



# 04 Product Innovation

Clevo prioritizes the pursuit of excellent customer experience and actively advocates and implements sustainable management in products from product source design to end-use. From the design, R&D, and manufacturing of laptops to sales and post-sales services, we have established a comprehensive operation and service model to provide customers with four types of laptop computers: "Gaming," "Commercial," "Mainstream," and "Energy-saving, Long-lasting, and Environmentally friendly" to meet the demands of diverse markets.

We have demonstrated Clevo's unwavering efforts and remarkable achievements in "innovation," "elasticity," and "environmental friendliness" from the standpoint of product use and customer experience. These efforts and accomplishments distinguish Clevo and reflect the company's commitment to sustainable development and exceptional performance.

## Performance Highlights

Clevo invested a total of NT\$630 million in innovative R&D in 2022, accounting for approximately 3.35% of the computer department's revenue, an increase of 0.58% from 2021.

As of the end of 2022, Clevo has obtained a total of 44 patents in 5 countries worldwide.

In 2022, the due diligence on conflict minerals of suppliers did not identify areas where conflict minerals are at risk.

In 2022, Clevo did not violate any substance restriction/import regulations. There were no incidents of noncompliance involving the health and safety impacts of products and services.

As of 2022, we have certified 138 types of laptops, of which 5 laptops have passed the China Energy Conservation Certification for a single product.

Clevo did not encounter any customer privacy or data loss violations in 2022.

Customer satisfaction improved in all six areas in 2022, demonstrating that customers value Clevo's overall quality and service.

## Association with SDGs

**3** GOOD HEALTH  
AND WELL-BEING



**7** AFFORDABLE AND  
CLEAN ENERGY



**9** INDUSTRY, INNOVATION  
AND INFRASTRUCTURE



**16** PEACE, JUSTICE  
AND STRONG  
INSTITUTIONS







## 4.1 R&D and Innovation

### Material topics: Innovative R&D

#### Impact

◆ Innovative R&D is key for companies to increase market competitiveness and brand value. Still, it allows companies to seize market technology leadership, promotes industry and industry-university collaboration to accelerate technology application and implementation, and strengthens industry relationship networks through multi-party collaboration. In contrast, if the company fails to properly manage innovation issues, its technology and products may be unable to keep up with current market trends, affecting product sales and layout.

#### Policy

◆ Clevo incorporates the ISO management system into the design stage to achieve product safety and environmentally friendly production procedures and aims to comply with international norms and standard requirements so that the products can maintain market competitiveness in functionality and quality.

#### Goals

- ◆ Conduct joint industry-academia cooperation with at least 1 university every year
- ◆ Cumulative number of global patents obtained
  - ❖ Short-term (2025): Obtain a total of 50 global patents
  - ❖ Mid-term (2027): Obtain a total of 55 global patents
  - ❖ Long-term (2030): Obtain a total of 60 global patents

#### Commitment

◆ Clevo is committed to continuing to provide diverse and multi-faceted products to meet the needs of its customers through internal and external innovations. We will continue collaborating with industry-academia research institutes to provide creative ideas and practice opportunities, encourage academic and research units to invest in innovative ideas, promote academic-industry technology transfer, and strengthen industrial integration.

#### Responsible Unit

◆ R&D unit

#### Resources

◆ Establish R&D teams, and invest in fixed annual R&D budgets, product testing costs, safety regulations fees, and ISO certification fees.

#### Grievance System

- ◆ TEL: 886-2-22789696
- ◆ Office Website: [http:// www.clevo.com.tw](http://www.clevo.com.tw)
- ◆ E-mail: [marketing@clevo.com.tw](mailto:marketing@clevo.com.tw)

#### Specific Actions in 2022

- ◆ Invested in the development of low-carbon products and obtained 5 energy efficiency labels.
- ◆ Use halogen-free PCB material, 30% environmentally friendly recycled plastic, and full-carton recycled packaging materials, and implement sustainable and environmentally friendly material design.
- ◆ Provide opportunities for industry-academia collaboration with students from Ming Chi University of Technology's Mechanical Engineering, Electrical Engineering, and Electronics departments, and apply the results to Clevo products.

#### Quantitative Management System

- ◆ R&D innovation: The annual investment deduction report will assess the patent status of legal matters throughout the year.
- ◆ Industry-academia cooperation: Every year in March, the school starts to offer student internships for enterprises. Before the application, the human resources personnel will inquire with the heads of each unit about their willingness to apply. If willing, the HR personnel will further confirm the internship content, qualifications, and other related matters.

Clevo has always adhered to the 3 core concepts of "innovation," "flexibility," and "environmental friendliness." Continue to find a market niche, design differentiated and highly competitive products, and insist on the commitment to ban hazardous substances in the product design and development stage. We have established the Clevo Hazardous Substances Free (HSF) technical standards to prevent harmful substances from being mixed with environmentally friendly products to comply with international environmental regulations such as RoHS Directive, PACKAGING Directive, Battery Directive, REACH, PFOS Directive, or PAHs. The goal is to fulfill the "environmentally friendly" concept, and we will also make adjustments according to the client's requirements to avoid using specific hazardous substances.

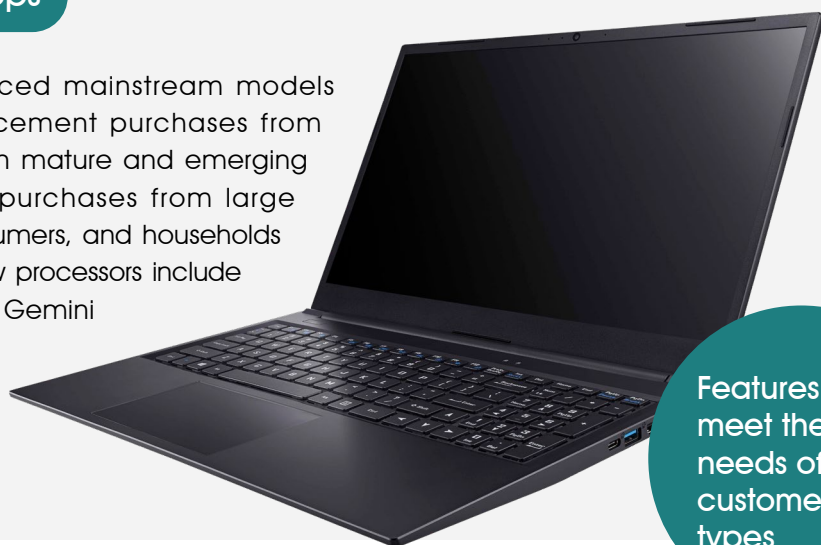
Global life and work patterns have changed significantly since the COVID-19 epidemic. In 2022, most countries maintained home offices due to the epidemic, which led to higher quality requirements for product users for remote connection conversations. To meet the diverse needs of modern consumers and the trend of pursuing high-quality user experience, Clevo's product design 2022 has added multiple security mechanisms of hardware encryption and new heat dissipation technology, and consumers can carry it more conveniently due to lightweight product design. We adopted the Wi-Fi 6E technology so customers can enjoy the fastest connection in various network situations. Regarding audio-visual experience, we developed a control technology system with a higher screen-to-body ratio and lower noise to significantly improve the overall experience. We also provide fast battery charging and low expansion technology, which will extend use time and reduce charging time, instantly improving the overall user experience for consumers.

