

Features of Taiwan's Startup Ecosystem

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I. Overview

According to the analysis the global IoT (Internet of Things) electronic product market by the world's leading research and advisory company – Gartner, the global IoT electronic product market is \$393 billion in 2020 and is expected to grow to \$543.7 billion in 2023. The overall CAGR reaches 11.3%, of which the IoT in the automotive market accounts for 23%, CAGR reached 11.9%; the IoT in the healthcare market accounted for 7%, CAGR reached 17.0%; the IoT in the manufacturing market accounted for 12%, CAGR reached 18.4%, the IoT in the retail market accounted for 7%, CAGR

7.7%. This shows that the IoT will be the core technology driving the development of multiple industries in the next four years.

The IoT technology not only enhances the competitiveness of enterprises, but also has a great relationship with the regional economic, business and technical capabilities of countries. The Taiwanese government promotes the development of the IoT industry based on its industrial advantages, especially the ICT and healthcare industry, focusing on eight application areas including smart transportation, smart logistics, smart manufacturing, smart energy and environmental monitoring, smart business, smart home, smart agriculture, and smart healthcare.

In the ICT industry, there is a complete hardware industry chain in Taiwan. From IC design, semiconductor device fabrication, semiconductor package, PCB(Printed circuit board), panel, product design, assembly, and production, it has a world-class supply system, which can not only become a platform for industrial innovation, it can also help startups break through mass production.

In the healthcare, there is the most complete social health insurance system with a coverage rate of 99.9% in Taiwan. According to CEOWORLD's assessment of 89 countries in the Health Care Index in 2019, Taiwan ranks first in the world. Every year, the clinical medical environment in Taiwan has also become a good platform for product development and verification of medical innovation.

In recent years, the Taiwanese government has also invested a lot of resources to build a startup ecosystem, hoping to drive startups and the digital transformation of traditional enterprises through the improvement of the startups ecosystem. Based on the advantages of Taiwan's industry, TAcc+ Program deeply links industries, and gathers startup mentors from Taiwan and Silicon Valley. It not only assists Taiwan's startups to connect with the industries, but also assists international startups to leverage Taiwan's ICT and Healthcare resources which can help startups to speed up product design, verification and mass production.

According 2019 Taiwan Startup Ecosystem Survey (PwC and Taiwan Institute of Economic Research, TIER), by retrieving 412 startups online questionnaires, incubation organizations, such as incubators, are the key resources of Taiwanese startups. 68% Taiwanese startups were used to choose join incubation organizations. Most of the incubation organizations were based in north Taiwan, which is consistent with the geographic spread of economic resources and activity in Taiwan. There is a strong connection between the services provided by incubators and major local industries, which also reflects the unique characteristics of each area. The top 10 services provided by incubation organizations for startups, including office space rental (74%), mentor networking (72%) , industry gathering and social events (72%) etc.

