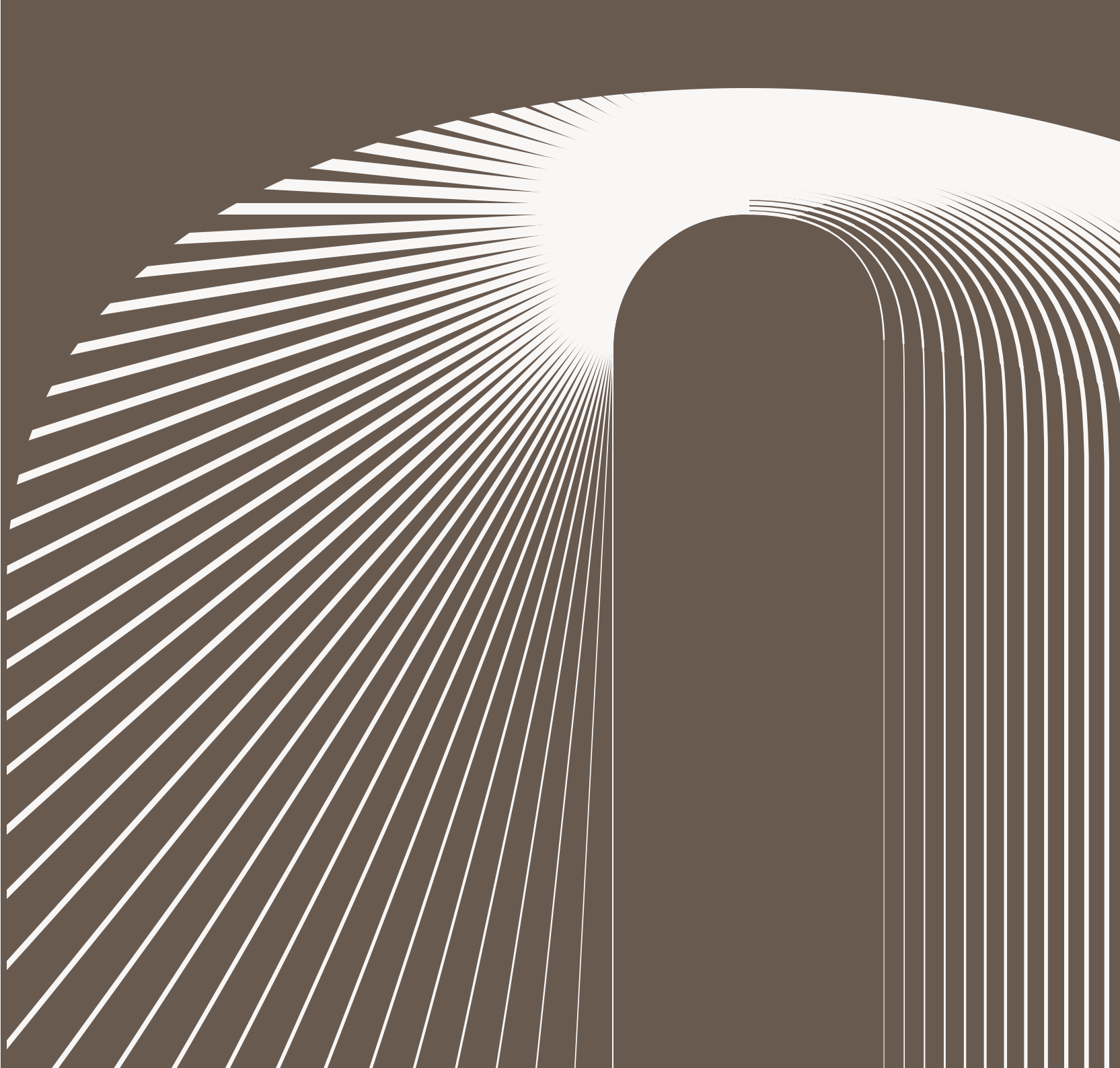
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Appendix

