



2. The conceptual framework for measuring digital trade

Drawing on prior measurement initiatives and focusing on policy needs, this chapter defines digital trade as *“all international trade that is digitally ordered and/or digitally delivered”*. It sets out a conceptual framework that identifies digital trade transactions within the existing measurement frameworks for international trade, specifying *how* digital trade transactions are defined, *what* types of products are included and *who* are the actors involved in digital trade.

From the conceptual framework, the chapter develops a reporting template, setting out the key components of digital trade that are required to inform policy discussions.

2.1 Measuring digital trade: the statistical framework

Digitalization affects international trade on many levels, by transforming the way in which goods and services are traded and by creating entirely new, internationally traded digital products. Just as importantly, digitalization also has a significant transformative impact on many existing industries: by “shrinking the space” between consumers and producers, and among producers, it provides previously unimaginable access to new markets, particularly for micro, small and medium-sized enterprises (MSMEs).

Quantifying the overall impact of digitalization on international trade is, however, beyond the scope of this Handbook. The objective of this chapter, and indeed of this Handbook, is to establish a common understanding of (i) what “digital trade” refers to, and (ii) how it relates to international trade as a whole.

One of the key concerns driving the demand for better evidence on digital trade has been the perception that large parts of the economy, and, by extension, of international trade, are not being recorded because of digitalization (Ahmad and Schreyer, 2016; Corrado et al., 2021). Even if it is generally accepted that the current statistical frameworks are still well suited for measuring international trade,¹ the fact that digital trade is not visible within existing statistics hinders the ability to assess the impact of trade policy and may lead to the misperception that digitalization in trade is not measured accurately.

The statistical definition of digital trade is based on the nature of the transaction, rather than on the characteristics of the product that is traded or on the characteristics of the actors involved in the transaction. This Handbook defines digital trade as:

“All international trade that is digitally ordered and/or digitally delivered.”

This definition is at the core of the conceptual framework for measuring digital trade, presented in Figure 2.1. It implies that digital trade transactions should be compiled as a subset of existing trade transactions, i.e., (i) international merchandise trade statistics on a cross-border basis, as defined in the International Merchandise Trade Statistics: Concepts and Definitions (IMTS) 2010 (United Nations, 2011) and (ii) international trade in services statistics (transactions between residents and non-residents, as defined in the Balance of Payments and International Investment Position Manual, Sixth Edition (BPM6) (IMF, 2009) and in the Manual on Statistics of International Trade in Services (MSITS) 2010 (UN et al., 2010)).² As such, and notwithstanding the impact that digitalization may have on commercial presence, foreign affiliates statistics do not directly fall in the scope for the measurement of digital trade.³

As depicted in the upper part of Figure 2.1, the conceptual framework for digital trade includes transactions that are, in principle, covered by the conventional measures of international trade in goods and services and fall within the UN System of National Accounts (SNA) 2008 (UN, 2008a) production boundary. Consequently, monetary transactions for data products (e.g., purchase of datasets), when they take the form of transactions in services,⁴ also fall within the scope of digital trade. In addition, monetary transactions supported by data flows will of course be included in digital trade when these trade transactions are digitally ordered and/or digitally delivered.

The framework also acknowledges the existence of, and growing interest in, non-monetary digital flows, as depicted in the lower section of Figure 2.1. Examples of these are data flows to search engines and social networks, which do not entail a direct monetary transaction but do support them (for instance, services paid for by advertisers). Nevertheless, these non-monetary digital flows are outside of the production boundary of the SNA 2008 (UN, 2008a), and they are therefore measured neither in national accounts nor in international goods and services trade statistics.

The nature of the transaction – digitally ordered and/or digitally delivered – is the overarching defining characteristic of digital trade, i.e., it is how the transaction is conducted that sets out the scope of digital trade. However, the conceptual framework outlined in this Handbook also includes two other dimensions crucial for trade policy purposes: the product dimension (*what is traded*) and the actors engaged in digital trade (*who is trading*).

