Section 2 Digitalization transforming cross-border transactions of services

The rapid development and global diffusion of digital technology is increasing the need to conduct a comprehensive analysis of goods and services when looking at the global trade and investment structures. Previously, the analysis of trade relationships focused exclusively on goods trade. Among major reasons are (i) that services trade was relatively small in size compared with goods trade; (ii) that because traditional services trade mainly comprised services with a high degree of individuality, such as "tourism" and "transportation," the need for comprehensive analysis of goods and services was weak; and (iii) that while it was possible to keep track of goods trade by looking at data based on detailed item classification, it was difficult to statistically capture the actual state of services trade.

However, in recent years, while the expansion of goods trade has slowed down, services trade has continued to increase. As a major factor, Baldwin proposed the "third unbundling."[56] That is, as a result of the evolution of digital technology, online services have spread widely, making it possible to provide some services and knowledge across national borders by overcoming physical location constraints. This means that characteristics that were previously considered to be specific to services trade, such as "simultaneity of production and consumption" and "absence of inventories," have changed, at least with respect to some portions of services trade.

Against the backdrop of those changes, among what are called "modern services" by Baldwin et al., trade in digital-related services in particular is increasing rapidly.[57] Digital-related services include charges for the use of intellectual property, n.i.e., telecommunications, computer and information services, and professional business services.[58] Not only is trade in those services increasing, but also, the services have become wellsprings of value added that is important as intermediate input for the production and provision of goods. It can be said that the expansion of digital-related services makes it more necessary than before to conduct a comprehensive analysis of trade and investment in goods and services. However, because of the abovementioned statistical constraint, the overall picture of digital-related services trade has not necessarily become clear.

This section will first look at trends in global services trade and the classification of services trade and then present a viewpoint that comprehensively grasps cross-border goods and services transactions, including not only services trade reflected in the services balance of international balance of payment statistics but also the provision of services through foreign business bases (Mode 3) and trade in services value added (Mode 5). This comprehensive viewpoint will also be used when we analyze Japan's digital and services trade in Part II, Chapter 3, Section 3. Next, we will examine the current situation and characteristics of services trade conducted globally and by major countries/regions and attempt to give the most accurate picture possible of the current situation of global trade in digital-related services from available data. Finally, we will look at an overview of initiatives related to data free flow with trust

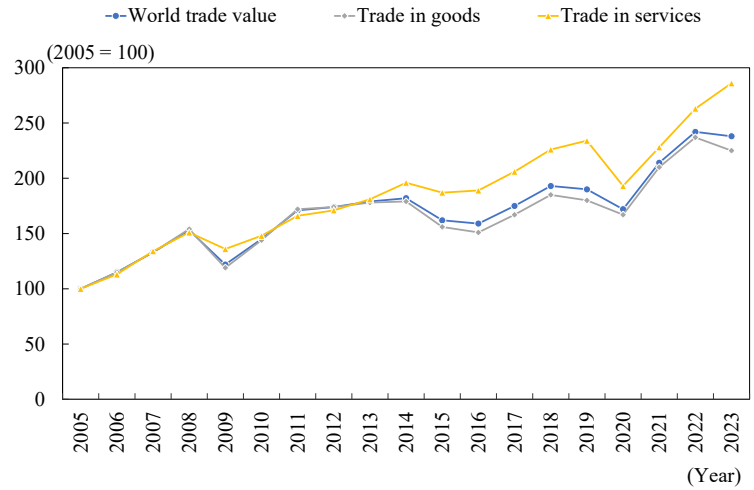
[56] Baldwin (2016)
[57] Baldwin et al. (2024)
[58] In this white paper, "other business services" under international balance of payment statistics is called "professional business services." This category includes research and development services, professional and management consulting services, and technical, trade-related, and other business services.

(DFFT), data security, and cybersecurity that are conducted as policy challenges in response to economic digitalization.

1. Growth of services trade

Over the past 20 years or so, global services trade has grown at a higher rate than goods trade (Figure II-1-2-1). Compared with 2005, the value of goods trade in 2023 was larger by a factor of around 2.4, while the value of services trade in 2023 was larger by a factor of around 2.9. Services trade expanded at a faster pace than goods trade despite a steep drop in face-to-face services, mainly travel service, due to the COVID-19 pandemic.

Figure II-1-2-1. Changes in world trade values



Note: The trade values are the sum of export and import values.
Source: Merchandise Trade Values, Trade in Commercial Services (WTO).

Of the top 20 countries listed in terms of the value of exports and imports, many are developed countries, including the United States, the United Kingdom, and EU countries, with respect to both exports and imports (Tabe II-1-2-2). The inclusion of countries with relatively small GDP size, such as Ireland, the Netherlands, and Singapore among the top 20 is a difference compared with goods trade. In terms of the average annual growth rate, Ireland and Singapore recorded a growth rate of around 10%, higher than the global average of 6.0%.

Table II-1-2-2. Top 20 countries in world services trade (2023)

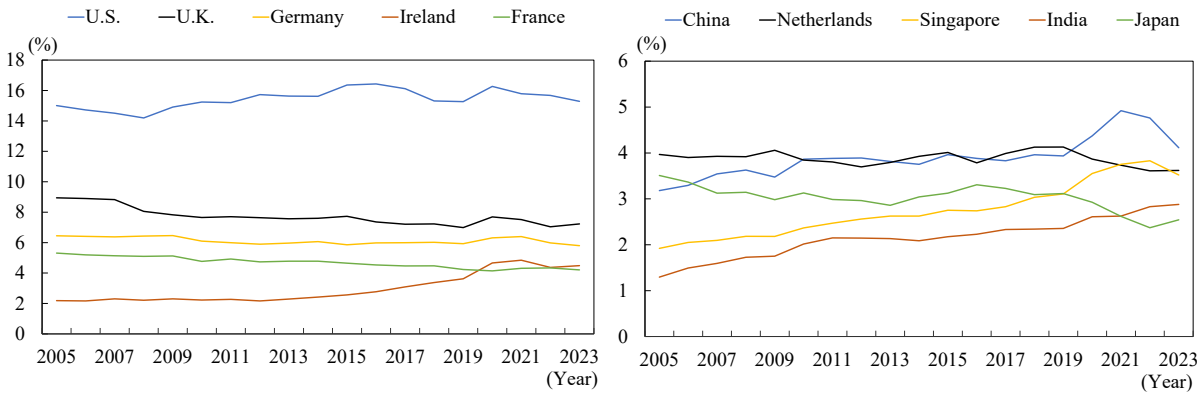
Country name	Exports			Country name	Import		
	Total values (billion dollars)	Composition rate (%)	Average annual growth rates from 2005 and 2023 (%)		Total values (billion dollars)	Composition rate (%)	Average annual growth rates from 2005 and 2023 (%)
U.S.	1,169	15.3	6.1	U.S.	937	12.3	5.6
U.K.	553	7.2	4.8	Germany	520	6.8	5.2
Germany	443	5.8	5.4	U.K.	486	6.4	4.8
Ireland	343	4.5	10.3	China	432	5.7	9.9
France	322	4.2	4.7	Ireland	344	4.5	9.2
China	315	4.1	7.5	France	311	4.1	5.1
Netherlands	277	3.6	5.5	Netherlands	287	3.8	5.9
Singapore	269	3.5	9.6	Switzerland	263	3.5	6.5
India	220	2.9	10.8	Singapore	248	3.3	8.9
Japan	195	2.5	4.1	Japan	216	2.8	3.2
Spain	191	2.5	4.5	India	178	2.3	9.2
Switzerland	183	2.4	5.1	Hong Kong	176	2.3	6.5
Hong Kong	178	2.3	6.9	Italy	162	2.1	3.7
Italy	156	2.0	3.5	Canada	157	2.1	5.2
Belgium	130	1.7	5.1	Belgium	143	1.9	5.3
Canada	128	1.7	4.8	ROK	128	1.7	5.6
United Arab Emirates	123	1.6	10.2	Luxembourg	123	1.6	9.2
Luxembourg	120	1.6	7.2	Australia	121	1.6	6.4
ROK	107	1.4	5.5	Spain	116	1.5	4.0
Poland	101	1.3	9.5	Sweden	107	1.4	5.7
Subtotal	5,522	72.2	6.1	**Subtotal**	5,454	71.6	6.0
World	7,649	100.0	6.0	**World**	7,621	100.0	6.0

Note: This figure shows values in 2023.

Source: Balanced Trade in Services (BaTiS) (OECD-WTO).

As for the trend in the shares of the top 10 countries in global exports, the United States maintained a share of around 15% (Figure II-1-2-3). Meanwhile, the shares of Ireland, Singapore and India in global exports trended upward.

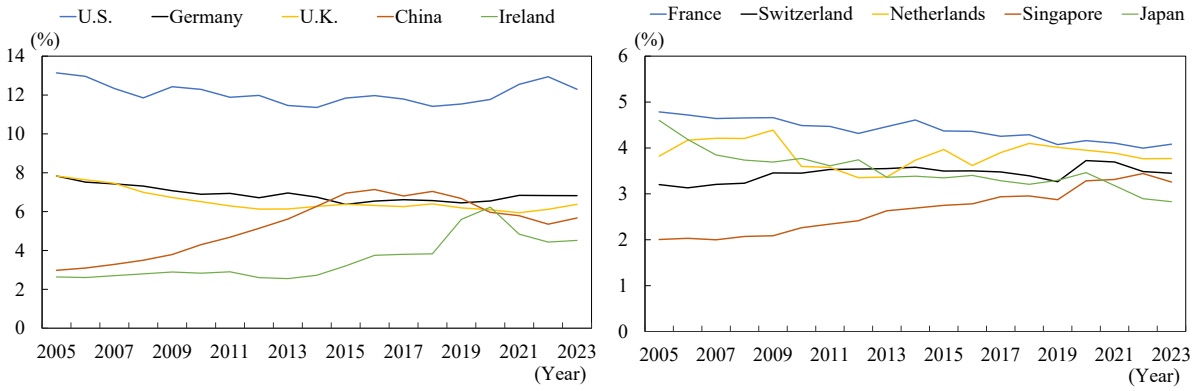
Figure II-1-2-3. Changes in shares of top 10 countries in service exports



Source: BaTiS (OECD-WTO).

Regarding import shares, too, there is a trend similar to the one observed with respect to exports (Figure II-1-2-4). Specifically, while the share of the United States, the largest importing country in the world, remained mostly flat, the shares of Ireland and Singapore trended upward. The expansion of the shares of Ireland and Singapore in both exports and imports is due to changes in cross-border digital-related trade. This point will be mentioned in detail in Paragraph 3 of this section.