**Coprosperity with Society and  
Local Engagement**

**06**



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Nuvoton upholds to the philosophy of giving back to the society for what it gains, ongoingly investing in social care for the disadvantaged. It sustainably disseminates positive impacts and cooperates with external partners to promote social welfare activities, in the hopes of creating a win-win society of mutual prosperity. In addition to contributions to Renai Children’s Home and second-hand bookstores, Nuvoton has also supported Yuan Dong Junior High School in Zhudong, TFCF Hsinchu Branch Office, Children’s Hearing Foundation, Syin-Lu Social Welfare Foundation, Genesis Social Welfare Foundation, Shiguang Nursing Home, Haosheng Orphanage, NTUH Hsin-Chu Branch, Mackay Memorial Hospital, among many others. These are voluntary donation activities of employees initiated by the Charity Club of Nuvoton. Our employees are full of love and active in donation activities, in hopes of allowing children or patients in need to feel the warmth of society.

In the past three years, the COVID-19 pandemic has affected the whole world, significantly changing the way of business operations and the daily life of people. Nuvoton actively adjusted its operations in response to various changes in different parts of the world and communicated with various stakeholders through diverse channels and cooperation methods. It continued to invest in and make the most effective use of resources to help those in the direst need of assistance. Looking forward, we shall continue to plan diversified public welfare action plans. Combined with our core competitiveness, we strive to bring forth positive impact to the society.



### The social engagement of Nuvoton

Now that Renai Children’s Home sits in proximity of the Yanxin plant of Nuvoton, which is part of our community, we shall continue to support and care for the children. For the ongoing donation to the second-hand

bookstores, second-hand books can be exchanged for book purchase points to remote elementary schools, so that teachers can use the points to buy books that students actually need, which truly help the students and teachers.

We visited the village leaders of the neighboring communities, Gaofeng Village and Xiangong Village, to understand the needs and difficulties of the residents, with which Nuvoton can help in the future

- Support in keeping the neighborhood and community clean and tidy;
- Support in the maintenance of the parks in Gaofeng Village and Xiangong Village, making the parks a cleazn place for community members and children to rest;
- Support in community knowledge teaching: provide common knowledge on health, safety, fire protection, etc. to raise the knowledge of the residents in the villages.

In addition, in terms of environmental education, Nuvoton is also an environmental education partner to the Hsinchu Science Park Bureau, which actively assists in the participation and promotion of environmental education activities.

In 2022, Nuvoton contributed NT\$325,000 to Renai Children’s Home and 25,200 medical masks to the NTUH Hsin-Chu Branch to protect the medical staff and the patients.

### Nuvoton Scholarship

Nuvoton gathers like-minded partners who love to learn and have the courage to take responsibility as well as assembles passionate and creative teams. Therefore, in order to cultivate cutting-edge talents in the field of IC design and reward outstanding students for their hard work in study, Nuvoton established “Scholarship of Nuvoton Corporation” since 2022 Any (prospective) student in the regular master’s program relevant to electric engineering or information engineering at the National Taiwan University, National Tsinghua University, National Cheng Kung University, National Yang Ming Chiao Tung University, National Sun Yat-sen University, National Central University, National Chung Hsing University, National Chung Cheng University, National Taiwan University of Science and Technology, or National Taipei



University of Technology is eligible to the application for Nuvoton Scholarship.

The students in master’s program may receive a scholarship of NT\$30,000 per month (NT\$180,000 per semester in total) from Nuvoton for them to commit themselves to learning and cultivation of various expertise and competences. As such, they may play a key role in the semiconductor industry in the future, becoming an outstanding talent to the country and society. Since its establishment in 2022, the Nuvoton Scholarship has funded NT\$180,000 cumulatively and cultivated 1 talent with the master’s degree in electrical and information engineering.