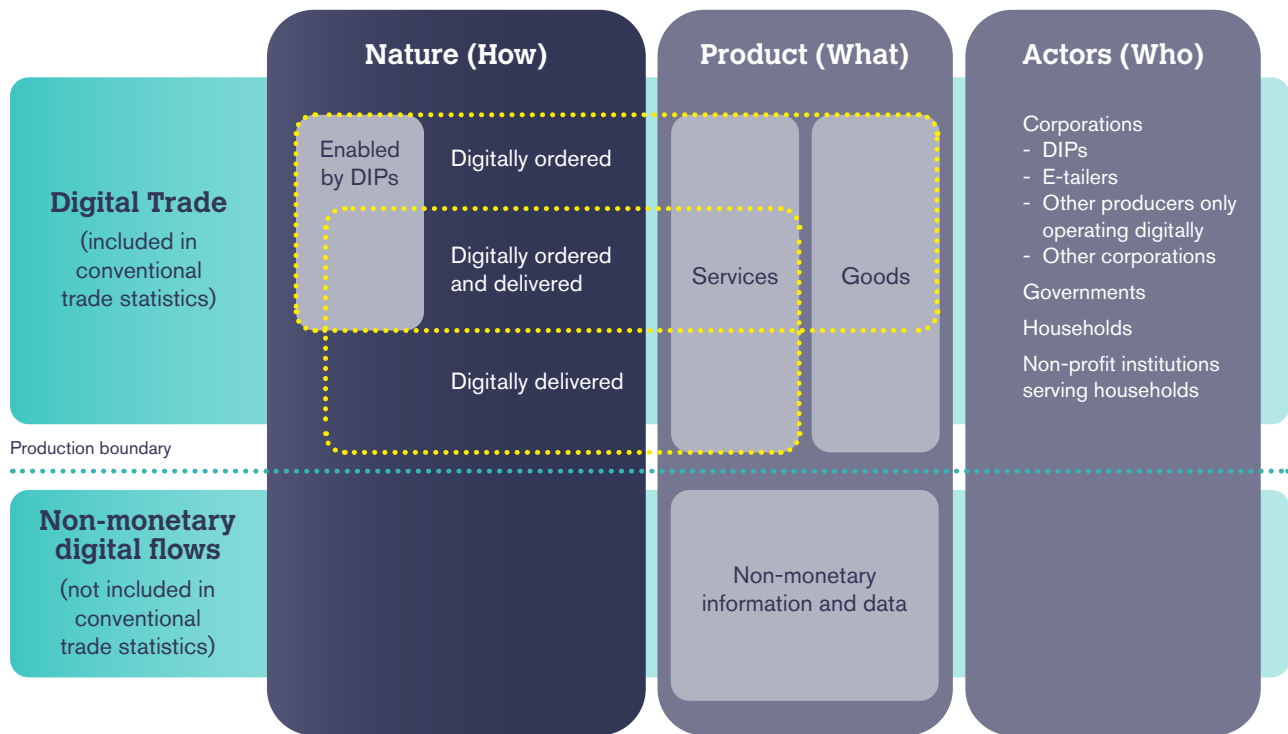
The rest of this chapter is organized as follows. Sections 2.2, 2.3 and 2.4 describe the three dimensions, outlined in Figure 2.1, of nature, product and actors in more detail; Section 2.5 clarifies the role of non monetary digital flows; Section 2.6 defines how digital trade fits in the existing accounting frameworks of BPM6 (IMF, 2009), SNA 2008 (UN, 2008a), IMTS 2010 (UN, 2011) and MSITS 2010 (UN et al., 2010); Section 2.7 presents the recommended reporting template for digital trade transactions; and Section 2.8 provides users with a preview, based on information available at the time of writing, of how digitalization will be accounted for in the upcoming update to the international statistical standards (SNA 2025 and BPM7).

2.2 The nature of the transaction (How)

2.2.1 DIGITALLY ORDERED TRANSACTIONS

The first criterion to identify digital trade is transactions that are “*digitally ordered*”. Significant efforts have led to an internationally agreed definition for the measurement of e-commerce (OECD, 2011). This Handbook builds

Figure 2.1: The conceptual framework for digital trade



Note: This conceptual framework is in line with that presented in the OECD Handbook on Compiling Digital Supply and Use Tables (OECD, 2023). Digital transactions undertaken by Actors can include transactions that are both digitally ordered and/or digitally delivered (Nature), and can encompass both goods and services (Product).

Source: IMF, OECD, UNCTAD and WTO, adapted from OECD, WTO, IMF (2019).

on those efforts by aligning with the OECD definition of e-commerce to define digitally ordered trade as

“The international sale or purchase of a good or service, conducted over computer networks by methods specifically designed for the purpose of receiving or placing orders.”

Digitally ordered trade, as defined here, is therefore equivalent to international e-commerce and as such it is a subset of total e-commerce (see also Figure 1.4 in Chapter 1). If a transaction is deemed to be digitally ordered, the total value of the transaction should be included in the measure of digital trade, irrespective of whether the traded product has digital characteristics or not and irrespective of whether the product was delivered digitally or physically. Box 2.1 provides further details on the “computer networks” enabling the relevant transactions.

To assist in the consistent interpretation of this definition, the following supporting clarifications are provided to help identify digitally ordered transactions in international trade:⁵

1. For digitally ordered transactions, the payment and ultimate delivery of the goods or services do not have to also be conducted online;
2. Digitally ordered transactions can involve participants from all institutional sectors (shown in the “Actors” column of Figure 2.1);

3. Digitally ordered transactions cover orders made over the web,⁶ extranet or via electronic data interchange (EDI, see Box 2.1);
4. Digitally ordered trade includes purchases of applications (apps) and in-app online purchases;
5. Digitally ordered trade includes transactions via online bidding platforms;
6. Orders made by phone, fax or manually typed email are excluded from digitally ordered trade;
7. Offline transactions formalized using digital signatures are excluded from digitally ordered trade;
8. Each trade transaction should be treated separately. When a transaction is established via offline ordering processes, but subsequent transactions (or follow up orders) are made via digital ordering systems, the follow-up orders should be considered as e-commerce; and
9. Trade transactions do not necessarily coincide with contracts. For a contract spanning several statistical periods and potentially involving multiple transactions, each transaction should be classified as digitally ordered or not digitally ordered, reflecting the mode(s) of ordering initiated in the current period.

Some areas of ambiguity remain and are subject to further research. For example, the OECD guidance on e-commerce does not specify whether purchases of goods or services via online chat functions (such as WeChat or WhatsApp) should be considered digitally ordered. On the one hand, the chat functions (and

the applications that enable them) are typically not specifically designed for placing orders (as per the e-commerce definition), and receive manually composed messages similar to emails, which are excluded from digitally ordered trade. On the other hand, rapid technological change has meant that orders, even when manually typed, can now be handled automatically (e.g., if workflows are automatized using artificial intelligence (AI)). In this case, arguably, the related transactions could be classified as digitally ordered trade.