### 4.1.1 Main Products

Clevo has developed the following products and services:

#### Mainstream Laptops

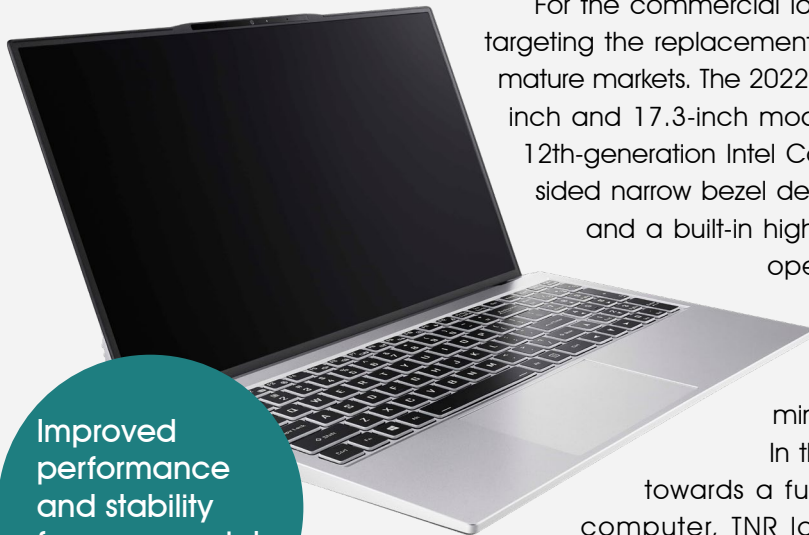
Clevo also introduced mainstream models in 2022 to meet replacement purchases from government institutions in mature and emerging markets and first-time purchases from large corporations, SMEs, consumers, and households in emerging markets. New processors include Intel Alder Lake-U (15W), Gemini Lake Refresh (6W), AMD Renoir/Lucienne/Barcelo, and AMD Dali platforms.



Features that  
meet the  
needs of all  
customer  
types



## Commercial Laptops



Improved performance and stability for commercial users

For the commercial laptop computer market, Clevo will be targeting the replacement purchase demands of businesses in mature markets. The 2022 Clevo NS50PU and NS70PU were 15.6-inch and 17.3-inch modern business laptops, equipped with 12th-generation Intel Core Alder Lake-P i5/i7 processors, four-sided narrow bezel design with a screen body ratio of 92%, and a built-in high-capacity battery enables long-term operation of about 18 hours. The large 150\*90mm click pad (NS70) is convenient for input operation and can be used for 4 hours after 30 minutes of fast charging.

In the future, Clevo will continue to move towards a full-featured enterprise-class business computer, TNR low-light camera and biometrics + SecureBIO hardware encryption, Windows 11 Security secure login system, TPM2.0 data protection, and multiple security mechanisms to reduce the risk of hacker intrusion.

## Gaming Laptops

Clevo has been deeply involved in this field for many years, accumulating extensive R&D capabilities. We have developed PD50 and PD70 models with 15.6/17.3-inch screens, brand new Intel 13th generation Raptor Lake-HX processor, and NVIDIA RTX-4090, and introduced the new liquid metal pad heat dissipation and leak-proof structure design that can significantly reduce the temperature. Our dynamic adjustment design for the core processor and graphics card power also allows players to experience a faster gaming experience when the laptop computers runs new generation games.



Higher quality and power-optimized gaming experience

### Studio Laptops

We have introduced the new PE60 Studio Laptop with high performance and power saving performances. They are equipped with a 16-inch 16:10 golden ratio screen to offer more visual space, the new Intel 13th generation Raptor Lake-H i9 processor and NVIDIA RTX-4070 combined with advanced graphics technology, new GPU acceleration technology, and exclusive Studio driver that can significantly improve application performance and stability. The thin and light 19.9mm slim body allows the user to engage in content creation anytime and anywhere. It is the fastest laptop computers for creation and gaming. We introduced a new vapor chamber heat dissipation design that significantly reduces temperature while increasing the power of the graphics card and processor, allowing it to effectively reduce temperature while remaining silent.

Improve the performance and functionality of authoring applications.



### Energy-saving, Long-lasting, and Environmentally Friendly Laptops

Energy efficiency focus and optimal energy management



In addition to complying with the environmental protection regulations of various countries, our model L140AU also introduces a sustainable and environmentally friendly material design that uses 30% environmentally friendly recycled plastic and recycled packaging materials. Our products also conform to the latest power-saving specifications to meet customer demand for long-term performance (Long Battery Life).

We have developed battery anti-expansion and fast-charging technologies to satisfy user demands.



In the future, Clevo will continue making laptop computers with energy efficiency and environmental friendliness in mind, aiming to reduce overall power consumption and carbon emission. We are dedicated to bringing new user experiences to customers and pursuing technology R&D and innovation as the foundation for maintaining the market advantage.

The different categories of products mentioned above also incorporate the following technologies and applications in the following 2 aspects:

## I. Improved Efficiency and Battery Life

1. We have introduced Liquid metal pads with new laser engraving anti-obstruction patented heat dissipation and leak-proof structure design for gaming laptops. This feature strongly reduces the temperature and increases the power of the graphics card and processor, enabling a faster gaming experience for the users. After the overall system allocation and heat dissipation technology are improved, the Total Processor Power (TPP) can reach 300 watts (CPU 125W+GPU 175W), the industry's most advanced power supply design.
2. System optimization and delay minimization: The system efficiency and delay can be significantly increased by connecting dGPU to the screen in the control center via dynamic display conversion technology. Our system will provide players with a better gaming experience when STG and MOBA games require real-time screen output.
3. Under battery mode, the laptop display card's independent dynamic instant boost technology can boost the display card's power, CPU power usage, battery discharge C number, image quality, and screen playback speed to achieve the best balance, battery life, and gaming quality performance. This technology comprehensively restructures and incorporates artificial intelligence to comprehensively adjust system characteristics in real-time to give the laptop computers an excellent gaming experience and a long battery life in battery mode.
4. The audio-visual creation laptops' performance has been boosted by limiting the upper and lower temperature thresholds and increasing the power characteristics using dynamic tuning technology. This technology can maintain high performance for a long time in the long-term application of professional creative laptops.

## II. Information Security and Circular Economy

1. The innovative TNR low-light camera and biometric identification + SecureBIO hardware encryption security login system were introduced for our enterprise-class business computers to resolve the insufficient ambient light source issue, provide faster login, and use multiple security mechanisms to reduce the risk of hacking.
2. We have introduced sustainable and environmentally friendly material design and used halogen-free PCB material, 30% environmentally friendly recycled plastic, and full-carton recycled packaging materials for our 14-inch corporate business laptops.



#### 4.1.2 Participation in Innovative Exhibitions

The COVID-19 epidemic was still rampant during the first half of 2022. Clevo elected to participate in the innovative online industry expo activities as physical expos were still suspended. The first online exhibition was held on Clevo's official website in January 2022 to present new concepts for the PD/V/NP and V series products in the form of event pages and 3D simulations to introduce product features to potential customers online.

More people have used social media as the main information dissemination medium due to COVID-19. Clevo has also begun to promote product content to external social platforms and its official website. Clevo participated in the Computex Taipei International Computer Show and further promoted product videos on social media in June 2022. Clevo will continue to develop new plans and introduce 3D animation to enable customers to directly observe product details and enhance the promotion effect.

As the epidemic eased and policies relaxed in October 2022, various physical exhibition activities gradually returned to normal. Clevo participated in INTEL LOEM in Thailand for the first time to re-strengthen its relationship with international customers and warmed up to release new products at the end of the year.

##### Computex Online Exhibition

Time: June 2022  
Location: Computex online



##### Clevo Online Exhibition

Time: January 2022  
Location: Clevo Official Website







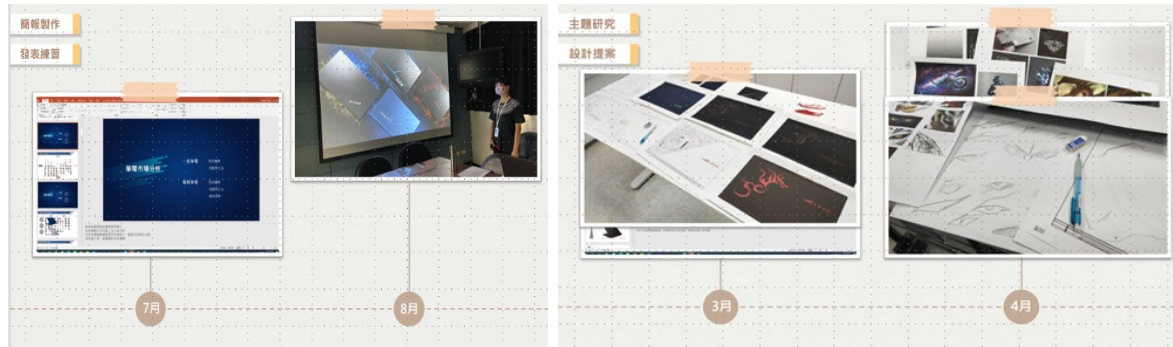
## 4.1.3 Industry-Academia Cooperation Joint R&D

