

# Handbook on Measuring Digital Trade

SECOND EDITION



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# Foreword

Digital technologies have made it increasingly feasible for buyers and sellers to place and receive orders on a global scale. They also enable the instantaneous remote delivery of services directly into businesses and homes, including internationally.

By focusing on these two criteria – *digital ordering* and *digital delivery across borders* – this Handbook offers a conceptual and measurement framework for digital trade that aligns with the broader standards for macroeconomic statistics.

This second edition of the *Handbook on Measuring Digital Trade* is the outcome of a partnership between the International Monetary Fund (IMF), the Organisation for Economic Co-operation and Development (OECD), the United Nations Conference on Trade and Development (UNCTAD) and the World Trade Organization (WTO), resulting in a comprehensive agreed approach. It builds upon the first edition, published in 2019, and has benefitted from substantive inputs by both developed and developing economies.

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This edition of the Handbook, while it leaves the fundamental measurement framework unchanged, provides clarifications to the concepts and definitions related to digital trade, and to the guidelines on how to operationalize them. It reflects the advances that statistical compilers have made in the measurement of digital trade. Expanded compilation guidance is included, based on national and international efforts, and covering a variety of relevant survey and non-survey sources. A revised reporting template is also proposed, which offers flexibility to statistical compilers when collating components of digital trade, even when only partial information is available.

This Handbook thereby establishes a valuable shared foundation for understanding and measuring digital trade in a way that is internationally comparable. Furthermore, it provides a crucial resource for an active programme of technical assistance and statistical capacity-building, through which the four co-authoring partner organizations can support statistical compilers as they seek to measure, monitor and respond to the challenges of digital trade.

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Digital technologies are transforming virtually every aspect of the economy, and international trade is no exception. Businesses and households make increasing use of digital ordering. Many services that traditionally required proximity between producers and consumers are now traded at a distance. Online platforms are playing an increasingly important role in matching supply with demand and facilitating economic transactions.

Digitalization is changing how products are purchased and delivered. And yet, it remains largely invisible in traditional macroeconomic statistics, because such statistics focus on what is produced and who produces it. This invisibility ultimately hampers policymaking, and may lead to the misperception that the economy is not being measured accurately.

This Handbook aims to help statistical compilers to address policymakers' needs for better statistical evidence on digital trade. While comprehensive, comparable evidence on digital trade may be most necessary in the area of international trade policy, digital trade also affects, and is affected by, many other policy areas at both the domestic and international levels, including competition, tax policy, development and economic growth.

## Defining digital trade

Understanding what “digital trade” refers to, and how it relates to international trade as a whole, is a crucial prerequisite of the statistical framework. Thus, building on previous measurement efforts, the first edition of this Handbook (OECD, WTO and IMF, 2019) combined the two key criteria of digital ordering and digital delivery to formalize for the first time a statistical definition of digital trade: *“digital trade is all international trade that is digitally ordered and/or digitally delivered”*.

This statistical definition reflects the multi dimensional character of digital trade by identifying the nature of the transaction as its defining characteristic. It is the basic building block of a conceptual measurement framework, which is fully consistent with the broader macroeconomic accounts.

Leaving the fundamental measurement framework unchanged, this second edition of the Handbook provides clarifications to the concepts and definitions introduced

in the first edition, and to the guidelines on how to operationalize them. It also builds on national experiences and best practices to expand compilation guidance.

## Measuring digital trade

Digital trade transactions are a subset of existing trade transactions, as measured in international merchandise trade statistics and in international trade in services statistics.

Any economic actor can engage in digital trade. The accounting principles for recording digital trade follow those defined in the International Merchandise Trade Statistics Concepts and Definitions (UN, 2011), the Manual on Statistics of International Trade in Services (UN et al., 2010), and the Balance of Payments (IMF, 2009).

As the statistical framework set out in this Handbook is designed to align with the broader macroeconomic standards, any updates to those standards (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. The concepts in this Handbook are also in line with the broader guidance on measuring the digital economy established through the framework for digital supply and use tables (OECD, 2023).

