



2022 Taiwan Startup Ecosystem Survey

Startup, Investor & ESG

Advising agency



Organizer

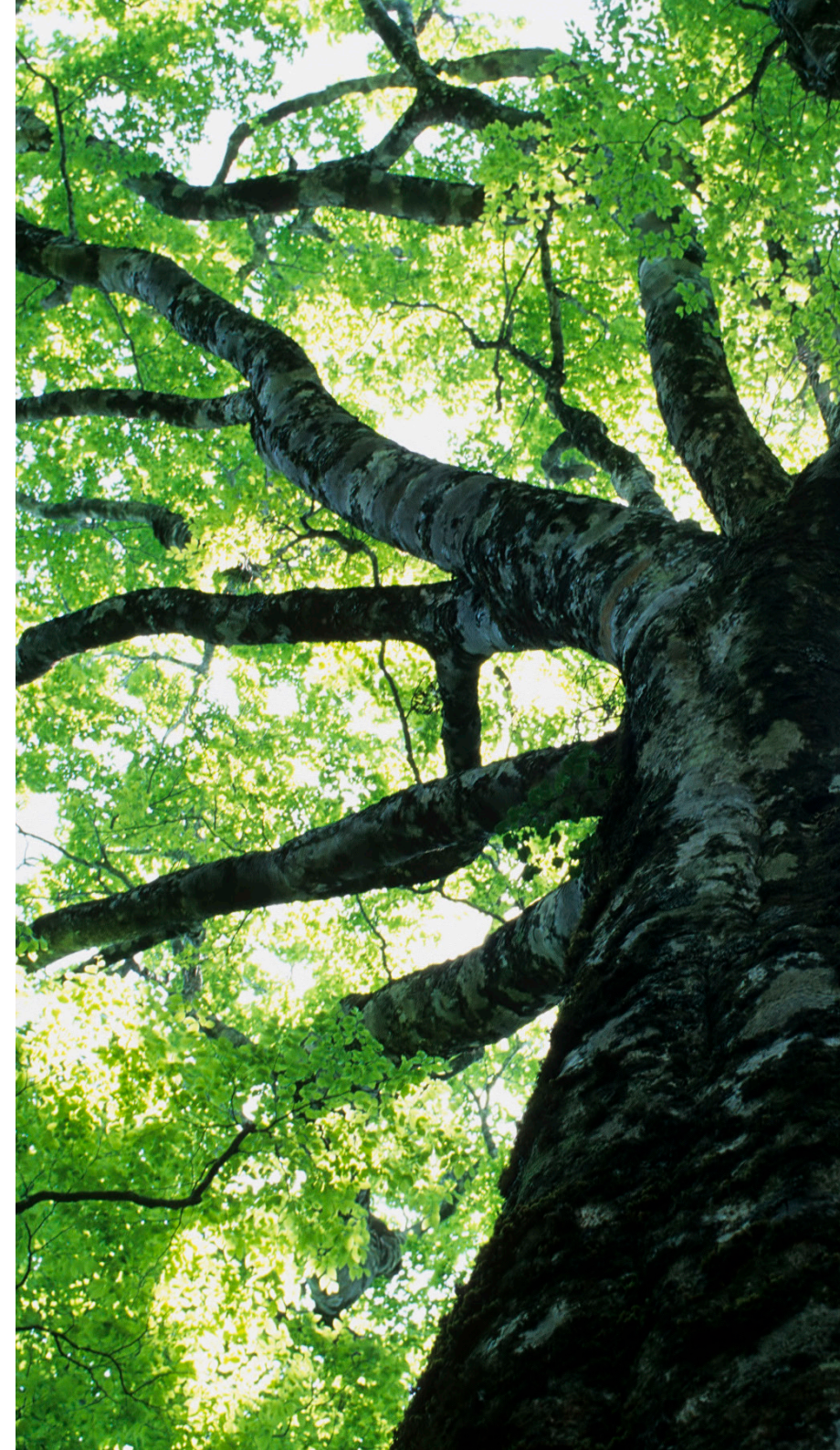


Partners



Table of contents

Key findings	2
Chapter I: Startup Profiles	3
Startup characteristics and entrepreneurial trends	4
Government policy and entrepreneurial resources	7
Foreign markets and field distribution	8
Advantages and challenges in startup development	9
Chapter II: Investment Environment	10
Startup fundraising preparation and fundraising selection	11
Survey of investors	15
Chapter III: ESG	21
Startups and ESG	22
Investors and ESG	25



Key findings

Survey of Startups

Overseas development

82%

of startups have entrepreneurial plans for overseas development

Investment perspective

78%

of startups expect investors to introduce new customers and partnerships

Funding channels

77%

of startups reach investors through connections

Sustainability issues

67%

of entrepreneurship issues are related to SDGs

Survey of Investors

72%

of investors can facilitate overseas development

70%

of investors focus on the commercial viability of startups

98%

of investors search for startups through connections

67%

of investors focus on or have invested in ESG items

Develop
IDEA

Planning

Idea!

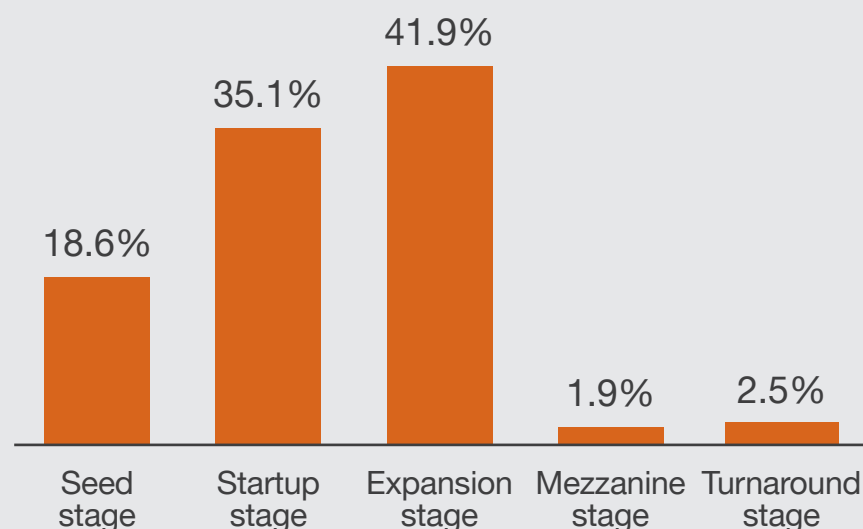
Startup Profiles

1



Startup characteristics and entrepreneurial trends

Entrepreneurs		71.1% first-time entrepreneurs	11.7 years industry experience	73.0% of entrepreneurs were male
Startups		90.4% had completed company registration	77.6% had a team of ten people or less	51.6% had B2B business models



- 1 Seed Stage**
At initial product stage, there is original innovation, technology, or team, but actual product or service not yet formed
- 2 Startup Stage**
Completed product development but not yet in mass production
- 3 Expansion Stage**
Product has received support from the market and needs more funding to expand operations
- 4 Mezzanine Stage**
Business revenue is growing and starting to make a profit; has plans for public listing
- 5 Turnaround Stage**
Business operations are tight and in the red; requires restructuring at its base and improvement of operational management

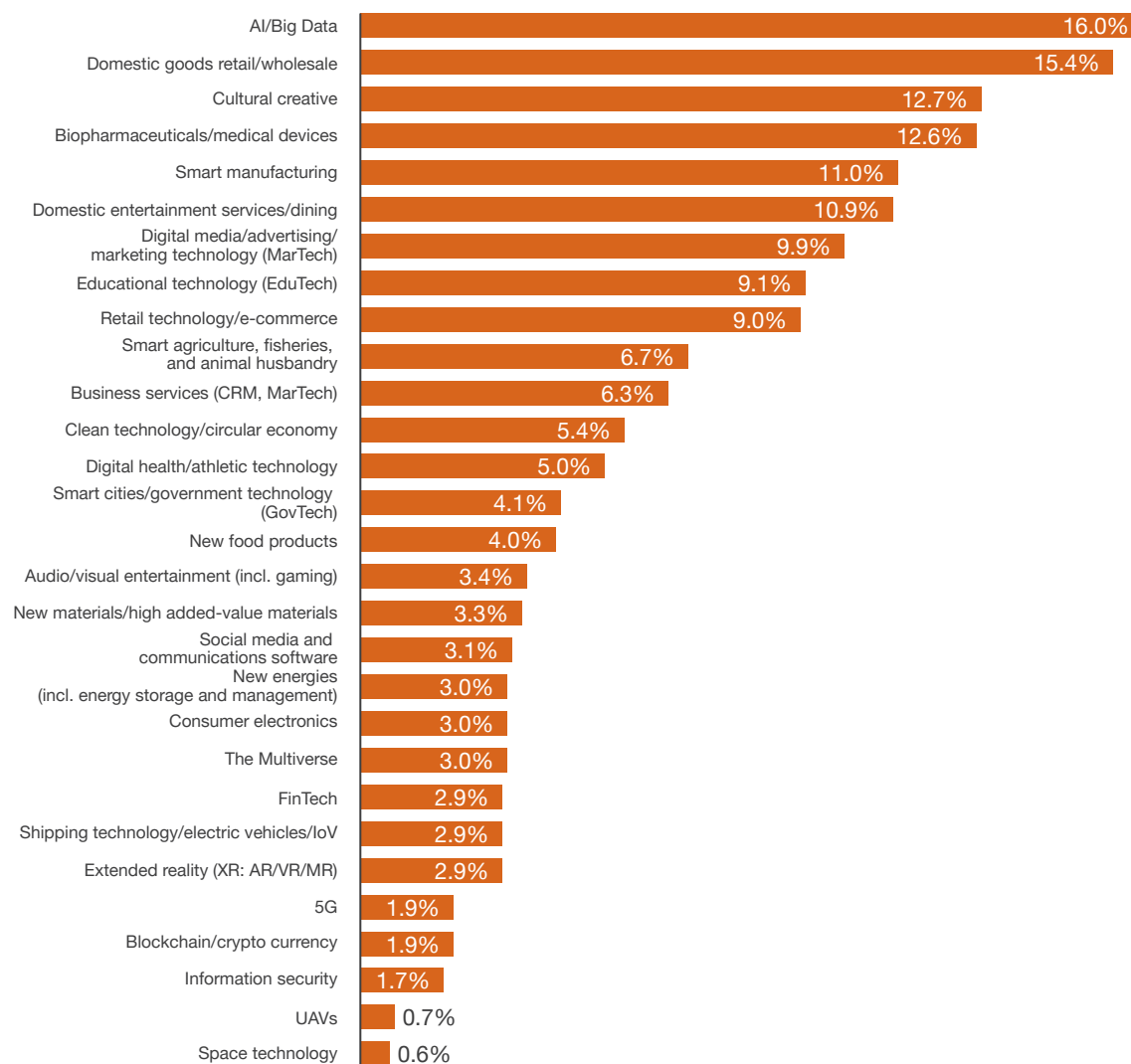
2022 Keywords: AI/Big Data jump to top spot

1 This year's startup survey found that among entrepreneurial keywords, digital technology and digital transformation have become important drivers of the new startup ecosystem. This year's survey results show that six of the top ten keywords are related to either digital transformation or technological innovation, including AI, smart manufacturing, digital media, educational technology, retail technology, smart agriculture, fisheries, and animal husbandry.