Academic and research institutions have long been important sources of industrial technology, and the germination of technology and theory at academic and research institutions necessitates enterprise participation so that the technology can be applied and integrated with the actual industry and inspire an influx of professionals into the industry. Clevo values innovative ideas from students at academic and research institutions and has continued to collaborate with Ming Chi University of Technology's industrial design, mechanical, electrical, and electronic departments over the last three years. The goal is to allow students to practice their acquired design, creativity, technology, and other skills in Clevo products. We also hope that by cooperating with students, we can further understand the thoughts and expectations of the younger generation on future products and allow external cooperation to drive internal enterprise innovation. The table below summarizes the outcomes of recent industry-academia collaboration projects:

Year	Ming Chi University of Technology Cooperation Departments	Cooperation Project Name	Cooperation R&D Results	Future Application Areas
2020	Department of Industrial Design	Laptop appearance design	CMF/laptop front cover (A piece) design	New products can adopt this design concept
	Department of Mechanical Engineering	Product Design and Practical Application - PDA Testing and Debug	Primarily search for ways to resolve problems such as lighting, hooks, or hinges.	Confirm that the product structure can be used normally through appearance improvement, internal structure design, PDA debugging, etc.
	Department of Electrical Engineering	Battery life difference for Mobile Mark 2025 (MM25) at Panel 250nits & 150nits Auto dim & disable auto dim	Defining the battery life of a new model	Determine the battery life of next-generation models
2021	Department of Electronics	Used to measure instruments and test result fixtures, BIOS & EC & Driver update & simulation, and verification of bugs, and the main part is to learn the Trigger part	Understand that the Timebase represents the time per division on the horizontal axis, Voltage represents the voltage per division on the vertical axis, and Trigger is the condition for waveform display	Prevent the laptop computers power-off phenomenon
	Department of Industrial Design	Design two laptop appearances of your own - two major themes: street culture and retro-future	Clevo laptop computers model proposal: model NV40-street culture and X170 retro-future	By breaking away from stereotypes, students can provide colleagues with more innovative ideas for laptop design in the future.
2022	Department of Mechanical Engineering	Projects include life testing and destructive testing of internal and external structures of new models, production of verification reports after integrating bugs, the establishment of BOM tables, and new product mechanism design development and drawing.		
	Department of Electrical Engineering	Assist in product testing, product debugging, verification after debugging, and establishing BOM tables		
	Department of Electronics	Create a BOM, make a verification report after integrating bugs, measure line signals of new models, assist in troubleshooting product problems, and learn hardware design and software operations.		

Note: The Department of Mechanical Engineering, Department of Electrical Engineering, and Department of Electronics projects are in progress in 2022; we look forward to the updated cooperation results in 2023.

