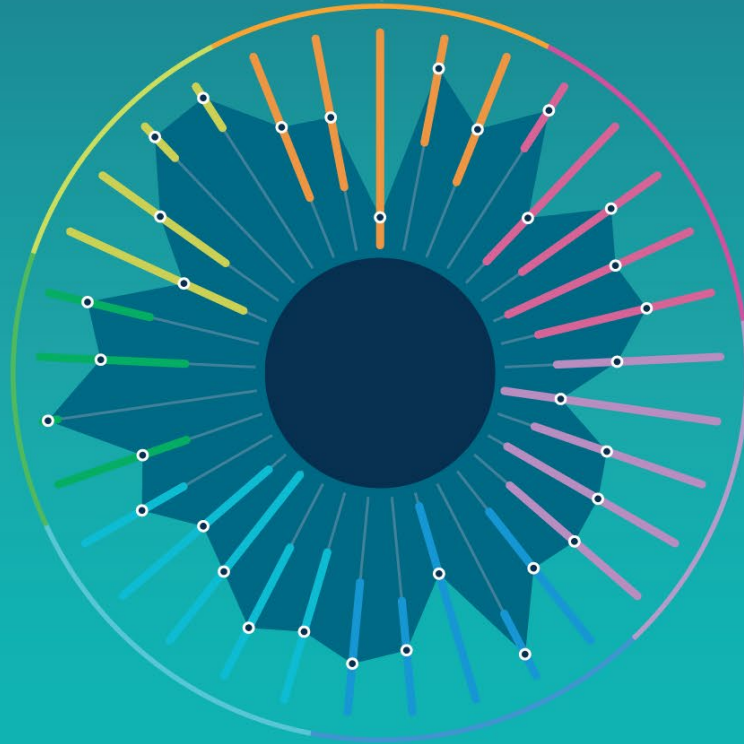


# Measuring digital trade



This Toolkit note was prepared by Annabelle Mourougane, based on the OECD-WTO-IMF *Handbook for Measuring Digital Trade* and other insights. It was reviewed by the Committee on Statistics and Statistical Policy (CSSP), and it was approved and declassified by the CSSP on 1 October 2021. The note was prepared for publication by the OECD Secretariat.

This Toolkit note is a contribution to the OECD Going Digital project, which aims to provide policy makers with the tools they need to help their economies and societies thrive in an increasingly digital and data-driven world.

For more information, visit [www.oecd.org/going-digital](http://www.oecd.org/going-digital).

#GoingDigital

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## Table of Contents

|   |          |
|---|----------|
| <b>Measuring digital trade .....</b>                                      | <b>4</b> |
| Unpacking digital trade.....  | 6        |
| The challenge of estimating digital trade.....                            | 9        |
| Moving forward .....  | 20       |
| Annex: A selection of innovative practices to measure digital trade ..... | 21       |
| References .....  | 34       |

### Tables

|   |    |
|---|----|
| Table 1. Template for reporting digital trade (simplified)..... | 20 |
|---|----|

### Figures

|  |   |
|--|---|
| Figure 1. A conceptual framework for digital trade ..... | 7 |
|--|---|

### Boxes

|   |    |
|---|----|
| Box 1. Using credit card data to measure cross-border online purchases in Israel..... | 12 |
| Box 2. Measuring cross-border e-commerce from webshops in the Netherlands.....        | 13 |
| Box 3. List of ICT enabled services .....   | 14 |
| Box 4. Trade in services by mode of supply .....                                      | 15 |
| Box 5. Measuring digital trade using ITS surveys linked to modes of supply .....      | 16 |

## ***Measuring digital trade***

Digital transformation has become a prevalent part of our lives, changing the way we consume, produce and trade, and this trend has only accelerated since the COVID-19 crisis. Still, digital transformation remains largely hidden in official trade statistics. From a statistical perspective, a fundamental rethink is required in the way that core national accounts are constructed if meaningful measures of digital trade are to be developed. This Going Digital Toolkit note highlights the main features of the OECD-IMF-WTO conceptual framework defining digital trade, as well as practical guidance to overcome some of the measurement challenges. It also catalogues various country initiatives to estimate digital trade.

Digital transformation has become a prevalent part of our lives, changing the way we consume, produce and trade, and this trend has only accelerated since the COVID-19 crisis. Digital technologies and data enable trade in services on a scale that would have been unimaginable in an analogue world, and they make trading a greater variety of goods easier and faster than ever before. They have allowed for significant access to new markets, particularly by small and medium sized enterprises (SMEs), and for new products, such as cloud services, whilst also having a significant disruptive and transformative impact on many industries. Digital technologies have also increased the capacity of households to buy and sell, in particular through online platforms. These developments have led to a new phase of globalisation underpinned, in particular, by the movement of data across national borders that has begun to transform international trade in goods and services.

Still, digital transformation remains largely hidden in official trade statistics. This lack of visibility is primarily a function, or perhaps a legacy, of the fact that the core economic production accounts remain to a large extent constructed around firms and products, with the classification of the former being driven by the classification of the latter. However, this approach only provides a partial view of the effects of digital transformation, which has led many to conclude that the potential scale of mismeasurement is larger than it may actually be.

Complicating matters is the absence of a single definitive view on what is actually meant by the multitude of terms that are commonly used in this statistical space – digital economy, digital trade, digital transformation, sharing economy, gig economy – whose interpretation typically differs depending on the application, the user or the policy community. For instance, the OECD has developed a taxonomy of sectors according to the extent to which they have gone digital, depending on their development and adoption of the most advanced “digital” technologies, the human capital needed to embed them in production, and the extent to which digital tools are used to interact with clients and suppliers (Calvino et al., 2018<sup>[1]</sup>).

From a statistical perspective, a fundamental rethink in the way that we construct our core national accounts is required if we are to develop meaningful measures of digital trade. Recent G20 Presidencies, both the G20 Trade and Investment Working Group and the Digital Economy Task Force, have placed significant emphasis on measurement to provide better evidence and assist analysts, businesses and policy makers in developing policies and strategies that can capitalise on, or manage the risks of, digital trade. In response to growing demand for coherent and comparable data on digital trade, a

*Handbook*<sup>1</sup> was developed by the OECD, the IMF and the WTO in 2019 that provides:

- A conceptual framework to define digital trade, and
- A mechanism to share experience and identify and develop best practice.

Recognising that significant work remains to be done, and that the structure and impact of the digital economy is evolving rapidly and unpredictably, this Handbook is meant to be revised and updated on a continuous basis. It will be in particular revised in light of the ongoing discussions on the revision of international standards.

This Going Digital Toolkit note first highlights the main features of the conceptual framework defining digital trade developed in the Handbook. It then identifies key measurement challenges in the different components of digital trade and puts forward some practical guidance to overcome some of these challenges, including using existing data, amending existing surveys, and making use of new types of data such as credit cards transactions.