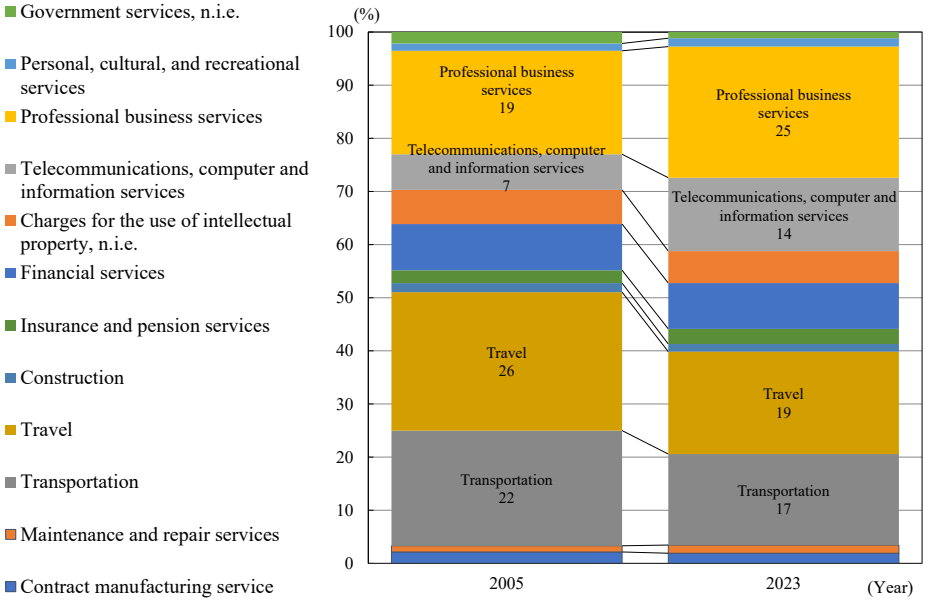
Figure II-1-2-4. Changes in shares of top 10 countries in service imports



Source: BaTiS (OECD-WTO).

Next, the breakdown of services by sector shows that the shares of travel service and transportation service declined in the period from 2005 to 2023, while the shares of professional business services and telecommunications, computer and information services increased (Figure II-1-2-5). One factor behind that trend is the expansion of digital-related trade, which will be mentioned in detail in paragraph 4 of this section.

Figure II-1-2-5. Comparison of the composition of world services exports (by item)



Source: Trade in Commercial Services (WTO).

2. Classification of services trade

As to the definition of services trade, there are differences between the services trade as referred to in the services balance data of the international balance of payment statistics and the services trade as classified into four modes under the General Agreement on Trade in Services (GATS) of the WTO. The greatest difference is that the provision of service by a service provider in a certain country through a

business base established in a foreign country, considered to be Mode 3 under GATS, is not recorded in the services trade balance under international balance of payment statistics. Under international balance of payment statistics, services are recorded only when they are equivalent to items of the financial balance (e.g., outward foreign direct investment in local subsidiaries) or items of the primary income balance (e.g., dividends paid on foreign direct investment).

In addition, in recent years, there have been more and more cases in which services serve as important input of value added in the processes of manufacturing and provision of goods, and the OECD and the European Parliament have therefore presented the concept of value added trade, known as Mode 5, with respect to services trade.[59,60] Under international balance of payment statistics, the Mode 5 services trade is included in the goods trade balance. Therefore, in order to identify services value added, it is necessary to look at TiVa and other data provided by the OECD. Comprehensively understanding those different modes of services trade is essential to grasping the overall picture of services trade.

Here, we will look at the classification of services trade while bearing in mind the transformation of services trade due to digitalization in recent years. Table II-1-2-6 shows the outline of services trade as classified into the four modes under GATS and Mode 5.

Table II-1-2-6. Classification of services trade by service provision mode

Mode	Own country	Another country	Outline
Mode 1	Provider	Consumer	This mode refers to cases where a domestic service provider delivers services, while staying in its own country, to an overseas service consumer.
Mode 2	Provider, Consumer	Consumer	This mode refers to cases where a domestic service provider delivers services to an overseas service consumer who has come to the provider's own country.
Mode 3	Provider	Base, Consumer	This mode refers to cases where a domestic service provider establishes a base in another country and provides services from that base.
Mode 4	Natural person, Provider	Consumer	This mode refers to cases where a domestic service provider dispatches its own employees or specialists to another country and provides services.
Mode 5	Provided goods, Service provider	Consumer	This mode refers to cases where a service provider adds intermediate inputs to goods in its own country and delivers them to another country (where the value added to the service indirectly crosses a border through the goods).

Legend: Service provider; Service consumer; Base; Natural person; Provided goods; Before transfer; Service provision; Transfer; Transfer from the base

Sources: *SAABISU BOUEKI NO 4 TAIYOU*[61] (MOFA), Hagino (2022).

[59] Cadestin and Miroudot (2020)
[60] Foltea (2018)
[61] Ministry of Foreign Affairs, "SAABISU BOUEKI NO 4 TAIYOU," March 4, 2019, https://www.mofa.go.jp/mofaj/gaiko/wto/service/gats_5.html (as viewed on June 5, 2025)

Mode 1 refers to services traded across national borders while neither the provider nor consumer physically cross borders. Cloud service, software development, online financial transactions, and remote medicine, for example, are classified as Mode 1. As a result of the advance of digitalization, Mode 1 services have increased rapidly in recent years. Many digital-related services in particular are classified as Mode 1. For instance, in the education sector, where services trade has traditionally been unfamiliar, the rapid growth of online learning platforms has made it possible to provide Mode 1 services in cases where face-to-face lessons were previously essential.

Mode 2 refers to services locally received by consumers who have crossed national borders. Travel, for example, is classified as Mode 2. Mode 2 services are considered to be affected by digitalization only to a limited degree because they involve physical movement. However, as a result of the advance of virtual tours and remote medicine, some Mode 2 services are shifting to Mode 1. For example, specialized medical diagnosis services that were previously available only in places that have the physical presence of hospitals have come to be able to be provided across national borders through online diagnosis systems.

Mode 3 refers to services provided locally through business bases established abroad by companies. Services provided by local branches established by foreign financial institutions or by local offices established by international law firms are classified as Mode 3. Digitalization is considered to be affecting Mode 3 services in both ways—that is, it may either encourage or discourage the adoption of Mode 3. On the one hand, because of the development of cloud computing and fintech, the provision of services becomes possible without the presence of physical facilities. For example, a digital bank may be able to conduct business globally using Mode 1 services, without establishing physical branches as traditional banks would do. On the other hand, the advance of digitalization may encourage the choice of Mode 3 in some cases. For example, as a result of data localization (restrictions on cross-border data transfers)[62] promoted by countries, the need for cloud service companies to locally establish data centers is growing. In addition, in line with the spread of remote work, some multinational enterprises have adopted the strategy of geographically diversifying business bases in order to optimize local business management.

Mode 4 refers to services locally provided by services providers (individuals) who have crossed national borders. For example, services provided by IT engineers dispatched abroad and international consultants are classified as Mode 4. However, because of the spread of remote work in recent years, the possibility is growing that some Mode 4 services will shift to Mode 1. For example, in the cases of software development and consulting service, previously service providers had to physically move to sites where the services are provided. However, now, in an increasing number of cases, those services are provided using online tools, without the involvement of physical movement.

Mode 5 (value-added trade), unlike Modes 1 to 4, refers to services traded as part of intermediate inputs used for production of goods. For example, in the automobile industry, services value added, such as research and development, design, transportation, finance, advertising, and sales, which are used as

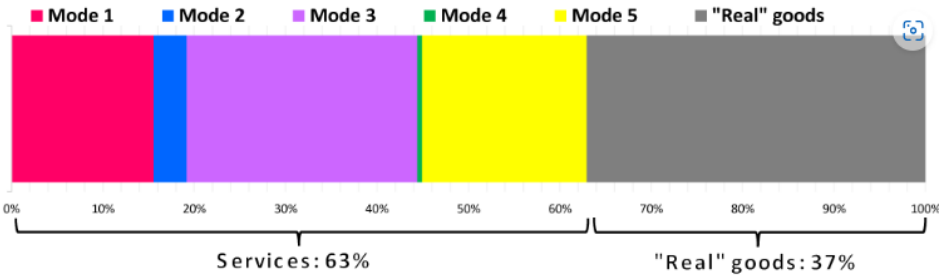
[62] This refers to the EU GDPR (which is a regulation intended to protect personal information [data] and which in principle prohibits transfer of personal data, such as names and email addresses obtained within the EU area, out of the area) and the Indian privacy protection law, for example.

inputs for the development, production and export of vehicles in pre-export stages, account for a large portion of overall value added. International trade in services used as inputs for the production and provision of goods is called "Mode 5 trade." Because of the advance of digitalization, Mode 5 trade is rapidly expanding. Design, engineering, R&D (research and development) and the optimization of production through IoT, and software integrated into goods are typical examples of Mode 5.

3. Size of cross-border goods and services transactions

What are the sizes of the abovementioned five modes of services and cross-border goods and services transactions when the whole of value added created in the manufacturing industry is taken into consideration? Cernat estimated the respective shares of manufacturing value added and services value added regarding the five modes of services in overall global exports of value added.[63] According to the estimation, the share of manufacturing value added was 37% and the combined share of value added regarding the five modes of services was larger, or 63% (Figure II-1-2-7). Under international balance of payment statistics, the value of cross-border goods and services trade is recorded. From that viewpoint, the value of services trade stays at around 30%[64] of the value of goods trade. However, Cernat's estimation indicates that if services trade, including trade in Modes 3 and 5 services, is looked at on a value added basis in light of the characteristics of services, the share of trade in services value added is larger than the share of trade in manufacturing value added. Among the five modes of services, Mode 3 has the largest share, followed by Mode 5. Cernat's estimation underscores the importance of taking into consideration trade in services other than Modes 1, 2, and 4, which can be captured by international balance of payment statistics, in order to identify the overall picture of cross-border goods and services trade.

Figure II-1-2-7. Composition of the values of value-added exports in manufacturing and services exports by mode



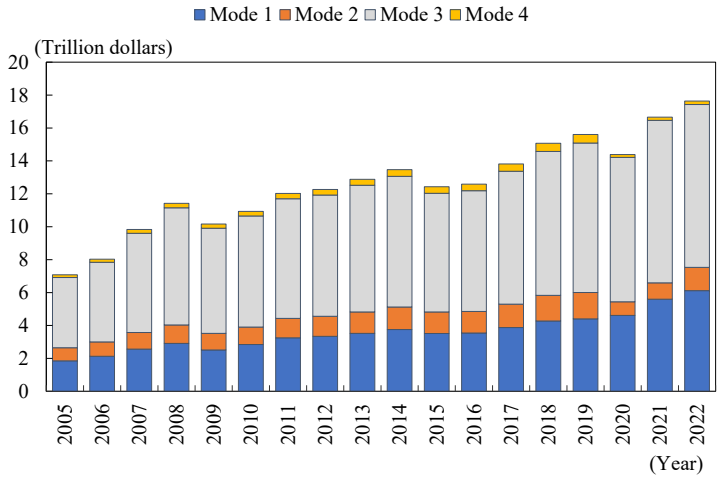
Source: Cernat (2024).

[63] Cernat (2024)

[64] Based on the WTO Stats. Under the WTO Stats, services trade data is compiled from customs records prepared by individual countries (on a trade statistics basis) and services trade data is compiled from international balance of payments statistics prepared by individual countries.

In order to check time-sequential changes by mode, we will look at the global value of services exports by mode, excluding Mode 5, for which there is no available data, based on the TISMOS dataset, provided by the WTO. Since 2005, amid the upward trend in global services exports, while growth remained weak for Modes 2 and 4, Modes 1 and 3 in particular was on the rise (Figure II-1-2-8). Both of those trends are presumably attributable to the increase in services trade due to digitalization.

Figure II-1-2-8. Changes in world services exports by mode



Source: TISMOS (WTO).

