# 5. Operational Highlights

## 5.1 Business Activities

### 5.1.1 Business Scope

**A. Main areas of business operations**

Company's business primarily covers the R&D, manufacturing, testing and after-sales services of the following items:

(1) Desktop, motherboard, all-in-one and professional computer

(2) Server, workstation, AI computing devices and other components

(3) Notebook, tablet, smartphone and handheld devices

(4) Satellite TV receivers, set-top-box and video codec

(5) VoIP phone, video conference system, telecommunication equipment and multimedia

(6) LCD TV and monitor

(7) After-sales services of above mentioned products and peripheral devices

(8) Waste collecting and disposing

(9) Design and merchandising of computer software and programs

(10) Vitro diagnostic device, physiological signal diagnostic device and medical date system

(11) Manufacturing, processing and selling of electronic products for automobile

**B. Revenue distribution**

Unit: NT$ thousands

| Major Divisions | Total Sales in Year 2022 | (%) of Total Sales |
|---|---|---|
| 3C Electronics | 925,447,986 | 93.8 |
| Others | 59,171,170 | 6.2 |
| Total | 984,619,156 | 100 |

**C. Current Main Products and Services**

(1) Notebook computers

(2) Smart phones and handheld devices

(3) Desktop computers and All-in-One (AIO) computers

(4) Display products

(5) Voice over Internet Protocol (VoIP) phones

(6) Servers and network storage facilities

(7) Industrial PC

(8) After-sales services





(9) Green recycling services

(10) LCM services (Display components)

(11) AI computing equipment

**D. New products and Services development**

(1) Medical devices, Medical AI and Big Data services

(2) Electrical vehicle

(3) Cloud technology services

(4) AI computing equipment

(5) Networking equipment

### 5.1.2 Industry Overview

**A. Progress and Development of the Industry**

(1) Personal Computers

In 2022, the PC market faced numerous challenges, experiencing its first decline since 2020. Canalys research indicates that the total shipments of personal computers in 2022 were 285 million, which is a 16% decline compared to the 341 million shipments in 2021. This decline can be primarily attributed to the significant increase in the cost of living caused by high inflation, which has negatively impacted consumers' willingness to purchase or replace their computers. Additionally, central banks in various countries have taken measures to aggressively raise interest rates to curb inflation, resulting in tightened budgets across commercial, public, and private sectors. As a result, there has been reduced demand for computer procurement, further contributing to the decline in PC market shipments.

After analyzing the current market trends, we expect a continued decline in the growth rate of the PC market in 2023, in comparison to 2022. However, we forecast that the overall shipment volume will exceed the pre-COVID-19 level of 2019. Once the corporate and consumer markets overcome the challenges of inflation and interest rate fluctuations, we anticipate deferred PC purchases to start recovering in the second half of 2023 and rebound in 2024. Furthermore, as devices purchased during the COVID-19 pandemic gradually reach their lifespan, we predict an increase in demand for upgrades, driving the overall PC market towards an upward trajectory.

(2) Enterprise compute, hyperscale datacenters and cloud services

In recent years, the explosive growth of mobile devices and the diverse development of cloud applications have led to an increasing demand for datacenters, cloud storage, e-commerce, and social media platforms. Major internet service providers, including Google, Amazon, Microsoft, and Meta, have developed their own datacenter specifications and directly purchase datacenters from ODMs. The growth in datacenter shipments has far exceeded that of traditional enterprise servers, and the market has been largely insulated from the impact

of economic cycles. In 2022, the global server market experienced a 6% growth, primarily driven by robust demand from major cloud datacenter operators. This steady demand was mainly triggered by the adoption of hybrid office solutions in the post-pandemic era and the gradual easing of IC and component shortages from the second half of 2022. Looking ahead, cloud customers are expected to continue building datacenter infrastructure with the transition to new CPU platforms, leading to a continuous growth of datacenter shipments. However, traditional X86 servers are more vulnerable to the impact of the global economy, and the inflation-induced interest rate hikes have reduced enterprise spending, resulting in a slight decline in the market this year.

(3) Artificial intelligence compute

GPU accelerators and servers have recently emerged as crucial computing tools. Their unique advantage lies in their ability to process a vast number of highly similar computations simultaneously, making them particularly useful in fields such as artificial intelligence, deep learning, augmented reality, virtual reality, weather forecasting, energy exploration, medical science, and autonomous driving. As the demand for these technologies continues to grow, the market for GPU accelerators and servers is expected to expand rapidly in the coming years.

At the close of 2022, Open AI introduced its chatbot, ChatGPT, which is capable of executing various natural language processing tasks, generating text, answering questions, and summarizing content automatically based on text input. The responses generated by ChatGPT are not only fluent but also remarkably similar to human conversation. In 2023, Microsoft launched Copilot, which integrates the ChatGPT chatbot with all of its applications. By using text instructions, artificial intelligence can automatically generate content related to MS Office software, including content summaries, data analysis, and PowerPoint presentations. ChatGPT is a highly convenient and powerful tool, with its capabilities primarily derived from vast amounts of training data and deep learning algorithms, enabling highly contextual understanding and natural language generation.

Artificial intelligence has the potential to simulate, train, analyze, and predict various models in numerous scientific fields to enhance the quality of life and safety. It is anticipated that software applications related to AI will continue to thrive in the future, resulting in a continuous increase in demand for GPU accelerators.

(4) Automotive Compute

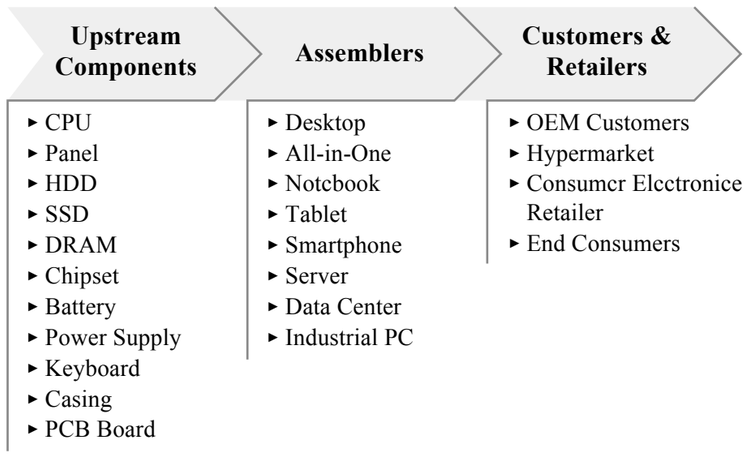
Intelligent vehicles have emerged as an important topic in recent technological developments, and the market for smart cockpit products is rapidly growing with enormous potential. The smart cockpit combines navigation, sensors, microphones, and other devices to collect information both inside and outside the vehicle. Through artificial intelligence computing, a diversified cockpit experience enhances driving safety, ride comfort, and human-vehicle interaction. Experts predict that the global market value of smart cockpits will surge to USD 70 billion by 2030, and the current penetration rate, which has already surpassed 50% in 2022, is expected to continue growing.





Additionally, the development and upgrading of auto entertainment systems continue to progress. The integration of large panels with advanced audio and video streaming technology has provided an immersive entertainment experience for passengers. The number of displays in vehicles is also increasing and expanding to the rear seats, allowing for separate audio and video systems for drivers and passengers. These advancements in automotive technology are driving the market trend towards electrification and increasing the value of automotive electronic systems.

