

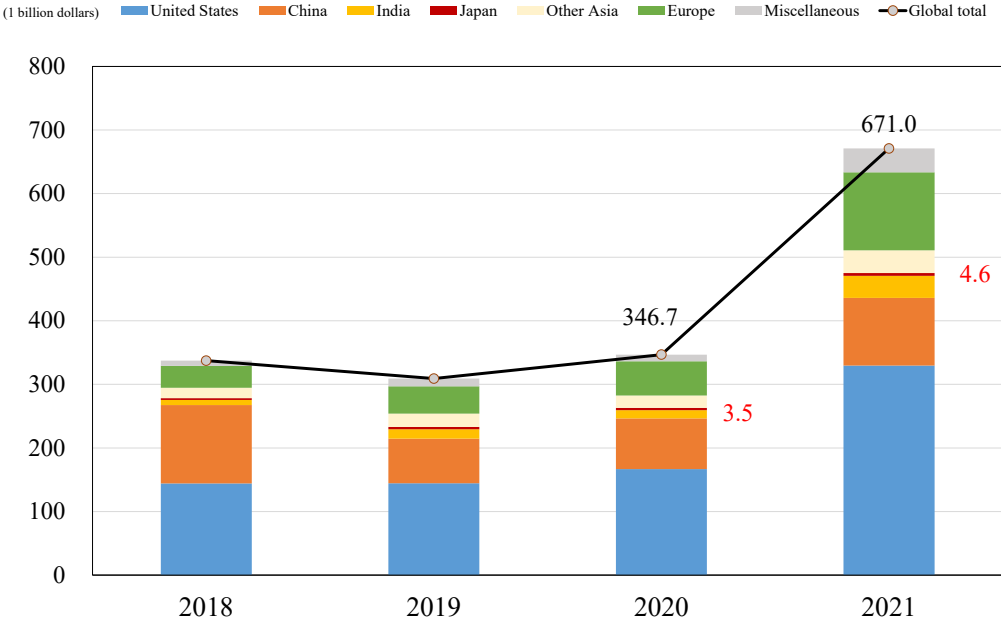
1. Trends surrounding startups

(1) Rapidly expanding venture capital investment

The rapid growth of startups can lead to macroeconomic growth and provide a new driving force for future jobs, income, and finances. Venture capital firms play a central role in the supply of risk money to support rapid growth from the initial stage, while discovering entities with large growth potential from among a number of startups.

2021 was a year of dramatic growth in global venture capital investment. Investments in 2021 nearly doubled from 3.467 billion dollars in 2020 to 6.710 billion dollars (Figure II-2-2-1).

Figure II-2-2-1. Venture capital investment around the world



Note: The quarterly data has been combined for each year. The red numbers are Japan.
 Source: *Venture Pulse 2021Q4 (January 19, 2022)* (KPMG). The original data is from PitchBook.

Looking at large-scale funding projects in 2021, U.S. and Chinese companies accounted for a large number of large-scale funding projects, while companies in emerging Asian countries outside of China, such as the logistics and e-commerce company in Indonesia and the EdTech company in India, as well as the FinTech company in Brazil, have been procuring billions of dollars (Table II-2-2-2). In addition to digital services ("Tech" sectors in education, healthcare, financial services, and so on), software, and consumer services (e.g., e-commerce, delivery), growing interest in new fields such as green and circular economy and aerospace can be seen.

Table II-2-2-2. Large-scale funding projects in 2021 (Top 10 companies per quarter)

	Company name	Procurement (Billion dollars)	Sectors	Country
Q1	1 Robinhood	3.4	FinTech	United States
	2 Xingsheng Selected	3	Retail	China
	3 Rivian	2.65	Automotive	United States
	4 Lalamove	1.5	Logistics	China
	5 Klarna	1.3	FinTech	Sweden
	6 Gopuff	1.15	Retail	United States
	7 Pacaso	1.075	Real estate related technology	United States
	8 villageMD	1.025	Health Tech	United States
	9 Databricks	1	Database Software	United States
	10 SpaceX	0.85	Aerospace	United States
Q2	1 Northvolt	2.75	Automotive Cleantech	Sweden
	2 Waymo	2.5	Automotive	United States
	3 J&T Express	2	Logistics, e-commerce	Indonesia
	4 BYJU'S	1.55	EdTech	India
	5 Nubank	1.5	FinTech	Brazil
	6 Horizon Robotics	1.5	Semiconductors	China
	7 SpaceX	1.2	Aerospace	United States
	8 Celonis	1	Business-oriented software	Germany
	9 MessageBird	1	Cloud Tech	The Netherlands
	10 Epic Games	1	Entertainment software	United States
Q3	1 Flipkart	3.6	Retail	India
	2 Rivian	2.5	Automotive	United States
	3 Generate	2	Cleantech	United States
	4 BYJU'S	1.7	EdTech	India
	5 Databricks	1.6	Database software	United States
	6 Svolt	1.6	Power Storage	China
	7 Articulate (Educational Software)	1.5	EdTech	United States

	8	Devoted Health	1.2	Digital Health	United States
	9	Nubank	1.15	FinTech	Brazil
	10	Chime	1.1	FinTech	United States
Q4	1	J&T Express	2.5	Logistics, e-commerce	Indonesia
	2	Commonwealth Fusion Systems	1.8	Cleantech	United States
	3	Gopuff	1.5	Retail	United States
	4	Regor Therapeutics	1.5	Biotech	China
	5	Sierra Space	1.4	Aerospace	United States
	6	Lacework	1.3	Network management software	United States
	7	GTA Semiconductor	1.25	Semiconductors	China
	8	Nanjing LingHang Technology	1.2	Automotive	China
	9	Thraslo	1	E-commerce	United States
	10	Pupumall	0.95	Retail	China

Source: *Venture Pulse 2021 (Issues Q1-Q4)* (KPMG). The original data is from PitchBook.

(2) Diversification of funds-supplying entities and means of funding

A recent trend in venture investment is the increasing participation of investors other than traditional venture capital firms (e.g., Private Equity (PE), mutual funds, Sovereign Wealth Funds (hereinafter SWF), and hedge funds)¹³². According to Uehara (2021), hedge funds were the largest type of investors in unicorns in the United States in 2021 in terms of number of investments from investing entities (number of investment firms). (comparing the top 33 investment firms in 2020 and 2021¹³³, eight of them were nontraditional investing entities in 2020, whereas 14 of them were in 2021, marking a large increase). In addition, SWFs and public pension funds (PPF) in each country increased their investments in 2021 (Figures II-2-2-3 and II-2-2-4) during the recovery from the COVID-19 pandemic and have shifted the focus of their investments to growth areas such as healthcare, technology, and consumer products (Figure II-2-2-5). In addition, there is interest¹³⁴ in sustainability-related investments, such as investments in renewable energy, and there are known examples of startup investments by SWFs, such as an investment in the ride-hailing service Uber by

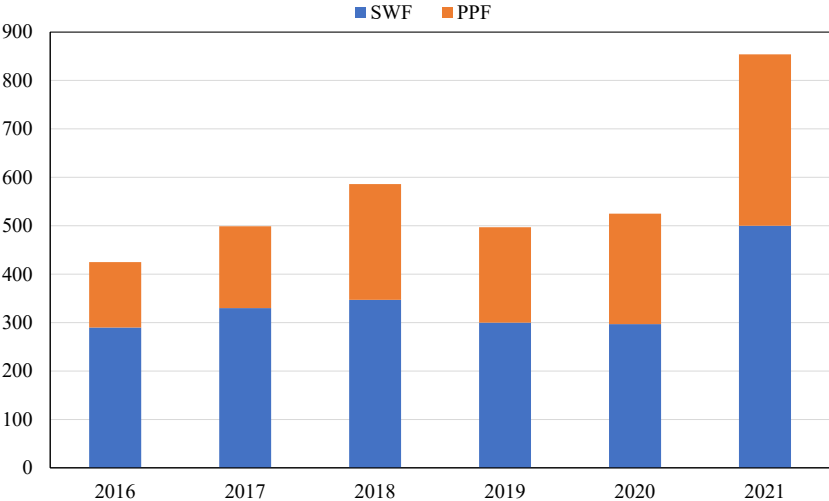
¹³² Uehara (2021), PitchBook website article (July 8, 2021) *Why nontraditional investors are expected to continue their push into Venture* (<https://pitchbook.com/newsletter/why-nontraditional-investors-are-expected-to-continue-their-push-into-venture>)

¹³³ Several companies with the same ranking are included (there are 34 companies in the top 33 in 2020 and 36 companies in 2021).

¹³⁴ For example, Pension Fund of Norway's investment in renewable energy infrastructure (<https://www.nbim.no/contentassets/f8c5e301ff804c09881b1beb5299dc30/gpfg-annual-report-2021-web.pdf>).

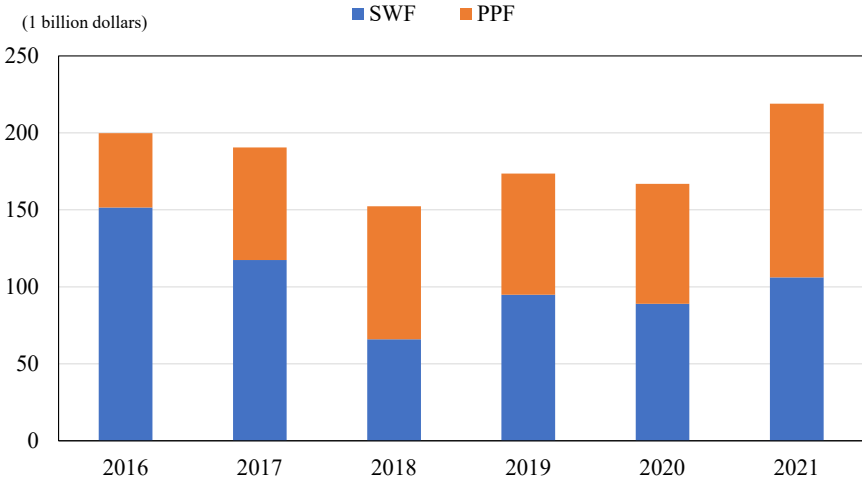
Saudi Arabia's Public Investment Fund (PIF), and an investment in the US-based private lodging service Airbnb¹³⁵ by the Singapore-based Temasek.

Figure II-2-2-3. Number of investments by sovereign wealth funds (SWFs) and public pension funds (PPFs)



Source: 2022 Annual Report (Global SWF).

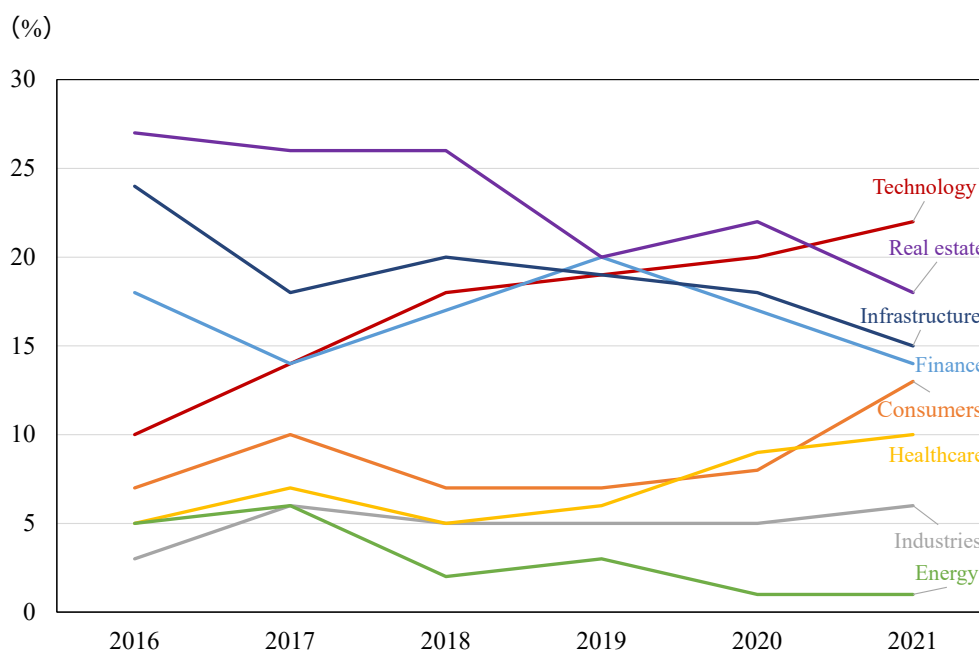
Figure II-2-2-4. Amount invested by sovereign wealth funds (SWFs) and public pension funds (PPFs)



Source: 2022 Annual Report (Global SWF).

