3

Innovation and Service

3.1 Sustainable Intelligent Solutions

Management Guidelines for Major Topics

Materiality	Advantech's software and hardware products and integrated solutions can be used in growing markets such as renewable energy, climate mitigation, climate adaptation, telemedicine, and education. Aside from improving Advantech's corporate competitiveness, continuously developing products for sustainable use can also contribute to sustainability.
Policies/ Commitments	Incorporate the concept of sustainability into new product development for business units and strategic blueprints for market expansion; formulate sustainable product and service quantification plans, expand the establishment and performance goals of related product divisions (Environmental Protection and Energy, Intelligent Healthcare), and then expand the positive impact on the environment and society through Advantech's products and services.
Management Objectives	● 2022: 13% of revenue to come from the sale of products or solutions for sustainable use ● 2025: 15% of revenue to come from the sale of products or solutions for sustainable use
Management Policy/ Action Plan	Recruit possible sustainable business opportunities worldwide from Advantech branches around the world via the Emerging Business Opportunity (EBO) proposal management mechanism, and conduct product development and market expansion. For existing products and markets, re-inventory customers and solutions for sustainable use, and inject resources to support the expansion and development of their business opportunities.
Effectiveness Assessment	In the past, Advantech reported the product models for sustainable use and the proportion of sustainable use reported by the headquarters product divisions, and then calculated the proportions of revenues from sustainable use; this figure came to 14.76% in 2019 and 15.79% in 2020. Advantech products currently collected for sustainable use include: energy efficiency (solar energy, wind energy, smart grid, electric vehicle charging stations, building energy savings, energy saving displays, energy storage), flood and disaster prevention, sewage treatment, pollution prevention, distance teaching, public safety, traffic safety, public health, telemedicine, food safety cold chain management, intelligent agriculture, information security, cloud computing, and so on. However, without actually investigating the business side's cooperation with customers, this revenue share data may be underestimated or overestimated. Currently, we start from the market side and ask key accounts (important customers) to take responsibility for listing customers and projects whose global business returns are actually used for sustainable purposes. It is expected that the proportion of revenue of this part will be more accurately quantified, and the calculation result in 2021 was 12.1% (there is still the possibility of underestimation). In the future, we hope to expand sustainable use business opportunities and combine them with the KPIs and incentives of product divisions. In the longer term, we also hope to quantify the benefits of these solutions that actually help customers reduce their carbon footprint or environmental impact and so on.

Advantech AMiS-22 Mobile Healthcare Workstation Facilitates Remote Medical Care for Offshore Wind Farm Power Employees

A well-known leading offshore wind power company is building a large offshore wind farm in Taiwan. Expected to generate 900 MW of wind power, this represents a big step for Taiwan's development of renewable energy. During construction, crew members and technicians live on the offshore engineering vessel (Construction Support Vessel, CSV) for a long period of time. It is thus important to provide them with timely health care. Telemedicine video consultations are available using Advantech's AMiS-22 telehealth suitcase including an industrial-grade all-in-one tablet with high-definition camera, omnidirectional microphone, otoscope, wireless handheld ultrasound, digital stethoscope, and 12-lead ECG. Under ordinary circumstances, the professional nurse on board can make confirmations by phone with the doctor of the designated clinic in Norway. In case of urgent medical need, simple treatments can first be performed and then sent to the partner hospital in Taichung. In addition to meeting the basic medical needs of staff, this telemedicine device can be used in an emergency during the 2-4 hours of sea transport to the hospital, keeping in constant touch with local hospitals in Taichung and providing long-distance care as it continuously monitors the patient's physiological data and maintains the patient's health condition en route to medical treatment.

The company said that after the introduction of this set of solutions, it has provided employees with a sense of psychological stability on offshore engineering ships. Especially during the Covid-19 period, maintaining employee health, allowing employees to work with peace of mind, and avoiding potential health risks will help improve employee satisfaction and work efficiency.This also responds to SDG 3. Good Health and Well-Being and SDG 7. Affordable and Sustainable Energy.

For more information, please refer to Advantech's official website.

3.2 Innovation Mechanisms
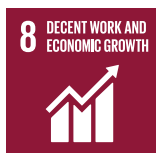
Since 2010, Advantech has adhered to its corporate vision of "Enabling an Intelligent Planet." Under this strategy, we actively invest in product and technological innovation as well as in mechanisms for co-creation and co-prosperity with R&D and business ecological partners. Advantech further outlined our vision in three stages in 2015 with the "AIoT Internet of Things Development Blueprint." This set the tone for artificial intelligence and the Internet of Things as our engine of future industrial growth; and through continuous innovation, we are gradually transforming the Company from an industrial computer manufacturer into a technology supplier and service provider that provides overall solutions from the industrial Internet of Things to the cloud.

Figure 3.2.1 Three Stages of Advantech's "AIoT Internet of Things Development Blueprint"
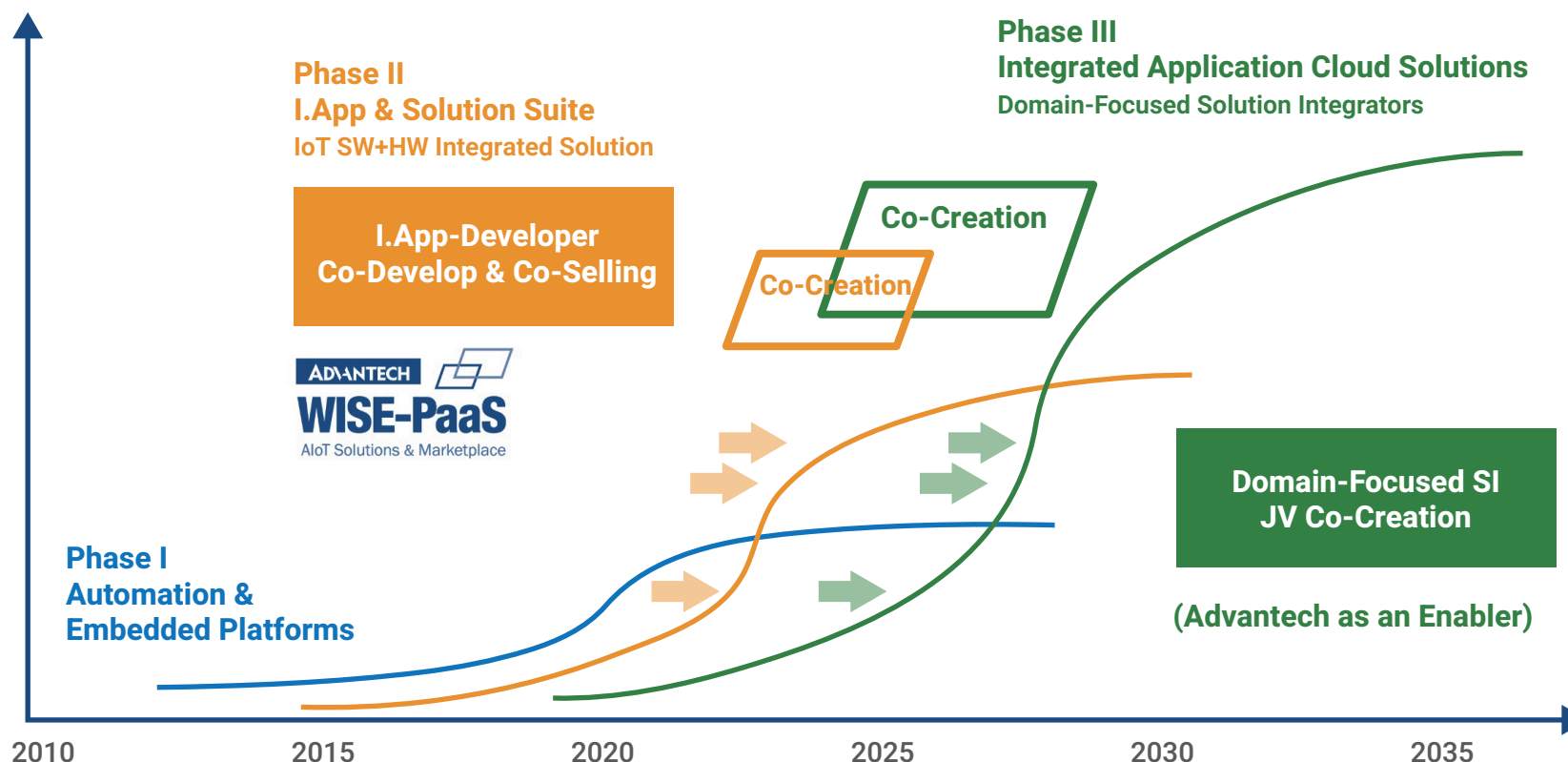
Several important innovation mechanisms all held by Advantech now are personally led by the Chairman and senior executives, including those concerning products, technology, careers, and academic cooperation. Furthermore, they involve pragmatic long-term promotion encompassing three categories and six projects:

Business Innovation Associated with Emerging Business Opportunities	Innovative Products and Technology	Industry-University Research and Academia Co-Creation
IMAX-C : Innovation strategies and practical plans of the business units, such as those involving reform breakthroughs in products, business, and organization. **EBO** : Advantech's global colleagues formulate business plans for Advantech's new growth curve through rigorous analysis and planning of emerging opportunities that have been observed.	**A+X** : The CEO directly empowers product innovation and directs resources to accelerate new product development. **MCT/TSU** : A technical committee composed of R&D supervisors to centrally and horizontally manage the core technologies of each business unit, as well as a Technical Sharing Unit (TSU).	**University co-creation** : In-depth research and development with domestic and foreign universities and actual field verification, co-creating new technology and application breakthroughs. **InnoWorks** : Providing global universities and colleges with software, computing resources, online teaching, etc., to encourage the new generation of students to develop and implement their creativity.