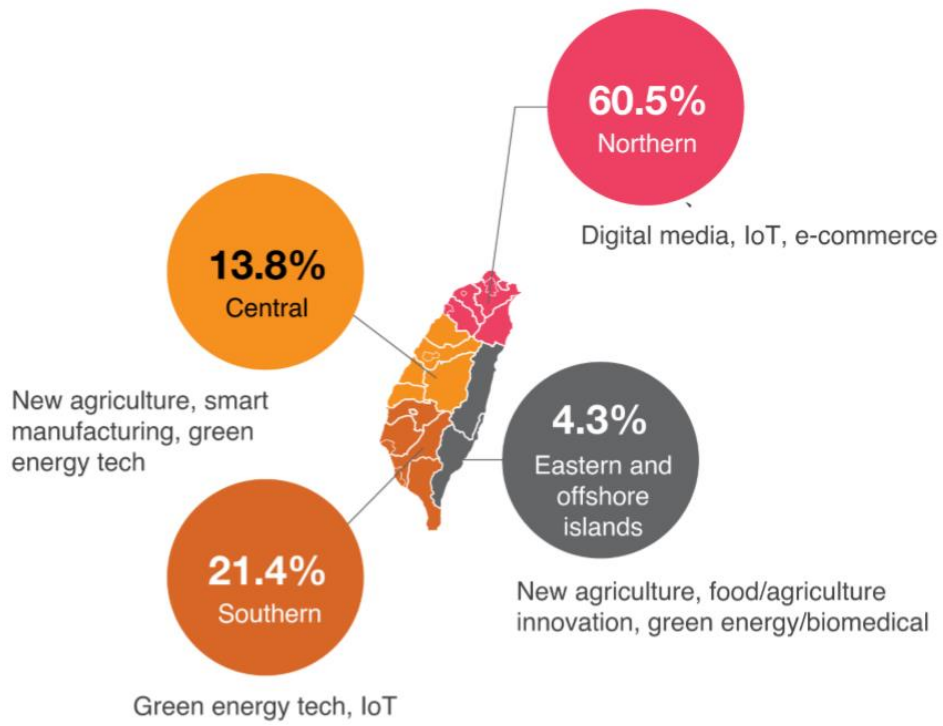


Figure1 、 Geographic breakdown of incubation organizations and local industries

Source: 2019 Taiwan Startup Ecosystem Survey

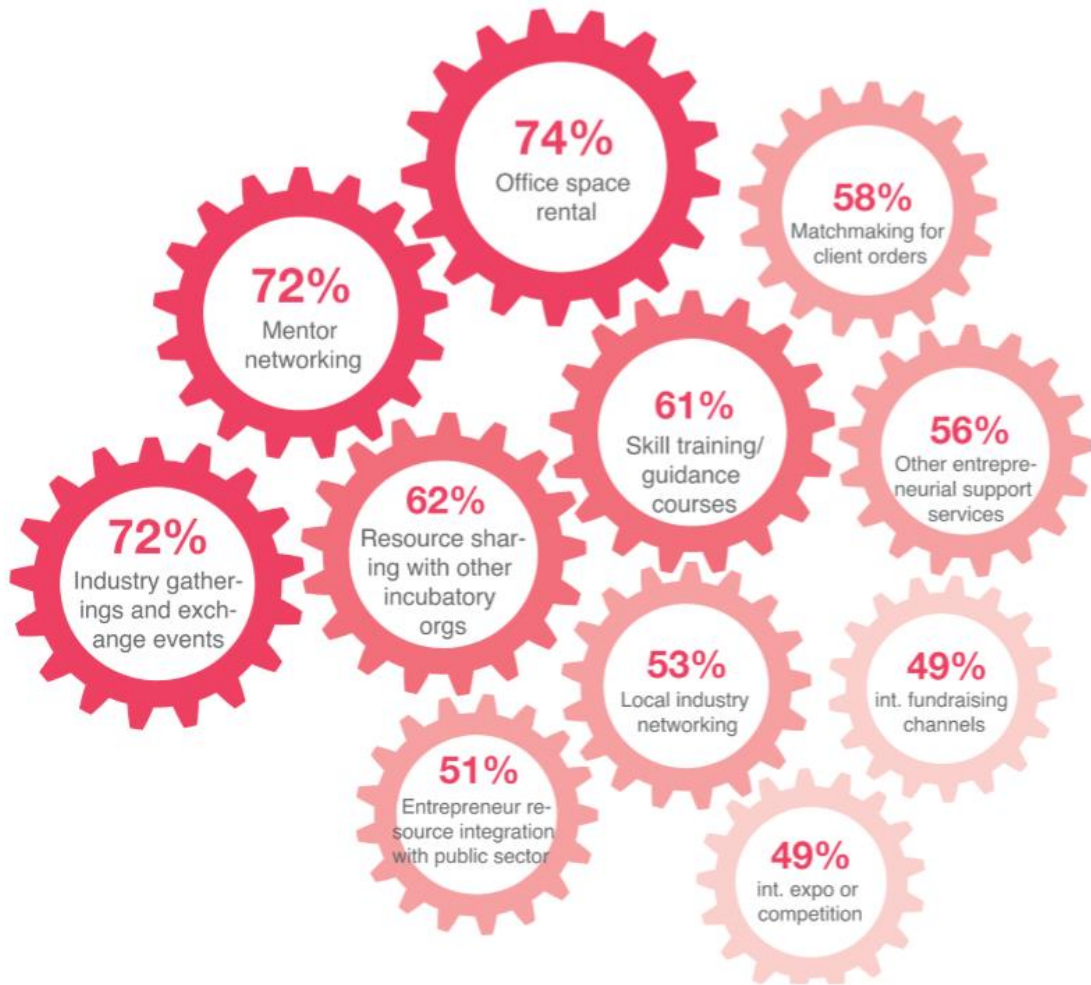


Figure2 、 Support services for startups which incubation organizations provide

Source: 2019 Taiwan Startup Ecosystem Survey

II. Taiwan startups' challenge: fundraising preparation

According 2020 Taiwan Startup Ecosystem Survey (PwC and Taiwan Institute of Economic Research, TIER), by retrieving 678 startups online questionnaires. The survey focused on the fundraising preparation period, understanding Taiwanese startups funding status 、 the use of funds, and the channels for contacting investors. It found out that 73% startups need

funds. However, more than half of startups (54%) don't get funds from Angles or Taiwanese /overseas investors.

"Term Sheets" and "Valuation" are the two major challenges for Taiwanese startups, but in fact the two challenges reflect that entrepreneurs need to strengthen the business and financial management capabilities of the company. Entrepreneurs should have a clear long-term business plan.

III. Ways of cooperation between Taiwanese startups and corporates

In the initial stage of entering the commercial market after completing R&D for startups, how can startups accumulate popularity and get a piece of market share through small, proven cooperative projects. It's an issue for these startups.

58% of the surveyed Taiwanese startups have experience in cooperating with companies (Corporate Cooperation). The majority of cooperating partners are small and medium enterprises (42%), followed by startups (26%), and public companies (20%) ranked third. It indicates the maturity of products or services from Taiwanese startups may be a long way from becoming a sustainable partners or supplier of large enterprises.

The main concerns and challenges of startups and enterprises cooperation come from the differences in enterprise scale, decision-making mechanism, etc., and the intellectual property protection of startups' own research and development results.

