



2

Innovation Development and Quality Management

- 2.1 Business Overview
- 2.2 Product R&D and Innovation
- 2.3 Customer Demand and Quality Management
- 2.4 Sustainable Supply Chain



2.1 Business Overview

◇ Material Topic: Economic Performance ◇

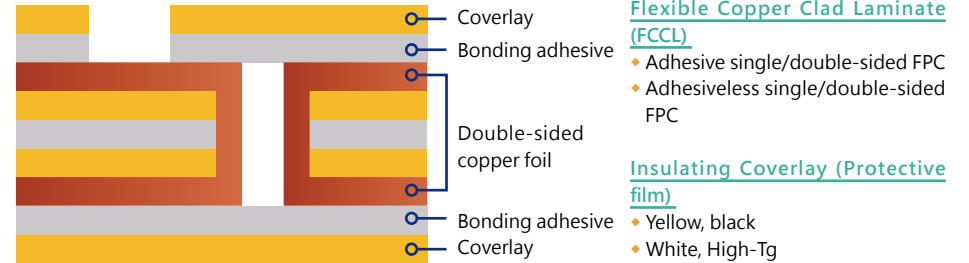
<p>Main Reason</p>	<p>As a public company, being accountable to shareholders and employees and maintaining sound and stable financial performance allow the Company to have the resources to invest in research and development and continue to provide advanced services to customers as well as promote technology and innovative applications developments. Therefore, the pursuit of sales growth is one of the cornerstones for the Company' s sustainable operation.</p>				
<p>Policy and Strategy</p>	<p>Taiflex focuses on the research and development of green and energy-saving products. We provide customers with the most reliable and advanced FPC materials and establish the Strategic Planning Office as well as the Global Sales & Marketing Center. Through collaboration between our Global Business Division, Marketing Division and Technical Solutions Division, we join forces to drive the external business of Taiflex from the three aspects of customer needs, market dynamics analysis and technology application and services.</p> <p>The Strategic Planning Office is responsible for matters set out below:</p> <ul style="list-style-type: none"> (1) Analyze technology and industry market dynamics to facilitate the Group with identifying business opportunities. (2) Plan and drive the short and long-term strategies of the Group and monitor the implementation outcome. (3) Assess potential strategic investments, M&A targets and cooperation opportunities. <p>The Global Sales & Marketing Center is responsible for the following:</p> <ul style="list-style-type: none"> (1) In charge of domestic and overseas production and act as an agent for product sales. (2) Collect market intelligence and analyze the industry and macro economy. (3) Plan and market FPC products as well as propose new product development requirements to the R&D. (4) Provide customers product solutions, respond to questions raised by customers concerning new products and handle customer complaints on new product sampling. <p>Also, we established Taichem Materials Co., Ltd. through spin-off to focus on the semiconductor and display packaging materials. There is also the Taiflex Green Power Co. Ltd. which concentrates on the generation and selling of electricity from renewables.</p>				
<p>Goals and Objectives</p>	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>Short-term goals (2023-2024):</p> <ul style="list-style-type: none"> ◆ Return on equity at industry average. ◆ Operating income at industry average. </td> <td style="width: 50%; vertical-align: top;"> <p>Medium-term goals (2025-2027):</p> <ul style="list-style-type: none"> ◆ Return on equity above industry average by 1~5%. ◆ Operating income above industry average by 1~5%. </td> </tr> <tr> <td colspan="2" style="vertical-align: top;"> <p>Long-term goal (2028~):</p> <ul style="list-style-type: none"> ◆ Return on equity above industry average by at least 5%. ◆ Operating income above industry average by at least 5%. </td> </tr> </table>	<p>Short-term goals (2023-2024):</p> <ul style="list-style-type: none"> ◆ Return on equity at industry average. ◆ Operating income at industry average. 	<p>Medium-term goals (2025-2027):</p> <ul style="list-style-type: none"> ◆ Return on equity above industry average by 1~5%. ◆ Operating income above industry average by 1~5%. 	<p>Long-term goal (2028~):</p> <ul style="list-style-type: none"> ◆ Return on equity above industry average by at least 5%. ◆ Operating income above industry average by at least 5%. 	
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<p>Management Assessment Mechanisms</p>	<p>We hold regular management and performance review meetings according to the KPIs chosen.</p>				
<p>Performance and Adjustments</p>	<ul style="list-style-type: none"> ◆ In 2022, the return on equity and average annual growth rate of operating income failed to meet the target as a result of international situation and inflation. The free fall in demand in the second half of the year as the entire industry went through inventory digestion affected year-round revenue. We have to enhance the yields of new products and control relevant expenses. ◆ The return on equity and average growth rate of operating income for 2022 were -9.88% and -31.69%, respectively. 				
<p>Prevention or Remedy Measures</p>	<p>The Company sets strategic considerations and business targets at the beginning of each year. The strategic directions and operating policies are adjusted on an ongoing basis through monthly performance review meetings and impact of external factors to achieve the economic performance targets.</p>				

2.1.1 FPC applications and development trends

As a world's major suppliers of FPC materials, our production focuses on flexible materials. Main products include adhesive FCCL materials, adhesiveless FCCL materials, coverlay, bonding sheet, stiffener and composite materials. Our product applications cover mobile electronic devices, wearable devices, car multimedia and others.

At present, large smartphone manufacturers gradually shift towards eco-friendly substrates as eco-friendly materials become the basic product requirements due to the rising environmental awareness and regulatory requirements. Among the various demands, the quest for compact devices remains unchanged. Thus, adhesiveless FPC material (2L-FCCL), with its advantage of being thinner, officially replaces adhesive FPC material (3L-FCCL) to become the mainstream specification in the market. Its penetration rate continues to rise, driving the major FCCL producers to aggressively expand their production capacity of 2L-FCCL. Consequently, developments of 2L-FCCL-related materials and technology will be the focus of research and development.

Double-sided FPC Stack-up



Market developments

The rising proportion of 5G communication year by year along with the demand for large amount of data transmission and robust developments in the new energy vehicle segment point out that material development will center around features of high frequency and high speed. Major material companies and brands have been aggressive in their development of high bandwidth and low latency applications. At present, MPI, LCP and fluoro FCCLs are the mainstream.

Taiflex offers flexible, light and thin FPC materials. We also aggressively explore the high-density, fine-line, low-loss and high-speed applications. Our R&D team has developed advanced products with high power, high density and high frequency such as the bonding sheet and coverlay featuring ion-migration resistance, low-loss bonding sheet, coverlay, MPI and LCP as well as Fluoro FCCL. Combining these products with a wide range of applications, we provide the market with better and more diverse choices of materials and gaining the trust and support of customers worldwide.



High-frequency, High-speed Transmission Materials

- MPI FCCL
- LCP FCCL
- Fluoro FCCL
- BS and CVL

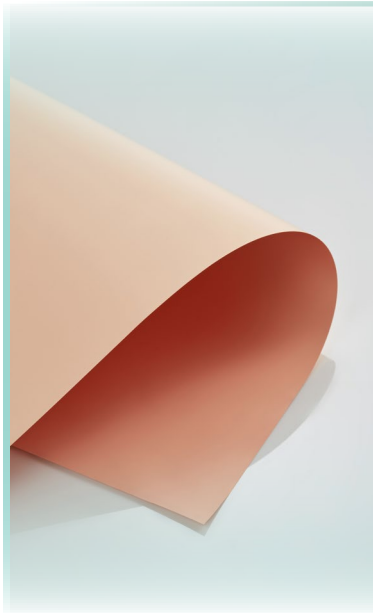
Electronic-grade Coverlay (Bonding Sheet)

- Halogen-free
- High-Tg

Stiffener/Composite Sheet

- Yellow
- Black

◆ Purpose and features of Taiflex products



Adhesive FCCL Materials

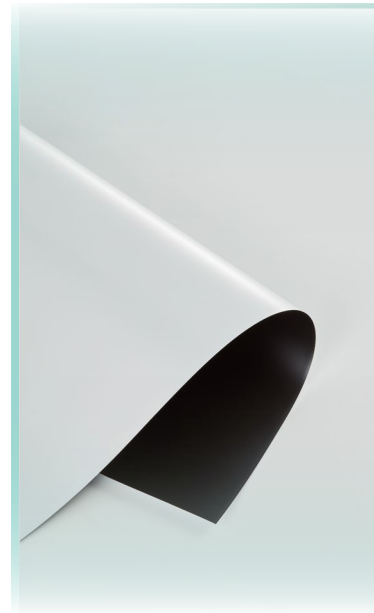
Purpose : Excellent ion-migration resistance, superior dimensional stability and high tensile strength.
Feature : Halogen/Bismuth-free. UL and RoHS certified.
Application : Battery, industrial control and automotive applications. A comprehensive range to satisfy the demand for different thicknesses.