Among these, the "C" in the IMAX-C for innovative business stands for "Co-Creation," a newly-added initiative over the past two years. That is to say, in the second stage of the "AIoT Internet of Things Development Blueprint," co-creation must be clearly described in the annual plan of a business unit once it begins work. EBO has been simultaneously advancing this blueprint. As Advantech has transformed from a manufacturer of equipment and hardware to build an AIoT ecosystem, we have begun to explore and develop new opportunities from a new business perspective. A+X and TSU/MCU support this AIoT development blueprint from an innovative perspective on the product side, and achieve this through high-level empowerment and cross-unit integration. Along with InnoWorks, industry-university co-creation also lies in the direction of the Blueprint's development. Through cooperation with external academia and research, we may stimulate new ideas that form a departure from traditional thinking. This includes the new social generation's ideas and product concepts for the future Internet of Things to help prepare Advantech for the third phase of AIoT to envision new integrated applications and services and to undertake preliminary ideas and exploration.

Advantech's innovation mechanism has fostered many new business units and launches hundreds of new products or more every year. In addition to winning awards and creating outstanding business results, we continue to expand our leadership in the Industrial IoT industry. While promoting the co-creation of the Internet of Things, it is one of Advantech's important tasks to enable our core business to grow through mainstream trends and innovative growth rates of leading R&D technologies. Through in-house innovation projects, we examine innovation effectiveness and trends, encourage the development of innovative products, and nimbly adjust our product strategies.

⛰ Effective Management of Innovation

In the promotion of many innovative mechanisms, Advantech will provide different effectiveness indicators according to the attributes of the issues each mechanism focuses on. This will ensure that these innovative measures and mechanisms can maximize their benefits. In addition to defining a basic quantitative goal (KPI) for each innovation mechanism, we shall also define conditions for achieving the goal as well as follow-up actions. For example, the University Co-Creation industry-university research projects shall establish how many research projects of value are to be proposed, and the final results must also have a certain percentage of output that can be transferred or that can see continued cooperation in technology with the internal business units of Advantech. Another example is in product innovation. For industrial design, additional rewards will be given based on whether industrial design awards such as IF are obtained; and we shall track the revenue benefits of new products after commercialization. For the EBO mechanism of business innovation, Advantech also has a special steering committee composed of senior executives.

This Executive Committee is established for the planning or achievement of innovative businesses and business models, and to provide substantive suggestions, resources, and rewards as well as tracking the development results of business units.Through various innovative mechanisms and corresponding management by objectives, Advantech pragmatically drives the creativity, innovation, and breakthroughs of the Company's team in terms of products, technology, or business.

3.2.1 Business Innovation and Emerging Business Opportunities

IMAX-C

Objectives

Advantech has constructed an organization in the form of Business Units working together to promote business management operations, including a Strategic Business Unit (SBU) focused on strategy and product development as well as Regional Business Units (RBUs) focused on sales and regional development. Within this framework, we hold onto the idea of conveying innovation and business development to the SBU through the mechanism of "IMAX-C." Here, "I" stands for the "incubation" of new organizations; "M" stands for "mergers and acquisitions" and "A" stands for "alliances, together representing links with external partners; "X" stands for "X-Product," the development of new products and services; and "C" stands for "Convergence and Consolidation," indicating the consolidation of internal resources to avoid duplication of products or of units.

Practices

After the Headquarters launches the initial quarter of each year, each SBU product unit shall submit an IMAX-C proposal based on its business level and on the bottom-up focus of the market. Furthermore, the strategic policy of the SBU's overall innovation and operation shall be derived from a convergence and hierarchical integration of individual product line, product divisions comprising multiple product lines, and business groups comprising multiple product divisions.

After the product unit proposes an IMAX-C innovation action, it will connect with other units of the Company including the sales team, Advantech Corporate Investment (ACI), the Project Management Office (PMO), and Human Resources (HR). Together, they shall conduct research, analysis, and discussion on product service innovation, business model innovation, and organizational innovation. After a decision is reached, the Annual Business Plan (ABP) of the SBU shall be launched successively, becoming the cornerstone of the SBU's continued growth and development.

Achievements

IMAX-C strategic policy plan for 50+ business units per year.

EBO

Objectives

In the past 30 years, Advantech has been following a growth pattern of "niche business unit clusters," driving core business goals with our vision, focusing on industries, and concentrating on business strategies. Such a business policy enables Advantech to continue to grow and develop in niche markets. In recent years, market trends have shifted rapidly and emerging business opportunities have flourished. In response, Advantech has introduced an Emerging Business Opportunity (EBO) proposal management mechanism, whose goals are to explore new business opportunities beyond Advantech's legacy business while verifying innovative business models and their technical feasibility. These efforts in turn are aimed at expanding our business territory and increasing our sources of revenue.
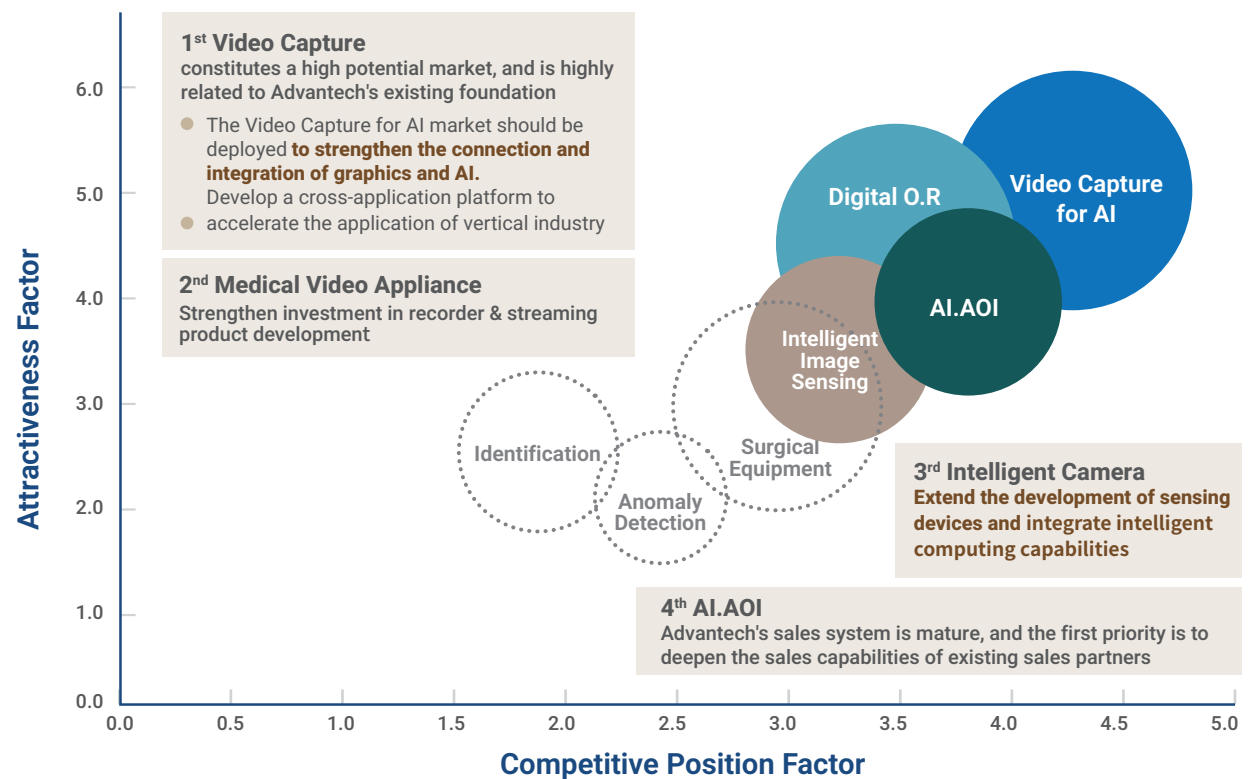
Practices

The Headquarters raises the process of emerging business opportunities domestically and abroad in the second and fourth quarters of every year; and after two stages of evaluation by senior executives, selection is made of the top five topics with the greatest commercial potential and innovation. After a detailed business plan is made for the new businesses, resources are invested to establish the new business units.