¹³⁵ Ministry of Economy, Trade and Industry (2017a) "Supply of risk money toward the fourth Industrial revolution" (explanatory material of the first workshop about the supply of risk money toward the fourth Industrial revolution (October 18, 2017)).

Figure II-2-2-5. Sovereign wealth funds (SWFs) and public pension funds (PPF) by sectoral investment ratio (in terms of value)



Source: 2022 Annual Report (Global SWF).

Funding methods for startups are also diversifying. In addition to IPOs (initial public offerings), there are also cases in other countries of listings through special purpose acquisition companies (SPACs) in exits, the payback stage of venture investments. SPACs are companies that do not have a specific business, but are formed solely for the purpose of acquiring a private company. After the private company is listed, the company acquires it and continues to operate as a listed company that operates the business activities of the acquired company¹³⁶. For startups, being acquired by a SPAC allow them to go public more quickly than going through an IPO, which involves complicated procedures. There are other methods of procuring funds that are not clearly defined, such as ICOs (initial coin offerings), in which companies issue tokens (certificates) to raise funds electronically¹³⁷, and crowdfunding, in which new growth companies raise the necessary funds in small amounts from a large number of people via the Internet¹³⁸.

(3) Growing startups: Trends surrounding unicorns

In the midst of active venture investment, the number of so-called unicorns (unlisted venture companies with a corporate value or market capitalization of \$1 billion or more) has recently

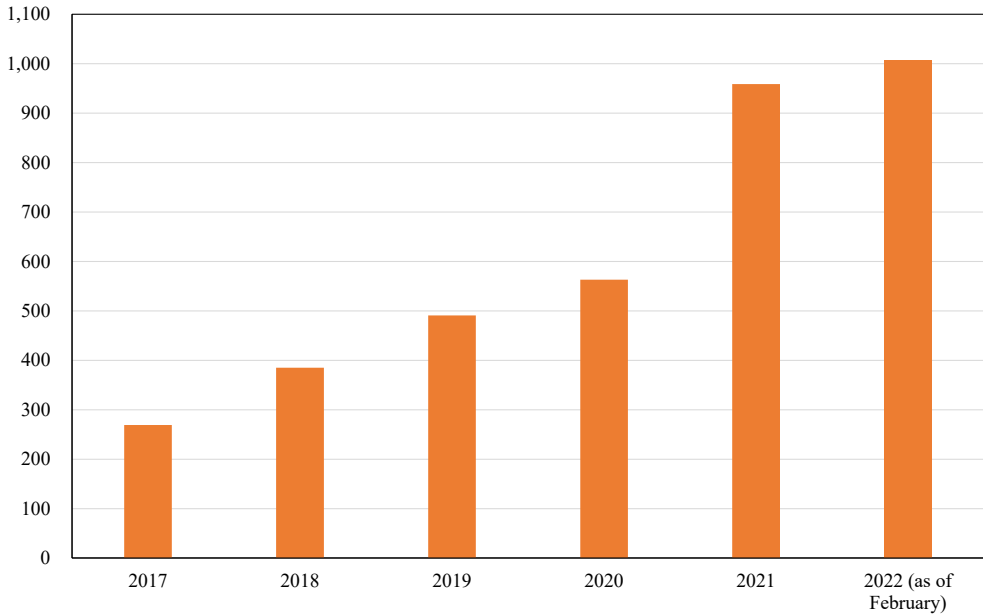
¹³⁶ Financial Services Agency (2021a) reference material of the second working group on fostering startups, Cabinet Secretariat (April 19, 2021)

¹³⁷ Financial Services Agency website (<https://www.fsa.go.jp/common/law/guide/kaisya/index.html>) Laws and regulations and guidelines/Administrative guidelines/Part 3: Financial companies affiliates 16. Crypto Asset Exchangers affiliates (as of July 2021)

¹³⁸ Financial Services Agency (2021b), "SEICHOUSHIKIN NO KYOUKYUU NO ARIKATA NI KANSURU KENTOU" (Feb. 18, 2021), (Financial System Council: explanatory material of the Secretariat of "the sixth working Group on Market institutions". Updated June 16, 2021)

surpassed 1,000 (as of February 2022), about double the number in 2020, and has rapidly increased in a little over a year (Figure II-2-2-6). The United States has the most, with 512, followed by China with 167, India with 62, and the United Kingdom with 40 (Figure II-2-2-7). In terms of market capitalization, the United States accounted for the majority of the world total (3.3 trillion dollars) at 52.7%, followed by China at 17.1% and India at 5.5% (Figure II-2-2-8). Looking at the industry composition by country (Figure II-2-2-9 to 11), in the U.S., the percentages accounted for by FinTech (23.6%) and Internet software services (22.7%) are increasing; in China, AI (30.1%) and e-commerce and D-to-C (18.3%); in India, FinTech (23.1%) and EdTech (16.9%). Looking at the cities where unicorns are located (Figure II-2-2-12), San Francisco on the west coast of the United States is at the top of the list, followed by other major U.S. cities such as New York and Boston. Next are Beijing, Shanghai, Paris, London. It is also worth noting that Bengaluru, India, is also rapidly developing a startup ecosystem¹³⁹.

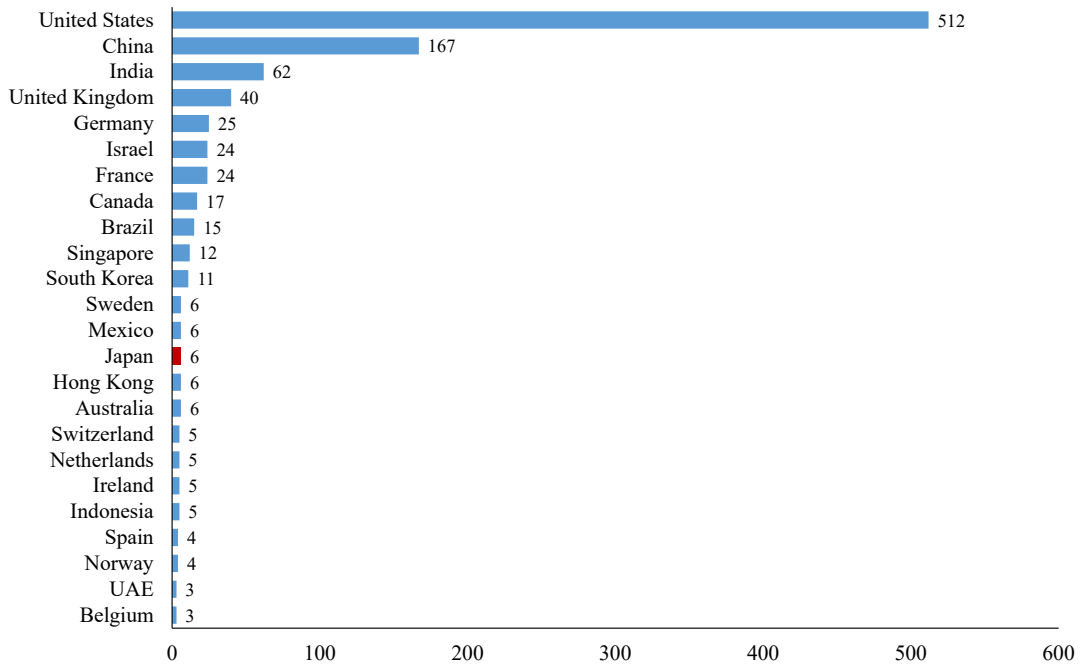
Figure II-2-2-6. Trends in the global number of unicorns



Source: CB Insights website (<https://www.cbinsights.com/research-unicorn-companies>).

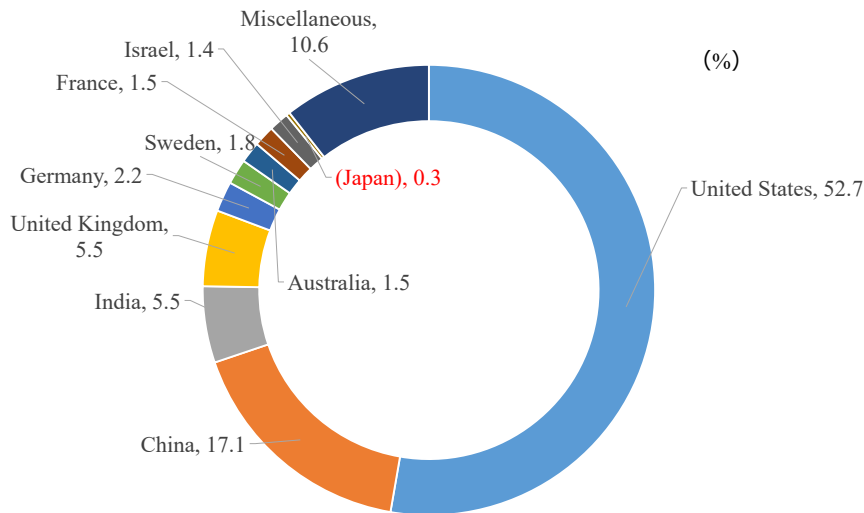
¹³⁹ Taki, S. (2019), "BENGARURU WO CHUSHIN NI KYUUHATTEN SURU INOBEISHON ECOSHISUTEMU (India)" (June 10 2019) (JETRO website).

Figure II-2-2-7. Number of unicorns by major country or region (as of February 2022)



Source: the CB Insights website (<https://www.cbinsights.com/research-unicorn-companies>).

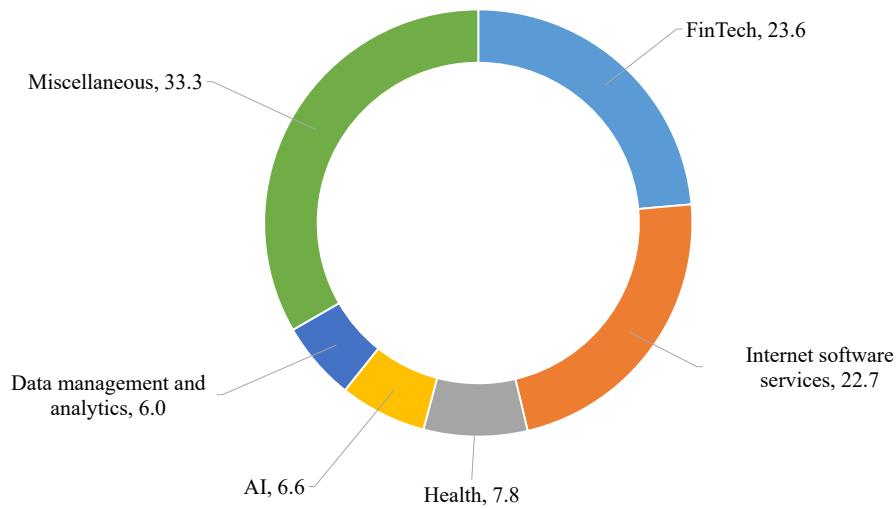
Figure II-2-2-8. Global unicorn market capitalization (percentage of the world total of 3.3 trillion dollars accounted for by each country as of February 2022)



Note: 3.3 trillion dollars is the sum of the valuation of each unicorn listed on the CB Insights website (as of February 2022).

Source: the CB Insights website (<https://www.cbinsights.com/research-unicorn-companies>).

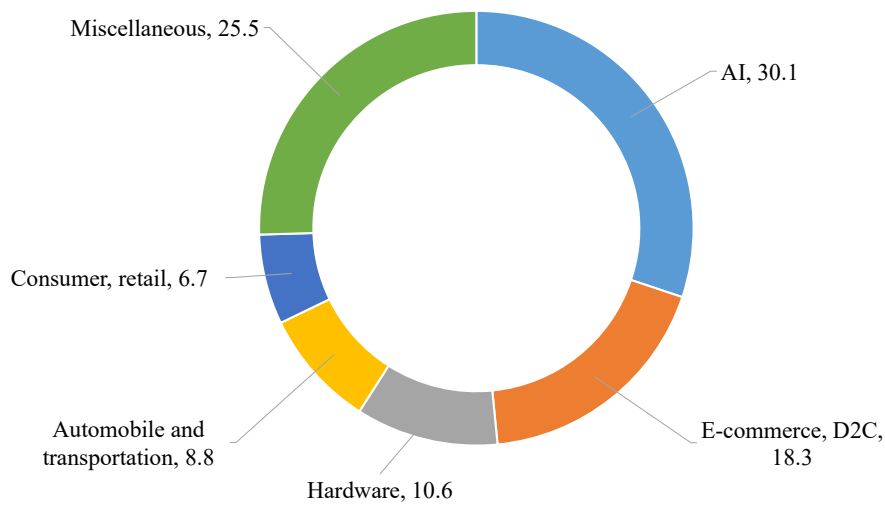
Figure II-2-2-9. U.S. unicorn market capitalization by sector (%)



Note: As of February 2022.

