



Thirtieth Meeting of the IMF Committee on Balance of Payments Statistics

Paris, France
October 24–26, 2017

BOPCOM—17/07

Measuring Digital Trade: Results of OECD/IMF Stocktaking Survey

Prepared jointly by the Organisation for Economic Co-operation and Development and
the IMF's Statistics Department

INTERNATIONAL MONETARY FUND

MEASURING DIGITAL TRADE: RESULTS OF OECD-IMF STOCKTAKING SURVEY¹

The Internet and digitalization are fundamentally changing the way people, businesses, and governments interact, including across borders. The growing importance of what is commonly referred to as ‘digital trade’ and the emergence of new (and disruptive) players has resulted in increased interest amongst policy makers and from within the statistics community for improved measurement of this phenomenon. This paper reports on (a) existing efforts to advance the development of a conceptual and measurement framework for Digital Trade and (b) current national practices in more than 70 countries to measure (parts of) Digital Trade and to deal with the challenges that digitalization poses for conventional trade statistics, drawing on the OECD-IMF Stocktaking Survey on Measuring Digital Trade.

I. INTRODUCTION

1. The Internet and digitalization are fundamentally changing the way people, businesses and governments interact. This has led to a new phase of globalization underpinned by the movement of data across national borders, changing the nature, patterns and actors in international trade in goods and services. While digitally related transactions, either in goods or services, have existed for many years, the current scale of transactions and the emergence of new (and disruptive) players transforming production processes and industries, including many that were previously little affected by globalization, is significant.
2. However, despite the growing importance of what is commonly referred to as ‘digital trade’, little empirical and internationally comparable information currently exists, inhibiting a full understanding of the scale and policy challenges of Digital Trade, which has in turn raised concerns about the capacity of current statistics to measure these phenomena. Moreover, the growing importance of enterprises with new business models—such as Uber, Airbnb, Facebook, and Spotify—raise a number of additional complications, including in relation to the nature of the activity, for (services) trade policy.
3. Digital Trade also presents significant challenges for policy makers and businesses. For example, the intangible nature of digitalized services has created strong fiscal incentives for their source (country of origin) to be located wherever that may be most advantageous, which poses new challenges for the way international trade and investment policy-making is made, as well as how international trade, especially services, is measured. In addition, significant income streams can now be generated through data itself, the collection and dissemination of which is subject to myriad national laws, for example, governing privacy. Data flows—even though these are generally not recorded in international trade statistics, particularly intra-firm transactions—underpin modern trade, both in enabling corporations to

¹ Prepared by Ms. Silvia Matei, Balance of Payments Division, STA, and Ms. Fabienne Fortanier (OECD).

manage global production networks under global value chains and in automation for trade facilitation. Hence barriers to data flows can give rise to barriers to trade.

4. All these phenomena explain the strong demand from policymakers and researchers for more information on the nature, size, and direction of Digital Trade, as, for example, evident from the high priority given to this topic on the agenda of the G20 Trade and Investment Working Group and other international fora.

5. To address the policy questions surrounding Digital Trade, several initiatives and inter-agency collaborative efforts have been taken in recent periods by international organizations. For example, in 2016, the Universal Postal Union (UPU), United Nations Conference on Trade and Development (UNCTAD), Organization for Economic Co-operation and Development (OECD) and World Trade Organization (WTO) established a collaborative project to measure cross-border ecommerce transactions, generally recognized as one important dimension of digital trade. A complementary line of work has been pursued by UNCTAD in its Partnership work on Measuring ICT for Development, which identifies ICT services and potentially ICT-enabled services. In addition, customs organizations, coordinated by the World Customs Organization (WCO) via its newly created Working Group on Ecommerce, have started to develop the tools and systems to identify ecommerce transactions in merchandise trade.

6. However, an important impediment to the availability of data on Digital Trade—and certainly statistics that are coherent with the current accounting frameworks (*SNA 2008*, *BPM6*) and that are comparable across countries—is the lack of a clear definition of Digital Trade and a comprehensive conceptual measurement framework. Therefore, as part of the collective efforts to address the broader measurement challenges, the OECD developed a draft conceptual and measurement framework for Digital Trade (see also OECD, 2017)². The framework provides a definition as well as a proposed typology of all the cross-border trade flows that are considered ‘Digital’, relating these as far as possible to the various existing statistical frameworks (including, in particular, the national accounts). This conceptual framework formed the basis for a first stocktaking survey among OECD members in early 2017, the results of which were presented at the March 2017 OECD Working Party on Trade in Goods and Services (WPTGS). Following on from this initiative, IMF sent out the same survey to a selection of non-OECD countries. This paper reports the results of these surveys, to which a combined total of 74 countries responded.

