



5. Digital intermediation platforms (DIPs)

This Handbook includes this separate chapter on digital intermediation platforms (DIPs) because of their importance in facilitating digital trade, the scope they offer for targeted measurement, and their particular compilation challenges. This chapter describes the accounting principles for recording transactions facilitated by DIPs and provides examples of existing initiatives, surveys and big data sources used to measure DIP transactions.

5.1 The role of digital intermediation platforms in digital trade

Chapter 2 defines digital intermediation platforms (DIPs) as:

“Online interfaces that facilitate, for a fee, the direct interaction between multiple buyers and multiple sellers, without the platform taking economic ownership of the goods or rendering the services that are being sold (intermediated).”

DIPs have been key drivers in the digital transformation. They have facilitated access for many producers, in particular micro, small and medium-sized enterprises (MSMEs), to the global marketplace. They have given buyers numerous benefits, including access to a wider variety of products and the ability to compare prices more easily. DIPs have also enabled new activities and business models such as peer-to-peer transactions and sharing of resources between households. Although transactions intermediated by DIPs are, in principle, included in conventional trade statistics and are covered by the concepts of digitally ordered and/or digitally delivered trade, DIPs are separately highlighted both in the conceptual framework (see Chapter 2, Figure 2.1) and in the reporting template for digital trade (see Chapter 2, Table 2.1) because of their significant role in the economy, the policy interest surrounding them and the specific compilation challenges they pose.

Examples of DIPs include:

- marketplace platforms that bring together buyers and sellers to trade goods and services, e.g., platforms facilitating short-term accommodation;
- platforms facilitating ride hailing, similar to taxi services;
- platforms facilitating sharing of household assets, such as car-sharing; and
- platforms that intermediate electronic content (without taking economic ownership of the intellectual property products they distribute), such as app stores.

All institutional sectors in the economy can use DIPs for transactions in goods and services. Non-financial corporations and the household sector in particular use DIPs both as buyers and as sellers.

As the interface hosted by the DIP is specifically designed for placing orders, this Handbook assumes that all transactions (i.e., both goods and services) undertaken via a DIP are digitally ordered. In some cases, transactions (i.e., services) facilitated through DIPs may also be digitally delivered.

As described in Chapter 2, the service provided by DIPs is that of “matching” buyers with sellers and thus

facilitating the exchange of goods or the provision of services. Chapter 2 defines these digital intermediation services as:

“Online intermediation services that facilitate transactions between multiple buyers and multiple sellers in exchange for a fee, without the online intermediation unit taking economic ownership of the goods or rendering the services that are being sold (intermediated).”

Digital intermediation services are both digitally ordered and digitally delivered.

DIPs are remunerated for providing digital intermediation services through fees received from the buyer, seller, or both. These fees may or may not be separately invoiced and may be collected at the same time as, or separately from, the main transaction undertaken through the DIP. Often the transaction must be paid for electronically, although the means of payment do not determine whether the underlying transaction is digitally ordered or delivered.

There are other online (digital) operators that do not meet the definition of DIPs given in this Handbook. A description of these can be found in Chapter 2 (see Section 2.4.1).

The measurement of the activity of DIPs remains very challenging and, like several other areas in this Handbook, compilation guidance remains at an exploratory stage. Section 5.2 discusses the classification of DIPs and of digital intermediation services. Section 5.3 describes the accounting principles for recording international transactions related to DIPs. Section 5.4 offers guidance on the measurement of DIPs established in the compiling economy, and some experiences on the compilation of imports of digital intermediation services. Section 5.5 summarizes the main recommendations.

Despite the newness of attempting to compile statistics on DIPs and measure their activities, it is suggested in this chapter that some progress can be made and compilers can collect useful data that will enable the compilation of statistics on international trade in digital intermediation services.

5.2 Classifying DIPs and intermediation services

At the time of writing, discussion is ongoing concerning the industry classification of DIPs and the product classification of the digital intermediation services they provide.

The United Nations Committee of Experts on International Statistical Classifications (UNCEISC), through the dedicated Task Team on International

Standard Industrial Classification of All Economic Activities (TT ISIC) is coordinating the fourth revision of the ISIC (ISIC Rev.4). The definition of non-financial intermediation activities put forward by TT-ISIC is in line with, and encompasses, the definition of DIPs given in this Handbook.¹

TT-ISIC established that DIPs should not be treated differently from other firms that provide intermediation services via non-digital means, since it was agreed not to use digitalization as a classification criterion in ISIC. The task team recommends that DIPs are classified in the industry producing the products which they intermediate, meaning that DIPs intermediating transactions in goods would be classified in the wholesale or retail trade sector.²

Other regional industry classifications follow the same principles as ISIC. For instance, in the 2022 version of the North American Industry Classification System (NAICS) used by Canada, Mexico and the United States, platforms intermediating the sale of goods are classified indistinguishably in the same industries as e-tailers³ and traditional bricks-and-mortar retailers, with platforms intermediating services classified in the industry of the service they intermediate, as with ISIC.

The definition and classification of digital intermediation services is also under discussion in the context of the

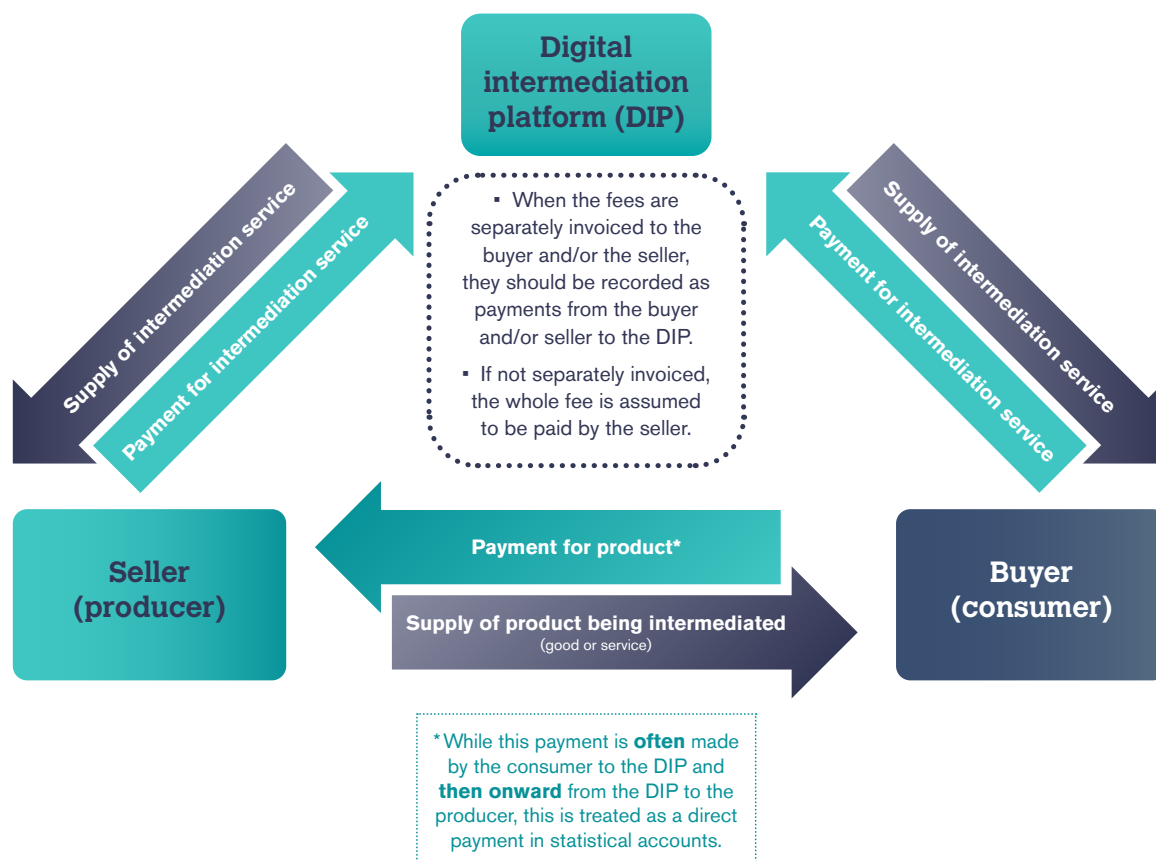
revision of the Central Product Classification, but is not as advanced as the ISIC revision work.