2.2.2 DIGITALLY DELIVERED TRANSACTIONS

The second criterion to identify digital trade is transactions which are “*digitally delivered*” and only covers services. The concept of digitally delivered trade builds on the work of the UNCTAD-led Task Group on Measuring Trade in ICT Services and ICT-enabled Services (in collaboration with International Telecommunication Union (ITU), OECD, the Economic and Social Commission for Western Asia (UNESCWA), the United Nations Statistics Division (UNSD), the World Bank and the WTO (UNCTAD, 2015)).

In this Handbook, digitally delivered trade is defined as

“All international trade transactions that are delivered remotely over computer networks.”

It should be noted that this definition is broader than that provided in the previous version of this Handbook,⁷ which closely mirrored digitally ordered trade by only covering delivery methods “specifically designed” for the purpose of delivering services.

The simplification of the definition avoids complex interpretation issues around what “specifically designed” refers to, especially when a single service contract (transaction) can be rendered by multiple different means over its duration (e.g., a combination of emails, video calls and automatic file transfers).

Equally important, the revised definition better aligns with the pre-existing concepts of ICT-enabled services and of cross-border supply of services (or Mode 1, see MSITS 2010 (UN et al., 2010) and Box 2.2).

In other words, since the definition of digitally delivered trade refers to any international transaction in which the service is delivered remotely over computer (i.e., ICT) networks, the concept of digital delivery is de facto equivalent to that of “ICT-enabled services”, defined as “services products delivered remotely over ICT networks”, in UNCTAD (2015). Furthermore, the concept of digitally delivered trade, which, by definition, only covers services, is, in practice, equivalent to the concept of service supply via Mode 1, i.e., services that are digitally delivered are most likely supplied via Mode 1.

Box 2.1: A note on computer networks and EDI

A key element of the definitions of both digitally ordered trade and digitally delivered trade is the role of “computer networks”. This term is adopted from the OECD definition of e-commerce (OECD, 2011). That definition does not provide a specific definition for “computer networks”. However, it makes clear that:

1. “The internet is a worldwide public computer network”.
2. “Other computer networks include internal networks (e.g., a LAN), proprietary external networks which are not IP-based (for instance, the networks set up for early versions of EDI), and automated telephone systems”.

Electronic data interchange (EDI) is the computer-to-computer transmission of business data – such as shipping orders, purchase orders, invoices and requests for quotations – in an electronic format using agreed standards. The messages are composed and processed without human intervention, which increases the speed of order processing and reduces errors. EDI is used in a wide variety of industries, including food, retail, logistics and manufacturing, to manage international supply chains efficiently (e.g., just-in-time inventory management).

Practically, and in particular considering the digitalization of voice transmission – including the prevalent use of Voice Over Internet Protocol (VoIP) for telecommunications – computer networks are equivalent to the concept of “ICT networks” defined by UNCTAD as “voice or data networks, including the internet” (UNCTAD, 2015).

The role of computer networks in connecting buyers and sellers/service suppliers is the key factor of relevance to identifying digital trade. The precise devices used to access those networks, and the precise features of the network (e.g., if it is a “mobile network” or “cloud network”) do not affect this. For example, use of the internet is equivalent to use of a computer network regardless of whether the internet is accessed via a computer, mobile phone, tablet or other device, and of whether the connection is made wirelessly or through a wired connection.

Source: IMF, OECD, UNCTAD and WTO.

Box 2.2: The GATS Modes of Supply

The WTO's General Agreement on Trade in Services (GATS) distinguishes four modes of supplying services internationally (GATS Article I:2 "Scope and Definition"). The GATS modes of supply are defined based on the location of the supplier and the consumer when a service is supplied, taking into account their nationality or origin (see MSITS 2010 (UN et al., 2010), paragraph 2.25). The four modes are:

Mode 1: Cross-border supply – takes place when a service is supplied “from the territory of one [WTO] Member into the territory of any other Member”.

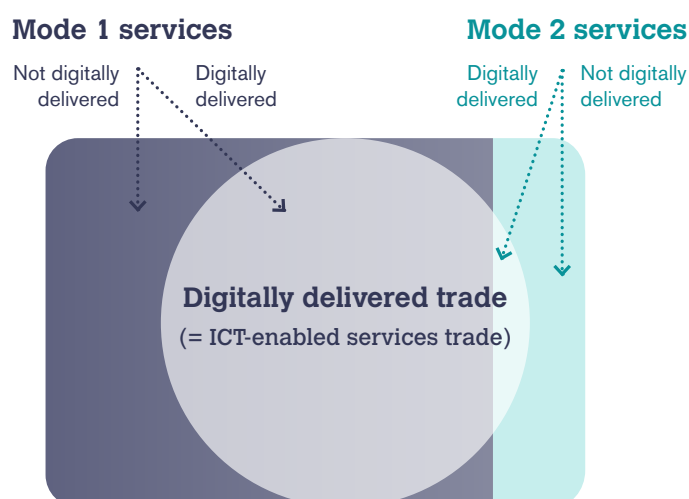
Mode 2: Consumption abroad – takes place when the service is supplied “in the territory of one Member to the service consumer of any other Member”.