Adhesiveless FCCL Materials

Purpose : Light, thin, superior flexural endurance and high dimensional stability.
Feature : High glass transition temperature (Tg) as well as superior weather and chemical resistance. UL and RoHS certified.
Application : Antenna, button and battery of mobile phones. A comprehensive range to satisfy the demand for different thicknesses.

High-frequency FCCL Materials

Purpose : For FPC CCL (high-frequency). Available in three series: MPI, LCP and Fluoro.
Feature : Low Df.
Application : Antenna, USB-C and transmission line.



Halogen-free Coverlay

Purpose : To protect the circuits of FPC. Available in three colors: black, yellow and white.
Feature : Halogen/antimony/Bismuth-free.
Application : Used for FPC circuit protection.

High-Tg Coverlay

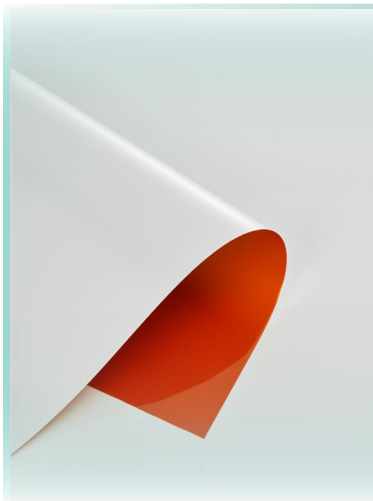
Purpose : To protect the circuits of various FPCs.
Feature : Outstanding heat resistance during lamination and operability.
Application : Flex-rigid PCBs and multilayer PCBs.

Low-ion Coverlay

Purpose : To protect the circuits of various multilayer and flex-rigid PCBs.
Feature : Outstanding ion-migration resistance.
Application : Display, SSD and cell board.

High-frequency Coverlay

Purpose : To protect the circuits of FPC.
Feature : Low Df.
Application : Antenna, USB-C and transmission line.

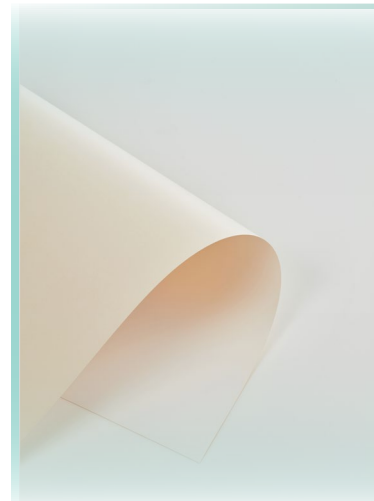


Stiffener

Purpose : To be used to reinforce various types of FPCs.
Feature : Available in two colors: black and yellow. Excellent operability and chemical resistance.
Application : Reinforce FPCs.

Composite Sheet

Purpose : To be used to reinforce various types of FPCs.
Feature : Available in two colors: black and yellow. Excellent operability and chemical resistance.
Application : Reinforce FPCs.



High-Tg Bonding Sheet

Purpose : To bind multilayer and flex-rigid PCBs.
Feature : High Tg, excellent temperature tolerance and able to withstand several lamination cycles.
Application : Applicable to a wide range of components, e.g., IO, button, camera and battery.

Low-ion Bonding Sheet

Purpose : To bind multilayer and flex-rigid PCBs.
Feature : Better ion-migration resistance than the High-Tg series for the trend of high-density and fine-line applications.
Application : Applicable to a wide range of components, e.g., camera, display and battery.

High-frequency Bonding Sheet

Purpose : To bind multilayer FPCs.
Feature : Low Df.
Application : Antenna, USB-C and transmission line.

2.1.2 Operational performance

◆ Competitions

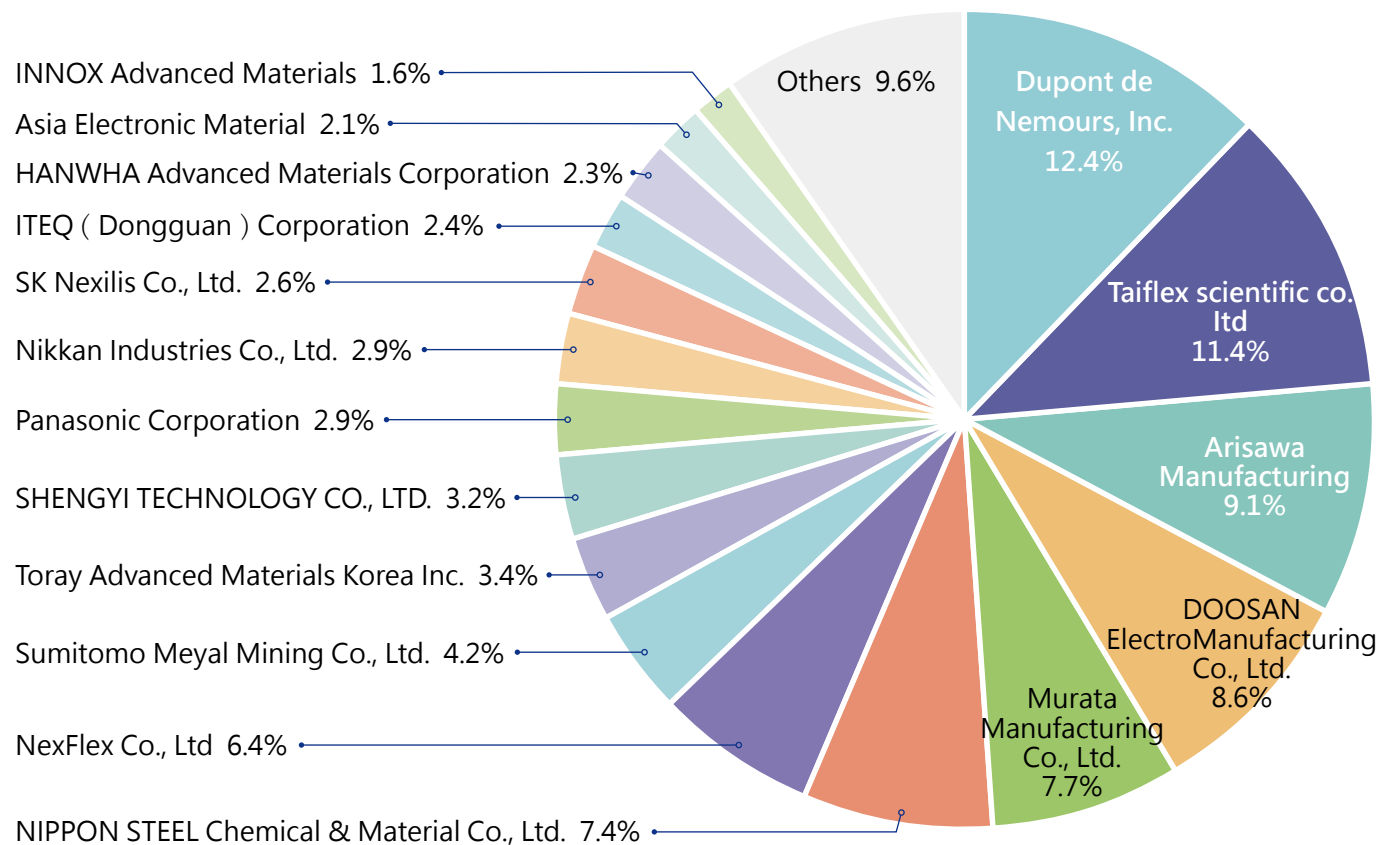
The global supply of FCCL is dominated by Japan, Taiwan and Korea. The main competitors include Nippon Steel and Arisawa in Japan, Doosan in Korea, plus AEM in Taiwan. However, the PCB industry in China has grown rapidly with help from the government. A complete industry cluster, which includes copper foil plants, CCL plants, and assembly factories, is taking shape. Meanwhile, there are peers entering the FCCL market. For instance, ITEQ and Shengyi Technology have been actively switching from CCL to FCCL recently. Consequently, the competition has become more complicated.