Achievements

Twenty or more EBO topics are raised on each of the two occasions every year. They are screened rigorously to a short list, constituting the Top 5 EBO Topics with awards and a process to further develop the EBO Business Plan (BP).

Figure 3.2.2 EBO "SPAN Analysis of Advanced Computer Vision"

1st Video Capture constitutes a high potential market, and is highly related to Advantech's existing foundation
- The Video Capture for AI market should be deployed **to strengthen the connection and integration of graphics and AI.**
- Develop a cross-application platform to accelerate the application of vertical industry

2nd Medical Video Appliance Strengthen investment in recorder & streaming product development

3rd Intelligent Camera **Extend the development of sensing devices and integrate intelligent computing capabilities**

4th AI.AOI Advantech's sales system is mature, and the first priority is to deepen the sales capabilities of existing sales partners

3.2.2 Innovative products and technology

▲▲ A+X

Objectives

A+X represents an innovative product strategy development mechanism. By means of IMAX-C, kick-off meetings (KOMs), EBO, Business Leadership Model (BLM), and other innovation and management mechanisms, the SBU puts forward new product strategy proposals for specific markets, technologies, or industries, and develops A+ product plans in the A+X mechanism to determine target markets, product positioning, industrial design, business development, and cross-departmental cooperation.
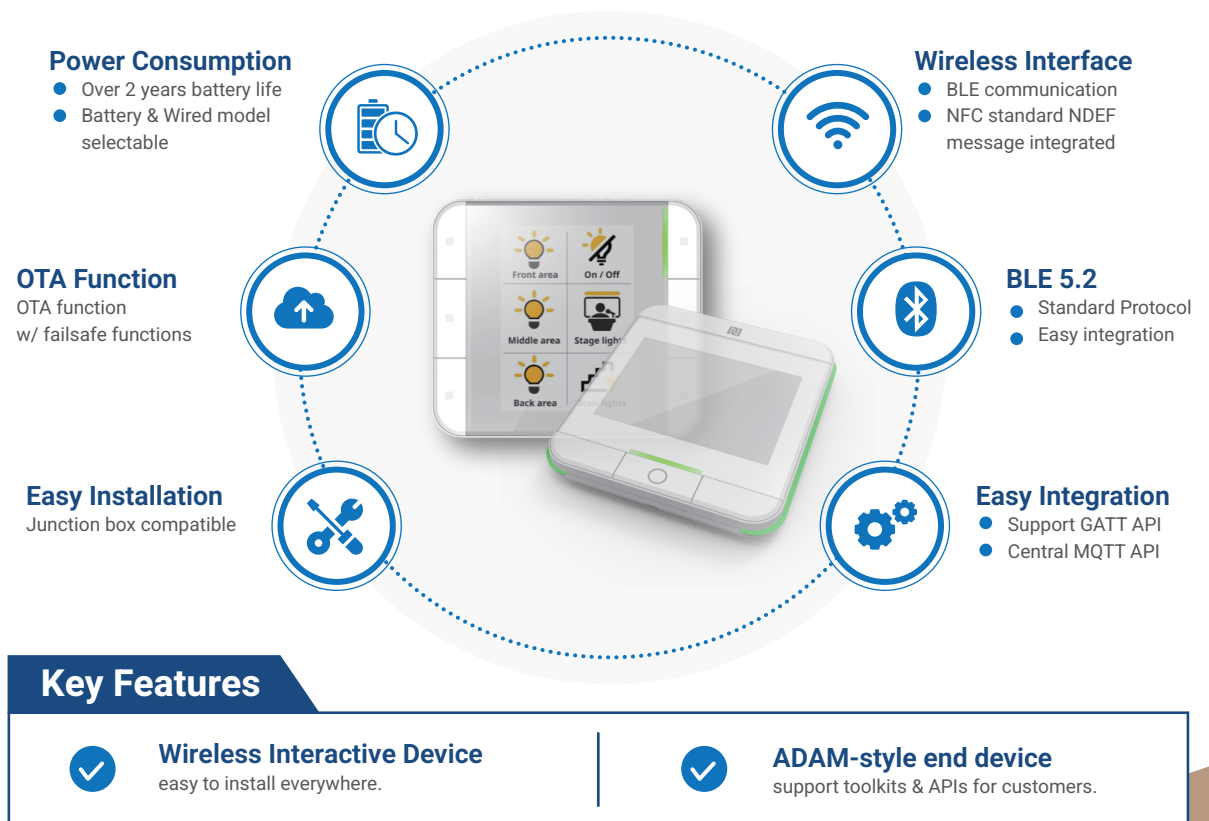
Practices

The Headquarters regularly collects A+ new product issues based on market development, technology trends, and so on. It invites the Product Division to conduct business and technical feasibility analyses and formulate strategic guidelines and new product goals aimed at market needs and opportunities; and it conducts a series of discussions on new product concept design, functional application planning, business promotion, and resource allocation. After completion of the A+ new product planning, parallel discussions are conducted through internal inter-departmental communication and the guidance of senior executives, and the A+ product strategy is set at the decision-making meeting and delivered to SBU to implement development.

Achievements

40+ new product strategy plans every year.

Figure 3.2.3 2021 A+X

Power Consumption
- Over 2 years battery life
- Battery & Wired model selectable

Wireless Interface
- BLE communication
- NFC standard NDEF message integrated

OTA Function
OTA function
w/ failsafe functions

BLE 5.2
- Standard Protocol
- Easy integration

Easy Installation
Junction box compatible

Easy Integration
- Support GATT API
- Central MQTT API

Key Features

✓ **Wireless Interactive Device** easy to install everywhere.	✓ **ADAM-style end device** support toolkits & APIs for customers.

MCT/TSU

Objectives

The Meeting of Corp. Technology and Engineering (MCT) was established by senior R&D executives to centrally manage the core technologies of each business unit horizontally. Advantech's Technical Sharing Unit (TSU) focuses on three key points: digital transformation of research and development, shared intellectual property (IP) across SBG technologies, and core technology management and collaboration platforms.

Practices

In setting up the Share TSU sharing and interoperability mechanism, the R&D teams affiliated with each business group will connect their respective core technologies to achieve synergy through horizontal connection and interoperability. Topics are divided into "Engineering," which focuses on the expansion and breakthrough of TSU R&D, including IP Sharing; and "Innovation," which focuses on advanced technology research, develops forward-looking topics, and allows various business groups to create a complete design and shorten the research and development time, thereby empowering product innovation.

Achievements

In each of the past five years, Advantech has developed more than 400 new products with this mechanism, including industrial computers, embedded modules, edge computing equipment, network equipment, sensing devices, industry software and hardware integration solutions, etc.
Currently, the MCT R&D Technical Committee is convened by senior R&D executives every two months to oversee long-term implementation of three major technology-oriented strategy topics. Please refer to Table 3.2.1 for details.

Table 3.2.1 MCT/TSU Technical Strategy Topics

R&D Interoperability Mechanism	Intelligent Material Selection and Component Development Blueprint	Product Development Platform
• A complete digital all-round IP digital platform provides overall service solutions required by various industries • Intelligent automatic generation of design blueprints and intelligent IP to complete line development • Homologous shared data transparency platform	• Accurate mainstream material recommendations make products precise and accurate in mass production and win the trust of customers • The use of concentrated materials is shortened to achieve usage with economies of scale, enabling a rapid drop in material purchase costs	• With real-time data transparency of all R&D data and all elements, PM/R&D/manufacturing face no barriers to communication, and this saves time and increases efficiency • Digital design with building block modules, linking processes to accelerate product development

3.2.3 Industry-University Research and Co-Creation

▲▲ University Co-creation

Objectives

Industry-university cooperation is an important approach of Advantech's external innovation. By linking the resources of university and research institutes, we accumulate an innovative talent pool and establish a corporate R&D center that facilitates the productization and commercialization of R&D collaboration achievements.

Practices

In 2015, Advantech established an " IoT Intelligent System Research Center" at National Chiao Tung University (now National Yang Ming Chiao Tung University) and we have invested about NT$10 million each year in the development of key technologies and applications of the Industrial IoT verticals. Projects initiated in this collaboration are based on Advantech's technical and business requirements that forge deep connections between the market demands and the R&D strength of universities, and combines the actual vertical domains of Advantech's internal and external (customer) premises to carry out proof of concept (POC) for innovative applications of the Internet of Things.

In response to the academic merger creating National Yang Ming Chiao Tung University in 2021, Advantech expanded its scale of industry-university cooperation and invested in the establishment of the Industry Academy Innovation School, National Yang Ming Chiao Tung University. Supplementing the co-creation model for business and academia, a new mechanism will be used to bridge the gap between industry and academia in cultivating school talent and promoting industry-university cooperation in the field of AIoT. This shall include sponsoring existing Internet of Things innovation projects in schools, connecting business resources in stages, and promoting the productization of academic research outcomes. It will additionally feature an industry-university initiative for graduate student programs as well as internships; that is, one of the features of the Industry Academy Innovation School shall be the degree program of practice. Through the early investment of master and doctoral students into corporate projects, and with their incorporation into a system of internships, we will work with the school to cultivate talent in AIoT applications and ensure the commercial potential of R&D projects. In the past two years, such an industry-university project mechanism has also expanded to National Taiwan University, National Taiwan University of Science and Technology, and other schools.