Source: the CB Insights website (<https://www.cbinsights.com/research-unicorn-companies>).

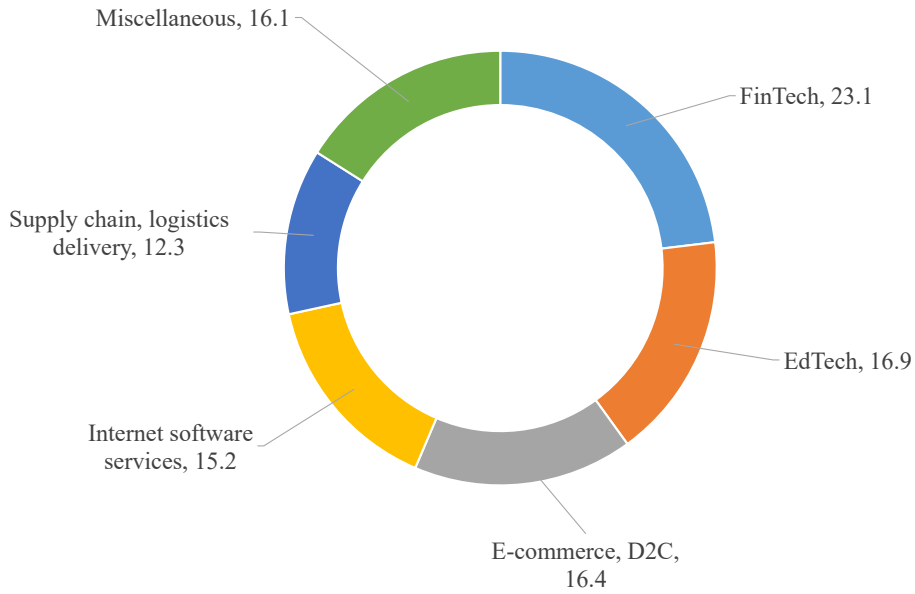
Figure II-2-2-10. Chinese unicorn market capitalization by sector (%)



Note: As of February 2022.

Source: the CB Insights website (<https://www.cbinsights.com/research-unicorn-companies>).

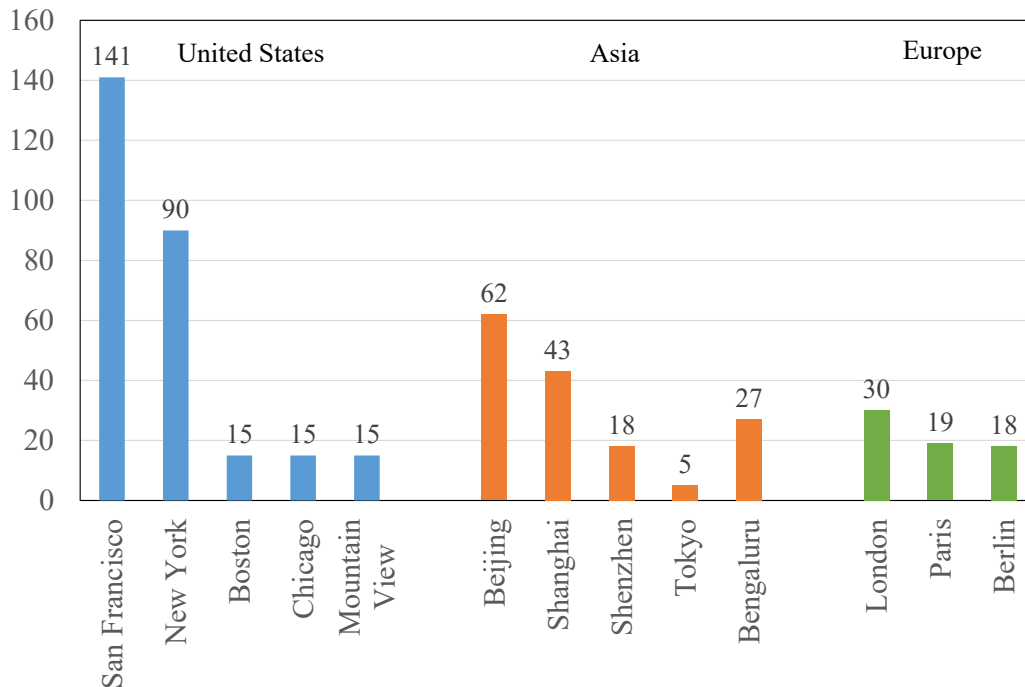
Figure II-2-2-11. Indian unicorn market capitalization by sector (%)



Note: As of February 2022.

Source: the CB Insights website (<https://www.cbinsights.com/research-unicorn-companies>).

Figure II-2-2-12. Number of unicorns by city (as of February 2022)



Note: Up to the top 10 in the number of companies (12 cities in the figure because there are equal number of cities) and Tokyo.

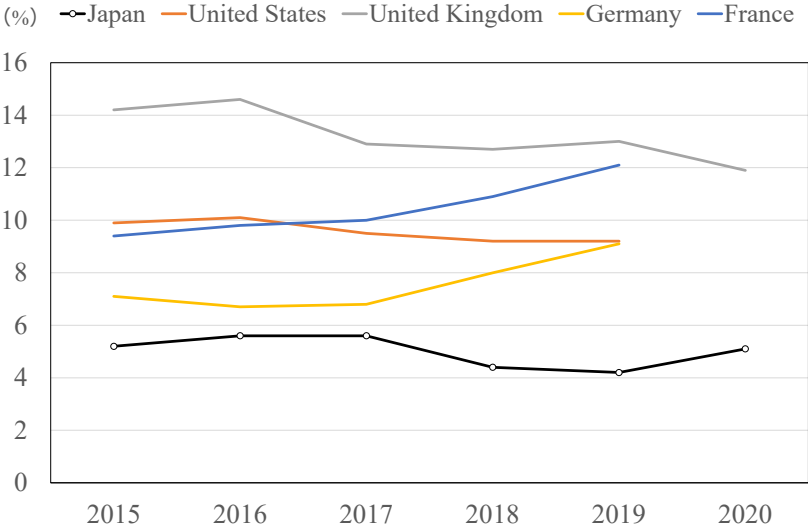
Source: the CB Insights website (<https://www.cbinsights.com/research-unicorn-companies>).

Several companies have grown as startups and reached an exit, some of which became listed on stock exchanges in countries where they were not founded. Singapore-based Grab became listed on the U.S. NASDAQ stock exchange in December 2021 (as a result of merger with SPAC). Other companies include Sea (Singapore, consumer Internet services such as online games, became listed on the New York Stock Exchange in October 2017), Bukalapak (Indonesia, e-commerce, became listed on the Indonesia Stock Exchange in August 2021), India-based One 97 Communications (operates the payment service Paytm, became listed on the Bombay Stock Exchange in November 2021), and GoTo (formed in May 2021 in a merger between the Indonesian ride hailing service Gojek and Indonesian e-commerce company Tokopedia), which became listed on the Indonesia Stock Exchange in April 2022.

(4) Japan’s lagging startups

Compared to rapidly growing startups throughout the rest of the world, Japanese companies are lagging behind. The number and value of unicorns in Japan are not as high as those in the United States, but they are also lower than those in China and India (Figures II-2-2-7, II-2-2-8). There were six unicorns in Japan as of February 2022¹⁴⁰, accounting for 0.3% of the global market capitalization. In addition, although it is difficult to make a simple comparison, the establishment rate in Japan remains low compared to other countries (Figure II-2-2-13).

Figure II-2-2-13. International comparison of entry rates



Notes: Because the nature of the statistics varies from country to country, it is not possible to make a simple comparison.

1. Japan: Calculated based on the founding of business establishments for which an insurance relation has been established. (covered business establishment). The data is in fiscal years.
2. United States: Calculated based on the incidence and disappearance of employer.
3. United Kingdom: Calculated based on the number of companies that have registered VAT (value-added tax) and PAYE (withholding system of income tax).

¹⁴⁰ Preferred Networks (deep learning, development of technologies related to robotics), SmartNews (mobile and telecommunications), SmartHR (FinTech), Spiber (biomaterials), Liquid (FinTech), Playco (instant game development).

4. Germany: Calculated based on the number of companies that have submitted their notifications of opening of business.

5. France: The number of companies in the companies and business list (SIRENRE) database.

Source: White Paper on Small and Medium Enterprises (2022).

Let us sort out the issues facing Japanese startups from the viewpoints of human resources, businesses, and funds (Table II-2-2-14). Human resources issues that have been pointed out are risk aversion (weak entrepreneurial mindset) and shortage of human resource being transferred to startups. Business issues include a shortage of funds to support the commercialization of research results, a shortage of management personnel and staff, a shortage of risk money to break through barriers¹⁴¹ that must be overcome in the process from basic research to commercialization, and a shortage of facilities and expertise for mass production, as well as mismatches with the market (e.g., being closed within Japan unable to expand globally, the Japanese market has not matured enough for innovative products and services). Funding issues that have been pointed out include funds that are too small, a shortage of funds due to a limited supply of risk money from overseas, and a shortage of liquidity due to limited options and opportunities for exits¹⁴².

¹⁴¹ There are two barriers: One is whether research and technology seeds can lead to the development stage that leads to commercialization ("Devil River"), and the other is whether products and services developed can lead to commercialization ("Valley of Death"). (Ministry of Economy, Trade and Industry (2022a) "SUTAATOAPPU NI TSUITE" material of the Secretariat of the fourth meeting of the Committee on New Direction of Economic and Industrial Policies, Industrial Structure Council (February 16 2022))

¹⁴² Ministry of Economy, Trade and Industry (2022a)

Table II-2-2-14. Challenges in the Japanese startup ecosystem

Human resources	1	Lack of entrepreneurs	<ul style="list-style-type: none"> The entrepreneurial mindset is low due to fears of failure and lack of entrepreneurs nearby. There are no successive entrepreneurs who succeed and take on the challenges of entrepreneurship again.
	2	Lack of human resources to support growth	<ul style="list-style-type: none"> The mobility of the labor market is low, and human resources do not move from large companies to startups.
Business	3	Research results are not commercialized	<ul style="list-style-type: none"> Lack of funding to support the stages of product development and time to market. Lack of awareness and management personnel and accompaniment of researchers to connect technology and ideas to business.
	4	Lack of rapidity in growth and market development	<ul style="list-style-type: none"> Lack of awareness, know-how, and understanding of systems for global expansion. Business development closed in Japan. These are innovative products and services, but the domestic market has not matured or existed at present.
Funds	5	Lack of absolute amount of funds	<ul style="list-style-type: none"> Fund size is small due to lack of fund supply from institutional investors. The supply of risk money from overseas is limited.
	6	Lack of liquidity of funds	<ul style="list-style-type: none"> Exit (exit strategy) options and opportunities are limited (Exit with few M&A and IPO bias). The distribution and trading of unlisted stocks is minimal.

Source: Explanatory material ("About startup business") of the Secretariat of the fourth meeting of the Committee on New Direction of Economic and Industrial Policies, Industrial Structure Council, (Ministry of Economy, Trade and Industry).

Startups are growth drivers, and it is necessary to lead the Japanese startup ecosystem into a virtuous cycle by solving the aforementioned issues. Areas that are considered particularly promising are the areas of market creation, commercialization and social implementation of R&D results, expansion into overseas markets including emerging Asian countries, and collaboration and cooperation with local startups. We will consider these issues in next section 3.