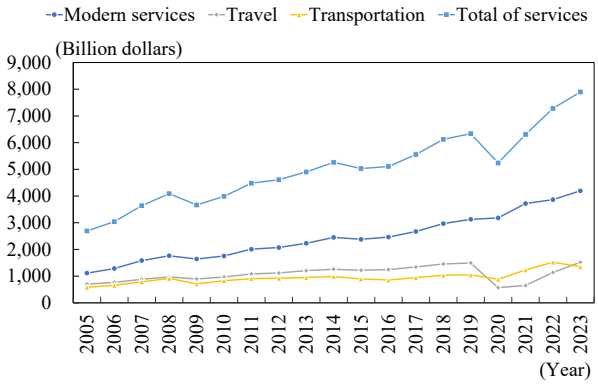
4. Expansion of services trade led by modern services

Baldwin et al. calls commercial services other than traditional ones, such as transportation and travel, "modern services."[65] One characteristic of those traditional services is that they are provided in face-to-face settings, but modern services are characterized by the provision of service in non-face-to-face settings via digital tools or other means. Among the major category of modern services are financial services, charges for the use of intellectual property, n.i.e., telecommunications, computer and information services, and professional business services. We will conduct a study on what Baldwin et al. call modern services, focusing mainly on these four categories of services.

The value of trade in modern services has almost consistently recorded strong growth, including during the period of the COVID-19 pandemic compared with trade in other services (Figure II-1-2-9). A breakdown shows that trade in all of the abovementioned four categories of services increased compared with 2005, with telecommunications, computer and information services and professional business services recording particularly strong growth.

[65] Baldwin et al. (2024)

Figure II-1-2-9. Trade in modern services



(Unit: value: billion dollars; rate: %)

			2005	2023
Modern services	Financial services	Value	234.0	681.1
		Share	8.7	8.6
	Charges for the use of intellectual property, n.i.e.	Value	173.3	475.0
		Share	6.4	6.0
	Telecommunications, computer and information services	Value	180.4	1,090.5
		Share	6.7	13.8
	Professional business services	Value	524.5	1,948.6
		Share	19.5	24.7
Traditional services	Transportation	Value	583.9	1,352.0
		Share	21.7	17.1
	Travel	Value	701.1	1,521.5
		Share	26.0	19.3
Other services (contract manufacturing services, maintenance and repair services, construction, insurance and financial services, personal, cultural, and recreational services, and government services)		Value	295.1	827.6
		Share	11.0	10.5
Total		Value	2,692.3	7,896.3
		Share	100.0	100.0

Source: Trade in Commercial Services (WTO).

Next, we will look at the value of exports by services category and by mode (Table II-1-2-10). The table shows that Mode 3 accounted for more than half of the overall value of exports of "professional business services," "insurance and financial services," "telecommunications, computer, information and audiovisual services," and Mode 1 also had a relatively large share. Regarding "charges for the use of intellectual property, n.i.e.," because of the nature of this category, Mode 1 had a 100% share.

Table II-1-2-10. Export values by services category and by mode worldwide (2022)

Unit: Billion dollars

Services	Mode 1	Mode 2	Mode 3	Mode 4
Professional business services	1,553.5	3.0	1,797.1	104.8
Wholesale and retail trade services and trade-related services	1,020.9	0.0	2,369.1	0.0
Insurance and financial services	821.6	0.0	2,205.9	0.0
Telecommunications, computer, information and audiovisual services	993.4	3.2	1,885.9	48.5
Transportation	1,222.9	304.6	686.4	0.0
Travel	0.0	747.7	200.8	0.0
Construction	0.0	0.0	520.2	36.8
Charges for the use of intellectual property, n.i.e.	456.6	0.0	0.0	0.0
Contract manufacturing service	0.0	148.1	0.0	0.0
Education services	13.7	101.0	25.7	0.7
Maintenance and repair services	0.0	96.7	0.0	11.0
Health services	8.2	11.6	69.3	5.3
Other personal services	14.4	0.0	77.4	0.8
Heritage and recreational services	9.6	0.0	61.2	0.5
Total	6,114.7	1,415.8	9,898.8	208.5

Source: TISMOS (WTO).

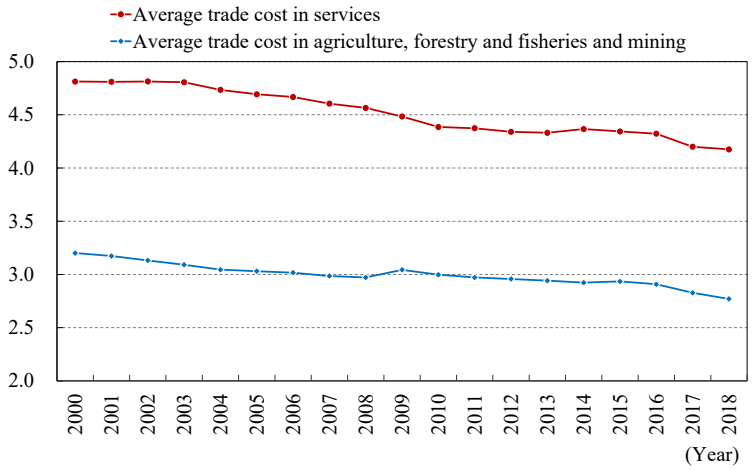
Baldwin et al. pointed out that the expansion of services led by modern services is highly likely to continue.[66] The reasons cited for that are as follows.

First, Baldwin et al. mentioned that although barriers to services trade are higher than barriers to goods trade, they are being lowered as a trend. Indeed, as shown by Figure II-1-2-11, the cost of services trade has been falling. This trend reflects the effects of deregulations promoted by countries, the conclusion of more EPAs, including in services sectors, and changes in companies' global strategies.

[66] Baldwin et al. (2024)

For example, in many cases, liberalization is being promoted in services trade, including in the financial, IT and education sectors under the FTAs/EPAs, so it has become easier than before for companies to provide services in the international market.

Figure II-1-2-11. Changes in trade cost indexes

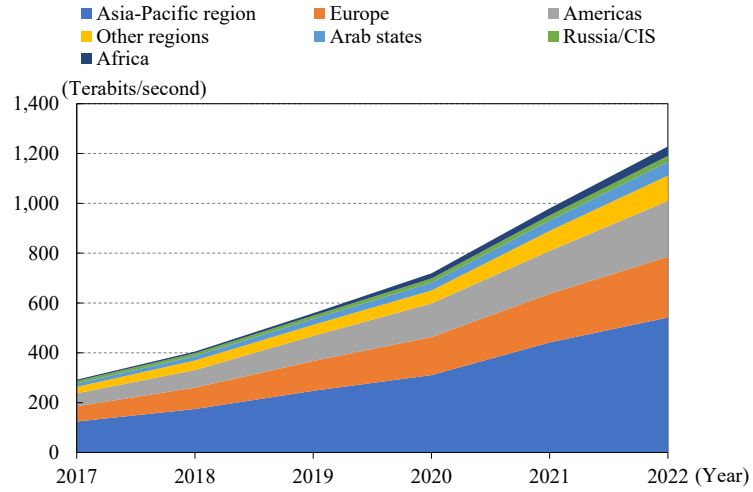


Note: This table classifies trade costs by industry sector into services and agriculture, forestry, fisheries, and mining, and shows the average trade cost index calculated for each country.

Source: Trade Cost Index (WTO).

The second reason is that the development and spread of digital technology will lower barriers to services trade. The volume of cross-border flows of data has continued to expand. According to the International Telecommunication Union (ITU), the global volume of cross-border flows of data in 2022 increased steeply, by 25.4%, compared with the previous year, to 1,229 Tb/s (terabit/second). The figure was 4.2 times as large as the volume in 2017, which was 292 Tb/s (Figure II-1-2-12).

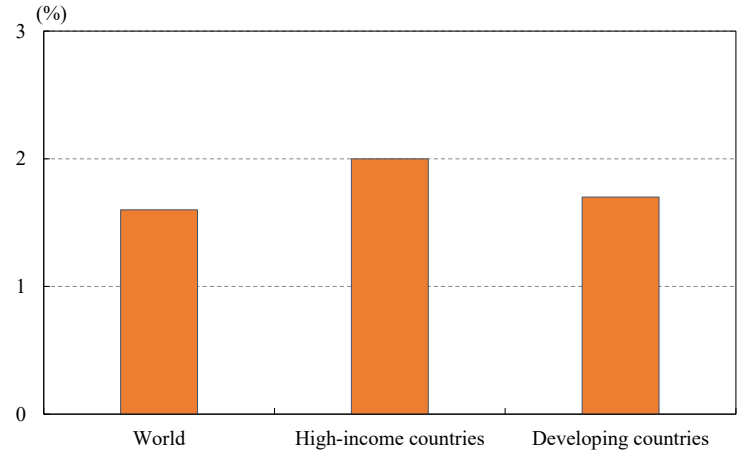
Figure II-1-2-12. Global volume of cross-border flows of data



Source: "Unrelenting Global Consumption of Internet Data Continues to Drive Demand for International Bandwidth Usage" (ITU).

According to a study by the OECD, a rise in digital connectivity[67] leads to an increase in international trade (Figure II-1-2-13).

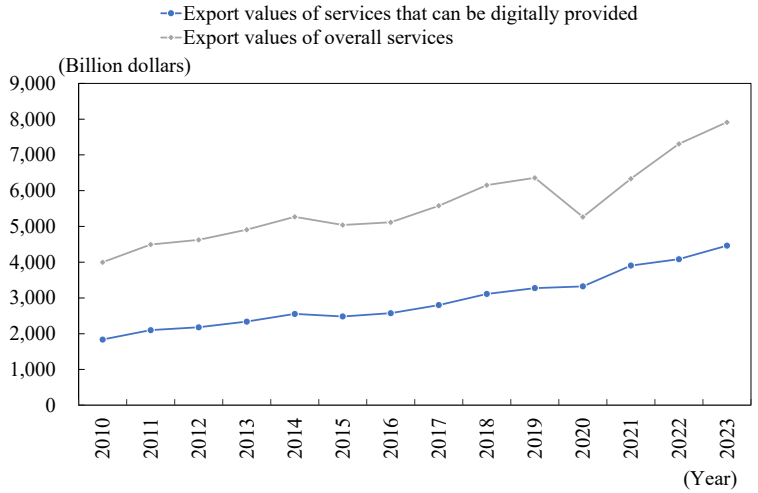
Figure II-1-2-13. Increase rates in trade resulting from a rise in digital connectivity by 1%



Note: The increase rates in trade show those for the total trade in both goods and services.
Source: López González et al. (2023).

The study also showed that the growth in the volume of exports of services that can be digitally provided is driving the growth in the overall volume of exports of services (Figure II-1-2-14).

Figure II-1-2-14. Export values of services that can be digitally provided and export values of overall services



Sources: International Trade in Digitally-Deliverable Services (UNCTAD), Trade in Commercial Services (WTO).

[67] Used as a proxy variable for the diffusion rate of the internet.

Third, regarding the expansion of trade in modern services, one important characteristic that set modern services apart from traditional goods trade is that there are few geographical constraints on export capacity and import demand. In the case of goods trade, production capacity and logistics networks are major determinant factors of export volume. For example, for exports of automobiles and electronic equipment, securing factories' production capacity and means of transportation is indispensable—that is, trade volume depends on physical constraints. On the other hand, an increasing portion of trade in modern services, in particular, is free from physical constraints due to the use of digital technology. Regarding import demand, too, the advance of digitalization is gradually liberating companies from geographical constraints. In the case of traditional goods trade, dependence on specific local markets has been unavoidable because of the effects of logistics cost and customs clearance procedures. However, digitalized modern services have quick access to customers around the world due to the use of online advertising, data-driven marketing, and AI-based targeting technology. For example, digital contents companies can simultaneously provide services in countries around the world because they do not depend on physical facilities and logistics networks, and as a result, geographical constraints that create the division between services suppliers and users have weakened, leading to an unprecedented pace of expansion in modern services trade. In short, trade in modern services, unlike goods trade, has the unique advantage of being able to be conducted globally due to the advance of digital technology because there are few geographical constraints on export capacity and import demand.