#### Annual Industry-Academia Cooperation Achievements

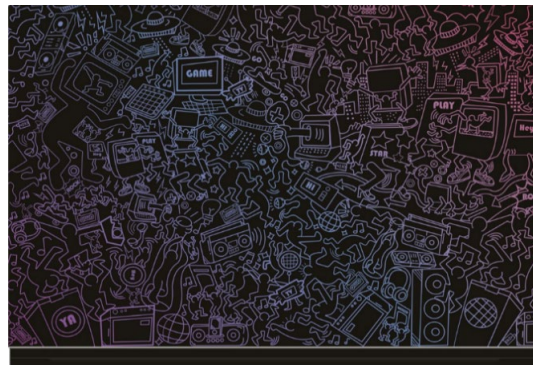


Intern Presentation Practice

Intern Topic Innovation Proposal



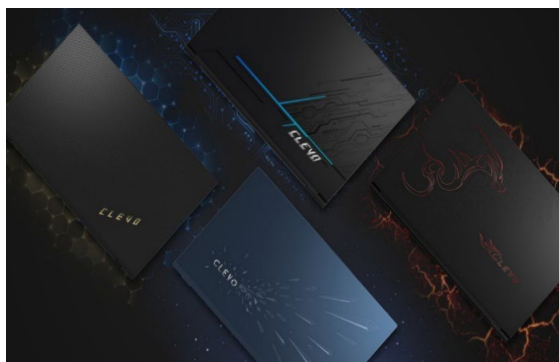
Intern Feedback



Student Laptop Computers Design Proposal - Street Culture



Student Laptop Computers Design Proposal -Retro Future

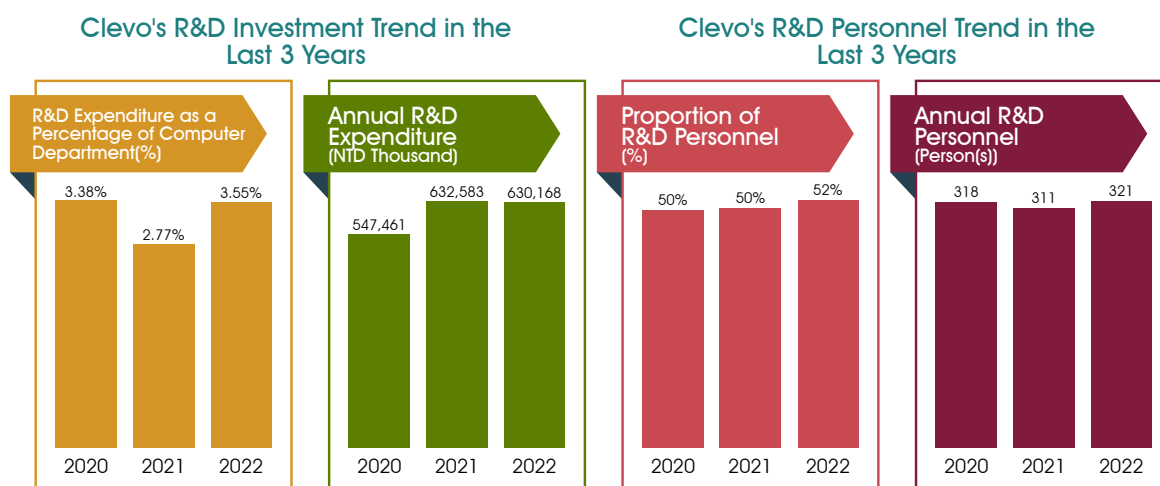


Internship Results - 4 "A" Cover Designs



## 4.1.4 R&D Investment and Patent Layout

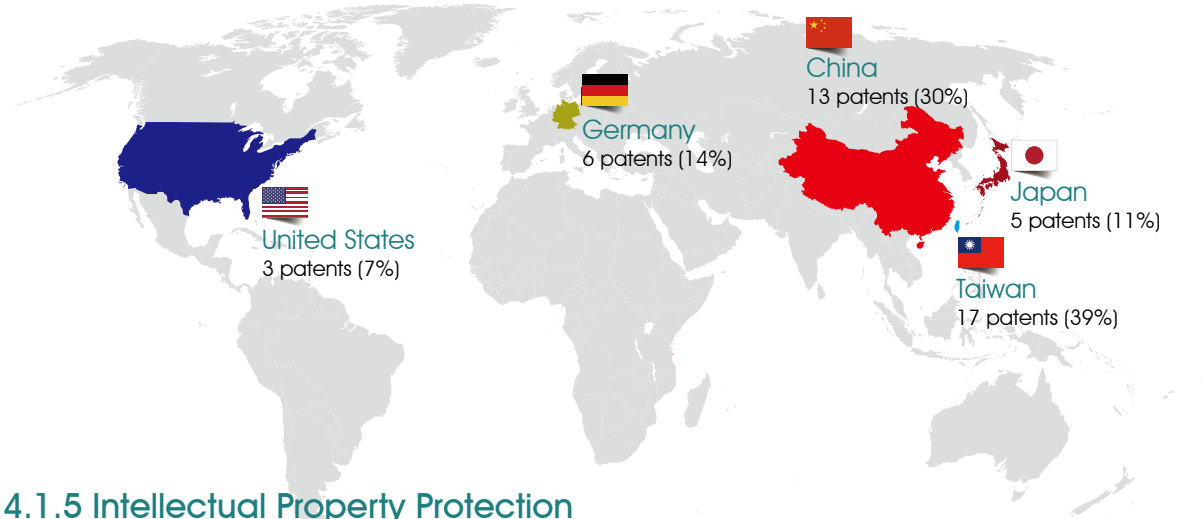
As a professional laptop manufacturer, Clevo must meet the comprehensive needs of customers. The users' demand for products has changed in recent years as we enter the sustainable development trend. Future R&D of consumer electronics products will increasingly focus on more energy-efficient, low-carbon materials and design considerations for terminal disassembly and reuse. Clevo has always upheld the notion of sustainable management throughout its market operations. We will keep strengthening our internal innovation momentum by hiring experts and investing in R&D funds to meet the new wave of sustainable innovation needs. Clevo spent a total of NT\$630 million on inventive R&D in 2022. It contributed to about 3.35% of the computer department's revenue, which increased by 0.58% from 2021. The proportion of the company's R&D personnel has increased by 2% compared to 2021. Clevo makes no compromises when it comes to investing in innovative research and development, and the company is dedicated to fusing cutting-edge technologies with the most recent trends in sustainable demand to present more varied and all-encompassing sustainable development solutions.



Besides actively seeking out industry professionals, Clevo places a high value on safeguarding the technical advancements made by its R&D staff. Patents serve to protect businesses, cutting-edge technologies, and R&D accomplishments. They are also essential for boosting market competitiveness and commercial value. Therefore, Clevo has actively deployed its patented globally. By the end of 2022, Clevo has obtained a total of 44 patents in 5 countries worldwide, including Taiwan utility model patents, Chinese utility model patent, German utility model patents, and US invention patents. In the future, Clevo will keep growing its patent portfolio to safeguard the key innovations created by its R&D team while solidifying its market position to ensure viability.



Clevo Global Patent Layout



#### 4.1.5 Intellectual Property Protection

Clevo has established an intellectual property management team to take charge of the patent and trademark application processes for intellectual property rights. The goal is to encourage R&D colleagues to innovate internally and turn innovative technologies into patent protection. Clevo usually publicizes laws and regulations related to intellectual property on the company website. We have established education and training programs related to intellectual property for our R&D colleagues to complete patent applications according to internal procedures and safeguard newly developed technologies from the risk of plagiarism or piracy.

##### Step1

The applicant fills out the application and submits it to the Legal and Intellectual Property Office after the unit supervisor approves.

##### Step2

An external patent and trademark firm is appointed by the Legal and Intellectual Property Office to conduct a patent/trademark search.

##### Step3

If we have any doubts about the registration's feasibility, we will discuss with the applicant how to modify, adjust the creative content and formulate countermeasures (including, but not limited to, requesting the proposer to modify the text or graphics of the applied trademark before re-applying).

##### Step4

After receiving the notice or punishment issued by the competent authority, the Legal Affairs and Intellectual Property Office forwards the review results to the proposer for further communication and discussion.

##### Step5

Inform the proposer after the preceding Legal Affairs and Intellectual Property Office receives the approval notice issued by the competent authority. The relevant operations, such as paying registration fees and obtaining certificates, are executed after the head of the Legal Affairs and Intellectual Property Office confirms.

##### Step6

After the approval letter is delivered, the external patent and trademark office shall complete the registration fee payment and obtain the certificate within the official deadline.



## 4.2 Supply Procurement - Supply Chain Management

### Material topics: Supply Chain Management

#### Impact

- ◆ Supply chain management is an issue that every enterprise must address in light of the global sustainable trend and legal compliance. Good supply chain management can help businesses reduce their carbon footprint and increase consumer trust and brand loyalty. In contrast, as the environmental and human rights laws and regulations in various countries tighten each year, failing to conduct due supplier diligence will increase the reputation risk of enterprises due to supply chain management failure and may indirectly lead to human rights violations or environmental damages.

#### Policy

- ◆ Continue to monitor the new suppliers' sustainable policy conditions and work with suppliers to build Clevo's sustainable value chain.
- ◆ Develop supplier management specifications and screening criteria to thoroughly examine suppliers' capabilities, such as delivery quality and delivery schedule, to reduce Clevo's operational risks and increase market competitiveness.
- ◆ Clevo suppliers do not use hazardous or internationally prohibited substances to ensure that Clevo's products pose no adverse impact on the environment and can meet the requirements of customers and regulations locally and abroad. Clevo also pays close attention to hazardous substances-related requirements and regulations to fulfill our social responsibility to the earth.

#### Goals

- ◆ Institutional procurement sets short/medium/long-term goals based on the proportion of suppliers who perform annual audits.
  - ❖ Short-term (2024): Achieved 75% of suppliers audited for the current year
  - ❖ Short-term (2025): Achieved 85% of suppliers audited for the current year
  - ❖ Short-term (2026): Achieved 95% of suppliers audited for the current year

#### Commitment

- ◆ Clevo pledges not to use harmful substances, conflict metals, violate labor policies, or suppliers that violate human rights. We also strictly audit annual transaction suppliers to prevent the preceding situations.

#### Responsible Unit

- ◆ Procurement unit

#### Resources

- ◆ Establish a cross-organizational dedicated unit to execute annual audits, evaluations, risk assessments, and follow-up improvements for supply chain manufacturers.
- ◆ Establish Audit Fee Budget

#### Grievance System

- ◆ The company's dedicated unit handles complaints and provides email, phone, and official website contact details..
  - ❖ TEL: (02)2278-9696
  - ❖ Email: [public@clevo.com.tw](mailto:public@clevo.com.tw)
  - ❖ Official website: <https://www.clevo.com.tw>

#### Specific Actions in 2022

- ◆ Use conflict mineral material number identification to determine whether the metals purchased each year come from conflict mineral-producing regions.
- ◆ Conduct annual supplier evaluations to determine whether they adhere to the Clevo supplier contract specifications.
- ◆ Establish a response process in case of negative adverse events in the supply chain, and improve tracking and training for suppliers to reduce the occurrence of negative events in the supply chain.

#### Quantitative Management System

- ◆ Disclose the annual supplier audit results in the sustainability report, review the annual compliance rate, check the implementation status, and implement due diligence for the responsible supply chain.
- ◆ Use quantitative data to manage the annual supply chain performance and explain the execution performance percentage.

Clevo aims to collaborate with business partners to reduce operational risks, strengthen long-term competitiveness, and realize the vision of sustainable development. The goal is to ensure all suppliers meet Clevo's requirements and norms for service quality, delivery schedule, environmental protection, and human rights by formulating supplier management policies and actively communicating and coordinating with suppliers. As of the end of 2022, Clevo's suppliers include 71 institutional material manufacturers and 142 electronic procurement suppliers, for a total of 213 suppliers. Over 90% of them are from Asia. The overall supply chain has not changed significantly compared to 2021. In 2022, the world was still affected by COVID-19, and the material shortage for computer and peripheral industrial chains was severe. By exploring alternative sources of supply, making purchases ahead of time, increasing safety inventory volume changing product design, and adjusting production schedules, Clevo has overcome material shortages and maintained production and shipment consistently. In addition, due to the lack of labor for mechanical parts, some materials are imported into the automated assembly at the manufacturer's side to reduce the impact of labor shortages.

### 4.2.1 Clevo Value Chain

Clevo Primarily sells products to brand owners or the end of regional value chain channels. We integrate the strength of the upstream, midstream, and downstream NB value chains to maximize profits. The value chain of the NB industry includes passive component, chipset, graphics processor, memory module, central processing unit, and parts suppliers in the upstream; case, keyboard, power supply, display, and lens suppliers in the midstream; and system designers, manufacturers, and sellers in the downstream.