Although international trade statistics should, in principle, cover digital trade, digital ordering and delivery exacerbate some of the known measurement challenges involved in recording international transactions. One reason is that digitalization increases the involvement of small firms and households in international trade, and this involvement may not be adequately covered by traditional data sources, often reliant on large firms. The rise in digital ordering has led to an increase in low-value trade in goods, which may elude methods of tracking merchandise trade based on higher value thresholds. The involvement of digital intermediation platforms (DIPs) compounds those difficulties by adding a third actor to certain transactions.

To overcome these challenges, it is necessary to reconsider the existing data sources in terms of their coverage and accuracy, not only to develop digital trade statistics, but also to improve the measurement of international trade in general. The recommendation of this Handbook is, to the extent possible, to build



on and combine existing data sources with a view to producing comprehensive digital trade statistics. Thus, a discussion of the benefits and limitations of each data source is included, and a wealth of case studies and national experiences is presented.

## DIGITALLY ORDERED TRADE

In line with the OECD definition of e-commerce (OECD, 2011), digitally ordered trade is defined in this Handbook 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 is therefore synonymous with international e-commerce, and covers transactions in both goods and services.

Business transactions are a natural starting point when measuring digitally ordered trade, as businesses account for the bulk of e-commerce sales and purchases (UNCTAD, 2023). Information and communications technology (ICT) surveys have long been used to measure e-commerce uptake among businesses (UNCTAD, 2021a). Many economies have built upon these surveys, or have implemented modules in general business surveys, to measure the income that businesses make through e-commerce sales, sometimes also delineating domestic and international e-commerce (UNCTAD, 2023). Some such surveys also measure international e-commerce purchases by businesses. Following successful experiences at national level, this Handbook recommends that business surveys be enhanced to collect information on the monetary value of e-commerce transactions, and to break out digitally ordered trade.

Comprehensive measurement of digitally ordered trade extends beyond transactions involving firms: household and/or travel surveys can also provide a means to measure e-commerce transactions (both sales and purchases) undertaken by individuals.

Besides survey information, other sources, such as administrative data or card payment data, can also be used to measure key components of digitally ordered exports and imports. Of these sources, customs records are particularly relevant. Digitally ordered imports and exports can, in fact, be directly identified as a subset of international merchandise trade statistics if digitally ordered shipments are flagged with specific customs procedure codes. However, an accurate estimation of low-value trade, which is largely driven by digital ordering, is necessary to

ensure exhaustive coverage. A variety of sources can be explored to enable this, including administrative data from customs authorities or information from postal and courier agencies.

No single source can offer a holistic measure for digitally ordered exports and imports at the whole economy level. Information from different sources should be integrated to derive digitally ordered trade estimates covering transactions involving all institutional units in the whole economy.

## DIGITALLY DELIVERED TRADE

Digitally delivered trade is defined in this Handbook as *“all international trade transactions that are delivered remotely over computer networks”*. This Handbook takes the view that only services can be digitally delivered.

Unlike digital ordering, which is instantaneous, digital delivery can take place over a longer period and can involve a significant degree of inter-personal interaction. Crucial to the definition is that such interaction occurs remotely through computer networks.

The first step in measuring digitally delivered trade is to identify service items that are digitally deliverable – i.e., that can be delivered through computer networks (most often the internet). Where sufficient product detail is available, aggregating these items from existing statistics offers an upper-bound estimate of digitally delivered trade that can be produced without changes to existing data collection mechanisms.

Such estimates of digitally deliverable trade can be refined by exploiting the inherent relationship between the concepts of digital delivery and of cross-border service supply (i.e., Mode 1). For the digitally deliverable services identified, cross-border supply can be considered equivalent to digital delivery. Consequently, shares derived from the measurement of trade in services by mode of supply can provide reasonable estimates for digitally delivered trade.