2 The top five keywords are:

- 1 AI/big data (16.0%)
- 2 Domestic goods retail/wholesale (15.4%)
- 3 Cultural creative (12.7%)
- 4 Biopharmaceuticals/medical devices (12.6%)
- 5 Smart manufacturing (11.0%)

3 The keywords from 6th to 10th place are: domestic entertainment services/dining (10.9%), digital media/advertising/MarTech (9.9%), EduTech (9.1%), retail technology/e-commerce (9.0%), smart agriculture, fisheries, and animal husbandry (6.7%)



Q: Choose the fields out of the following keywords that are most relevant to your entrepreneurial items.
(Check at most three)

sample size = 700

Observations

Digital technology has become the main development trend at present. It has accelerated the “green & digital transition” for industry and has even spread to other industries

This year's survey found that digital transformation and digital technology applications were the main trends for entrepreneurship in Taiwan. This may be in response to the Covid pandemic, especially true at the supply-chain level. For manufacturers, quarantines and lock-downs caused worker shortages, and with ever higher demands imposed on supply chains due to ESG and green manufacturing requirement, the market picked up pace on action and scale of investment in respective technologies, which itself drove both growth and visibility of new digital technology applications.

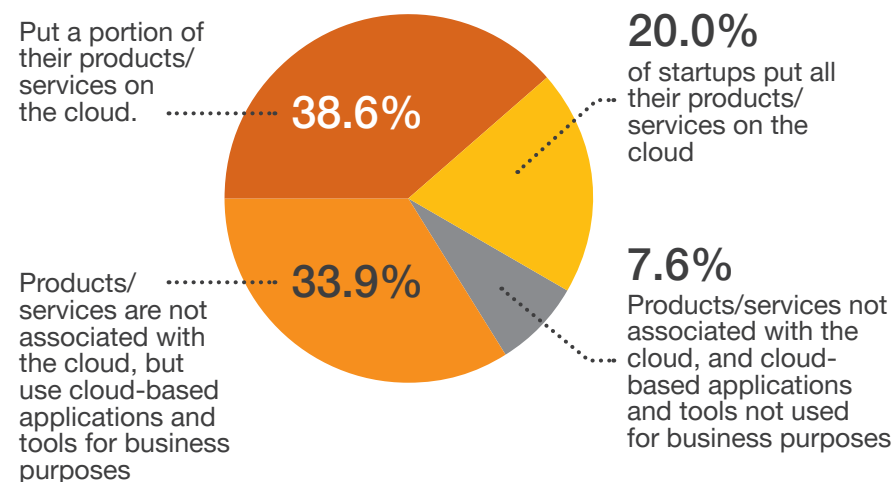
To understand the underlying entrepreneurial potential of the household goods retail/wholesale, cultural and creative industries, we compared them against the surveyed startup products/services and discovered that digital technology is now expanding into retail/wholesale, cultural and creative industries, and that startups provide information services, e.g., data processing, data analysis, and advertising services, to assist retail and cultural entrepreneurs in operations over e-commerce services and websites.

The flourishing of digital technology innovation has not only become a new force for digital transformation in Taiwan's manufacturing industry, the technology has also been extended to other industries, injecting more digital technology into the business models of other industries, e.g., education, agriculture, fisheries, and animal husbandry, retail, and cultural creative. This has altogether driven further development of Taiwan's digital economy.

Cloud architecture forms the base for important digital transformation in services

This year's survey clarified the relationship between cloud architecture and the products/services provided by startups; 20.0% of startups put all their products/services on the cloud, 38.6% put a portion of their products/services on the cloud, and 33.9% of startups use cloud-based applications and tools for business purposes even though their products/services have no direct connection to the cloud.

A cross-comparison of current cloud-use status and top five keywords found that AI/big data was the field most dependent on cloud services. For startups in other fields, 50% put all or a portion of their products/services on the cloud. Looking into the considerations for startups putting their products/services on the cloud, the top 3 reasons were found to be: innovative commercial/operation model (57.3%), flexibility for future expansion (50.2), and maneuverability and business agility (45.6%)



Q: How connected to cloud architecture/applications are the “products/services” that you provide in your entrepreneurial items?

Sample size = 700

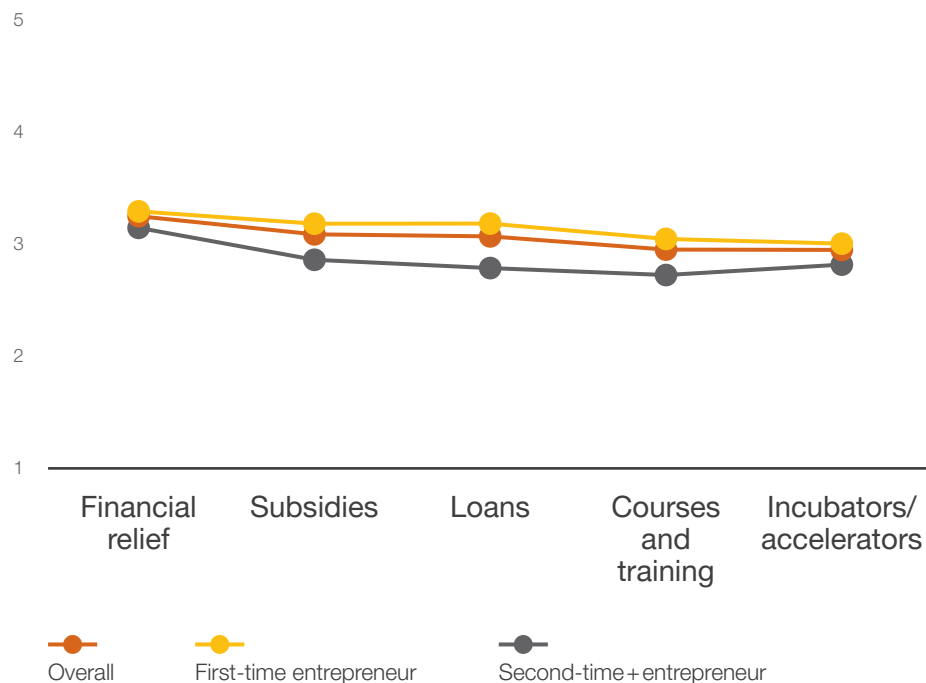
Government policy and entrepreneurial resources

Government resources are important for the growth of first-time entrepreneurs and fledgling startups

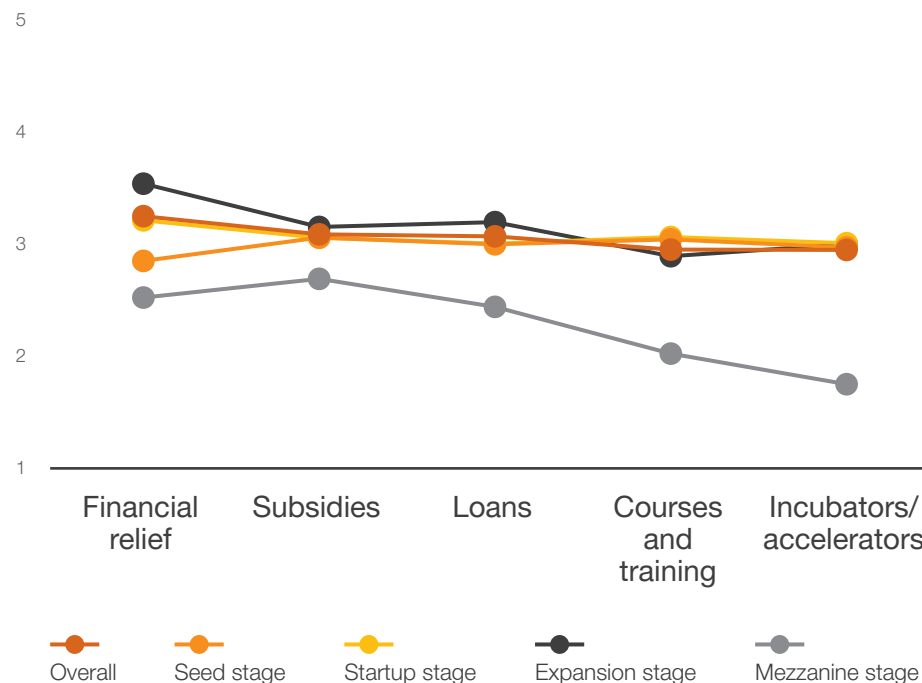
This year's survey results show that policy continues to play a crucial role in startup development, as shown by the government's recent establishment of international startup clusters, incentive and subsidy mechanisms, training courses and other assistance. Startups say the most helpful policy tools are financial relief, subsidies, loans, courses and training, incubators/accelerators.

A cross-comparison of entrepreneurial experience shows that first-time startups better perceive the benefits of various startup policies than serial entrepreneurs. On starting operations, there is significantly more assistance from government policy tools for startups in the seed stage, startup stage, and expansion stage than those in the mezzanine stage or later.

Degree of assistance to startups according to entrepreneurial experience



Degree of assistance to startups according to operation stage



Q: In your opinion, to what extent have the following government startup policies helped your entrepreneurial items?