**Sustainable Resources to Support Education | ” Read in Love” Solicitation of Second-handed Books**

To continue to promote the practice of sustainable development and to respond to "Earth Day" on April 22 and "World Reading Day" on April 23, we invited employees and their families to participate in the second-hand book solicitation in 2022, encouraging employees to donate and exchange books, and to bestow the renewable values upon books. Together, we not only practiced charity but also advocated the concept of sustainable resources and environmental protection for Earth, recycling positive energy for a life of common good. In less than a month of the campaign, a total of 551 books were collected, converted into 4,424 points for book purchase by the second-hand bookstores, allowing school teachers to purchase age-appropriate reading materials for students, so that students’ learning would not be impacted due to remoteness or lack of resources.



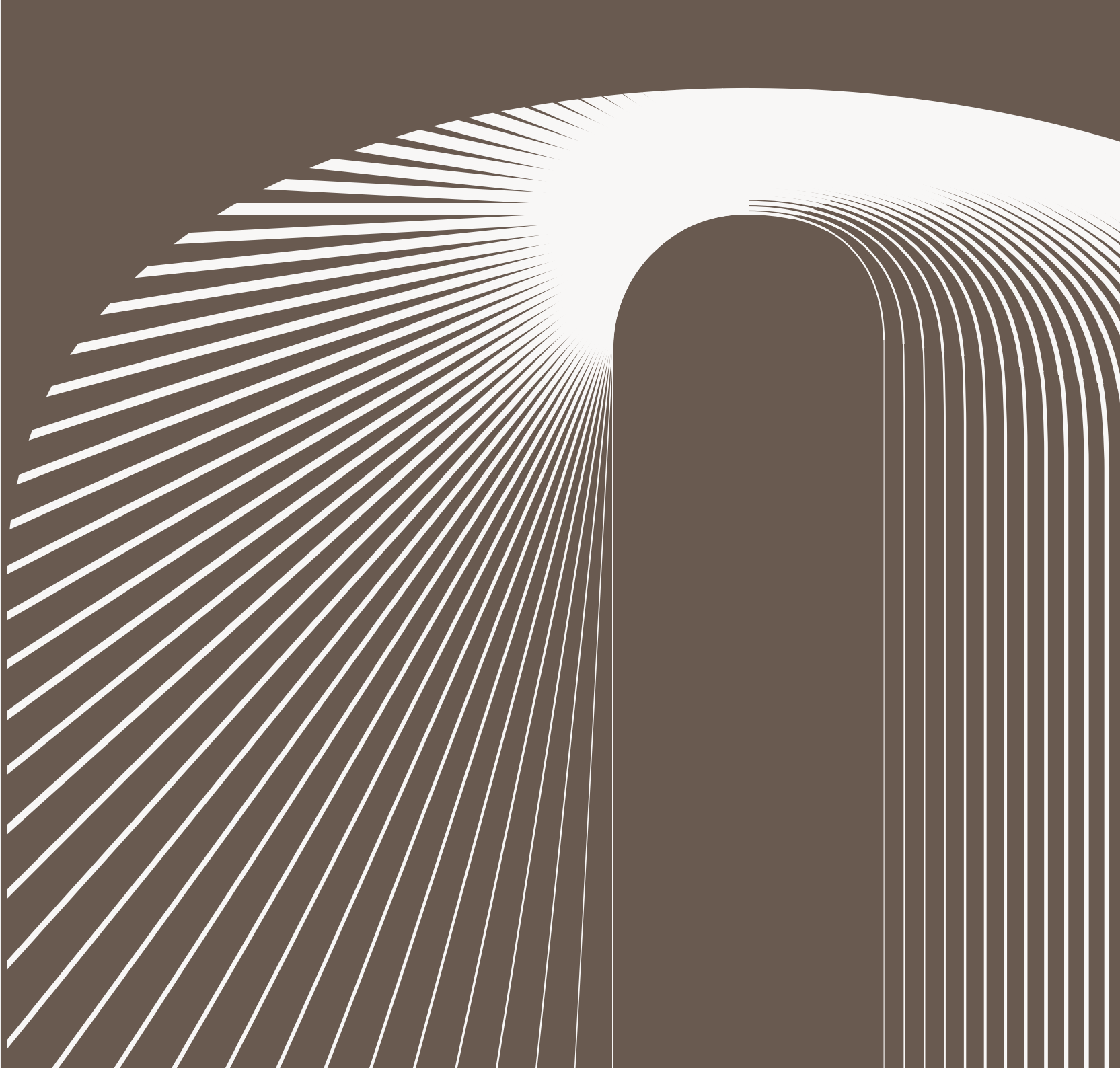
**Blood Donation**

Nuvoton has been working with HsinChu Blood Center for many years and regularly encourage employees to donate blood. 2 blood donation activities were initiated and over 100 bags of blood were donated. It’s our wish that with regular blood donation initiatives, encouraging employees to take initiatives giving back to society, we can expand positive influences.



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## Index of GRI (Global Reporting Initiative)

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ABOUT THIS REPORT	Nuvoton has reported in accordance with the GRI Standards for the period of January 1 to December 31, 2022.				GRI 1: Foundation 2021		Not applicable			
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	2-5	External assurance	About This Report	04						
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	2-30	Collective bargaining agreements	No collective bargaining agreements with the Company	-					
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	3-1	Process to determine material topics	1.3 Analysis and Management of Material Topics	16		201-2	Financial implications and other risks and opportunities due to climate change	2.4 Risk Management	39
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GREEN PRODUCTS OF EXCELLENCE	303-2	Management of water discharge-related impacts	4.4 Resource Recycling & Pollution Prevention	80	405-1	Diversity of governance bodies and employees	2.1 Organization Structure	25