2. Trends surrounding platform businesses

(1) Platform companies in each country and region¹⁴³

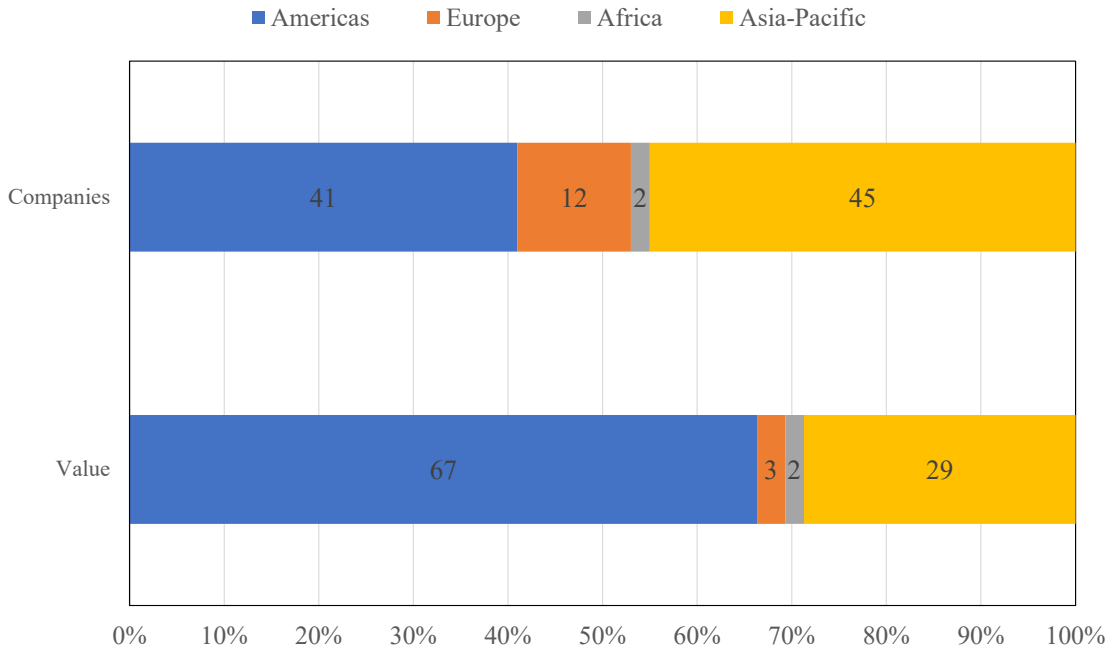
A platform is a "place" (common function) that connects a large number of producers and a large number of consumers. Although it existed before the digitalization of the economy, as the development of the Internet made it possible to build a digital platform, the scale of business expanded dramatically¹⁴⁴. Platform companies create network effects while increasing the benefits of platform participation and increase market influence. Looking at the top 100 global platform companies by market capitalization (as of May 2021), the number of companies are comparing with 41 companies in the Americas and 45 companies in the Asia-Pacific region including China, but on the other hand market capitalization of these are 67% in the Americas and 29% in the Asia-Pacific region including

¹⁴³ The business contents of each company covered in this section are examples.

¹⁴⁴ Motohashi (2020)

China¹⁴⁵(Figure II-2-2-15). Looking at the individual value of major companies (as of the end of 2021), the corporate value of the U.S. platform companies, such as GAFAM, overwhelms those in other regions (Figure II-2-2-16).

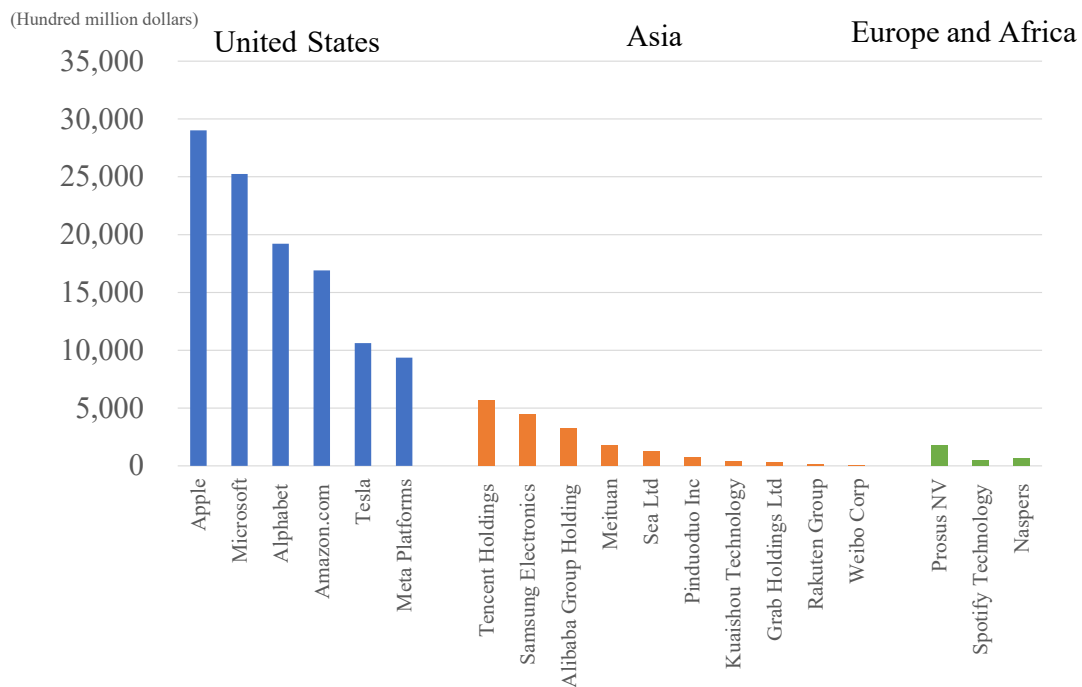
Figure II-2-2-15. Breakdown of the top 100 platform companies market capitalization by country and region



Source: *Digital Economy Report 2021* (United Nations) (UNCTAD) (2021).

¹⁴⁵ *Digital Economy Report 2021* (United Nations) (UNCTAD) (2021)

Figure II-2-2-16. Market valuation of platform companies (End of 2021)

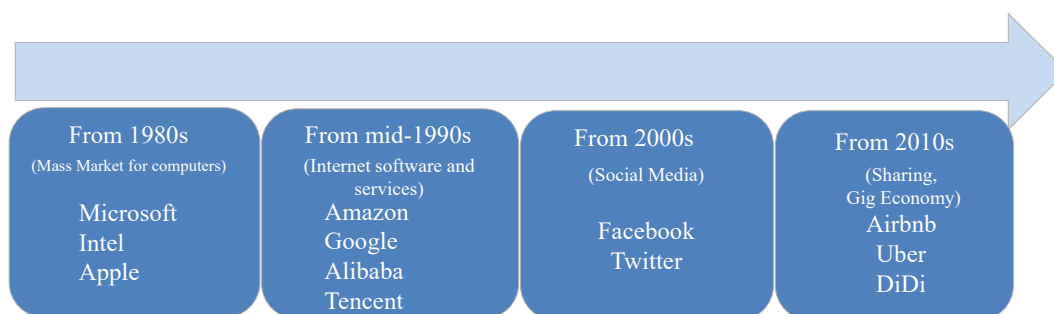


Notes: Alphabet is a Google's parent company.
Source: Refinitiv (February 25 2022 data).

(A) U.S. companies

Cusumano (2020) refers to the strategy of Microsoft in the 1980s, focusing not on how to sell their operating systems for computers at high price, but how to create a mechanism to involve multiple markets such as complementary products (apps and digital services) that occur around computers, as an early breakthrough example that embodied the "platform" concept (see Figure II-2-2-17 for the classification of representative platform companies by age group by Cusumano (2020)). In addition to dominating the market with the invention of smartphones that are easy for the public to use, Apple is growing revenue in its platform business such as digital contents, payment services and application stores. Amazon (e-commerce), Google (parent company is Alphabet. Search engine), Facebook (currently Meta. social media) also grew big in a short period of time due to improvements in their own platform capabilities. These well-known U.S. IT platform companies, collectively referred to as GAFA or GAFAM, can be said to be leaders in innovation that changed the way people behave and had a significant impact on society. Airbnb (vacation rental service) and Uber (ride-hailing service) are platforms that match property owners and service providers with those who wish to use them, and both are pioneers in the sharing economy, which has been attracting attention in recent years.

Figure II-2-2-17. Example of a large company that formed a platform strategy and business model



Notes: The company name is used in the source material in English. Recent name changes have not been reflected.

Source: Cusumano. (2020)

Under these circumstances, restriction measures associated with the spread of COVID-19 have further increased the demand for digital alternatives in areas where "interpersonal" and "contact" were normal. In addition, new technologies such as 5G and VR (virtual reality. Virtual space) are expected to create value in the platform business. In October 2021, Facebook changed its name to Meta Platforms¹⁴⁶ and announced that it would focus on developing a virtual space called Metaverse¹⁴⁷ in addition to running its flagship SNS service (Facebook). Additionally, at the beginning of 2022, Apple became the subject of the first publicly traded company on market capitalization in the United States to break the 3 trillion dollars mark.

(B) Chinese companies

In China, due to its potential as a country with a largest population (the scale of Internet users) and restrictions on access to overseas platforms, etc., Baidu (search engine), Alibaba (e-commerce), Tencent (social media, games) established itself as a leading companies (collectively known as BAT). Alibaba and Tencent offer integrated applications for payments called Alipay and WeChat, messaging, ride-hailing and ticket booking, and they have hundreds of millions of users. In recent years, emerging platform companies such as TMD (Toutiao (news app), Meituan (food delivery), Didi (ride-hailing service)), PKQ (Pinduoduo (e-commerce), Kuaishou (video app), Qutoutiao (news app)), and ByteDance (video app) are growing, intensifying competition in China¹⁴⁸.

¹⁴⁶ In this section, for convenience, there is a section describing using the name of Facebook.

¹⁴⁷ It is estimated that the market size of the metaverse, including peripheral industries such as social media and gaming, will exceed 4,787 billion dollars (about 55 trillion yen) and will exceed 7,833 billion dollars (about 90 trillion yen) by 2024, with an average annual growth rate of 13.1% by Bloomberg's estimate. As the Challenges in the metaverse, technical issues related to the development of AR and VR devices and content, improvement of computing and communication capabilities, competition for supremacy of platforms and ensuring interoperability, and monopoly and oligopoly, which are also issues with conventional platforms. Policy issues such as information manipulation, disinformation, privacy infringement, and targeted advertising are considered. These issues will be discussed in the future.

¹⁴⁸ Source: Ito (2020), Nomura Securities (2020) "CHUGOKU SHINGOSANKE (TMD) TOHA NANIKAI? SOREDEMO CHUGOKU PLATFORMER GA NOBITSUZUKERU RIYU" (23 April 2020) (Nomura Securities website).

Along with the maturation of the Chinese market, Chinese platform companies are increasingly expanding to the e-commerce sector in Southeast Asia, which is expected to be the next growing market. Specifically, they invest in, acquire and establish business partnership with local e-commerce companies, etc. The investment in Tencent's Sanook (Thailand. Online media) and Sea (Singapore. After starting out as an online game company, it diversified), and the investment and acquisition of management right of Lazada (Singapore) by Alibaba, etc. drew attention. In addition, Alibaba is actively working with the governments of major Southeast Asian countries (cooperation in the development of e-commerce in Thailand, participation in Malaysia's Digital Free Trade Zone initiative, provision of training programs in the Philippines, etc.¹⁴⁹) and the establishment of an AI technology research center on the campus of Nanyang Technological University in Singapore, etc.¹⁵⁰. The company has a global eWTP (Electronic World Trading Platform) initiative, and it can be said that its expansion into Southeast Asia is based on this concept. This initiative aims not only to be a corporate strategy, but also to realize an inclusive global society through trade and FinTech (e.g., developing countries and small and medium-sized enterprises, etc. can also participate in global markets through digital technology and benefit from globalization, and provide financial services to people without bank accounts, etc.¹⁵¹), and it seems that the Southeast Asian countries seeking growth strategy and solution for social issues through digitalization also welcome these benefits.

(C) Companies in emerging countries such as Asia

Platform companies in emerging countries such as Asia are strongly affected by the business strategic orientation of the platform, as well as by the incentives of responding to market potential needs and growing through the solution of issues. Grab (established in Malaysia, moved headquarter in Singapore), offering ride-hailing service well known as a leading platform company in Southeast Asia and Gojek (Indonesia) have solved issues related to safety, reliability and operational efficiency for both drivers and users through matching ride-hailing apps. Additionally, the companies are actively diversifying their services, providing a variety of delivery services, cashless payments, insurance plans, etc. and are planning to improve access to economic and social infrastructure through their digital platform. It is also remarkable that Gojek has acquired Indian IT company and human resource recruiting company, and has made India a base for research and development and acquisition of engineers. In 2021, there have been trends to expand the scale of companies such as merger between Gojek and Tokopedia (Indonesia. E-commerce) to become GoTo.

In India, e-commerce companies such as Flipkart and BYJU'S(EdTech) are actively engaged in business development through large-scale funding (Table II-2-2-2). As for EdTech, it attracts attentions because of growing needs for online learning and VR learning in response to delays in the development of educational infrastructure in rural areas, etc. and school closures due to the spread of

¹⁴⁹ Source: Iwasaki (2018)

¹⁵⁰ Source: Honda, C. (2020) JETRO "Growing Presence of Chinese Companies in the World of Technology (Singapore)" (JETRO website) (10 January 2020) and the website of Nanyang Technological University of Singapore (<https://www.ntu.edu.sg/alibaba-ntu-jri>). Some of the business contents of the company are added.