Rate how helpful the following policies were for your entrepreneurial items on a scale from 1 (low) - 5 (high), or if you did not know of the policy

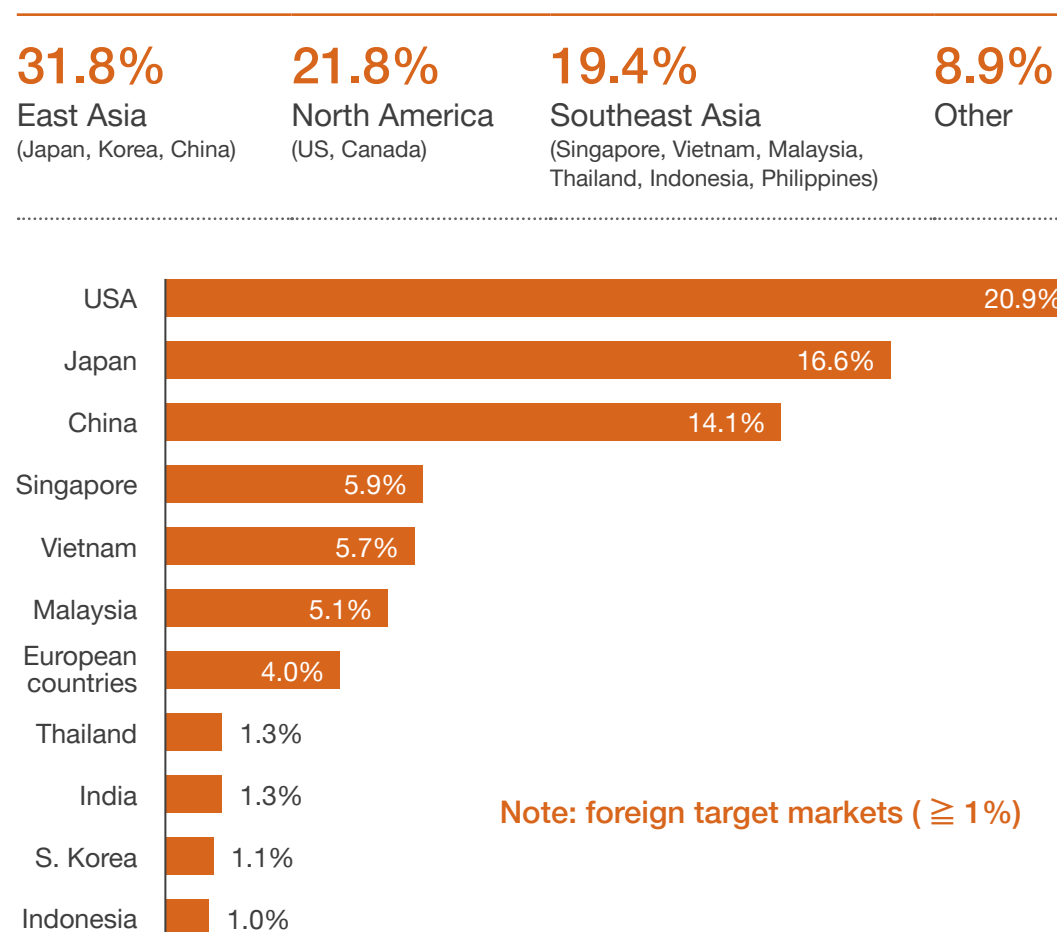
sample size = 700

Foreign markets and field distribution

US is the primary foreign target market for startups

The startup survey shows that over 80% (81.9%) of startups have plans for foreign expansion; the three top foreign target markets were: US (20.9%), Japan (16.6%), and China (14.1%). By cross-comparing this year's keywords with the three top foreign target markets, it was found that startups in AI/big data, cultural creative, biopharmaceuticals, and smart manufacturing were focused on the US market.

Regionally, the Favoured locations by startups were (in order of preference): East Asia (31.8%), North America (21.8%), and Southeast Asia (19.4%). A cross-comparison shows the top three keywords for East Asia, North America, and Southeast Asia include AI/big data, showing that startups in Taiwan mainly focus on AI/big data for developing into foreign markets.



Q: What is your first choice of foreign market to expand into now or in the future?

Sample size = 700

Advantages and challenges in startup development

Startups excel in R&D and commercialisation; their biggest challenge is revenue growth

Looking at the domestic startup ecosystem and international competitiveness from a startup perspective, Taiwanese startups surveyed were found to be superior to foreign startups in terms of “innovation and R&D capability in product technology” or “commercialization capability”

The top three challenges for startups in the next 2-3 years will be market development and revenue growth, specifically revenue growth (56.4%), expanding new customer base (47.4%), and raising margins/profits (37.3%).

Furthermore, finding appropriate strategic partners (32.1%), expanding into international markets (24.6%), and attracting and retaining talent (20.6%) are also challenges for startups.



Q: What are the challenges your company will face in the next 2–3 years? (Check at most three)

Sample size = 700

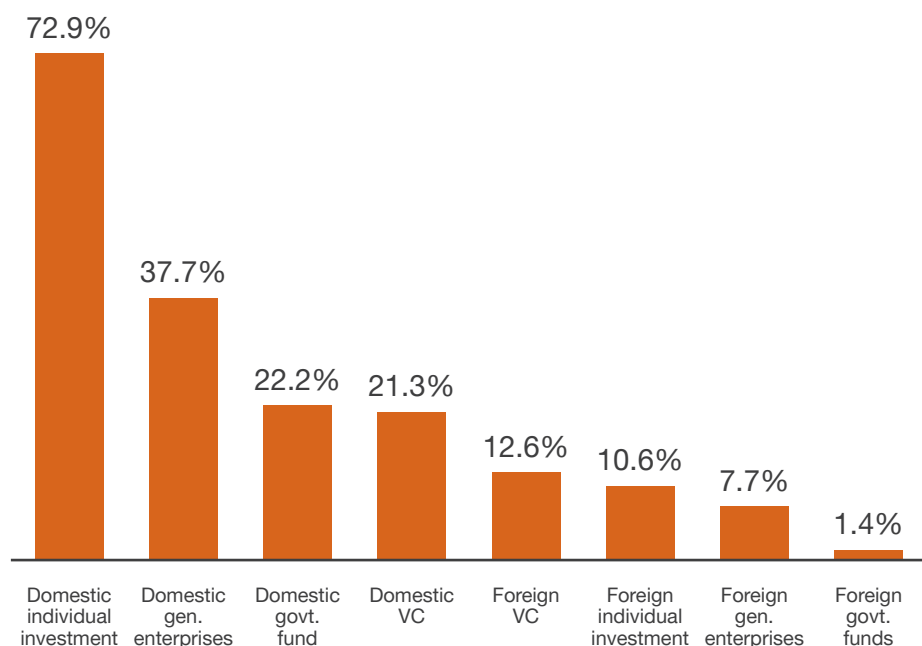
Investment Environment

2

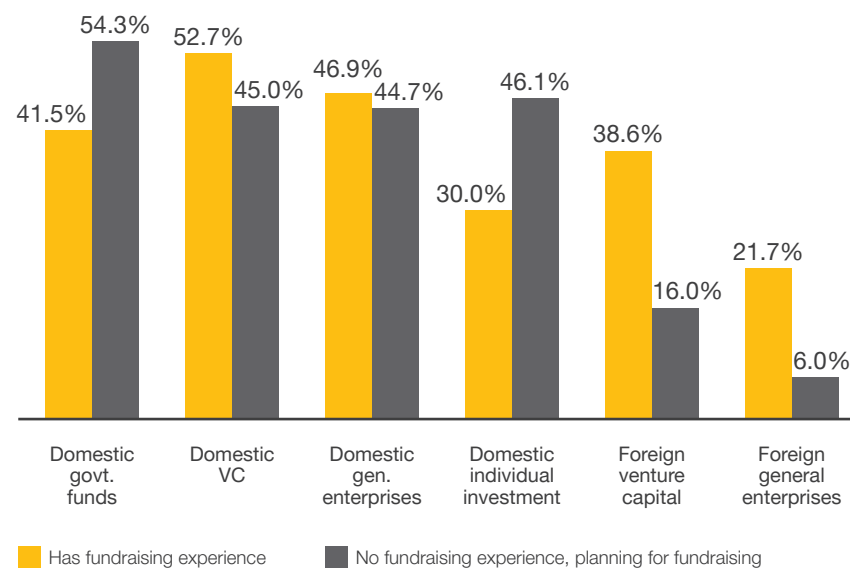
Startup fundraising preparation and fundraising choices

As many as 70% of the startups surveyed this year have already raised funds or are planning to raise funds. The top source of funds was “domestic individual investment (72.9%)”, followed by “domestic general enterprises (37.7%)”. Startups with fundraising experience focused on “domestic venture capital funds (52.7%)” in the next round of fundraising, while startups without fundraising experience focused on “domestic government funds (54.3%)”.

The survey found that the fundraising targets of startups were primarily domestic investors or venture capital funds, showing that matchmaking of international funds can be the trajectory for policies or intermediaries in the future ecosystem.



Q: Which of the investors listed below does your enterprise currently have? (Check all that apply)
sample size = 207



Q: Which investment targets are you considering for your next round of fundraising? (Check at most three)
Sample size = 489



Personal networking and cluster activities facilitate mutual understanding between startups and investors

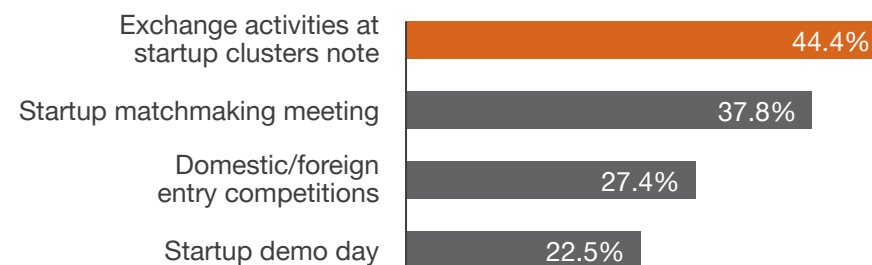
This year's survey found that personal networking is the most common channel for startups to contact investors (77.1%). Entrepreneurial activities, e.g., exchange activities in startup clusters, matchmaking meetings, and entrepreneurial competitions are important ways for startups to accumulate relational capital. Therefore, entrepreneurial exchanges can include “in-depth discussions” to give startups and investors an opportunity to communicate while also allowing startups to quickly build personal networks.