Mode 3: Commercial presence – takes place through supply of a service “by a service supplier of one Member, through commercial presence in the territory of any other Member”.

Mode 4: Presence of natural persons – takes place when a service is supplied “by a service supplier of one Member, through [temporary] presence of natural persons in the territory of any other Member”.

Source: WTO.

Figure 2.2: Digitally delivered trade and related statistical concepts



Source: IMF, OECD, UNCTAD and WTO.

It is worth noting, however, that some services are deemed to be supplied via Mode 1 but are not digitally deliverable (namely most transport services and postal delivery). As transport is easily identifiable, remaining Mode 1 estimates can be considered digitally delivered trade, as postal delivery is unlikely to make a material difference.

It is also important to point out that some services can be digitally delivered and consumed abroad (i.e., via Mode 2 – see Box 2.2); their value, however, just like services delivered by post, can be considered negligible.

Finally, a service supplied via presence of natural persons (Mode 4) cannot be digitally delivered, since Mode 4 implies physical presence.

Figure 2.2 provides further clarity on the relationship between digitally delivered trade, ICT-enabled trade and modes of supply.

To assist in the consistent interpretation of the definition, the following supporting clarifications are provided to identify digitally delivered transactions in international trade:

1. Only services can be digitally delivered;
2. Digitally delivered transactions can involve participants from all institutional sectors;
3. For digitally delivered transactions, the payment for and ordering of the services do not have to be conducted online;
4. Services delivered by phone, fax, video call or email are included in digitally delivered trade;

5. Digitally delivered trade includes services provided through apps;
6. Each trade transaction should be treated separately. When a trade transaction is delivered via offline processes, but subsequent follow-up transactions are delivered digitally, the follow-up transactions should be considered as digitally delivered; and
7. A trade transaction can be delivered via multiple (digital and non-digital) modes.

It should be noted that transactions in products such as most insurance services (notably, the core service of risk management) and financial services (such as liquidity provision and transformation, underwriting, safekeeping, record-keeping and payment services) are assumed to be in scope for digitally delivered trade. This reflects the enabling role that computer networks play in the international supply of these services, even though the underlying service being provided is not determined by its ability to be digitally delivered (see Chapter 4).

2.2.3 TRANSACTIONS ENABLED BY DIGITAL INTERMEDIATION PLATFORMS (DIPs)

Online platforms play an increasingly important role in the digital economy. They facilitate economic transactions (e.g. trade in goods and services), or non-economic interactions (e.g., social media and discussion sites). In 2019, the OECD, after extensive consultations, set out a broad definition of online platforms as “a digital service that facilitates interactions between two or more distinct but interdependent sets of users (whether firms or individuals) who interact through the service via the internet” (OECD, 2019a).

A particularly crucial subset of online platforms are DIPs, sometimes referred to as “online marketplaces”. These platforms facilitate transactions in goods and services and charge a fee for facilitating the transaction. The World Customs Organization, in WCO (2022), and the OECD Centre for Tax Policy and Administration (OECD 2018b; 2019c) identified the key defining features of DIPs:

1. There are multiple buyers and multiple sellers that interact through the platform; and
2. The platform itself does not own the goods, nor does it render the services that are being intermediated.

Based on these criteria, digital intermediation platforms⁸ are defined in this Handbook 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).”

The assumption in this Handbook is that all transactions undertaken via a DIP are digitally ordered. Often the

products advertised can only be paid for electronically (although it should be noted that means of payment do not matter when considering whether the transaction is digitally ordered or delivered).

It follows from the definition that services offered by platforms that intermediate electronic content without first taking economic ownership of the intellectual property products they distribute (such as app stores) are included in this category. A DIP is deemed to not take economic ownership if the licence-holder of the intellectual property does not charge the online platform for distributing the digital content until after the consumer has paid to use the content.

Although all digitally intermediated trade transactions are included in digitally ordered trade (and where relevant also in digitally delivered trade), they are separately highlighted in the framework for three reasons:

1. A specific interest in the economic role of DIPs – including their role in trade – and in particular, their potentially transformative impact on the economy;
2. The possibility that a targeted focus on DIPs, including through dedicated survey vehicles, may deliver (partial) results on both digitally ordered and digitally delivered trade; and
3. The specific conceptual and statistical challenges that transactions through DIPs present, especially when the DIP is not resident in the economy where the intermediation services are consumed (see Chapter 5).

When identifying international transactions undertaken via DIPs, it is not only necessary to record the value of the transaction between the buyer and seller as digitally ordered trade and, where appropriate, as digitally delivered trade, but also the fee. DIPs exist to intermediate transactions between multiple buyers and sellers. The service they provide – typically, the only service – is that of “matching” buyers with sellers and facilitating ordering, payment, communication, etc. between them. These services provided by DIPs are termed *digital intermediation services*⁹ and are defined in this Handbook 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).”

DIPs are remunerated for providing digital intermediation services through fees received from the buyer, the seller, or both. Fees can take various forms. For example, an amount for the platform’s service may be separately itemized and charged, or the fee could be implied by a difference between the amount the buyer pays the platform, and that paid by the platform to the seller. Also, the fees may be

Box 2.3: OECD Informal Advisory Group on Measuring GDP in a Digitalised Economy

The OECD Informal Advisory Group on Measuring GDP in a Digitalised Economy (the Advisory Group) was created in 2017 by the OECD Committee on Statistics and Statistical Policy (CSSP). CSSP established this group to respond to questions being raised regarding the suitability and appropriateness of the SNA production boundary to cope with the evolving digital transformation underway within the economy.