¹⁵¹ Source: Ito (2020)

COVID-19. Especially in emerging countries such as India with large young population, the business potential is considered to be large. Additionally, Jio Platforms, which is subsidiary of conglomerate company, Reliance Industries, has been invested by foreign companies such as Facebook (currently Meta Platforms), Abu Dhabi Investment Authority and SWF in anticipation of the company's digital platform resources (nearly 400 million of Jio Infocomm's mobile phone users and Jio Mart's e-commerce service deployment, etc.)¹⁵². One97 Communications operates in countries and regions with large Indian population, and its subsidiary Paytm is the core provider of online payment and financial services, etc. PayTM's QR code payment technology is also used in Japanese smartphone payment services.

In developing platforms in emerging countries, financial inclusion is also important to provide means of payment for people without bank accounts or credit cards. Alipay, provided by Alibaba, enables payment and remittance by reading QR code on smartphone. The M-PESA provided by Safaricom (Kenya, a telecommunications provider) enables users to make payments and remittance by sending short messages on their mobile phones (feature phones), and to receive cash at kiosks¹⁵³. Nubank (Brazil), which has emerged as a Latin American FinTech company, offers free bank-like accounts through smartphones to people without bank accounts, as well as financial services such as credit card issuance, loans and insurance¹⁵⁴. FinTech, which is becoming more active in emerging countries, is drawing attention as a form of leapfrogging.

It has been pointed out that the business areas are expanding not only to B-to-C services but also to B-to-B services as a new trend for startups in emerging countries. Iwasaki (2022) says that even in Asia, where the proportion of B-to-C services is high compared to other regions in the world, some companies have recently started B-to-B services as a derivative of B-to-C services. She introduces Zilingo (Singapore) as representative example, which has launched a B-to-B marketplace connecting small and medium-sized retailers and sole proprietors to wholesalers and manufacturers¹⁵⁵.

(a) Diversity of platform companies

<Direction of international business deployment>

There are several types of business operations by platform companies (Table II-2-2-18). Tencent, Meituan, and Tokopedia are concentrating resources for domestic due to holding domestic market with large population, and Grab are promoting horizontal expansion within the Southeast Asian region. On the other hand, among companies aiming for global market, there are giant platforms that pursue the market potential of a larger population or higher income such as Amazon and Apple. Some companies focus on the needs to connect the communities of overseas immigrants and migrants from home country (so-called "diaspora") with the home population such as Baidu, Alibaba, One97

¹⁵² Source: Endo, S. (2020) "Facebook Announces 600 Billion Yen Investment in Geo Platforms" (30 April 2020) (JETRO website), Endo, S. and K. Taniguchi (2020) "Jio Platforms accelerates fundraising amid COVID-19 pandemic" (15 June 2020) (JETRO website)

¹⁵³ Source: Yang and Koike (2018)

¹⁵⁴ Source: Yamaoka, H. (2021) "NANBEI NO DEGITAL KIGYO" (8 December 2021) (<https://future-fintech.github.io/articles/20211208/>)

¹⁵⁵ Source: Iwasaki (2022)

Communications etc. Other companies such as DiDi and Sea are actively promoting into emerging markets with fewer competitors. The directions for business deployment of platform companies varies.

Table II-2-2-18 Direction for international business development of major platform companies

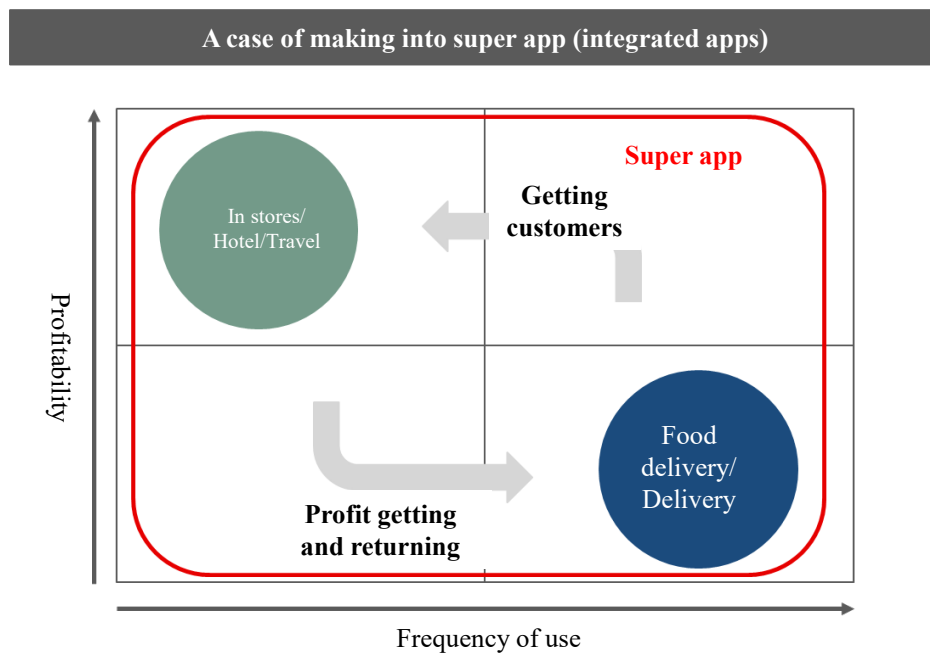
		Characteristics	Background, economic rationalities	Platformers (examples)
Domestically-oriented		<ul style="list-style-type: none"> Concentrate on the business in their home countries (not necessarily denying the overseas business in the future) 	<ul style="list-style-type: none"> Input resources intensively in the domestic markets where high potentials remained 	Tencent, Meituan, Tokopedia, Ovo, Digit Insurance
	Regionally- oriented	<ul style="list-style-type: none"> Promote the horizontal spread of their business in the same areas(not necessarily denying the global operations in the future) 	<ul style="list-style-type: none"> High similarities in the business environments facilitate the horizontal spread of the domestic business operations. 	Grab, Gojek
Globally-oriented	Pursuing market opportunities	<ul style="list-style-type: none"> Expand the business in the markets at least either with huge populations or with high income levels 	<ul style="list-style-type: none"> Business expansion by utilization of the advantages of the platformers 	Amazon, Alphabet, Meta, Apple, ByteDance
	Pursuing diasporas	<ul style="list-style-type: none"> Promote the horizontal spread of business in the overseas markets with large communities of diasporas (people and their descendants from the platformers' home countries) 	<ul style="list-style-type: none"> Strong needs for the ties between the large populations of their home countries and the overseas emigrants' communities 	Baidu, Alibaba, ANI Technologies, One97 Communications
	Pursuing new frontiers	<ul style="list-style-type: none"> Actively expand their business in the emerging markets with fewer competitors 	<ul style="list-style-type: none"> Avoid exhaustive competitions in the major markets, and secure the coverage of the markets by capital tie-ups if needed 	Didi Chuxing, Sea Group

Source: Ministry of Economy, Trade and Industry.

<Profit improvement model>

Platform companies that independently deploy such as ride-hailing services may struggle with dilemma between increasing sales and improving profits. In order to overcome this challenge, some platform companies are working on to be profitable by using ride-sharing and payment services that lead to stable acquisition of customers, even though they are small profit and quick return, and leading to higher profit margins such as e-commerce (FigureII-2-2-19).

Figure II-2-2-19. Example of making into super app (conceptual diagram)



Source: Ministry of Economy, Trade and Industry.

<R&D bases>

Some platform companies in emerging Asian countries have R&D bases and bases for hiring engineers outside of their home countries. Baidu is based in California, the United States, and conducts R&D in new growth sectors such as autonomous driving, deep learning, and robotics. One97 Communications, based in Ontario, Canada, analyzes customer data, etc. Gojek has built its R&D base in India through the acquisition of local IT and human resource recruiting companies.

(2) New trends in the platform business

There are various issues related to the platform business, and there are trends to establish new regulations and systems by international organizations and national and regional governments.

(A) International tax

With regard to international tax, conventional tax rules are determined to apply whether the companies have physical locations in the market countries or not, and new problems associated with the digitalization of economy have been pointed out, such as the allocation of taxing rights in the market countries for the activities of platform companies based overseas, the thinking of rationale for tax, and the response to the transfer of intangible assets to lower taxing countries.

As part of the Base Erosion and Profit Shifting (BEPS) project, OECD is considering review of international tax rules in line with the digitalization of economy. On October 2021, a framework for a new system consisting of two pillars was announced: 1) Allocate the part of taxing rights to the market countries with consumers and users from home countries of multinational companies regardless of having physical locations there (the first pillar), 2) Set the global minimum corporate tax rate of 15% and, tax in the country where the parent company is located, until the tax burden of subsidiaries in

lower taxation countries reach out the minimum tax rate(the second pillar), and 136 countries and regions agreed (as of October 2021). 1) applies to multinational companies with global sales exceeding 20 billion euros and a profit margin exceeding 10%, aiming the formulation of multilateral treaty in 2022 and the commencement of application in 2023. 2) applies to multinational companies with annual total revenues of more than 750 million euros, aiming domestic legislation in each country in 2022 (voluntary whether each country introduces) and gradually commencing the application in 2023.

Ito (2021) points out that this new tax rule could provide a new tax revenue infrastructure in emerging countries that holds many platform users while holding no platform companies from their home countries¹⁵⁶.

It should be noted that while international discussions centered on the OECD have been taking place, each country has tried to introduce their own Digital Services Tax (DST), etc. (as provisional measure). It is said that France, the United Kingdom, Austria, Czech Republic, Hungary, Italy, Latvia, Norway, Poland, Slovakia, Slovenia, Spain, Turkey, etc. correspond to that¹⁵⁷. With regard to measures taken by each country, various issues have been pointed out, such as consistency with international trade rules (such as unilateral measures) and double taxation between corporate taxes and DSTs. In addition, there were cases in which the two countries were confronted with each other over such measures (such as the investigation of Article 301 of the United States Trade Act on the taxation measures of France and others). In the statement of the international agreement of October 2021, on the formulation of Multilateral Convention in the future to implement the first pillar, it was stipulated that all parties are required to remove all Digital Services Taxes and other relevant similar measures with respect to all companies, and commit not to introduce such measures in the future. It was also stipulated that the new Digital Services Taxes or other relevant similar measures will not be imposed on any company from October 8 2021 and until the earlier of December 31 2023 or the coming into force of the Multilateral Convention. It is necessary to pay close attention to the trends and management of DSTs in each country following the OECD agreement this time.

(B) Insurance of competition and transparency, and prevention of abuse of a superior bargaining position

From the perspective of insurance of competition, and transparency, and prevention of abuse of a superior bargaining position, there have been cases that governments in each country have taken actions against the platform companies, such as prosecution, sanctions and other measures. As for the recent examples, there were cases that former Facebook (Meta Platforms) and Google were sued for antitrust violations by regulation authority in the United States (2020), and French authorities imposed fines on Google and Amazon (using Cookie without prior consent, violating the EU General Data Protection Regulation (GDPR) due to the lack of explanation to users (2020))¹⁵⁸. In China, under a new government slogan of "common prosperity", the regulations on platform companies have been

¹⁵⁶ Source: Ito (2021)

¹⁵⁷ Source: Watanabe (2020)

¹⁵⁸ Source: Japan Network information Center and others (2021) *Internet White Paper 2021*

tightened. It caused that the listing of Alibaba Group's financial services company Ant Financial has been postponed (2020), and being observed that Didi was investigated by Chinese government after its listing on the New York Stock Exchange and it led to the suspension of new downloads on app stores in China (2021)¹⁵⁹.

There is also trend to set comprehensive rules on digital platforms.

In December 2020, the European Commission published two proposed regulations (Digital Markets Act (DMA) and Digital Services Act (DSA)) for giant platform companies that are required to protect in the EU market. From the perspective of competition policy, DMA prohibit the priority of its own services, secure the portability among other platforms, and handle the personal data, etc. DSA requires to respond to the illegal contents on the platforms. There are penalties for each violation. It is necessary to pay attention to the movement toward future introduction. On 25 March 2022, the European Commission, the European Council and the European Parliament reached a political agreement for DMA, and it is expected to come into force in October 2022.

The government in Japan has been considering the improvement of the trading environment for digital platforms and conducting the fact-finding surveys etc., and the efforts have been made to develop rules for the digital market. In May 2020", Act on Improving Transparency and Fairness of Digital Platforms (TFDPA)" was enacted, and enforced in February 2021, stipulating necessary measures for digital platforms, including requirements of digital platform providers to disclose terms and conditions and other information, secure fairness in operating digital platforms, submit a yearly report on the current situation of business operation etc.

(C) Perspective on real data

As mentioned in this section, digital platform companies such as GAFA have expanded their influence on the market by collecting huge amounts of virtual data on the Internet, but in recent years, they have been rapidly advancing into other industries such as manufacturing in order to collect real data generated from the actual life environment. For example, there are various ways of approach, such as directly collecting data by injecting IoT devices into B-to-C services, and indirectly collecting data through the platform services for B-to-B. It has been pointed out that GAFA has already advanced into the sectors such as medical, nursing care, autonomous driving, AI next-generation electrical equipment, digital government and the productivity revolution of small and medium-sized enterprises¹⁶⁰.