**B. Correlation of the industy supply chain (as picture shown below)**




**C. Product Trends and Competition**

(1) Product Trends

With the exponential growth of data generated by end-users across multiple devices, major tech companies and platform enablers are now collecting these data for analytical purposes. As a result, device design (especially components such as CPUs, camera modules, and displays) is being upgraded to improve computing power and facilitate the development of imaging applications. As we look ahead, the proliferation of AI and edge computing technology is expected to drive significant demand for hardware equipment. Moreover, increased R&D investment is being directed toward industries such as automotive, intelligent healthcare, and smart factories to achieve a smarter and more efficient way of life.

The rapidly increasing demand for AI applications is driving technological innovation. For example, deep learning solutions are being used to accelerate semiconductor production processes, boost wafer yields, and reduce production time from one week to just one night. Additionally, AI compute requires a significant amount of computing power, and a few GPUs can now accomplish what previously required tens of thousands of CPUs in a datacenter. This results in cost reduction, energy savings, and progress towards carbon neutrality goals. With the release of ChatGPT and its integration with productivity software, people’s imagination of AI is no longer limited to commercial applications but is entering our daily lives in a more tangible, fluent, and convenient way. Looking towards the future, the widespread application of AI will continue to drive the growth of datacenters and GPU servers.

The automotive industry is reaping the benefits of the increasingly popular 5G network, which enables more efficient data transfer. Major car brands are making aggressive efforts to develop autonomous driving technology under specific environments that could be available in the next few years with direct vehicle-to-vehicle and vehicle-to-infrastructure communications. To enable these new services, autonomous cars require more precise calculations based on reliable connectivity. Additionally, smart cockpits are rapidly evolving from simple driving to providing enhanced human-vehicle interaction, while entertainment systems are continuously being upgraded to make driving less monotonous. Consequently, there is a high anticipation that the proportion of automotive electronic components in overall vehicle design will significantly increase.

In the field of medicine, the faster data transmission enabled by 5G, along with advancements in AI-powered image recognition, VR surgery simulators, and internet-connected medical equipment, have made home healthcare, mobile healthcare, and telemedicine services a reality. Patients no longer need to visit hospitals for in-person treatment, as doctors can perform remote surgeries with the assistance of remote guidance and robotic devices. Looking ahead, there is expected to be a rising demand for edge computing devices, servers for AI interpretation, and auxiliary medical equipment in the medical process, which will provide downstream system companies with more business opportunities and gradually become a key driver of growth.

(2)Competition

In addition to business scale, how to enhance operations and management efficiency, lower costs, and optimize product and customer mixes have become the key factors in the industry to maintain sales growth and competitiveness. Those factors can be achieved through leading innovative product development capabilities, digital transformation, and a global manufacturing footprint.

**Major PC ODMs in Taiwan**

| | |
|---|---|
| **Notebook** | Wistron, Quanta, Compal, Inventec, Pegatron |
| **Desktop** | Wistron, Hon Hai, Pegatron |
| **Smart Device** | Wistron, Quanta, Compal, Inventec, Pegatron, Hon Hai |
| **Server** | Wistron, Hon Hai, Quanta, Inventec, MiTAC |
| **Monitor** | Wistron, AOC, Qisda, Foxconn |

## 5.1.3 Research and Development

**A. Research and Development Expenses in the most recent fiscal year or during the current fiscal year up to the date of publication of the annual report**

| | 2022 | 2023 (As of March 31) |
|---|---|---|
| R&D Expenses (NT$ thousands) | 25,007,992 | - |
| R&D Expenses to Revenue | 2.54% | - |





**B. The successful development of technologies and products**

(1) Intellectual Property

In 2022, Wistron has 110 U.S. and 140 Taiwan patents granted, which ranked the 18th and the 17th highest, respectively, among Taiwanese companies. Additionally, Wistron actively develops global patent strategy, has obtained over 164 issued patents in various other countries in 2022, and has been named among “Top 100 Global Innovators of 2022” by Clarivate. Going forward, Wistron will continue to implement an unified plan for intellectual capital management, aligning with company’s strategic considerations and business objectives, to drive the timely creation, management and monetization of intellectual property rights.

(2) Technologies and products

| Year | R & D results |
|---|---|
| 2022 | Enterprise business technology services<br>● Hardware platform for high-performance next-generation firewall (NGFW) supporting 400/200 GE fiber network connections |
| | Industrial computers<br>● Trajectory correction system for autonomous robots<br>● Suspension system for autonomous robots<br>● High-performance, fanless, and explosion-proof industrial computers |
| | Internet of Things<br>● Antenna design for medical alert device<br>● 5G Open Radio Access Network (O-RAN) architecture<br>● Hardware accelerator card for 5G and satellite baseband processing |
| | Medical devices<br>● High-precision multi-functional replaceable pipette module<br>● Multi-channel PCR precise temperature control system<br>● Multi-functional medical-grade gateway<br>● Intelligent assistant system for testing medical devices<br>● Intelligent light source recognition and detection System<br>● Millimeter-wave radar detection system suitable for home and medical applications |
| | Enterprise storage<br>● Accelerator card module compliant with OCP Specifications<br>● 32-port 400G data center switch |
| | Professional display solution<br>● IP56 outdoor LCD display<br>● IP56 outdoor LED video wall |
| | Artificial Intelligence<br>● Intelligent system for energy conservation and equipment replacement detection<br>● Intelligent system for service maintenance recommendation and prediction |

| Year | R & D results |
|---|---|
| 2022 | ● Intelligent processing method for automated maintenance and management based on 5G network<br>● System for intelligent detection of worker safety and behavioral recognition<br>● Interpretable causal AI model for small data analysis<br>● AI network system for detecting Sleep Apnea<br>● Intelligent factory AI monitoring platform<br>● Intelligent management system for 5G network resource arrangement |
| | Laptop computers<br>● Rapid assembly and disassembly design of laptop modules<br>● Antenna structure for wireless communication products |

### 5.1.4 Long-Term and Short-Term Business Development Plans

**A. Short-Term Development Plan**

Wistron aims to strengthen customer satisfaction, provide the best quality, strengthen current customer relations, and optimize existing customers and product portfolios. The short-term business development indicators will include improving operational efficiency, increasing capacity utilization, and boosting profitability.

**B. Long-Term Development Plan**

In the long run, the Company will continue to increase the profitable products and services (including hand held mobile products, servers, network storage, industrial computers, and after-sales service, etc.) and accelerate achieving breakeven profitability in our newly invested businesses.

The strategic plans are as follows:

(1) Marketing Strategy

A. Continue to improve core competency in professional designs and technological services.

B. Maintain high-quality and high-performance products.

C. Continue to optimize the global service network for providing a comprehensive range of after-sales services.

(2) Manufacturing Policy

A. Optimize the global manufacturing system by improving production automation ratio and phasing in digital intelligent manufacturing gradually to enhance efficiency and lower costs.

B. Continue to promote Six Sigma projects in combination with performance goals to comprehensively enhance quality and efficiency.





(3) Product Development Goals

A. Cultivate excellent R&D experts and improve their R&D capabilities.

B. Use existing computer research and manufacturing capabilities to strengthen the research and development of servers, network storage devices, advanced network management systems, and industrial computers. We also will integrate the concept of Internet of Things service into Smart Home trends that provide connectivity, entertainment, home security, voice control, and healthcare functions, thereby introducing new value-added products and technological services featuring innovative functions.

C. Commit to energy conservation by adopting eco-friendly materials and technologies that comply with green product and related environmental laws.