	303-3	Water withdrawal	4.4 Resource Recycling & Pollution Prevention	80			5.1 Workforce Overview and Talent Management	90
	303-4	Water discharge	4.4 Resource Recycling & Pollution Prevention	80	405-2	Ratio of basic salary and remuneration of women to men	5.2 Talent Recruitment & Development	94
ENVIRONMENTAL SUSTAINABILITY PERFORMANCE MANAGEMENT	303-5	Water consumption	4.4 Resource Recycling & Pollution Prevention	80	<b>Non-discrimination</b>			
	<b>Waste</b>				406-1	Incidents of discrimination and corrective actions taken	5.1 Workforce Overview and Talent Management	90
	303-3	Waste generated	4.4 Resource Recycling & Pollution Prevention	80				
SAFE WORKPLACE & TALENT CULTIVATION	303-4	Waste diverted from disposal	4.4 Resource Recycling & Pollution Prevention	80	<b>Freedom of Association and Collective Bargaining</b>			
	303-5	Waste directed to disposal	4.4 Resource Recycling & Pollution Prevention	80	407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	5.4 Employee Care and Communication	120
	<b>Employment</b>				<b>Child Labor</b>			
COPROSPERITY WITH SOCIETY AND LOCAL ENGAGEMENT	401-1	New employee hires and employee turnover	5.1 Workforce Overview and Talent Management	90	408-1	Operations and suppliers at significant risk for incidents of child labor	5.1 Workforce Overview and Talent Management	90
	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	5.2 Talent Recruitment & Development	94				
	401-3	Parental leave	5.1 Workforce Overview and Talent Management	90	<b>Forced or Compulsory Labor</b>			
Appendix	<b>Occupational Health and Safety</b>				409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	2.3 Ethical Management	36
	403-1	Occupational health and safety management system	5.3 Workplace Health and Safety	105			3.4 Supply Chain Management	64
	<b>Local Communities</b>				413-1	Operations with local community engagement, impact assessments, and development programs	CH6 Coprosperity with Society and Local Engagement	123
	403-2	Hazard identification, risk assessment, and incident investigation	5.3 Workplace Health and Safety	105				
	403-3	Occupational health services	5.3 Workplace Health and Safety	105				
129	403-4	Worker participation, consultation, and communication on occupational health and safety	5.3 Workplace Health and Safety	105	<b>Customer Privacy</b>			
	403-5	Worker training on occupational health and safety	5.3 Workplace Health and Safety	105	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	3.3 Customer Service and Satisfaction	61