GAFA is also expanding its influence in the field of real data, and in Europe, a next-generation cloud/data infrastructure initiative (GAIA-X project) is underway (the German and French governments announced in October 2019. Efforts to realize the initiative has become full-fledged since 2020)¹⁶¹. The outline and mechanism of the initiative are touched on in Part II, Chapter 1, Section 3. It is the initiative that aims at securing the safe data management and protects European data sovereignty by building distribution infrastructure through GAIA-X, and strengthens the competitiveness of the

¹⁵⁹ Source: Ito (2021).

¹⁶⁰ Source: Kamei (2019)

¹⁶¹ Reference: Part II, Chapter 1, Section 3.

social and industrial infrastructure sectors¹⁶². The approach by GAIA-X aims to build a decentralized data infrastructure that interconnects and operates existing cloud services in the region, rather than cultivating providers that compete with GAF A and others¹⁶³. The approach that emphasizes on real data as a source of value can be traced back to Germany's "Industry 4.0 (proposed in 2011)", an initiative¹⁶⁴ to realize mass customization and strengthen industrial competitiveness by utilizing data collected through IoT. In addition, it can be said that it is also underpinned by new European strategies¹⁶⁵ such as "Vision 2030" in Germany and "Industry 5.0" in the EU, which add value axes such as "sustainability", "interoperability", "autonomy", "people-oriented" and "resilience".

In Japan, the importance of the utilization of real data has been pointed out than before as it creates new business opportunities by taking advantage of the strengths, such as the advantages in hardware (global share of robots, sensors, automobiles, etc. and high-speed data communication networks and supercomputer technology) and existence of big data accumulated in the field¹⁶⁶. Some Japanese companies are also moving toward building business models that analyze real data accumulated in their business activities and lead to the resolution of social issues¹⁶⁷. On the other hand, it has been pointed out that digital investment by Japanese companies has been stagnant and that efforts to visualize the value chain through digital technology have been also delayed. It is necessary for Japan to accelerate its efforts to link data while closely monitoring the movements of real data in each country and region. The Ministry of Economy, Trade and Industry is considering the ways to promote data cooperation with like-minded Asian countries, referring to GAIA-X and others, from the perspective of strengthening the competitiveness of Japanese companies and upgrading their supply chains and value chains (responding to various issues such as the environment and human rights)¹⁶⁸.

3. New economic opportunities brought by "co-creation" with Asia

(1) Progress of digitalization in Asia

The potential for growth when digital technology is combined with the market scale of Southeast Asian countries such as emerging Asian countries and India, which are expected to benefit from demographic dividends in the future due to large younger population, is highly expected both at home and abroad.

Digitalization in Asia is progressing rapidly, for example, the number of Internet users in India has nearly doubled in five years, from 390 million at the end of 2016 to 830 million as of September

¹⁶² Source: Matsumoto and Yasuda (2020)

¹⁶³ Source: Matsumoto and Yasuda (same year)

¹⁶⁴ Source: Ministry of Economy, Trade and Industry, Ministry of Health, Labor and Welfare, Ministry of Education, Culture, Sports, Science and Technology (2015)

¹⁶⁵ Source: Komiya, Yamamoto, and Iwasaki (2021).

¹⁶⁶ Source: Ministry of Economy, Trade and Industry (2017b)

¹⁶⁷ Source: Nihon Keizai Shimbun *Utilizing real data for social issues* (19 February 2022) and Sompo Holdings New Mid-Term Management Plan (FY2021-2023).

¹⁶⁸ Source: Ministry of Economy, Trade and Industry (2022b)

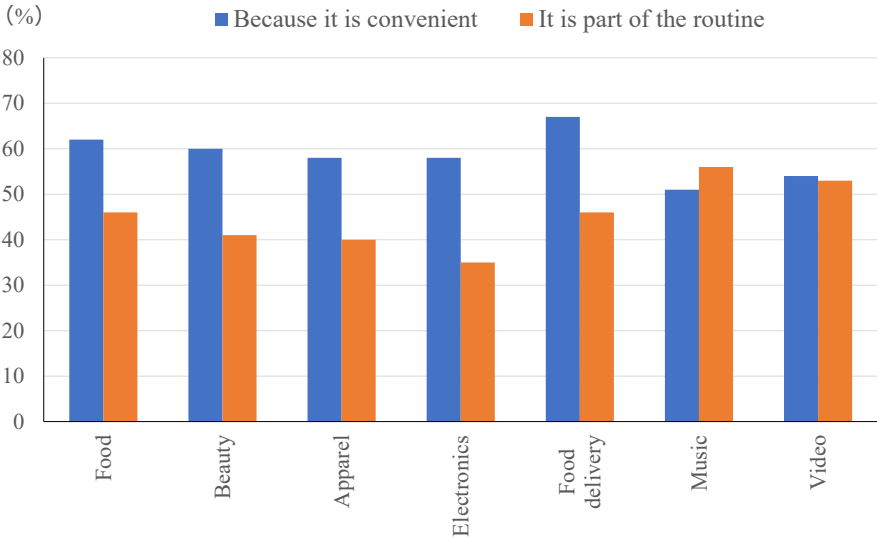
2021¹⁶⁹. In Southeast Asia¹⁷⁰, it increased from 360 million in 2019 to 400 million in 2020 and to 440 million in 2021, of which the number of people engaged in digital consumption such as e-commerce has increased from 290 million before the spread of COVID-19¹⁷¹ to 350 million in 2021¹⁷².

(A) Irreversible trend of digitalization continues even after COVID-19

Due to restrictions in line with the spread of COVID-19, the digitalization of life, such as remote work and online classes, is accelerating. Such movements are expected to be established as irreversible trend.

For example, according to e-Conomy SEA 2021¹⁷³, which analyzed the digital trends in Southeast Asia from a survey of people’s attitudes, more than 90% of people who started using digital services in 2020 continue to use the service in 2021. When users of digital services were asked the reason of using the service, about 40-60% of respondents answer not only "because it is convenient", but "because it is a part of their daily routine", indicating that digital consumption is deeply spreading into people's lives (Figure II-2-2-20). In addition, nearly 60% of people who have started digital consumption live in areas other than urban areas (as of the first half of 2021), indicating that digital technology is developing new consumption markets and new consumption habits are emerging in rural areas (II-2-2-21), and utilizing digital in the field of businesses is also progressing. More than 70% of companies will continue or increase the use of digital tools over the next five years (Figure II-2-2-22). The scale of the Internet economy in Southeast Asia is expected to reach 700 billion to 1 trillion dollars from 174 billion dollars in 2021 (Figure II-2-2-23).

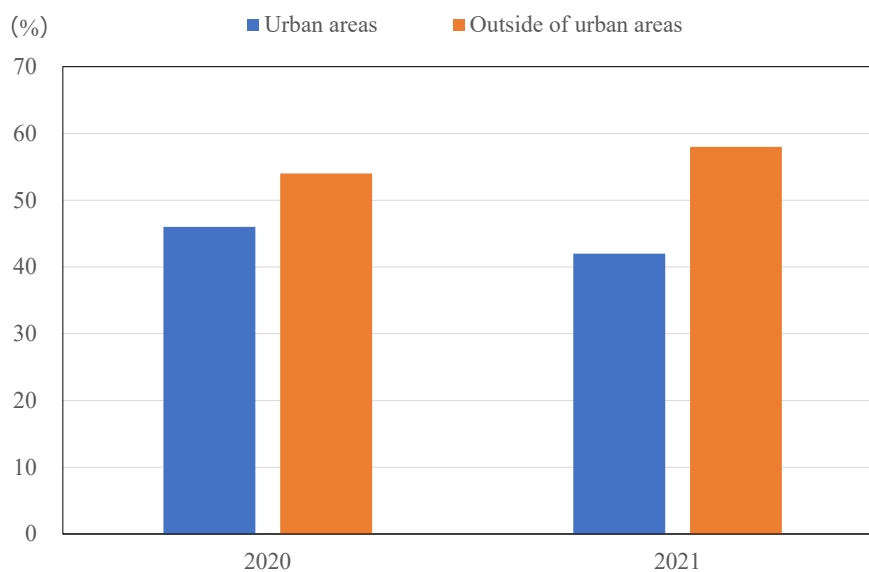
Figure II-2-2-20. Reason why people in Southeast Asia use digital services



Source: e-Conomy SEA 2021 (Google, TEMASEK, BAIN & COMPANY).

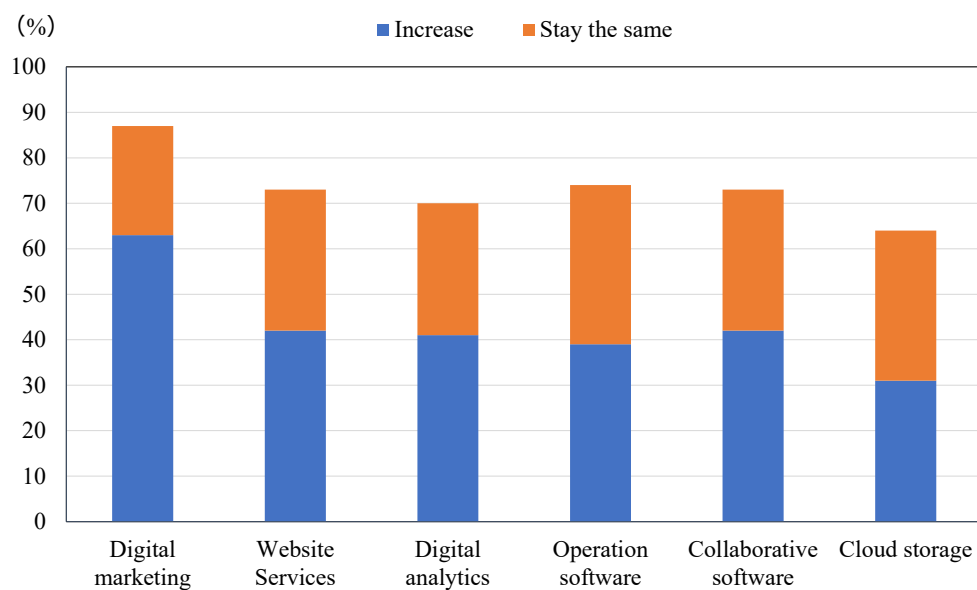
¹⁶⁹ Source: Telecom Regulatory Authority of India, CEIC Database.
¹⁷⁰ Indonesia, Thailand, Malaysia, Singapore, the Philippines and Vietnam.
¹⁷¹ Before March 2020 (e-Conomy SEA 2021 (Google, Temasek, Bain & Company))
¹⁷² Google, Temasek, Bain & Company (2021)
¹⁷³ Google, Temasek, Bain & Company (2021)

Figure II-2-2-21. Digital consumption outside of urban areas (Southeast Asia)



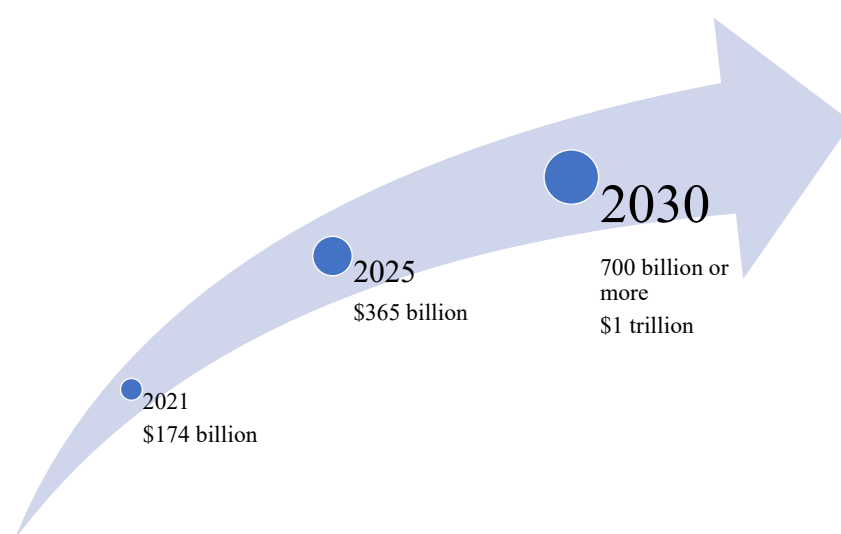
Source: *e-Conomy SEA 2021* (Google, TEMASEK, BAIN & COMPANY).