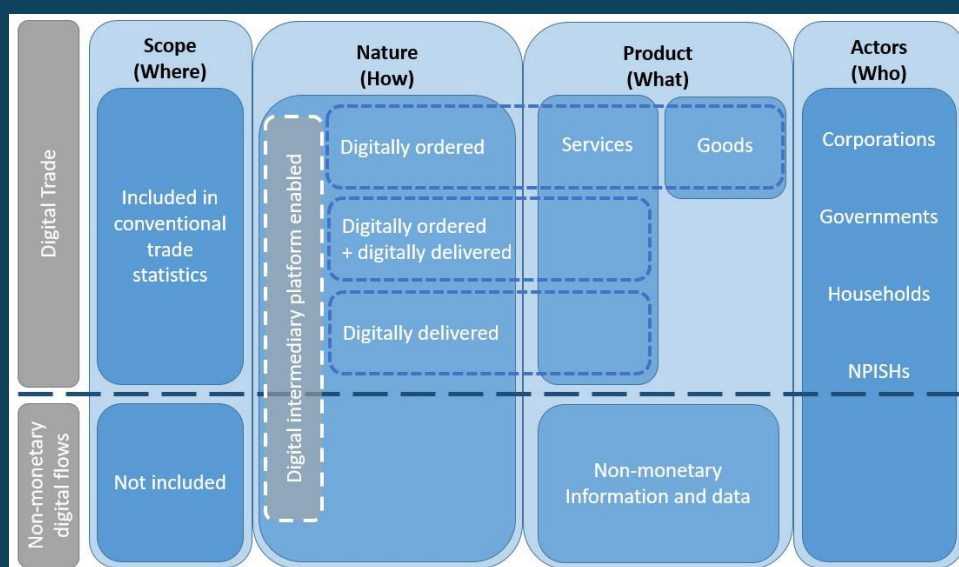
## Unpacking digital trade

Unlike traditional statistical concepts that focus on who is doing the production and what is being produced, digital trade is more aligned around a concept of how digital technologies are transforming the way that the what is being purchased and delivered (Figure 1). The how matters significantly for trade policymaking, both in terms of its impact on modes of supply (delivery) but also in its ability to facilitate trade (purchasing mechanisms) (see Box 4). The nature of the transaction – digitally ordered and/or digitally delivered – is the overarching defining characteristic of digital trade. However, the conceptual framework also comprises a product dimension and information on the actors to provide key information to undertake analysis and inform policymaking.

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<sup>1</sup> The *Handbook on Measuring Digital Trade* was developed under the auspices of an expert of the Inter-Agency Task Force on International Trade Statistics, which included international organisations (the OECD, the World Trade Organization and the International Monetary Fund), national statistics agencies and central banks.

**Figure 1. A conceptual framework for digital trade**



**Notes:** Digital intermediation platforms (DIPs) are also an important component of the relevant actors. Their current explicit inclusion in the nature of transactions (which may change depending on how measurement efforts evolve) reflects the scope for measuring modes of digital delivery and/or ordering through targeted surveys of DIPs. NPISH refers to non-profit institutions serving households. For a more detailed description of non-monetary information and data, and more generally measurement challenges related to information and data (paid, which are included in the scope of digital trade, or non-monetary, which, currently, are not) see below. Deliberations continue on the precise terminology concerning non-monetary flows. Future versions of the Handbook may introduce different terminology.

**Source:** (OECD-IMF-WTO, 2019<sup>[21]</sup>).

### Scope (where)

The conceptual framework for digital trade (the framework) is primarily designed to provide a view on goods and services that are being traded digitally across borders. It also attempts to respond to the growing demand for information on non-monetary transactions not included in conventional measures of trade (referred to in the framework as transactions in *non-monetary information and data*). Because no monetary transaction is made when data are acquired by a firm, a simplifying assumption is made that these elements are not digitally ordered and only materialise in the framework when they are delivered digitally. This assumption may be revisited in light of the ongoing System of National Accounts (SNA) discussions on the inclusion and valuation of data in national economic accounts.

Monetary transactions for data are included in the definition of digital trade. In addition, monetary transactions supported by data, often in relation to advertising services, will be included in digital trade if the services supported by the data (e.g. advertising) are digitally ordered and/or digitally delivered.

Finally, the framework considers only online platforms that charge a fee, which are referred to as digital intermediation platforms (DIPs).

### **Nature (how)**

The nature of digital trade concerns the delivery of products as well as purchasing mechanisms. It is necessary in this context to define several relevant terms.

**Digital trade** is defined in the Handbook as:

*All trade that is digitally ordered and/or digitally delivered.*

**Digitally ordered trade** is further defined 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.*

and **digitally delivered trade** as:

*International transactions that are delivered remotely in an electronic format, using computer networks specifically designed for the purpose.*

These definitions build on existing definitions. In particular, the definition of *digitally ordered* transactions follows the existing OECD definition for e-commerce (OECD, 2011<sup>[3]</sup>) whilst the definition of *digitally delivered* is closely related to UNCTAD's definition of ICT-enabled services (UNCTAD, 2005<sup>[4]</sup>), albeit with some differences in the coverage of products and the delivery mechanisms (e.g. excluding the provision of services via the telephone). Both digitally ordered and digitally delivered transactions cover only orders/deliveries made over computer networks (the web/internet, including via mobile devices, the extranet or via electronic data interchange).

### **Products (what)**

Products are split into the two conventional categories of goods and services. The framework adopts the convention that goods cannot be delivered digitally, and so the category of goods required for measures of digital trade includes only those goods that have been digitally ordered.

Services are broken down into two components: Digitally ordered services (e.g. a service booked online) and digitally delivered services (e.g. software, e-books, data, and database services). Those two concepts are not mutually exclusive, as many digitally delivered services are also digitally ordered, but many are not.

By taking the view that only services can be digitally delivered, the framework ensures that the overlap relates exclusively to digitally-delivered and digitally-ordered services. In addition, the proposed split between services that can be



(potentially) delivered digitally and those that cannot, provides a simple mechanism to estimate the size of the overlap.

### **Actors (who)**

Technological change has provided consumers (households, firms and governments) with increased possibilities to purchase goods and services from foreign suppliers, whilst also increasing their interaction as 'producers' when supplying services via online platforms. Similarly, the possibility to sell online has lowered barriers to export, and has the potential to lower them further. It has allowed firms, especially smaller firms, to market their products abroad.

These aspects of digital transformation underline the need for trade statistics by type of user and producer, but they also make trade more complex to measure. For example, when households interact with each other via foreign online platforms, conventional business surveys may not be able to capture the foreign dimension, increasing the relevance of household surveys.

The framework recognises these developments through its breakdown of actors by institutional sectors: Households, corporations (including both financial and nonfinancial), governments, and non-profit institutions serving households (NPISHs). This breakdown provides for an easy concordance with the terminology used in e-commerce surveys, such as the OECD Survey on ICT usage by business or by households, which try to identify transactions between 'Business-to-Business' (B2B), 'Business-to-Consumer' (B2C) and 'Business-to-Government'.

## **The challenge of estimating digital trade**

The Handbook seeks to provide practical guidance to countries by outlining the potential to use existing data sources or widely used surveys already being implemented, explored and/or exploited in other countries. It would have been a very simple exercise to define digital trade as above and then include a recommendation for countries to develop new surveys for all economic agents (firms, governments and households) to measure it. But this would also have been difficult to implement.

### **Digitally ordered trade**

In the area of digital ordering, the Handbook recommends that countries capitalise on existing (or develop new) measures of e-commerce. OECD (2019<sup>[5]</sup>) reviews these measures, including using individual, households or firms survey that include specific questions on e-commerce. Business surveys such as European Union Survey on ICT Usage and e-commerce, the OECD Model Survey on ICT Usage by Businesses or by Households, and Canada's Survey of Digital Technology and Internet Use have been important mechanisms to compile

statistics on e-commerce over the last decade or so. However, at least until recently, these have mostly focused on measuring the scale (and often size) of e-commerce transactions in the economy as a whole, not considering the international trade dimension *per se*. It has to be noted, however, that some information on cross-border e-commerce is available in the European Union Survey on ICT Usage and e-commerce since 2009.