Compared with fundraising, Corporate Cooperation tests startup' management capabilities and products'/services' maturity more comprehensively. After initial contact and mutual communicating between the two parties, they need to continue to evaluate cooperation topics and know how to implement them.

Startups and corporates have two different concerns. Corporates want to accomplish direct and rapid commercial benefits, startups also need to consider revenue but also need to consider the appropriateness of the business model and the communication mechanism with the corporate. Avoiding falling into a customized model or being unprofitable because of investing too much resources.

IV. Status of Taiwanese corporate venture capital (CVC)

According 2020 CommonWealth Magazine (one of the most famous Magazine in Taiwan), by retrieving 776 corporate questionnaires. The new businesses that corporates most want to develop are industry 4.0/smart manufacturing, e-commerce/smart retail, big data analysis, biotechnology and healthcare, Internet of Things, Artificial Intelligence, etc. in recent years. These industries were also listed as key industries by the government.

Nearly half of Taiwanese corporates still focusing on Internal Innovation, and more than 70% of corporates have not any cooperated with domestic and foreign startups or startups' ecosystems. Taiwanese corporates need

to focus on Open Innovation. There are 6 types of Taiwanese CVC. The followings introduce the characteristics and practices of Taiwanese CVC.

Table 1、Various Features of Taiwan CVC

	Strategy	Corporates
1	Corporate Accelerator • Multiple Innovations	SYSTEX Corporation、 Chunghwa Telecom Co.
2	Secure a Foothold in Venture Capital • Globalization	LITEON Technology、 TOPCO SCIENTIFIC
3	Cooperate with academics and industries	Elan Microelectronic、 United Daily News Group
4	Startups X Startups	Appier

Source: Taiwan Renaissance Platform

1. Corporate accelerator • Multiple innovations- SYSTEX Corporation

Founded in 1997, SYSTEX Corporation is a leading company in the information service industry in Taiwan. It has approximately 3,500 employees and ranks among the top 100 service industries in Taiwan. From 2015 to 2020, as many as 18 new companies have been established through direct investment, joint ventures, mergers or acquisitions.