Guidance developed in view of the update of the *Balance of Payments and International Investment Position Manual. Sixth Edition* (BPM6) (IMF, 2009) recommends classifying digital intermediation services under trade-related services, which at present cover commissions on goods and service transactions payable to merchants, brokers, dealers, auctioneers and commission agents (BPM6, paragraph 10.158) (IMF, 2009). This applies to the intermediation of both goods and services (note that the intermediation of goods has always been in trade-related services).

5.3 Accounting principles for DIP transactions

Transactions facilitated by DIPs involve at least three actors: a buyer (or consumer) of the goods or services being intermediated; a seller (which may also be the producer) of the goods or services being intermediated; and a digital intermediation platform facilitating the transaction and thus providing digital intermediation services. When at least one of these actors is resident in a different economy than the others, the relevant transactions must be recorded in the international accounts.

Figure 5.1: A DIP transaction



Source: IMF, OECD, UNCTAD and WTO.

TABLE 5.1: EXPLICIT AND IMPLICIT FEES PAID TO DIPs

Description	Type	Recording
The fees paid by the buyer and/or the seller are known	Explicit	Show fees paid from buyer and/or seller to DIP
It is known who pays the fee(s) but the amount is not known	Implicit	Estimate fees paid from buyer and/or seller to DIP
It is not known who pays the fee and the amount is not known	Implicit	Estimate total fee and show total paid by the seller to DIP

Note: Explicit (i.e., known) and implicit (i.e., unknown) fees in this table can be understood as meaning what is known to the compiler.

Source: IMF, OECD, UNCTAD and WTO.

The accounting principles for recording transactions related to DIPs and digital intermediation services stem from the defining characteristics of DIPs and of the intermediation service they provide. By definition, DIPs do not take ownership of the goods nor render the services being intermediated. Their facilitating or “match-making” role is assimilated to that of an arranger, as defined in BPM6 (paragraph 3.10): “one unit (an agent) arranges for a transaction to be carried out between two other units in return for a fee from one or both parties to the transaction” (IMF, 2009).

In this case, as outlined in BPM6 (paragraphs 3.10 and 4.149) (IMF, 2009), the main transaction (i.e., the provision of a good or rendering of the service being intermediated) is to be recorded in the accounts of the seller/producer and of the buyer/consumer. The accounts of the agent (i.e., the DIP) will only show the fee charged for the facilitation services rendered. This treatment is in line with the guidance provided in the context of the System of National Accounts (SNA) and Balance of Payments and International Investment Position Manual (BPM) updates,⁴ as well as in the first edition (in 2019) of this Handbook.

Figure 5.1 illustrates a typical DIP transaction. As an example, in the “physical world”, a customer might procure a taxi ride by interacting directly with the driver, whom they would pay directly for the journey. However, as a result of digitalization, an online intermediary can now be involved in order to match the customer with a driver, and possibly also to manage the payment. The recording of transactions in the international accounts thus depends on the residence of the three actors involved. The transaction between the driver and the customer would often be domestic (taking place in the same economy), but the supporting matching service may be provided by a non-resident DIP, and as such the fee will correspond to the cross-border provision of a digitally ordered and digitally delivered intermediation service. In the case of travellers, the customer may not be a resident (e.g., a tourist) of the same economy as the driver, potentially adding another layer of complexity (see Table 5.3).

5.3.1 UNPACKING DIP TRANSACTIONS

As illustrated in Figure 5.1, a proper recording of transactions facilitated by DIPs requires some attention by compilers. First, it is necessary to distinguish the supply of goods or services (transaction between the seller and the buyer) from the provision of intermediation services (transaction between the DIP and both the seller and the buyer). Second, it is essential to analyse the provision of intermediation services in more detail.

DIPs are remunerated for providing digital intermediation services through fees received from the buyer, seller, or both. These fees may or may not be separately invoiced (i.e., itemized on invoices), and may be collected at the same time as, or separately from, the main transaction undertaken through the DIP.

Correctly identifying and attributing intermediation fees, although challenging, is necessary to measure the role of the DIP. Table 5.1 outlines three different scenarios that may be encountered by compilers. If the fees are explicitly itemized on the invoice and attributable to the seller and/or the buyer, they are referred to as “explicit”. If this is not the case, or if the information is not known to the compiler, the fees are considered to be “implicit”, and compilers will need to make assumptions both about the value of the fee and about who pays for it.

Explicit fees should be recorded as a payment to the DIP for intermediation services, from the buyer and/or the seller in accordance with Table 5.1.

Implicit fees need to be imputed. The difference between what is paid by the buyer and what the seller receives can be assumed to reflect the value of digital intermediation services. However, since compilers may know, or observe, only one of these amounts, a more practical approach may be to estimate the intermediation fee separately, for instance based on reports by DIPs operating in the reporting economy (as proposed in the BPM6 update guidance).⁵ When, because of data limitations, it is not possible to establish who pays the fee, it is assumed that the intermediation fees are entirely incurred by the seller.⁶

Box 5.1: Recording DIP transactions in the reporting template for digital trade

Let us suppose, considering Figure 5.1, that the buyer pays 100 for a good, of which 12 is a fee paid to the DIP. Suppose further that the DIP charges a fee of 8 to the seller for the intermediation services it provides. Let us also suppose for simplicity that the buyer, the seller and the DIP are all resident in different economies, that the transaction facilitated by the DIP is a trade in goods transaction, and the payment is routed through the DIP (although in practice payment by cash on delivery is common in some economies and industries).

1. The buyer makes a payment of 100 to the DIP. Of this, the DIP itemizes that the buyer's payment for the intermediation services provided is 12. The buyer country will record 12 as imports of digital intermediation services and the remainder, 88, as imports of goods.
2. For using the DIP, the seller still becomes liable for a fee of 8. This is itemized by the DIP in the transaction record it provides to the seller. The seller country therefore records 8 as imports of digital intermediation services.
3. In practice, the DIP also forwards the payment for the product to the seller. However, it subtracts the 8 it is owed by the seller for its intermediation services first. As a result, the seller receives 80 from the DIP.
4. Since the supply of the good happens between the seller and the buyer, the payment for the product needs to be rerouted in the statistical reporting. For the net trade of the seller to be correct this must be shown as a payment of 88 from the buyer to the seller. That is, the buyer must be recorded as paying what the seller receives for the good (80) plus the intermediation fee (8) charged by the DIP to the seller.