Many countries are now beginning to explore the potential of including such a dimension in existing surveys, for instance, asking respondents to provide a view of the share of sales abroad that are digitally ordered. Although this appears to be the most promising avenue to explore digitally ordered trade, it remains to be seen how successful these efforts will be as some issues will need to be addressed going forward.

1. Chief, in this respect, is the difficulty that respondents will have in identifying whether a purchase is from a non-resident entity in order to estimate the share of imports that are digitally ordered. It will not always be clear whether the purchase was an import or not, for example when transactions pass through websites, or online platforms that charge a fee (digital intermediation platforms or DIPs) where the only information that may be available to the respondent is the domain name. Country-code top-level domain names (e.g. ".uk") are not necessarily a marker.
2. Digital transformation involves a significantly higher participation by households as direct buyers but also as sellers, and considerable care is needed in the use of firm-only based estimates of digitally-ordered trade. Household surveys provide an obvious data source for digital imports, albeit not without challenges, and also potentially exports, but additional sources, in particular from DIPs, should be explored.
3. The difficulties in identifying whether the seller is a resident or non-resident to estimate household imports of digitally ordered goods and services are compounded compared to statistics for firms. Most digitally ordered purchases by households will be through DIPs and firm websites whereas many digitally ordered transactions by firms will be via electronic data interchange mechanisms.
4. A particular complication concerns imports of digital intermediation services by sellers using non-resident DIPs (where implicit charges, incurred by the buyer and seller are imputed to the buyer). Moreover, for sales by residents to non-residents using resident platforms, the intermediation fee should be recorded as a domestic transaction (intermediate consumption by the exporter) with the value of exports, including the value of the intermediation fee. Surveys requesting information on foreign sales should be carefully designed to ensure that these transactions are not omitted.

Given the challenges to developing comprehensive, robust and exhaustive estimates of digital trade and in the absence of detailed survey-based approaches, estimates could be derived through simpler methods, which can be based on expert judgement, anecdotal evidence, or observations based on the experience of comparable countries.

One such simple approach is to apply shares based on 'judgements' of experts of existing measures of international trade, and to apply specific shares for different products, ideally by category of importer/exporter (e.g. firms, governments, households, and individuals). Such shares could be based on small representative samples of importers and exporters, mirror statistics, other countries' experiences, or even through the application of estimates based on observations by product but not broken down by foreign and domestic.

Some discretion will be needed in how these estimates are applied. For example, at the economy level, the share of household expenditures on, say, computers, that is digitally ordered is likely to underestimate the equivalent share on cross-border imports of computers, but probably overestimate digitally ordered purchases of computers the household may have made whilst abroad. Similarly, the share of digitally ordered household expenditures on say food products (via online shopping) is likely to be higher than corresponding shares of consumption abroad.

Other data sources can also play an important role. Many countries are now exploring the potential of credit card data to provide information on digital-ordering (Box 1). While these mainly relate to households and there remain some challenges in reliably identifying whether the transaction was indeed truly international, as opposed to being cleared in a foreign registered merchant house, they also provide an important source that can be used to derive shares.

Credit card data (when processed in such a way that it aligns with thresholds used in *de minimis* trade regulations) can also provide a useful source to estimate *de minimis* trade, especially when coupled with information from other sources, for example from courier companies or with other administrative and big data sources. A limitation, however, is that the Merchant Category Codes implicit in the use of these data are not comparable internationally.

### **Box 1. Using credit card data to measure cross-border online purchases in Israel**

Benefitting from the legal framework in place that allows access to credit card information, and a memorandum drawn up with three major companies, the Israeli Central Bureau of Statistics (CBS) has started to develop more robust estimates of digitally ordered purchases from abroad by consumers. The credit card companies have since provided monthly or quarterly data covering the period from 2012 onwards, and currently report approximately two weeks after the end of the quarter.

Data are separately available showing expenditures by Israeli tourists abroad (providing a measure of tourism expenditures) and expenditures by Israeli residents cleared through foreign websites, providing insights on digitally ordered trade. Data are broken down by duty rates for imported goods set by the customs authorities, in order to distinguish goods that were cleared by customs (i.e. transactions > USD 500), and therefore already included in import statistics.

The data are classified according to the international classification of Merchant Category Codes (MCC) – a classification of businesses made by credit card companies – and relate to households only (business credit cards were excluded), and only those transactions where cards were not present (as these primarily refer to online purchases, although they may include purchases made by telephone or fax).

**Source:** Israel Central Bureau of Statistics.

Another avenue to explore in developing statistics on international digitally ordered transactions involves microdata linking (Box 2). This can be done, for example, by integrating merchandise trade statistics with e-commerce enterprise surveys, albeit coupled with stylised assumptions relating to foreign/domestic e-commerce splits, or proportionality assumptions when applying the share of foreign sales that occurs via e-commerce equally to all products and trading partners.

Overall, statistical efforts have gravitated traditionally around conventional measurement vehicles, such as surveys of businesses and households, and will need to be complemented by more innovative and more targeted approaches that focus on key actors.

### Box 2. Measuring cross-border e-commerce from webshops in the Netherlands

To measure expenditure by Dutch consumers at non-Dutch webshops located in the European Union, Statistics Netherlands (CBS) used the Dutch VAT returns filed by foreign EU companies, which are mandatory across Europe for all traders exporting more than a certain threshold (EUR 35 000 or EUR 100 000 per year, depending on the member state) to another member state. To identify webshops among these VAT returns, the information was first combined with data from Bureau Van Dijk's ORBIS database, to select those enterprises engaged in retail as their primary or secondary activity (and therefore to trade in goods only).

In the absence of common identifiers, the matching of records was done using company names. This process required significant editing to avoid false negatives, for example due to differences in punctuation marks (dots, commas, dashes) or abbreviations (e.g. LTD versus LIMITED). In this process, CBS worked together with the University of Amsterdam and Leiden University to implement big data analytical techniques to achieve faster and more accurate linking.

Subsequently, this overview of companies was paired with Internet data collected through web scraping to identify the websites of the webshops through which products can be ordered online. Webshops were identified on the basis of the company name, with sites checked (automatically) for the display of a shopping cart. This identification of webshop features was checked manually for the largest foreign companies in terms of turnover size in the Netherlands. Through these manual checks, a rough estimate was made of the measurement errors in the algorithm, which was approximately 5% of turnover. With the help of manual check results, the next version of the algorithms can be 'trained' using machine learning in order to further reduce measurement errors.

The results indicate that Dutch consumers spent over EUR 1 billion (excluding VAT) on products sold by foreign EU webshops in 2016, an increase of 25% relative to 2015, and a value six times higher than previously recorded with demand-side surveys among consumers. More than half of all online purchases were made at webshops located in Germany, followed by the United Kingdom, Belgium and Italy. Clothing and shoes were the main items that were purchased.

**Source:** (Statistics Netherlands (CBS), 2021<sup>[6]</sup>); (Statistics Netherlands (CBS), 2018<sup>[7]</sup>)

### *Digitally delivered trade*

Digitally delivered trade closely follows the definition used for ICT-enabled services developed by the UNCTAD TGServ Task Force (Box 3). Let's recall that only services can be digitally delivered.