A cross comparison of the fundraising channels and startup stages shows that seed-stage teams believe “exchange activities at startup clusters” are most effective; and expansion-stage teams believe that “referrals through company shareholders” is the most effective.

Relational capital



Entrepreneurial activities

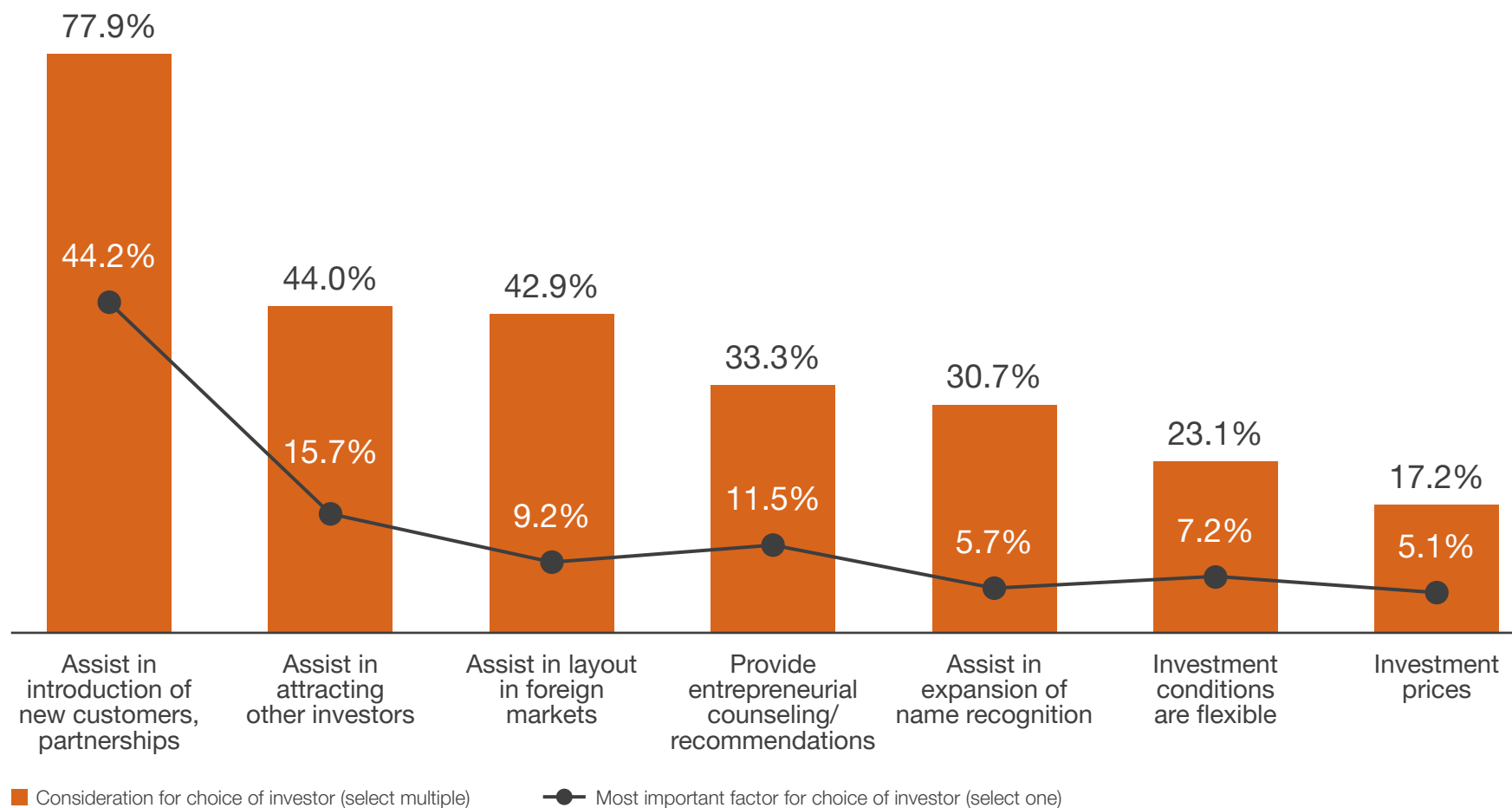


Q: Which channels do you often use to contact investors? (Check all that apply) Sample size = 489

Note: exchange activities at startup clusters, e.g., entrepreneurial courses, lectures, exhibitions

Startups emphasize the benefits of investor networking in expanding customer bases and fundraising

In addition to “attracting capital”, the top three things startups expect from investors are “Assisting in introducing new clients and partnerships (77.9%)”, “Assisting in introducing other investors (44.0%)” and “Assisting in the layout of overseas markets (42.9%).”



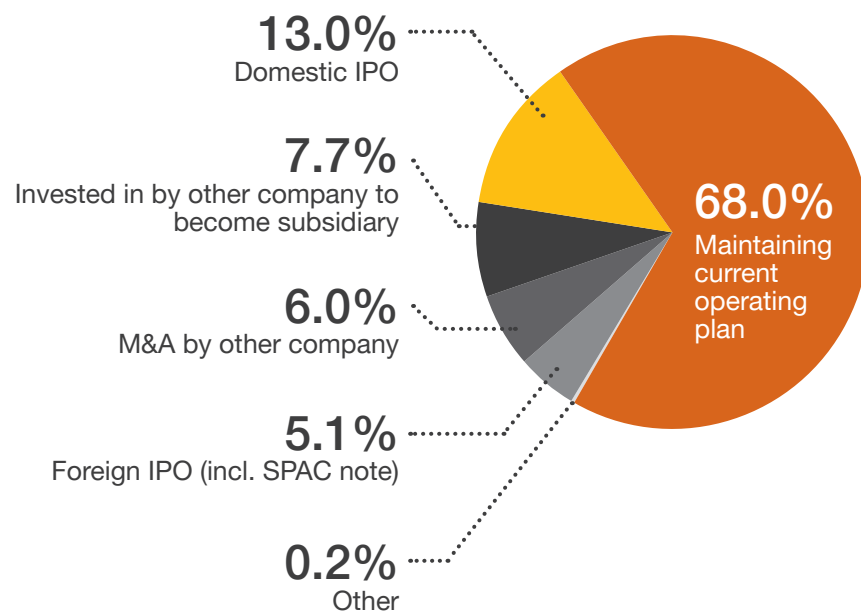
Q1: What were your considerations for choosing the three items for investors? (Check at most three)

Q2: Continuing from the previous question: of the items checked, which one do you believe is most important?

Sample size = 489

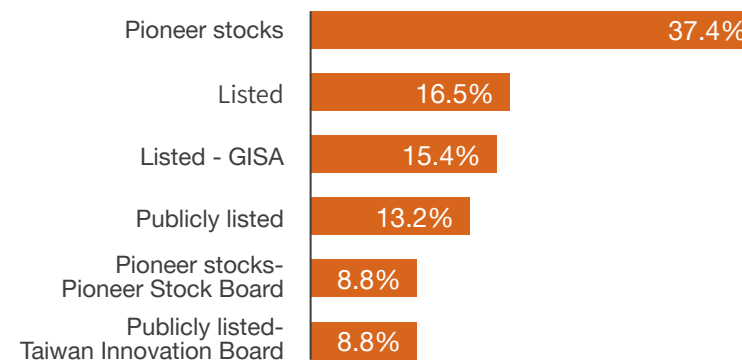
Startups mostly use IPO for an investor exit strategy

Regarding the prospective plans of startups, nearly 1/3 plan for an IPO or M&A in the next 1-3 years, of which 18.1% plan to conduct a domestic/foreign IPO -- domestic IPOs (13.0%) are “pioneer stocks” on the main board. The “Pioneer Stock Board” and “Taiwan Innovation Board” launched in 2021 may have been ignored due to lack of market familiarity; on the foreign aspect, the US is the main location for IPO, followed by Japan.



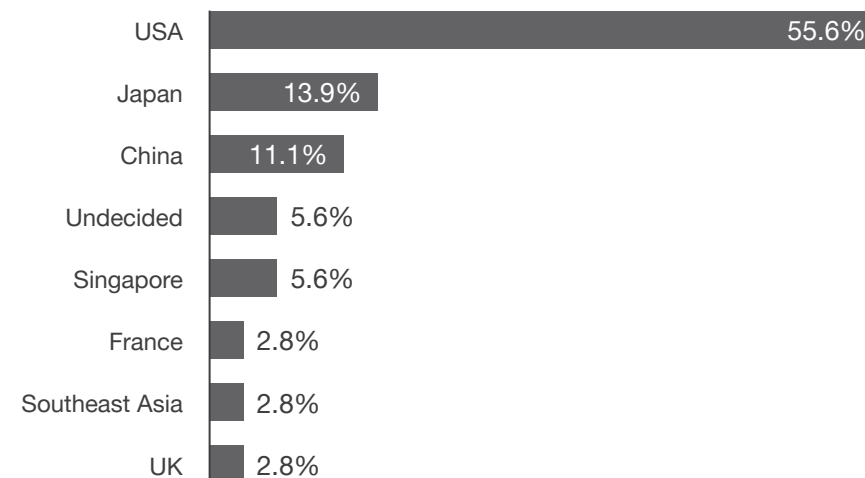
Q: What is your stage-based (1-3 years) prospective plan for your current entrepreneurial items? Sample size = 700

Note: SPAC (Special Purpose Acquisition Company)



Q1: Which market would you choose for a domestic IPO?