The advisory group, which reports to the OECD Working Party on National Accounts (WPNA), was formed with the overall purpose of advancing the digitalization measurement agenda and to “serve as a forum and focal point to share ideas and experiences; and to develop best practice”. Within the SNA, the digitalization measurement agenda includes improving (or making more visible) the measurement of such items as data, AI, DIPs and free digital services.

More specifically, the Advisory Group was requested to:

- Clarify the statistical concepts in conjunction with the digital economy;
- Quantify potential mismeasurement issues;
- Quantify the value of “free” goods and services, including free digital services financed by revenue from advertising or revenue streams generated by data;
- Quantify cross-border digital-economy-related trade (e-commerce, digital services and intellectual property products).

Since 2017, the main focus of the Advisory Group, which includes members from both OECD and non-OECD countries, has been on how to improve the visibility of digitalization within the national accounts. To do this, the group developed the Digital Supply and Use Tables (Digital SUTs) framework (Mitchell, 2021), which is now beginning to be implemented in several countries.¹⁰ The Advisory Group is currently overseeing the creation of a handbook on compiling Digital SUTs, a companion to this Handbook.

Source: OECD.

collected at the same time as, or separately from, the main transaction undertaken through the DIP (e.g., in the case of a monthly subscription for the platform’s services, the payment would be separate). The important point is that these amounts accrue to the DIP rather than to the other parties in the transaction (i.e., not to the seller).

Due to their unique nature, and to facilitate understanding of the role of DIPs in digital trade, fees for digital intermediation services should be separately measured or estimated (see Chapter 5).

2.3 The product (What)

The conceptual framework splits products into the two conventional categories of goods and services, as shown in Figure 2.1.

2.3.1 GOODS

This Handbook adopts the convention that goods cannot be delivered digitally.¹¹ Therefore, goods trade relevant for measures of digital trade comprises only those goods that have been digitally ordered. Any good can be digitally ordered.

2.3.2 SERVICES

Digital trade in services can be broken down into two distinct but overlapping components in the framework: *digitally ordered services* and *digitally delivered services*. The overlap reflects digitally ordered services that are also digitally delivered and includes digital intermediation services.

Digitally ordered services

Transactions in services that are digitally ordered, following the definition described, should be included as digitally ordered services. This includes digitally ordered services not digitally delivered and services that are both digitally ordered and delivered.

Digitally delivered services

As described above in the nature of transaction, digitally delivered trade builds on the definition of ICT-enabled services developed by the UNCTAD-led Task Group on Measuring Trade in ICT Services and ICT-enabled Services (TGServ). In the operationalization of that definition, the Task Force identified those Central Product Classification (CPC Version 2.1) products which can *potentially* be ICT-enabled (see Chapter 4 and UNCTAD, 2015). This forms the basis for the list of services considered in this Handbook as “*digitally deliverable*” (see Chapter 4).

Digital intermediation services

Digital intermediation services, which are provided by DIPs to the buyers and sellers whose transactions the DIP intermediates, are recorded in digitally ordered and digitally delivered services trade when the DIP is resident in a different economy to the buyer/seller (including if the buyer and seller are resident in the same economy as one another). This Handbook recommends that these services be recorded in the Extended Balance of Payments Services Classification 2010 (EBOPS 2010) under *trade-related services* (SJ34), a subcomponent of *other business services* (SJ).¹²

2.4 Actors (Who)

Any economic actor can engage in digital trade. In particular, the possibility to buy and sell online, and for many services to be delivered online, has lowered, and has the potential to lower further, barriers to exports and imports. These developments impact different groups of actors in varied ways, and the separate identification of the different actors involved in digital trade can provide important policy-relevant insights. While the proposed reporting template does not incorporate a breakdown according to the actors involved (see Section 2.7), compilers are encouraged to explore the breakdowns that are most relevant for their statistical users.

2.4.1 CORPORATIONS

Corporations exist to produce and sell products. Digital ordering and delivery offer efficient ways to reach customers as well as to purchase productive inputs. In particular, this has made it easier for smaller firms to market their products abroad, while also facilitating access to productivity-enhancing digital inputs that can increase their competitiveness. Businesses undertake the majority of international trade and, in general, can be expected to account for the bulk of digital export and import flows.

Besides DIPs, a number of other online operators play an important role in digital trade:¹³

1. E-tailers: Electronic retailers or “e-tailers” are defined as “*retail and wholesale businesses engaged in purchasing and reselling goods, which receive a majority of their orders digitally*” (OECD, 2023). E-tailers own the products being sold, and so provide margin based distribution services, as opposed to digital intermediation services, as defined above.

It should be noted that DIP and e-tailing business models may co-exist within the same enterprise. For example, Amazon Marketplace, a digital intermediation platform, is part of the same firm, and largely indistinguishable from, Amazon’s

online retail activities, as they both operate through the same online interface (Amazon.com). Notwithstanding the possible compilation challenges arising from this, in the context of digital trade measurement, efforts should focus on the nature of individual transactions facilitated by such hybrid online platforms.

Online transactions undertaken via e-tailers are digitally ordered but do not entail the provision of digital intermediation services.

2. Other producers only operating digitally:

Another category comprises businesses that produce their own services for sale but operate exclusively digitally. This covers, for instance, priced digital media providers and providers of any subscription-based digitally delivered services.