## Sustainability Accounting Standards, SASB Standards

	Topic	Code	Metric	Category	Section
ABOUT THIS REPORT	Greenhouse Gas Emissions	TC-SC-110a.1	<ul style="list-style-type: none"> <li>Gross global Scope 1 emissions</li> <li>Total emissions from perfluorinated compounds</li> </ul>	Quantitative	4.3 Energy Management
WORDS FROM THE EXECUTIVES		TC-SC-110a.2	Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion & Analysis	4.3 Energy Management
EVOLUTION & COMMUNICATION	Energy Management in Manufacturing	TC-SC-130a.1	<ul style="list-style-type: none"> <li>Total energy consumed</li> <li>Percentage grid electricity</li> <li>Percentage renewable</li> </ul>	Quantitative	4.3 Energy Management
ETHICAL MANAGEMENT & CORPORATE RESILIENCE			Water Management	TC-SC-140a.1	Total water withdrawn, total water consumed, and percentage of each in regions with high or extremely high baseline water stress
GREEN PRODUCTS OF EXCELLENCE	Waste Management	TC-SC-150a.1	Amount of hazardous waste from manufacturing, percentage recycled	Quantitative	4.4 Resource Recycling & Pollution Prevention
ENVIRONMENTAL SUSTAINABILITY PERFORMANCE MANAGEMENT	Employee health and safety	TC-SC-320a.1	Description of efforts to assess, monitor and reduce exposure of employees to human health hazards	Discussion & Analysis	5.3 Workplace Health & Safety
		TC-SC-320a.2	Total amount of monetary losses as a result of legal proceedings associated with employee health and safety violations	Quantitative	No legal proceedings arising from employee health and safety violations with Nuvoton in 2022
SAFE WORKPLACE & TALENT CULTIVATION	Recruiting and managing a global and skilled workforce	TC-SC-330a.1	Percentage of employees that are (1) foreign nationals and (2) located offshore	Quantitative	5.1 Workforce Overview and Talent Management
COPROSPERITY WITH SOCIETY AND LOCAL ENGAGEMENT	Product lifecycle management	TC-SC-410a.1	Percentage of products by revenue that contain IEC 62474-declarable substances	Quantitative	No products that contain IEC 62474 to be declared
	Product lifecycle management	TC-SC-410a.2	Processor energy efficiency at a system level for: (1) servers, (2) desktops, and (3) laptops	Quantitative	No corresponding or applicable content as Nuvoton is not a manufacturer of end products
Appendix	Materials sourcing	TC-SC-440a.1	Description of the management of risks associated with the use of critical materials	Discussion & Analysis	2.4 Risk Management
	Intellectual property protection & competitive behavior	TC-SC-520a.1	Total amount of monetary losses as a result of legal proceedings associated with anticompetitive behavior regulations	Quantitative	No violation of relevant laws