(4) Operation Scale and Financial Support

A. Actively integrate and develop production capacity overseas to fulfill business requirements.

B. Strengthen balance sheet management, control the number of cash turnover days to within a reasonable range, and sustain a healthy financial structure.

## 5.2 Market, Production and Sales

### 5.2.1 Market Analysis

**A. Sales (Service) Region**

(1) The Major Products and Sales Value in the Most Recent Two Years

Unit：KPCS ; NT$ thousands

| Year / Sales Value / Major Product | 2021 | | | | 2022 | | | |
|---|---|---|---|---|---|---|---|---|
| | Domestic | | Export | | Domestic | | Export | |
| | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value |
| Computer,Communication & Consumer electronics | 942 | 7,726,678 | 99,088 | 797,695,981 | 1,546 | 20,506,581 | 84,022 | 904,941,405 |
| Others | 717 | 803,491 | 42,769 | 55,856,698 | 809 | 1,138,100 | 27,483 | 58,033,070 |
| Total | 1,659 | 8,530,169 | 141,857 | 853,552,679 | 2,355 | 21,644,681 | 111,505 | 962,974,475 |

Note: Company shall prepare consolidated financial reports of 2021& 2022 in accordance with IFRSs regulation.

(2) The Company significant sales based on exported products. Stated below are the geographic information on the Group's sales presented by destination of sales presented by location.

Unit : %

| Year / District | 2021 | 2022 |
|---|---|---|
| United States | 40.20 | 46.70 |
| Japan | 2.47 | 2.85 |
| HK /China | 18.35 | 12.69 |
| ASEAN | 3.65 | 2.92 |
| Europe | 23.60 | 21.93 |
| Otherss | 11.73 | 12.91 |
| Total | 100.00 | 100.00 |

Note: Company shall prepare consolidated financial reports of 2021 & 2022 in accordance with IFRSs regulation.

**B. Market Share**

Taiwan is a major supplier of information technology products as exemplified by these iconic products. According to the MIC (February 2023) and market statistics, Taiwan produced 135,874K notebook computers, 41,609K desktop computers and 11,316K servers in 2022, of which about 15%, 21%, and 33% were produced by our company respectively. These numbers demonstrate our company's considerable competitiveness in the market.

**C. Future Market Supply and Demand and Future Growth**

(1) Future Market Possible Supply and Demand Scenarios

A. Supply Perspective

The personal computer (PC) market has reached maturity and Taiwan's manufacturers must rely on exceptional cost control, assembly technology and production flexibility while devising strategies, engaging in research and development, and building on marketing and management experience to acquire OEM orders. With complete upstream and downstream integration, Taiwanese manufacturers can supply competitive products and retain an edge in research and development, offering ODM services that differentiate them from foreign OEM manufacturers. In 2021, COVID-19 epidemic created serious hardware problems, which will be gradually resolved in 2022.





B. Demand Perspective

With the spread of smart devices and mobile networks, the global information technology market has shifted the demand from PCs to smart devices, resulting in a decline in market demand for PCs. Starting from 2020, the global pandemic led to a significant increase in demand for PCs and servers. However, as the pandemic slowed down by 2022, the pandemic-driven surge in demand for electronic products came to an end. As the market reversed, the destocking issue arising from the distribution channels compounded with the impact of global inflation on consumer demand, resulting in deferred new orders. It is expected that the market may return to pre-pandemic normalcy by the second half of 2023.

**Global PC Shipments Growth Trend**

Unit: 1 = 1000 units

| Year | 2021 | 2022 | 2023(e) | 2024(f) | 2025(f) |
|---|---|---|---|---|---|
| Number of NBs | 247,255 | 187,114 | 171,811 | 178,512 | 191,900 |
| Growth Rate | 23.11% | -24.32% | -8.18% | 3.9% | 7.5% |
| Number of DTs | 97,010 | 91,820 | 89,900 | 90,500 | 92,200 |
| Growth Rate | 6.48% | -5.35% | -2.09% | 0.67% | 1.88% |
| Number of PCs (NB + DT) | 344,265 | 278,934 | 261,711 | 269,012 | 284,100 |
| Growth Rate | 17.9% | -18.95% | -6.21% | 2.79% | 5.61% |

Source: DIGITIMES Research (February 2023)

Compound growth rate is around -4.69% from 2021 to 2025.

(2) Future Growth

We continue to expand the ratio of higher profit products (such as servers) and expedite growth and profit in technology service businesses.

**Global Server Shipments Growth Trend**

Unit: 1 = 1000 units

| Year | 2021 | 2022 | 2023(e) | 2024(f) | 2025(f) |
|---|---|---|---|---|---|
| Number of Servers | 12,918 | 14,042 | 14,316 | 15,031 | 15,627 |
| Growth Rate | 1.9% | 8.7% | 2.0% | 5.0% | 4.0% |

Source: Gartner (March 2023)

Compound growth rate is around 4.9% from 2021 to 2025.

**D. Competitive Niches**

(1) Fully Staffed and Experienced R&D Team

Each business unit in our company has their own R&D department responsible for the research and development of their products. As of January 2023, our company has a R&D team of over 5,600 people, over 99% of which have a college degree or higher and main team leaders have on average over 25 years of experience in developing products in their field. These conditions are a testament to our R&D's strength in terms of the quality of people and their experience.

(2) Fully Integrated Manufacturing Base

We intend to continue our OEM business while actively venturing into new realms. The company's manufacturing bases are located in Taiwan, China, Mexico, Czech Republic, Vietnam, India, and Malaysia.

One of our company's key advantages now is receiving purchase orders in Taiwan and through lean manufacturing by decreasing production waste, improving production efficiency, and reducing manufacturing cost to maximize profits.

(3) Solid Clients and a Diversified Portfolio of Products

Our company's business is based mainly on providing professional OEM services supporting clients with world renowned brands, each comprising an equal share of our sales. Our products are also diversified and the company is not affected by shifts in the industry of a single product. The company is also not affected by instability of supply and demand due to clients' shift in product strategy.

(4) Focus on Product Quality

Building on years of experience in design and manufacturing, very comprehensive testing and quality control of our products have earned our clients' trust.

(5) Solid Relationships with Suppliers

No matter to sources of key technologies or suppliers of key components, the company maintains long-term partnerships and total cost considerations with our supply chain to provide comprehensive services and solutions with regards to cost, quality, and delivery.

(6) Global Logistics Management Capability

The company has established manufacturing bases and service centers in Europe, Americas and Asia. Over time, we have established effective global logistics management capabilities in order to fulfill a wide range of demands from clients in different parts of the world. This crucial capability matches future trends in the industry and has become one of the key advantages of our company.

(7) Professional Management Team

Our management teams are all senior professionals with over 20 years of related experience in the industry. The team enjoys a history of collaboration and shares common ideas and a common goal, paving the way for effective leadership to facilitate growth.

**E. Advantages and Unfavorable Factors to Long-Term Development and Responding Measures**

(1) Advantages

A. Taiwan enjoys an extensive information technology industry with strong overall marketing capabilities.





The domestic IT industry has undergone several phases of transition and matured in the process. The Taiwanese IT industry occupies a solid place in the global marketplace. The industry is proportionally dispersed and well-integrated among individual industries allowing mutual support.

This has led to an increase in the international marketing capability of Taiwan's IT indus try, enabling this industry to become a global procurement center for personal computer related products.

B. Taiwan's component industry has matured and enjoys a stable supply of key components.

In recent years, Taiwanese manufacturers have gained dominance in key components such as chip sets, printed circuit boards, and touch modules for motherboards, notebook computers, tablet computers, smart phones and LCD displays. The industry's comprehensive development has helped advance the domestic IT industry and boost Taiwan's IT capabilities.