In the past year, the pandemic had wreaked havoc on a global scale. It changed how people live, work and carry on business activities and brought more challenges to business operation. However, we managed to seize opportunities amid the crisis through excellent crisis management and strived to maintain the momentum for business growth. Our market share in FPC applications worldwide was 11.4% in 2022.

In the future, the Company will continue to actively implement various operational and risk control measures, such as increasing local purchases, adopting dynamic inventory strategies for key materials and products, optimizing product structure, and executing cost improvement, production efficiency enhancement as well as expense control. These practices would not only enhance our responsiveness and mitigate the adverse impact of uncertainties, but more importantly, they enable the Company to seize the opportunities for growth during the pandemic.

As 5G communication enters the phase of fast development, we would not be absent from the growth. We will persistently strengthen our core competitiveness, build long-term competitive and sustainable operation, continue to invest research and development resources in advanced materials of flexible electronics, heat dissipation and semiconductor, and work towards producing high-value products. At the same time, we will utilize our leading position in flexible materials to collaborate with customers in order to capture the driving forces of market growth and consolidate the foundation for sustainability.

Market Share Pie Chart of JMS



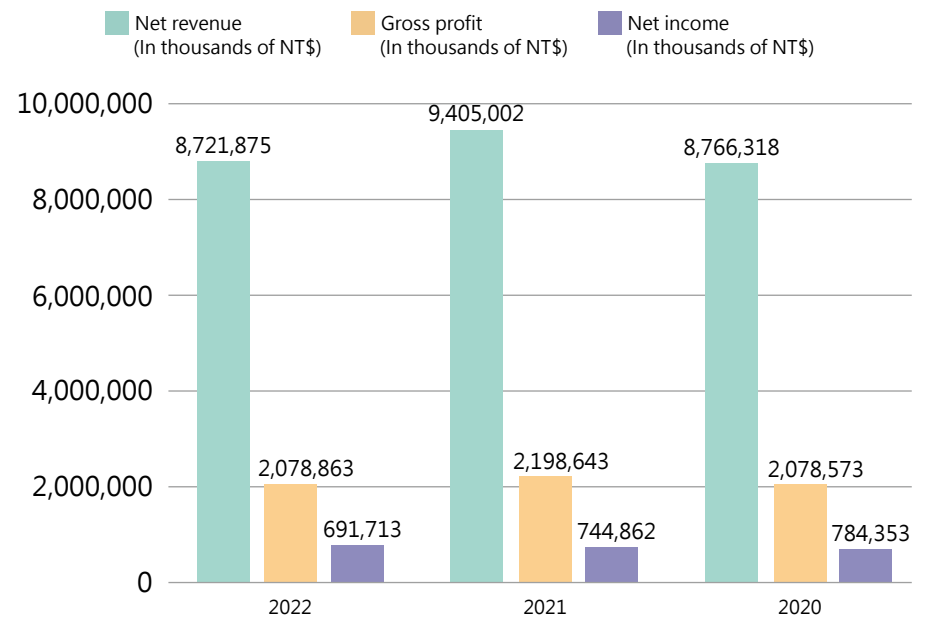
◆ Annual financial performance

In 2021, the supply chain disruption caused by Russia-Ukraine war and Covid-19 as well as the prolonged loose monetary policy fueled global inflation. As a result, major central banks initiated rate hike cycles to battle against inflation. Under the dual influence of price spikes and rising interest rates, the end-market demand of the global consumer electronics plummeted. The plunge along with the digestion of substantial inventories accumulated during the pandemic in every stage of the supply chain put sales under greater recessionary pressure.

Amid the stagnant end demand, we eliminated the adverse impact of plunging demand with our fine customer mix and competent supply chain management, suffering only a slight decrease in terms of revenue and profit. Furthermore, we escalated our investments in new material research and development as well as product sampling, striving to expand our market share while awaiting economy recovery to take our operation to the next level.

Operating revenue for 2022 amounted to NT\$8,721 million, down 7.2% from 2021, with an earnings per share of NT\$3.35.

Item/Year	2020	2021	2022
Net revenue (In thousands of NT\$)	8,766,318	9,405,002	8,721,875
Gross profit (In thousands of NT\$)	2,078,573	2,198,643	2,078,863
Operating income (In thousands of NT\$)	1,042,885	948,808	648,080
Non-operating income and expenses (In thousands of NT\$)	-77,088	-7,994	229,233
Income before income tax (In thousands of NT\$)	965,797	940,814	877,313
Net income (In thousands of NT\$)	784,353	744,862	691,713
Total comprehensive income (In thousands of NT\$)	752,882	758,884	662,244
Earnings per share (NT\$)	3.7	3.51	3.35
Employee benefits (In thousands of NT\$)	20,904	31,507	28,197
Dividends (In thousands of NT\$)	522,799	522,799	522,799
Employee wages (including employee benefits) (In thousands of NT\$)	983,465	1,176,330	1,315,982
Retained economic value (In thousands of NT\$)	1,303,957	844,978	1,562,944
Payments to providers of capital (In thousands of NT\$)	543,562	543,597	558,005
Payments to government (In thousands of NT\$)	221,982	231,061	224,937
Community investment (In thousands of NT\$)	1,152	1,063	700



◆ Other financial impact

The Company does not make any political contribution and pays taxes every year in accordance with the tax laws and regulations. Since we meet the criteria set by the government for the promotion of investments in smart machinery as well as research and development, we are entitled to some tax credits. Also, we receive government subsidies for assisting with narrowing the gap between industry and academia by providing internships to students.

2022 Government Subsidies

		In NT\$
Youth Employment Subsidy	Executive Yuan	71,200
Youth Employment Project	Workforce Development Agency	567,326
Subsidies for Interests and Wages	Kaohsiung City Government	5,996,986
Internship for Youth in Kaohsiung	Sun Yat-sen Management Education Foundation	205,000
Total		6,840,512



◆ Tax policy and information

Taxation is managed by the Finance and Accounting Center, which keeps abreast of the tax compliance status of our domestic and overseas operation bases as well as the latest information on global tax laws. It reports high-risk tax incidents to the Board of Directors for the management to understand the internal risks and tax trends. Through effective risk management mechanisms, it contains the frequency and amount of tax disputes to a lower risk level.

The head and staff of the finance and accounting department comply with relevant tax laws and regulations both at home and abroad. The following tax policies are established to reduce tax risks and pursue the optimal interests of the Company and its shareholders. Details are available in the sustainability report, including:

1. Transactions between affiliates shall comply with the arm's length principle as well as the transfer pricing guidelines set by the competent authority.
2. Analyze the operating environment, assess tax risks, and consider related tax risk based on business decisions.
3. Comply with domestic and international tax regulations.
4. Not to use tax havens for tax avoidance.
5. Comply with the Company Act and tax-related laws and regulations.