7. Recognizing the importance that all statistical developments and efforts in this field move in parallel, the typology and framework presented in the earlier draft referred to above (OECD, 2017), has also served as the starting point for discussions within the broader context of Measuring the Digital Economy (an initiative led jointly by OECD and IMF).

² See OECD (2017) ‘Measuring Digital Trade: Towards a Conceptual Framework’, cote OECD/CSSP/WPTGS(2017)3

While the challenges for measuring the Digital Economy are of course broader—for example, related to the identification of industries relevant for (included in) the Digital Economy—as well as more specific (e.g., an additional focus on volume), important overlaps are present. For example, digital *national* transactions can be classified in exactly the same way as digital *international* ones. Likewise, the identification of the *types* of actors involved in digital transactions, such as businesses, consumers, and governments, is identical (if not their residency). Therefore, where relevant, this paper also refers to ongoing activities in this broader field, notably a recent survey conducted among OECD National Accountants.

The remainder of this paper is organized as follows. Section II summarizes the main features of the conceptual measurement framework for Digital Trade, and highlights a range of measurement challenges, as well as outstanding issues. Section III provides an overview of the 74 country responses to the OECD-IMF Survey on Measuring Digital Trade, and Section IV concludes and sets out a proposed way forward for further discussion at the Expert Group Meeting on Measuring Digital Trade by the Inter-Agency Task Force on International Trade Statistics (October 11–12, 2017) which brings together International Organizations and national experts.

II. CONCEPTUAL MEASUREMENT FRAMEWORK FOR DIGITAL TRADE

8. International trade transactions can be dissected along a variety of dimensions. The distinction between goods and services is the most traditional classification, as is, in the area of trade in services, the breakdown by mode of supply. The focus on Digital Trade brings however a variety of new dimensions to the fore, requiring a better understanding and identification of the ordering and delivery processes (both of which can be digital) as well as the rise of the facilitators in this process (digital intermediaries). In addition, in recognition of the increasing role played by consumers (unincorporated enterprises and households) (e.g., through the ‘sharing economy’), the framework also emphasizes the importance of information on the institutional nature of partners.

9. The conceptual framework introduced by OECD identifies a total of three dimensions of Digital Trade: the nature of the transaction (‘how’), the product (‘what’) and the partners involved (‘who’) (see Figure 1).³ In the current statistical working definition for Digital Trade, which characterized Digital Trade as *all cross-border trade transactions that are either digitally ordered, digitally facilitated, or digitally delivered*, it is, in particular, the nature of the transaction that determines which parts of trade are considered digital.

³ To further illustrate how the typology could be used to classify and typify Digital Trade transactions, Annex Table 1 provides a series of examples of how such a multidimensional breakdown would look, limiting the examples in first instance to B2B, B2C and C2C transactions, as well as to goods and services only, partly for brevity, and partly because further (conceptual and measurement) challenges arise, and investigations will be needed, with respect to data flows and B2G.

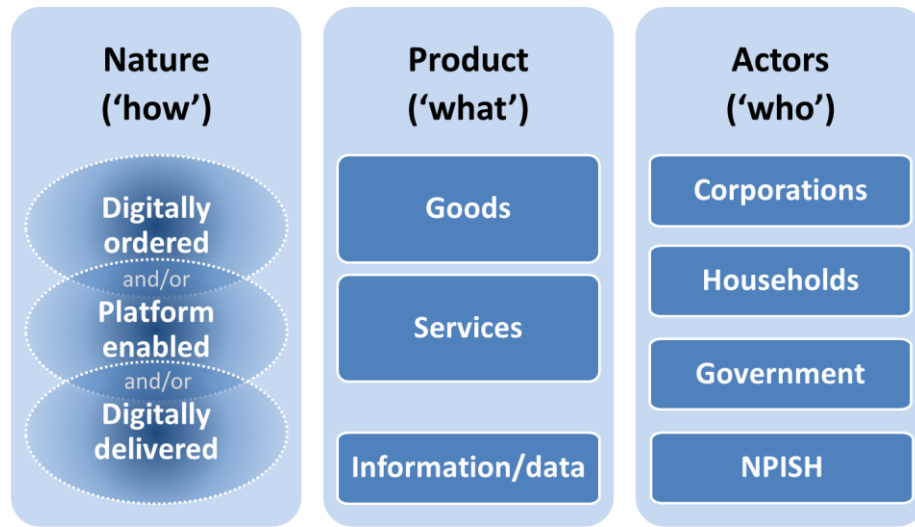
10. The second dimension in the framework, ‘product’, introduces information, or data, as a separate product to consider in addition to goods and services.⁴ This broadens the scope of measurement beyond the traditional statistical notion of cross-border trade in goods and services, in order to recognize the significant economic benefits that accrue from international flows of data, which often fall below the radar screen of conventional trade statistics but are increasingly important conduits and determinants of related trade flows.