SYSTEX Corporation focuses on strategic investment, of which 80% is used for value extension of core business, and 20% is focused on investment in disruptive innovation. Since 2018, SYSTEX Corporation has

established their own corporate accelerator named “AI+ Generator Program” (AGP) to assist to match up between Taiwan’s AI startups and SYSTEX Corporation’s 30,000 corporate customers.

In order to accelerate the pace of strategic investment, SYSTEX Corporation's strategy includes three key points: one is to find outstanding talents quickly, and the other is to create value for core business and build vertical and horizontal integration of the industrial chain, and the third is to find destructive and innovative business models.

1. Corporate accelerator · Multiple innovations- Chunghwa Telecom Co.

Chunghwa Telecom is the largest telecommunications operator in Taiwan. In order to respond to the arrival of 5G, The strategy is to deploy a three-year transformation plan internally, and expand its business through alliances (It is called ABC principles, (Acquire / Build / Collaborate)). Not only promote its own internal R&D capabilities, but also cooperate with startups externally.

At the end of 2018, Chunghwa Telecom also established their own corporate accelerator named “Chunghwa Telecom 5G International Innovation Accelerator”, hoping to develop innovative business models by fostering startups.

At present, the accelerator has 24 5G startups, including artificial intelligence (AI), smart agriculture, telemedicine, smart manufacturing, etc. Nearly half of the startups already have business cooperation with Chunghwa Telecom.

2. Secure a Foothold in Venture Capital · Globalization - LITEON Technology

LITE-ON Technology is the first listed electronics company in Taiwan. LITE-ON Technology focuses on the construction of smart city infrastructure, including the establishment of wireless communication network industries, various smart sensors, security monitoring equipment, and the development of smart street lighting systems.

LITE-ON Technology, which has a wide range of products, has to face challenges in many fields and requires strategic partners at different stages. Its open innovation strategy has the following 2 points: (1).Direct corporate investment. (2). Investment through venture capital.

(1).Direct corporate investment: The purpose of LITE-ON's investment is for the corporate long-term strategy, not to solve the current business problems

(2).Actively seek for venture capital partners. At present, LITE-ON has two venture capital partners. After in-depth evaluation and discussion of

each other, LITE-ON's investment strategy is in line with LITE-ON's long-term development: one is ARM IoT Fund; the other is located in Silicon Valley, USA which focuses on early-stage startups.

2. Secure a Foothold in Venture Capital · Globalization - TOPCO SCIENTIFIC

TOPCO SCIENTIFIC has established for 30 years, focusing on semiconductor materials and equipment, optoelectronic materials and equipment, electronic materials, environmental engineering, etc.

Since 1993, TOPCO SCIENTIFIC has directly invested in startups. In the past five years, there are still 2 new startups on average each year, and the Investment Management Office is fully responsible for it. TOPCO SCIENTIFIC chooses areas related to main business and makes strategic investments, covering the semiconductor, circular economy and healthcare

TOPCO SCIENTIFIC has also started investing in external venture capital since 2005. For example, Institute for Information Industry will have a fund that focuses on current Japanese investment targets, through which it can reach more high-tech companies in Japan.

3. Cooperate with academics and industries · Elan Microelectronic

Elan Microelectronic is one of the world's leading manufacturers of Human-Machine Interface chips. It specializes in Touchscreen Controllers, Touchscreen Controllers with pen functions, Touchpad Module, Pointing Stick, and Biometric Chip (including fingerprint and face recognition). Among them, there are three products rank global market share first.