Figure II-2-2-22. Plans for businesses to use digital tools over the next five years (Southeast Asia)



Source: *e-Conomy SEA 2021* (Google, TEMASEK, BAIN & COMPANY).

Figure II-2-2-23. Outlook for the size of the Internet economy (GMV) in Southeast Asia



Source: *e-Conomy SEA 2021* (Google, TEMASEK, BAIN & COMPANY) .

(B) Interest in solving social issues using digital technology

Along with the expansion of the digital market, startups and digital platforms are emerging in emerging Asian countries as mentioned above. In recent years, regulations on tech platform companies have been tightened around the world, and it can be said that emerging Asian countries such as India and ASEAN have secured a relatively venture-friendly environment. Asian governments are also trying to promote growth strategies centered on digital technology. In addition to economic recovery from the current COVID-19 pandemic, there is a growing awareness of increasing the added value of the economy through "knowledge" and "information" in order to avoid falling into the so-called "middle-income trap". In addition, the existence of deep-rooted poverty, traditional development issues such as shortages and uneven distribution of medical care and education, requests for growth opportunities for rural areas and small and medium-sized enterprises, traffic congestion in urban areas and deterioration of living environments, increasing demand for high-quality infrastructure, etc., There is a deep interest in digital innovation, which leads to the resolution of various social issues.¹⁷⁴

(2) Significance of participation in Asian DX

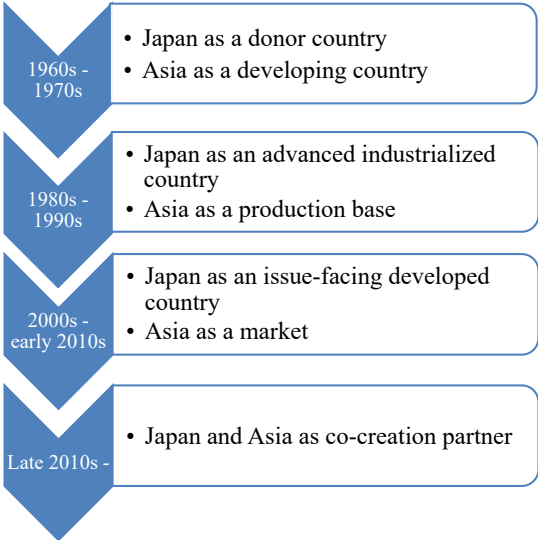
In this situation, how Japan should deal with emerging Asian countries. The relationship between Japan and emerging Asian countries is no longer the one-way transfer of technology and know-how from Japan, an advanced country, as it used to be. It is also not appropriate to position emerging Asian countries, which are achieving diverse development, solely as a source of cheap labor. As can be seen in the advanced efforts and growth potential of Asian startups, there are more points that Japan should learn from and adopt.

Ito (2021) argues that in the current era of digitalization (late 2010s onwards), Japan should seek to position itself as a "co-creation" partner of emerging countries (Figure II-2-2-24). Japan's challenges, such as shrinking domestic market due to aging and declining population, shortage of workers in

¹⁷⁴ Ministry of Economy, Trade and Industry (2022c)

society, resource constraints, aging infrastructure, and frequent occurrence of disasters, have been repeatedly pointed out. Digitalization and data utilization have been slow, and startups and investments in new fields have been sluggish. Against this backdrop, interest in DX (digital transformation), which aims to "solve problems" and "create value" using digital technology, is increasing.

Figure II-2-2-24. Changes in the relationship between Japan and emerging Asian countries



Note: The characteristics of each year are simplified and showed with reference to the materials.
 Source: Ito, A. (2021), *Japan as a Co-Creation Partner*.

For emerging Asian countries, DX is indeed a catalyst for growth, and it can be said that they are ahead of Japan in terms of experience in social implementation of DX models. Japanese companies should also actively seek new economic opportunities by participating in Asian DX through investment and other means, and by developing and collaborating with Japanese start-ups in Asia. From the perspective of Japan taking a step toward Society 5.0, a new phase of its economy and society, the effects of innovation brought about by partnerships with Asian DX (reverse innovation, which brings back local products, technologies, and business models created by meticulously delving into local needs in emerging countries, and open innovation, which generates new ideas through external partnerships, etc.) are expected. In addition, cooperation between Indian and ASEAN companies and Japanese companies to develop DX in third countries and regions such as Africa is expected to create new economic opportunities.

(A) Asian DX and Japanese companies

The number of Japanese companies participating in DX in Asia is also increasing. Examples include support for supply chain production and inventory planning optimization using supplier data, implementation of endowed courses on autonomous driving platforms, examples¹⁷⁵ of investment in telemedicine and effective utilization of medical resources through integration and utilization of

¹⁷⁵ Ministry of Economy, Trade and Industry (2022c)
 337

medical data, various demonstration projects¹⁷⁶ (in ASEAN and India, contributing to building a digital infrastructure of agricultural information using satellite technology and improving productivity of farmers, contributing to communication between medical workers and remote surgery support using AI and mobile technology in ASEAN, supporting labor-saving by providing industrial drone sales in India, ensuring visualization and traceability of overseas supply chains using satellite technology and AI in ASEAN, etc.).

In the platform business, there are examples¹⁷⁷ such as collaborating with Asian platform companies and developing unique business models in areas different from mega platforms. For example, as digitalization progresses, there is a case in which a company has steered a course toward building a business model that not only manufactures and sells products (automotive), but also supports "sharing" and "digitalization (connectivity, automation, and electrification)" and is deepening cooperation with a ride-hailing service in Asia, and another case in which a platform connecting farmers, financial institutions, agricultural material companies, etc. in cooperation with local partners is being developed in Southeast and South Asia¹⁷⁸. There are many participations through investments in local startups and platforms. There are also efforts to facilitate international trade, including in the Asian region, through an electronic platform for trade practices. In addition, there are cases that support the digital policies of the emerging country governments in terms of infrastructure, such as providing fingerprint and facial authentication technologies to the biometric authentication systems of the emerging country governments¹⁷⁹. India has a growing ecosystem of startups and innovation, and some Japanese companies are actively seeking opportunities to contact promising startups in India (examples of holding hackathons to recruit excellent IT human resources)¹⁸⁰.

(B) Initiatives to support DX

As an opportunity to change the corporate culture of Japanese companies, the Japanese government is promoting the creation of new businesses through collaboration between Japanese companies and companies in emerging countries as the "Asian DX Project". The Ministry of Economy, Trade and Industry and related organizations are collaborating to pick out some pioneering companies that will serve as advanced examples, and create leading models that generate a "peer effect"¹⁸¹. The Ministry of Economy, Trade and Industry and the Japan External Trade Organization (JETRO) provide various support depending on the project phase, such as online matching and webinars, and support for demonstration projects between companies in emerging Asian countries and Japanese companies. For example, through "the Japan Innovation Bridge (J-Bridge)" online platform, basic information is collected, promising partners are identified, and collaboration projects are created through interview support and matching events. Information on advanced cases is also actively disseminated, with

¹⁷⁶ Examples of JETRO Asian DX Promotion Project adopted.

¹⁷⁷ Komiya, Yo, and Koike (2020)

¹⁷⁸ Komiya, Yo, and Koike (2020)

¹⁷⁹ Ito (2021)

¹⁸⁰ Taki (2019)

¹⁸¹ *Action Plan of the Growth Strategy* (2020), Cabinet Secretariat website (<https://www.cas.go.jp/jp/seisaku/seicho/kettei.html>)

webinars introducing advanced cases (ADX Pioneers in March 2021, and information on collaboration in the digital and green fields at the ASEAN-Japan Business Week in May the same year). Through the AEM-METI Economic and Industrial Cooperation Committee (AMEICC) and JETRO, support (expense subsidy) is also being provided for collaborative demonstration projects between ASEAN and Indian companies and Japanese companies, and 23 projects were adopted for ASEAN in 2020, 17 projects were adopted in 2021 (Figure II-2-2-25), and 10 projects were adopted for India in 2020 and 8 projects in 2021¹⁸². Some of the supporting companies say that by collaborating with government-related agencies, their credibility in the local community has been enhanced and co-creation with the local community has been promoted smoothly¹⁸³.

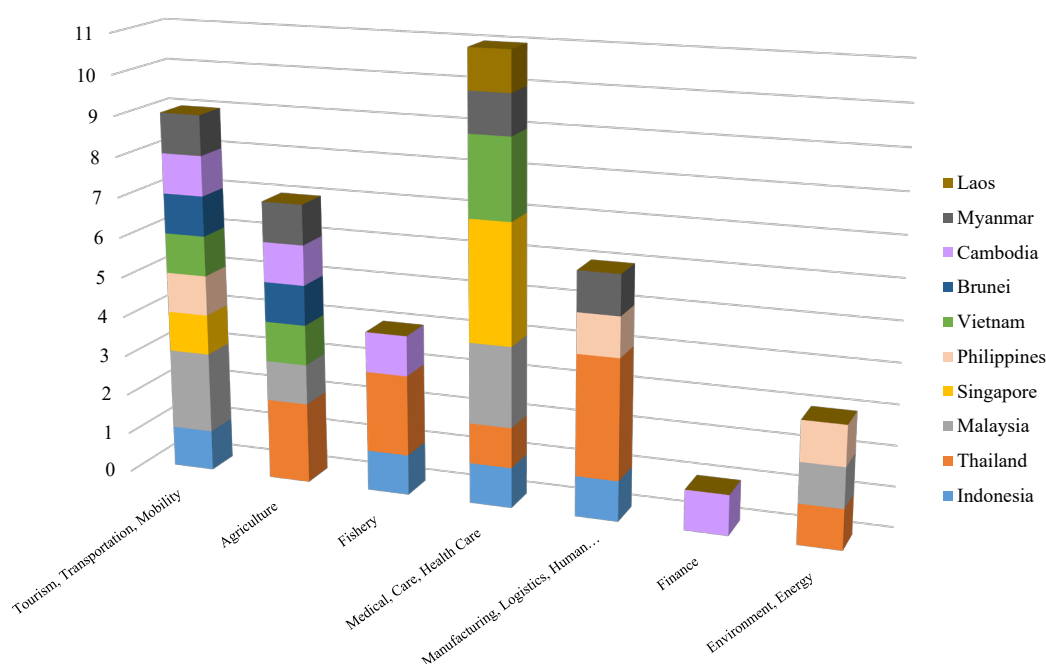
In terms of DX cooperation among emerging Asian countries, the United States and European countries and the Republic of Korea are also providing support to their own companies. In addition to conducting feasibility studies of projects, providing opportunities for dialog among corporate executives, and supporting matching with local companies, there are examples of establishing startup centers in the ASEAN region.¹⁸⁴ We would also like to keep an eye on the movement of cooperation with emerging countries in the innovation strategies of developed countries.

¹⁸² "Asia Digital Transformation (ADX) Promotion Program in Japan and ASEAN" and "Asia Digital Transformation (ADX) New Business Creation Promotion Program Subsidy (Project for Japan-India Economic and Industrial Cooperation)". For selected projects, refer to JETRO websites (<https://www.jetro.go.jp/news/announcement/2020/89bff31203b57b8b.html>), <https://www.jetro.go.jp/news/announcement/2021/d38074f8efc798ae.html> (<https://www.jetro.go.jp/news/announcement/2021/6854667ac8d219bd.html>)). Projects in 2020 will be financed by the supplementary budget "Asia Digital Transformation (ADX) projects", and projects in 2021 will be financed by the third supplementary budget in 2020 "Asia Digital Transformation (ADX) projects".

¹⁸³ Ministry of Economy, Trade and Industry website (<https://meti-journal.jp/p/16061/>)

¹⁸⁴ Ministry of Economy, Trade and Industry Ernst & Young ShinNihon LLC (2021)

Figure II-2-2-25. Status of projects adopted by Asian DX Support Projects (ASEAN) by sector and country



Note: Total of selected projects in FY2020 and FY2021.

Source: JETRO.

(3) Challenges to be addressed

In exploring new economic opportunities through co-creation with emerging Asian countries, it is necessary to address both domestic and international challenges.