C. Potent R&D and Technical Innovation Capabilities.

Our company has one of the finest R&D teams in the industry and continues to strive for product development and technical innovation. We cooperate with CPU manufacturers to jointly develop new products, which allow us to market new technologies ahead of competitors. We also maintain R&D departments in all IT product business units, enabling the company to stay ahead of competition in a highly competitive market with short product cycles.

D. Solid After-Sales Service Networks

The company has established service centers on three continents in Taiwan, China, the Czech Republic, Japan, Hong Kong, Singapore, India, the Philippines, Turkey, Mexico and Brazil, offering real-time and efficient after-sales service.

(2) Unfavorable Factors

A. Intense Competition Lowers Profit

The development of the IT industry has lowered entry barriers and the influx of producers has led to intense competition. Meanwhile, the maturity of computer products, advancement of manufacture technology, over-capacity, and less product feature differentiation have led to profit margins decline.

B. Exchange Rates' Effect on Profits

The company's products are mostly for export and profits are susceptible to changes in exchange rates.

C. Mounting Labor and Land Costs Raise Production Costs

Automated assembly can accommodate the production of most of the company's products but certain components still rely on manual labor. Mounting labor cost has raised operation expenditures in China and the industry's production costs which are detrimental to competition in the global market.

(3) The Company's Response

A. Confront the competition by active product innovation with high value-added products development, and industrial transformation.

B. Maximize production efficiency by strengthening cost and inventory control and increasing automation.

C. Hedge against exchange rate risks by balancing assets and debt in foreign currency to lower net foreign currency position.

D. Finance personnel must be wary of fluctuations in exchange rates and the company's demand for funds by taking appropriate hedging measures.

E. Raise the quality of the products and lower dependence on manual labor by actively investing in automated production equipment.

F. Increase capacity utilization by streamlining design and production instead of merely increasing capacity.

## 5.2.2 Core Applications of Major Products and Manufacturing Processes:

### A. Core Applications of Major Products

Data storage, logic computation, analyses, network communication, data management, computer-assisted design, manufacturing, publication, education, entertainment, advertising, electronic purchases, word processing, financial services and finance management.

### B. Manufacturing Processes

(1) Printed Circuit Board Assembly (PCBA: Printed Circuit Board Assembly)

Incoming material inspection → materials preparation →solder paste printing → high speed placement for small surface mount device → Flexible placement for fine pitch/large surface mount device → nitrogen reflow heating and soldering → automatic optical inspection → in-circuit tester inspection → on-line inspection→ component insertion → wave soldering in heated tin stove→ mending operations → PCB ICT and ATE tests → functional inspection→ visual inspection → packaging → inventory → shipping

(2) Final Assembly (FATP: Final Assembly, Test, and Pack):

Incoming material inspection → materials preparation → assembly → system function pre-test → run-in test → operation system download → system final function test → visual inspection → packaging → inventory → shipping





## 5.2.3 Status of Supply of Chief Materials:

| Main Materials | Domestic and Foreign Sources | Status of Supply |
|---|---|---|
| CPU | United States | Supplier has been striving to expand capacity during the shortage period, and now except for a few retiring lines, most of the products have no foreseeable supply issue by far.<br>Demand estimation for 2023 whole year is slightly softer than 2023, but still stronger than pre-Pandemic period. Forecasting shipment number to an up-tick in 2H 2023 as measures may be taken to address inflation, inventory level may gradually return to normal, educational PC need replacement, and Window 11 result in new demands. As to the server market, although enterprises are still cautious about IT and cloud expenditures, it is also expected demand to resume with AI infra competition and new Eagle Stream platform requirements.<br>Supplier's focus in 2023 will be how to react to the supply chain redistribution under geo-political restriction, and how to achieve carbon neutrality in response to the call for sustainability. |
| Solid-state drive (SSD) | USA, Japan, Korea | At the beginning of 2022, the effects of inflation and war caused a significant decline in demand for PC and handheld devices. Server demand also weakened in the third quarter, resulting in an oversupplied market. SSD prices continued to decline, and manufacturers faced revenue losses as production costs fell below cash costs. In the second half of the year, Nand wafer factories began to reduce production scale to alleviate the oversupply situation, but slow customer demand meant that the SSD price decline continued into 2023. The primary applications for SSD products are in data centers and servers. SSD manufacturers are focusing on producing 128/176-layer products and developing towards 23X layers in the expectation of increasing cost efficiency and competitiveness. |
| DRAM | Korea, USA, Taiwan | The 2022 Russo-Ukraine war raged, and the US imposed economic sanctions on China, leading to inflation and low demand in the overall economy, PC/NB and smartphone shipments have been weak, resulting in oversupply and excess inventory in the memory market, were weak since Q1'22, and it was difficult to eliminate inventory, the mainstream memory prices dropped continuously until H1 2023.<br>SKHYNIX and MICON reduce production to speed up inventory depletion to prevent price declines.<br>Outlook 2023, the global demand for electronic products is not optimistic.<br>The supply of memory will exceed the demand by about 3%~6%, and there is room for bargaining. |
| Power IC (PMIC) | USA, Taiwan, China | Due to the demand declined on electronic products, the impact of US inflation and Russia-Ukrainian War, the excessive inventory of the semiconductor parts market in the consumer market will still be affected and result in slow consumption. Yet, the growth momentum of 5G, AI, HPC and automotive still continues, the overall capacity utilization rate of semiconductor components in power management is still as high as 85% or more.<br>In 2H 2023, with China ended lockdown may stimulate China market demand and expect consuming inventory in consumer and computing market. It may cause temporary supply tight, however, Power IC (PMIC) LT has improved to12~26 weeks. Driving suppliers to build up healthy inventory level in response to market changes. |
| Power Supply | Taiwan, China | In 2023, due to the world wild market demand declined especially on PC market severely, the supply LT for most Power Supply has improved to 20~30wks. However, for some Power Supply using high-V MOSFET and PMIC, which IC suppliers (TI/NXP/Infineon/ONSEMI/ST/Vishay) focus on automotive market and the supply LT still stay 45~52wks. |
| PCB | Taiwan, China, Austria, Korea | H1 2022 PCB market continue growth, driven by the increasing demand for consumer electronics and Server, However, PCB market was also facing challenges ,such as the supply/demand un-balance in raw material and increasing of environmental concerns that make pressure on PCB supply and cost .<br>H2 2022, consumer electronics demand dynamic uncertainty caused demand slow down ,supply and LT become stable . |
| LCD | Taiwan, China, Japan, Korea | The Russian-Ukrainian war and global inflation have brought more uncertainty to the global consumer electronics market, including TV and personal computer products. Brand owners and OEMs tend to be more cautious about 2023's product shipment forecasts, panel purchases and safety stocks. Because brand have more inventory in past year, and also postpones the release of new models and promotional activities in 2023; Panel makers also maintain price levels through capacity reductions. Therefore, overall maintains a stable supply and demand and price trend between panel makers adjusting production and end-product inventory in 2023. |

5 Operational Highlights

## 5.2.4 Key Accounts in the Past Two Years

### A. Key Suppliers

Unit: NT$ thousands

| Item | 2021 | | | | | 2022 | | | | 2023(As of March 31)(Note2) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Company Name | Amount | Percent | Relation with Issuer | | Company Name | Amount | Percent | Relation with Issuer | Company Name | Amount | Percent | Relation with Issuer |
| 1 | A Company | 256,533,354 | 31.32 | None | | A Company | 86,395,725 | 10.25 | None | - | - | - | - |
| 2 | Others | 562,475,364 | 68.68 | None | | Others | 756,643,687 | 89.75 | None | - | - | - | - |
| | Total | 819,008,718 | 100.00 | - | | Total | 843,039,412 | 100.00 | - | - | - | - | - |

Note1: Increase and decrease of the amount was due to business demand.
Note2: The financial information for the first quarter of 2023 has not been reviewed by CPA.