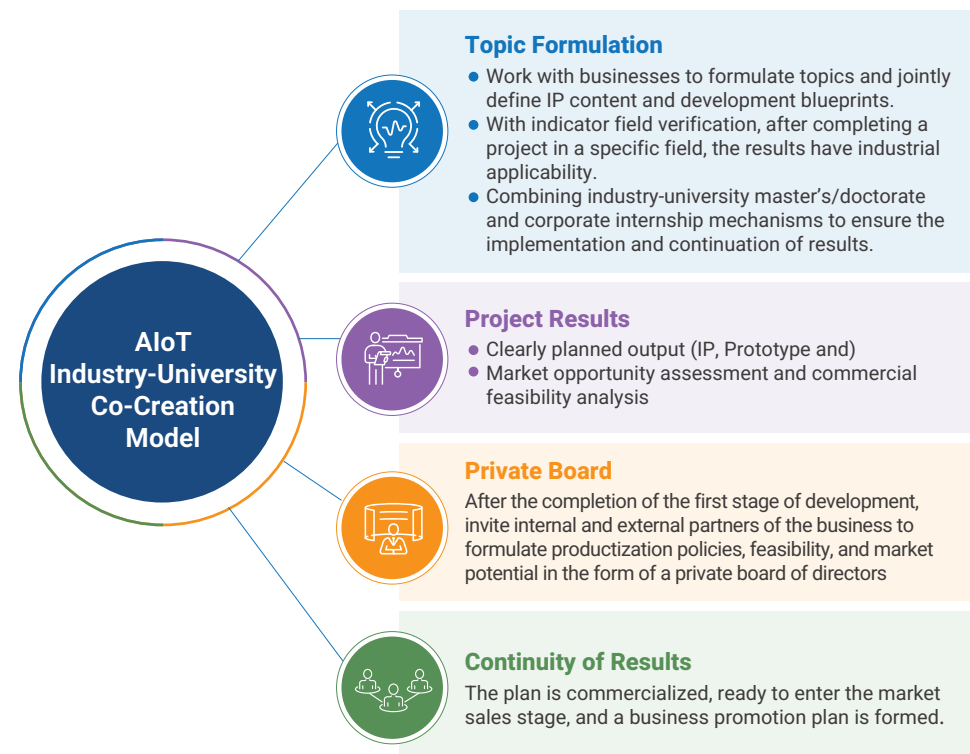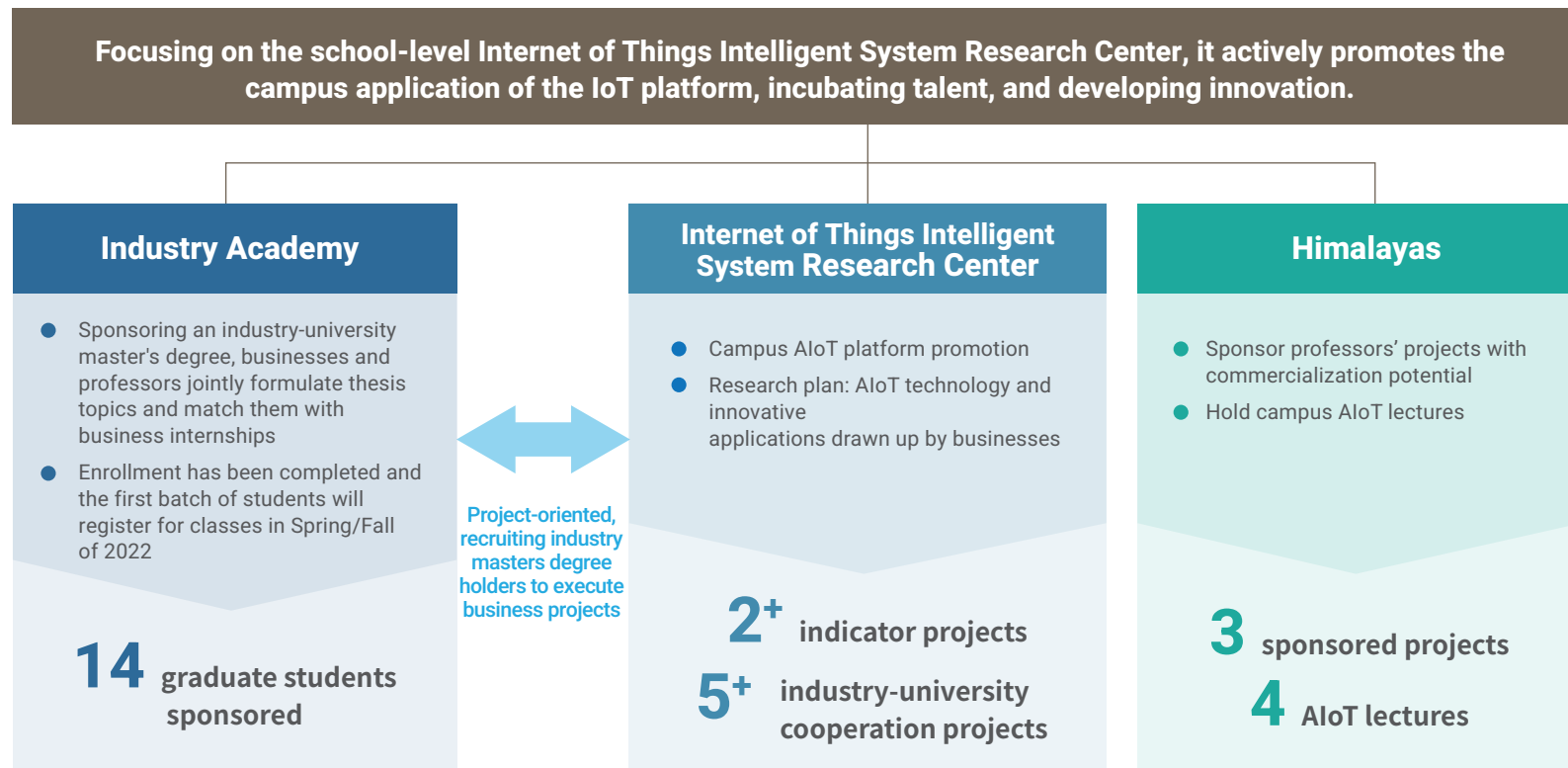Figure 3.2.4 Advantech's Industry-University Co-Creation Mechanism

AIoT Industry-University Co-Creation Model

Topic Formulation
- Work with businesses to formulate topics and jointly define IP content and development blueprints.
- With indicator field verification, after completing a project in a specific field, the results have industrial applicability.
- Combining industry-university master's/doctorate and corporate internship mechanisms to ensure the implementation and continuation of results.

Project Results
- Clearly planned output (IP, Prototype and)
- Market opportunity assessment and commercial feasibility analysis

Private Board
After the completion of the first stage of development, invite internal and external partners of the business to formulate productization policies, feasibility, and market potential in the form of a private board of directors

Continuity of Results
The plan is commercialized, ready to enter the market sales stage, and a business promotion plan is formed.

Figure 3.2.5 Structure of Advantech's participation in the Academy Innovation School, National Yang Ming Chiao Tung University

Focusing on the school-level Internet of Things Intelligent System Research Center, it actively promotes the campus application of the IoT platform, incubating talent, and developing innovation.

Industry Academy

- Sponsoring an industry-university master's degree, businesses and professors jointly formulate thesis topics and match them with business internships
- Enrollment has been completed and the first batch of students will register for classes in Spring/Fall of 2022

14 graduate students sponsored

Project-oriented, recruiting industry masters degree holders to execute business projects

Internet of Things Intelligent System Research Center

- Campus AIoT platform promotion
- Research plan: AIoT technology and innovative applications drawn up by businesses

2+ indicator projects
5+ industry-university cooperation projects

Himalayas

- Sponsor professors' projects with commercialization potential
- Hold campus AIoT lectures

3 sponsored projects
4 AIoT lectures

Achievements

By 2021, 38 cooperation projects had been accomplished since its launch. Some project results have also been commercialized as part of Advantech's solution offers to the market, and a few practical cases in the industrial AIoT segments have been established. R&D topics in the University Co-Creation program mainly address intelligent video analytics, Industrial 4.0, IoT embedded PaaS, and AIoT domain applications.

The key goal of Advantech's industry-university cooperation is to increase the business value of academic reseach and potential for commercialization, which mitigates the gap between industry and academia. For example, the project "Meta-Learning on Prognostics and Health Management (PHM) for vibration data" (undertaken in cooperation with National Yang Ming Chiao Tung University in 2020) has seen its completed integration with Advantech's edge computing platform as a commercial product. Furthermore, it constitutes the core of Advantech's AIFS/PHM Suite product series, which have been successfully introduced into selected traditional industries, semiconductor factories, and others.

