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Innovation and Services

- 3.1 Innovative Products and Technologies
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- 3.3 Customer Service and Partner Cocreation



3.1 Innovative Products and Technologies



In promoting IoT co-creation, a key task for Advantech is to grow its core business by innovating mainstream trends and applying advanced domain-focused technologies. We implement innovative mechanism to review the effects and trends of innovation, encourage the development of innovative products, and continuously adjust our product strategies.

Our special projects focusing on innovation include the following:

Corporate level

A+X Innovation Meetings: The Chairman himself hosts meetings on innovation and evolution topics out of Advantech Headquarters. The format of these meetings promotes discipline in formulating innovative ideas.

Business Group level

Annual business plan meetings are held to integrate the internal strategic directions of each business group in order to discover new opportunities for innovation. Key content is aimed at reviewing product innovation/business group development strategies.

A+ product management policies

- Definition of an A+ product: In 3 years, annual sales revenue reaches US\$3 million or the annual product sales amount reaches 10,000 pieces.
- A+ product KPI: From 2021 to 2025, the revenue ratio of an A+ product increases 10% each year.


Management methods

Upper-level coaches offer development guidance to assist the product departments with integrating newly developed products as quickly as possible. To be an A+ product candidate, products must achieve an annual sale volume of 10,000 pieces in 3 years or reach an annual revenue of US\$3 million. To assist with this process, we have established the A+ product proposal review and reward mechanism, described as follows:

Proposal channels	<p>1. In A+X meetings, after a product passes the Chairman's review, it is listed for follow-up.</p> <p>2. Business units may nominate products in their annual business planning meetings. The development procedure for A+ product candidates must meet the product development management procedure for new products.</p>	
Reward stages	There are two types of rewards: "A+ Nomination Award" and "A+ Outstanding Product Award"	
Review key points	<p>A+ Nomination Award</p> <p>Proposed by the Product Department and reviewed by the A+ Product Review Committee. The key points are as follows:</p> <ul style="list-style-type: none"> ● Target market demand and analysis ● Usage scenarios, user pain points, and solutions ● Product and customer values or product characteristics ● Innovative functions ● Unique design in appearance or industrial design 	<p>A+ Outstanding Product Award</p> <p>After an A+ product reaches mass production, the product departments can nominate the product for selection for the A+ Outstanding Product Award, for which the product undergoes review by the A+ R&D Bonus Review Committee. The following key points are considered:</p> <ul style="list-style-type: none"> ● The product development meets Advantech's IPD procedure ● Development timeline management ● Budget and cost management ● RBU sales team feedback and case sharing of clients' user experience

2020 A+ Models Evaluation and Selection Results

01




IoT

Industrial IoT Business Group

- From 12 models nominated, 7 received an A+ Nomination Award
- The awarded models were: SPC-115W/121W / UNO-137 / UO-430 / SPC-800 / WISE-750 / iDAQ series / IPC-242

02




EIoT

Embedded IoT Business Group

- From 7 models nominated, 6 received an A+ Nomination Award and 1 received an A+ Outstanding Product Award.
- The awarded models were: AIMB-506 / DS-082 / DS-085 / RSB-4710 / SOM-6883 / SOM-7583

03



SIoTT

Service IoT Business Group

- From 5 models nominated, 4 received an A+ Nomination Award.
- The awarded models were: UK615 / UTC-115 / POC-621 / TREK-60

Management policy evaluation

Mechanism to evaluate the effectiveness of management policies

- Number of innovative proposals: Each business group may have at least four models receiving a Nomination Award each year.
- Market performance of A+ products: E-manager (Advantech's internal system) is used to track whether the sales of A+ products reach the aforementioned A+ product standards.