### B. Key Buyers

Unit: NT$ thousands

| Item | 2021 | | | | | 2022 | | | | 2023(As of March 31)(Note) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Company Name | Amount | Percent | Relation with Issuer | | Company Name | Amount | Percent | Relation with Issuer | Company Name | Amount | Percent | Relation with Issuer |
| 1 | Buyer H | 320,428,555 | 37 | - | | Buyer H | 310,161,092 | 32 | - | - | - | - | - |
| 2 | Buyer I | 96,202,158 | 11 | - | | Buyer I | 153,624,651 | 16 | - | - | - | - | - |
| 3 | Buyer C | 76,054,971 | 9 | - | | Buyer C | 101,524,048 | 10 | - | - | - | - | - |
| 4 | Buyer B | 83,726,180 | 10 | - | | Buyer B | 80,324,785 | 8 | - | - | - | - | - |
| 5 | Others | 285,670,984 | 33 | - | | Others | 338,984,580 | 34 | - | - | - | - | - |
| | Total | 862,082,848 | 100 | - | | Total | 984,619,156 | 100 | - | - | - | - | - |

Note: The financial information for the first quarter of 2023 has not been reviewed by CPA.

### 5.2.5 Production Value in the Most Recent Two Years

Unit：KPCS; NT$ thousands

| Year / Production Value / Major Product | 2021 | | | 2022 | | |
|---|---|---|---|---|---|---|
| | Capacity | Quantity | Value | Capacity | Quantity | Value |
| Computer,Communication & Consumer electronics | 148,002 | 103,066 | 838,159,043 | 140,785 | 88,045 | 933,221,797 |
| Others | 144,057 | 50,798 | 64,561,538 | 41,839 | 28,378 | 59,959,983 |
| Total | 292,059 | 153,864 | 902,720,581 | 182,624 | 116,423 | 993,181,780 |

Note: Company shall prepare consolidated financial reports of 2021 & 2022 in accordance with IFRSs regulation.

### 5.2.6 The Sales Value in the Most Recent Two Years

Unit：KPCS ; NT$ thousands

| Year / Sales Value / Major Product | 2021 | | | | 2022 | | | |
|---|---|---|---|---|---|---|---|---|
| | Domestic | | Export | | Domestic | | Export | |
| | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value |
| Computer,Communication & Consumer electronics | 942 | 7,726,678 | 99,088 | 797,695,981 | 1,546 | 20,506,581 | 84,022 | 904,941,405 |
| Others | 717 | 803,491 | 42,769 | 55,856,698 | 809 | 1,138,100 | 27,483 | 58,033,070 |
| Total | 1,659 | 8,530,169 | 141,857 | 853,552,679 | 2,355 | 21,644,681 | 111,505 | 962,974,475 |

Note: Company shall prepare consolidated financial reports of 2021 & 2022 in accordance with IFRSs regulation.

## 5.3 Taiwan Employee Data during the Past Two Years

| Year | | 2021 | 2022 | As of Mar. 31st, 2023 |
|---|---|---|---|---|
| Employee Number | Sales | 1,417 | 1,508 | 1,464 |
| | Engineers | 6,081 | 6.331 | 6,231 |
| | Administration | 1,215 | 1,351 | 1,298 |
| | Direct Labor | 2,069 | 2,331 | 2,217 |
| | Total | 10,782 | 11,521 | 11,210 |
| Average Age | | 36.12 | 36.45 | 36.76 |
| Average Seniority | | 5.83 | 5.87 | 6.18 |
| Distribution of Education | Doctor | 63 | 73 | 72 |
| | Master | 3,969 | 4,005 | 3,915 |
| | Bachelor | 4,727 | 5,232 | 5,079 |
| | Diploma | 1,095 | 1,236 | 1,210 |
| | High School | 827 | 885 | 860 |
| | High School Below | 101 | 90 | 74 |





## 5.4 Environmental Protection Expenditure

### 5.4.1 Total Losses and Penalties

The loss or penalty caused by environmental pollution during the latest year and up to the printing date of this annual report: None.

### 5.4.2 Countermeasures and possible disbursements to be made in the future:None.

### 5.4.3 Environmental Protection Measures

The Company's current compliance with RoHS directive 2011/65/EU and other environmental protection requirements may be explained through the following aspects:

(1) Product Research and Development

All products developed by Wistron focus on 3 subjects- hazardous free, energy saving, and resources reduction as well as have fully conformed to the European Union's RoHS directive 2011/65/EU , (EU) 2015/863 and WEEE requirements. Furthermore, we are actively paying close attention to other environmental protection trends, such as Green House Gas, Product Carbon Footprint & Water Footprint, Halogen-free, REACH, PAHs, PFOS, Energy Star, ErP and the US EPEAT (Electronic Product Environmental Assessment Tool). Wistron use LCA(Life Cycle Assessment) method to find the hot spot of environmental impact within full product life cycle, and we have developed our own Product Carbon Footprint (PCF) system which is based on LCA method, it can help for low carbon product development . Implement the Eco-design from product development; we strive to contribute for the betterment of the global environment.

(2) Production/Manufacturing

All Wistron manufacturing bases of operation have the capacity to produce environmental-friendly products; the Material Management System, Manufacturing Process Control, and Lead-free production equipment are all established. Our Taiwan, Philippines, China and Czech operation bases have been certified ISO 14001 and IECQ QC08000 (Hazardous Substance Process Management). To ensure product compliance with relevant requirements through a comprehensive environmental quality management system. We also inventory greenhouse gas emission from production and verified by 3rd party for ISO 14064 and we've officially joined "Science Based Targets initiative, SBTi" that we are committed to the carbon reduction goal of controlling the increase in global temperature within 1.5°C, our goal is to reach Carbon Neutral in 2030. Moreover, because the electricity consumption is the major contribution of greenhouse gases emission, reducing power consumption is the key to decrease the greenhouse gases emission; therefore, Wistron improved the energy efficiency for major equipment and use the energy saving equipment to reduce the greenhouse gases emission and energy usage cost. We have used the renewable energy in production and have established solar power system at our Zhongshan, Kunshan, Kunshan OPT sites and Neihu Headquarters since 2017, and keep expanding solar power system in 2022 at Zhongshan, Kunshan, Malaysia and India sites. Furthermore, Wistron has started purchasing international renewable energy certificate (I-REC) from 2020. The goal is to increase the percentage of using the renewable energy over 80% in W.W. manufacturing sites by 2025, and 100% by 2030. In order to analysis the efficiency of energy utilization and find out the opportunity of energy saving as well as providing framework of sustaining performance improvement of energy efficiency, Wistron started to implement the ISO 50001 energy management system in Taiwan and China Plants since 2014.

(3) Quality Control

Wistron has established hazardous substance analysis laboratories in Taiwan, China, Czech, Mexico and Vietnam. The deployment of a global hazardous substance testing network will be enhanced. The testing capability include the RoHS ten restricted substances and the other substances e.g. Bromine, Chlorine, Arsine and Antimony, etc. We implemented the regular sampling test mechanism to ensure that components and products don't contain the hazardous substances. In addition, there are several automation projects implemented to improve the operating efficiency of laboratories.