However, most countries are only just beginning to measure trade in services by modes of supply. In the absence of such data, shares based on expert judgement, such as those in the Eurostat-WTO model (Eurostat, 2021a and WTO, 2023), may be used, provided that they are regularly assessed to reflect country-specific conditions.



International trade in services (ITS) surveys, which cover businesses, provide the best means for obtaining direct estimates of digitally delivered services trade. By enhancing these surveys with supplemental questions, for example following the model developed by UNCTAD in collaboration with Costa Rica, India, and Thailand (UNCTAD, 2021a), shares of digitally delivered exported and imported services can be measured in a way that is integrated with the sources and methods used to measure overall services trade.

Like for digital ordering, firm-based sources are likely to cover the bulk of digitally delivered trade. Nevertheless, with households increasingly involved in digitally delivered services trade, statistical compilers must investigate further how household surveys and other data sources can be used to improve the coverage of digitally delivered trade estimates. In addition, although the values are often not economically significant, some digitally delivered services may be consumed while abroad (i.e., supplied via Mode 2), and would therefore require different estimation strategies.

Information from various sources should therefore be integrated so that digitally delivered trade estimates representative of the entire economy can be derived.

## **DIGITAL INTERMEDIATION PLATFORMS (DIPs)**

Digital intermediation platforms are defined 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)”*.

Although transactions intermediated by DIPs are, in principle, included in existing trade statistics and are covered by the concepts of digitally ordered and digitally delivered trade, DIPs are separately highlighted in this Handbook because of their significant role in the economy, the policy interest surrounding them, and the specific compilation challenges they pose.

The service provided by DIPs is that of “matching” buyers with sellers, and thus facilitating the exchange of goods or the provision of services. These digital intermediation services, which are, by definition, both digitally ordered and digitally delivered, are defined 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)”*.

To record transactions facilitated by DIPs, it is necessary to distinguish the supply of goods or services (i.e., the transaction between the seller and the buyer) from the provision of intermediation services (i.e., the transaction between the DIP and both the seller and the buyer). Regardless of whether a given DIP facilitates transactions in goods or services, the intermediation fees should be recorded under trade-related services in the international accounts.

Several data sources should be explored to compile transactions facilitated by DIPs. The recommendation in this Handbook is to collect information on the exports and imports of intermediation services by businesses via ITS surveys. Surveys of ICT usage in business are instead better placed to collect information on the transacted products (i.e., the goods and services being intermediated). To ensure coverage of the household sector, several types of household surveys should include questions on the value of goods and services purchased via DIPs (notably from well-known DIPs and for tourism-related services), as well as, ideally, on the intermediation fees paid. When a DIP is resident in the compiling economy, surveys can be used to measure both exports of intermediation services and the underlying goods and services transactions.

## **REPORTING DIGITAL TRADE TRANSACTIONS**

This Handbook proposes a reporting template which supports the compilation of the two components of digital trade – digitally ordered trade and digitally delivered trade – as well as the calculation of total digital trade. The template allows the different components to be measured in the way that best suits the compiler, even when only partial information is available.

For a comprehensive measure of total digital trade, it is important to develop data sources that can measure digitally ordered trade, digitally delivered trade and also identify trade that is both digitally delivered and digitally ordered. ICT usage surveys (for both businesses and households) are well placed to measure this overlap. To this end, surveys should collect information on sales and purchases broken down by goods, digitally delivered services, and other services.

## Moving forward

This Handbook provides a consistent measurement framework to guide compilers in their efforts to measure digital trade. While further research and empirical testing will be needed to improve and refine the compilation approaches, the fundamental conceptual framework, which is now well established, constitutes the basis for the compilation of internationally comparable statistics on digital trade.

The Handbook also provides the foundation for an active programme of technical assistance and statistical capacity-building, by means of which the four partner organizations – the International Monetary Fund (IMF), the Organisation for Economic Co-operation and Development (OECD), the United Nations Conference on Trade and Development (UNCTAD) and the World Trade Organization (WTO) – can support statistical compilers as they seek to measure, monitor and respond to the challenges of digital trade.