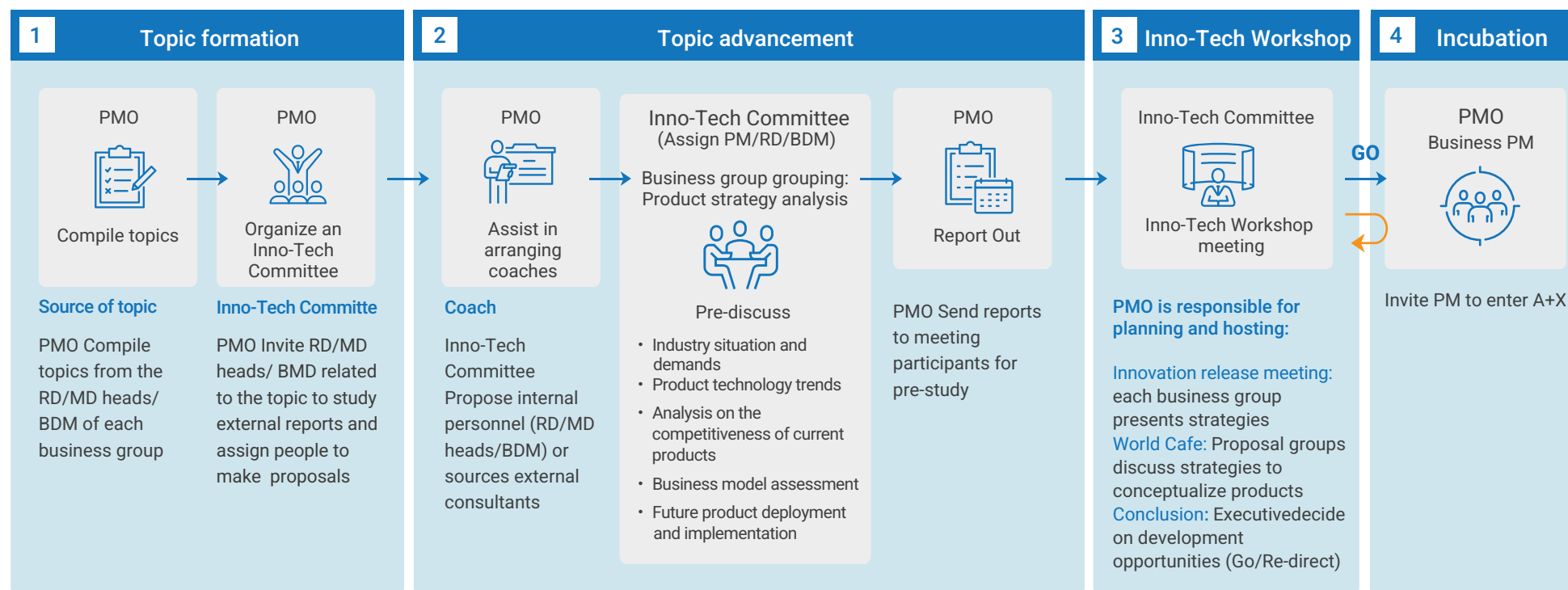
Management policy evaluation result

Advantech reached its annual goals on the number of innovative proposals in 2019 and 2020.

Any relevant adjustments on management policies

- (1) Long-term technology development and optimization: Establish the Cross-Business Group Horizontal Integration R&D Technical Committee to achieve the following goals:
 - Sharing – interdepartmental collaboration and technology sharing
 - Innovation – Increase the core technology of products and value-added services
 - Intercommunication – modularized design to create different series of products
 - Develop the Inno-Tech Innovation Workshop, which was held for the first time in 2020.
- (2) Initiate the EBO mechanism: To assist Advantech in long-term innovation management, we will continue to guide and cultivate new business and technology development opportunities. For this, we plan to introduce an EBO mechanism. From perspectives including industry, commerce, and technology, we are planning long-term strategic proposals regarding global market trends and innovative technology development for the coming 5 years.





Innovation results of the Inno-Tech Innovation Exchange Workshop

Case: Vision AI X Smart Transportation

Robust AI products for smart transportation	Software and hardware value-added ecosystem	Image capture development plan
<p>MCT extends the discussion to build a hardware platform for ISV for rapid testing on:</p> <ul style="list-style-type: none"> ✓ Vehicle/roadside thermal solutions ✓ Certification modules (e.g., connectors, chassis module designs) ✓ Modularization of I/O and sensor communication 	<ul style="list-style-type: none"> • Establish AI partners and case-sharing platforms, and develop AVL SW partners • Help customers rapidly deploy AI value-added solutions ✓ Establish a smart transportation AI pre-training model ✓ Establish a user-friendly GUI 	<ul style="list-style-type: none"> • Existing market (railway inspection) ✓ Develop standard products, combine with ISG ITA transportation business, and promote POC ✓ Provide an overall solution: Combine cameras and photoelectric converters to form an overall solution • New market: find UAV manufacturers with AI expertise to cooperate to develop the high-speed image capture market