Streaming platforms, cable television and radio subscription services are included in this category, as they are deemed to assume economic ownership of the intellectual property products they distribute before the content is streamed.

Transactions undertaken via other producers only operating digitally are digitally ordered and digitally delivered, but do not involve the provision of digital intermediation services. In some cases, the distinction between DIPs and these producers can be challenging, particularly because the same firm may provide electronic content through both business models.

3. Data- and advertising-driven digital platforms:

This category covers businesses that operate exclusively online, facilitate non-monetary interactions, and provide services without charging fees to end-users. They predominately generate revenue by selling data or advertising space. Examples are free social media platforms, dating apps, search engines, knowledge-sharing platforms and phone applications that generate revenues in this way and therefore provide services to end-users free of charge.¹⁵

Also included in this category are websites and platforms that receive revenue for directing visitors to third-party websites. In this latter case, although the platform receives a fee from the website being advertised, the process itself does not explicitly facilitate a transaction between two independent sets of users, simply making such a transaction more likely. As with other categories listed above, different business models may co-exist within the same enterprise; for instance, Facebook Marketplace increasingly facilitates B2C transactions for which it charges “selling fees” like a typical DIP.

Interactions between suppliers and end-users facilitated by these platforms are, in general, not in scope for measures of digital trade. However,

compilers should be aware of the blurred lines between the different business models outlined above and consider, to the extent possible, the nature of the individual transactions being conducted through all types of online operators.

Finally, some digital platforms may facilitate, for a fee, the direct interaction between multiple persons for purposes other than buying and selling goods and services. This category includes fee-based digital platforms such as those facilitating peer-to-peer lending, equity-based crowdfunding, and philanthropic crowdfunding; fee-based platforms facilitating individuals with similar interests to get together; and fee-based dating apps. The services provided by these platforms are generally digitally ordered and digitally delivered.

2.4.2 HOUSEHOLDS

Technological change has provided individual consumers (households) with increased possibilities to purchase goods and services from foreign suppliers, while also increasing their interaction as “producers” supplying services (for example, accommodation services) via DIPs. These aspects of the digital transformation complicate the way trade is measured in practice. For example, business surveys do not capture transactions between domestic households via foreign DIPs, and measuring this via household surveys may prove challenging (see also Chapters 3 and 5 on this topic).

2.4.3 GOVERNMENTS AND NON-PROFIT INSTITUTIONS SERVING HOUSEHOLDS (NPISHs)

Although their economic purposes and motives are somewhat different from corporations and households, governments and NPISHs make use of digital ordering and digital delivery both as buyers and sellers and should be covered in exhaustive measures of digital trade.

2.5 Non-monetary digital flows

The bottom part of Figure 2.1 acknowledges the increasing importance of non-monetary digital flows alongside monetary transactions (upper part of the figure).

Non-monetary digital flows refer to data and information flows that are exchanged without a monetary transaction. For instance, social networking sites or search engines offer services to users in exchange for data – often personal data – from their users that can then, in turn, be used by these firms to generate

revenues from targeted advertising (Nakamura, Samuels and Soloveichik, 2016). Also, international banking is today made possible through the cross-border flow of data to support the services that are being provided. While international transactions relating to advertising or banking services can be captured in trade statistics, the data flows upon which they depend are not.

At the time of writing, investigations are ongoing to better understand and quantify these flows, given their importance in supporting economic transactions. Research carried out in the context of the revision of the SNA, for instance, concluded that services provided free of charge to end-users are already implicitly included in the value of goods and services in the current SNA production boundary.¹⁶ Other work streams are investigating the role of data in the national accounts as well as other issues related to the impact of digitalization on economic statistics.¹⁷

For the time being, however, non-monetary digital flows are not in scope for digital trade. Nevertheless, paid transactions for data (e.g., sales of data sets), and indeed all trade transactions facilitated by data flows, are included in measures of international trade, and so, where appropriate, these transactions should also be included in the relevant component of digital trade.

2.6 Accounting principles

The accounting principles for recording digital trade (including in particular valuation and time of recording) generally follow those of BPM6 (IMF, 2009), IMTS 2010 (UN, 2011) and MSITS 2010 (UN et al, 2010).

Transactions that pass through DIPs, however, require some clarifications, especially those that facilitate transactions in services. Intermediation services other than financial intermediation, travel or transport are not explicitly defined and addressed in BPM6 (IMF, 2009). In paragraph 10.160, BPM6 covers subcontracting (also referred to as outsourcing), an arrangement where services such as transport, construction, computer services or other types of business services are subcontracted to a different service provider. In these cases, BPM6 recommends that “the value of services exported and imported in the economy of the service arranger is recorded on a gross basis” (BPM6, para 10.160). This approach implies that the “arranger” of the subcontracted service consumes that service and then supplies it to the customer.

Intermediation services provided by DIPs are fundamentally different from subcontracting. Subcontracted services involve a higher degree of engagement on the part of the arranger than digital intermediation platforms, which are often completely automated. DIPs, in fact, are deemed never to take ownership of the goods nor render the services that

they intermediate. Thus, this Handbook recommends recording only the intermediation fees, not the full value of the products being intermediated, in the accounts of DIPs. This view, which better reflects the economic substance of these types of transactions, is consistent with more recent research conducted in the context of the BPM6 (IMF, 2009) and SNA update processes.¹⁸

2.7 Recommended reporting template

As a result of the multi-dimensional nature of digital trade, guidance is needed on how to aggregate various statistics within a standardized reporting mechanism that could form the basis for digital trade accounts. Table 2.1 provides the template recommended by this Handbook to compile and present digital trade transactions.