The recording of the transactions in the reporting template for digital trade is shown in Table 5.2. In the case of intermediation of services, the recording would be similar, but with the main transaction being recorded in items 2.2 and 2.2.a rather than 2.1 and 2.1.a, and also in items 3, 3.a and 4 if digitally delivered.

TABLE 5.2: RECORDING OF THE ABOVE TRANSACTIONS IN THE REPORTING TEMPLATE FOR DIGITAL TRADE

Item			Buyer country		Seller country		DIP country	
			Exports	Imports	Exports	Imports	Exports	Imports
1	Total digital trade	2+3 minus 4		100	88	8	20	
2	Digitally ordered trade	2.1+2.2		100	88	8	12+8	
2.1	Goods			88	80+8			
2.1.a	<i>of which: via DIPs</i>			88	80+8			
2.2	Services			12		8	12+8	
2.2.a	<i>of which: via DIPs</i>							
3	Digitally delivered trade			12		8	12+8	
3.a	<i>of which: via DIPs</i>							
4	Services digitally ordered and digitally delivered			12		8	12+8	
4.a	<i>of which: digital intermediation services</i>			12		8	12+8	
	Net income from trade			-100	80		20	

Note: Total imports = 100 + 8 = 108. Total exports = 88 + 20 = 108. Total trade in goods = 88. Total trade in services = 20. The system is balanced, and each country's net trade is correct.

Source: IMF, OECD, UNCTAD and WTO.

Regardless of whether the fee is explicit or implicit, the main transaction (for the intermediated product) between the buyer and the seller⁷ should reflect:

- the full value that the buyer pays less the fee paid by the buyer to the DIP (if any); or, otherwise stated:
- the value of the good or service being intermediated plus the intermediation fee paid by the seller to the DIP.

It is important to stress that digital intermediation platforms facilitating sales of goods and those intermediating the supply of services are treated in the same way.

When the DIP facilitates the entire arrangement including the payment, the observed transactions between the

buyer and the DIP, and those between the DIP and the seller, need to be rerouted in the statistical reporting to reflect the underlying economic transactions. Box 5.1 provides a numerical example showing the recommended recording according to the reporting template for digital trade (see Table 2.1 in Chapter 2).

Fees can be paid by the buyer and/or the seller to the DIP at the time of the transaction, at an earlier or later time, or through regular payments. The transaction should be recorded in all cases on an accrual basis.

A DIP may offer different levels of service to customers and may charge different fees, including zero fees to some customers. There can be initial periods where all customers pay zero fees with the expectation that actual fees will be introduced later. In some cases, a

TABLE 5.3: RECORDING OF INTERNATIONAL TRADE TRANSACTIONS INVOLVING DIGITAL INTERMEDIATION PLATFORMS

Seller	DIP	Buyer	Treatment of transacted product	Treatment of intermediation services
If the <u>seller</u> pays the intermediation fee OR it is unknown who pays the intermediation fee				
Country A	Country A	Country B	Import by country B from country A	None (domestic transaction)
Country A	Country B	Country B	Import by country B from country A	Import by country A from country B
Country A	Country B	Country A	None (domestic transaction)	Import by country A from country B
Country A	Country B	Country C	Import by country C from country A	Import by country A from country B
If the <u>buyer</u> pays the intermediation fee				
Country A	Country A	Country B	Import by country B from country A	Import by country B from country A
Country A	Country B	Country B	Import by country B from country A	None (domestic transaction)
Country A	Country B	Country A	None (domestic transaction)	Import by country A from country B
Country A	Country B	Country C	Import by country C from country A	Import by country C from country B
If both the <u>seller</u> and the <u>buyer</u> pay the intermediation fee				
Country A	Country A	Country B	Import by country B from country A	Import by country B (of <i>part of</i> the intermediation services) from country A (the remainder of the intermediation services reflect a domestic transaction)
Country A	Country B	Country B	Import by country B from country A	Import by country A (of <i>part of</i> the intermediation services) from country B (the remainder of the intermediation services reflect a domestic transaction)
Country A	Country B	Country A	None (domestic transaction)	Import by country A from country B
Country A	Country B	Country C	Import by country C from country A	Import by country C (of <i>part of</i> the intermediation services) from country B and import by country A (of the remainder of the intermediation services) from country B

Source: IMF, OECD, UNCTAD and WTO.

supplier of digital intermediation services may apply promotional terms giving rise to a partial or total waiving or rebate of fees paid by the buyer and/or seller for a given transaction. This does not change the fact that a digital intermediation service was provided, as a fee would otherwise have been paid. However, such promotions may affect the value of trade in digital intermediation services measured in practice (for example, where the DIP offers discounts, this may imply a negative fee paid by customers, in the same way that retail margins realised on some goods may be negative).

Depending on the residence of the three parties, some or all the transactions between the buyer and the seller and the buyer/seller and the DIP for the intermediation service may be part of international trade. Table 5.3 illustrates the recommended recording of transactions related to DIPs under different possible scenarios.⁸

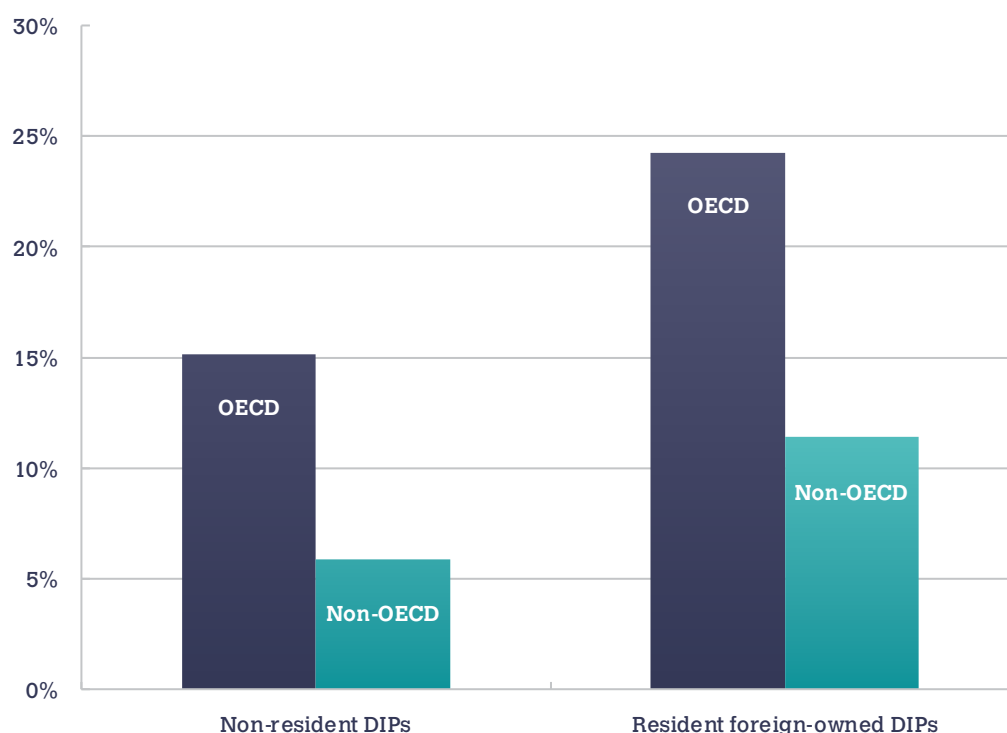
Finally, it is important to note that transactions facilitated by DIPs can be more complex than that illustrated in Figure 5.1. There could be a role, for instance, for transport services (e.g., a delivery person) or warehousing. The DIP may directly provide one or a number of these further services, in which case the fee paid to the DIP would cover both the intermediation and the further service. The DIP may purchase the

further service, and this may give rise to international trade in services (if the service is purchased from non-residents). Or, indeed, the transport or warehousing may be part of another intermediation arrangement between the buyer and another service provider, in which case the amount paid by the buyer would be split between the DIP, the seller and the provider of the further service. In all cases, compilers should carefully examine the arrangements and apply the appropriate recording.