3.2 Sustainable Intelligent Solutions



In 2010, Advantech proposed the vision of “enabling an intellectual planet.” In addition to continuing to innovate and broaden the range of our products, we also proactively cooperate with upstream and downstream partners to cocreate solutions specific to various industries. In 2016, Advantech proposed the WISE-PaaS Industrial IoT Cloud Platform and provided a low-code application framework. Industry partners can now quickly and easily create industrial apps (I.Apps) and integration solutions via the WISE-Marketplace one-stop IIoT app market.

Advantech's hardware, software, I.Apps, and integration solutions consist of various products designed for specific applications, such as in energy (solar energy, wind energy, smart grids, electric vehicle charging stations, building energy-saving, and energy-saving monitors), flood and disaster prevention, sewage treatment, remote education, public safety (smart street lighting, transportation safety), public health, telemedicine, smart medicine, cold chain management (food safety), smart agriculture, information security, and cloud computing. In 2020, our worldwide revenue for the sale of products used for sustainable purposes accounted for 15.79% of our total revenue (Table 3.2.1)

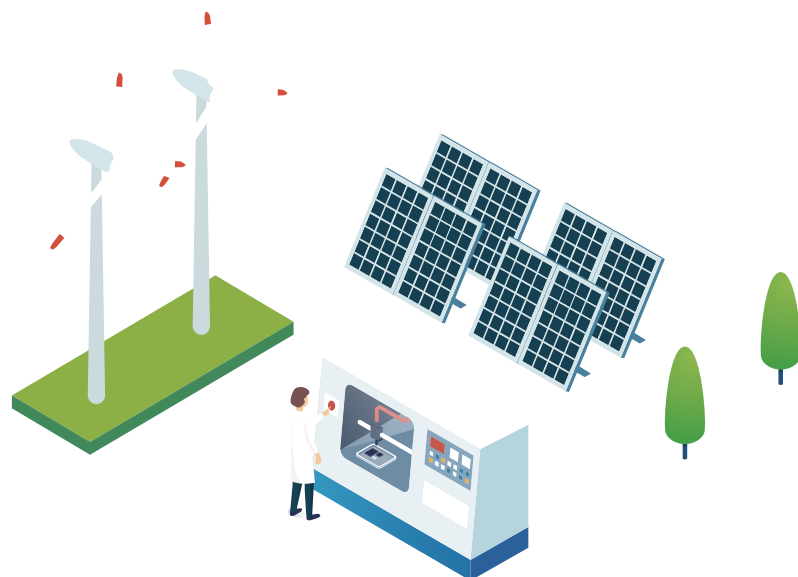


Table 3.2.1 Revenue ratio of Advantech's products for sustainable purposes

Business group	Revenue ratio per business group
Industrial IoT	11.36%
Embedded IoT	18.49%
Cloud IoT	23.17%
Service IoT	60.82%
Global customer services	19.14%
Revenue ratio vs. total revenue	15.79%

Focused case 1: Smart electricity stations and PV poverty alleviation\

Clean energy sources, such as solar energy and wind power plants, are typically dispersed over a wide geographic area, which makes management difficult. Problems faced by management include the strict climate conditions required for efficient power generation and energy storage. Advantech's solution development plans are based on the WISE-PaaS platform, which integrates industrial PCs, gateways, and edge computing. By integrating edge devices and cloud systems, we have been able to develop comprehensive operation and maintenance systems for PV and wind power plants in Singapore, the United Arab Emirates, Myanmar, and Mongolia, helping to improve management efficiency in clean energy industries.

In 2020, Advantech cooperated with Shanghai PTIT Network Engineering Co., Ltd and launched the Photovoltaic Poverty Alleviation (PVPA) Electricity Station Digital Upgrade Special Project. We offer PV solutions including framework design, data acquisition planning and implementation, onsite monitoring, edge analysis, key data sharing, cloud platform operation and maintenance, and app mobile management. Farming families participating in the PVPA project can now more accurately calculate and earn money from their household electricity generation.