The template includes the two main components of digital trade, namely digitally ordered trade (item 2) and digitally delivered trade (item 3). It allows both of these components to be measured in the way that best suits the compiler. For example, it is possible to use ICT/e-commerce surveys for digitally ordered trade and services trade sources for digitally delivered trade. The template also includes an item for digitally ordered services trade (item 2.2), which would be readily available from ICT/e-commerce surveys taking the common approach of collecting a monetary value for e-commerce and then using additional questions for breakdowns (e.g., domestic sales and sales abroad; between sales of goods, digitally delivered services, and other services – see Chapter 3).

The template also allows for cases where compilers might only have access to information *either* on total digitally ordered trade *or* on total digitally delivered trade, and might collect information on the overlap through the sources used for either one of these. As long as an estimate of the double-counting (item 4) is available from either side, it can be subtracted when aggregating digitally ordered trade and digitally delivered trade to get total overall digital trade.

The template is meant to provide a feasible approach to making digital trade more visible in existing international trade statistics, while preserving comparability across countries. However, based on the resources available to compilers and on specific policy needs, the template can be expanded to include additional dimensions. For instance, a link between this template and the (Services) Trade by Enterprise Characteristics (TEC/STEC) framework could provide valuable insights on the role of MSMEs or foreign controlled enterprises in digital trade. Additional breakdowns by type of exporter/importer (by institutional sector) could also prove particularly relevant. In any case, it is important to provide metadata on the institutional sectors, industries, sizes of firms, etc. covered by digital trade

estimates to facilitate user understanding and allow international comparisons.

Two addendum items, *digital trade in services* and *digitally deliverable services*, are proposed in the template. Digital trade in services provides a total for digitally ordered and/or digitally delivered services. The category of digitally deliverable services is included in recognition of the fact that, in most cases, compilers should be able to produce estimates for this addendum item without modifications to existing sources, i.e., by identifying within existing trade statistics the service categories that are digitally deliverable (see Chapter 4).

2.8 Work on updating national accounts and balance of payments standards

The conceptual framework presented in this Handbook is designed to align with the broader macroeconomic standards, namely the SNA 2008 (UN, 2008a), BPM6 (IMF, 2009), IMTS 2010 (UN, 2011) and MSITS 2010 (UN et al., 2010). Any updates to those (notably, any change in the production boundary) will, by construction, be reflected in the measurement framework with no impact on the statistical definition of digital trade.

At the time of preparing this Handbook, work on updating the national accounts and the balance of payments standards, led by the UN Advisory Expert Group on National Accounts (AEG) and the IMF Committee on Balance of Payments Statistics (BOPCOM), respectively, was still ongoing. Digitalization featured prominently in the research agenda of both workstreams, and the updated System of National Accounts (SNA) and Balance of Payments and International Investment Position Manual (BPM) are to include common chapters addressing the impact of digitalization on macroeconomic statistics.

The update process towards SNA 2025 and BPM7 provides a number of clarifications which are likely to be useful to compilers even before the new macroeconomic standards are in place. This section provides a brief overview of some of the main research issues related to digitalization that impact international trade. Those issues are addressed in the guidance notes (GNs) listed below.¹⁹

- **Digital intermediation services (GN C.4)**

This guidance note clarifies the difference between services subcontracting and transactions in which an intermediary arranges (or intermediates) the supply of a service without rendering the service itself. The latter category, which can be extended to cover intermediation of goods, includes DIPs. The guidance note assimilates these “intermediation services” with services provided by agents; it

TABLE 2.1: REPORTING TEMPLATE FOR DIGITAL TRADE

Item			Total exports	Total imports
1	Total digital trade	2+3 minus 4		
2	Digitally ordered trade	2.1+2.2		
2.1	Goods			
2.1.a	<i>of which: via DIPs</i>			
2.2	Services			
2.2.a	<i>of which: via DIPs</i>			
3	Digitally delivered trade			
3.a	<i>of which: via DIPs</i>			
4	Digitally ordered <i>and</i> digitally delivered trade			
4.a	<i>of which: digital intermediation services</i>			
	Addendum items			
A.1	Digital trade in services	2.2+3 minus 4		
A.2	Digitally deliverable services	>3		

Note: Transactions should be broken down by relevant product groupings (EBOPS 2010 for services and, for example, the Harmonized Commodity Description and Coding System (HS) or the Central Product Classification (CPC) for goods). Annex B provides a number of examples to guide compilers in using the reporting template to record digital trade transactions.

Source: IMF, OECD, UNCTAD and WTO.

recommends recording the fees of DIPs separately from the main transaction, under *trade-related services*. The present Handbook also recommends recording DIP fees in the same manner (see Section 2.3 and Chapter 5).

▪ **Cloud computing (GN DZ.8)**

With the aim of making cloud computing more visible in the macroeconomic accounts, this guidance note defines cloud computing services as “*computing, data storage, software, and related IT services accessed remotely over a network, supplied on demand and with measured resource usage that allows charging on a pay-per-use basis*”. The note recommends treating payments for software subscriptions as purchases of services, while long-term licences for software should be considered fixed assets regardless of whether the software is hosted in the cloud. International transactions in cloud computing should be recorded under computer services, as digitally ordered and digitally delivered trade as appropriate.