5.4 Measuring DIP transactions

There has been limited experience so far of measuring the activities of DIPs in many countries, including developing economies. At the same time, large DIPs provide their intermediation services in multiple countries, both developed and developing, and there are also examples of DIPs having residency in developing countries. The measurement of international trade transactions involving DIPs is therefore a pressing issue for all economies, regardless of development status and statistical capabilities.

Figure 5.2: Percentage of respondents that can identify resident and non-resident DIPs



Note: The question asked was: “Can you identify, in, for example, your enterprise surveys, how many enterprises use digital intermediaries (either resident or non-resident) to sell their products to foreign markets, and how much trade is involved?”.

Source: OECD (2018c).

Box 5.2: Online platforms and the sharing economy in the United Kingdom

A subset of online platforms that is of particular interest (notably because of the regulatory uncertainty around them) includes those that facilitate consumer to consumer (C2C) transactions. These platforms, connecting a large number of potential buyers and sellers, produced a sharp increase in peer-to-peer transactions to share under-used goods or services, a phenomenon often referred to as the “sharing economy”.

While there is no widely accepted statistical definition of the sharing economy, the UK Office for National Statistics (ONS) has made efforts to produce and test a statistical definition with the purpose of assessing whether the sharing economy is adequately captured in economic statistics (ONS, 2017). A first working definition, “the sharing of under-used assets through completing peer-to-peer transactions that are only viable through digital intermediation, allowing parties to benefit from usage outside of the primary use of that asset”, was published in 2017.

In this context, identifying sharing economy businesses, categorizing them and maintaining a register was a crucial part of the measurement framework. Initial work (manually scanning annual reports, then using statistical learning techniques) resulted in a limited register of (certain) digital intermediation platforms which was subsequently used in several business surveys to collect information on how sharing economy businesses compare to non-sharing economy businesses.

This first definition proved to be too restrictive. Research is underway to expand the working definition as a subset of the wider digital economy. The revamped ONS Digital Economy Survey has become the main instrument for the ONS to collect information for the United Kingdom on the use of information and communications technology (ICT), on the value of e-commerce, and the role of DIPs and other platforms in the economy (see also Box 5.3).

Source: United Kingdom ONS.

A stocktaking survey conducted in 2018 by the Organisation for Economic Co-operation and Development (OECD) and International Monetary Fund (IMF) (OECD, 2018c) found that few compilers are able to identify the amount of trade facilitated by DIPs (either domestic or foreign-owned), and fewer still are able to identify payments to non-resident DIPs (see Figure 5.2). DIPs resident in a given economy should be in the statistical business register of that economy, but they are often included under various industry headings, and formal identification remains difficult.

Nevertheless, countries responding to the survey reported that manual identification of the largest DIPs, based on the name of the business, could be used to facilitate compilation of statistics on goods and services traded via DIPs and on digital intermediation services.

5.4.1 COMPILING INFORMATION FROM DIPs

IDENTIFYING DIPs

Initial efforts to detect DIPs (in the absence of an established definition) were largely based on manual identification. Mainly focused on peer-to-peer online platforms, and without targeting the international trade dimension, early work has provided useful lessons for subsequent measurement efforts.

For instance, a 2017 EU study identified nearly 500 peer-to-peer digital intermediation platforms active in

Europe, of which 4 per cent had over 100,000 unique website/app visitors per day.⁹ The UK Office for National Statistics (ONS) followed a similar approach in its early work to identify and measure the sharing economy (see Box 5.2).¹⁰

BUSINESS SURVEYS

Business surveys can be used to measure the prevalence of DIPs in the economy, to collect data on the fees received by the DIPs from residents and from non-residents as well as to gather information on the transacted products.

Among business surveys, international trade in services (ITS) surveys are arguably best placed to collect information on exports (and indeed imports, see Section 5.4.2) of digital intermediation services. Survey instructions should clearly explain that trade-related services cover digital intermediation services, and ideally those should be separately identified. This approach has been applied, for instance, by the US Bureau of Economic Analysis (BEA), in its Benchmark Survey of Selected Services and Intellectual Property Transactions with Foreign Persons, which specifically targets international trade in services.¹¹ More recently, the BEA has expanded this survey: if the enterprise self-identifies as a DIP, the questionnaire requests information on the income from intermediation fees. It also goes on to request the service type under which the intermediation services are reported elsewhere in the survey (see Box 5.5).

Box 5.3: Questions to enable the measurement of digital intermediation platforms in the United Kingdom

The ONS Digital Economy Survey 2021 includes the following questions targeted specifically at DIPs. These questions gather most of the information needed to estimate the value of intermediation services exported by DIPs.

During 2021, did this business provide a digital intermediary platform service?

During 2021, what was your business's income from fees charged to the following users of your digital intermediary platform?

- Income from fees charged to users located in the United Kingdom
- Income from fees charged to users located outside the United Kingdom

During 2021, what was the value of goods sold through your platform to each of the following?

- Value of goods sold to customers located in the United Kingdom
- Value of goods sold to customers located outside the United Kingdom

During 2021, what was the value of services sold through your platform to each of the following?

- Value of services sold to customers within the United Kingdom
- Value of services sold to customers outside the United Kingdom

Source: United Kingdom ONS. See <https://www.ons.gov.uk/surveys/informationforbusinesses/businesssurveys/2021digitaleconomy/surveysurveyquestions#digital-intermediary-platform>.

Box 5.4: Challenges with measuring fees and commissions earned by DIPs using multinational enterprise surveys in the United States

The BEA has collected the value of fees and commissions earned by companies operating digital intermediation platforms using its surveys of the activities of MNEs. Questions were first introduced on its 2019 Benchmark Survey of United States Direct Investment Abroad¹² for both US parent companies and their foreign affiliates. The questions described digital intermediation platforms based on guidance provided in this Handbook.

What are the sales or gross operating revenue for digital intermediation services?

Services that are earned from operating a digital intermediation platform, which is an online interface that facilitates, for a fee, the direct interaction between multiple buyers and multiple sellers. The platform does not take economic ownership of the goods, nor does it provide the services that are being sold. Report fees and commissions only, not the value of goods or services sold on the platform.

The BEA has identified several challenges with collected data on DIPs from US MNEs. The most significant challenge has been a lack of responses. Despite the BEA's efforts to engage in outreach efforts prior to the launch of the survey and during the data collection period, the lack of responses has led to incomplete coverage of digital intermediation activities. Always a challenge for survey data collection, a lack of responses is typically more prevalent when a specialized segment of economic activity is targeted, such as the operation of digital intermediation platforms.