Fourth, the expansion of modern services also reflects the services' unique nature that enables the use of low-cost labor abundantly available in developing countries without involving physical movement. Indeed, in some emerging countries where labor cost is lower than in developed countries, international outsourcing of services operations has proceeded. For example, India's IT industry has expanded Modes 1 and 4 services trade by providing services such as software development and customer support to U.S. and European companies. Meanwhile, the Philippines' business process outsourcing (BPO) industry supports the growth of services trade by providing call center service and back-office service in the international market. In short, greater usability of low-cost labor in developing countries has become a factor that makes it easier for companies in developed countries to outsource services across national borders, and as a result, it is promoting the expansion of services trade.

5. Global trends in digital-related services trade

Among modern services leading the expansion of services trade, digital-related services, which are rapidly expanding, mainly among major U.S. digital companies, are attracting attention. In digital-related sectors, in addition to cross-border trade in services using advanced knowledge and technology, cross-border provision of cloud service and data control service are becoming the mainstream. Because of this change, global flows of services trade have formed complex patterns that are different from the structure of traditional goods and services trade.

Therefore, based on the definition of digital-related services described below, this paragraph will analyze the structure of global services trade and changes in the structure, focusing on three categories, that is, charges for the use of intellectual property, n.i.e., telecommunications, computer and information services, and professional business services. In addition, we will identify the characteristics of major

countries/regions that lead flows of services trade and consider how the development of digital technology is affecting flows of services trade.

(1) Definition of digital-related trade in international comparisons

First, we will clarify the scope of digital-related trade discussed in this paragraph. In arguments related to Japan's "digital trade deficit," in many cases, charges for the use of copyrights, included in the "charges for the use of intellectual property, n.i.e." category, telecommunications, computer and information services, and professional and management consulting services, included in the "professional business service" category are treated as digital-related trade in accordance with the definition by Matsuse et al.[68,69] However, in this paragraph, the definition is somewhat expanded to include charges for the use of industrial property, n.i.e. because charges for the use of intellectual property, n.i.e., etc. are not broken down under the BaTiS statistics,[70] which are used here for international comparisons (Table II-1-2-15). It should be kept in mind that fees for the use of industrial property, etc. include transactions not necessarily related to digital technology, such as the exchange of fees for the use of industrial property, etc. between parent companies and subsidiaries regarding overseas production of automobiles. In the analysis of Japan's digital-related trade in Part II, Chapter 3, the definition by Matsuse et al. is followed.

Table II-1-2-15. Definition of digital-related trade

				Matsuse et al. (2023)				
			This paragraph	Digital-related balance	Goods-related balance	People-related balance	Money-related balance	Others
Transportation	Maritime transportation	Marine passengers				○		
		Maritime cargoes			○			
		Other maritime transportation						○
	Air transportation	Air passengers				○		
		Air cargoes			○			
		Other air transportation						○
	Other transportation							○
Travel						○		
Other services	Contract manufacturing service				○			
	Maintenance and repair services				○			
	Construction							○
	Insurance and pension services						○	
	Financial services						○	
	Charges for the use of intellectual property, n.i.e.	Charges for the use of industrial property, n.i.e.	○		○			
		Charges for the use of copyrights, n.i.e.		○				
	Telecommunications, computer and information services	Telecommunication services	○	○				
		Computer services	○	○				
		Information services	○	○				
	Other business services	Research and development services			○			
		Professional and management consulting services	○	○				
		Technical, trade-related, and other business services.			○			
	Personal, cultural, and recreational services	Audio- and video-related services						○
		Other personal, cultural, and recreational services						○
	Government services, n.i.e.							○

[68] Matsuse, et al. (2023)

[69] For example, JETRO (2024) and the Ministry of Finance (2024) follow a similar definition.

[70] BaTis represents the balancing of trade statistics data prepared by individual countries and is best suited to capture bilateral trade. BaTis stands for balanced trade in services.

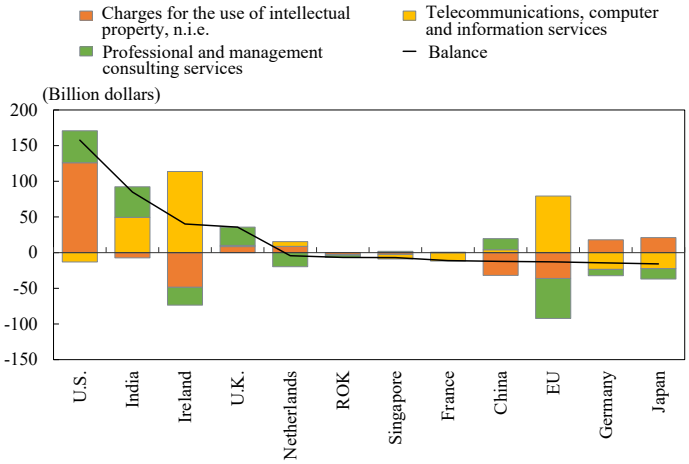
Note: These categories of services mentioned above are based on those in the international balance of payments statistics prepared by Japan. In addition, the category “other business services” is called “professional business services” in this paragraph.

Source: Matsuse et al. (2023).

(2) Exports of trade in digital-related services

Regarding the digital-related trade balance in 2023, the United States, India, Ireland, and the United Kingdom recorded surpluses (Figure II-1-2-16). However, the mix of service categories in exports and imports varied significantly across countries. While the United States recorded a considerable surplus concerning charges for the use of intellectual property, n.i.e. and professional and management consulting services, it had a deficit concerning telecommunications, computer and information services. This is presumably because the United States earns profits through the receipts of charges for the use of intellectual property, n.i.e., and the provision of advanced professional services, rather than through direct exports of services, including software. Meanwhile, Ireland, whose total value of digital-related exports is large, maintained a surplus concerning telecommunications, computer and information services but registered a large deficit concerning charges for the use of intellectual property, n.i.e. and professional and management consulting services. This is presumably attributable to the fact that Ireland, as a European hub of IT services, is host to data centers and other business facilities of many foreign companies. As those companies’ main business is providing telecommunications, computer and information services, Ireland secures a surplus in this category. However, many companies pay charges for the use of intellectual property, n.i.e. and consideration for consulting service to foreign companies, and as a result, the country is in deficit in those categories. As for Singapore, with which Japan has a large digital trade deficit, it is in deficit in the balance of digital-related trade with the rest of the world. Singapore, as an Asian IT hub, has attracted many foreign companies. However, those companies pay large amounts of charges for the use of intellectual property, n.i.e. and other digital-related services costs to headquarters abroad, and as a result, Singapore is in deficit in the digital trade balance as a whole.

Figure II-1-2-16. Digital-related trade balance by country

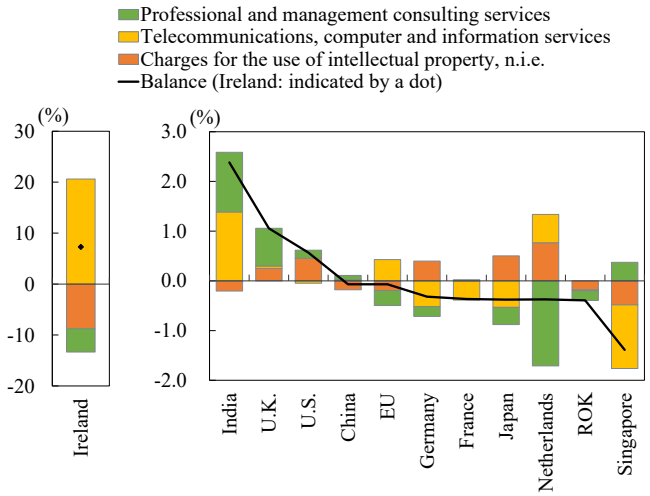


Note: This figure shows values in 2023.

Source: BaTiS (OECD-WTO).

If we look at digital-related trade as a proportion of GDP, the country-specific characteristics become more pronounced (Figure II-1-2-17). First, Ireland's digital trade as a proportion of GDP is very large compared with other countries. In other words, Ireland occupies a distinctive position in the area of digital-related trade. India's digital trade surplus as a proportion of GDP is also large. On the other hand, in the case of Japan, which has the largest deficit in digital-related trade in absolute terms, the deficit as a proportion of GDP is not much different compared with other countries recording deficits, such as Germany, France, the Netherlands and the ROK.[71] Japan's digital trade deficit is not markedly large relative to its economic size compared with other developed countries. Singapore's deficit is very large as a proportion of GDP.

Figure II-1-2-17. Digital-related trade balance by country as a proportion of GDP



Note: This figure shows values in 2023. It should be noted that Ireland's percentage differs by an order of magnitude from those of other countries and regions.

Sources: BaTiS (OECD-WTO), GDP (current US$) (World Bank Group).

Below, we will identify the characteristics of the structure of global digital-related trade by service category.

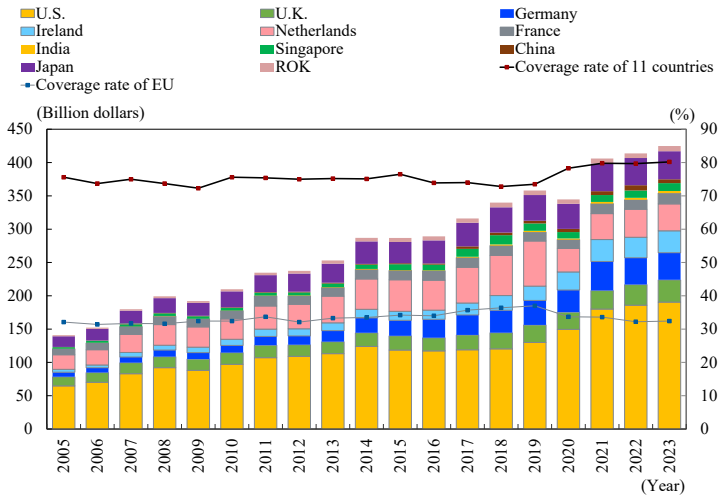
(A) Charges for the use of intellectual property, n.i.e.

Of the global value of exports of intellectual property, n.i.e, the United States accounts for around 40% and the combined share of the 11 major countries in global exports comes to around 80% (Figure II-1-2-18). Apart from the United States, the United Kingdom, Germany, Ireland and the Netherlands have large shares.[72]

[71] However, it should be kept in mind that Germany and Japan are presumed to have large surpluses concerning charges for the use of intellectual property, n.i.e. other than digital-related ones.

[72] As mentioned earlier, it should be kept in mind that charges for the use of intellectual property, n.i.e. other than digital-related ones are included. Japan also has a relatively large share, but as described in Part II, Chapter 3, Section 1, payments of those charges do not necessarily correspond to digital-related trade given that the charges are associated mainly with overseas production of automobiles and other products.