(4) Supply Chain Management

Wistron conducts regular audit and checks on suppliers to ensure that materials and components comply with environmental protection requirements; we change unqualified suppliers as well as hold annual vendor conference to introduce green product trend and Wistron's environmental requirements to reinforce suppliers' awareness on environmental protection. Our philosophy is to implement source management programs to minimize risks. To improve global warming is important issue to environment, Wistron has required suppliers to provide the data of greenhouse gases emission and encourage supplier to reduce the emission since every year. Furthermore, Wistron start to inventory the scope 3 of greenhouse gases emission for Taiwan office and factory since 2015. Collect the emission which is generated by employee travelling and transportation for product and materials. More manufacturing sites located in China were included in the inventory scope in 2016 . In 2022, the inventory scope was expanded to 15 categories. For the emission hot spots, "purchased goods and services" and "transportation and distribution" are the major emission sources respectively in upstream and downstream value chain. The inventory results can help Wistron to monitor the emission contribution from the activity of our own operation or value chains. It can also provide potential opportunities for Wistron and our suppliers or customers to collaborate on low carbon electronic components development.

(5) Personnel

Wistron has established a dedicated material analysis laboratories and green component engineering department, in charge of hazardous substance analysis and component qualification through chemical analysis. Furthermore, continuously monitor green product trend as well as provide proposal and solution. In addition, the reinforcement of employees' environmental protection knowledge and skills through actual training courses and e-learning ensures the employees in the Company shall perform relevant environmental protection tasks well.

(6) Information System

Wistron has established a Green Product Management GPM system ; suppliers may directly upload related environmental protection information into Wistron's GPM database through the internet so as to simplify procedures, minimize human error, and enhance task efficiency. The flexibility of the interface allows it to cope with future environmental protection requirements. Moreover, GPM could generate customized format report to declare the green product information to customers. We have implemented the GPM2.0 to enhance the system function and efficiency in 2014. We have implemented a new function to directly link the database of testing report from the 3rd party labs to reduce the human effort and error as well as improve the operations in 2019. In order to efficiently address the increased requirement of controlled hazardous substances, e.g. REACH-SVHC, Wistron has developed and implemented the Full Material Disclosure (FMD) information system to know well the composition of materials used in the products. Therefore, we can quickly verify whether the hazardous substances be used in product as well as reduce the operation cost due to the repeated investigation. In addition, Wistron's Product Carbon Footprint (PCF) system has officially launched in 2023, this system can automatically and efficiently calculate the product GHG emissions within the whole lifecycle, it can significantly reduce manual time.





## 5.5 Labor Relations

### 5.5.1 Detailed descriptions of employee benefits, training and development, retirement plan and each of the implementations, as well as the labor management agreement and employee rights preservation policies are listed in the following

**A. Employee benefits**

The Company always cares and values employees by implementing a series of programs in accordance with the law to help employees develop a higher quality of working life, which, in turn, enhances productivity. These programs include allocating welfare funds, establishing an employee welfare committee, and electing employee committee members to plan for annual benefit activities. In addition, Wistron also provides employees free shuttle bus service, Employee Assistance Programs (EAPs), family party, fitness center, group insurance plans.

**B. Employees training and development**

In response to changing internal and external environments, "sustainability" has become a critical issue for global business development. To drive this key strategy, in 2022, Wistron revised its vision as "Innovation through Sustainability" with a mission to be "Trusted Innovation Partner for Technology, Sustainability and Better Lives". Guided by the core values of " Customer Focus", "Integrity", "Innovation", and "Sustainability", Wistron is committed to fulfilling corporate social responsibility and moving towards sustainability.

Based on the strategic needs of digital transformation, global expansion, and sustainable development, as well as external challenges, Wistron carries on success experience in the past and continues to cultivate high-potential successors and leadership talents. In response to the new generation leadership needed for transformation and upgrading, Wistron re-defined the management competency model in early 2022, in line with key strategies and initiated the design of managerial training roadmap. In the future, the management competency model will be closely integrated with human resources management policies, to develop a competency-based human resources management and development system that facilitates innovation and change, and ultimately accelerates the pace of transformation.

In terms of leadership talent cultivation, we developed competency-based training roadmap for each level of managers.In our succession planning for key executive positions, we regularly assess the readiness of talents and provide individual development plans according to their strengths and area for developement. The development plans and resources include online and offline courses, project assignments, strategic rotations, team-based action learning, and one on one coaching from internal and external executive coaches. This is to strengh the succession bench depth and the quality of our talent pool.

In addition, we provide external resources such as industry trends forums, entrepreneurship programs, etc. Through exposure to different industries and fields, we ensure that our executive successors have comprehensive development opportunities and practical experience, and can fully demonstrate their professional abilities and leadership presence in various challenging situations.

In line with the company's digital transformation strategy, Wistron Digital Academy continues to promote digital literacy trainings for all employees, and to establish a common language within the company. Since 2019, we have defined nine cirital roles and systematically trained digital project development teams. After training, the talents combined digital theoretical knowledge with expertise in various business domains and participated in project application in R&D, manufacturing, business development, supply chain, and other professional fields. In addition, to increase the depth and breadth of digital technology applications, we have provided trainings of digital technology and tool application such as robotic process automation, data visualization, and artificial intelligence and machine learning according to domain practical needs. It is to enable the key talents to stay ahead of digital technology development trends and strength their anticipatorycapabilities.

Human capital is the key factor of differentiated competitive advantage of organization. It is also a foundation of sustainable operation in the enterprise, Wistron uses "competency" as a core to develop training roadmaps for different functions. In accordance with our strategies, Wistron develops various talent development programs to enhance human capital and sustainable business development capability.

**C. Retirement plan**

To develop a stable retirement plan for the employees and therefore enhance employees' engagement to the Company, Wistron establishes rules for the employee retirement plan in accordance with the Labor Standard Law and Labor Pension Act. Wistron contributes six percent of applicable employee's monthly wage to the labor pension per month according to Labor Pension Act. Besides, Wistron establishes Supervisory Committee of Workers' Retirement Fund to allocate employee retirement reserve fund each month in accordance with "Rules for the Allocation and Management of the Workers' Retirement Fund" and deposits the fund into the dedicated account in the name of Supervisory Committee in the legally established banks.

**D. Labor Relations**

The company has always attached great importance to employee communication and is committed to harmonious labor-management relations. It has never suffered any huge losses due to labor disputes, and it is expected that no such losses will occur in the future.





**5.5.2 At the time of printing this publication, loss incurred by labor dispute and the amounts of anticipated losses and countermeasures:** None.