A second challenge has been the suspected misinterpretation of the digital intermediation services question by some reporters, who have reported sales of digital intermediation services when they did not in fact act as intermediaries as defined on the survey. In other words, companies that directly provided services may have reported their sales in such activities as digital intermediation services. In addition, digital intermediation services were reported by certain companies that operate a data- or advertising-driven (rather than fee-based) platform that would be properly classified in "other online operators".

Among the digital economy questions added to the 2019 Benchmark survey (see Chapter 3 for other digital economy questions featured on this survey), the question on digital intermediation services was the most challenging for reporters to interpret and provide information on. The BEA is currently researching methods to refine the preliminary BE-10 Benchmark results by estimating values where coverage is incomplete and identifying over-reported values. A similar question has also been included to the BEA's 2022 Benchmark Survey of Foreign Direct Investment in the United States.

Source: United States BEA.

Box 5.5: Measuring sales of intermediation services in the United States

The US BEA is planning to collect the value of fees and commissions earned by companies operating digital intermediation platforms using its 2022 Benchmark Survey of Selected Services and Intellectual Property Transactions with Foreign Persons.¹³ Relevant questions are as follows:

- 12.** Does your company operate a digital intermediary platform(s)?
 Yes – Continue to the next question.
 No – Skip to the next page.
- 13.** Report the value of sales of digital intermediation services to foreign persons reported [on the main sales schedule] that were earned from operating a digital intermediary platform. Reported sales should include fees and commissions only, and not the value of the goods or services sold on the platform.
 \$ _____
- 14.** Which of the service types listed in [the main sales schedule] include sales of digital intermediation services reported in Question 13.
 _____ (drop-down option that includes all service types covered by the survey)

Source: United States BEA.

ITS surveys may, however, not be well suited to collect information on the transacted products. Although, in theory, it may be possible to add questions on the value of exports and imports of goods and services that are facilitated by DIPs into the ITS survey, other types of business surveys may be better placed for this purpose. Information on the value of domestic and international trade in goods or services being intermediated is important for compiling items 2.1.a and 2.2.a of the reporting template on digital trade (see Table 5.2). These data can also be used to derive an average fee for intermediation services charged by DIPs resident in the economy. Box 5.3 shows how some of these questions have been asked by the UK ONS.

In a similar direct approach, the United States Bureau of Economic Analysis multinational enterprise (MNE) surveys collect the value of fees and commissions earned by DIPs (Box 5.4). Although not all DIPs are MNEs, these surveys remain a useful tool for collection of information on DIPs.

5.4.2 COMPILING INFORMATION FROM DIP USERS

Many DIPs operate in economies where they have no physical presence. Fees paid to a non-resident DIP constitute an import of digital intermediation services. However, because the DIP is not resident in the compiling economy, it is especially challenging to measure these flows.

There is limited experience of national approaches to measure international trade in digital intermediation services from the point of view of the buyer because there are several challenges. For example, survey

respondents, particularly households, may not know the value of the fee (even if the fee is explicit). Survey respondents may also find it difficult to determine whether their transaction was with a non-resident or resident DIP (the respondent may also think that a transaction is intermediated locally if the seller is a resident or if the DIP has a local domain name).

Some progress has, however, been made with regard to measuring the value of the underlying goods and services that are transacted via the DIP. Countries are exploring ways to gather relevant information predominantly using business and household surveys. This section describes approaches for collecting data on imports and exports of goods and services enabled by DIPs by businesses and households and for estimating the imports of digital intermediation fees when the DIP is non-resident.

BUSINESS SURVEYS

Businesses are key users of DIPs, both as sellers and buyers. It is therefore important to capture information from businesses on goods and services intermediated by DIPs and fees paid by enterprises to DIPs and to identify when these are cross-border transactions. Business surveys can do this effectively. Business surveys can have a stronger legal mandate than household surveys. Enterprises are also more likely than households to know the residency of the DIP.

Current quarterly and annual ITS surveys should capture cross-border payments by enterprises to DIPs. Information notes accompanying the questionnaire should state that fees paid by the enterprise for digital

intermediation services are recorded under trade-related services.

Further information is required, however, to arrive at meaningful results that measure the impact of DIPs on trade in goods and services. In addition to fees paid by enterprises to DIPs for digital intermediation services, it is necessary to provide data on total trade in goods and total trade in services that are facilitated by DIPs. This information provides users with items 2.1.a, 2.2.a and 4.a from the reporting template on digital trade from Chapter 2 (Table 2.1) and as shown in Table 5.2.

Chapter 3 in this Handbook discusses annual enterprise ICT usage surveys as an instrument to gather information on digital trade from enterprises. Because enterprise ICT usage surveys are used to compile statistics on many aspects of the digital economy and on how it affects business, they tend to be modular in layout, with some core modules always present and others less frequent, so as to adapt to new topics and changes in the digital economy. ICT surveys also allow for more detail on digital topics than what may be possible in an international trade

values, percentages or a combination of both) could be collected on an enterprise ICT usage survey:

- Sale of goods via DIPs
Of which exports
- Sale of services via DIPs
Of which exports
- Purchase of goods via DIPs
Of which imports
- Purchase of services via DIPs
Of which imports
- Fees paid to DIPs
Of which imports

It is not uncommon for mainstream business surveys or enterprise surveys to request extra information on turnover and on purchases (such as how much of the turnover is exported). Another approach that could be explored is to ask questions in mainstream business surveys on how much was sold or purchased via DIPs. Although the detail may not match what can be

Box 5.6: Measuring fees paid by businesses to DIPs in the United Kingdom

The ONS Digital Economy Survey 2021 used the following questions to ask enterprises to state if they have used DIPs to sell their goods and services:

During 2021, did your business pay a digital intermediary platform to sell your goods and services?

During 2021, how much did your business pay to a digital intermediary platform to sell your goods and services?

Source: United Kingdom ONS. See

<https://www.ons.gov.uk/surveys/informationforbusinesses/businesssurveys/2021digiteconomysurveysurveyquestions#digital-intermediary-platform>.

in services survey or other mainstream business surveys. For these reasons, enterprise ICT usage surveys could be considered to be a vehicle to collect information on the sale and purchase of goods and services that are facilitated by DIPs, on the part of these sales and purchases that is international, and on the value of fees paid to DIPs for digital intermediation services.

The United Kingdom ONS Digital Economy Survey (see Box 5.6) asks enterprises to state the amounts paid in fees to DIPs to sell their goods and services. The question could be extended to ask about the total goods and services sold and what percentage is exported, as well as what payments were made to non-resident DIPs.

To fully reflect the impact of DIPs on the economy and on international trade, the following information (in

collected via an ICT usage survey, mainstream business surveys tend to have good coverage, and may provide information from other questions that can be linked to arrive at meaningful results on the imports and exports of goods and services intermediated by DIPs.

HOUSEHOLD SURVEYS

Even though some of the information in a DIP intermediated transaction may be difficult to collect or may not be known by households, some countries have successfully used household surveys to compile statistics on purchases of goods and services intermediated by DIPs. One popular approach, as seen in the examples in this chapter, is to focus on well-known DIPs.