### Box 3. List of ICT enabled services

The UNCTAD TGServ Task Force includes the following sectors in its definition of ICT-enabled services, using EBOPS classification:

- Insurance and pension services (6);
- Financial services (7);
- Charges for the use of intellectual property n.i.e. (8);
- Telecommunications, computer, and information services (9);
- Research and development services (10.1);
- Professional and management consulting services (10.2);
- Architectural, engineering, scientific and other technical services (10.3.1);
- Other business services n.i.e. (10.3.5);
- Audio-visual and related services (11.1);
- Health services (11.2.1);
- Education services (11.2.2) and
- Heritage and recreational services (11.2.3).

**Source:** (UNCTAD, 2005<sup>[4]</sup>)

However, there are also some important differences between ICT-enabled services and digitally delivered trade. The former include services delivered by methods that do not necessarily require computer networks, such as human-to-human interactions via a mobile phone, while the latter requires that the transaction is passed through a 'computer network'. One particularly important difference between the two concepts concerns the services provided by DIPs which is here included in digitally delivered services. In addition, the Handbook recommends that estimates of imports and exports of digital intermediation services, which are covered in various parts of EBOPS (e.g. transport, travel, trade, and financial services are also included).

Recognising that reporting mechanisms may not currently be able to deliver estimates on ICT-enabled services, the concept of 'potentially' ICT-enabled was also developed, as many countries – particularly those with well-developed services trade statistics – should be able to provide these estimates without modifications to existing surveys. In the same vein, an addendum item for 'potentially digitally delivered services' was also included, recognising that there are differences in the coverage of products (and definitions of 'networks' that facilitate them) between digitally delivered and ICT-enabled services.

A number of countries are seeking to estimate digitally delivered trade by developing trade statistics by modes of supply, building on the fact that, by definition, all digitally delivered cross-border services transactions are Mode 1 (Box 4). Country experience suggests that adapting existing International Trade in Services (ITS) surveys, by asking explicitly respondents to provide an estimate of digitally delivered trade, are feasible and generate good results, even if the additional questions target only a smaller sample of firms. Such questions provide a (lower-bound) view of Mode 1 service delivery (Box 5). Likewise, surveys of Mode 1 service delivery provide an upper-bound estimate (but reasonable approximation) of cross-border digitally delivered trade.

#### **Box 4. Trade in services by mode of supply**

The definition of trade in services in the WTO's General Agreement on Trade in Services (GATS) covers four modes of supply. Distinctions among these modes are based on whether the service supplier and the consumer are present in the same country or different countries when the transaction occurs.

**Mode 1:** Cross-border supply (remote supply)

Cross-border supply takes place when a service is produced in one country but consumed in another one. Similar to traditional trade, when a good is delivered across a border both the supplier and the consumer remain in their respective countries.

**Mode 2:** Consumption abroad

Consumption abroad takes place when services are consumed in the country where they are produced. The consumer or his/her property are abroad when the service is supplied.

**Mode 3:** Commercial presence

Commercial presence takes place when a service supplier establishes a presence abroad in order to provide services (for example through foreign direct investment).

**Mode 4:** Presence of natural persons

Presence of natural persons takes place when an individual is present abroad in order to provide a commercial service. The service is produced in the country where it is consumed.

**Source:** (Statistics Canada, 2020<sup>[8]</sup>). (ONS, 2020<sup>[9]</sup>)

It is important to recognise that ITS surveys typically exclude Mode 2 trade, and so in arriving at estimates of digitally delivered trade for the whole economy, explicit estimates, in particular using international passenger or tourism surveys, are also needed.

Approaches using mode of supply also highlight that, in practice, certain products are almost exclusively digitally delivered (for example, telecommunications services) and that many other products are mainly (above 80%) digitally delivered. As such, in the absence of actual estimates, the use of anecdotal information or expert judgement can help estimate shares of exports by product that are digitally delivered.

Because of concerns around the taxation of digitally delivered services, especially those delivered to households, new sources of data are becoming available, as countries seek to plug loop-holes in the tax-base. Countries are strongly encouraged to explore the scope of using related administrative tax data as they become available (see the Annex for some examples).

### **Box 5. Measuring digital trade using ITS surveys linked to modes of supply**

This box reviews experience in the United States and in the United Kingdom in measuring digital trade using ITS surveys and the breakdown by modes of supply.

#### **United States**

The US Bureau of Economic Analysis (BEA) has recently taken steps to compile digitally delivered transactions using the US ITS survey as an offshoot of an effort to measure services supplied by the four GATS modes of supply. BEA has expanded its Benchmark Survey of Transactions in Selected Services and Intellectual Property with Foreign Persons for 2017 to collect data on the share of trade in certain services delivered through Mode 1. Although Mode 1 is broader than digitally delivered services in that it includes supply by postal mail, the value of services delivered by these means is considered negligible.

BEA considered and tested several versions of a questionnaire before arriving at a final design. A first version collected information on Modes 1, 2, and 4, but feedback from respondents indicated that this approach would be excessively burdensome and impractical because most accounting systems do not track services by mode of supply.

A second version asked respondents to provide the predominant mode through which services are supplied. Feedback indicated that this would not be overly burdensome. However, BEA concluded that the information would be of limited use because BEA expected that companies would report that Mode 1 was predominant for most service types. Relying only on the knowledge that Mode 1 is the predominant mode and given that what was not supplied through Mode 1 could be supplied by Mode 2, Mode 4, or both, BEA would be left with a wide range of possible values for the percentage of that service that was supplied through Mode 1 (between 33 and 100 percent).

BEA settled on an approach that respondents indicated would not be too burdensome, yet might provide reliable measures. Under this approach,



respondents simply report the share of certain services delivered by Mode 1 within percentage ranges. Mode 4 can then be measured as the residual of total trade for a given service type less Mode 1. Services delivered through Modes 2 and 3 would be measured using independent data sources available to BEA, most notably statistics for travel services statistics for Mode 2 and foreign affiliate trade statistics (FATS) collected by BEA for Mode 3.

The approach incorporates an additional simplification that advises respondents that they can provide information from general knowledge of their company's operations rather than from their accounting systems. In contrast with the U.K.'s approach (see below), BEA asked for Mode 1 information only for those service types which it conjectured would not be supplied exclusively through Mode 1. This approach has the advantage of reducing reporting burden.

### **United Kingdom**

The approach adopted by the UK's Office of National Statistics (ONS) was very similar to that adopted by the BEA except that it included a response category 'unknown' in addition to the 6 percentage ranges adopted by the BEA. In the initial phase of the ONS' work, a sample of 100 businesses were selected to test the new survey questions in September 2018. The results indicated little change in the response rate among the pilot sample and most businesses were able to respond with the information needed. As a result, new questions were added to the 2018 annual UK ITS survey of 5 000 businesses known to engage in international trade in services.

An additional variation of the ONS approach (compared with the BEA approach) was the integration of data from the proportional allocation method developed by Eurostat. In addition, the ONS questionnaire did not restrict responses for Mode 1 trade to those products that could be remotely delivered. Of particular interest in this respect is the fact that respondents identified Mode 1 delivery in a number of products that are not recognised as Mode 1 in MSITS 2010 and in addition are not typically considered as being remotely delivered (and not considered in the UNCTAD or Eurostat templates). This suggests care is needed in designing the surveys and questions to respondents such that they align with the recommendations set out in MSITS 2010.

Source: (ONS, 2019<sup>[10]</sup>) (BEA, 2019<sup>[11]</sup>)

To remain relevant, measures of digital trade will need to keep track of changes in the economic and financial landscape, due to rapid advances in digital technologies and continuously evolving market dynamics. For instance, "Fintechs" (financial technology firms) have emerged and use advanced technologies to perform traditional banking activities repackaged in a new, often mobile-phone based format. They may also provide new types of services, often summarised under the name of mobile money, and can include funds transfers (remittances), payment, savings, credit, insurance, trade financing (including for small businesses) and other financial services.