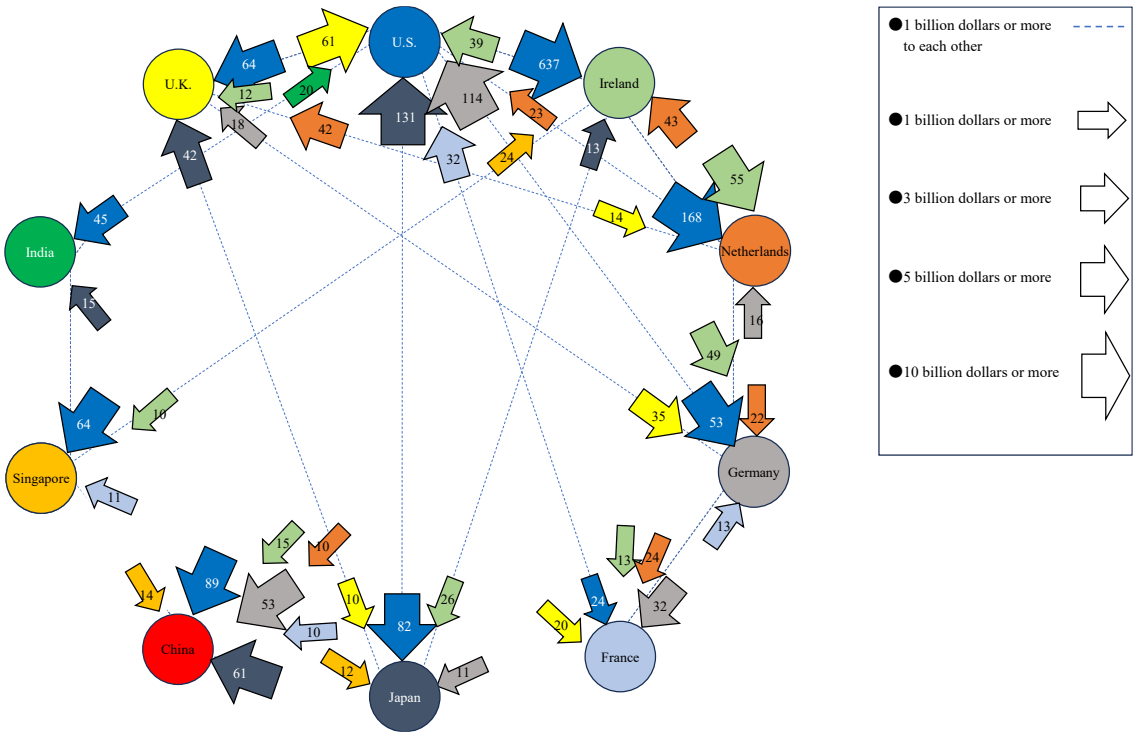
Figure II-1-2-18. Changes in export values related to charges for the use of intellectual property, n.i.e. by country



Source: BaTiS (OECD-WTO).

One characteristic of the balance concerning charges for the use of intellectual property, n.i.e. is that next to the United States, Ireland plays an important role as a hub (Figure II-1-2-19). While the value of its imports from the United States is huge, Ireland is an exporter to other EU countries, Singapore and Japan. Below, we will identify the state of the United States' and Ireland's trade.

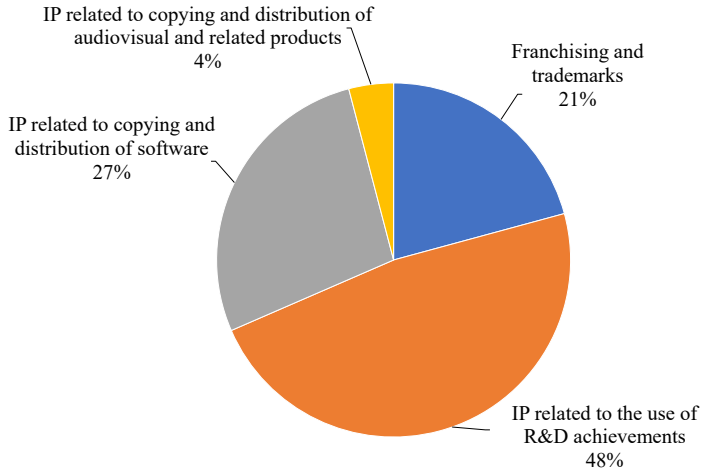
Figure II-1-2-19. Flows of charges for the use of intellectual property, n.i.e.



Note: This figure shows values in 2023. The unit is "100 million dollars."
Source: BaTiS (OECD-WTO).

First, a breakdown of exports of charges for the use of intellectual property, n.i.e. from the United States, whose value of exports is the largest, shows that intellectual property rights (IP) related to research and development accounts for around 50% of the total, while IP related to copying and distribution of software makes up around 30% (Figure II-1-2-20).

Figure II-1-2-20. Breakdown of U.S. exports of charges for the use of intellectual property, n.i.e.



Note: This figure shows values in 2023.
Source: Trade in Commercial Services (WTO).

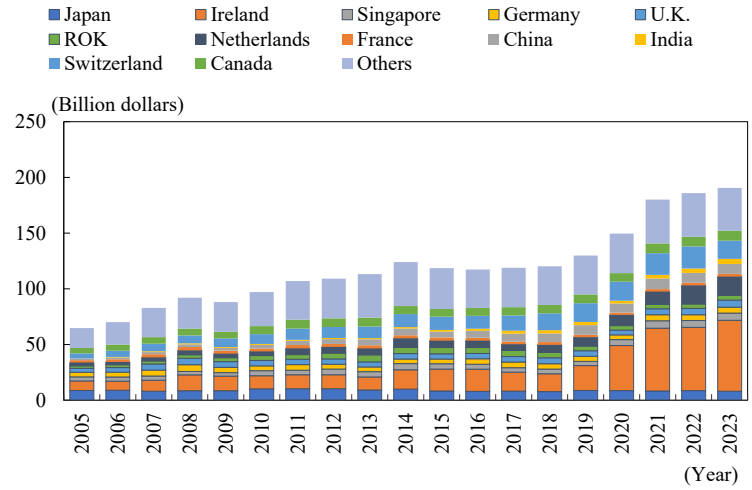
As for destinations of U.S. exports of charges for the use of intellectual property, n.i.e., exports to Ireland started to increase around 2014 and the pace of increase has further accelerated since 2019 (Figure II-1-2-21). One factor behind that trend is that major U.S. digital-related companies have expanded their business into Ireland. In particular, technology companies like Google, Apple, Microsoft, and Facebook (Meta) have established their European bases in Ireland and are expanding business operations from there to the whole of Europe. By locating their bases in Ireland, those companies have secured access to the EU market and, at the same time, optimized global profit management by taking advantage of Ireland's preferential tax measures. Behind this move is the fact that Ireland has been used as a hub for profit transfer using IP due to an advantage over other countries' tax systems as Irish corporate tax rates applicable to multinational enterprises have been kept low.[73]

As the schemes of specific cross-border transactions related to IP are complex, it is not easy to grasp the actual state of trade from data, but the data indicates transactions are conducted as follows. First, according to the European Central Bank (ECB), Ireland-based group companies of multinational enterprises are presumed to purchase ownership rights concerning software from parent companies located outside the country as part of their non-construction investments. Statistically, this type of transaction is recorded as import of research and development service and as investment in IP products,

[73] Previously, a tax avoidance scheme known as the "Double Irish with Dutch Sandwich," which has been banned since 2020, was used. In this scheme, multinational enterprises transferred intellectual property to Ireland and transferred profits ultimately to tax havens, such as the Bermuda Islands, via the Netherlands, in order to minimize the tax burden. For the details of the scheme, see Tomioka (2022).

which is an item of gross fixed capital formation.[74] In some cases, U.S. companies may grant only IP usage rights to subsidiaries in Ireland. As a result, payments of charges, from subsidiaries in Ireland to parent companies in the United States, for the use of intellectual property, n.i.e. in the form of purchase of rights to the use of software and patented technology are presumed to be increasing.

Figure II-1-2-21. Export destinations of charges for the use of intellectual property, n.i.e. from the U.S.



Source: BaTiS (OECD-WTO).

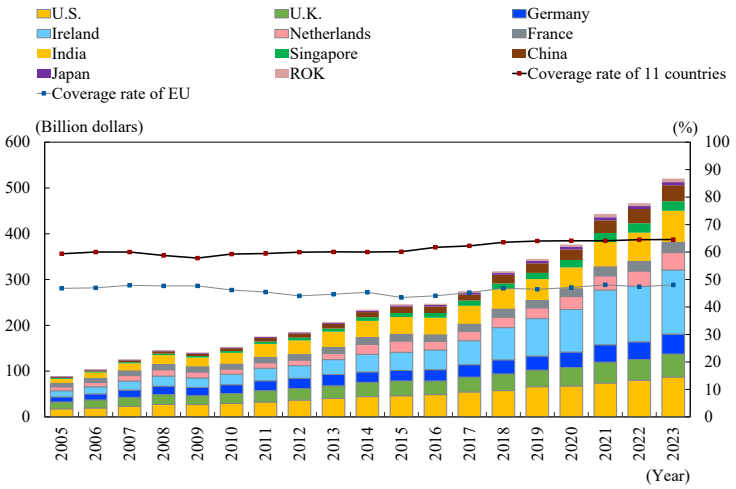
In any case, the provision of digital-related services from Ireland to third countries is presumed to be recorded as service export. This indicates that the reason for the large value of exports of charges for the use of intellectual property, n.i.e. from Ireland is that companies in Ireland collect charges from other countries by taking advantage of IP and the rights to the use of IP that have been provided from U.S. companies in some form or other.

(B) Telecommunications, computer and information services

Of global exports of telecommunications, computer and information services, the 11 major countries together account for around 70%. Countries with particularly large shares are Ireland, India, China, and the United States. The EU's share in global exports of telecommunications, computer and information services is around 50%, higher than the share of slightly under 40% that the region has in global exports of charges for the use of intellectual property, n.i.e. and in global exports of professional and management consulting service (Figure II-1-2-22).

[74] ECB (2023)

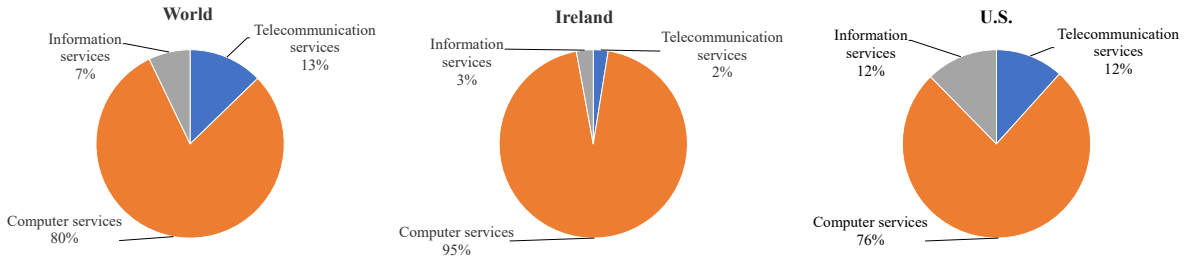
Figure II-1-2-22. Changes in export values in telecommunications, computer and information services by country



Source: BaTiS (OECD-WTO).

Of the value of exports of telecommunications, computer and information services, computer service accounts for around 80%, representing the overwhelming majority. For each of Ireland and the United States, the share of computer service is large (Figure II-1-2-23).

Figure II-1-2-23. Breakdown of export values in telecommunications, computer and information services (2023)

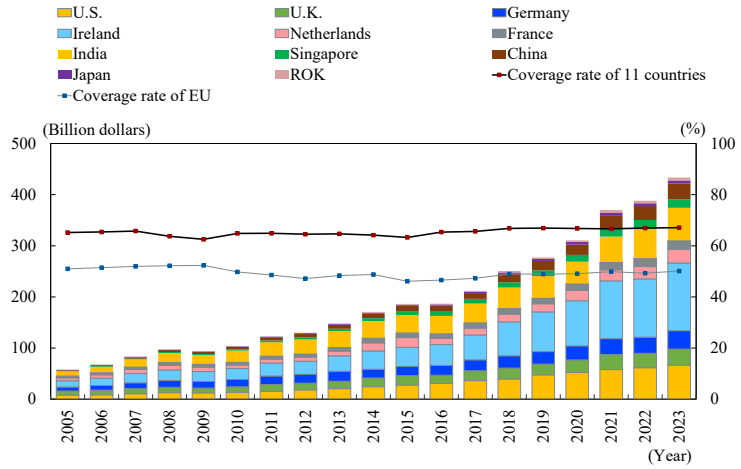


Source: BaTiS (OECD-WTO).