Sustainability Disclosure Metrics—Semiconductor Industry

Metric	Category	Unit	Disclosure of the Year
Total energy consumption, percentage of purchased electricity, and rate of renewable energy use	Quantitative	Gigajoule (GJ); percentage (%)	4.3 Energy Management
Total water withdrawal and total water consumption	Quantitative	thousand cubic meter (m³)	4.4 Resource Recycling & Pollution Prevention
Weight of hazardous waste generated and percentage of hazardous waste recycled	Quantitative	Metric ton (t); percentage (%)	4.4 Resource Recycling & Pollution Prevention
Category, number and rate of individuals subject to occupational accidents	Quantitative	Rate (%); number	5.3 Workplace Health and Safety
Disclosure of life cycle management of products: including the weight of end-of-life products and e-waste and the percentage of recycled	Qualitative description	Metric ton (t); percentage (%)	Not applicable Now that the IC design and R&D of Nuvoton as well as the components and parts produced by its wafer foundry are provided to clients for electronic product assembly and sales, the failure repair, parts replacement or disposal of the electronic products sold are handled by the clients.
Description of the risk management associated with the use of key materials	Quantitative	Not applicable	2.4 Risk Management
Total amount of monetary losses as a result of legal proceedings associated with the act of anti-competitive behaviors	Quantitative	Reporting currency	No incidents of Nuvoton involving ethical management issues such as fraud, insider trading, anti-competitive behavior, antitrust and monopoly practices, or market manipulation and no legal proceedings or penalties arising therefrom in 2022
Production of major products by product line by product category	Quantitative	Varied by product type	1.1 About Nuvoton

ABOUT THIS REPORT

WORDS FROM THE EXECUTIVES

EVOLUTION & COMMUNICATION

ETHICAL MANAGEMENT & CORPORATE RESILIENCE

GREEN PRODUCTS OF EXCELLENCE

ENVIRONMENTAL SUSTAINABILITY PERFORMANCE MANAGEMENT

SAFE WORKPLACE & TALENT CULTIVATION

COPROSPERITY WITH SOCIETY AND LOCAL ENGAGEMENT

Appendix

## TWSE/TPEX-Listed Companies Climate-related Information

- ABOUT THIS REPORT
- WORDS FROM THE EXECUTIVES
- EVOLUTION & COMMUNICATION
- ETHICAL MANAGEMENT & CORPORATE RESILIENCE
- GREEN PRODUCTS OF EXCELLENCE
- ENVIRONMENTAL SUSTAINABILITY PERFORMANCE MANAGEMENT
- SAFE WORKPLACE & TALENT CULTIVATION
- COPROSPERITY WITH SOCIETY AND LOCAL ENGAGEMENT
- Appendix

Item	Execution/Corresponding Chapter
Description of the oversight and governance by the Board of Directors and the management on climate-related risks and performance	2.4 Risk Management
Description of how the identified climate risks and opportunities affect the businesses, strategies, and finances of the Company (in the short, medium, and long term)	2.4 Risk Management
Description of the financial impact arising from extreme weather events and transitional actions	2.4 Risk Management
Description of how the climate risk identification, assessment, and management processes are integrated into the overall risk management system	2.4 Risk Management
Description of the used scenarios, parameters, assumptions, analysis factors, and main financial impacts if scenario analysis is used to analyze or assess the resilience against climate change risks	2.4 Risk Management

The Company Information
<input type="checkbox"/> Company with capital over 10 billion NTD, Iron and Steel Industry and Cement Industry
<input type="checkbox"/> Company with capital over 5 billion NTD not exceeding 10 billion NTD
<input checked="" type="checkbox"/> Company with capital below 5 billion NTD

Item	Execution/Corresponding Chapter
Description of the content as well as the metrics and targets used to identify and manage physical risks and transition risks for any transition plan to respond or manage climate-related risks	2.4 Risk Management
Description of the basis for pricing if an internal carbon price is used	No internal carbon price available yet
Description of the activities covered, scope of greenhouse gas emissions, timeframes planned, annual progress and so forth if climate-related targets are set; description of the sources and quantity of carbon credits or the quantity of renewable energy certificates (RECs) for offset if carbon offset or RECs are employed to achieve relevant targets	4.2 Environmental Management
GHG inventory and assurance	4.3 Energy Management

The Company shall disclose at least in accordance with Sustainable Development Guidemap for TWSE- and TPEX-Listed Companies	
<input type="checkbox"/> GHG inventory of the parent company	<input type="checkbox"/> GHG inventory of subsidiaries in consolidated financial statements
<input type="checkbox"/> GHG assurance of the parent company	<input type="checkbox"/> GHG assurance of subsidiaries in consolidated financial statements