In 2019, Elan Microelectronic launched "Dual Transformation through AI" program. In addition to AI-based existing products, it also started to develop edge computing platforms for image recognition, focusing on AI image recognition applications such as smart transportation and healthcare. For example, an ambulance can use a mobile phone to do burn recognition, or use AI image recognition to analyze traffic flow and optimize traffic light control.

Cooperation between Elan Microelectronics, Academia Sinica and Taiwan Artificial Intelligence School (AIA). Elan Microelectronics not only donated TWD 30 million to Taiwan Artificial Intelligence School (AIA), but also allowed internal supervisors to attend AI lectures.

3. Cooperate with academics and industries · United Daily News Group

United Daily News Group was founded more than 60 years ago and is a leading brand of Taiwanese news group. It has created the best content

services on various media platforms. In 2014, an internal business investment management team was established. The AO (Account Officer) finds the source of the new business cases through various channels, and after evaluation, it is sent to the investment review committee. In order to find various new opportunities, the United Daily News Group invested in AppWorks' two venture capital funds in 2012 and 2015. In addition to sending talents for training, they can also contact excellent startups in advance.

In 2020, the United Daily News Group also work with NTUTEC(Taidah Entrepreneurship Center) to jointly launch the "NTUTEC x UDN Vertical Accelerator", focusing on the themes of "Elder Fitness" and "Healthcare", and invite startups to jointly develop viable business models. Now 11 teams have been selected from more than 30 teams and plan to enter the next stage of cooperation.

4. Startups X Startups – Appier

Appier is a well-known Taiwanese startup. In 2014, it received investment from Sequoia Capital, the leading venture capital investment, and currently has offices in 15 countries.

In particular, in Taiwan, where M&A is rarely done in development industries. Appier as a startups acquired other 2 startups within two years.

Appier acquired 2 startups from India and Japan separately and integrated their technologies for development.

Appier also has a team of 3 to 4 people, looking at industry trends from the perspective of strategic partnerships, looking for alliances or M&A opportunities.

V. Challenges of Taiwanese Corporate Venture Capital (CVC)

Few corporates in Taiwan claim that their startups investment is only for financial considerations. Whether it is direct investment in startups or CVC, about half of the corporates believe that their investment is purely strategic, and the other half indicate that their investment objectives are mixed strategies and financial consideration. Only one corporate stated that its startups investment is purely financial consideration.

However, the biggest challenge of startup investment is that the return on investment has not met expectations. Other challenges included "lack of appropriate sources" and "difficult cooperation between startups and corporates."

Most corporates only started investing in and acquiring startup after 2010. It seems too early to evaluate the effectiveness now.

VII. Expectations for Japanese startups

There are currently Japanese companies based in Taiwan, for example, Hitachi and Incubit.

Hitachi provides manufacturing and sales services for medical systems (such as electron microscopes) · industrial systems and electronic equipment in Taiwan, becoming the third electron microscope industry in the world. Establishing a base in Taiwan In order to integrate the cutting-edge technology and service models. This task requires not only internal collaboration, but also external collaboration. The startups in this field in Taiwan have advantages in equipment and the Internet of Things, and have become Hitachi's alliance object.

Incubit is a Japanese startup that uses cutting-edge deep learning and machine learning technologies to support business development and established a foothold in Taiwan in 2017. The main task is to find a product-market-fit in the Taiwanese market. It also hopes to find a successful case that is different from Japan, and then bring the case back to Japan. Besides, the successful case in Japan will also be promoted and copied in Taiwan.

Aging society in Taiwan is becoming a new issue. The healthcare products and equipment of the Japanese startups probably can find innovative application and new business models in Taiwan. Moreover, Taiwan's ICT, semiconductor and other industries are world-leading industries, and Japanese startups can base on these industries to accelerate their product development. Besides, the Taiwan market has a high acceptance of startups, which can attract startups that cannot operate flexibly in the Japanese market.

<English>

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2020 台灣產業新創投資白皮書, 台灣產業創生平台(TAIWAN RENAISSANCE PLATFORM)、台杉投資(TAIWANIA)

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