As for a country-by-country share in the value of global exports of computer service, the largest item of the telecommunications, computer and information services category, Ireland has a particularly large share. Ireland's share has expanded rapidly since around 2015. One factor behind Ireland's expanding share is that against the backdrop of low corporate tax rates in the country, major global digital companies like Apple and Google have established business bases in Ireland and are developing, selling and exporting software products[75] (Figure II-1-2-24).

[75] JETRO "SHINGATA KORONA DE KAKUDAI GA MIKOMARERU DEJITARU KANREN SAABISU BOUEKI," October 8, 2020 https://www.jetro.go.jp/biz/areareports/special/2020/1001/4d82aa39e7edee27.html (as viewed on June 5, 2025)

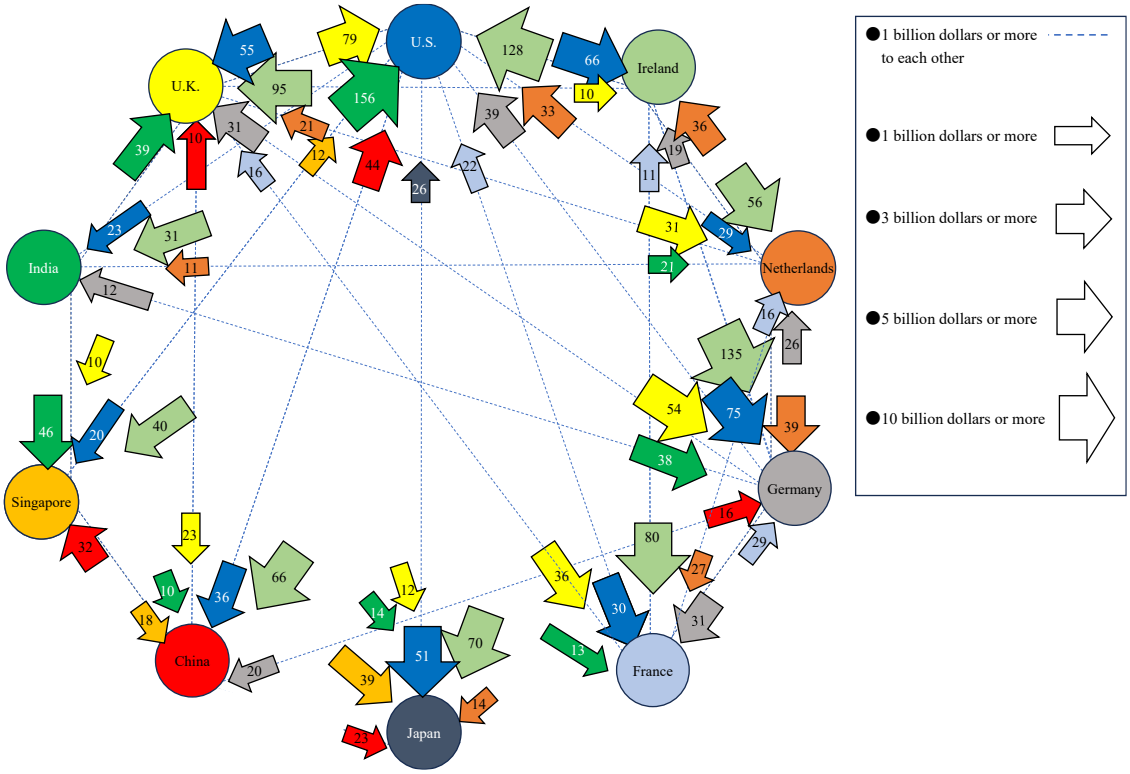
Figure II-1-2-24. Changes in export values in computer services by country



Source: BaTiS (OECD-WTO).

Figure II-1-2-25 shows the flows of trade in telecommunications, computer and information services. Unlike in the case of charges for the use of intellectual property, n.i.e., the trade flows not only among the United States and European countries, but also between India and United States/European countries and between China and United States/European countries. The value of trade between the United States and India and between the United States and Ireland is particularly large. This reflects the effects of India's status as a major provider of IT-related services, including outsourcing. Japan's trade balance is tilted disproportionately toward imports, and Japan is connected with the smallest number of countries with dotted lines.

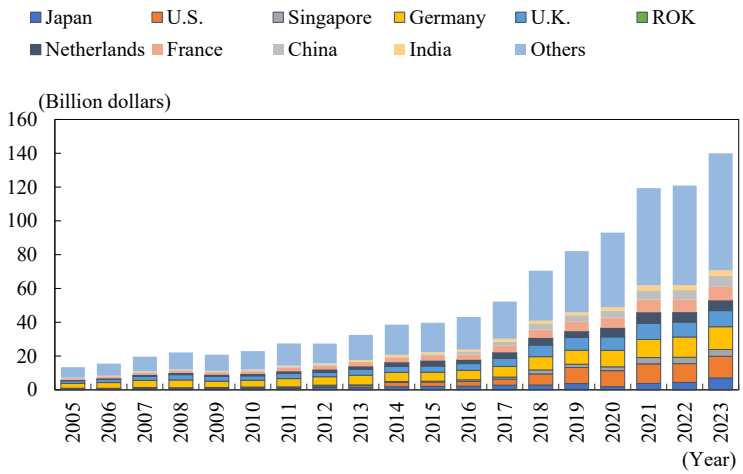
Figure II-1-2-25. Flows of trade in telecommunications, computer and information services



Note: This figure shows values in 2023. The unit is "100 million dollars."
Source: BaTiS (OECD-WTO).

As for the time-sequential trend, among export destination countries for Ireland with respect to telecommunications, computer and information services, Germany and the United States have large shares compared with other countries. In recent years, exports to "others" have increased steeply, indicating the diversification of export destinations for Ireland.

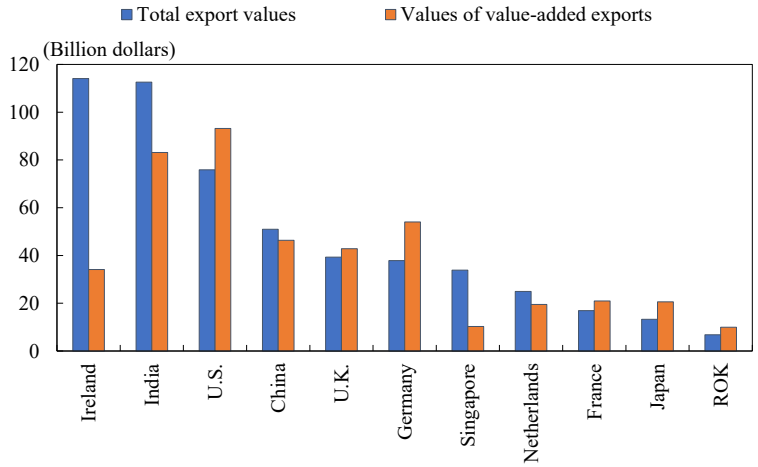
Figure II-1-2-26. Export destinations of telecommunications, computer and information services from Ireland



Source: BaTiS (WTO).

A comparison between the value of exports of value added and the trade balance under international balance of payment statistics regarding Ireland shows that the value of exports of value added to telecommunications, computer and information services in the country is much smaller than the total value of exports of those services from the country (Figure II-1-2-27).

Figure II-1-2-27. Total values of exports of telecommunications, computer and information services and values of value-added exports thereof (2020)



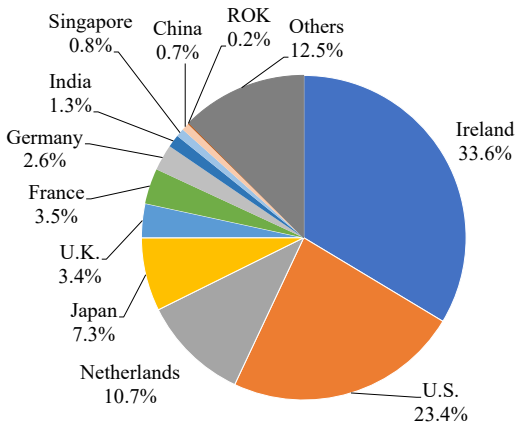
Note: The total values of exports refer to the exports of telecommunications, computer and information services. The values of value-added exports refer to the values of value added exports of the telecommunications, computer and information services in target countries among the total values of exports.

Source: TiVA (OECD).

In this respect, the breakdown of value added in exports of telecommunications, computer and information services from Ireland by value added source country shows that countries other than Ireland itself, such as the United States and the Netherlands have large shares in inputs of value added (Figure II-1-2-28).[76]

[76] Value added of Japan has a relatively large share, 7.6%, in exports of telecommunications, computer and information services from Ireland, and of that share, management and support services, which refer to "various activities that support business management in general other than transfer of professional knowledge," accounts for around three-quarters. Further details are unclear.

Figure II-1-2-28. Composition of value added source countries in Ireland's exports of telecommunications, computer and information services

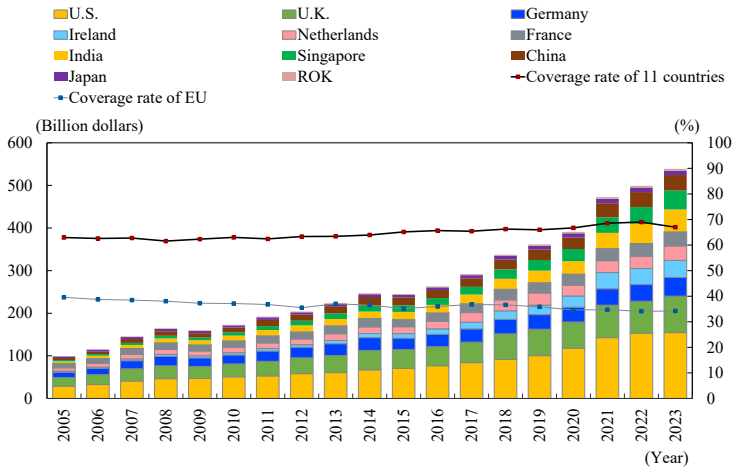


Notes: This figure shows data in 2020.
Source: TiVA (OECD).

(C) Professional and management consulting service

Regarding professional and management consulting service, the 11 major countries together account for around 70% of global exports (Figure II-1-2-29). Countries with particularly large shares are the United States, the United Kingdom, and India. As for the time-sequential trend, exports from the United States grew markedly.