While data collection on the cross-border transactions involving mobile money is still in its infancy, a variety of potential data sources has been identified to support the compilation of statistics, including dedicated surveys of telecommunication companies that have developed and marketed mobile money, data on the revenue received from non-resident telecommunication companies arising from inward mobile money transfers from non-residents to residents can also be collected from these companies or resident integration technical partners.

An alternative approach is to develop estimates derived from the total inflows and outflows of international mobile money transfers, by country and telecom partner, as reported by telecoms companies involved in cross border mobile money transfers to the telecommunications regulator (administrative source data). The International Transaction Reporting System (ITRS) is a third option that could be explored (see Annex for some examples).

### **Digital Intermediation Platforms**

An important characteristic of the digital age is the increasing role of firms such as Airbnb that facilitate transactions in goods and services. These DIPs charge a fee, nearly always have an electronic ordering component and, typically, the goods and services advertised can only be paid for electronically. In addition to the specific interest in the role of DIPs and their potentially disruptive impact on the economy, a targeted focus on DIPs, including through dedicated survey vehicles, may provide an effective approach to deliver earlier results on both digitally ordered and digitally delivered trade. There are, however, specific conceptual and statistical challenges related to transactions in DIPs, especially when they are not resident in the country where the intermediation services are consumed.

DIPs that charge users a fee 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 services that are being sold (intermediated).*

In turn, because digital Intermediation platforms may also provide other services, fee-based digitally intermediated platform services are defined as:

*Online fee-based intermediation services enabling transactions between multiple buyers and multiple sellers, without the intermediation platform taking economic ownership of the goods or rendering-services that are being sold (intermediated).*

Fee-based digitally intermediated platform services differ from similar services provided by electronic retailers, who may also sell a wide variety of different products and operate exclusively online, but who own all the products being

sold, and so provide margin-based distribution services as opposed to intermediation services.

Current national efforts to measure the activities of DIPs are limited, reflecting in large part the difficulties in identifying them in existing statistical business registers, which in turn partly reflects a lack of clear guidance in how they should be classified in the United Nations International Standard Industrial Classification of All Economic Activities (ISIC). Discussions are on-going within the international statistical community (ISIC, 2021<sup>[12]</sup>), but for now the provisional guidance is that DIPs should be classified to the activity they intermediate if they intermediate services and to ISIC 47.91 if they intermediate sales and purchases of goods.

A significant statistical challenge concerning the measurement of DIPs transactions refers to transactions with non-resident DIPs, especially by households which may underestimate trade, especially de minimis trade. The inclusion of questions on DIPs and in particular well-known and large DIPs, whether resident or non-resident, in household surveys should definitely be explored, especially for surveys of expenditures abroad.

### ***Non-monetary international transactions***

Digital trade is growing hand in hand with cross-border data flows which enable seamless trade and create new opportunities to add value. The growing flows of data have also raised new concerns related to data privacy and security, and consumer protection, resulting in, for example, local storage requirements or restrictions on cross-border data flows.

Data flows that are not directly monetised are not generally considered as trade flows in current statistical standards; for example, personal information provided on social networks or data captured by firms within the Internet of Things. However, even though these data are acquired at zero price, they clearly have value to the firms acquiring and using them in production, whether to generate advertising revenues, supply-chain and risk management or production efficiencies.

Valuing these data, and more generally non-monetary transactions, is a formidable challenge. This includes non-monetary intra-firm transactions, especially transactions related to the zero price transfer of services related to knowledge-based capital, including data, often for reasons of fiscal optimisation.

Work is on-going within the international statistics community in the context of the SNA update to provide greater guidance on when imputations for these flows should be included in the system of economic accounts and by extension, trade, and how they should be valued ((ISWGNA, 2020<sup>[13]</sup>), (Ahmad, 2018<sup>[14]</sup>)). Significant advances on the broader measurement front, including on data, and

on open source software, are included in the OECD Going Digital Measurement Roadmap (OECD, 2019<sup>[16]</sup>). Imputations for data and open source software have been recommended in the supply-use tables for the digital economy, being developed by the OECD Advisory Group on Measuring GDP in a Digitalised Economy.

## Moving forward

The development of statistics on digital trade remains, largely, in its infancy, which is why the Handbook on which this note relies should be seen as a living document that will be updated as new national and international efforts emerge. It is hoped, and indeed intended, that the Handbook itself will help to assist and motivate in further uptake of initiatives, many of which are listed in the Annex. Perhaps the most important tool in this respect reflects the reporting template with annotations providing information on the various sources that can be used today to populate statistics on digital trade (Table 1).

**Table 1. Template for reporting digital trade (simplified)**

|  | Exports                     |             |  | Imports                     |             |                        |
|--|-----------------------------|-------------|--|-----------------------------|-------------|------------------------|
|  | By Institutional sector     |             |  | By Institutional sector     |             |                        |
|  | Corporations<br>By industry | Governments | Households /<br>NPISHs   | Corporations<br>By industry | Governments | Households /<br>NPISHs |
| i Digitally ordered  |                             |             |  |                             |             |                        |
| ii Goods   | ES                          | AR          | HS/CC  | ES/ITSS                     | AR          | HS/CC                  |
| iii Services*, not digitally delivered   | ES/ITSS                     |             |  |                             |             |                        |
| iv Digitally delivered services*   |                             |             |  |                             |             |                        |
| v Digitally ordered*   | ES/ITSS/ITRS                | AR          | HS/CC  | ES/ITSS/ITRS/VAT            | AR          | HS/CC/MOSS             |
| vi Not digitally ordered*  |                             |             |  |                             |             |                        |
| <b>vii Total Digital Trade</b>   |                             |             |  |                             |             |                        |
| <b>viii Transactions via DIP's</b>   |                             |             |  |                             |             |                        |
| ix Digitally ordered   |                             |             |  |                             |             |                        |
| x Goods  | ES + DIP                    |             | HS/CC + DIP  | ES/ITSS + DIP               |             | HS/CC + DIP            |
| xi Services*   |                             |             |  |                             |             |                        |
| xii Digitally delivered*   | ES/ITSS/ITRS + DIP          |             | HS/CC + DIP  | ES/ITSS/ITRS/VAT +<br>DIP   |             | HS/CC/MOSS<br>+ DIP    |
| xiii Not digitally delivered*  |                             |             |  |                             |             |                        |
| * Services should be displayed by EBOPS category.  |                             |             |  |                             |             |                        |
| ES = Enterprise surveys  |                             |             | ITRS = International Transaction Reporting System  |                             |             |                        |
| HS = Household survey  |                             |             | MOSS = Mini One Stop Shop  |                             |             |                        |
| CC = Credit card data  |                             |             | AR = Administrative records  |                             |             |                        |
| ITSS = International Trade in Services Statistics Survey   |                             |             | VAT = administrative records from value added tax collection (specific for digital activities) |                             |             |                        |
| DIP = Data collected directly from Digital Intermediation Platforms (special surveys, webscraping, etc.) |                             |             |  |                             |             |                        |

**Source:** (OECD-IMF-WTO, 2019<sup>[21]</sup>).

Central to its development is the fact that in most country estimates of digitally delivered trade appear most feasible at this stage, since the evidence suggests that most products that can be digitally delivered are indeed digitally delivered. This consideration has played a large part in the design of the template, and its focus primarily on goods that are not digitally delivered, while digitally delivered services that are also digitally ordered are recorded as an 'of which' component of digitally delivered.