In building up a household survey-based approach to estimating trade facilitated by DIPs and digital

intermediation fees, it is important to gather information on the total value of goods and/or services that are intermediated, what proportion of these goods and services are transacted with non-residents, and ideally, the transaction fee paid to the DIP. This makes it possible to complete the items 2.1.a, 2.2.a and 4.a in the reporting template on digital trade (Table 2.1, Chapter 2).

Travel is a sector in which DIPs have been particularly transformative. Contrary to most other services transactions, which are measured via business surveys, travel transactions are typically captured by surveying the demand-side (for example, using tourism expenditure surveys). Accordingly, Canada collects demand-side information about DIP activity related to transport and accommodations with questions on its Canadian Internet Use Survey (CIUS) (see Box 5.7).

The results from the 2018 OECD-IMF Stocktaking Survey (OECD, 2018c) indicated that several countries use questions in tourism expenditure surveys to measure travel booked through DIPs.

For example, the Spanish National Statistics Institute (INE, see Box 5.8) established that in 2017, 68 per cent of outbound tourists booked accommodation (excluding hotels) using an online intermediation platform. This type of information could contribute to populating the digital trade reporting template.

Italy used a similar approach to collect information on the frequency of using online tools for booking or buying travel-related services on its border survey (see Chapter 3, Box 3.2).

France (see Box 5.9) included similar questions in its household panel survey and targeted domestic and outbound tourism.

In the above examples where information is gathered from households on the use of DIPs to purchase goods and services, questions only include the value of goods and services being intermediated. None of the survey questions asked about the fee paid by the household to the DIP, nor do the questions concern the residency of the DIP.

Information on the fees paid by households to DIPs is also necessary for the reporting template. In some cases, for example where a DIP has intermediated a transaction in accommodation services, the household may know the value of the fee. If the value of the fee is not collected, then some estimation and judgement is required by compilers. The fee can be estimated as a percentage on the value of the goods and services intermediated based on other known examples, perhaps from DIPs in the reporting economy. To estimate the country allocation, expert knowledge may also be required, and applying information based on the activities of a few companies may be appropriate given that DIP activity is often dominated by a few very large companies.

5.4.3 COMPILING INFORMATION ON DIPs FROM OTHER DATA SOURCES

There are some examples where data from third parties or other data sources may be used to gather information on DIPs, and on flows conducted via DIPs.

WEB SCRAPING

One approach to identifying DIPs in the economy is to use web scraping.¹⁵ Countries have, for instance, combined data from commercial providers linking information available on company websites with the

Box 5.7: Measuring spending via platforms in Canada

The Canadian Internet Use Survey (CIUS) asks respondents to report on the purchases they made through certain categories of online platforms. Respondents are also asked about whether they offer services through these platforms (Statistics Canada, 2017):

Questions asked were:

1. In the past 12 months, did you use ride services such as Uber, Lyft, etc.?
2. In the past 12 months, what was the total amount that you personally spent on these ride services in Canada?
3. In the past 12 months, did you use private accommodation services such as Airbnb, Flipkey, etc.?
4. In the past 12 months, what was the total amount that you personally spent on these private accommodation services in Canada?
5. In the past 12 months, what was the total amount that you personally spent on these private accommodation services outside of Canada?
6. In the past 12 months, did you offer ride services such as Uber, Lyft, etc.?
7. In the past 12 months, did you offer private accommodation services such as Airbnb, Flipkey, etc.?

Source: Statistics Canada.

statistical business register. This technique is used to enrich the business register, and particular key words and expressions can be used to identify potential DIPs. Using this approach, the Netherlands developed a 2016 landmark publication on the digital economy (Oostrom et al., 2016).

A more recent example of a web scraping or big data approach is from Statistics Indonesia (see Box 5.10). As with the Netherlands example, these tools were used to gather information for several purposes, including measuring e-commerce, DIPs, price statistics and tourism statistics.

While web scraping can provide opportunities to enrich official statistics at a relatively low cost, compilers should be aware of the challenges (notably legal¹⁶) that using these data can entail.

PAYMENT CARD DATA

A number of countries have considered or explored the use of credit card data to measure imports of digital intermediation services. This was mentioned in the 2018 OECD-IMF Stocktaking Survey (OECD, 2018c) by Belgium, Estonia, Finland, France, Israel, Latvia and Mexico.

Chapter 3 discusses the use of payment card data to measure digitally ordered trade. Care is however needed if using credit card information to fully unpack a transaction that is intermediated by a DIP. If credit card information were to indicate, for example, that a payment was made to a non-resident DIP, further information or assumptions would be needed to separate the intermediation fee from the good or service that was intermediated. Furthermore, the intermediated good or service may or may not be imported and may or may not already be collected from other sources.

Box 5.8: Use of digital platforms to book accommodation in tourism statistics – a demand approach: experience of the Spanish National Statistics Institute (INE)

The INE conducts the Residents Travel Survey¹⁴ to measure the number of trips made by residents in Spain to a destination within the country (domestic tourism) or abroad (outbound tourism) every month. The main characteristics of these trips are also studied, i.e., length, expenditure, purpose, accommodation, types of transport, etc.

Different forms of accommodation are considered, including those provided on a commercial basis as a paid service (rented accommodation), and those provided on a non-commercial basis (non-rented accommodation), such as accommodation provided without charge by friends or relatives or on the visitor's own account. Linked to the type of accommodation, information is also collected on how the booking was made, including a specific category for digital platforms when the chosen accommodation is a rented holiday home or a room in a private dwelling, as shown in the questions presented below.

Q1. What was the main type of accommodation used during the trip?

- (1) Hotels or (2) Similar establishments
- (3) Rented dwelling or (4) Rented room in private home
- (5) Rural tourism accommodation or (6) hostels
- (7) Camping or (8) cruise
- (9) Other rented accommodation
- (10-14) Non-rented accommodation (Q2 not applicable)

Q2. How did you book the main accommodation?

- (1) Directly with the service provider through its web or app
- (2) Directly with the service provider in person, by mail or by phone
- (3) Via a travel agency or tour operator (or real estate if Q1 was 3 or 4) through its web or app
- (4) Via a travel agency or tour operator (or real estate if Q1 was 3 or 4), in person, by mail or by phone
- (5) Through a specialized webpage (e.g., AirBnb, Homeaway, Booking.com, Homelidays, Niumba, Rentalia, Housetrip, Wimdu, Interhome, Friendly Rentals, etc.) only if Q1 was = s3 or 4
- (6) Face-to-face
- (7) Don't know

Results show that the role of digital platforms in booking vacation homes differs depending on whether the destination is within Spain or abroad. When travelling within the country, residents chose to book their holiday home through a digital platform in 49 per cent of cases in 2021. Even so, making the arrangements directly with the service provider offline was still an important choice (26 per cent of trips). On the other hand, when booking vacation homes abroad, platforms were used in 77 per cent of trips.

Figure 5.3: Domestic tourism: trips to rented dwellings by booking channel (2021)

Considering all domestic trips made by residents in Spain in 2021, using any type of accommodation, those who rented holiday homes booked through platforms represented 5.3 per cent of trips, 6.0 per cent of nights spent and 9.7 per cent of total expenditure.