Sample size = 91



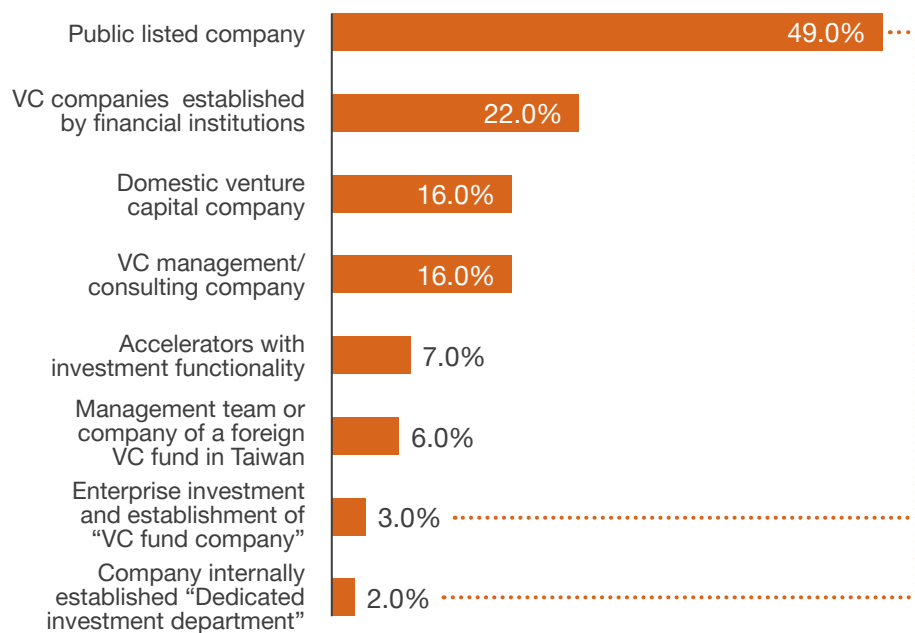
Q2: Which country would you choose for a foreign IPO?

Sample size = 36

Survey of investors

Sample composition: Venture capital institutions have diverse membership; enterprises start investing in startups to develop business opportunities

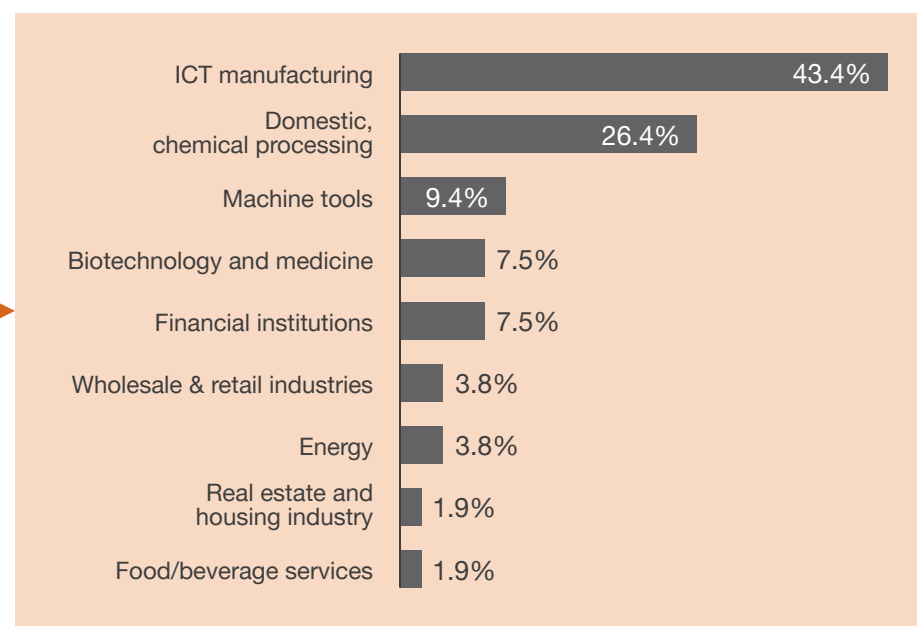
In this survey sample, 49.0% of investors interviewed were listed companies; the companies are also the main shareholders of domestic general VC. This shows that when a company develops to a certain scale and becomes publicly listed, they mostly begin relying on external innovation to improve their corporate robustness, e.g., participating in startup investment.



Q: What is your institution's role (select all that apply; actual actions/ not restricted by selection)?

Sample size = 100

The targeted industries of the survey broke down into: ICT manufacturing (43.4%), which represented the majority of those surveyed, followed by domestic and chemical processing and manufacturing (26.4%), and machine tools (9.4%).



Q: What is your parent company's industry (select all that apply; actual actions/ not restricted by selection)?

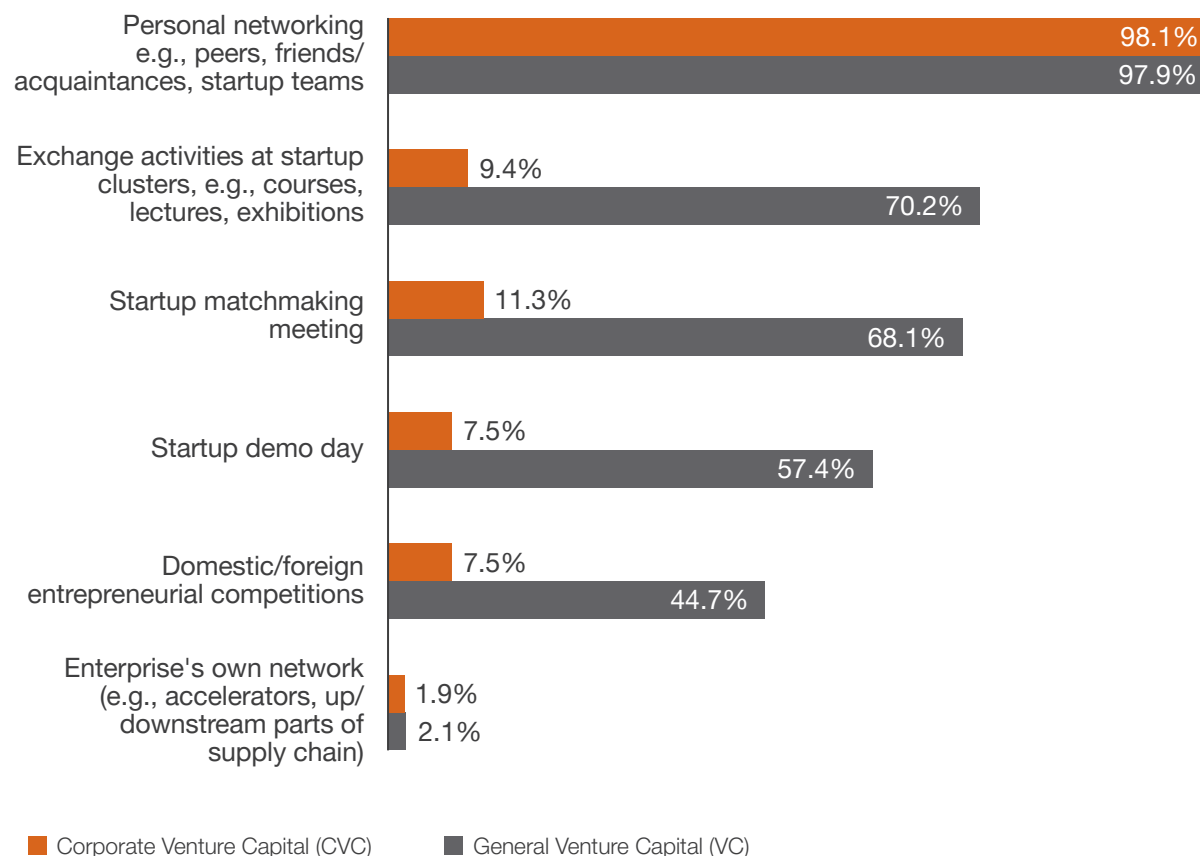
Sample size = 53

Investment channels: general VC has diversified channels for finding potential startups; CVC relies on introductions through networking

Both surveys this year show that personal networking is one of the effective channels for matchmaking and fundraising. However, what is worth noting is that general venture capitalists widely observe ecosystem dynamics and look for potential startups from the perspective of personal networking and entrepreneurial activities. Corporate VC is highly focused on finding potential targets through personal networking.

Corporate VC itself represents not only financial investment, they are also relatively low-key when looking for investment targets due to searching for the future development trajectory of the parent company, product/service innovation, or transformation.

Real-world observations suggest that corporate VC prefer one-on-one closed-door interviews. Therefore, if a startup is looking for investors that have both capital and corporate resources, it is recommended that they consider channels that facilitate introductions through networking.



Q: By which channels does your company get a fix on "startup teams/investment potential targets"? (select all that apply; actual actions/not restricted by selection)

sample size = 100

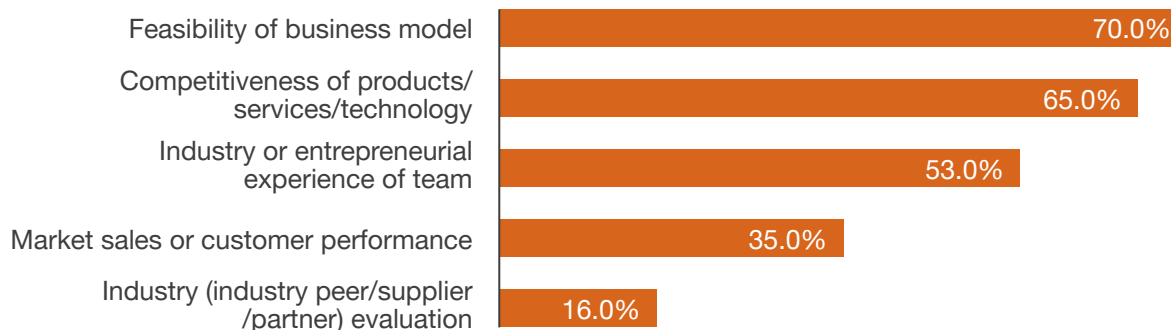
Investor decision-making: when evaluating the growth potential of startups, investors give highest priority to feasibility of the business model

According to the investor survey, “feasibility of the business model (70.0%)” is the primary indicator for investors to determine whether a startup has growth potential, followed by “competitiveness of products/services/technology (65.0%).” Therefore, on demo days or at venues for making pitches, startups should think about how to prove their growth potential with their “business model” in order to win over investors.

When evaluating investment plans, startups integrating with their parent companies, deploying with new technologies, new products, or new markets (customers) team management capabilities, potential rate of return (RoR), and overall investment strategy of an institution or fund are the five most important indicators used for investment evaluation.

Looking deeper, it is shown that “Whether startup business can be integrated with parent companies (75.5%)” is something emphasized by CVC; general VC instead places more emphasis on “Management capabilities of startup teams (53.2%)” and “Layout of new technologies, new products, or new markets (51.1%)”.