Table 3.2.2: Advantech's Research Plan at the Internet of Things Intelligent System Research Center of National Yang Ming Chiao Tung University

Field	Number of Projects
Intelligent video analytics	14
Industrial 4.0	4
IoT embedded PaaS	17
AIoT domain applications	3
Total	38

Figure 3.2.6: Industry-University Benchmark Case: Productization Architecture of Industry-University Achievements

AIFS/PHM Suite Product Introduction

Intelligent Predictive Diagnostic Solution for Rotating Machinery (Wireless Solution)

Public Cloud / Private Cloud

WISE-PaaS/EdgeLink
WISE-6610 LoRaWAN Gateway
Node-RED

WISE-2410 Vibration Sensor

Software Features
- ISO 10816
- Equipment anomaly detection
- Equipment degradation detection
- Equipment health prediction
- Multi-vibration measuring point management
- Data collection on the cloud
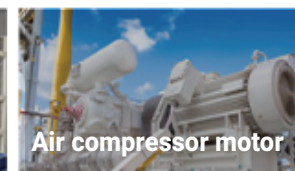- Data visualization

Hardware Features
- Wireless gateway supports data access and data upload to the cloud
- Wireless intelligent sensors collect vibration data

Pump | Fan | Air compressor motor | Conveying equipment motor

⛰ Innoworks

Objectives

As a world-renowned and leading company for industrial computers and the Internet of Things, Advantech takes IoT talent cultivation and innovation as the focus of our business competitiveness and sustainable development. We therefore launched the AIoT InnoWorks developer program, where Advantech WISE-PaaS IoT cloud platform and technical resources are provided free of charge to university students for application development. Our goal is to support 50 universities worldwide by 2025.

Practices

This program is planned by Advantech Headquarters, and the branch offices in each country/region work directly with local schools to implement the program. As part of a different approach toward industry-university cooperation, the organizer (usually a research lab or a professor in the university) invites student teams to participate the program. Our branch office provides guidance to students and solves any difficulties they might encounter in the process, and provides technical support or advice on business direction.

Every year, our regional teams issue surveys to gain student feedback worldwide either verbally or through questionnaires. We also collect feedback from Advantech colleagues who serve as mentors or technical supports in these InnoWorks projects and review the outcomes for opportunities and directions of improvement.

We received feedback in 2021 such as: students said that InnoWorks provides opportunities and technology to implement ideas; they are more determined to become multi-talented professionals, and it is very rare to actually communicate with and interact with the industry and with industry teachers. Furthermore, 90% of the respondents thought that that learning and using a new tool (the WISE-PaaS industrial IoT cloud platform) offered the greatest benefit. At the same time, we also received many suggestions for improving the platform and technical documents. These suggestions will also be fed back to Advantech's technical department as a direction for future improvement.
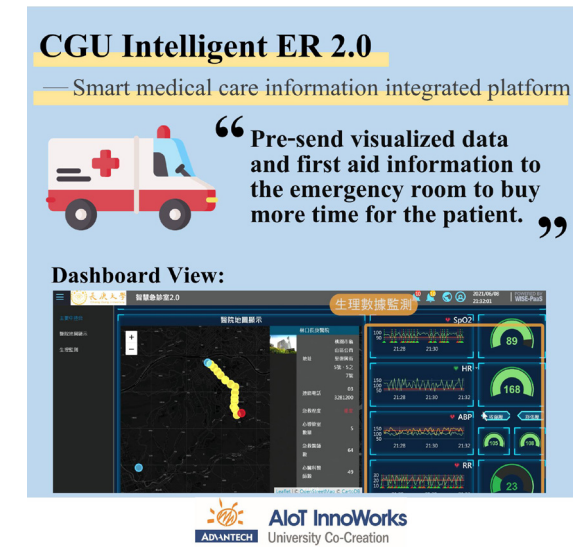
Achievements

In 2021, participating schools of AIoT InnoWorks covered five areas around the world including Taiwan, mainland China, Indonesia, Vietnam, and Malaysia, comprising a total of 238 students from 17 schools. A total of 52 projects were created and implemented, covering topics such as intelligent manufacturing, intelligent cities, intelligent medical care, and intelligent agriculture.

Figure 3.2.7 Success Case - AI Turtle

Figure 3.2.8 Success Case - CGU Intelligent ER 2.0

For more 2021 AIoT InnoWorks special achievements, please refer to the InnoWorks website.

3.3 Co-Creation with Customers and Partners

Management Guidelines for Major Topics

17 PARTNERSHIPS FOR THE GOALS		
	Materiality	Good customer relationships can enhance Advantech's corporate competitiveness; high-quality partnerships can enhance the creativity of the IoT industry as a whole.
	Policies/ Commitments	• Treat customers as partners, to jointly manage the market with customers through a co-creation mechanism. • Continuously improve channel distribution management, optimize global customer relationship management systems and technical service platforms, and provide more diverse online training courses. • Ensure that customer privacy is fully protected, and ensure that customers' rights and interests do not suffer during the pandemic.

3.3.1 Trends, Strategy Sharing, and Co-Creation

Advantech Connect

Every two years, Advantech's Headquarters holds a large-scale World Partner Summit with more than 1,000 people, and every year branches in various countries also hold large-scale customer forums, various conferences and exhibitions, distributor conferences, and so on. Through these activities, we share the latest development strategies of the Company as well as technological breakthroughs and new product launches with customers. In addition, industry experts are invited to give lectures on industry insights and market prospects to customers, and important clients are also invited as speakers to talk about IoT applications from customers' perspectives. In 2020, all of Advantech's activities were conducted online due to the pandemic, including our launch of the Advantech Connect forum series. We expanded the scale of online forums in 2021, adopting the iKala Cloud platform in the first half of the year to be able to meet the needs of 1,000 simultaneous online forum participants and to also provide online chat and timely voting functions. A total of 48 forums were held in Europe and the United States, in the first half of 2021, including 240 lectures, and the total number of registrants exceeded 12,000.

We adjusted our online forum model in the second half of 2021 to adopt a strategy of flourishing on a large scale; and we replaced the platform to instead provide GoToWebinar and Zoom Meeting platforms that give global subsidiaries the capability of quickly arranging small online forums. A total

of 84 forums were thus held around the world in the second half of the year, including 420 lectures. In 2021, more than 22,000 people altogether signed up for the Advantech Connect series of forums. The Advantech Connect on demand program was launched in the same year to increase customers' return visits to watch on-demand video and to expand the online influence of this service. The number of playback views in 2021 exceeded 8,000.

Through the Advantech Connect series of activities, it has gradually transformed from a large-scale customer forum of traditional offline entities to an online live broadcast forum. By accelerating Advantech's digital transformation and data analysis on online forums (including the number of applicants for each session, the maximum number of people online at the same time, the average viewing minutes, etc.), the Headquarters can better understand current preferential trends of regional markets. We also collect information on customers' needs and expectations through online interaction with customers and the satisfaction and feedback of each session, and by understanding the effectiveness of the Company's management of these issues. In addition, colleagues and customers of various regional branches can also have a better understanding of Advantech's development goals and growth strategies.

For more information, please refer to:
- Advantech Connect Website
- Advantech Connect on demand video

Effectiveness Assessment

Total webinars held	**132**
Total lectures	**660**
Total number of registrants	**22,158**
Total online visitors	**13,584**

Visitors watching more than 30 minutes	Percentage of viewing times over 30 minutes	Visitors watching more than 60 minutes	Percentage of viewing times over 60 minutes
8,154	**60%**	**5,842**	**43%**

Partner Co-Creation

Advantech proposed the concept of "co-creation" in 2017. While meeting customer needs and providing customer service, we also regard customers as partners and invite them to join us in actively creating value through cooperation in terms of technology, products, business models, business marketing, channels, and so on. The industrial ecological chain is the key to the success of the IoT business model, and Advantech treats customers as ecosystem partners. We supported start-ups in Taiwan, China, Europe, the United States and other places in 2021 by investing in external funds, and we look forward to forming a complete IoT ecosystem in these key areas.

Having set aside US$30 million in Europe and the US to set up a Co-Creation Fund, an actual investment amount of US$8.5 million in 2021 will incubate new innovations in Edge AI, Cybersecurity, AI AOI, cold chain energy management, and intelligent positioning while facilitating their linkage with Advantech's industrial ecosystem. Meanwhile, we have invested RMB 50 million in China to incubate new innovations in industrial control safety and 5G intelligent mines. In addition, we set up a US$50 million fund to promote cooperation in the industry chain and invest in the energy storage industry in 2021. In Taiwan, in addition to continuing to cooperate with the China Development Fund for the Internet of Things Fund, we also maintain our cooperation with strategic accelerators. With Advantech's industrial links and WISE-PaaS technical resources, we support the growth of IoT startups in Taiwan and made a practical investment in an industrial testing software company to practically support the growth of partners with capital, technology, and business networks.