		Total Emissions (MTCO <sub>2e</sub> )	GHG emissions intensity (MTCO <sub>2e</sub> /thousand NTD)	Assurance Institution	Assurance statement
Scope 1	Parent Company	36,326.2384	0.001860954	DNV GL Business Assurance Co., Ltd.	With a reporting period range from January 1 to December 31, 2022, DNV reasonable assures the results of quantify process is real, transparent and measurable. The assurance statement was issued on May 19, 2023.
	Total	36,326.2384	0.001860954		
Scope 2	Parent Company	36,797.6655	0.001885105		
	Total	36,797.6655	0.001885105		
Scope 3		18,392.7292	0.0009422		

# Third-party Assurance Statement

ABOUT THIS REPORT

WORDS FROM THE EXECUTIVES

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Appendix



## ASSURANCE STATEMENT

### SGS TAIWAN LTD.'S REPORT ON SUSTAINABILITY ACTIVITIES IN THE Nuvoton Technology Corporation's ESG REPORT FOR 2022

**NATURE AND SCOPE OF THE ASSURANCE/VERIFICATION**  
 SGS Taiwan Ltd. (hereinafter referred to as SGS) was commissioned by Nuvoton Technology Corporation. (hereinafter referred to as Nuvoton) to conduct an independent assurance of the ESG Report for 2022 (hereinafter referred to as the Report). The scope of the assurance, based on the SGS ESG and Sustainability Report Assurance methodology, included the sampled text, and data in accompanying tables, contained in the report presented during verification (2023/03/15-2023/04/23). SGS reserves the right to update the assurance statement from time to time depending on the level of report content discrepancy of the published version from the agreed standards requirements.

**INTENDED USERS OF THIS ASSURANCE STATEMENT**  
 This Assurance Statement is provided with the intention of informing all Nuvoton's Stakeholders.

**RESPONSIBILITIES**  
 The information in the Nuvoton's ESG Report of 2022 and its presentation are the responsibility of the directors or governing body and management of Nuvoton. SGS has not been involved in the preparation of any of the material included in the ESG Report.

Our responsibility is to express an opinion on the report content within the scope of verification with the intention to inform all Nuvoton's stakeholders.

**ASSURANCE STANDARDS, TYPE AND LEVEL OF ASSURANCE**  
 The SGS ESG & Sustainability Report Assurance protocols used to conduct assurance are based upon internationally recognized assurance guidance and standards including the principles of reporting process contained within the Global Reporting Initiative Sustainability Reporting Standards (GRI Standards) GRI 1: Foundation 2021 for report quality, GRI 2 General Disclosure 2021 for organization's reporting practices and other organizational detail, GRI 3 2021 for organization's process of determining material topics, its list of material topics and how to manages each topic, and the guidance on levels of assurance contained within the AA1000 series of standards.

The assurance of this report has been conducted according to the following Assurance Standards:

Assurance Standard Options	Level of Assurance
A	SGS ESG & SRA Assurance Protocols (based on GRI Principles and guidance in AA1000)
B	AA1000ASv3 Type 1 Moderate Level (AA1000AP Evaluation only)

Assurance has been conducted at a moderate (limited) level of scrutiny.

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**SCOPE OF ASSURANCE AND REPORTING CRITERIA**  
 The scope of the assurance included evaluation of quality, accuracy and reliability of specified performance information as detailed below and evaluation of adherence to the following reporting criteria:

Reporting Criteria Options	
1	GRI Universal Standard (2021) (In Accordance with)
2	AA1000 Accountability Principles (2018)

- AA1000 Assurance Standard v3 Type 1 evaluation of the report content and supporting management systems against the AA1000 Accountability Principles (2018) at a moderate level of scrutiny; and
- evaluation of the report against the requirements of Global Reporting Initiative Universal Standard 2021 (GRI 2, GRI 3, 200, 300 and 400 series) claimed in the GRI content index as material and in accordance with.