Growth potential indicators



Q: In your own observation, which of the indicators listed below are most important for determining the “future growth potential” of a startup? (Check at most three)

sample size = 100

Indicators for investment evaluation

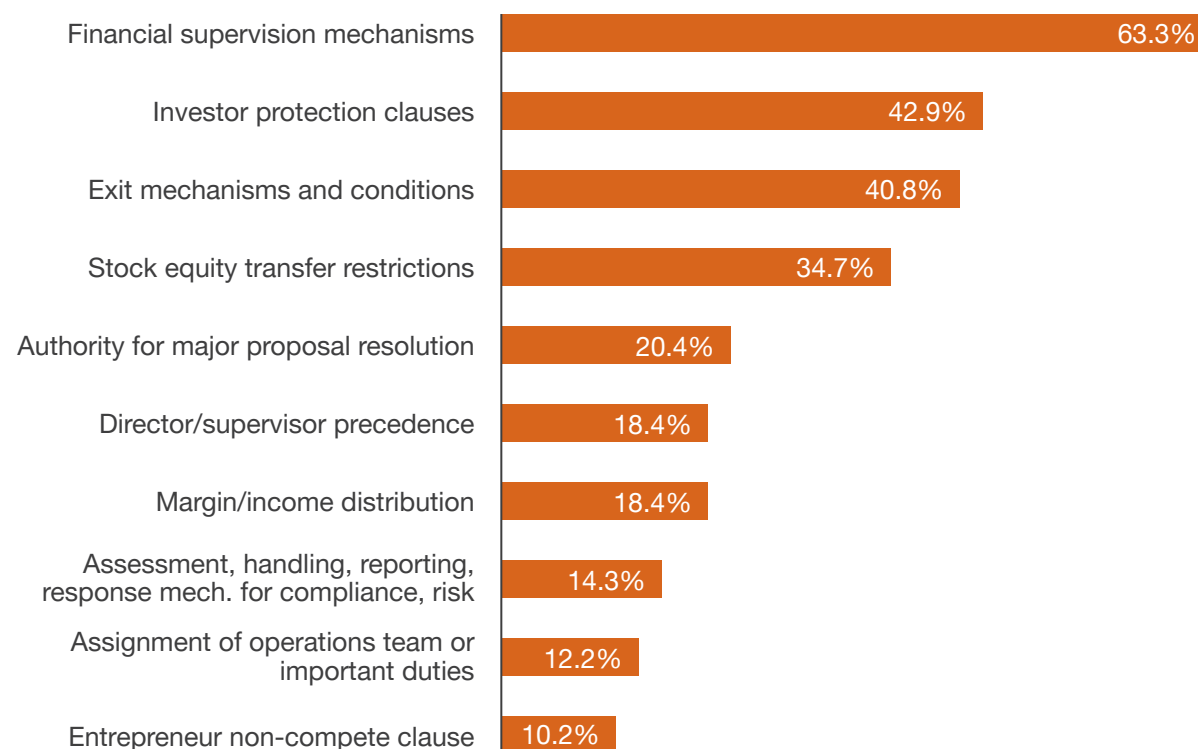
Evaluation indicators/aspects	Overall	General VC	CVC
1 Startup business can be integrated with their parent companies	47.0%	14.9%	75.5%
2 Layout of new technologies, new products, or new markets (customers)	43.0%	51.1%	35.8%
3 Team management capabilities, e.g., finance, business, marketing	38.0%	53.2%	24.5%
4 Expected potential RoR is high	26.0%	27.7%	24.5%
5 Overall investment strategy of institution or fund	23.0%	25.5%	20.8%

Q: In addition to “future growth” as discussed above, when your institution assesses investment plans, what other “important” assessment indicators/aspects are used? (Check at most three)

Sample size = 100

Investment agreements: comply with regulations and clarify agreement content to enhance mutual trust between startups and investors

It was found in the investor survey that the top five rights and conditions valued by investors are: financial supervision mechanisms, investor protection clauses, exit mechanisms and conditions, stock equity transfer restrictions, and authority for major proposal resolution.



Q: When your institution signs investment agreements with startup enterprises/teams, what rights and powers/conditions do you give especial importance to? (Check at most three) Sample size = 49

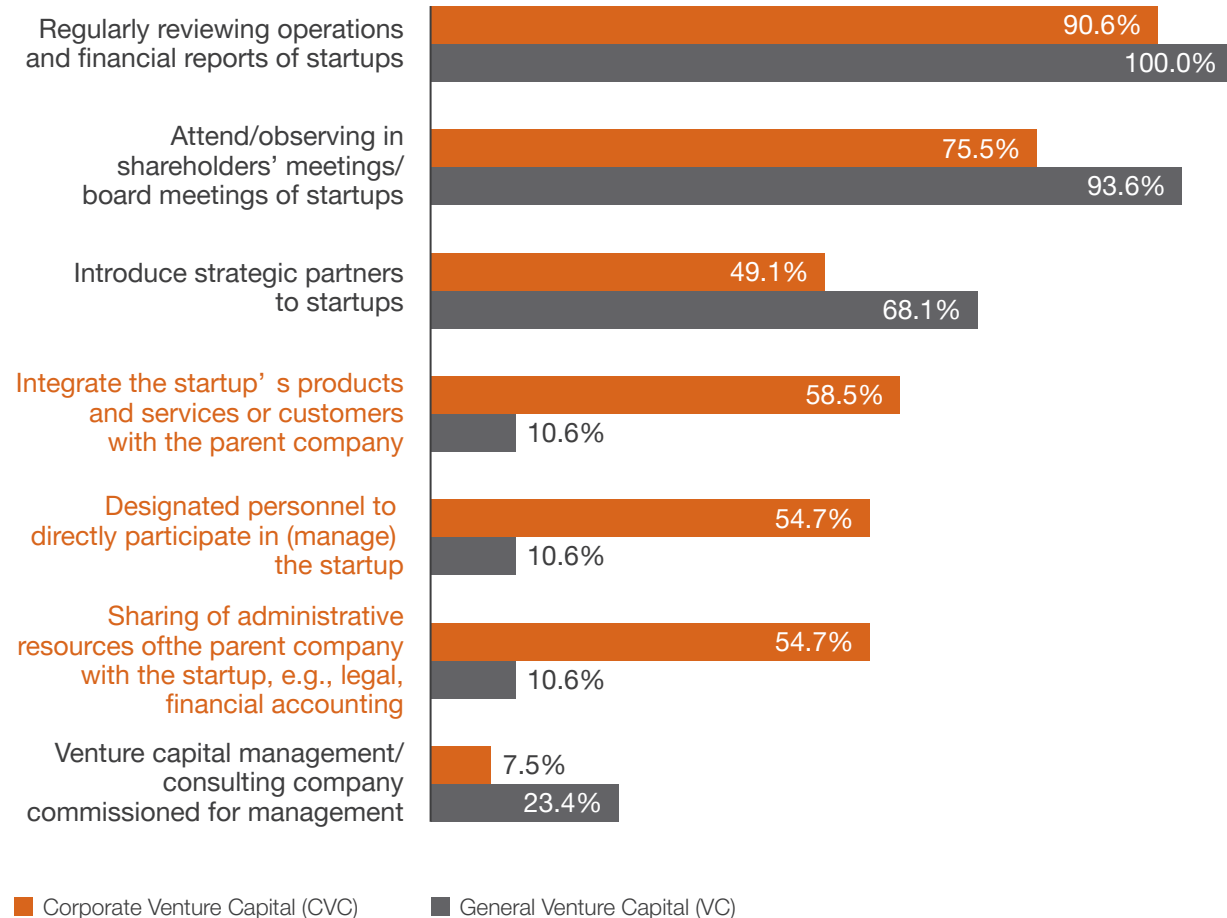
Note: Financial supervision mechanisms: e.g., providing regular financial reports and auditing rights
Investor protection clauses: e.g., preferred liquidation, anti-dilution provision, preemptive right, most-favored treatment
Exit mechanisms and conditions: e.g., redemption rights, co-sale rights, consignment rights

Post-investment management: focus on financial performance and participation in resource integration

The investor survey found that among investors' post-investment management practices, most consisted of "Regularly reviewing operations and financial reports of startups", "Attending/observing in shareholders' meetings/board meetings of startups", "Introducing strategic partners to startups".

Further analysis shows that most general VC are financial investors. Therefore, at the management level, it is operating performance and operating margin of startups that are seen as important, while participation in operations and management is relatively unimportant. Since CVC includes strategic investment elements, post-investment management not only integrates the startup's products and services with the parent company, it also chooses to designate personnel to directly participate in (manage) the startup, and even share the administrative resources of the parent company with the startup.

Therefore, in a startup's dealings with investors, in addition to obtaining funds, it should also consider the investors' degree of participation in and expectations for business operations; they ought also assess the possible impact of such discrepancies on the development of the company.



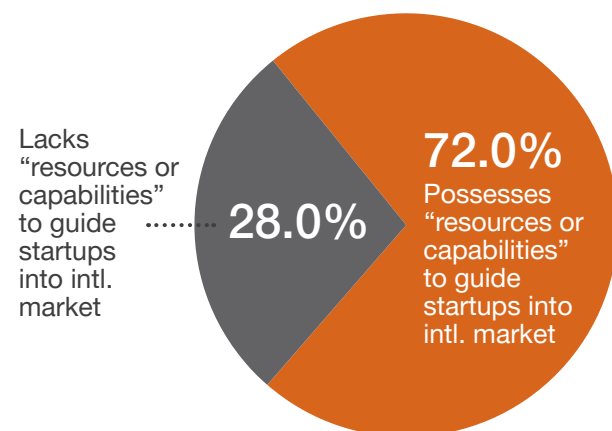
Q: After investing in a startup enterprise/team, how does your institution manage the investment? (select all that apply; actual actions/not restricted by selection)

Sample size = 100

The “investment with cooperation” model has become a common expectation of both sides

The startup survey found that 81.9% of startups had intentions to develop overseas; the investor survey found that 72.0% of investors had the resources or capabilities to assist startups entering the intl. market. Of which, “Model for guiding startups into intl. market (58.3%)”, “Introducing foreign partners (43.1%)”, and “Helping startups form strategies for entering intl. market (41.7%)” were the most common international resources among investors.

The “investment with cooperation” model should be able to effectively assist in providing counseling mechanisms, international partners, and strategic planning and guidance to startups, thus building effective international cooperation.