## Annex: A selection of innovative practices to measure digital trade

### Digitally-ordered trade

#### *Using Household surveys*

##### **Italy's border survey**

###### **Responsible entity: The Bank of Italy**

**Description:** The Bank of Italy (BoI) has been running an extensive (face-to-face) border survey since 1996 providing information on various features of Italy's inbound and outbound international tourism, such as number and characteristics of visitors and visits, number of night stays, mode of payments used, etc. Recently, additional questions have been added to gather information about the use of online tools to book or buy travel services. Travellers are asked about: 1) online purchases of "all inclusive" travel packages and 2) online booking of accommodation. The survey shows that in 2016, expenditures on "all inclusive" trips purchased or booked online accounted for 14% and 18%, respectively, of outbound and inbound travellers' total expenditure on the product. For accommodation services, the equivalent figures amounted to 42% and 65% respectively. A specific question addresses the channel used to book the accommodation online.

**Read more:** <https://www.bancaditalia.it/> ;  
<https://unstats.un.org/wiki/pages/viewpage.action?pageId=5309423>.

#### *Using credit card data*

##### **U.S. quarterly survey of bank and payment card processors**

###### **Responsible entity: U.S. Bureau of Economic Analysis (BEA)**

**Description:** In the mid-2000s, BEA explored the use of credit card data to estimate trade in travel services as it offered several advantages over self-reported expenditure data, including that it did not rely on travellers' recall or expectations and they provided complete geographic coverage. BEA collected card data for transactions related to trade in travel via a quarterly survey of bank and payment card processors for 2008-2017.

BEA's original survey captured all cross-border purchases and cash withdrawals made with a card for both spending in the United States using cards issued by foreign banks and spending in other countries using cards issued by U.S. banks. The survey collected a breakdown of total transactions for six broad categories of travel-related purchases and detail on total transactions by country. BEA's

initial concerns with the survey data were that it appeared to include e-commerce transactions and that classifications by spending category varied across reporters, while transactions unrelated to travel spending were also being reported.

BEA attempted to address these concerns with a redesign of the survey in 2012. One of the most important changes included the separation of reported transactions by whether the card was or was not present at the time of the transaction. The vast majority of retail goods and services purchased without a card present were expected to represent e-commerce, and not in-person point-of-sale transactions thought to be typical of travel expenditures. E-commerce transactions could therefore be omitted from BEA's calculation of travel expenditures. The instructions were also modified to specify how each transaction's merchant category code (MCC) should be classified into the spending categories and to omit certain MCCs that did not correspond to the types of purchases made by travellers. In addition, transactions were collected by both spending category and country, which allowed for more detailed comparisons with alternative data sources.

The improvements to the survey were only partly successful because not all reporters could fully comply with the new instructions. In addition, survey reporters could only identify transactions by country based on the location of the bank that issued the card rather than by the country of residence of the traveller using the card. This identification not only affected the ability to correctly attribute transactions by country of the purchaser, but also whether transactions should be classified as resident/non-resident. Further, data from card transactions did not correspond with data from alternative sources on traveller counts and spending.

When combined with traveller counts, the implied spending per person was significantly higher than self-reported spending from a survey of air travellers, even though it did not include purchases made without a card or international purchases channelled through entities in the country of residence of the purchaser (e.g. a U.S. resident booking a foreign hotel via a U.S. website). Furthermore, the country-level estimates of implied per person spending revealed unrealistic levels of spending and unexpected differences in spending across countries that are geographically close to one another and have similar traveller demographics.

Another concern with the card transactions data was that certain relevant card transactions would be missed by the survey due to the structure of the card-processing and card-issuing industries. For example, reciprocal agreements may allow a foreign card processor to process a relevant transaction, and relevant card payments on closed-loop or digital wallet payment systems may not be captured by the survey. Also, the categorisation by MCC may not correspond to the goods or services purchased because merchants may have one or a few

MCCs per retail outlet, which does not allow for a high level of disaggregation by product type. In the BEA's analysis, the level and seasonal pattern of spending for categories thought to be well identified by MCC, such as lodging, were quite different from self-reported spending in the traveller survey.

Since not all spending is done with cards and some transactions related to travel may be booked via intermediaries resident in the same country as the traveller, BEA planned to account for transactions made by methods other than cross-border credit card transactions using data collected on a one-time companion sample survey of international travellers. The companion survey provided information on the portion of total spending attributable to cross-border card transactions, but there were concerns over the quality of the data collected and its associated cost, so it was not repeated. BEA ultimately decided that the credit card data it collected was not a reliable basis to estimate trade in travel and discontinued the survey of card processors.

**Read more:** <https://www.federalregister.gov/documents/2016/04/04/2016-07474/be-150-quarterly-survey-of-payment-card-and-bank-card-transactions-related-to-international-travel>.

### **Using data from other payment processing firms**

#### **The Russian Federation's quarterly survey of specialised online payment companies**

##### **Responsible entity: Central Bank of the Russian Federation**

**Description:** Digitally ordered trade transactions are nearly always settled via specialised online payment companies. In the Russian Federation, both international companies such as PayPal, and national information technology companies such as QIWI or Yandex operate in this market. The law requires such companies to have licenses to work as credit institutions and to notify the Central Bank when they begin transferring electronic funds.

The online payment companies are required to report detailed information to the Central Bank on a regular basis, including on direction of payment, the counterparty country and the currency of transactions. Due to the large number of small transactions (the average transfer amount is USD 20), the individual transactions are not categorised by type of goods and services. However, considering the growing importance of digital ordering, a quarterly survey of specialised online payment companies was developed in order to obtain disaggregate information on transactions by major product categories.

To reduce the burden on respondents, a list of the types of goods and services that account for the largest shares in international transactions was developed with input from the operators of payment systems, and only the three largest operators, which account for more than 80% of total international transactions,

are surveyed. Categories identified in the approach include the purchase of goods; the purchase of services in the field of culture and recreation (computer games); computer services (content, hosting, domain registration); communication services (cellular communication and internet, SIM cards for tourists, information services); participation in online casinos; transactions on the foreign exchange market; and transfers between individuals.

The first survey was conducted in 2014. The results showed that imports of goods from online stores, participation in online casinos, and computer games made up the largest shares of online cross-border transactions conducted by individuals. The practice has been considered successful and is currently used in the calculation of imports and exports of goods and services, personal remittances and other balance of payments items.

**Read more:** <https://www.cbr.ru/eng/>.

## ***De minimis trade***

### **United States' approach to de minimis trade**

#### **Responsible entity: U.S. Bureau of Economic Analysis (BEA)**

**Description:** Since the 1960s, the United States has promoted the reduction of trade flow processing costs by exempting low-value transactions for both imports and exports from the burden of additional procedures and paperwork. The U.S. Census Bureau provides estimates for low-valued trade statistics below a threshold of USD 2 500.

Data for exports is based on the sum of two sources of information, gathered from small package courier company trade transactions and country-specific low-value trade estimates. Courier data is used to develop a "courier factor" based on the proportion of the low value trade to the total high value trade over several months. This factor is the same for all countries, and is multiplied with the courier data to produce courier low value estimates. Non-courier data is estimated by using a country-specific factor multiplied by each country's trade from the prior month (or current, if available) to produce low value estimates. This is done for exports to all countries except for Canada, which is separately generated under the United States-Canada Data Exchange. These two data components are summed, by country, to produce monthly low value estimates.