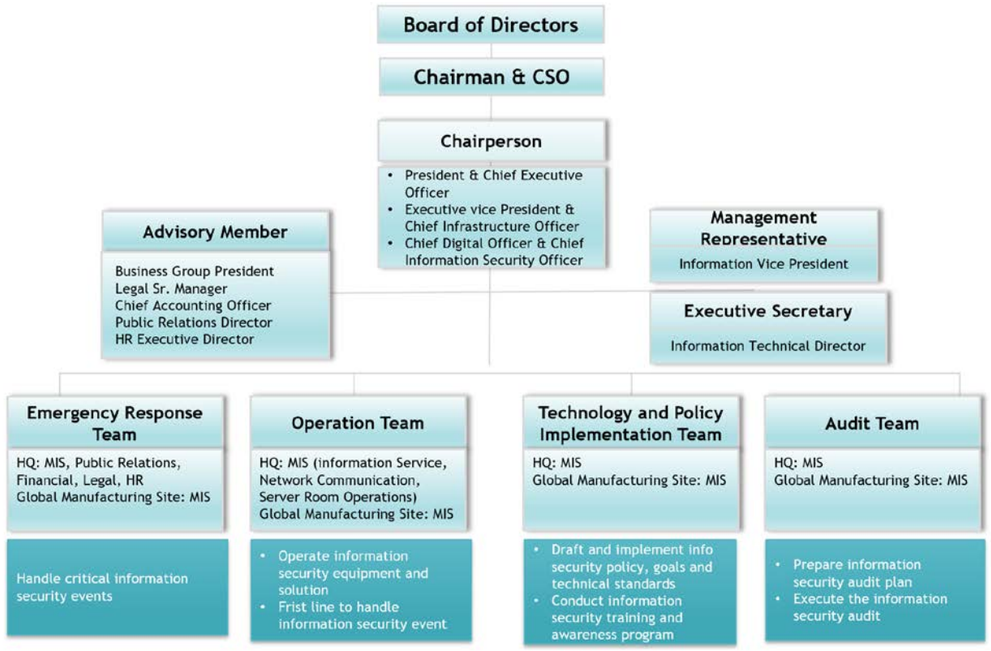
## 5.6 Information Security Management

### 5.6.1 Information Security Risk Management Framework

Wistron established the Information Security Committee in 2021 to supervise the Company's information security management system, technical standards, and maintenance operations. The President & Chief Executive Officer, the Executive vice President & Chief Infrastructure Officer and Chief Digital Officer & Chief Information Security Officer act as co-chairpersons and are responsible for fulfilling the Company's commitment to information security. The Vice President of IT acts as the management representative. The Information Security Governance Office was established and a supervisor is appointed as the executive secretary to organize information security matters. The Company established the "Information Security Policy" to protect the IT asset security of employees, customers, suppliers, and operations, ensuring corporate sustainable management.

The Information Security Committee convenes once per quarter. Extraordinary meetings may be convened when necessary and members of the teams must attend. The agenda of the meeting includes information security incident reports, the report of each team on the implementation of the team's affairs, issues that require the cooperation of different units, other related suggestions, or extemporary motions.

Wistron Information Security Committee Organization Chart :



## 5.6.2 Information Security Policy and management Strategy

### 5.6.2.1 Information Security Policy

In order to protect the information of Wistron Co., Ltd. (hereinafter referred to as The Company) products and services, avoid unauthorized access, modification, use and disclosure, as well as losses caused by natural disasters, and provide complete and available information in a timely manner. The Company is committed to information security management to ensure the confidentiality, integrity and availability of the company's important information property, and comply with the requirements of relevant laws and regulations, thereby gaining the trust of customers, meeting the commitments to shareholders, and ensuring the company's important business continuous operation.

### 5.6.2.2 Information Security Management Strategy

In implementing ISO/IEC 27001 information security management, Wistron focuses on regulation compliance, standardize processes, employees training and deploy security technology. It strengthens the security on data, information systems, and network. Moreover, it can protect critical business processes and systems from human-induced risks such as theft, improper use, leakage, alteration or destruction which caused by negligence, deliberate or natural disasters.With this, we can ensure the commitment to shareholders/customers and company's business continuity.

After Wistron obtained ISO/IEC 27001: 2013 certification in August 2017, we implemented the "Plan-Do-Check-Act" (PDCA) cycle according to the standards and conduct at least one internal self-audit and one audit by an impartial third party every year. To ensure the Company's implementation of ISO 27001 management mechanisms, the Company executes re-certifications every three years to maintain the validity of the ISO 27001 certification. The certification scope has expanded to all manufacturing plants around the world in 2022 with a coverage of 100%.

In response to changes in the internal and external environment, Wistron has gradually established comprehensive network and computer-related information security protection measures from the people, process and technical aspects of information security governance. In addition to the company's continuous strengthening of information security measures, we joined the information security information sharing organization to obtain information security intelligence, information security threat and vulnerability information, such as: High-tech Information Security Alliance, Taiwan Computer Emergency Response Team / Coordination Center(TWCERT/CC); Combining external information security vendors and expert resources, we continue to pay attention to new information security information and technologies, and apply proper, timely defense or solution, to ensure management with a consistently effective approach to dealing with information security weaknesses and events,At the same time to improve rapid response and recovery capabilities to ensure the resilience of information services, and eliminate the business impact.





## 5.6.3 Information Security Operation Specific Measures

(1) Identify stakeholder groups associated with the information security management system and regularly verify the needs of stakeholder groups for the information security management system (including customers' demands for information security).

(2) Execute social engineering drills and information security training for employees to fully increase employees' information security awareness.

(3) Establish comprehensive and clear operating procedures to institutionalize the operations of the information security management system.

(4) Perform regular risk assessments to identify high risk items and invest appropriate resources to reduce or transfer risks.

(5) Use tools and technologies to achieve timely and effective identification, protection, detection, response, and recovery

(6) Establish operating procedures for response and recovery in the event of information security anomalies with the aim of rapid isolation of information security incidents, elimination of threats, and reduction of the scope and extent of impact.

(7) Perform regular disaster recovery exercises for key applications to ensure their effectiveness.

(8) Perform regular annual internal and external audits each year to review the entire management system and ensure normal operation and continuous improvement.

(9) Continuously pay attention to new information security development and technologies and update defense or management practices to effectively block new forms of information security threats and reduce risks for operations.

## 5.6.4 To Invest in information security management resources

### 5.6.4.1 Information Security Management and Audit Mechanisms

Wistron headquarter offices (Neihu and Xizhi Offices), and all manufacturing plants around the world have been certified with ISO/IEC 27001: 2013 information security international management standard certification in 2022. And continue to strengthen the internal control mechanism to ensure the effective implementation and continuous improvement of information security measures in each plant., we setup the mechanism of the three information security lines of defense ,including the self-inspection of the operation team, the auditing of the information security governance team and the internal auditors.

Wistron enabled Third Party Risk Management (TPRM) Program in 2022. To classify suppliers, and implement them in the entire supplier management life cycle from the perspectives of security, risk and privacy. This includes the procurement phase (tier assessment, risk score assessment, contract), ongoing third party risk management (Risk score assessment and remediation), and the eventual offboarding. A total of 224 suppliers were counted. According to the importance of the services they provide, whether they can directly access confidential information and other factors, the suppliers were classified.

Finally, 11 first-tier suppliers and 13 second-tier suppliers were counted. , and the rest are Tier 3 suppliers. Tier 1 and Tier 2 are based on individual information security standards, requiring suppliers to meet Wistron's information security assessment standards.

### 5.6.4.2 Strengthen information security awareness among employees

To implement information security in its employees, the Company provides e-Learning resources and executes social engineering drills every six months to enhance the information security awareness and vigilance of each employee. Publish information security e-newsletter every month, including the latest information security trends and recent major information security events at home and abroad, so as to enhance colleagues' awareness and vigilance of information security. If an employee commits a violation of the Information Security Policy, the Company imposes penalties in accordance with the "Implementation Guidelines for Employee Rewards and Penalties" and includes the results as the basis for performance management to reduce information security risks and the impact on the Company's operations.