**ASSURANCE METHODOLOGY**  
 The assurance comprised a combination of pre-assurance research, interviews with relevant employees, superintendents, Sustainability committee members and the senior management in Taiwan; documentation and record review and validation with external bodies and/or stakeholders where relevant.

**LIMITATIONS AND MITIGATION**  
 Financial data drawn directly from independently audited financial accounts, Task Force on Climate-related Financial Disclosures (TCFD) and SASB related disclosures has not been checked back to source as part of this assurance process.

**STATEMENT OF INDEPENDENCE AND COMPETENCE**  
 The SGS Group of companies is the world leader in inspection, testing and verification, operating in more than 140 countries and providing services including management systems and service certification; quality, environmental, social and ethical auditing and training; environmental, social and sustainability report assurance. SGS affirm our independence from Nuvoton, being free from bias and conflicts of interest with the organization, its subsidiaries and stakeholders.

The assurance team was assembled based on their knowledge, experience and qualifications for this assignment, and comprised auditors registered with ISO 26000, ISO 20121, ISO 50001, SA8000, RBA, QMS, EMS, SMS, GPMs, CFP, WFP, GHG Verification and GHG Validation Lead Auditors and experience on the SRA Assurance service provisions.

**FINDINGS AND CONCLUSIONS**

**ASSURANCE/VERIFICATION OPINION**  
 On the basis of the methodology described and the verification work performed, we are satisfied that the specified performance information included in the scope of assurance is accurate, reliable, has been fairly stated and has been prepared, in all material respects, in accordance with the reporting criteria. We believe that the organization has chosen an appropriate level of assurance for this stage in their reporting.

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**ADHERENCE TO AA1000 ACCOUNTABILITY PRINCIPLES (2018)**

**INCLUSIVITY**  
 Nuvoton has demonstrated a good commitment to stakeholder inclusivity and stakeholder engagement. A variety of engagement efforts such as survey and communication to employees, customers, investors, suppliers, sustainability experts, and other stakeholders are implemented to underpin the organization's understanding of stakeholder concerns. For future reporting, Nuvoton may proactively consider having more direct two-ways involvement of stakeholders during future engagement.

**MATERIALITY**  
 Nuvoton has established effective processes for determining issues that are material to the business. Formal review has identified stakeholders and those issues that are material to each group and the report addresses these at an appropriate level to reflect their importance and priority to these stakeholders.

**RESPONSIVENESS**  
 The report includes coverage given to stakeholder engagement and channels for stakeholder feedback.

**IMPACT**  
 Nuvoton has demonstrated a process on identify and fairly represented impacts that encompass a range of environmental, social and governance topics from wide range of sources, such as activities, policies, programs, decisions and products and services, as well as any related performance. Measurement and evaluation of its impacts related to material topic were in place at target setting with combination of qualitative and quantitative measurements.

**GLOBAL REPORTING INITIATIVE REPORTING STANDARDS CONCLUSIONS, FINDINGS AND RECOMMENDATIONS**

The report, Nuvoton's ESG Report of 2022, complies with the Requirements for reporting with reference to the GRI Standards set out in Section 3 of GRI 1. The significant impacts are assessed and disclosed with reference to the guidance defined in GRI 3: Material Topic 2021. The report has properly disclosed information related to Nuvoton's contributions to sustainability development. For future reporting, Nuvoton is recommended to have more descriptions on how the organization has applied due diligence as a method for the identification and the evaluation of its impacts on the economy, environment, and people. In addition, more detailed disclosures of the systematic processes for data collection and performances are encouraged.

Signed:  
 For and on behalf of SGS Taiwan Ltd.



Stephen Pao  
 Knowledge Deputy General Manager  
 Taipei, Taiwan  
 05 June, 2023  
[WWW.SGS.COM](http://WWW.SGS.COM)



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