Clevo specializes in the manufacturing and sale of laptop computers. Our expertise spans research, development, design, and production of portable computers to B2B and post-sale services. Our main products include "Gaming," "Commercial," "Mainstream," and "Energy-saving, Long-lasting, and Environmentally friendly" laptop computers.

In recent years, Clevo has actively cultivated the niche market for laptop computers. The continuous growth of the Chinese e-sports market and the gradual smooth supply of processors have reinvigorated the bidding market. We have created unique competitive advantages through flexible production and customized products. As a result, our business performance has improved each year, and we have won numerous awards and recognitions worldwide.

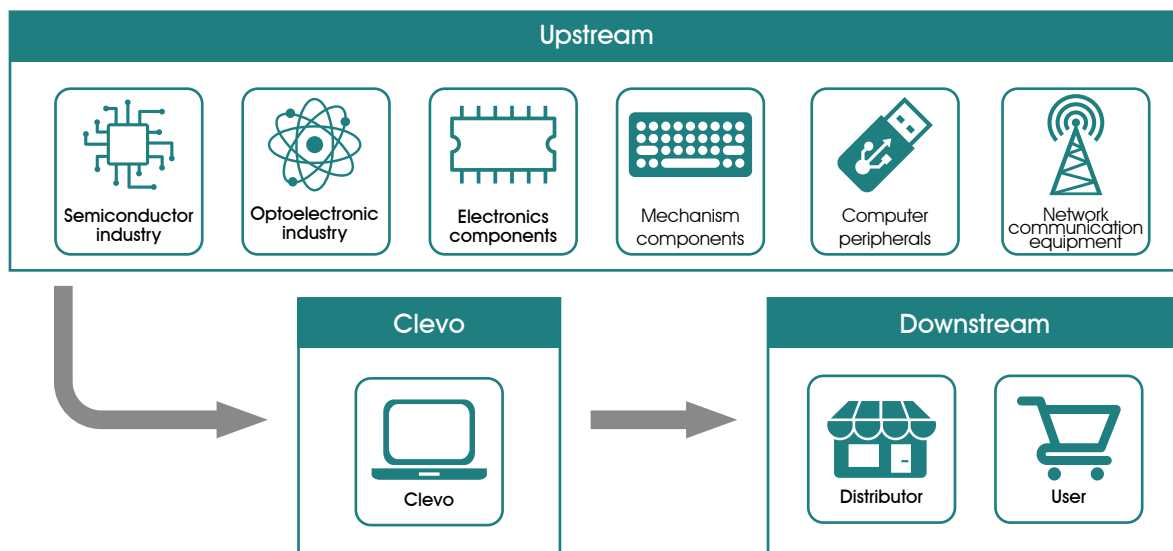
Clevo has actively cultivated the mainland China market since 1998. Buynow is Clevo's technology retail channel in mainland China, with 18 shopping malls. In response to the rise of e-commerce in the Chinese market and changes in consumer habits, Buynow 4.0 has evolved into "Enjoy Technology Now" after multiple generations of innovations to develop a "futuristic technology, intelligence, life, fashion, creativity, experience, and fun" type of physical mall. To attract visitors and increase revenues for the malls and service providers, Clevo is actively exploring opportunities in new energy, new technologies (such as 5G), and new retail practices.





# CLEVO® 04 Product Innovation

Clevo Value Chain Diagram



## 4.2.2 Green Purchase

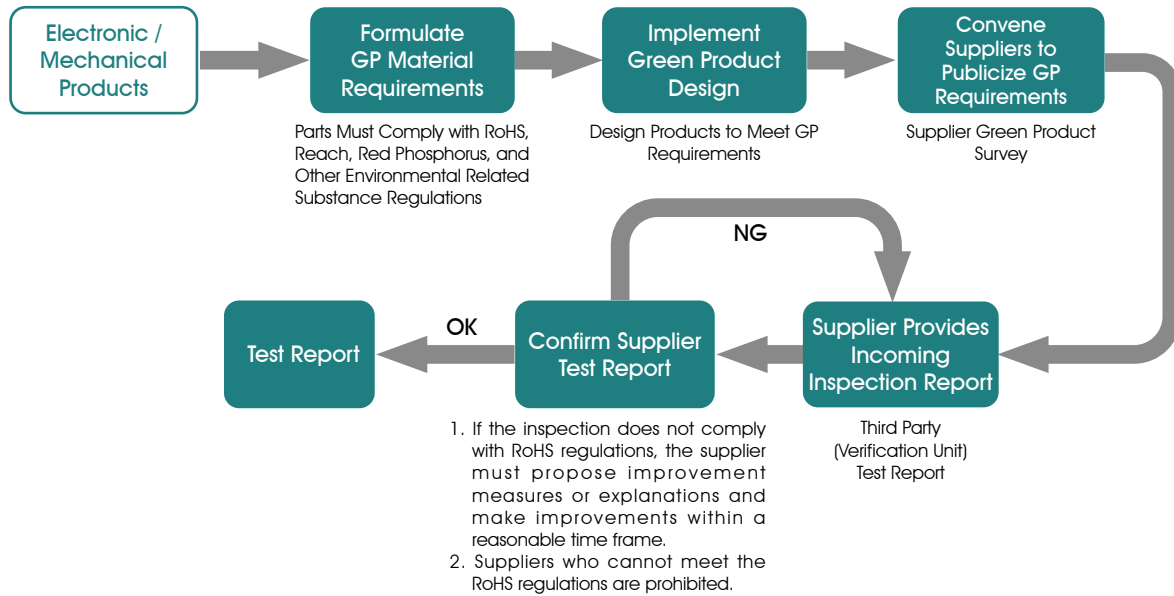
Clevo's product innovation strategy is constantly evolving in response to global consumer electronics market changes. Understanding the increasingly stringent environmental regulation trends in various countries and responding to consumers' concerns about environmental protection is essential.

Clevo has stringent requirements starting with the manufacturers' supply chain. We have actively established a green product supply chain and required suppliers and third-party manufacturers to adhere to our environmental protection standards. The goal is to reduce the environmental impact of our operations by strengthening supply chain management.

We require suppliers to avoid all harmful and internationally banned or restricted substances to ensure that the products meet international environmental protection standards. Clevo has developed the "GP Operation Management Procedure" to create a more stable green supply chain management system. We also strictly abide by the EU's relevant environmental protection directives, including the Waste Electrical and Electronic Equipment Directive (WEEE) and the Restriction of Hazardous Substances Directive (RoHS), to ensure compliance with relevant standards. We require suppliers and third-party vendors to sign the "Letter of Hazardous Substance Guarantee" and "Environmental Declaration" and submit chemical substance analysis reports provided by third-party verification units or qualified laboratories to ensure that the raw materials and components purchased by Clevo do not contain harmful substances. The goal is to promote the development and production of green electronic products while reducing the impact of harmful/restricted substances on the external environment and human health. In 2022, Clevo had no health and safety regulation violation incidents related to products and services.

Clevo requires suppliers to provide ISO 14001 environmental management system verification certificates. It also conducts green production factory assessments for suppliers and third-party factories to understand the current supplier management status. Clevo's evaluation procedures and requirements for green parts and green factories are as follows:

#### GP Green Product Supply Chain Management



#### Consideration for Green Parts

Decree or Regulation	Evaluation Phase	Clevo's Product Compliance Status
EU RoHS	Production Manufacturing	Upon entry and filing, 100% of Clevo's raw materials must be identified and controlled according to the green product (GP) management procedures. They will not be purchased if they do not meet the regulations.
REACH		
PFOS		
WEEE		

#### Consideration for Green Factory

Suppliers have to be Certified for ISO 14001 - Environmental Management System

Suppliers are inspected for implementation and adherence to the environmental management system

- 1 Confirmation of the management organization and execution system
- 2 Commitment from the senior management
- 3 Environmental strategies, goals, policies, and action plans
- 4 Compliance with environmental protection laws
- 5 Elimination of hazardous substances in production procedures
- 6 External reporting of environmental performance and activities
- 7 Environmental protection education for employees



## 4.2.3 Supplier Evaluation and Management

Clevo is committed to sustainable development and anticipates working with suppliers to create a win-win. So we carefully select high-quality suppliers as partners to ensure they meet sustainable standards. All new qualified suppliers must sign social and environmental statements Clevo requires, such as conflict minerals, chemical substance guarantee statements, etc. A total of 10 new suppliers have completed the signing process in 2022.