The email click rates for social engineering drills conducted in the last 4 years on all company employees are as follows :

| Measures | Objectives | 2019 Outcome | 2020 Outcome | 2021Outcome | 2022Outcome |
|---|---|---|---|---|---|
| Execute social engineering drills every six months | Employee clicks mail on social engineering drills, click rate < 15% | H1 : 14.5%<br>H2 : 12.9% | H1 : 10.6%<br>H2 : 10.5% | H1 : 10.8%<br>H2 : 10.7% | H1 : 9.3%<br>H2 : 10.2% |

Since 2021, the information security professional talent training program has been developed. Through manpower inventory, four roles of information security governance, information security engineering, information security analysis, and software development and security have been distinguished, and five levels of ability standards have been established. We conduct d ability assessments every year, and develop of talent capacity training and upgrading plans. In 2022, a total of 115 people joined the information security talent training plan , confirming that the ability of information security talents keeps pace with the times.

The training conducted for general employees through online or in-person lessons in 2022 mainly consisted of information security awareness training, information security lessons, and phishing email awareness and prevention. The Company completed 21,906 hours of employee information security training for 42,652 participants. There were 784 punishment records for violating information security regulations.

In 2022, 1,005.5 hours of information security related seminars and training were completed by 228 information security employees. The course content mainly consisted of the annual Wistron information security seminar, ISO 27001 information security management system lead auditor training, EC-Council CEH (Certificated Ethical Hacker) certification course, Trend Micro TCSE (Trend Certified Security Expert) certification course, CISA(Certified Information Systems Auditor),CISSP(Certified Information Systems Security Professional),CISM(Certified Information Security Manager), CCSP(Certified Cloud Security Prrosessional ) certification courses and information security related technologies seminars organized by Gartner, Microsoft, and information security suppliers.





### 5.6.4.3 Vulnerability detection for networks and systems

Apart from monthly internal vulnerability scans, Wistron entrusts a third party professional service to conduct network and system penetration tests each year to protect the corporate and personal information and prevent losses caused by leaks, theft, destruction, other human factors, or natural disasters. These tests reduce the impact of human factors or natural factors on the Company's operations. The purpose of the tests is to understand and evaluate the status of the company network environment and system security and verify the current information security protection safety rating and effectiveness to resolve vulnerabilities, improve operations, and strengthen system security.

In 2021, the headquarter introduced red team drill and it expanded to the global manufacturing plants in 2022. Combined with penetration testing, the company's services were comprehensively reviewed with the direct attack methods of external information security experts, and the Company's network was examined for vulnerabilities. Moreover, we checked if the protection, detection, response and recovery mechanisms of the information security operation and response team were functioning smoothly.

In 2022, Wistron's average information security assessment score by third party evaluations was 92.27, which was higher than the international industry average.


### 5.6.4.4 Software Development Security

In order to control the security of the software development lifecycle (Software development lifecycle, SDLC) in advance, achieve the security of shift left (Shift Left) testing, and reduce the cost of security and maintenance of application systems, Wistron has introduced

DevSecOps (Development, Security and Operations ) mechanism, and strengthened the collaboration between the development team, the operation team and the information security team. At the same time, software composition analysis (Software Composition Analysis, SCA) technology is added to the development process to improve the security quality of software.

#### 5.6.4.5 Information security alerts and incident management

According to the information security incident management regulations, we can ensure the institutionalization and systemization of information security incident reporting, sorting, classification, handling, recording, and tracking. When an information security incident occurs, Wistron can quickly report and handle the situation. We are able to respond in the shortest possible time to ensure normal operations. Wistron has introduced Advanced Persistent Threat (APT) monitoring and Security Operation Center (SOC) operations. Together with the resources of external information security experts, the information security operations and response teams can quickly grasp the information security alerts and incidents, strengthening and accelerating detection and response mechanisms.

#### 5.6.4.6 Disaster recovery drills

In order to ensure the sustainable execution of operations and important matters, we conduct at least once every six months for Information business operation continuity plan or emergency response plan of information security accidents to prevent the loss of service of important information systems during major disasters. We aim to utilize our disaster response capabilities and disaster recovery mechanisms to quickly restore our operations to normal or acceptable levels during key moments, in order to maintain key applications and systems and prevent operation interruption of the Company. Furthermore, the backup personnel of the data center conducts recovery testing for selected backup storage mediums or recovery equipment at least once a year, in order to confirm the readability of the backup data, the usability of the storage medium, and the possibility of important asset recovery. We aim to create effective backups and recovery procedures that can be completed within the allocated time.

In 2022, the data center personnel also chose 30 backup storage mediums for 7 major functions and systems. Recovery testing was successfully completed for the backup data. And yearly disaster recovery drills revealed that the maximum tolerable data loss time during disasters (RPO: Recovery Point Objective) is 0.9 hours. After a disaster occurs, the maximum tolerable information service recovery time (RTO: Recovery Time Objective) is 18.83 hours. The results of the drills in the past four years have all achieved the goals set by the company. The details are as follows:

| Measures | Objectives | 2019 Outcome | 2020 Outcome | 2021Outcome | 2022Outcome |
|---|---|---|---|---|---|
| Perform critical application system disasters recovery drills annually to ensure uninterrupted business operations | RPO of SC2 Services <= 4 hours<br>RTO of SC2 Services <=24 hours | RPO=0.9 hour<br>RTO=19.95 hours | RPO=0.5 hour<br>RTO=21.0 hours | RPO=0.8 hour<br>RTO=22.0 hours | RPO=0.9 hour<br>RTO=18.83 hours |





#### 5.6.5 Information Security Risk and countermeasures

Wistron has established comprehensive network and computer-related information security protection measures, and continuously reviews and evaluates information security regulations and procedures to ensure the appropriateness and effectiveness, but there is no guarantee that companies are immune to emerging risks and attacks amid the ever-changing information security threats.

Because of the ever-changing threats and attack techniques, we will pay attention on security information technology and apply proper, timely defense or solution, to ensure management with a consistently effective approach to dealing with information security weaknesses and events, ensure the resilience of information services, and eliminate the business impact.

Since 2021, Wistron purchased global information security insurance policies as a group. Apart from mitigating risks, we also hope to further receive the help and resources of external information security experts through the international insurance market. To provide preventative solutions to strengthen existing information security measures, in order to respond to growing information security threats and achieve the goals of corporate sustainable management.

#### 5.6.6 Information security incidents in the most recent 4 years

No major information security incidents occurred between 2019 to 2022. There is also no confidential information leaks affected the personal information of customers and employees, and no fines or penalties were issued. For details, please refer to the following statistics on the number of violations of information security incidents and fines:

| Number of information security violations and fines | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|
| Number of information security or network security violations | 0 | 0 | 0 | 0 |
| Data leak incidents (number of cases) | 0 | 0 | 0 | 0 |
| Number of information security violations that involve customer information | 0 | 0 | 0 | 0 |
| Number of customers and employees affected by the data leak (number of people) | 0 | 0 | 0 | 0 |
| Amount of fines for information security or network security related incidents (NTD) | 0 | 0 | 0 | 0 |

## 5.7 Important contracts

| Contract Type | Contracting Party | Term of Agreement | Main contents | Restrictive clauses |
|---|---|---|---|---|
| Purchase Agreement | Foreign and Domestic Companies | Valid | Purchase of computer products and components | None |
| Maintenance Agreement | Foreign and Domestic Companies | Valid | Maintenance for the hardware and software | None |
| License Agreement | Foreign and Domestic Companies | Valid | License of certain software and patents | None |
| Product Development And Supply Agreement | Foreign and Domestic Customers | Valid | The customers will purchase computer products developed and manufactured by Wistron | None |