11. The last dimension looks at the actors involved. Building upon the work in the area of e-commerce, where business, consumers, and governments are distinguished as key actors (e.g., B-to-B or B-to-C transactions) in aligning the terminology with that used in the SNA. Additional breakdowns that are possible and that are being considered by the national accounts community under the broader work programme could include, within satellite accounts, the size and sector of corporations (for example, to provide information on the role (and take-up) of digitalized tools by SMEs, or by distinguishing financial and non-financial corporations).

12. Each of these dimensions is discussed below in more detail. For several components, it is possible to build upon methodological and conceptual work that has already been developed; which is made explicit below. For others, additional work seems necessary to further operationalize the framework and make it useful (and practical) for measurement by statistical offices and/or central banks.

⁴ Note that in discussions on the Digital Economy, the feasibility of a further breakdown of goods and services into ‘digital’ and ‘non-digital’ is introduced, as discussed further below

Figure 1. Dimensions of Digital Trade



A. The Digital Nature of Transactions

13. The first component of the framework involves the digital nature of the transaction ('how'), distinguishing between those cross-border transactions that should be considered 'digital' and those that should not. It is important to stress however, as seen in Figure 1, that this is not a question with a simple binary answer. Digital transactions may have a variety of overlapping characteristics, reflecting the ordering process, the role of intermediaries, and the final delivery of the good or service concerned.

Digitally Ordered

14. The first dimension that helps identify Digital Trade involves those cross-border transactions that are *digitally ordered*, that is, international trade in goods and services that reflect ecommerce, which in turn is generally defined as follows:

“An ecommerce transaction is the sale or purchase of a good or service, conducted over computer networks by methods specifically designed for the purpose of receiving or placing orders. The goods or services are ordered by those methods, but the payment and ultimate delivery of the goods or services do not have to be conducted online. An ecommerce transaction can be between enterprises, households, individuals, governments, and other public or private organizations. To be included are orders made over the web, extranet or Electronic data interchange. To be excluded are orders made by phone, fax or manually typed email.”⁵

⁵ OECD, Guide to Measuring the Information Society, 2011

Platform Enabled

15. One of the most salient features of the digitalization of international trade is the emergence of *intermediary platforms* such as Amazon, Uber, Alibaba, or AirBnB. While not all Digital Trade transactions by necessity involve such intermediary platforms, they are clearly changing the economic and competitive landscape nationally as well as internationally.

16. Transactions involving intermediaries raise a number of complex challenges both for trade/investment policy and measurement. For example, it is not always clear where the intermediary resides; raising uncertainties about whether underlying transactions are recorded as cross-border trade or as income flows. In addition, even if there is clarity on ‘residence’ it is not always clear whether cross border transactions should be recorded as ‘gross’ (including the value of underlying services provided between residents) or as ‘net’ (i.e., including only the value of the intermediation fee as cross-border).

Digitally Delivered

17. The third dimension is referred to as *digitally delivered*. It captures those services and data flows that are delivered digitally as downloadable products. Examples include software, e-books, data, and database services. Goods, as physical items, cannot be delivered digitally, although 3D printing may result in a (future) category of transactions that could possibly be classified as trade in goods, and, so, therefore as digitally delivered goods, if these transactions are deemed to be fundamentally different from trade in services (of 3D blueprints) transactions.

B. The Product Involved: Goods, Services, and Data

18. Traditional statistics on international trade identify how cross-border transactions involve either goods or services. However, considering its growing importance and policy relevance, the notion of digital trade introduces a third category: information or data. Clearly, perhaps the biggest measurement challenge for Digital Trade concerns such data flows. In many cases, data flows do not result in a monetary transaction per se, but they may support one (such as generating advertising revenue). For example, a social networking site such as Facebook, or search engines such as Google, offers "free" services to users who, in exchange, provide their data. There is no monetary transaction between Facebook or Google and their users (and in terms of existing international standards, no trade); however, the data collected by these enterprises forms the basis of their revenues from advertisers. While the advertising revenue monetary flow is captured in trade statistics, the data flows upon which they depend are not. It is clear that this raises issues concerning consumer surpluses and indeed at the international level who is ultimately financing those surpluses. For example, free digital products (such as Facebook or Google) are in general available to all, but the funding model (advertising) does not differentiate among countries. In other words, advertisers (and

ultimately consumers through paying higher prices) in one country may be indirectly generating consumer surpluses in another.