In contrast, import data is typically based on available low value import data rather than estimates, with two main methodological features. The first is a summation or "roll up" of excess electronically-filed data (comprising the majority of data) that is typically omitted from the original statistics, which increases the value of trade for certain commodities where lower valued trade is prevalent. The second is a revised low value estimation process with four



components: 1) a low value total for electronically filed import data, 2) an estimate of low valued data filed via paper, 3) an estimate of courier low value data, and 4) a low value total for Foreign Trade Zone data filed either via paper or electronically. These four components are summed, by country, to produce monthly low value estimates.

**Read more:**

<https://www.bea.gov/data/intl-trade-investment/international-trade-goods-and-services>.

### **Using customs statistics directly**

#### **The People's Republic of China's use of statistics on orders provided by e-commerce platforms and a new postal survey**

**Responsible entity:** The General Administration of Customs of the People's Republic of China (GACC)

Description: In recent years, e-commerce has flourished in the People's Republic of China (hereafter China), and the country has become the world's largest e-commerce market where all forms of e-commerce (including for example B2B, B2C, C2C) have developed rapidly. This growth has brought challenges for accurately measuring cross-border e-commerce involving goods, in the case of high-frequency and low-value transactions. As the institution responsible for producing official Chinese merchandise trade statistics, China Customs has developed new approaches to ensure the statistical coverage of these transactions, covering both B2C and B2B.

For the B2C cross-border e-commerce transactions, China Customs has established a specialised clearance system named Cross-border E-commerce Information System (CBEIS). Specific customs regime codes (9610, 1210 and 1239) help identify goods that are cleared via CBEIS. Customs allow the release of B2C cross-border e-commerce goods via a simple declaration which combines and cross-validates the original orders, logistics and payment data, while e-commerce platforms declares summarised data to China Customs afterwards for statistics and other purposes.

Since e-commerce platforms typically have high-quality data management systems to oversee the entire chain of transactions, logistics and payments, information is easy to collect and report. China Customs uses the information on orders provided by e-commerce platforms both within and outside China to develop statistical estimates on the overall scale of cross-border e-commerce. By also incorporating administrative records of cross-border logistics and cross-border payments, using big data methodologies, China Customs can compare

and cross-validate the data to improve the accuracy of measurement. This approach delivers complete, accurate and timely statistical information.

For B2C goods cleared as mail parcels and courier deliveries rather than through CBEIS, China Customs and the postal agency have carried out a pilot survey, using sampling methods to determine the proportion of e-commerce postal parcels, to estimate the scale of cross-border e-commerce merchandise trade via postal channels. For the B2B transactions, China Customs currently encourages importers and exporters to declare whether the goods are ordered via e-commerce. This information will be used for a future statistical survey to further estimate and validate these data.

**Read more:** <http://english.customs.gov.cn/>.

### **Turkey's use of customs data, including through the BİLGE and EDI systems**

**Responsible entities:** Turkish Statistical Institute, The Ministry of Trade

**Description:** In Turkey, studies for the production of cross-border e-trade in goods statistics have been carried out since 2018 in co-operation with the Turkish Statistical Institute and the Ministry of Trade. Efforts are being made to use administrative records to produce these statistics. All documents and applications used in cross-border e-trade transactions are examined in detail in order to avoid a lack of coverage. In addition, these studies are carried out to produce cross-border e-trade statistics on a country-product and on a monthly basis.

In this context, firstly, Electronic Trade Customs Declarations (ETCD), which are only used in electronic trade transactions in Turkey, were examined. Electronic Trade Customs Declaration is an application used only for electronic trade, which is used in the customs procedures of incoming/outgoing goods by air, road, post or fast cargo transportation, and where all transactions regarding customs declaration are carried out electronically, no paper output is required. ETCD declarations have been included in trade in goods statistics since January 2021, but have not been published under the title of e-trade.

A second source that will be used to produce statistics is the customs data compilation system (BİLGE) and the Electronic Data Interchange (EDI) system of the Ministry of Trade, which are used in compiling official international trade in goods statistics. A separator has been established in BİLGE and EDI systems to distinguish cross border e-trade transactions that are included in the published official international goods trade statistics but have not yet been separated. By this separator, the enterprises are asked whether the transaction is e-trade or not. In addition, studies for training activities for those who fill out the declarations are also planned.

Another source for the production of cross-border e-trade statistics is the administrative records of the General Directorate of Post and Telegraph Organization (PTT). Integration of the export records of the PTT with the ETCD has been ensured. However, due to the differences in implementation of import registrations in partner countries, the harmonisation of the system with the ETCD continues. Following the conclusion of the regulations in the administrative records, the data flow and the monitoring of the data for a while, it will be possible to produce and publish the cross-border e-trade statistics on a monthly basis at the product-country level in Turkey.

**Read more:**

## Digitally-delivered services

### ***Implementation of UNCTAD's model enterprise survey on ICT-enabled services***

#### **Costa Rica**

**Responsible entity: Central Bank of Costa Rica (BCCR)**

**Description:** Costa Rica was among the first countries to leverage the assistance offered by UNCTAD to set up a data collection and compile statistics on services that were actually delivered remotely over ICT networks (i.e. ICT-enabled). Using the classification system developed by UNCTAD, Costa Rica implemented a survey among 285 enterprises that were identified as potential exporters of ICT-enabled services in 2017. 185 responses were received, of which 117 responded that they exported services that were ICT-enabled.

The results were grossed up to the entire population of firms exporting these services (digitally or not), a total of 1196 firms, using selected economic variables of the Central Bank of Costa Rica (BCCR) and other administrative records, including enterprise size, different trading regimes (special regime or free trade zone and final regime), and industry. The results show that 82% of firms sold cross-border ICT-enabled services, amounting to 97% of all potentially ICT enabled services, or 18% of total exports and 38% of total services exports. Over three-quarters of firms exporting ICT-enabled services were foreign owned, predominantly U.S. or European.

**Read more:** [https://unctad.org/system/files/non-official-document/tdb\\_edw2019\\_c11\\_CostaRica\\_en.pdf](https://unctad.org/system/files/non-official-document/tdb_edw2019_c11_CostaRica_en.pdf).

## **Using the International Transactions Reporting System (ITRS) data**

### **Brazil**

**Responsible entity:** Central Bank of Brazil (BCB)

Description: The Central Bank of Brazil traces international trade in services flows using the International Transactions Reporting System (ITRS). The Brazilian ITRS was originally conceived within the framework of foreign capitals control system, but as this no longer exists, BCB restructured the system with a focus on supporting: 1) the compilation of external sector statistics, and 2) the assessment and supervision of the foreign exchange market. In this regard, the ITRS covers all foreign exchange settlements between residents and non-residents.

The Brazilian ITRS has more than 50 different codes to identify the different types of services transactions, allowing national compilers to allocate transactions in the balance of payments with a good level of detail. It is possible to automatically determine the economic sector of the parties involved, particularly of the resident, as every transaction is registered (i.e. no threshold is in place) and has a national fiscal registration number identifying the resident party. For the non-resident party the name is provided.

Regarding digitally delivered trade, the Central Bank contacted several of the largest enterprises operating in Brazil to better understand their business models and decide on an appropriate allocation of the transactions observed in the Brazilian ITRS to digital trade categories.

Almost all of the foreign multinationals operating in Brazil that deliver services digitally to residents also have international transactions with their foreign parents (which is the focus here for measurement of digitally delivered trade). For example, one large digital MNE has a Brazilian subsidiary that sells online advertising space to Brazilian customers. The subsidiary is physically present in Brazil and employs over 100 staff (software developers and sales assistants). It purchases online advertisement services from its parent and provides them to local customers in Brazil.