Q: What “resources or capabilities” does your institution possess that can guide startup enterprises/teams into intl. market? (select all that apply; actual actions/not restricted by selection)

sample size = 72

ESG

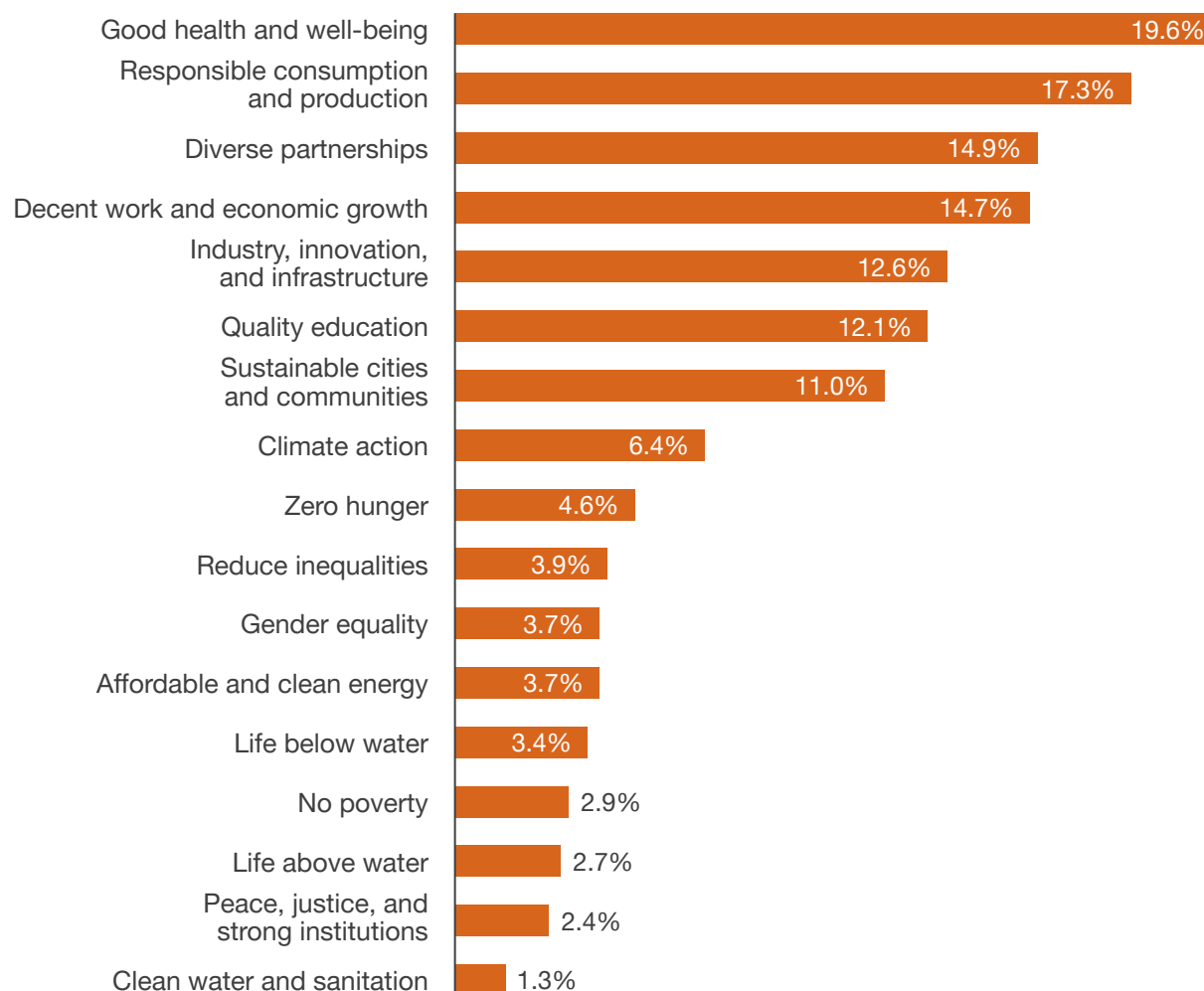
3



Startups and ESG

Relevance of entrepreneurial topics: more than 60% of entrepreneurial topics are related to ESG, and startups have already begun to address and prepare for net-zero emissions

What impact does ESG, which has become a prevalent trend in business, have on startups? According to the startup survey, 67.3% of the startup topics are related to SDG issues, and the top five topics are “Good health and well-being (19.6%)”, “Responsible consumption and production (17.3%)”, “Diverse partnerships (14.9%)”, “Decent jobs and economic growth (14.7%)”, “Industrialization, innovation, and infrastructure (12.6%)”.



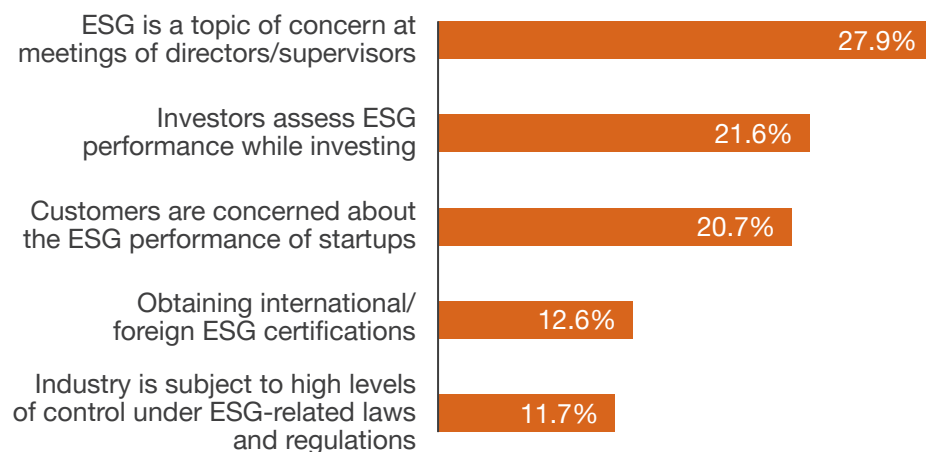
Q: Which of the following topics are most related to the products/services/technologies/operations-related activities you promote in your entrepreneurial items? (select all that apply; actual actions/not restricted by selection)

Sample size = 700

ESG's driving forces: The attitudes of internal directors and supervisors drives startups to pay attention to and invest in ESG issues

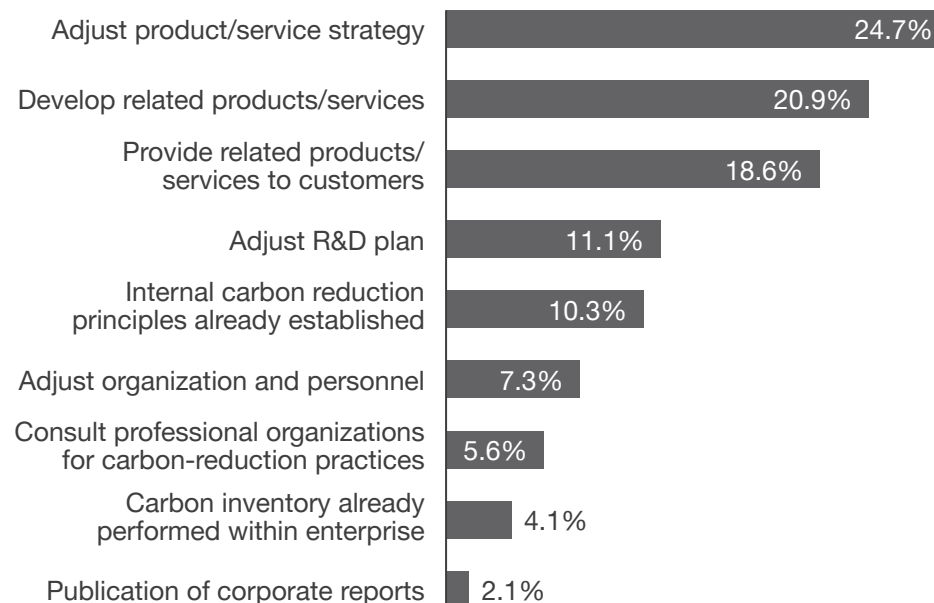
The startup survey found that the main driving force of startup investment in ESG issues comes from the issues of concern from the company's internal directors and supervisors (27.9%), followed by investors (21.6%) and customers (20.7%).

The focus of internal directors and supervisors, investors, and customers on ESG has also led startups to taking response measures. The most common actions or strategies aiming for net-zero emissions are “adjusting product/service strategies (24.7%)”, “developing related products/services (20.9%)” and “providing related products/services to customers (18.6%)”. It may be seen that startups are facing the coming of ESG, mainly relying on the company's product/service as its main support and formulating corresponding actions and strategies.



Q: ESG (environmental, social, governance) is currently an international topic of concern. What extent of impact has it had on your company?

Sample size = 700



Q: What actions/strategies has your company adopted within the trend towards net-zero emissions? (Check at most three)