Annual report



Shareholders Services



Financial reports



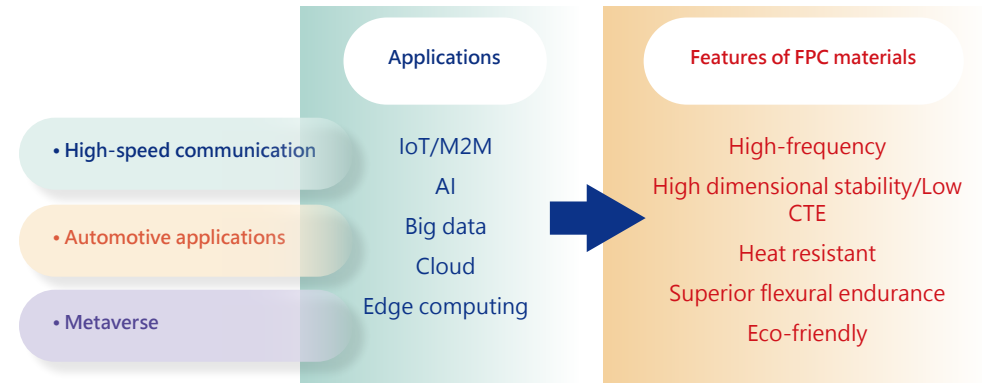
Financial Information

2.2 Product R&D and Innovation

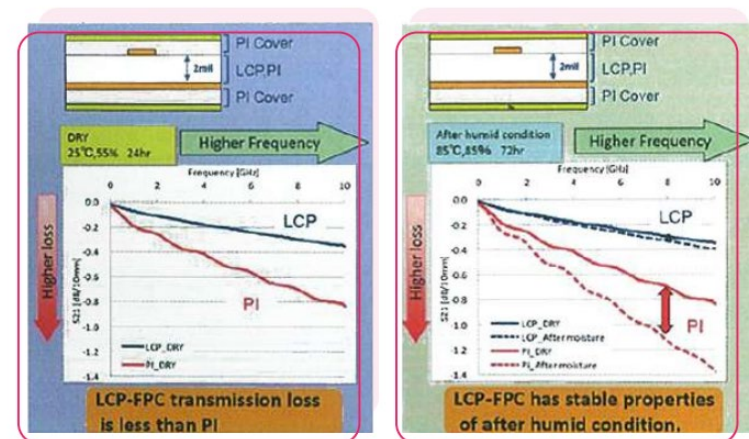
◇ Material Topic: Innovative R&D and Patents ◇

Main Reason	“To become a world-class FPC material provider” has always been our vision. We persistently advance on our three core technologies of formula R&D, precision coating and testing methods, in order to develop materials that meet market demands and to become a global leader in FPC materials.
Policy and Strategy	<ul style="list-style-type: none"> • Innovative R&D : The R&D Center integrates market and customer feedback provided by other units to formulate R&D plans. • Patent management : Coordinated by the Legal and Intellectual Property Center, the intellectual property management and review system is established based on TIPS by combining business strategies, operation objectives and core technologies of the Company and adopting the “Plan-Do-Check-Act (PDCA)” method.
Goals and Objectives	<p>Short-term goals (2023-2024):</p> <ul style="list-style-type: none"> • To obtain the Level-A TIPS certification with 2 patent applications per year. <p>Medium-term goals (2025-2027):</p> <ul style="list-style-type: none"> • Establish strategic IP portfolio and improve the Company’s IP management system. <p>Long-term goal (2028~):</p> <ul style="list-style-type: none"> • Integrate the development direction of R&D and IP rights in line with the Company’s operation strategy and revive corporate resources through IP strategies including technology sale/transfer and licensing.
Management Assessment Mechanisms	<ul style="list-style-type: none"> • The R&D Center performs phase review every month based on the project progress in the Product Life-cycle Management and adjust the execution details. • The Legal and Intellectual Property Center calculates the number of patents every year and reports to the Board of Directors.
Performance and Adjustments	There were 5 applications in 2022, i.e., an achievement rate of 225%.
Prevention or Remedy Measures	Through preliminary patent research prior to the commencement of a R&D project, we assist our R&D personnel in eliminating the sources of patent risk. They may opt for a design around to ensure the freedom to operate. We also assist our colleagues in transforming their R&D results into IP when R&D projects are underway.

2.2.1 Development of low-loss materials and processing techniques



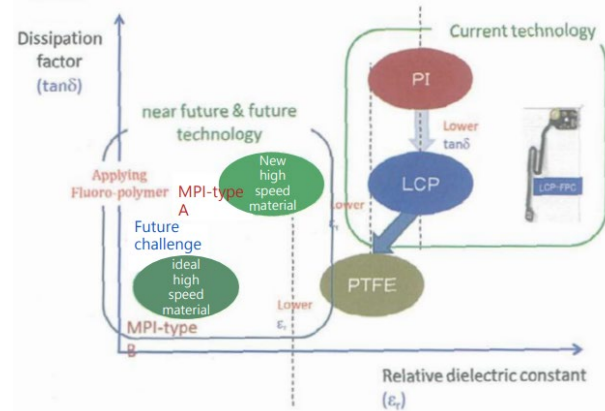
Taiflex’s R&D focuses on the development of materials for emerging applications such as 5G, automotive and metaverse. Since high-speed signal transmission suffers greater insertion loss, applications often opt for materials with low Dk/Df. The low moisture absorption rate of liquid crystal polymer (LCP) allows Dk and Df to remain stable, while the moisture absorption of PI in a natural environment is unstable relative to the coefficient of moisture absorption of LCP. A comparison of the moisture absorption of LCP and PI materials is presented in the figure below:



2.2.2 Long-term R&D investment

Higher operating frequency results in higher insertion loss. Materials with lower Dk and Df are being commercialized. Besides LCP and MPI which are common in the market, the R&D Center is actively developing the newly-emerged fluoro-based materials.

Nevertheless, the focus shall not be placed merely on understanding the material but also its processability and economic value in the market during product development. Fluoro-based materials have high electronegativity, and thus external polarization has minimal influence on molecules. Consequently, it is an excellent material for high-frequency applications. However, the material itself is difficult to process.



Taiflex excels in materials and coating technology. Combine these with our top-notch laminating technologies, testing equipment with the most rigorous and highest standards, control standards for product appearance and FCCL properties, and our extensive research resources, equipment and human capital in FCCL, we are confident in providing the new information generation with the best high-frequency materials.

Taiflex was co-founded by professionals from the Industrial Technology Research Institute (ITRI) and the electronic materials field in Taiwan. With industry-leading technology, we are the largest material supplier of FPC in the Greater China Region. Taiflex not only invests enormous resources in in-house R&D but also works closely with upstream international material manufacturers and equipment design companies with advance technology. Also, we carry out R&D projects on the transfer of coating technology and formula analysis through collaboration with ITRI and National Sun Yat-sen University. By combining R&D resources through industry-government-academia-institute collaborations, we work with end customers in developing the next-generation products, committing to the provision of advanced FPC materials and integration of innovative applications.

◆ Five-year strategic plan

As electronic products continue to develop in the direction of being thin, light, multi-functional and high-performance, the demand for FPC rises and creates abundant business opportunities. Taiflex invests more than 3% of the annual sales in research and expects that through continuous research and innovation, our products will grow significantly in automotive, meta-universe and wearable applications in the future.

R&D Expenses over the Years

Year	2018	2019	2020	2021	2022
Revenue (In thousands of NT\$)	7,633,620	6,919,495	7,491,041	7,671,215	7,287,918
R&D Expenses (In thousands of NT\$)	244,580	265,762	260,938	284,484	350,360
Percentage (%)	3.20%	3.84%	3.48%	3.71%	4.81%

Note:

1. Percentage is calculated as: R&D expenses / Sales of the same year × 100%.

2. The data in this table is adjusted to be presented for Taiflex alone; therefore, information was restated during the year.