Externally, a number of new issues have emerged, including trade and investment rules that have been problematic for some time, protectionist behavior of countries manifested in the COVID-19 pandemic, supply chain vulnerabilities, and the impact of the introduction and strengthening of regulations on common values such as human rights and the environment, as well as regulations on data distribution and use and increased risks related to cyber security. It is necessary to improve the business environment in overseas, especially in the Asian region, through multilateral forums for the formulation of international rules, economic partnerships and trade negotiations with other countries, and various channels of dialog. As for the digital innovation discussed in this section, it is necessary to respond to movements such as digital protectionism and digital hegemony regarding the handling of cross-border data. It is necessary to develop specific mechanisms and systems for realizing reliable and free data flow (DFFT), such as ensuring privacy protection and cyber security.¹⁸⁵

¹⁸⁵ The Ministry of Economy, Trade and Industry (METI) launched "the study group on cross-border data transfer" in November 2021 to make a new proposal for the realization of the DFFT proposed by Japan in 2019, taking the opportunity of Japan to chair the G7 in 2023, and is studying an inter operable framework for cross-border data transfer. In February 2022, the report will summarize the contents of the FY2021 study and identify five core areas (ensuring transparency, technology and standardization,

At the same time, it is necessary to tackle various issues related to "globalization", "digitalization", and "startups" so that Japan can be chosen as a "co-creation" partner from Asia. With regard to globalization, Japan's unique employment environment, difficulties in utilizing and hiring foreign human resources, a shortage of global human resources, delays in overseas expansion of mid-tier enterprises and small and medium-sized enterprises (SMEs), low level of inward direct investment, low English proficiency compared to other countries, and lack of a global-level educational environment have been pointed out¹⁸⁶. With regard to "digitalization", the negative effects of falling into self-sufficiency due to the inability to build open innovation ecosystems and international alliances that connect with the world, the delay in domestic digital investment, and the shortage of digital human resources have been pointed out. And many issues and lessons regarding digitalization in Japan, such as inconsistencies between national and local systems and problems with online procedures in the government's response to the COVID-19 pandemic were revealed¹⁸⁷. Startups are as seen in 1. (4).

There is an urgent need to improve the domestic and international environment in order to deepen cooperation with Asia.

● ASIA-Japan Investing for the Future Initiative

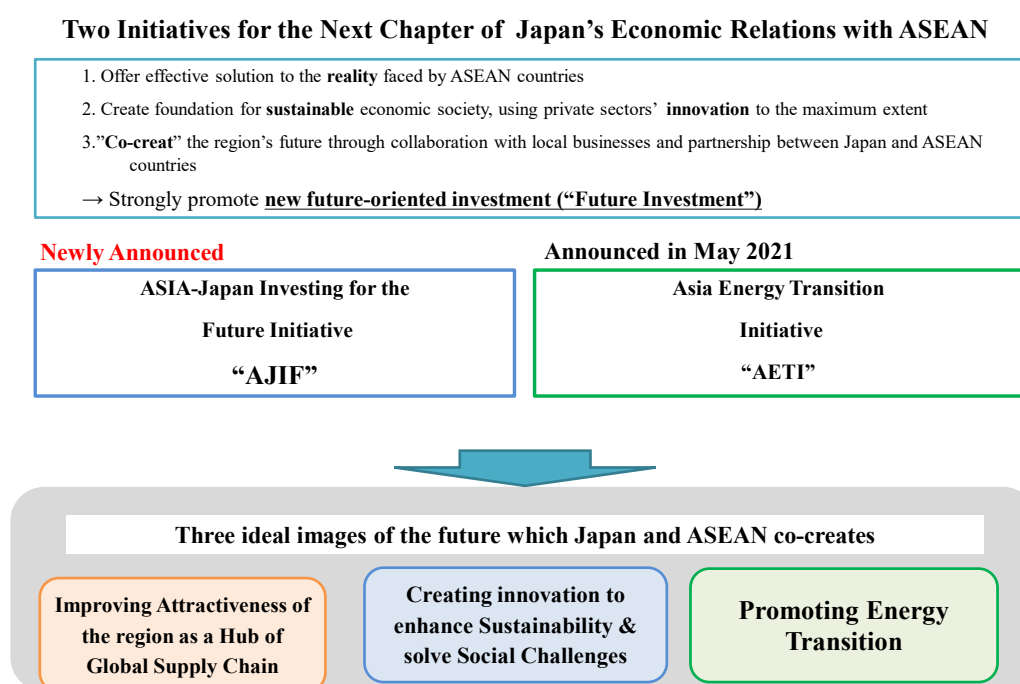
In January 2022, the Ministry of Economy, Trade and Industry (METI) announced the "Asia-Japan investing for the future Initiative (AJIF)" to actively promote future-oriented new investment together with ASEAN (Figure II-2-2-26). Together with the Asia Energy Transition Initiative (AETI), which was announced in May 2021 as an initiative aimed at accelerating the energy transition in Asia, this initiative aims to push ASEAN-Japan economic relations to the next stage. METI will implement various support measures in addition to budgetary measures to advance cooperation in the five areas of supply chains, connectivity, digital innovation, human resources, and green decarbonization toward following three future visions: (1) enhancing the attractiveness of the region as a hub of the global supply chain, (2) creating innovation that enhances sustainability and leads to the resolution social issues, and (3) accelerating the energy transition. In addition to strengthening the aforementioned support for Asian DX, Japan will also promote initiatives aimed at making Japan the preferred destination for Asian human resources, including support for providing employment opportunities to Japanese companies and Japanese-affiliated companies for high-level Asian human resources (50,000 people over the next five years). METI will also work to upgrade our supply chain through data linkage with Asian countries.

interoperability, complementarity with related systems, and implementation of the DFFT implementation framework) for the concrete realization of the DFFT, and further study will continue toward the end of 2022.

¹⁸⁶ Ministry of Economy, Trade and Industry (2022b)

¹⁸⁷ *Realization of a Digital Society* (The Second Industrial Structure Council Committee on New Direction of Economic and Industrial Policies, METI (2022d)) (January 6, 2022).

Figure II-2-2-26. ASIA-Japan Investing for the Future Initiative



Source: Ministry of Economy, Trade and Industry (METI).

● **Perspective on tacit knowledge**

Looking at the global economy and the Asian economy from the perspective of "digital", "startups", and "platforms", it cannot be said that the presence of Japanese companies at present is large. It is often pointed out that decision-making takes time, and because of the existence of various legacies and the maturity of systems, it is difficult to adapt to the innovations of the digital age. It is difficult to say that the startup ecosystem in Japan is also achieving a virtuous cycle. There are many challenges to overcome, but at the same time, it is also necessary to shed light on what Japanese companies have built and what can be said to be Japan's strengths.

Goto (2019) cites the existence of tacit knowledge as one of Japan's strengths.

Tacit knowledge is something like "intuition" that transcends language, "hunch" and "tricks" that are learned through practice, and is a concept of knowledge that differs from the "explicit knowledge" pursued by digital technology and AI. Tacit knowledge is difficult to "verbalize" and "belong to the person", so it is difficult to share (imitate or transfer). The method of demonstrating high responsiveness "on-site" through the accumulation of tacit knowledge and skillful coordination was also the source of the competitiveness of Japanese companies. Goto (2019) noted that in the case of Japan's economic cooperation with emerging countries in Asia, the implicit intellectual know-how related to not only hardware aspects such as infrastructure development but also software aspects such as recommended work procedures and safety management methods were transferred through cooperation with partner countries. He said that this comprehensive management capability is an area in which Japanese companies can demonstrate their strengths¹⁸⁸. Ito (2021) also points out the

¹⁸⁸ Goto (2020)

significance of Japanese companies collaborating with Asian DX by leveraging their superior production management capabilities in the manufacturing industry and leveraging Japan's experience as an advanced industrialized and issue-facing developed country¹⁸⁹.

Tacit knowledge should pursue the quality of Japan that "cannot be imitated" and "therefore chosen" and at the same time ensure connectivity with various stakeholders in emerging Asian countries. If tacit knowledge is not connected and left unseen, it will be difficult for Japan to demonstrate its strengths that have been cultivated through its practice. In order for Japanese products, services, and management to be chosen in Asia, it is necessary to visualize and organically connect tacit knowledge that is scattered and "closed" at each site. Digital technology is also expected to contribute to the utilization of data accumulated in the field.

¹⁸⁹ Ito (2021)

Column 1 Diversification of non-economic value in supply chain management

A supply chain is a "chain of supply"¹⁹⁰ of a series of supply operations inside and outside a company, from material procurement, through production and distribution, to delivery of goods to customers, and has been defined as a system of conception, design, planning, execution, control, and evaluation mechanism to deliver "necessary goods, at necessary time, to necessary place, and in necessary quantity"¹⁹¹. In the past, most of the management items were related to financial performance, such as reducing costs, inventories, and lead time and thereby increasing revenue. The aim was to maximize economic value, such as streamlining business operations, reducing costs and increasing sales.

However, due to political, economic and social developments, companies' supply chains now involve many cross-border stakeholders. As a result, the risk of disruption in the supply chain is higher than before, and it is multifaceted, including non-economic values such as the environment, human rights, and geopolitics.

Based on the above, we conducted a review of about 450 related literatures based on foreign journals and papers, and found the following two points regarding the non-economic value of supply chain management¹⁹².

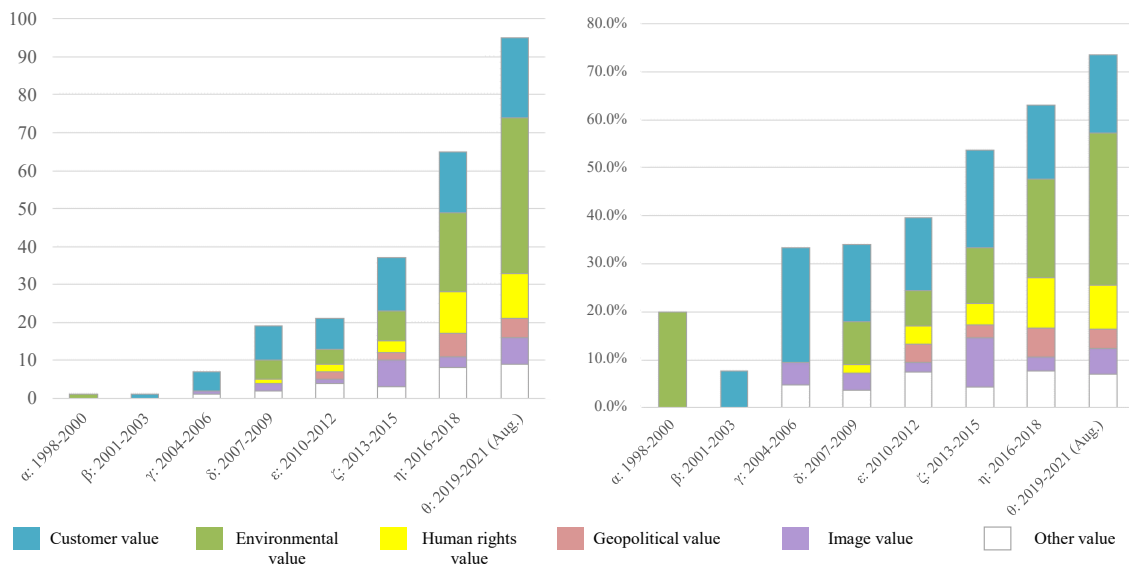
1. The non-economic value of supply chain management (SCM) can be broadly classified into five categories: "customer value", which includes increased customer satisfaction; "environmental value", which includes energy conservation, the use of renewable energy, and waste reduction; "human rights value", which includes consideration for workers' rights; "geopolitical value", which includes geopolitical risks and the establishment of supply networks to deal with them; and "image value", which includes these values in a holistic manner and earns the trust of customers and other companies in the supply chain, thereby ensuring continued preference as a purchasing and trading partner.
2. The number of papers containing non-economic value has been increasing year by year, and its share of the total population of supply chain-related papers has also been increasing. (Column Figure 2-1, Column Figure 2-2).

¹⁹⁰ Imaoka, Z. (2018), *Supply Chain Management*, Journal of Japan Society for Fuzzy Theory and Systems, Vol.10, No.5, pp. 863

¹⁹¹ Ishikawa, K. (2021), *GENBA DE TSUKAERU SCM NO KYOKASHO*, Socym Co.,Ltd

¹⁹² Fukuoka, N / Sakamoto, M (2021) *Diversification of Non-Economic value in Supply Chain Management*, Policy Discussion Paper Series 21-P-019, The Research Institute of Economy, Trade and Industry

Column Figure.2-1 (left): Number of literatures containing non-economic value
 Column Figure.2-2 (right): Percentage of literature containing non-economic value



Source: Fukuoka, N / Sakamoto, M (2021), *Diversification of Non-Economic value in Supply Chain Management*, Policy Discussion Paper Series 21-P-019, The Research Institute of Economy, Trade and Industry

In order for companies to ensure the sustainability of their business activities, the importance of SCM, including addressing non-economic value, is increasing. Visualization of the supply chain is essential as a means of responding to this non-economic value while simultaneously improving productivity, but the role of the government, including how to ensure its reliability, is important for its realization. In particular, it will become increasingly important to establish a foundation that facilitates inter-company data linkage and to promote cooperation among like-minded countries.