New Supplier Signs Declaration Document	Number of Declarations Signed by New Suppliers in 2022	Signature Requirements
REACH SVHC Substance Investigation Statement	10	Mandatory signature
Chemical Substance Guarantee Statement	10	Mandatory signature
Environmental Protection Statement	10	Mandatory signature
Conflict Mineral Statement	2	Signatures Required According to the Nature of the Supplier

We use 5 evaluation indicators based on the "Supplier Management Procedure" as the annual supplier grading evaluation criteria to ensure that the quality and supply of raw materials from suppliers can meet the expectations of Clevo's manufacturing: "Operational management and production capacity," "Engineering technology," "Procedure and quality control," "Procedure and quality control," and "Manufacturer's production automation ratio." Suppliers must also undergo on-site audits so that the company can understand the status of suppliers on-site and reduce the cost of supply chain risk management and control. To become a qualified supplier, suppliers must achieve a total assessment score of 75 or higher, and the sum of the two assessment scores for "Procedure and quality control" and "Procedure and quality control" must be 35 or higher.





Clevo divides suppliers into four grades for materials and semi-finished products quality supervision and management: A, B, C, and D. We also conduct a comprehensive supplier evaluation based on the quality of suppliers' materials, timeliness of defect handling, and defect improvement performance. When a defect is discovered in a supplier's incoming materials, Clevo will notify the supplier immediately and request the supplier to propose short-term countermeasures within 24 hours and issue an improvement report within 3 days.

Clevo provides different levels of counseling based on supplier evaluation results and mandatory counseling for C-grade and D-grade suppliers. They include quality review meetings, such as weekly meetings, monthly review meetings, and unscheduled on-site process audits to ensure continual quality improvement. If a supplier's quality remains unsatisfactory after counseling and may negatively affect Clevo's production and reputation, a poor quality report shall be submitted to the supplier according to the regulations, and the supplier will be terminated to ensure the quality of the company's products.

A: Quality 100 Points * 80%				B: Service 100 Points * 20%		Total Score (A+B)	Evaluation Class
IQC feed batch return rate (50%)	Abnormal production line (30%)	Clearance status (10%)	Problem severity (10%)	Improvement report responses (50%)	Service quality (50%)	≥ 90 points	A Grade
						≥ 80 points	B Grade
						≥ 70 points	C Grade
						≥ 60 points	D Grade

#### 4.2.4 Conflict Minerals

As human rights issues have received increasing attention internationally in recent years, the issue of conflict minerals has also become a key issue that corporate procurement must carefully examine. Conflict minerals are metals and minerals collected during human rights violations and armed conflicts. They include used in electronics minerals commonly 3TG (Tungsten, Tin, Tantalum, Gold) and other minerals. Conflict minerals originated in the mineral-rich Democratic Republic of the Congo. Human rights violations such as forced and child labor have arisen due to illegal armed groups' long-term control of the local mining area and economy. As a result, the situation has drawn the attention and criticism of the international community and the United Nations.

Clevo's main business is computer R&D and manufacturing, and its raw materials contain cobalt (Co). We strive to reduce external social human rights violations through our supply chain requirements by avoiding using conflict minerals in products while paying attention to the human rights risks posed by conflict minerals. Clevo responds to international trends by pledging not to use minerals from the Democratic Republic of the Congo's eastern mining area or surrounding areas with human rights disputes. To ensure compliance and prevent incidents in which Clevo's operations indirectly fund human rights abuses, Clevo has performed due diligence on conflict minerals since 2022 and introduced the conflict minerals policy into the company's internal practice. We also expect all suppliers to comply with the requirements of avoiding the use of conflict minerals and require suppliers to provide proof of source for their 3TG materials.

From 2023, Clevo is expected to start requiring key suppliers to trace the smelter address of their minerals through the Responsible Minerals Initiative Conflict Minerals Reporting (CMRT) template. Clevo will review the written reports of suppliers, identify the countries and regions where the smelters of imported minerals are located, and identify the risks of suppliers purchasing conflict minerals to practice conflict mineral due diligence. We will continue to strengthen the supply chain

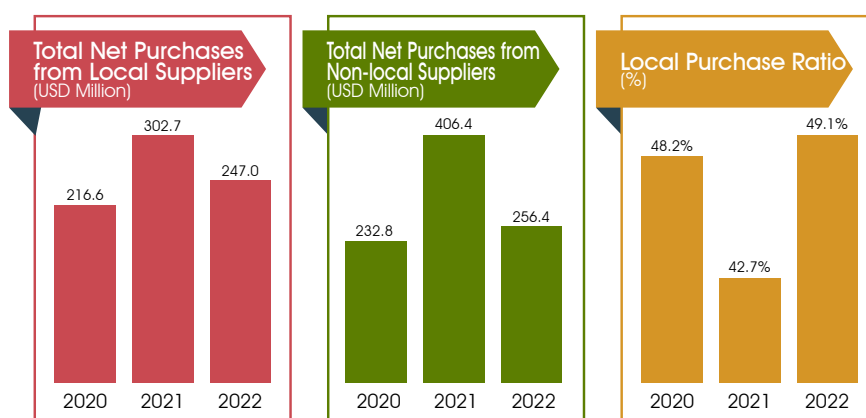


management and requirements, do our part to alleviate human rights violations, and prevent human rights issues from deteriorating in specific regions.

## 4.2.5 Local Purchase

As the importance of sustainable supply chain management has grown, companies have begun to pay attention to carbon emission issues of supply chain transportation and select suppliers near the base. The efforts not only can significantly reduce carbon emissions caused by raw material transportation but also reduce the risk of accidents and cargo damage caused by long-distance transportation. In 2022, the Taipei headquarters achieved 100% local procurement, the Kunshan factory achieved 37%, and the group as a whole reached 49.1%. We have reached the highest proportion in 3 years. Clevo has begun to assess supplier distribution, consider supplier location and operating bases, and continue to increase the proportion of local procurement to achieve low-carbon operations. The goal is to reduce the transportation carbon emissions of its operations via supplier layout.

Proportion of Clevo's Local Procurement in the Last 3 Years



The Taipei Headquarters's Local Procurement in the Last 3 Years

Year	2020	2021	2022
Total net purchases from local suppliers (USD)	85,001,278	116,787,534	93,734,988
Total net purchases from non-local suppliers (USD)	0	0	0
Total net purchases (USD)	85,001,278	116,787,534	93,734,988
Proportion of local procurement	100%	100%	100%

Kapok Computer (Kunshan)'s Local Procurement in the Last 3 Years

Year	2020	2021	2022
Total net purchases from local suppliers (USD)	131,621,231	185,894,886	153,278,329
Total net purchases from non-local suppliers (USD)	232,755,863	406,415,362	256,417,171
Total net purchases (USD)	364,377,095	592,310,248	409,695,500
Proportion of local procurement	36%	31%	37%

Note: Definition of local suppliers: Clevo (Taipei) is defined as a supplier in Taiwan, and Kapok Computer (Kunshan) is defined as a supplier in Jiangsu Province, China.

## 4.3 Responsible Production

### Material topics: Responsible Production

#### Impacts

- ◆ The impact of a company's products and activities on the external environment and society should be minimized during operations. If a company ignores responsible production, it may harm its reputation and miss out on business opportunities. It may raise supply chain risks or even directly violate local environmental and social regulations.
- ◆ Clevo's products have extended the life cycle of products as a product design principle, and they are committed to reducing the environmental impact of production. Low-carbon recycling strategies will be used effectively in all production processes and equipment to strive for energy conservation and carbon reduction. Environmentally friendly plastics and components have also been introduced to reduce the materials' environmental impact.