R&D Manpower Plan

Year	2022	2023	2024	2025	2026
No. of staff	37	37	41	41	45
Addition	2	0	4	0	4
Growth rate (%)	5.71	0	9.75	0	8.88

Estimated Revenue Contribution from New Products

Year	2022	2023	2024	2025	2026
Revenue contribution (%)	11.21	11.63	8.67	9.28	8.60

2.2.3 Intellectual property management

◆ Innovative services

In addition to our long-term involvement with FPC materials, we have expanded our business to include advanced packaging materials for semiconductors and display as well as high-precision coating manufacturing services by leveraging our three core technologies of formula development, precision coating, and testing methods accumulated over the years. We established the 100%-owned subsidiary, Taichem Materials Co., Ltd., through spin-off in September 2020 to provide customers with more diversified and customized solutions.



Corporate website of Taichem Materials Co., Ltd.

◆ Patent portfolio

Taiflex attaches great importance to R&D innovations and recognizes IP as a core asset of the organization. During technology development, we use patent search and literature analysis to stay current on existing patents, thereby avoiding infringement of others' rights and securing our freedom to operate. Once the development stage is over, R&D results shall be properly maintained and managed to avoid data breach, or protected via patent applications to create a competitive niche for our operation. We regularly maintain and evaluate our patents or R&D results under protection to lower the operating costs of IP. We also evaluate IP value as well as collect and analyze intelligence to commercialize our IP through patent licensing or technology transfer.

In order to enhance the value of Taiflex among international brands, build goodwill, and sustain the competitive advantage of our product technology in the market, we continue to maintain effective patents worldwide. As of 2022, we have 243 global patent applications and up to 84% of them are invention patents in the major markets of Taiwan, the U.S., Japan, Europe and mainland China. There are 146 applications approved. We aim to continuously expand our IP portfolio regarding our core technologies and R&D achievements.

◆ IP protection system

In the face of global business competitions and complex supply chain relationships, trade secrets protection has become one of the competitive edges for securing a company's future core competitiveness. The scope of trade secrets includes technologies, methods, processes, formulas, programs, designs or other information that can be used for production, sales or operation and meets the requirements of confidentiality, economic value, and the adoption of reasonable confidentiality measures. A total of 11 trade secrets concerning key formula and process have been registered for management and we introduced ELN in 2021 to reinforce our control over R&D achievements, thereby furthering our technological advantages.

We are well aware that trade secrets have high commercial value and importance to corporate operations. Besides protecting the research achievements through patent applications, we adopted ISO 27001 Information Security Management System in 2016 to establish a sound trade secret protection and management mechanism. The Intangible Assets Security Committee was created and the Confidential Information Protection Policy was formulated to manage the Company's confidential information. Actions including the inventory, classification and labeling of confidential information, identification of ownership over IP rights, signing of confidentiality agreement, control over information security, retention of records, early warning, audits, annual assessment on the protection of confidential information as well as training and promotion of information security are taken to minimize the risk of trade secret leakage.

For employees to have correct understanding on IP management system, Taiflex has adopted the TIPS since 2014 to establish a systematic management system which conforms to the nature of our technology research and development and links IP management with operational objectives. In recent years, we have continued to improve IP acquisition, protection, maintenance and utilization and set the goal of obtaining the Level-A TIPS certification in 2023. With further improvement on IP management, we can enhance our overall profitability and operation performance.

Patents from Product Development in the Past Three Years

Year	Type	Invention Patents	Utility Models	Total
2020		4	0	4
2021		2	0	2
2022		2	0	2

2.3 Customer Demand and Quality Management

◇ Material Topic: Product Safety and Quality ◇

Main Reason	Having product quality meets customer requirements is mandatory for Taiflex to “become a world-class FPC materials provider” . We shall provide appropriate resources to maintain the integrity of our quality assurance system and ensure our products meet regulatory requirements in order to strike an optimal balance between Taiflex and our customers.
Policy and Strategy	<ul style="list-style-type: none"> ◆ Provide fast and responsive technical support services with solid R&D capabilities to meet customer needs for development, design, testing and after-sales services. ◆ Establish a quality/HSF organizational management system with continuous improvement and introduce the automotive-related quality system - IATF 16949 as well as the hazardous material process management system - IECQ QC 080000 to meet the green products trend worldwide.
Goals and Objectives	<p>Short-term goals (2023-2024):</p> <ul style="list-style-type: none"> ◆ Customer satisfaction score of at least 88 points. ◆ 100% compliance with hazardous substances free related regulations and customer requirements.
	<p>Medium-term goals (2025-2027):</p> <ul style="list-style-type: none"> ◆ Customer satisfaction score of at least 89 points. ◆ 100% compliance with hazardous substances free related regulations and customer requirements.
	<p>Long-term goal (2028~):</p> <ul style="list-style-type: none"> ◆ Customer satisfaction score of at least 90 points. ◆ 100% compliance with hazardous substances free related regulations and customer requirements.
Management Assessment Mechanisms	Conduct customer satisfaction surveys on a regular basis, and include them in the management review meetings for review and be submitted to the President.
Performance and Adjustments	Customer satisfaction score was 88.5 points in 2022, exceeding the target of 88 points.
Prevention or Remedy Measures	Review the status of target achievement in the management review meeting every year, and provide explanations and action plans for items failing to meet the objective.

2.3.1 Efficient services

Taiflex is dedicated to the process research, manufacturing and selling of FCCL. Upstream suppliers of the industry are PI/copper foil materials providers while downstream customers are FPC manufacturers.

Upstream	Midstream	Downstream
PI/ Copper Foil Materials	FCCL	FPC
<ul style="list-style-type: none"> Raw materials Chemicals Equipment vendors 	<ul style="list-style-type: none"> FCCL CVL coverlay Stiffener Chemical composite 	<ul style="list-style-type: none"> FPC & PCB Insulating tape

Customer satisfaction is at the heart of our management philosophy. We are committed to deliver innovative products and services to customers and uphold the core values of responsibility and enthusiasm. Taiflex has dedicated units providing product services to customers and working closely with the quality assurance department to solve product issues ranging from appearance to functionality. Besides Taiwan, we have service personnel stationed at Kunshan, Shenzhen, Zhuhai, Xiamen, and Nantong to cope with production globalization among downstream customers by enhancing the accessibility and timeliness of our services. We also have offices in the U.S. and Japan, serving as a base for providing timely product services and sales.

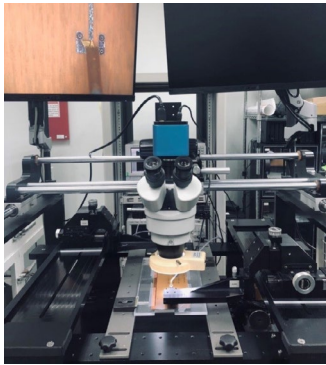
In the production and sales stage, demand forecast of customers is relayed to the Headquarters every week through continued communications with customers. By translating global demand forecasts into production plans on a weekly basis, we can align with customers' needs and optimize efficiency while at the same time collaborate with companies in the supply chain to form a comprehensive industry value chain.



- ◆ Taiflex sets up service centers in China to provide timely services as customers shift their production sites.
- ◆ Overseas services are available throughout Southeast and Northeast Asia

◆ Technical support

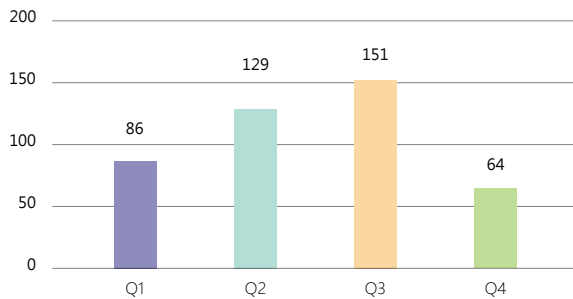
At the product design, testing and verification stages, our Headquarters supports the technical needs of customers in Taiwan, mainland China, Europe, the U.S., Japan and South Korea in order to enhance the efficiency of customer service and forge a closer tie with customers. Technical exchanges take place from time to time, providing technical support and assistants to solve issues in design and testing faced by customers.