Table 3.3.1 Advantech's 2021 List of AIoT New Innovation Activities

Ecosystem Fund Investment		
Region	**Fund Size**	**Invested Company's Field**
Europe and Americas	US$30 million	AIoT new creation and co-creation: edge AI, cybersecurity, AI AOI, cold chain energy management, intelligent positioning
China	RMB 100 million	AIoT new creation and co-creation: industrial control security, 5G intelligent mines
Global	US$50 million	IoT industry chain investment: invested in an energy storage company

Incubators, Accelerators, and Sponsorship of IoT Innovation Events		
Region	**Number of Sponsors**	**Sponsorship**
Taiwan	3	2.9 million

Startup Support	
Region	**Support Content**
Taiwan	Investment of NT$20 million in industrial testing startup
Taiwan	Sponsored WISE-PaaS cloud resources equivalent to NT$100,000 for AI scheduling startups
Sweden	Sponsored WISE-PaaS cloud resources equivalent to NT$200,000 for a smart factory integration consulting company

3.3.2 Distributors and Channel Management

Materiality	Advantech has a number of sales locations and established subsidiaries around the world; and at the same time, we rely on our global distribution network to provide localized services. Distributors are not only customers, but also important partners. Advantech is committed to establishing a long-term channel management strategy with the goal of growing together with our distribution partners and uphold Enabling an Intelligent Planet together.
Management Policy/ Action Plan	Advantech's distribution channel management primarily adopts differentiated development and operations according to the business types of distributors, and we set the authorization and certification of product types and distribution levels according to the professional fields of distribution partners in order to differentiate their markets. Furthermore, we provide relevant technical training and marketing activities to strengthen the professional abilities of distributors. Using our annual distributor evaluation and review system, we check whether distributors have completed the signing of authorization contracts and implemented the relevant authorized areas, products, and price management. The following six areas are reviewed and evaluated annually to ensure that Advantech's distributors can provide a full range of high-quality services. 1.Sales performance indicators (annual performance targets and target market management KPIs) 2.Marketing: market development (marketing activity plans and industry-specific channel development) 3.Organizational talent development (reward mechanisms for talent development and establishment of brand service teams) 4.Technical certification training (product and application courses, quality awareness, and standard operating procedures) 5.Strategic development direction (annual business plans, price classification management, inventory stocking mechanisms) 6.Management system compliance (project reporting and conflict and violation management)
Effectiveness Assessment	In implementing the channel management process (Channel BLM), Advantech's business team and distribution partners jointly formulate an annual distribution business plan (Channel ABP). We thereby set annual development goals and cooperation priorities, review the implementation effectiveness and achievement status every quarter, and provide marketing resources, product technology, and strategic direction support in a timely manner. Furthermore, through channel performance growth, distribution partner development, training and certification results, and annual audit evaluations, we can achieve the stable and long-term development of operating distribution channels.
2021 Results	• Overall revenues of the distribution channels increased by 24% compared with last year, hitting a five-year high. Among them, China increased by 46%, North America increased by 16%, and Europe increased by 12%, while emerging countries and other regions grew a combined 6%. • Advantech completed formal contract signings and authorization of 297 distributors worldwide in 2021. Among them, the number of newly signed distribution partners reached 27.
2022 Goals	• Overall revenues of the distribution channels to continue expanding and the total performance to increase by 50%, with each region targeting double-digit growth. • Continue to develop industry-focused distribution partners and system integration partners, with the number of newly recruited distributors accounting for more than 10% of the total number. • Introduce online teaching materials for quality management courses and list them as training courses that are obligatory for authorized distributors.

3.3.3 Customer Satisfaction Survey and Customer Audit

Customer Satisfaction Survey

In respect to Advantech's customer satisfaction survey method, the Headquarters regularly sends out questionnaires to a portion of those customers who have purchased Advantech products. This is aimed at understanding customer satisfaction levels in five aspects, including "sales services and pricing," "delivery efficiency," "product quality," "technical services," and "after-sales services." We take the customer satisfaction survey results as one of the performance measurement indicators of relevant units. For items with poor evaluations, relevant units are requested to propose improvement plans. Improvements are tracked by business units with a view to completing them within a specified time frame.

Regarding 2021 customer satisfaction survey methods, this involved asking each factory to provide a list of their top 10 customers and a list of customers who have been more willing to give feedback and engage in interaction in the past. A total of 8,286 customers were sampled, including 111 customers in mainland China, 36 customers in North America, and 8,139 customers in Europe. The average coverage of this survey was 17.45%, the average recovery rate was 24.10%, and the average customer satisfaction score was 94.83, exceeding the target of 92 points set in the prior year.

Except for an improvement in satisfaction in terms of "Product Quality," the scores of the other four items were lower than those of the previous year (2020) as shown in Table 3.3.3. It was understood that these were mainly affected by global environmental factors in terms of lack of materials, resulting in lower overall customer satisfaction.

Table 3.3.2 Customer Satisfaction Survey Coverage and Results, 2018-2021

Year	2018	2019	2020	2021
Coverage -Sample Customer Revenues as a Percentage of Total Revenues (%)	17.36	16.80	16.98	17.45
Satisfaction (%)	94.94	94.59	95.16	94.83

Table 3.3.3 Breakdown of Average Customer Satisfaction Scores (Out of 5 Points), 2020-2021

Year	Sales Services and Pricing	Delivery Efficiency	Product Quality	Technical Services	After-Sales Services
2020	4.75	4.73	4.79	4.80	4.71
2021	4.73 ↓	4.72 ↓	4.81 ↑	4.74 ↓	4.68 ↓

Future goals: increase the coverage of customer satisfaction surveys year by year, and maintain an average satisfaction score of more than 90 points.

Customer Audit

In 2021, a total of 19 key account (KA) customers requested audits (including online or document audits), covering quality systems, environmental safety and hygiene systems, and corporate social responsibility. Advantech also promoted online auditing modules in response to the pandemic. Through communication tools and remote videos, we explained the manufacturing process and intelligent control mechanisms in order to meet the needs of customer visits and audits in the post-pandemic era.

3.3.4 Customer Service

⋀⋀ Global Customer Relationship Management System

A good customer relationship involves a customer-centric, 360° all-round connection. Our customer relationship management (CRM) system provides Advantech's teams with appropriate information and insights to understand customer needs, and can communicate with customers using convenient methods and can provide customers with better services anywhere.

Advantech introduced Oracle Siebel CRM in 2000 and fully utilized it in the regional offices of the Group. In 2014 and 2015, we moved our CRM in Europe and North America to Salesforce in order to provide customers with smoother and more immediate services. Through advances in electronic marketing technology and an abundance of subscription services, customers can choose the product information they are interested in. With convenient mobile devices and data access, businesses can control customer needs anytime and anywhere, and can propose the best solutions while communicating with customers. The multi-channel integrated service system thus allows customers to experience the service support of One Advantech.In order to enable the entire Group to more closely grasp customer needs and provide services beyond borders, Advantech plans to move Taiwan and Japan to Salesforce in 2022 and gradually introduce it to other regional offices.

⋀⋀ Global Online Technical Services Platform

Advantech provides global customers with multiple channels for online technical support services. Through our technical support service platform, customers can submit service requests through emails, form submissions, online text conversations, toll-free service calls, and so on. Advantech continues to seek further perfection. In 2021, the Zendesk cloud-based technical service management platform was introduced at the Taiwan Headquarters, and 97% of online customer technical support requests were to be automatically assigned to appropriate technical service personnel according to a customer's location, language preference, and contact information. Aside from allowing customers to conveniently submit requests and greatly shortening waiting times, this optimization also allows internal colleagues to focus on handling these customer requests. Advantech closed a total of 59,909 technical service requests from customers worldwide in 2021, and the case closure rate was 98.7%.

Advantech's official website currently provides 20,949 technical documents and resources, allowing customers to view and download them by themselves. Due for launch in 2022, the Advantech Knowledge Center will further provide technical information for more in-depth solutions such as Featured Products, Specifications, Training Materials, and FAQs.

After technical services are completed and online resources downloaded, Advantech then takes the initiative to conduct customer service satisfaction surveys. It is hoped that through customer feedback on service quality, as well as discussions of the product itself or of service content, product development units will incorporate customer needs into their product design planning, and this will additionally provide business marketing teams with customer expectations and needs for solutions. As well as improving product support services, online teams are thus constantly advancing with the times and optimizing service processes.