▪ **Non-fungible tokens (NFTs) (GN DZ.10)**

This guidance note defines NFTs as digital records hosted on a blockchain that are associated with a digital or physical asset, and which may serve a functional purpose. NFTs record the rights assigned to their owner and are distinct from the associated asset or product.

The guidance note recommends recording NFTs based on the rights conferred upon the owner:

(a) NFTs that confer personal use and display rights to the associated digital or physical asset should generally be recorded as consumption, although some such NFTs may gain the features of valuables.

(b) NFTs that confer some commercial rights, or other rights beyond personal use, without ownership of the associated asset (e.g., right to print t-shirts with the image) should be seen as contracts, licenses or leases.

(c) NFTs that confer full ownership of an associated digital or physical asset should not be recorded as assets (this presumes that the asset itself is already recorded).

International transactions in NFTs for personal use, as per point (a), are generally to be recorded in services, as digitally ordered and digitally delivered trade as appropriate.

▪ **Fintech (GN F.7)**

This guidance note discusses the implications of the new financial products, services, technologies and access modes introduced by fintech (i.e., financial technology). Fintech activity and transactions are to be allocated within the existing institutional sector, activity and product breakdowns and separately identified (with “of which” categories) where relevant. This also applies to international trade in services.

- **Crypto assets (GN F.18/GN DZ.2)**

In 2023, BOPCOM and the AEG agreed on the treatment of non-liability crypto assets as non-produced non-financial assets and therefore excluding them from the scope of digital trade.

- **Recording of data (GN DZ.6)**

Data that are produced and used in production for more than one year meets the SNA characteristics of an asset and, as such, should be capitalized in national accounts. Data can be sold in a market transaction and international transactions in data are to be recorded in services, digitally ordered and digitally delivered as appropriate.

Endnotes

- 1 Ahmad and Schreyer (2016) show that there is no systematic under- or overestimation of international trade because of digitalization.
- 2 For the purpose of this publication, the terms “goods” and “merchandise” are used interchangeably to describe goods “which add to or subtract from the stock of material resources of a country by entering (imports) or leaving (exports) its economic territory” (UN, 2011).
- 3 While foreign affiliates statistics (FATS) are not directly part of the digital trade framework, adding the digitally ordered/digitally delivered dimensions to FATS could enhance the understanding of affiliate activities in digital trade, including for digital intermediation platforms (DIPs).
- 4 For instance, database services are currently recorded as trade in services (in BPM6 (IMF, 2009) under the category “Telecommunication, computer and information services”). However, many other services transactions can include a data component.
- 5 Clarifications 1, 3 and 6 directly proceed from the OECD definition of e-commerce (OECD, 2011).
- 6 The language reflects the exact supporting text quoted in the OECD definition. For the purposes of this Handbook, references to the “web” should be interpreted as the “internet”, including access to the internet via mobile devices.
- 7 i.e., “International transactions that are delivered remotely in an electronic format, using computer networks specifically designed for the purpose” (OECD, WTO and IMF, 2019).
- 8 DIPs in this Handbook exclude financial intermediation.
- 9 Digital intermediation services exclude financial intermediation.
- 10 The framework for digital SUTs has been endorsed by the UN Advisory Expert Group on National Accounts (AEG), which oversees the overall 2008 SNA update programme. See https://unstats.un.org/unsd/nationalaccount/RAdocs/ENDORSED_DZ5_Digital_SUTs.pdf.
- 11 Notwithstanding the ongoing discussions concerning the classification of transactions related to 3D printing, the scope of goods and services in this Handbook reflects that of SNA 2008 (UN, 2008a), BPM6 (IMF, 2009), IMTS 2010 (UN, 2011) and MSITS 2010 (UN et al., 2010).
- 12 This approach is in line with the proposed classification of services transactions in the Balance of Payments and International Investment Position Manual (BPM7), which is currently in preparation; see <https://www.imf.org/-/media/Files/Data/Statistics/BPM6/CATT/c6-trade-in-services-classifications.ashx>.
- 13 The OECD Handbook on Compiling Digital Supply and Use Tables (OECD, 2023) identifies seven digital industries which cluster institutional units based on the way they leverage digitalization rather than based on the conventional activity breakdown. This section lists, among them, the three categories that are most relevant for digital trade.
- 14 The definition of e-tailers is based on the International Standard Industrial Classification of All Economic Activities (ISIC) definition of retailers, which precludes services.
- 15 It is important to stress that, while the non-monetary transactions related to these online platforms are outside of the scope of the current measurement framework, the revenues, value-added, employment, etc. of these entities (generated or sustained through sales of advertising and data services) will be recorded in the economic accounts.
- 16 See https://unstats.un.org/unsd/nationalaccount/RAdocs/DZ3_GN_Free_Digital_Products_Core.pdf.
- 17 See <https://unstats.un.org/unsd/nationalaccount/snaupdate/dztt.asp>.
- 18 See <https://www.imf.org/-/media/Files/Data/Statistics/BPM6/CATT/c4-merchandise-and-factoryless-producers-clarifying-negative-exports-in-merchandise-and-merchandise.ashx>.
- 19 These guidance notes are available via the <https://unstats.un.org/unsd/nationalaccount/SNAUpdate/GuidanceNotes.asp> and <https://www.imf.org/en/Data/Statistics/BPM> webpages.