▲ PNA microwave network analyzer

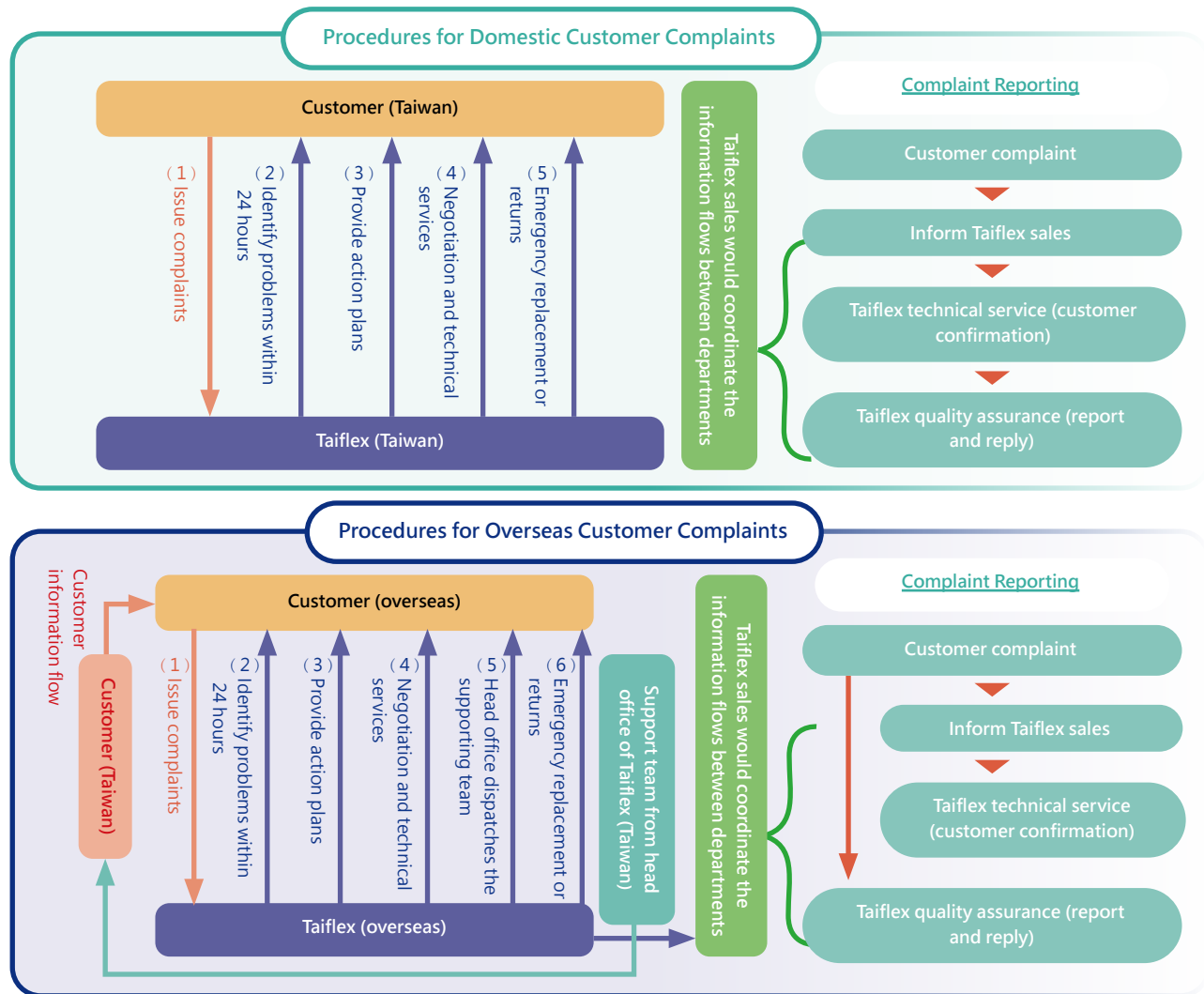
To satisfy customers' needs for material analysis and characteristic testing, Taiflex acquires a complete set of testing equipment including SEM/EDS, FTIR, metallurgical microscopes, TMA/DSC/DMA thermal analyzers and tension machines for relevant internal departments as well as testing requests from customers. In 2022, 430 testing requests from customers were completed. The testing not only speeds up product verifications for customers but also provides us a better understanding of product characteristics.

Number of Testing Requests from Customers in 2022

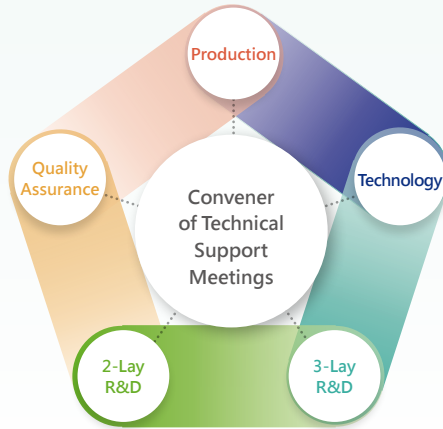


◆ Handling of customer complaints

Once we identify opinions, questions or grievances raised by our customers as major customer complaints, a cross-department task force would be assembled to handle the issue. Immediate actions and timely improvement measures would be taken by production, technology, R&D, and quality assurance units based on their functions and authorities to assist customers with resolving the issue as well as minimize the loss in labor, materials or equipment utilization. Our product service quality can therefore be enhanced to uphold our reputation and secure customer satisfaction.



In the event of a major customer complaint, the customer service officer would hold a technical support meeting involving officers of the Production, Quality Assurance, Technology and 2-Lay and 3-Lay R&D as well as responsible engineers to discuss major defects in the product. Replies concerning causes identified in the preliminary review and improvement measures shall be given within three days, and the complete test data, cause analysis, improvement and preventive measures as well as reasonable solutions acceptable to the customers shall be provided within seven days to ease customers' concerns.



2.3.2 Quality control

The objective of our quality/HSF is to achieve customer satisfaction in principle. In accordance with IATF 16949 and HSPM System requirements, appropriate items and quantitative targets are determined in the management review meetings and their compliance and applicability are reviewed regularly.

As for issues raised by customers, we persistently carry out improvement measures, e.g., cross-departmental technical meetings, quality proposals, QCC, 5S, KPI, etc., aiming to satisfy our customers' needs as quickly as possible.



Quality certification

To secure product quality, we execute inspection and testing strictly at stages of incoming materials, manufacturing, work in progress, finished goods as well as shipment in accordance with the quality control plans and relevant regulations. All inspections and tests are documented to verify the products conform to relevant requirements.

In 2022, there was no incident where quality of our products affected the safety or health of downstream suppliers and end-users nor non-compliance of laws and regulations concerning products and services.