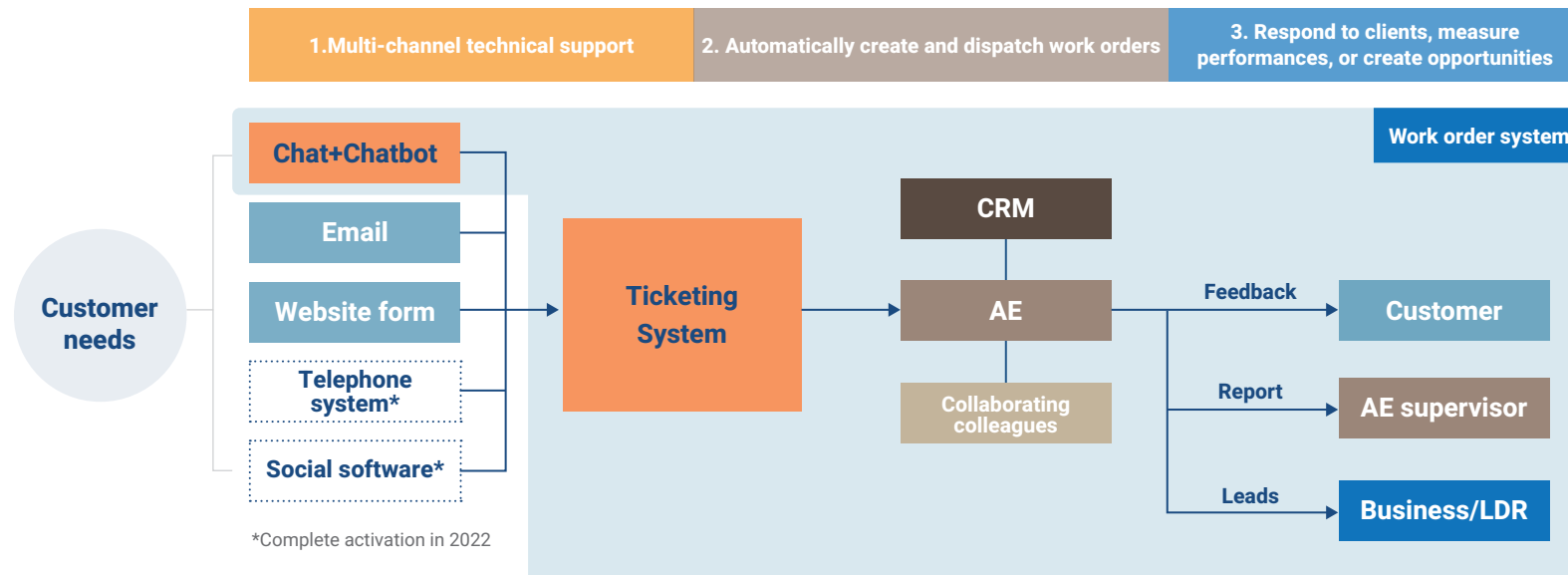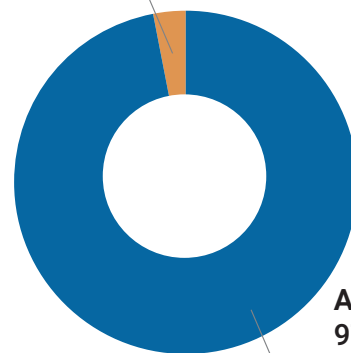Figure 3.3.1 Advantech's Online Technical Services Process

Figure 3.3.2 Technical Support Analysis

97% of technical support automatically assigned
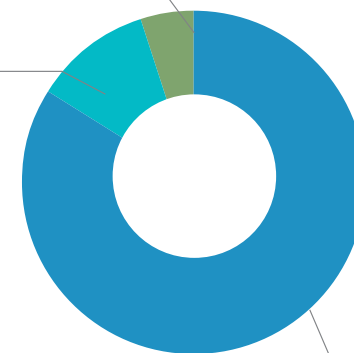

Manual assignment 3% (425)

Automatic assignment
97% (7,337)

Sources of technical support

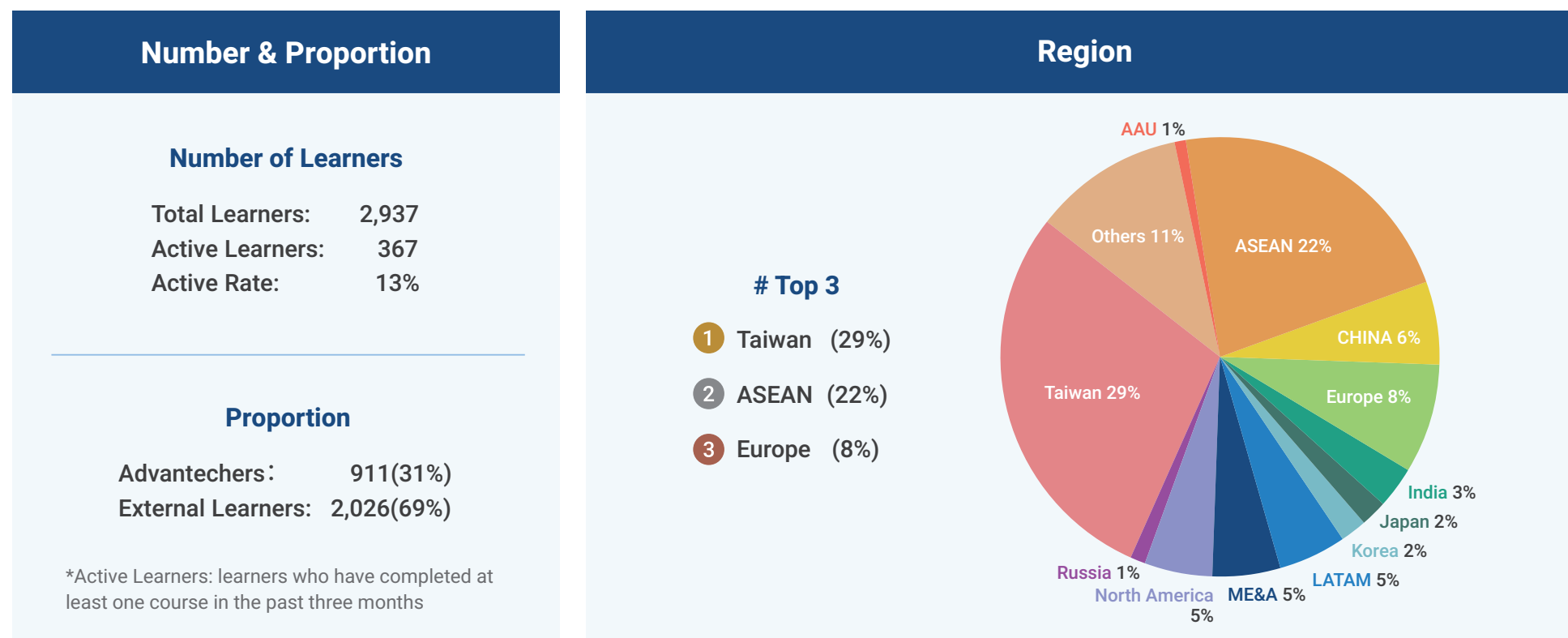Website form 5% (317)

Email 11% (821)

Chat 84% (6,199)

*Technical Support Analysis(2021 Taiwan HQ)

⚠️ Online Technical Training Courses

In 2021, Advantech integrated existing resources to enable IoT Academy to provide complete online technical training and certification courses, shortening the learning period for customers to use products. As opposed to the offline physical technical training courses offered in the past, customers, partners, and distributors now can choose and watch all Advantech product technical training courses in Chinese and English, including those for edge devices, computer systems, cloud platforms (WISE-PaaS), and vertical solutions. In addition, we further provided a technical certification system for the purposes of technical promotions and partner training. The IoT Academy platform includes more than 400 courses in less than a year as well as over 290 technical certifications. More than 2,900 students worldwide have registered to study, and the platform has issued more than 3,000 technical certifications.

In addition to Chinese and English, some courses are also available in Korean, Spanish, Turkish, and other languages. We expect to add Japanese, Russian, Portuguese, and yet more translations in the future.

Figure 3.3.3 Analysis of IoT Academy Active Users

Number & Proportion

Number of Learners

Total Learners: 2,937
Active Learners: 367
Active Rate: 13%

Proportion

Advantechers： 911(31%)
External Learners: 2,026(69%)

*Active Learners: learners who have completed at least one course in the past three months

Region

Top 3

1 Taiwan (29%)
2 ASEAN (22%)
3 Europe (8%)

AAU 1%
ASEAN 22%
Others 11%
CHINA 6%
Europe 8%
India 3%
Japan 2%
Korea 2%
LATAM 5%
ME&A 5%
North America 5%
Russia 1%
Taiwan 29%