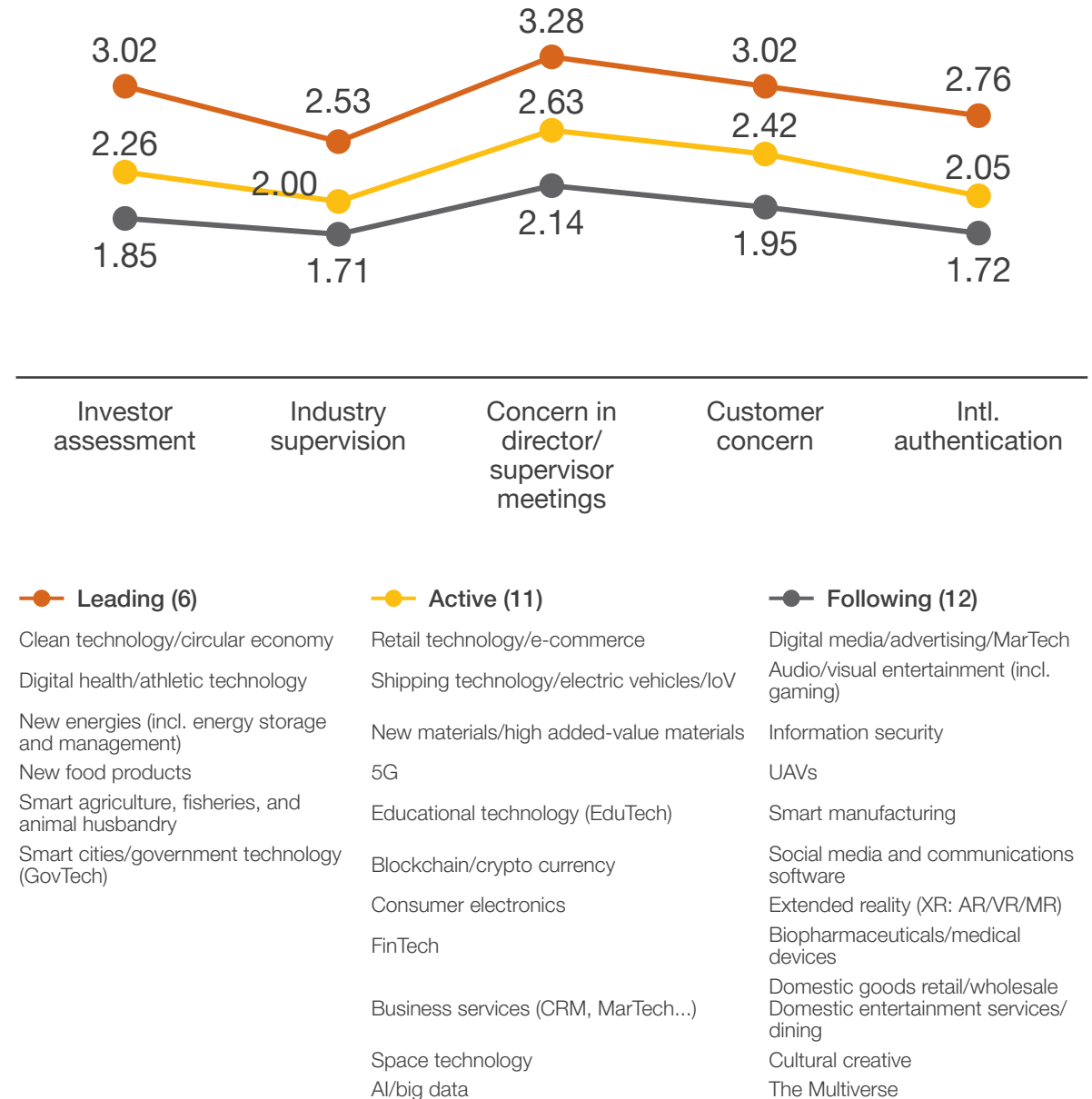
Sample size = 700

ESG in practice: positive atmosphere of net-zero emissions leads startups into seeing the importance of ESG

When financial institutions and investors have made ESG a standard or investment criterion, ESG will then become a “required course” for business operations. Within this sea change, it is foreseeable that startups of many fields will be affected, each to a different degree, which will then manifest in differences in emphasis, awareness, and action.

To show the difference in degree of impact on domestic startups, we surveyed startups for “Investors assess ESG performance while investing”, “Industry is subject to high levels of control under ESG-related laws and regulations”, “Topics of concern in director/supervisor meetings,” “Customers are concerned about the ESG performance of startups” and “Obtaining international/foreign ESG certifications” and conducted statistical inter-cluster distance analysis. The results show that startups from various fields can be divided into three distinct groups: leading, active, and following. The “leading” group refers to startups that are more affected by ESG and whose internals stress the importance of ESG issues. The “active” group includes those that are moderately influenced and stress the importance of ESG to the same level. The “following” group is affected by and stresses the importance of ESG to a level less than either of the first two groups.

Most of the startups in the leading group are related to the field of net-zero emissions, which shows the development trend of international issues like net-zero emissions. Domestic startups in such areas as clean technology/circular economy, digital health/athletic technology, and new energies have taken action, invested in ESG issues, and provided products/services. Over time, ESG issues may motivate retail tech, FinTech, EduTech, transportation tech, and other startups in the active group to begin paying attention to ESG-related issues.

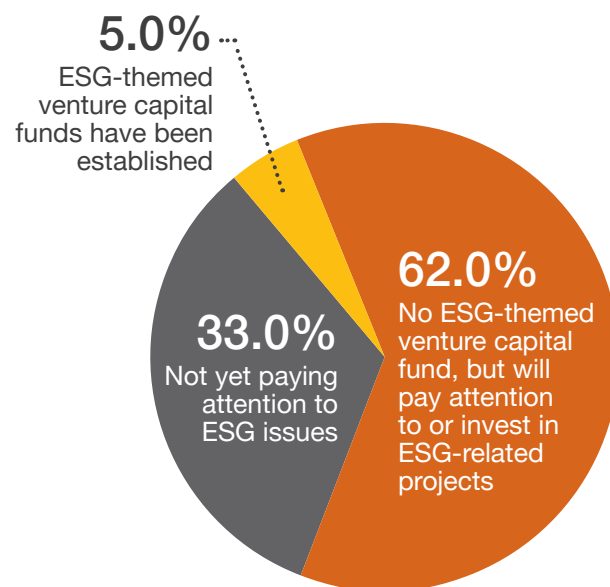


Investors and ESG

Investors have already taken action on ESG investment, and they have expressed high willingness to invest in the future

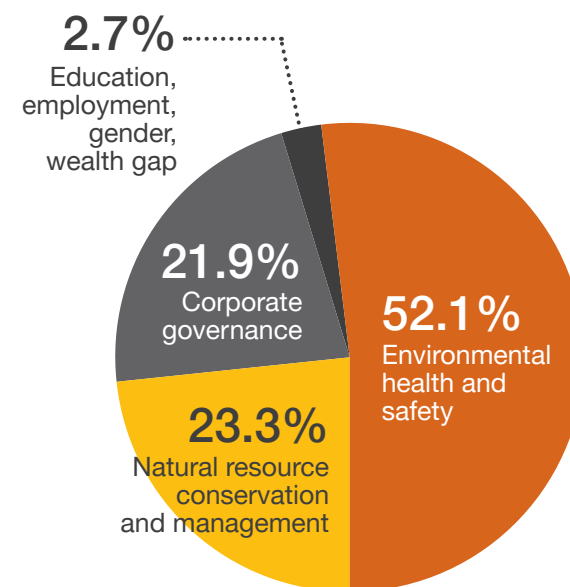
This year's investor survey found that

- 67.0% of investors have set up thematic funds or pay attention to ESG-related issues. Over the next 2-3 years, 73.0% of investors will invest or pay attention to ESG issues
- ESG investment is most concerned about “environmental health and safety (52.1%)”, followed by “natural resource protection and management (23.3%)”



Q: What is your institution's investment stance towards ESG startups?

Sample size = 100



Q: For which of the ESG startup investment fields listed below does your institution have the most concern?

Sample size = 73

Investors have invested in emerging technology fields related to carbon reduction; startups can use this as a reference for creating a business

The startup survey shows that in 2022, the startup keywords are still topped by digital technology applications like artificial intelligence/big data, though fields related to carbon reduction are also gradually emerging. Clean technology ranked 12th, New materials/high added-value materials ranked 17th, and New energies (incl. energy storage and management) ranked 19th.

The investor survey reflects the fact that venture capital institutions have mainly invested in digital technology applications and areas vigorously promoted by the government, e.g., Biopharmaceuticals, AI/big data, Smart manufacturing, Retail technology/e-commerce, New materials/high added-value materials, etc.

By a comparison of the invested fields with this year's entrepreneurial keywords, it was found that six of the top-ten entrepreneurial keywords entered invested fields. Startups or aspiring entrepreneurs may look to this investment trend as reference for selection of topics or development in the entrepreneurial process.

Investment is deployed in the fields of digital transformation and net-zero emissions, giving testament to continued optimism of future market prospects

According to the investor survey, the key fields of investment focus and investments in the next 2-3 years are smart manufacturing, AI/big data, Biopharmaceuticals/medical devices, new energies (incl. energy storage and energy management), Shipping technology/electric vehicles/IoV, which gives credence to investors' optimism about the market prospects of digital transformation and net-zero emissions as well as the development of related technologies.

Comparison of top ten investment fields with entrepreneurial keywords

Ranking	Invested fields (investor)	Entrepreneurial keywords (startup)
1	Biotechnology and medicine/medical devices (49.0%)	4
2	AI/big data (38.8%)	1
3	Smart manufacturing (34.7%)	5
4	Retail technology/e-commerce (28.6%)	9
5	New materials/high added-value materials (24.5%)	17
	Shipping technology/electric vehicles/IoV (24.5%)	23
6	New energies (incl. energy storage and management) (22.4%)	19
7	5G (20.4%)	25
8	Consumer electronics (18.4%)	20
	FinTech (18.4%)	22
9	Blockchain/crypto currency (16.3%)	26
	Information security (16.3%)	27
10	Domestic entertainment services/dining (14.3%)	6
	Digital media/advertising/marketing technology (MarTech) (14.3%)	7
	Clean technology/circular economy (14.3%)	12

Comparison of Investors' future fields of focus and entrepreneurial keywords

Ranking	
1	Smart manufacturing (44.0%)
2	AI/big data (39.0%)
3	Biopharmaceuticals/medical devices (38.0%)
4	New energies (incl. energy storage and management) (34.0%)
5	Shipping technology/electric vehicles/IoV (29.0%)
6	New materials/high added-value materials (27.0%)
7	5G (22.0%)
8	Information security (19.0%)
9	Retail technology/e-commerce (18.0%)
	FinTech (18.0%)
10	Clean technology/circular economy (17.0%)

www.pwc.tw



Ryan Huang

Leader of Innovation and
Entrepreneurial Services,
PwC Taiwan

+886-2-2729-5672
ryan.huang@pwc.com

Kevin Pai

Senior Manager of Innovation
and Entrepreneurial Services,
PwC Taiwan

+886-2-2729-6666#23205
kevin.pai@pwc.com



Xin-Wu Lin

Vice President, Taiwan Institute
of Economic Research

+886-2-2586-5000#210
Xin-WuLin@tier.org.tw

Kelly Lin

Director, Taiwan Institute
of Economic Research

+886-2-2586-5000#233
d31970@tier.org.tw



2022 Taiwan Startup Ecosystem Survey Report (Digital Edition)

© 2022 PricewaterhouseCoopers Taiwan. All rights reserved. PwC refers to the Taiwan member firm, and may sometimes refer to the PwC network. Each member firm is a separate legal entity. Please see www.pwc.com/structure for further details. This content is for general information purposes only, and should not be used as a substitute for consultation with professional advisors.