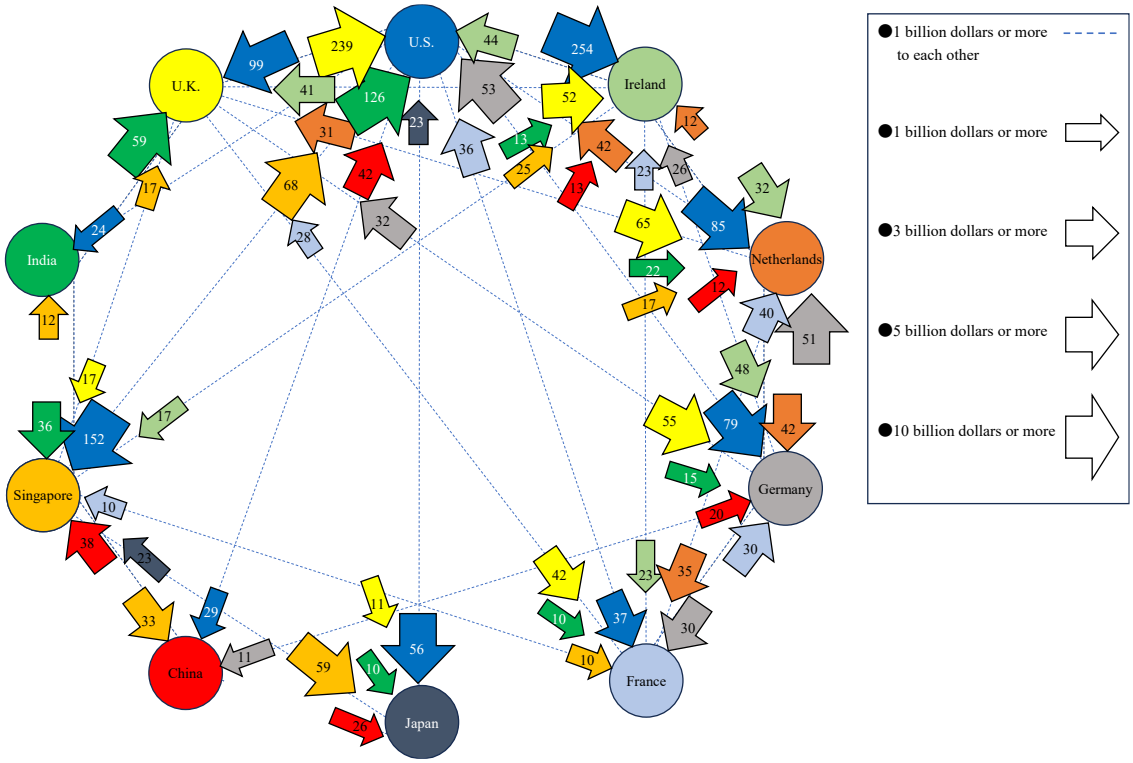
Figure II-1-2-29. Changes in export values of professional and management consulting services by country



Source: BaTiS (OECD-WTO).

The flow chart of trade shows that transactions involving the United States and European countries account for a large portion of overall trade, with Ireland playing a central role, as in the case of telecommunications, computer and information services (Figure II-1-2-30). Among Asian countries, Singapore in particular is connected with the United States and European countries with dotted lines. For Singapore, the United States is the largest import source country, while Asian countries are major export destinations. This presumably reflects the presence of business bases established in Singapore by major U.S. and Chinese digital companies. Japan is a net importer, as in the case of telecommunications, computer and information services and, like China, the number of countries connected with Japan with dotted lines is small.

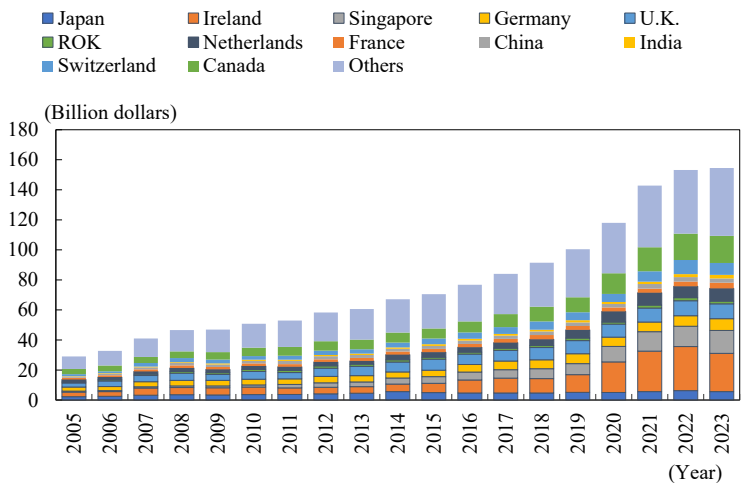
Figure II-1-2-30. Flows of professional and management consulting services



Note: This figure shows values in 2023. The unit is “100 million dollars.”
Source: BaTiS (OECD-WTO).

Regarding exports of professional and management consulting service from the United States, since around 2020, Ireland and Singapore have had large shares as export destinations (Figure II-1-2-31).

Figure II-1-2-31. Export destinations of professional and management consulting services from the U.S.



Source: BaTiS (OECD-WTO).

One presumed factor behind that trend is the growth of the internet advertising market. When U.S. advertising platform companies sell ad spaces through business bases in Ireland, the transactions are included in the "professional and management consulting service" category in some cases. As a result, payments charges made by advertising-related companies in Ireland to U.S. advertising platform companies may be recorded as exports of professional and management consulting services. In addition, the effects of the COVID-19 pandemic since 2020 may also have contributed to an increase in advertising-related transactions involving Ireland. As the digital advertising market grew rapidly amid the COVID-19 pandemic, many companies presumably increased investments in online advertising. In short, the increase in exports of professional and management consulting services from the United States to Ireland not only reflects the expansion of demand for consulting service but also is closely related to the growth of the digital advertising market. Going forward, it is necessary to keep a close watch as to how the strengthening of the European regulation of digital businesses (e.g., GDPR and the Digital Services Act) will affect advertising-related transactions involving Ireland.

6. Current situation surrounding DFFT

As described above, the expansion of cross-border services trade in recent years is closely related to increases in services value added in the manufacturing industry and the advance of economic digitalization. Intangible services have come to be provided across national borders via the internet, in addition to being made available through traditional means of transportation and in the form of transactions conducted through local subsidiaries. This contributes to the growth of services trade and creates risks different from conventional ones at the same time. The focus of attention is on how data is treated. As an overarching prerequisite for the international provision of services through digital means, it is essential to ensure smooth and secure cross-border data flows. However, regulations on how to treat data are related to multifaceted viewpoints, including privacy protection and national security, so

striking the right balance between promoting international data utilization and ensuring safety has become a policy challenge.

In light of this situation, at the Annual Meeting of the World Economic Forum (Davos Meeting) in 2019 in Davos, Switzerland, then Prime Minister Abe proposed the DFFT (Data Free Flow with Trust) concept, which was included in the Leaders' Declaration issued at the G20 Summit in Osaka in the same year. The DFFT concept aims to promote the free flow of data while ensuring trust in privacy, security, and intellectual property rights.[77]

Below, we will look at institutional challenges that must be overcome to support cross-border services trade in the digital age and at developments related to international and domestic response to those challenges, focusing mainly on DFFT, and data security and cybersecurity, which form its foundation.

(1) Development of international governance related to DFFT

(A) Formulation of the Action Plan at the G7 and the IAP

Since the G20 Osaka Summit in 2019, Japan has promoted the DFFT initiative, the concept of which has been taking root among major countries. For example, at the G7, DFFT has been characterized as a major policy challenge. In 2021, under the leadership of the United Kingdom, which held G7 presidency at the time, the G7 leaders approved the G7 Roadmap for Cooperation on Data Free Flow with Trust. The roadmap set out the plan for joint action between the G7 in four cross-cutting areas, that is, data localization, regulatory cooperation, government access to data, and data sharing for priority sectors. Moreover, in the G7 summit held in Germany in 2022, the G7 leaders approved the G7 Action Plan for Promoting DFFT. The Plan included the commitments to the following actions regarding the four pillars set forth in the roadmap: (i) strengthening the evidence base for DFFT,[78] (ii) building on commonalities in order to foster future interoperability, (iii) continuing regulatory co-operation, (iv) promoting DFFT in the context of digital trade, and (v) sharing knowledge about the prospects for international data spaces.

In addition, under Japan's G7 presidency, at the G7 Digital and Tech Ministers' Meeting (Takasaki City, Gunma Prefecture) in 2023, an agreement was reached on establishing the Institutional Arrangement for Partnership (hereinafter the "IAP") as a new international framework for putting DFFT into practice, and at the subsequent G7 Summit in Hiroshima, the IAP was approved. As the IAP is a framework for realizing DFFT, it is positioned as a forum for working-level discussions and implementation.

(B) OECD's deliberations on realizing DFFT

The OECD is also playing the central role in accumulating knowledge and developing rules in order to realize DFFT. Analyses by and recommendations from the OECD are shared at discussions at the G7 and the G20, and knowledge from the OECD is also expected to be used at the IAP. In order to identify

[77] Digital Agency, "DFFT," https://www.digital.go.jp/en/policies/dfft (last updated on October 16, 2024)

[78] A commitment to supporting activities to deepen understanding on opportunities and challenges that arise from cross-border data flow was indicated. Specifically, the activities include activity to deepen understanding on existing regulatory approaches and means that enable DFFT regarding privacy, data protection, security, and intellectual property protection and on data localization and its potential impact (particularly on small and medium-size enterprises) and activity to study alternatives to data localization.

the challenges in the way of realizing the concept of DFFT, the OECD has compiled a report summarizing national regulations on and approaches to data flow.[79] One point of discussion mentioned in the report is government access to data. From the viewpoints of law enforcement and economic security, when transparency and the appropriateness of procedures are not ensured with respect to government access to data held by private-sector entities, distrust could be fomented among companies and individuals, and, as a result, international data flows could be undermined. From that perspective, in 2022, the OECD issued the Declaration on Government Access to Personal Data Held by Private Sector Entities, in which the organization showed the stance of opposing unrestricted, arbitrary government access. Going forward, it is important to spread this common stance to non-OECD member countries.

In 2023, the OECD conducted a large-scale survey with global companies and analyzed the challenges related to compliance in the area of cross-border data utilization. The survey revealed that amid the growing complexities due to the rapid development of legal systems in various countries, companies are facing legal uncertainty, a lack of information and regulatory inconsistencies and pointed to the need for international cooperation.

(C) Joint Statement Initiative on Electronic Commerce at the WTO

At the G20 Summit in Osaka in 2019, in addition to DFFT, the acceleration of the Joint Statement Initiative on Electronic Commerce at the WTO was proposed. This initiative was promoted among like-minded countries at the WTO, with Japan, Australia and Singapore serving as Co-Convenors. After five-years of negotiations, in July 2024, the Co-Convenors, on behalf of countries/regions participating in the negotiation, issued a statement to the effect that "participants had achieved stabilized text on the Agreement on Electronic Commerce" The text, which comprises 38 articles, includes the following disciplines: "the prohibition of the imposition of customs duties on electronic transmissions," "trade facilitation of electronic commerce by digitalizing trade documents and promoting electronic payments including through the transparency of the regulatory environment," "ensuring an open electronic commerce environment through open government data and access to and use of the Internet," and "enhancing trust in electronic commerce including through the rules on cybersecurity, online consumer protection, and personal data protection." Articles not included in the stabilized text, such as those providing for the promotion of cross-border data flow, prohibition of demands for domestic data storage, and prohibition of demands for disclosure of source code and encryption, are assumed to be discussed in future negotiations.

(D) The challenge identified in light of international discussions

With respect to the specific elements of "trust," which is indispensable for realizing DFFT, implementing, at the least, the following four initiatives, is considered to be the challenge in light of discussions at international organizations.