Statistics of Products or Services with Safety Certification

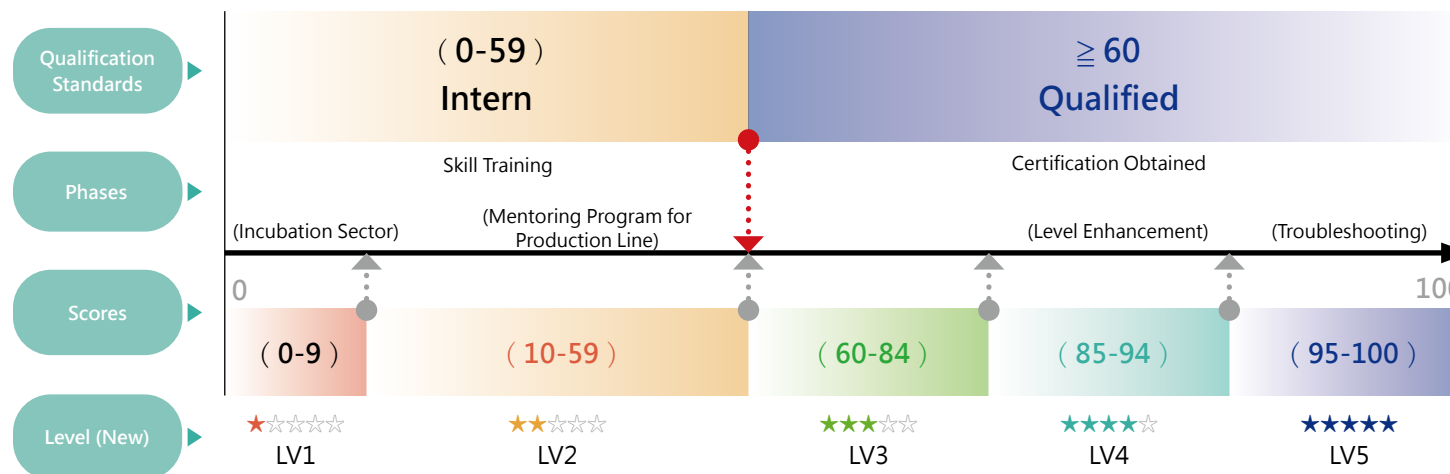
Product or Service	Safety Regulation Certification	Percentage of Evaluated Products or Services to Customers
2L FCCL	Flammability: ISO 9773, IEC 60695-11-10	100%
	Comparative Tracking Index: IEC 60112	
	REACH/RoHS/ISO 9001/IATF 16949	
3L FCCL	Flammability: ISO 9773, IEC 60695-11-10	100%
	Comparative Tracking Index: IEC 60112	
	REACH/RoHS/ISO 9001/IATF 16949	
CVL	Flammability: ISO 9773, IEC 60695-11-10	100%
	REACH/RoHS/ISO 9001/IATF 16949	
Stiffener & composite film	REACH/RoHS/ISO 9001/IATF 16949	100%
Bonding sheet	REACH/RoHS/ISO 9001/IATF 16949	100%

Note: Percentage = (Total number of evaluated products or services to customers / Total number of products or services to customers) * 100.

◆ Operator training

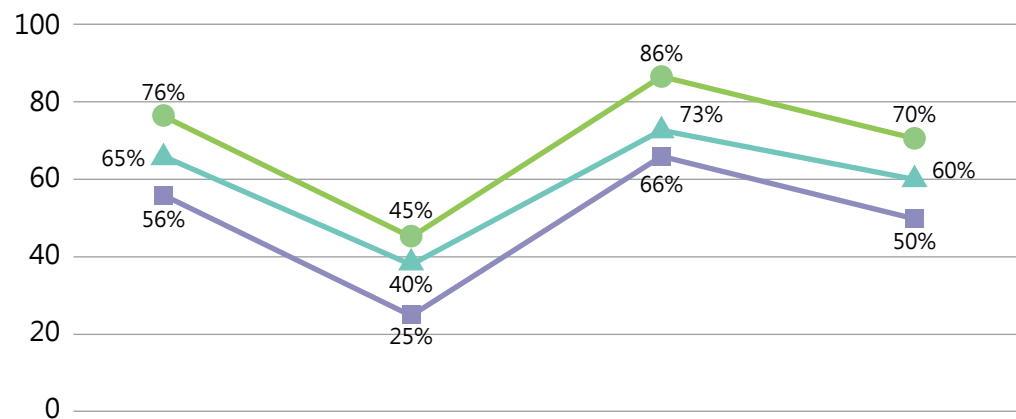
The Manufacturing Center shoulders the responsibility of production and skill improvement is first and foremost in achieving stable production. Employees shall undergo safety and orientation training when coming aboard and only qualified employees can join the production line. Skill training is then carried out through the mentoring program as well as the certification system which divides competence into 5 levels. To operate machines independently, employees shall have a score above Level 3. The training includes troubleshooting, exception reporting mechanism, and production line management. Quarterly and annual training assessments are conducted for level assessment after the training. The training goal in 2022 was to increase the proportion of Level 5 by 20% compared to 2021.

The difference between the actual and target number of Level 5 employees is mainly due to operator turnover. With production shortage, change in shift schedule and employee turnover, the training courses cannot be carried out as planned. In consideration of this issue, we will define the mentor-apprentice pairing in the future to meet the annual target.



Proportion of Level 5 Operator

- 2022 (target)
- ▲ 2022 (actual)
- 2021



Year / Category	Synthesis	Front-end	Back-end	Support
2021	56%	25%	66%	50%
2022 (target)	76%	45%	86%	70%
2022 (actual)	65%	40%	73%	60%

Customer satisfaction survey

To truly understand and listen to our customers, Taiflex conducts customer satisfaction surveys annually. The survey covers overall performance on quality of product, sales, customer service and delivery as well as management of hazardous substances. Negative feedback or failed performance would be discussed in the management review meetings for cross-department units to propose improvement schemes and recommendations as we strive to become a trustworthy long-term partner to customers.

Item	Product Quality	Sales Quality	Customer Service Quality	Delivery Quality	Banned Substance Management	Average
1H 2020	88.0	86.2	86.4	86.6	86.8	86.8
2H 2020	87.0	87.2	87.4	87.6	87.8	87.4
1H 2021	90.0	86.5	84.7	86.3	91.7	87.8
2H 2021	90.0	86.8	85.3	88.3	90.7	88.2
1H 2022	90.0	87.3	85.3	89.0	90.0	88.32
2H 2022	90.0	89.0	87.3	87.6	89.3	88.64



2.4 Sustainable Supply Chain

Material Topic: Sustainable Supply Chain Management (Including the Ban on Conflict Minerals)

Main Reason	In the process of natural resource extraction, there are risks of energy consumption, water pollution, land loss or human rights violations. Besides securing the quality of raw materials, delivery and prices, Taiflex must ensure that suppliers implement environmental protection, energy saving and carbon reduction, safety and health improvement, and human rights protection to meet the customer and regulatory requirements to jointly fulfill corporate social responsibility.
Policy and Strategy	<ul style="list-style-type: none"> Maintain long-term relationships with domestic and foreign suppliers and urge them to meet regulatory requirements. Actively establish a qualified supply chain for alternate suppliers to reduce the risk of material shortage. Continuously update the supply chain management mechanism, incorporate sustainability issues into assessment items, and demand suppliers to sign the "Taiflex Supplier/Contractor Supplier Social Responsibility Commitment" (or provide relevant declaration documents).
Goals and Objectives	<p>Short-term goals (2023-2024):</p> <ul style="list-style-type: none"> Carbon footprint inventory of raw material suppliers. <p>Medium-term goals (2025-2027):</p> <ul style="list-style-type: none"> Promote all suppliers to sign the Supplier Social Responsibility Commitment (or provide relevant declaration documents). <p>Long-term goal (2028~):</p> <ul style="list-style-type: none"> Introduce the Code of Conduct - RBA.
Management Assessment Mechanisms	Annual audit plan according to the "Supplier (Green) System Audit Evaluation Form", which includes three aspects - quality system, HSPM system and RBA.
Performance and Adjustments	In 2022, a total of 40 supplier audits (12 on-site audits/28 document review audits) were conducted. The Quality Assurance unit asked suppliers to respond with corrective measures within the prescribed period regarding the deficiencies identified.
Prevention or Remedy Measures	<ul style="list-style-type: none"> Raise suppliers' awareness of corporate social responsibility and business ethics principles through promotion. Organize discussion sessions to communicate with suppliers on issues related to quality, technology, delivery, service, cost, and sustainable management. Establish risk control mechanism and business continuity plan for supply chain disruption to reduce the risk of impact from external factors on Taiflex.