▲ Focused case 2: Smart healthcare

Advantech is proactive in developing smart healthcare. During the COVID-19 pandemic, we have provided extensive support for Taiwan's public health and medicine systems. In 2020, we sponsored the Department of Health of New Taipei City Government, Fun Jen Catholic University Hospital, and the Tamsui branch of MacKay Memorial Hospital to assist the Shimen District Public Health Center and Sanzhi District Public Health Center in establishing telemedicine systems. Long-term care patients no longer need to travel to hospital, and both doctor-patient relations and medical quality have improved. We have also implemented WISE-PaaS AI technology in the field of medical management, and have sponsored Taipei Veterans General Hospital to establish a smart medicine situation room that utilizes medical AI to improve medical management quality.

In cooperation with Nogata City Government in Fukuoka, Japan, we provided facial recognition technology, IR cameras, and image AI technology for a non-contact body temperature measuring system that can measure body temperature and monitor for social distancing in crowded areas.



Improvement plans

Advantech's business units (i.e., Industrial IoT, Embedded IoT, Service IoT, and WISE-PaaS) work continuously to develop smarter solutions. However, the increase in our products being used for sustainability purposes (from 14.76% in 2019 to 15.79% in 2020) has largely been due to organic growth. Without fully understanding the social impact of our products being used for sustainable purposes, it is also difficult for us to set goals and to conduct a comprehensive performance assessment. To overcome this, we need to be able to precisely calculate and analyze such factors as the total amount of power generated from our PV systems and the total number of people who benefit from smart medicine each year. In the future, we hope that through c-level meetings and the ESG Promotion Office, we will be able to achieve market expansion by incorporating sustainability concepts into our strategy blueprint for developing new products in different industries. We will set quantitative goals and continue to develop smart solution plans to make the world cleaner, safer, healthier, and more convenient.

3.3 Customer Service and Partner Cocreation

17 PARTNERSHIPS
FOR THE GOALS



Advantech first proposed the concept of “Co-creation” in 2017. As we meet our clients’ needs and provide them our services, we also view them as partners. We invite them to cooperate through innovating technology, products, business models, marketing, and other activities.

Trend and strategy sharing

At Advantech Headquarters, we hold the World Partner Summit every 2 years, which is a large summit with over 1,000 participants. Branch offices worldwide also hold large client forums, meetings, exhibitions, and distributor conferences annually. It is through these activities that we share with our clients the latest company development strategies, technology breakthroughs, and new product releases. We also invite industry experts to share industry insights and market future visions. In addition, we invite key clients to be speakers to talk about IoT applications from a client perspective.

In 2020, due to COVID-19 pandemic, all Advantech activities were conducted online instead. We launched the Advantech Connect forums series, which involved holding six forums around the world for a total of 95 talks. Over 85,000 people signed up, and nearly 20,000 people were online for the live broadcast. (These figures only included Chinese and English sessions. They do not include Advantech online forums in other languages, nor do they include people who watched the talks later.)

Data analysis of the online forums (e.g., the number of people registered for each forum, maximum number of people online at once, mean viewing duration, and peak viewing hours) helps Advantech Headquarters understand regional market preferences and trends. Through online interactions with clients and having them provide a satisfaction rating and feedback for each session, we can understand their needs and expectations and know how effective we have managed this materiality–customer service and partner cocreation. Also, employees and clients from different regions can also clearly see our development goals and growth strategies.



Partner co-creation

In 2020, Advantech commenced 19 cocreation projects in locations such as Taiwan, China, and Switzerland. These projects were in domains including energy saving in buildings, substation management, environmentally friendly water treatment, public safety for 5G, and automated driving. Through investment, technology cooperation, business model counseling, WISE-PaaS platform resources, business opportunity matching, and collaborative deployment of overseas channel, we are able to cocreate innovative IoT applications with our partners.

Advantech also spares no effort in supporting startups. Through sponsoring domestic and foreign accelerators and incubators and directly providing resources, technology counseling, and business counseling to startup teams, we hope to stimulate the growth of the IoT industry ecology and make it more diverse.