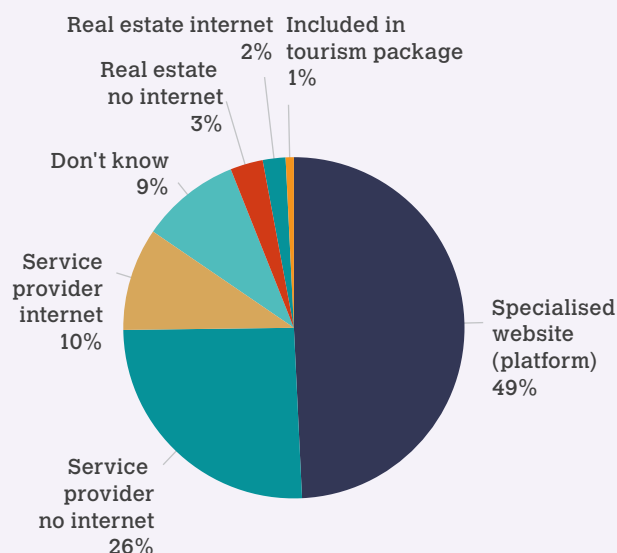
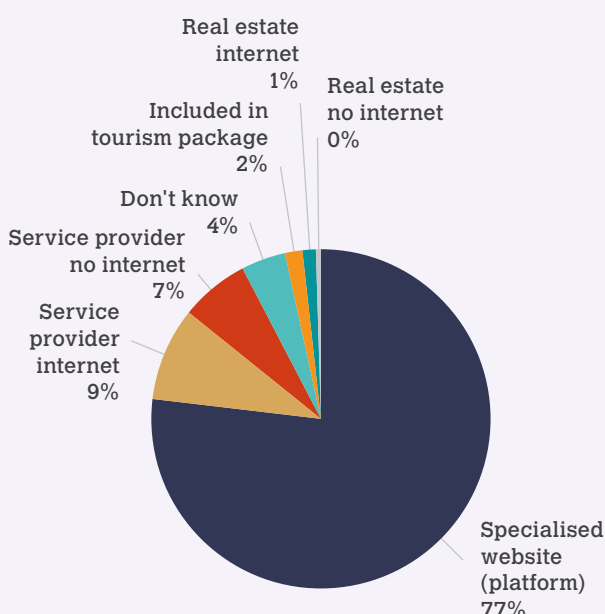


Figure 5.4: Outbound tourism: trips to rented dwellings by booking channel (2021)

In the case of outbound trips, rented holiday homes booked through platforms represented 11.9 per cent of trips, 7.4 per cent of nights spent and 10.1 per cent of total expenditure.



Source: Spanish National Statistics Institute (INE).

TRANSACTIONS IN APPS

App stores, in bringing together multiple buyers and sellers while not taking ownership of the app nor rendering the actual service provided by the app, can be considered to be digital intermediation platforms. As such, when an individual buys an app, part of the payment may be the intermediation fee paid to the app store. There may be opportunities for some countries to access data on transactions of digital services via third-party data providers (which could include transactions of apps). Care needs to be taken in understanding whether the data includes the intermediation service provided by the app store, which may need to be imputed for the buyer transaction (i.e., the import).

TARGETED APPROACH: SURVEYING DIPs

One option to measure the activities of DIPs, that is often suggested, is to target large global DIPs directly

with a questionnaire asking for breakdowns of the value of goods and services being intermediated and the intermediation fees, with permission to share country information with other compilers of statistics (for example within a country's national statistical system or between countries, provided that data sharing agreements are in place). Such an approach, assuming that it is feasible (and not too costly), would significantly improve the coverage of DIPs, and estimates of imports and exports of goods and services intermediated by DIPs in international trade statistics. This would particularly benefit countries in which DIPs are not established or where compilers face challenges in sourcing information to compile statistics on DIPs.

There is at least one example of this: Eurostat publishes monthly experimental statistics on short-term accommodation¹⁷ based on data provided to Eurostat by four international platforms following agreements on data exchange. While no monetary information is included, it is a model that could be extended.

Box 5.9: Digital intermediation platforms in tourism: experience of France

By including questions in their panel survey on resident households, which covers both domestic tourism and trips abroad, the Banque de France is able to identify if various travel-related services have been ordered using DIPs (no such questions are included in the border survey on foreign visitors). The survey contains specific questions on the mode of reservation for transportation and for accommodation:

How was the booking of your transportation/accommodation made?

- (1) phone
- (2) internet / application
- (3) face-to-face

What type of operator was used?

- (1) travel agent / tour operator (non-digital or online)
- (2) directly with the carrier/hotel (non-digital or online)
- (3) online intermediation platform (with examples for transport / accommodation)
- (4) aggregator / search engine (with examples for transport / accommodation)

Source: Banque de France.

5.5. Recommendations

This chapter sets out how transactions enabled by DIPs should be recorded in the international accounts.

It provides some examples of survey information on exports of digital intermediation services by DIPs resident in the compiling economy, and makes a number of suggestions for gathering information from businesses on exports and imports of goods and services that are intermediated by DIPs.

Furthermore, it acknowledges the challenges in gathering accurate information on imports of digital intermediation services by households, while highlighting the success of some countries in collecting information on the value of goods and services that are purchased via DIPs in household surveys. These data should be used to populate the reporting template on digital trade, and could be combined with estimates of the proportions of intermediation fees based on well-known examples or possibly based on reports of DIPs resident in the reporting country.

The following recommendations are made in this chapter:

- 1 Recording DIP transactions.** In analysing transactions facilitated by DIPs, it is necessary to distinguish the supply of goods or services (transaction between the seller and the buyer) from the provision of intermediation services (transaction between the DIP and the seller and the buyer).

Explicit fees should be recorded as a payment to the DIP for intermediation services, from the buyer and/or the seller as appropriate.

Implicit fees need to be imputed. Imputations can be based on the difference between what is paid by the buyer and what the seller receives. Alternatively, fees may be separately estimated (for instance based on reports by DIPs operating in the reporting country).

Box 5.10: Development of online web scraping in Indonesia

Statistics Indonesia (BPS) has conducted several exploratory studies using web scraping techniques (Adhinugroho et al., 2020; Bustaman et al., 2020). The first such study collected information from three big online marketplaces regarding e-commerce characteristics, such as, products, shops, details of product category, and sales information for each product.

In addition, Statistics Indonesia conducted studies using web scraping on DIPs to determine the weights to be used in the Consumer Price Index and to calculate occupancy rates of accommodation advertised online for use in tourism statistics.

Based on this experience, Statistics Indonesia recommends having a partnership framework with the DIPs and a legal basis for web scraping to address challenges related to data access. Challenges such as the need for large volumes of data storage, data-quality issues and the different structure of each platform makes automatic navigation and web scraping more complex.

Source: IMF, OECD, UNCTAD and WTO.

When it is not possible to establish who pays the fee, it is assumed that the intermediation fees are entirely incurred by the seller.

Digital intermediation services should be recorded in the balance of payments under trade-related services.

Regardless of whether the fee is explicit or implicit, the main transaction (for the intermediated product) between the buyer and the seller should reflect:

- the full value that the buyer pays less the fee paid by the buyer to the DIP (if any); or, otherwise stated
- the value of the good or service being intermediated plus the intermediation fee paid by the seller to the DIP.