3.3.5 Customer Privacy Protection

Management Objectives	In order to allow customers to use Advantech's website and network services and other services with peace of mind, and to protect customers' own rights and interests, Advantech Co., Ltd. adheres to the regulations and disclosures required by customer privacy protection laws. Advantech thus will comply with all relevant laws and regulations regarding privacy data protection and data security. The ultimate purpose of collecting information is to provide customers with more suitable and comfortable services and experiences.
Management Policy/Action Plan	**Employees** We regularly conduct personal information protection education and training for employees, and require them to complete and read the requirements of integrity management and employee integrity commitments every year. **Suppliers** The privacy administrator includes the information that the company has business dealings with, such as suppliers and so on; this should comply with privacy and data security laws and regulatory requirements when collecting, storing, processing, disseminating and sharing personal data. At the same time, for suppliers, the SRM system of the purchasing division requires suppliers to complete the reading of the privacy protection policy every year. **Customers** 1. Compliance with laws and regulations: the collection and use of personal data is to be in accordance with the basic principles of the Personal Data Protection Act while providing personal data with the right to know, access, correct, delete, and so on; and compliance should be made with local regulations such as the European GDPR, the American CCPA, the Korean PIPA, and the Turkish KVKK. 2. Online privacy protection practices: we use the standard technology of "cookies" to collect information about how customers use Advantech's web pages in order to provide an optimal environmental experience. If a customer is unwilling to accept cookies, he or she can set a rejection or notification warning in the browser function items used by the customer and choose to reject or accept the cookie. Advantech has no purpose or intent to infringe on the privacy of customers/users when they browse Advantech's web pages. 3. Handling of customer issues: for customer-related personal data, there is a data protection mechanism and a mailbox for the Data Protection Working Party (Privacy.Inquiry@advantech.com) If there is a suspected customer data security problem, the processing mechanism will be activated immediately to minimize associated risk hazards.
Effectiveness Assessment	**Management Policy Evaluation Results** 1. In regard to personal data deletion applications, a total of 49 items of customer data were processed in 2021. 2. In regard to personal data exports, a total of 24 items of customer data were processed in 2021. 3. In regard to complaints over personal information, there was no direct handling of any such material cases in 2021; they would mainly include addressing the needs of customers who might want to adjust the subscription status of Advantech e-newsletters, as described in the previous materials. **Adjustment of Management Policies** 1. Internal: The internal audit plan will be launched in 2022, and it is expected to be completed this year. 2. External: The external audit plan will be launched in 2022, and it is expected to be completed this year. 3. Suppliers: the SRM system of the purchasing division requires suppliers to complete the reading of the privacy protection policy every year.
Performance	● 2018 Completed introduction of GDPR privacy rights ● 2020 Completed introduction of CCPA privacy rights ● 2020 Completed introduction of PIPA privacy rights ● 2021 Completed introduction of KVKK privacy rights ● January 2022 Updated privacy policy of Advantech Co., Ltd. (Taiwan) ● In 2022, privacy rights will be included among risk assessment and project audit topics ● Advantech complies with global privacy-related regulations, and no complaints were received in 2021 regarding leakage or losses of customer data.

As of 2021, Advantech's official website had added a total of 26,385 new registered members; and, in accordance with the Advantech Privacy Statement , content includes the following:

1	Personal Data We Collect
2	How We Use Personal Data
3	Reasons We Share Personal Data
4	How to Access & Control Your Personal Data
5	Lawful Bases for Processing

6	How Long Do We Keep Your Personal Data?
7	Your Information, and Countries outside Europe
8	Protection of Privacy
9	Your Rights
10	How to Contact Us

11	Privacy Notice for California Consumerst
12	KVKK Personal Data Protection Policy
13	KVKK Clarification Text on the Contact Form Process
14	KVKK Confidentiality Agreement and Terms of Use

Advantech's Privacy Policy has now been fully disclosed on Advantech's official website:

English:

https://www.advantech.com/legal/privacy

3.3.6 COVID-19 Pandemic Response towards External Partners and Customers

The world has been greatly impacted by the COVID-19 pandemic in recent years. During this time, Advantech has moved to safeguard daily operations while preventing pandemic-related risks from arising. We have thus established a Pandemic Preparedness Response Task Force with the President of General Management designated as the convener. The Task Force communicates with the top supervisors of all responsible units and business units (see Figure 1 below) and formulates standardized handling principles for internal colleagues who have contracted the virus (see Figure 2 below) so as to actively prevent the major operational risks that may arise from the infection of colleagues and by extension the possible impact on customers. (On average, a one-day shutdown of the Taipei Manufacturing Center would result in a loss in output value of NT$71 million, while the corresponding figure for the Kunshan Manufacturing Center would be RMB 19 million or approximately NT$83 million.)

Figure 3.3.4 COVID-19 Advantech Headquarters Pandemic Preparedness Response Task Force

Convener

PMO

HR	Operations	IT Services	Customer Services	Procurement
• Employee Safety • Travel / Meeting Policies	• MSU Capacity & Recovery Plan • SCM & Logistics	• Outlook • VPN • Audio/Video • Remote Access	Customer Inquiry & Feedback	• Key Parts Planning • Global Sourcing
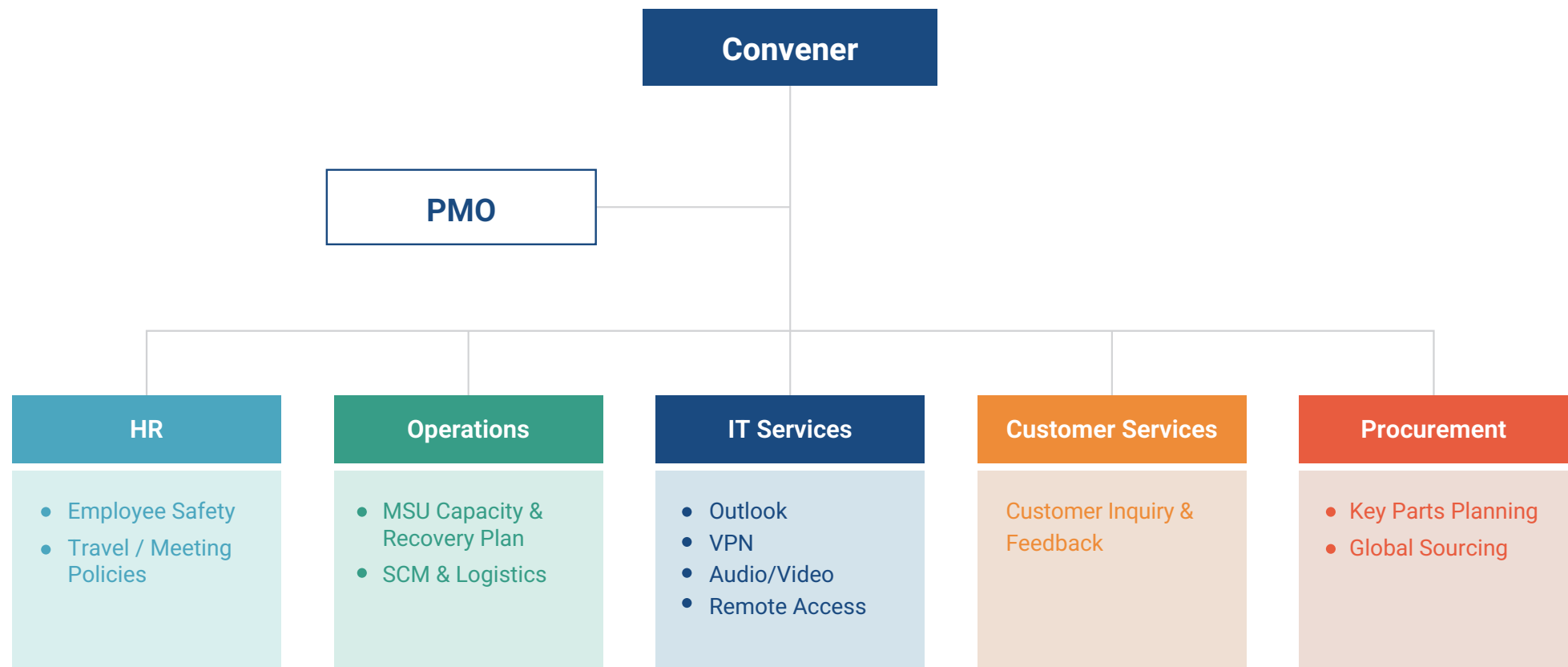
Figure 3.3.5 Advantech Headquarters Standard Handling Principles for COVID-19 Infected Colleagues

| Colleagues or the Health Bureau shall give notification of the infection event | The Pandemic Preparedness Response Task Force and the HRP shall carry out the pandemic investigation and list close contacts | Precautions for non-close contacts:
● **Indirect colleagues** The floor in question shall be emptied for a full week of WFH
● **Direct colleagues** Work on the floor in question shall be halted for one day | All areas are to be thoroughly cleaned and disinfected and cleaning of public areas shall be strengthened | The Pandemic Preparedness Task Force and the HRP shall continue devoting attention to the monitoring of colleagues' health statuses, and shall assist colleagues in applying for emergency aid for infected persons depending on the situation |

When the pandemic escalated in mid-2021, Advantech facilitated normal global operations by dividing employees into four shifts (designated A, B, C, and D). Externally, through letters to customers, letters to suppliers, exclusive mailboxes, and telephone calls, we could immediately respond to possible questions from customers and supplier partners around the world. Simultaneously, we also communicated through media messages to allow the outside world to grasp Advantech's latest status in real time. Attached below are Advantech's letters to customers and letters to suppliers.

✉ **Letters to Customers**   ✉ **Letters to Suppliers**