2.4.1 Procurement policy

Taiflex strongly believes that the sustainable growth of supply chain has certain influence on corporate long-term developments. Therefore, we urge suppliers to fulfill their corporate social responsibilities; carry out environmental protection, energy conservation and carbon reduction measures; improve safety and health; respect human rights; as well as maintain sound risk management and sustainable operation plans, thereby building a stable and sustainable supply chain together.

◇ Our Commitments ◇

All products comply with conflict minerals requirements and procurement is conducted pursuant to the green product standards.

Adhere to the fair-trade principle as well as relevant laws and regulations, respect human rights, safeguard physical and mental health and safety of workers, protect the environment and fulfill social responsibilities.

Uphold the ethical principle, commit to fulfilling corporate social responsibilities and pursue sustainability.

◇ Supplier overview

Contract Type	Source	2020		2021		2022	
		No.	% to Total Purchases	No.	% to Total Purchases	No.	% to Total Purchases
Labor (Contracting and Services)	Domestic	21	1.18%	11	0.66%	11	0.83%
	Overseas	0	0%	0	0%	0	0%
Goods (Raw Materials)	Domestic	53	88.18%	59	79.27%	56	82.84%
	Overseas	11	2.53%	10	12.3%	7	11.04%
Engineering (Construction and Equipment)	Domestic	22	3.6%	23	3.8%	25	5.11%
	Overseas	3	4.51%	2	3.97%	1	0.18%
Total		110	100%	105	100%	100	100%

Materials used in our production and packaging are non-renewable, except for paper (paper boxes, paper tubes, paper tapes and paper materials) and wood pallets, and most of our key raw materials (copper, PI and PET film) have to be imported from abroad. We continue to increase the number of suppliers and the proportion of local purchases in terms of key raw materials and process equipment in recent years.

Supplier Statistics over the Years

Item/Year	2018	2019	2020	2021	2022
No. of Tier 1 suppliers	60	66	61	62	63
No. of key suppliers (%)	21	22	26	29	29
Proportion of key suppliers (%)	35	33	43	47	46
Proportion of purchases from key suppliers (%)	98.8	98.6	98.8	99.3	98.9

◆ Raw material control

Developments of the electronics industry have always been highly dependent on the use of minerals. The global consensus has now leaned towards the use of conflict-free minerals to protect human rights. To fulfill our corporate social responsibilities, we comply with the “conflict minerals disclosure requirements” under Rule 13p-1 of the U.S. Securities Exchange Act of 1934 promulgated by the US Securities and Exchange Commission (SEC) for our conflict minerals management. We implement self-audits on social responsibilities and avoid sourcing minerals from conflict-affected and high-risk areas.

All suppliers of raw materials which use or contain minerals shall comply with the Company’s policy and use the Conflict Minerals Reporting Template (CMRT) as an investigation tool in providing investigation results. The requirement of not sourcing conflict minerals from conflict regions is imposed since new supplier selection. As for existing suppliers, besides signing the agreements or statements which ban the use of conflict minerals, we carry out due diligence through annual supplier audits and lot traceability.

Copper is the most commonly used metal in our production of FPC materials. Besides mining new minerals, recycling minerals from existing applications or electronic products has become the trend. About 90% of copper foil factories worldwide mainly produce recycled copper foils and Taiflex cooperates with key suppliers and maintains the use of recycled copper foil to a certain degree, contributing to the reuse of resources and the sustainable development of the earth. Also, the cost advantages of using recycled copper, the precision required in ED copper foil process as well as the greater degree of width and thickness adjustments allow it to be widely used in various electronic products.

◆ Green procurement

GP documents shall be provided or updated for the introduction of new materials. We integrate green supply chain to service our customers and initiate the reduction and reuse of packaging materials within the supply chain. Since 2020, our principles of green procurement management are delivered to suppliers along with our orders through the e-procurement system. Simultaneously, we promote the green procurement concept to suppliers and adopt standards above the regulatory requirements to prevent or mitigate negative environmental impact, thereby enhancing the Company’s operational resilience under the climate change crisis.

2.4.2 Supply chain management structure

Taiflex has established a supply chain management framework to manage relevant risks and prompt suppliers to advance together to create greater shared value and influence. In 2017, the RBA was adopted as the assessment standard for supplier management. It covers areas including labor, health and safety, environmental protection and business ethics. Moreover, we introduced the Supplier Relationship Management (SRM) platform in 2020. Suppliers can perform order maintenance, delivery confirmation, shipment query, acceptance query, return order query, etc. in a more efficient manner, thereby reducing information gap and increasing communication accuracy.

In addition, Taiflex has established risk control mechanisms for supply chain disruptions. In the event of supply chain disruptions caused by external factors (e.g., natural disasters, diseases, major global events, etc.), emergency response procedures are immediately initiated. Relevant departments including procurement, quality assurance and production planning shall jointly and swiftly draw up a contingency plan by taking inventory of raw materials, securing materials from alternate suppliers, increasing inventory levels and reviewing material consumption during process.

◆ Supplier quality management

Taiflex requires all suppliers (including new/existing ones) to comply with the quality management system, the environment, safety and health (ESH) management system and the AEO assessment. Through our procurement procedures, we examine suppliers by indicators including basic corporate information, relevant certifications, quality assurance records, ESH management investigation, operation, product information, manufacturing process, raw material suppliers, financial status under business continuity management, procurement contracts, green product management, and social responsibilities.

Supplier quality assessment items include the return rate of incoming materials, the number of major abnormalities, the number of open cases, and green suppliers (the item is assessed based on responses in the GPM system). The assessment conducted by the quality assurance unit is part of the supplier audit with a weighting of 40%. The average assessment result in 2022 was outstanding.

◆ Social responsibility commitment

In terms of supplier selection, suppliers shall have not only third-party ISO 9001 and ISO 14001 certifications but also commit to compliance with the corporate social responsibility standards set out in the “Taiflex Supplier/Contractor Social Responsibility Commitment”, which encompasses the Code of Conduct for suppliers and contractors, RBA Code of Conduct and rules and requirements pertaining to conflict-free minerals, before signing the contracts. All of our 63 raw material suppliers in 2022 had signed the Supplier Social Responsibility Commitment (or provide relevant declaration documents) and we will work on having all suppliers to do the same.

◆ Supply chain green assessment

In order to strengthen the sustainability management mechanism of suppliers and ensure their implementation of sustainability issues, Taiflex conducts annual evaluation of major suppliers’ management procedures in accordance with the “Supplier (Green) System Audit Evaluation Form” developed by the Company. The audit can be performed on-site or through document review. The evaluation includes the three aspects of quality system (economic), HSPM system (environmental), and RBA (social). Suppliers shall provide feedback on their implementation status of sustainability issues as well as relevant management system certifications for us to understand their sustainability practices. They are also required to respond with corrective measures within the prescribed period regarding the deficiencies identified. Regular supply chain green assessments help suppliers with improving their sustainable risk management as well as serving as references for our subsequent on-site audit and improvement guidance. We performed document reviews and on-site audit for 28 and 12 suppliers, respectively, for a total of 40 green audits in 2022.

◆ Supplier conference

We place great importance on the sustainable management of the entire supply chain and enhance its management performance with systemic measures including supplier assessment, audit, guidance concerning audit deficiencies, performance evaluation and supplier recognition conference on the basis of cooperation and mutual assistance. We also raise suppliers’ awareness of corporate social responsibility and business ethics principles through promotion and take appropriate measures to ensure our suppliers comply with legal requirements on environmental, health and safety, and labor issues. They shall not only meet the local statutory minimum wage requirements but also provide employees appropriate levels of wages. They shall commit to the highest ethical and moral standards in their business.

In our 2022 Supplier Conference, we expressed our gratitude towards suppliers’ support and contributions over the past year and recognized eight outstanding suppliers. The Supply Chain Center shared our visions with and communicated our requirements in terms of quality, technology, delivery, service, cost, and sustainable management of supply chain to our partners during the meeting, stressing our goal of overcoming challenges together to achieve better performance.