2 Identifying and surveying DIPs in the compiling economy. Compilers should gather information on the prevalence of DIPs in the compiling economy. Once identified, business surveys can be used to measure the value of the intermediation services traded (notably on the export side) by those DIPs as well as the underlying goods and services intermediated.

3 Measuring exports and imports of digital intermediation services by enterprises. International trade in services surveys should collect exports of intermediation services by resident DIPs and imports of digital intermediation services by enterprises from non-resident DIPs. Survey instructions should clearly explain the coverage of the item “trade-related services”. As a complementary source, enterprise ICT usage surveys can also be used to collect information on fees paid to DIPs.

4 Measuring exports and imports of goods and services via DIPs by enterprises. Enterprise ICT usage surveys (or other business surveys) should collect details on exports and imports of goods and services that are intermediated by DIPs.

5 Measuring imports via DIPs and imports of digital intermediation services by households. Household surveys (including consumption surveys, household ICT usage surveys or labour force surveys) should include questions on the value of goods and services purchased via DIPs, separately identifying domestic and non-domestic purchases, and the value of intermediation fees where known. At a minimum, household surveys should include questions on the value of goods and services purchased through well known DIPs.

6 Measuring DIPs transactions in the tourism sector. Compilers of travel and/or tourism statistics should gather information on the value of transport and accommodation services facilitated by DIPs and the associated digital intermediation fees.

7 Targeting global DIPs directly. National and international statistics agencies should explore the possibility of targeted surveys of large global DIPs, with cross-border data sharing arrangements.

TABLE 5.4: STRENGTHS AND LIMITATIONS OF SOURCES FOR MEASURING TRADE IN GOODS AND SERVICES VIA DIPs AND TRADE IN INTERMEDIATION FEES

Source	Strengths	Limitations
ITS surveys	Measurement of exports of intermediation services (fees) by country from resident DIPs. Measurement of imports of intermediation services (fees) from non-resident DIPs. Integrated with main source for services trade statistics.	Questions need to be added to collect the value of trade in goods and services intermediated by DIPs. There may be limited scope to add questions to ITS surveys due to the need to manage response rates and respondent burden.
Business ICT surveys	The ICT survey may offer more flexibility than some other business surveys to include detailed questions on trade in goods and services via DIPs and on the intermediation service fee paid to DIPs. DIP facilitated transactions may be covered on an occasional basis or as part of a regular module.	Some ICT surveys do not cover all industries and firm sizes and so may not be suitable for identifying all resident DIPs.
“Core” business surveys	Measurement of sales/purchases of goods and services intermediated by DIPs is possible (with a new question) and can be combined with question on exports/imports. May offer good industry/firm size coverage and larger sample sizes than ICT surveys.	There may be limited scope to add questions to surveys used for core economic statistics due to the need to manage response rates and respondent burden.
MNE surveys	MNEs can account for a significant portion in trade of goods and services with many of the largest DIPs being MNEs. MNE surveys may offer more flexibility to add additional questions than some other types of business surveys.	Covers only a subset of businesses. Requires the addition of new questions.
Household ICT surveys	In principle, a household should know the total amount paid for a given transaction through a DIP. Can focus successfully on transactions with well-known DIPs.	Respondents may have difficulty isolating purchases made through DIPs from broader online spending. Respondents may also have difficulty delineating the amount paid in fees for digital intermediation services. Respondents may also face difficulty in identifying the residency of the DIP and of the supplier of the good or service, to determine whether the transaction concerned is cross-border or domestic.
Tourism surveys	Questions on accommodation and travel expenditures via DIPs are easily integrated into tourism expenditure/border surveys.	Respondents may have difficulty delineating the amount paid in fees for digital intermediation services. Respondents may also face difficulty in identifying the residency of the DIP.

Source: IMF, OECD, UNCTAD and WTO.

Endnotes

- 1 Non-financial intermediation activities will be defined in the upcoming fifth revision of the International Standard Industrial Classification of All Economic Activities (ISIC Rev.5) as “activities that facilitate transactions between buyers and sellers for the ordering and/or delivering of goods and services for a fee or commission, without supplying and taking ownership of the goods and services that are intermediated. These activities can be carried out on digital platforms or through non-digital channels. The fee or commission can be received directly from either the buyers or sellers, or revenues for intermediation activities can include other sources of income, such as third-party revenues from advertising” (UN, 2022).
- 2 An alternative considered was to group DIPs under a generic industry providing digital intermediation services. This was rejected on the grounds that digitalization cannot be used as a criterion to classify enterprises in an industry. DIPs will therefore be treated in ISIC in the same way as enterprises that provide similar intermediation services via other means.
- 3 Retail and wholesale businesses engaged in purchasing and reselling goods or services which receive most of their orders digitally.
- 4 <https://www.imf.org/-/media/Files/Data/Statistics/BPM6/CATT/c4-merchanting-and-factoryless-producers-clarifying-negative-exports-in-merchanting-and-merchanting.ashx> and https://unstats.un.org/unsd/nationalaccount/RAdocs/DZ9_GN_Digital_Intermediation_Platforms.pdf.
- 5 See Guidance Note C.4 “Merchanting and Factoryless Producers; Clarifying Negative Exports in Merchanting; and Merchanting of Services”: <https://www.imf.org/-/media/Files/Data/Statistics/BPM6/approved-guidance-notes/c4-merchanting-and-factoryless-producers-clarifying-negative-exports-in-merchanting-and-merchanting.ashx>.
- 6 This approach for treating implicit intermediation fees was advocated for by the OECD Advisory Group on Measuring GDP in a Digitalised Economy and has been endorsed in the OECD Handbook on Compiling Digital Supply and Use Tables (OECD, 2023). In the case of implicit fees, the consumer will pay for the goods or services being intermediated, while the seller/producer is assumed to pay for all the intermediation services (treated as intermediate consumption). The output of the producer will therefore be equivalent to the purchaser's price (i.e., including the intermediation fees). This approach ensures a consistent valuation in a supply-use framework and is more feasible from a compilation point of view, since it is easier to collect information on the fees from the producer/seller than from consumers.
- 7 In the case of payment by cash on delivery direct to the seller, the amount received may include an amount for the intermediation fee which is ultimately transferred to the DIP.
- 8 Annex B provides a list of possible transactions undertaken by a DIP, and where and how these should be recorded in the digital trade reporting template (see Chapter 2, Table 2.2).
- 9 http://ec.europa.eu/newsroom/just/item-detail.cfm?item_id=77704.
- 10 It should be noted with regard to the EU and ONS examples that the platforms may not be involved in international trade.
- 11 <https://www.bea.gov/sites/default/files/2018-04/be120.pdf>.
- 12 See <https://www.bea.gov/be-10-benchmark-survey-us-direct-investment-abroad>.
- 13 See <https://www.bea.gov/sites/default/files/2018-04/be120.pdf>.
- 14 See https://www.ine.es/dyngs/INEbase/en/operacion.htm?c=Estadistica_C&cid=1254736176990&menu=ulti-Datos&idp=1254735576863.
- 15 Web scraping is the use of software to extract data from a website.
- 16 For example, web scraping may be against the terms of service of some websites.
- 17 https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Short-stay_accommodation_offered_via_online_collaborative_economy_platforms_-_monthly_data#:~:text=In%20total%2C%20450%20million%20nights,of%2057.4%20%25%20compared%20to%202021.