#### Policy

- ◆ Inspect the overall carbon emission status annually, and set the factory's overall carbon emission reduction target.
- ◆ Determine the amount of packaging materials that can be recycled to reduce the group's overall purchase and usage of packaging materials.
- ◆ Revise the REACH control table annually according to new chemicals and hazardous substances.
- ◆ Suppliers and third-party factories must sign the "Letter of Hazardous Substance Guarantee" and "Environmental Protection Statement" and attach the chemical substance analysis report from the third-party verification unit or qualified laboratory.

#### Goals

- ◆ Annual goal: Complete the local, provincial green factory evaluation in mainland China.
  - ❖ Short-term goal (2023): Complete ISO 19001 quality / ISO 14001 environment / ISO 50001 energy / ISO 14064 third-party certification for each plant
  - ❖ Medium-term goal (2023): Complete the green factory evaluation in Kunshan City
  - ❖ Long-term goal (2024): Complete the green factory evaluation in Jiangsu Province

#### Commitment

- ◆ Clevo pledges to apply for green factory certification for all of its factories.

#### Responsible Unit

- ◆ Quality Assurance, R&D, Procurement, Management

#### Resources

- ◆ Specialists in charge of material conservation and design
- ◆ Set up dedicated personnel to recycle and sort out packaging materials
- ◆ Incorporate various ISO certifications to improve plant quality and energy resource management efficiency.

#### Grievance System

- ◆ TEL: (02)2278-9696
- ◆ Email: public@clevo.com.tw

#### Specific Actions in 2022

- ◆ Develop an easy-to-disassemble modular design, increase the efficiency of the dismantling process, and increase the efficiency of product recycling and reuse in the waste stage.
- ◆ Various countries' energy efficiency standards are considered during R&D, and we are committed to making all models comply with Energy Star energy efficiency standards to reduce carbon emissions during product use.
- ◆ Create appropriate packaging materials and sizes based on various models to maximize the benefits of a single transportation volume while reducing carbon emissions from downstream logistics.

#### Quantitative Management System

- ◆ Every year, the factory evaluation team will review the plant's achievements in the previous year and the goals for the next year.





## 4.3.1 Carbon Reduction in Logistics

Supply chain carbon reduction is critical for global companies to achieve carbon reduction goals. Clevo has increased the total number of individual ocean shipments to reduce carbon emissions during product transportation by adjusting the size of packaging materials and actively combining cabinets. The goal is to reduce the direct emissions caused by high-frequency product transportation. After redesigning the product packaging, the 1-in-1 placement method can increase individual shipment by 50% compared to the original packaging method, and the 4-in-1 placement method can increase individual shipment by 20%. Clevo can significantly reduce the number of product transportation trips, total carbon emissions, and energy consumption in the value chain; and improve the logistics and transportation efficiency by adjusting packaging materials to demonstrate Clevo's commitment to carbon reduction.

## 4.3.2 Improved Energy Efficiency in Consumer Use

The consumers' interest in environmentally friendly products is growing as climate change and global warming pose increasing challenges yearly. In this regard, Clevo has incorporated environmental protection and energy conservation into the product development and design process to create high-quality user experiences and research the energy consumption status of products in various usage scenarios to reduce the energy consumption of products in operation, standby, and shutdown modes. Clevo is committed to meeting customers' energy label certification requirements through continuous technological innovation and R&D. At present, all of Clevo's products have met Energy Star's energy efficiency standards. As of 2022, 138 different types of laptop computers have received the China Energy Label (CEL) certification, and 5 different types of laptop products have received the China Energy Conservation Certification. These achievements highlight the practice and commitment to energy conservation. Clevo's product design concept and original intention are "improving energy efficiency" and "best user experience," the company is dedicated to achieving the dual goals of improving energy efficiency and optimizing user experience. The goal is for Clevo's customers to enjoy a high-quality experience while putting less strain on the environment by using Clevo's products.

### China Energy Conservation Certification

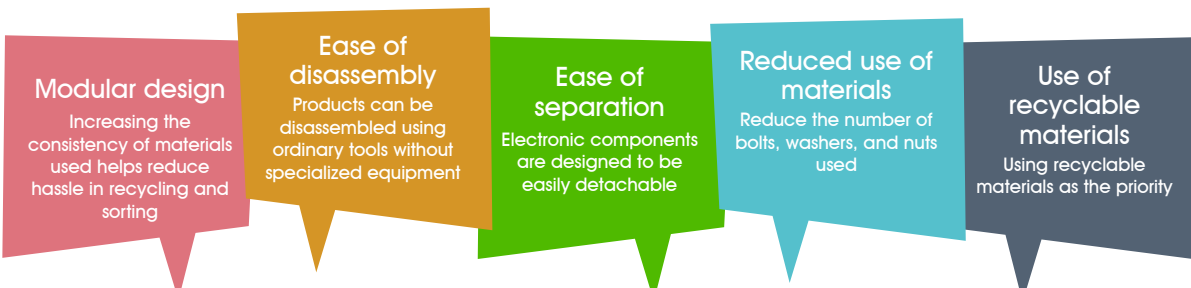


#### 4.3.3 Reduction of Product Terminal Waste

Clevo adheres to the concept of environmental friendliness. We have adopted the single-material modular design and developed an easy-to-disassemble recycling module to make the components easy to disassemble. The goal is to categorize products in the recycling stage, achieve the benefits of recycling and reuse, and keep exploring and considering the feasibility of circular economy product development.

We have adopted independent R&D to integrate packaging material design and product design to reduce product types and complexity. We have used independent R&D to integrate packaging material design and products and reduced product types and complexity in our designs. The goal is to provide the best product protection while strengthening the customers' willingness and efficiency for product terminal recycling. Clevo also began designing packaging materials and adjusting the adhesion method between the EPE cushioning material and the carton, making it easier to disassemble the carton and EPE cushioning material, effectively reducing the time required for customer recycling and dismantling, and reducing consumable consumption in the product manufacturing process.

##### Products are Designed with Five Main Considerations in Mind





## 4.4 Customer Service Management

### Material topics: Customer Relationship

#### Impacts

- ◆ Customer relationship management is an essential part of the sustainable operation of the enterprise. Good customer relationship management and immediate response processing can help customers add points to the company's brand image while making them feel Clevo's sincerity and problem-solving efficiency. In contrast, ignoring customers' needs may harm the company's reputation and long-term operations.
- ◆ Clevo is confident that its core goal of improving product and service quality will allow it to maintain market competitiveness and gain a foothold in the increasingly competitive consumer electronics market.

#### Policy

- ◆ Clevo has well-defined "customer service management," "non-conforming product control," and customer grievance handling procedures in place to ensure standardized services to customers.
- ◆ The Customer Service Division and Customer Quality Service (CQS), R&D, and sales teams jointly devise responses to consumers' needs.
- ◆ Clevo maintains a positive market image to enhance customers' loyalty and satisfaction and improve operating performance and competitiveness.

#### Goals

- ◆ Every year: Reply to all customer complaints and solutions within the deadline
  - ❖ Short term (2023): 80% overall customer satisfaction
  - ❖ Mid-term (2025): 85% overall customer satisfaction
  - ❖ Long-term (2027): 90% overall customer satisfaction

#### Commitment

- ◆ Clevo pledges to value each customer's feedback and timely respond to all customer complaints with solutions and improvement measures.

#### Responsible Unit

- ◆ Customer Service Division

#### Resources

- ◆ Annual Customer Satisfaction Survey & Customer Complaint Handling Team

#### Grievance System

- ◆ TEL: (02)2278-9696
- ◆ Email: marketing@clevo.com.tw

#### Specific Actions in 2022

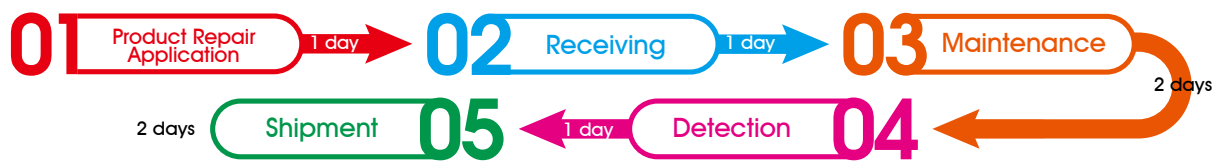
- ◆ Use online conferences and exhibitions to develop foreign clients and maintain customer relationships.
- ◆ Conduct customer satisfaction surveys twice yearly, and respond to customer complaints within the deadline.