Table 3.3.1 List of startups supported by the Advantech Foundation

Startup team		
Region	No. of companies	Field
Canada	2	Visual AI/AI optimized engine
Netherlands	2	Facility prognosis monitoring, smart factory
Taiwan	5	Smart scheduling, indoor orientation, facility prognosis monitoring, AutoML, VisionAI
Total WISE-PaaS points supported		900 points (equivalent to NT\$534,600)
Incubators and accelerators		
Taiwan	4	-
Total sponsored amount		NT\$3.4 million

Client opinion survey and client audit

Advantech considers customers who contribute a relatively high proportion of revenue as key accounts (KAs). The Quality Project Management (QPM) unit conducts KA quarterly business reviews (KA QBRs), which involves review meetings with KAs and client opinion surveys. In 2020, a total of 15 KA QBRs were conducted, revealing that we are meeting all of our clients' expectations with regard to product quality, production quality, sales, technology services, and after-sales services.

In 2020, a total of 24 KAs visited Advantech for auditing (including online and document audits). The scope included quality systems, environmental health and safety systems, and CSR. In response to the COVID-19 pandemic, Advantech also launched an online audit module to explain production processes and smart management mechanisms so that we could still meet the demands of clients visiting and auditing in the post-pandemic era.

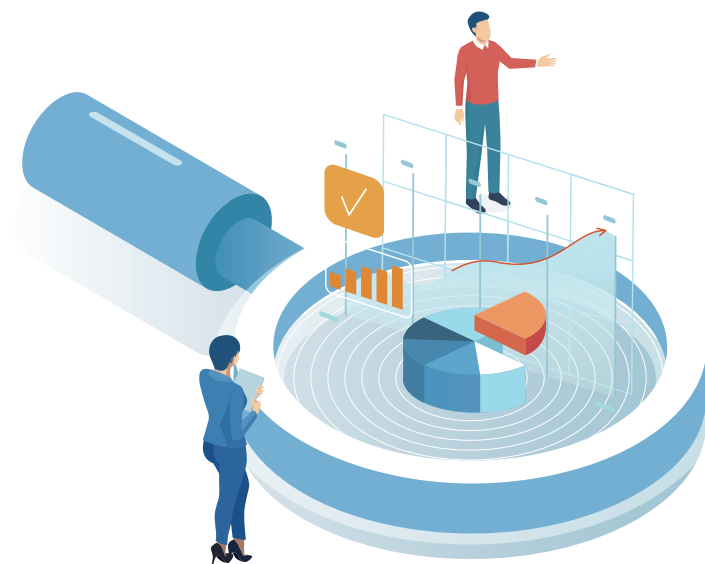
Client rights and privacy

To ensure that Advantech's products meet international regulations and our clients' needs, we regularly review our compliance with environmental health and safety regulations, and we also provide regulations on fair trade and antitrust clauses in our Employee Code of Conduct. In recent years, there has been no violation of relevant regulations or standards in marketing and communications, nor has there been any breach of the Employee Code of Conduct. To ensure that we can effectively respond to our clients' questions, our client service personnel are required to respond to client complaints within 3 business days.

Advantech's service platform collects various data so as to operate effectively and to offer the best experience possible with our products. We comply with all regulations on privacy. To enhance privacy, we have built in technological and procedural safeguards designed to prevent certain data combinations.



For more information on our privacy policies, please refer to <https://www.advantech.com/legal/privacy>.



Improvement plans

1. Customer opinion survey: Our KA QBRs allow us to survey opinions from KAs. We also use marketing activity satisfaction surveys (both online and offline) to understand our clients' satisfaction with, demand for, and expectations of our products and services. In the meantime, our branch offices in each region (such as Advantech US) conduct satisfaction surveys with local clients. However, to date, Advantech Headquarters has not conducted a large-scale client satisfaction survey. In the future, we plan to introduce more comprehensive online client satisfaction survey measures to more effectively and comprehensively understand the directions in which we should improve or make progress.
2. Client privacy: Regarding the cybersecurity incident we experienced in November 2020 (see Chapter 2.5), some client data was suspected to have been leaked. We proactively notified these clients, provided FAQs, and offered a designated communication channel for any concerns that clients might have regarding their privacy. We also immediately arranged for critical data encryption to take place in early 2021, in addition to implementing information security engineering drills and information security leaking tests as preventive measures. We didn't receive customers' complaints regarding to this issue.