**Read more:** <https://www.bcb.gov.br/en/statistics>.

## Using administrative tax data (VAT and Mini One Stop Shop (MOSS) data)

### Argentina

**Responsible entity:** INDEC, national statistics office.

Description: Information on digitally delivered services has recently been developed in Argentina by capitalising on new legislation (Law No. 27430/2017, *Senado y Cámara de Diputados de la Nación Argentina*, 2017) that obliges non-resident providers of digital services products to declare their revenues on services provided, on which 21% VAT is applied. Resident financial intermediaries that act as agents for non-resident services products providers are also asked to provide similar information and payments.

In many cases, the services provided were not purely related to digital services products per se. To avoid imposing VAT on transactions not covered by the new law, the fiscal authorities (AFIP: *Administración Federal de Ingresos Públicos*) set a threshold of USD 10, above which it was assumed that the transactions did not relate to digitally delivered services products.

Initial results using these data look promising. The first set of data collected information from 699 intermediaries and 956 non-resident providers. However, disaggregation by product detail could not be identified, so, additional information was requested directly from the intermediaries. Broadly, a detailed concordance between firms and the services supplied was developed by assuming that the non-resident firms export products related to their main activity (based on specific information by the reporting firm). Because of the nature of the digital services provided, and the method of payment (mainly through credit cards), it was assumed that the main resident sector involved was the household sector.

Two caveats are needed with this approach in relation to coverage. The first relates to intermediation services for platforms intermediating goods, whose commission, in theory, is captured in goods statistics (valued at C.I.F). The second concerns the use of the USD 10 threshold (although anecdotal evidence suggests that this is currently not a significant problem).

**Read more:**

[https://www.indec.gob.ar/ftp/cuadros/publicaciones/servicios\\_digitales\\_bdp.pdf](https://www.indec.gob.ar/ftp/cuadros/publicaciones/servicios_digitales_bdp.pdf)

## Hungary

**Responsible entity:** Hungarian Central Statistical Office (HSCO)

Description: With respect to exports, a first step in assessing the potential, and the scope, of MOSS data to deliver estimates on components of digitally delivered services trade (in the categories covered by MOSS) included a comparison of export data for 9 enterprises identified in MOSS and ITS Surveys. The results revealed a high degree of consistency between the two sources (although in one case, the results revealed a need to reclassify the EBOPS category recorded in ITS Surveys).

The 9 enterprises accounted for 78% of total Hungarian exports included in MOSS. As a percent of their total services 49% of their exports of services to the European Union were digitally delivered and 17% in total. As MOSS only covers specific digital services, and only specific digital services provided to non-taxable persons (mainly households) in the European Union, the MOSS data accounted for only 0.03% of total Hungarian services exports.

With respect to imports, MOSS can also be used to derive information on imports of digitally delivered services by households. Results for 2017 revealed that MOSS data was around 40% of the value of comparable estimates of households' imports of digitally delivered services (partly reflecting the fact that MOSS remains optional for reporting enterprises). As a share of total services imports, MOSS data amounted to 0.73%.

Future plans involve identifying which non-resident enterprises provide services in Hungary, which is not yet possible in the MOSS dataset, as only MOSS identifiers, and not company names, are provided. But this is scheduled to change in the near future, which will enable HCSO to better assess import data and to estimate trade by country and region of origin. In addition, it is expected that the coverage of MOSS data will grow.

**Read more:** <https://www.ksh.hu/?lang=en>.

## Denmark

**Responsible entity:** Statistics Denmark

Description: In Denmark, as elsewhere, the supply of digital services provided directly to private consumers has increased greatly in recent years. Before MOSS data became available, Statistics Denmark estimated these services using a variety of sources, for five different categories, including streaming, apps, gambling, games and other services.

The introduction and use of MOSS data have resulted in not-insignificant revisions to earlier estimates (except for betting services, which are not covered in MOSS). For example, imports of computer services were revised upwards to DKK 2.8 billion from DKK 0.4 billion, while imports of audio-visual

services by private individuals have been revised down (likely reflecting the fact that consumers typically pay for these services through subscriptions with local intermediaries). In total MOSS data showed that imports by private individuals accounted for 6% of all imported computer services and almost 30% of audio-visual services.

**Read more:** <http://old.iariw.org/copenhagen/khalili.pdf>.

## **Using household surveys**

### **Canada's Digital Economy Survey**

**Responsible entity:** Statistics Canada

Description: Statistics Canada released the results of a household survey on consumption of digitally delivered products. The Digital Economy Survey (DES) was a household survey targeting individuals aged 18 and older. It covered the use and purchase of various digital services products, such as music and video streaming services, e-books, mobile apps, and online gaming subscriptions. It examined ways of earning money through the digital economy (for instance, by selling new or used products through online bulletin boards or platforms). There were also questions about the type of payment methods used (for example, cash versus debit or credit card).

Sufficient samples were allocated to each of the provinces so that the survey could produce province-level estimates. An initial sample of 12 000 dwellings was selected. Due to difficulties identified during testing, respondents were not asked to break down their expenses between Canadian and international sellers. One option being explored is to determine the trade component as a residual after excluding sales from Canadian enterprises (after accounting for exports).

**Read more:**

<http://www23.statcan.gc.ca/imdb/p3Instr.pl?Function=assembleInstr&lang=en&Item Id=794699>;

<https://www150.statcan.gc.ca/n1/daily-quotidien/180829/dq180829b-eng.htm>.

## Digital intermediary platforms

### The Netherlands' partnership with Google and Dataprovider

**Responsible entity:** Statistics Netherlands

Description: In 2016, Statistics Netherlands engaged in a partnership with Google and Dataprovider to estimate the size of the internet economy in the Netherlands. Enterprises were in scope if their website generated sales. Dataprovider made structured information available on, amongst others, business names, chamber of commerce numbers, shopping cart systems, and site traffic estimation, for approximately 2.5 million websites that either had a ".nl" top level domain, were written in the Dutch language, or were hosted in the Netherlands and displayed either a Dutch address or phone number. These data were subsequently combined with the official Statistical Business Register (SBR), taking advantage of the fact that the Dutch SBR already records the websites of enterprises.

**Read more:** <https://www.cbs.nl/en-gb>.

### Spain

**Responsible entity:** Spanish National Statistics Institute (INE)

Description: The Residents Travel Survey (RTS) is conducted by the INE, the Spanish National Statistical Office, 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: length, expenditure, purpose, accommodation, types of transport, etc.

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

The role of online platforms in booking vacation homes differs between 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 37% of cases in 2017. But making the arrangements directly with the service provider offline was still an important choice (33% of trips). On the other hand, when traveling abroad, platforms represented up to 68% of the trips using this kind of accommodation. Considering all domestic trips made by residents in Spain in 2017, using any type of accommodation, those to rented holiday



homes booked through platforms represented 2% of trips, 2.6% of nights spent and 4.0% of total expenditure. In the case of outbound trips, rented holiday homes booked through platforms represented 9.3% of trips, 7.5% of nights spent and 7.4% of total expenditure.

**Read more:** <https://www.ine.es/en/>

## **France**

**Responsible entity:** Banque de France

Description: By including questions in their panel survey on resident households, which covers both domestic tourism and trips abroad, France is able to identify if various travel 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.

**Read more:** <https://www.banque-france.fr/>

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