#### Quantitative Management System

- ◆ The Customer Service Department conducts the annual customer satisfaction survey to understand the customer's feedback on the company's products and services and track the quantitative performance of each satisfaction aspect according to the satisfaction questionnaire. The efforts also verify the annual customer complaint handling to ensure that customers are provided with substantive solutions and problems are clarified promptly.

Customer feedback and suggestions for Clevo have always been the driving force for our improvement and progress. The most important issue for the company has always been how to improve services and products to meet customer expectations. We have a customer service center to provide customer consultation and product maintenance services so customers can get immediate problem-resolution channels when they encounter product problems. To improve product quality and post-sales service, the company has established standard operating procedures such as "customer service management" and "non-conforming product control procedures" so that employees can immediately follow the appropriate procedures to assist customers with product complaints or reports. The goal is to address all quality issues and document all customer feedback to provide a reference for future improvement. We hope every consumer and customer purchasing from Clevo has the best consumption experience possible. Our goal is to increase customer cohesion and satisfaction and develop a trusting relationship with customers.

Clevo Product Repair Process 7 日



#### 4.4.1 Customer Satisfaction Survey

Clevo expects to develop a company culture centered on customer needs and continue to improve customer satisfaction through the collaboration and efforts of the company's various departments. Clevo's customer service unit conducts customer satisfaction surveys twice a year and understands customer feedback and suggestions on Clevo products and services. Questionnaire analysis and comparison can assist us in quantifying the items and gaps to be improved and provide specific feedback to the business and related departments as an important foundation for future refinement and improvement, thereby improving customer satisfaction.

Clevo conducts customer satisfaction surveys in 5 areas: "business," "quality," "technology," "customer service," and "design." We also invite customers to rank us in 5 grades (Outstanding, Good, Fair, Improvement Needed, and Poor) to help us fully understand the customer's experience and thoughts on the product. Clevo considers customer use and experience feedback in all aspects of product design, material procurement, production, and sales to meet customer needs.

The COVID-19 epidemic has driven the "Commercial," "Education," and "Entertainment" trends. Clevo has incorporated customer feedback and continued to develop laptops that are "thin and light," "high performance," "high battery life," and "good connection ability" in line with market trends in response to the strong market demand of the home office and gaming industry. As consumers continue to prefer thin and light designs, portability, and high-efficiency job processing capabilities, these features will be the focus of future Clevo designs.

In 2022, there were 28 customer feedbacks, and the overall satisfaction survey reached 83.5 points. In 2022, all aspects of customer satisfaction improved compared to 2021, implying that customers recognized the efforts of all colleagues in 2022. In 2023, Clevo will continue to improve the factory's quality assurance and design R&D capabilities to encourage customers to continue to rely on Clevo's service and quality as a long-term cooperative partner.





## Customer Satisfaction Surveys in the Last 3 Years

Year	Overall	Quality	Sales	Design	Technology	Customer service
2020	80.0	43.5	81.5	90.0	83.5	90.5
2021	78.0	47.0	80.0	83.0	80.0	88.0
2022	83.5	57.5	86	89.5	87.5	89.5

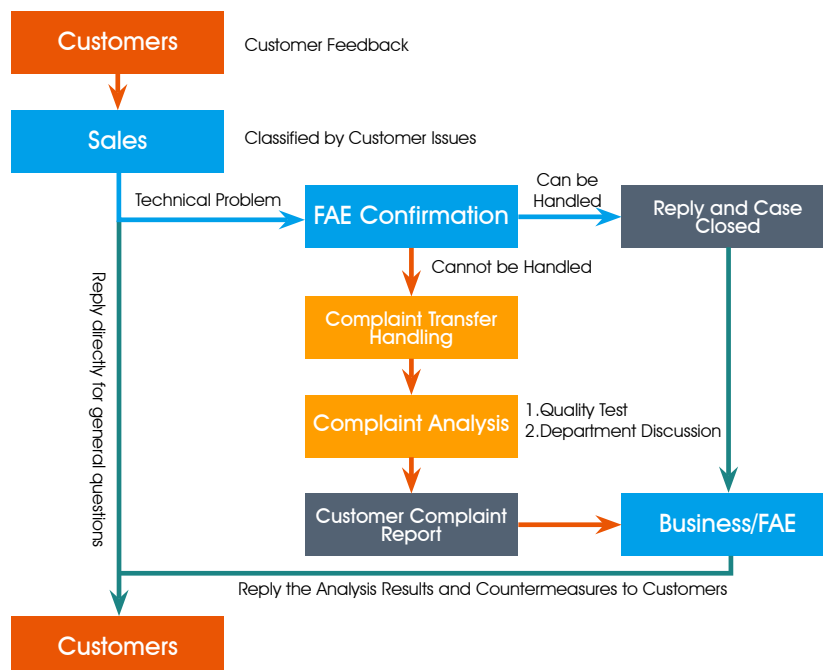
### 4.4.2 Customer Complaint Analysis and Feedback

Clevo values customer experience and feedback, so it has implemented a customer complaint system management framework. The CQS unit conducts annual surveys and evaluations of customer satisfaction with product quality and timely customer complaint handling. The goal is to analyze and improve unsatisfactory items to ensure product quality requirements meet expectations.

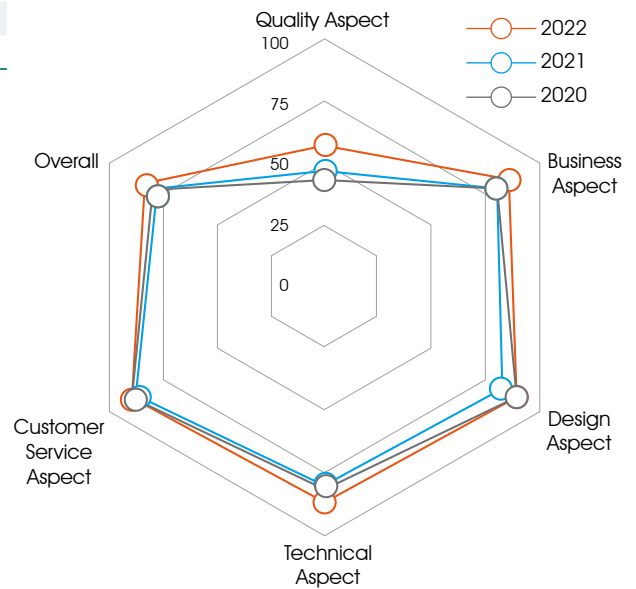
According to the "Analysis and Feedback of Customer Complaints" operating procedures, Customer feedback includes operation and design categories according to the "Customer Complaint Analysis and Feedback" operating procedures. The questionnaires returned in the middle and end of 2022 were 13 and 15, respectively. The feedback from 2022 indicated that the customers expect the company to improve the gaming laptops cooling technology, high-efficiency job processing, and design thin, light, and portable products.

Clevo has made the following improvements in response to customer feedback:

#### Clevo Customer Complaint Analysis and Feedback Program



## Clevo's Customer Satisfaction Trends in the Last 3 Years



The business window of a Field Application Engineer (FAE) can also proactively contact customers in real-time, provide professional product technical consultation to solve problems raised by customers, and give feedback to relevant units. The business units in each district have also strengthened customer contact and product information updates and improved the return merchandise authorization (RMA) maintenance quality and handling speed. The future goal is to be able to close the case and return the product within the stipulated working days

#### 4.4.3 Honors and Affirmations



Due to Clevo's active communication and response during the COVID-19 epidemic, the supply chain did not affect EPSON's production. EPSON issued a Certificate of Appreciation to Clevo in 2022.



Clevo won the Best Partner Award from Intel in 2022



Clevo received the GIGABYTE Gold Award of Excellence Honor in 2022



Clevo received the Partnership Award from Mouse Computer in 2022



Clevo received the MEDION ODM Rating Best ODM Award in 2022