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[79] Ministry of Economy, Trade and Industry, "Ministerial Declaration: The G7 Digital and Tech Ministers' Meeting 30 April 2023,"
https://www.meti.go.jp/press/2023/04/20230430001/20230430001-summary.pdf (as viewed on June 5, 2025)

The first initiative is to ensure appropriate government access. As mentioned earlier, the OECD Principles call for the prevention of abuse and the enhancement of transparency. Abiding by those principles is likely to foster reassurances that when companies and individuals have entrusted data to foreign entities, arbitrary access is prevented.

The second initiative is to ensure transparency over data governance. It is necessary to require companies to disclose the purpose of data utilization and the presence or absence of cross-border data transfer in an easy-to-understand manner, and at the same time, governments need to specify the legal systems related to data and the requirements for data access by the authorities. A G7 statement asserted that transparency should be ensured over various frameworks and guidelines.

The third initiative is to promote the use of certification schemes by private-sector companies. For example, the APEC Cross-Border Privacy Rules (CBPR) system facilitates smooth transfer of personal data between participating economies by requiring companies to obtain third-party certification. In 2022, the Global CBPR Forum, which aims to expand the system beyond APEC, was established with the participation of nine countries, including Japan and the United States. The CBPR system is positioned as an international certification system that enhances interoperability between national data protection regulations.

Fourth, in order to ensure secure data flow, it is important to promote standardization regarding technical matters, including encryption technology, access control and interface specification. Regarding the security evaluation standards concerning products and services (e.g., the Common Criteria [CC] and national IoT security certification) as well, there are moves to promote mutual approval and create schemes that ensure global trust with one-time authentication (Japanese initiatives will be mentioned later).

(2) Japanese initiatives to realize DFFT

In order to realize the concept of DFFT as specific institutional systems and measures, Japan is implementing various initiatives at home and abroad. Here, we will take up the manual for companies, published by the Ministry of Economy, Trade and Industry in January 2025, and Japan's participation in international data system harmonization efforts (e.g., the CBPR).

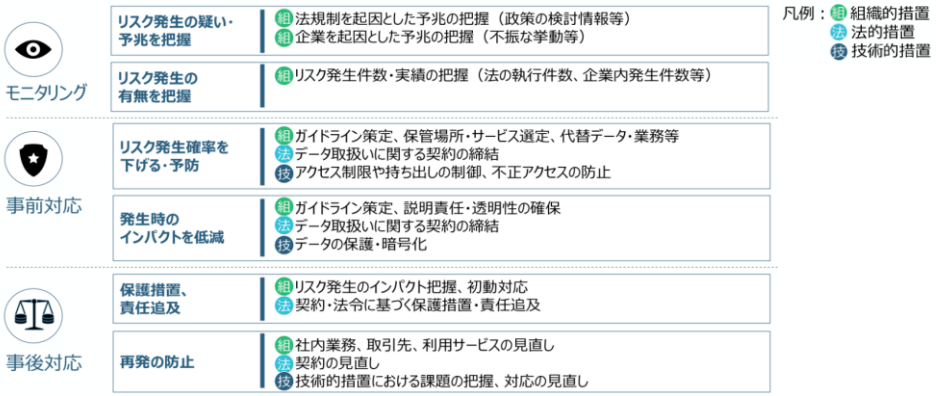
(A) Development of the Manual on Cross-Border Industrial Data Management

In January 2025, the Ministry of Economy, Trade and Industry formulated and published the Manual on Cross-Border Industrial Data Management in order to promote companies' international data sharing and utilization. The manual is distinctive in that it focuses attention on industrial data (non-personal data) apart from personal data. Previously, cumulative discussions were held internationally on personal data from the viewpoint of privacy protection. However, this manual for the first time provides a comprehensive guidance concerning non-personal data, such as production data and operational data handled by companies.

The manual systematically identifies the risks associated with international data sharing and describes the three steps that should be taken by companies. The first step is to make the risks visible. In this step, companies should first identify interested parties, relevant data, and the location of the data and figure out where data is internationally shared and utilized and where cross-border data transfer occurs and then develop scenarios concerning assumed risks. The second step is to evaluate the

criticality of the identified risks and the probability of risk materialization and determine priorities for response. The third step is to implement actions. The manual indicates the direction of action that may be effective in addressing each of typical assumed risks and lists measures that may be taken in each of the action categories of monitoring, pre-response action, and post-response action (Table II-1-2-32).

Table II-1-2-32. Major actions



Source: "Manual on Cross-Border Industrial Data Management; Reference Material A: List of actions" (METI).

(B) Participation in international certification systems and rules

As part of its effort to promote DFFT, Japan is actively participating in international data protection and certification systems. The APEC Cross-Border Privacy Rules (CBPR) certification system, which was mentioned earlier, is a typical example. The CBPR is a mutual certification system between participating economies under which third-party organizations certify compliance by companies that transfer personal data with the principles of privacy protection that are common across countries. Japan joined the system in 2014, and JIPDEC (Japan Institute for Promotion of Digital Economy and Community) serves as the certification organization in Japan.

Japan is also cooperating with Europe in developing a framework for data flow. In 2019, the EU issued an "adequacy certificate" (which is issued to countries recognized as protecting personal data at a level equivalent to the level under the General Data Protection Regulation [GDPR]) to Japan, making it the first country outside the EU area to receive the certificate, and as a result, flows of personal data between Japan and the EU without additional protection measures have become possible. In addition, in October 2023, an agreement-in-principle was reached on adding a provision concerning data free flow to the Japan-EU Economic Partnership Agreement (EPA) and including principles such as prohibition of data localization and transparency over government access in the EPA. These revisions went into effect in July 2024.

Bilateral and regional initiatives like the abovementioned ones contribute to international harmonization of data rules and mark an important step toward realizing DFFT.

(3) Cybersecurity-related legal systems in individual countries and multilateral harmonization

Another pillar that supports free data flow and data protection is cybersecurity. Amid the digitalization of cross-border services trade, ensuring the security of data, networks, and systems is a

precondition for transactions based on international trust. Here, we will look at recent developments concerning cybersecurity-related legal systems in major countries/regions (e.g., the United States and the EU).

(A) Security requirements for manufacturers and products

The IoT Cybersecurity Improvement Act, enacted in 2020 in the United States, is the first law to set the minimum security standards that must be met by IoT (internet of things) products procured and used by the federal government and orders the National Institute of Standards and Technology (NIST) to develop specific standards. Based on the law, fundamental security requirements for IoT products, such as prohibition of default passwords and the requirement for disclosure of vulnerability information, were introduced.

In 2023, the U.S. federal government proposed a security labeling system for IoT products called U.S. Cyber Trust Mark. The system is applicable to wireless IoT products for consumer use, examples of which include internet-connected home security cameras, voice-activated shopping devices, smart home appliances, fitness trackers, garage door openers, and baby monitors.

(B) Obligations for critical infrastructure operators

Regarding the U.S. Cyber Incident Reporting for Critical Infrastructure Act of 2022, draft rules were published in April 2024. The rules require the reporting of cyber incidents in the field of critical infrastructure to the Cybersecurity and Infrastructure Security Agency (CISA) within 72 hours and, if a ransom has been paid, the reporting of the payment within 24 hours after the payment.

In the EU, NIS2 Directive (Directive (EU) 2022/2555) went into effect in 2023. Having expanded the scope of applicable sectors compared with the NIS Directive, which was adopted in 2016, the NIS2 Directive obligates "essential and important entities" to which it is applicable to (i) strengthen cybersecurity risk management and to (ii) submit to the competent authorities an early warning within 24 hours of becoming aware of a significant cybersecurity incident and an incident notification within 72 hours of becoming aware of the significant incident.

(C) Giving visibility to cybersecurity measures taken by other business operators

There are accelerating moves, mainly in the United States and European countries, to give visibility to cybersecurity measures taken by contractors commissioned by government organizations and, in some cases, to impose obligations.

In the United States, the Cybersecurity Maturity Model Certification (CMMC) system comprised of Levels 1 to 3, which was designed by the Department of Defense for the purpose of protecting highly classified information shared with contractors, was established and the revised version, CMMC 2.0, went into effect in 2021. In October 2024, the final rule was announced.

In the United Kingdom, the Cyber Essentials system is in place. This is a certification system that is comprised of two stages, self-assessment of compliance and assessment by a third-party organization. It was designed by the U.K. Cybersecurity Center in order to provide all companies with means of defense against cyberattacks in general.

(4) Development of security systems in Japan

Japan is devoting efforts to strengthening domestic cybersecurity systems as the foundation of cross-border services transactions in the digital age. Here, as major initiatives, we will describe a system for

assessment of compliance of IoT products with security requirements and labeling and the cybersecurity strategy.

(A) System for assessment of compliance of IoT products with security requirements and labeling

In March 2025, as a way to ensure the security of IoT products, which have rapidly increased in recent years, the Ministry of Economy, Trade and Industry and the Information-technology Promotion Agency (IPA) introduced a system for assessment of compliance of IoT products with security requirements and labeling, called JC-STAR (Japan Cyber-Security Technical Assessment Requirements). This system conducts security assessment regarding a broad-range of internet-capable IoT products, including routers, web cameras, and sensors, under common standards and grant labels. It is intended to make security assessment visible so that those who purchase products (government procurement officers, companies and consumers) can easily choose products suited to the security level.

Specifically, the system sets multiple levels of security requirements, from the common minimum threshold (STAR-1) to more advanced requirements (STAR-2 to STAR-4) and issues labels with the mark★ for products in accordance with the security level that they meet (Figure II-1-2-33).

Figure II-1-2-33. Compliance label (conceptual picture of "STAR-1")

JC-STAR is distinctive in that it not only reflects the requirements specific to Japan but pursues consistency with similar systems in other countries. The Ministry of Economy, Trade and Industry is considering the possibility of allowing mutual certification with other countries, including the United States, the United Kingdom, and Singapore.

(B) Japan's cybersecurity strategy and institutional framework

In 2014, Japan enacted the Basic Act on Cybersecurity and has since then formulated the Cybersecurity Strategy every few years, indicating the direction that the government should take. Under the most recent Cybersecurity Strategy 2021, Japan upholds the goal of "ensuring a cyberspace which is free, fair and secure" and aims to protect technologies and industries that are critical from the perspective of economic security, promote zero-trust security, and actively participate in international rule-making. The Economic Security Promotion Act, enacted in 2022, requires business operators designated as necessary for ensuring stable provision of essential infrastructure services prescribed by the government to submit a prior notification and undergo screening when introducing or entrusting the maintenance and management of specified critical equipment (equipment or other facilities the suspension of whose functions leads to failure to provide services).

A framework for cooperation between the public and private sector has also been developed. In 2019, based on the revised Basic Act on Cybersecurity, the Cybersecurity Council was established. This is a platform for information sharing and collaboration between hundreds of entities, including government organizations, companies, and educational institutions. The Cybersecurity Council functions as a forum whereby private-sector knowledge is reflected in policies and where incident information and threat intelligence are shared across industries.

(5) Future outlook

Regarding DFFT, data security and cybersecurity, which pose a major institutional challenge to cross-border services trade in the digital age, we looked at international developments and Japan's responses. Fundamentally, data governance is inseparable from data security and cybersecurity. In other words, security and reliability are the prerequisite for free trade. When there is no trade, the importance of data security and cybersecurity is not high. Therefore, it is necessary to comprehensively review the legal system for data protection and the one for cybersecurity and develop a framework under which those two systems complement each other.

When developing such a framework, international cooperation is also important. Until now, Japan has led discussions on international cooperation in this field. Going forward, Japan will continue to contribute to the development of international institutional systems and to international cooperation in order to realize DFFT while using the IAP as a forum for doing so.