19. In a similar manner, and because they are free, the international accounting system does not in general impute transactions related to the use of public goods (such as open-source or free software). Again, this raises issues concerning the measurement of consumer surpluses but also potentially policies, such as anti-dumping and competition policies, if the freely available software is designed to gain market share with a view to the introduction of subsequent priced models.

Possibilities to Identify Digital Products

20. While the analytical framework proposed in Figure 1 in principle aims to use the digital nature of transactions to identify Digital Trade, it remains an open question for now to what extent the nature of the product should be considered as a supplementary dimension in identifying digital trade. Discussion have emerged in recent years—both in the area of international trade and BOP statistics as well as, more recently, in the National Accounts community concerned with measuring the Digital Economy, to break down products (i.e., goods or services) into those that are essentially ‘digital’, and those that are not.

21. In the area of trade statistics, the emphasis on identifying digital products has mainly been on services. For example, work initiated by UNCTAD aims to identify *ICT services* as another complementary grouping in the Extended Balance of Payments Services Classification (EBOPS) 2010. Recent work by WTO (cf. Magdeleine and Maurer, 2017) proposes to identify trade in digitized ideas as another approach, building on existing EBOPS 2010 complementary groupings that include not only services but also goods, such as for example, *audio-visual transactions* (which include audio-visual services, licenses to reproduce and/or distribute audio-visual products, and audio-visual goods), or *Computer software transactions* (which include computer software services, licenses to reproduce and/or distribute software, and computer software goods).

22. Among National Accountants⁶, while no specific classification or definition has been proposed (yet), the emerging consensus seems to be that all products that are digitally delivered should be part of a ‘digital products’ category in a future satellite account. With respect to goods, the jury is still out on whether ‘digital enablers’ (computers, mobile phones), ICT products, and Content and Media products⁷, should also be characterized as digital products.

⁶ See OECD (2017) ‘Summary of responses of the Advisory Group: Survey on Digital Economy typology’ Paper to be presented at the OECD WPNA meeting, November 2017 (cote: STD/CSSP/WPNA(2017)1)

⁷ As proposed by the OECD (2011) Guide to Measuring the Information Society

C. Nature of Trading Partners

23. International trade is traditionally considered to take place between enterprises—and to a lesser extent between enterprises and governments. Technological change has however provided individual consumers (households) with the possibility to purchase goods and services from foreign suppliers on a scale that was hitherto impossible. Similarly, the possibility to sell online has lowered—or has in any case the potential to lower—the barriers to export, allowing, especially, smaller firms to market their products abroad. These developments mean that new policy attention is given to better understanding the nature of the partners involved in international trade. The framework recognizes these needs through its breakdown of actors by (SNA) institutional sectors.

D. First National Reactions on Appropriateness and Feasibility of the Conceptual Measurement Framework

24. The framework presented above has already been presented in a variety of relevant statistical fora. An initial outline was presented at the Inter-Agency Task Force on International Trade Statistics (TFITS) 2016 meeting, where it was welcomed by participants, and at the 2017 OECD WPTGS meeting, which concluded that it presented a strong foundation for further work. The recent more formal consultation among National Accountants,⁸ with respect to the conceptual framework for measuring the Digital Economy⁹ (which this builds upon, and is fully consistent with, the more focused framework for digital trade presented here), also revealed broad support.

25. The consultation among National Accountants also resulted in a variety of other considerations relevant to the framework on digital trade:

- The majority of respondents noted that for ecommerce transactions only the distribution margin should be counted as part of the digital economy—although acknowledging that it would be useful to have complementary information on the underlying gross flows. Similar, albeit tentative, conclusions arose with respect to transactions facilitated by digital platforms.
- The most important data gaps identified by countries related to services provided by non-resident digital platforms, and related imports. Many countries noted that these transactions are not currently reflected in the trade data because they do not collect information from non-resident service providers and that it was difficult to identify through conventional expenditure surveys whether the related transactions were

⁸ See OECD (2017) ‘Summary of responses of the Advisory Group: Survey on Digital Economy typology’ Paper to be presented at the OECD WPNA meeting, November 2017 (cote: STD/CSSP/WPNA(2017)1)

⁹ OECD (2017) ‘Summary of responses of the Advisory Group: Survey on Digital Economy typology’ Paper to be presented at the OECD WPNA meeting, November 2017 (cote: STD/CSSP/WPNA(2017)1)

imported of note. Particular areas of challenge concern imports of digitally delivered services either directly by households (e.g., apps, games, music, etc.) or implicitly through direct providers of services (such as taxi services).

III. REVIEW OF EXISTING STATISTICAL WORK TO MEASURE DIGITAL TRADE

26. As part of the collective efforts to address the broad measurement challenges of the digital economy/trade, the OECD conducted a first stocktaking survey in early 2017, the results of which were presented at the March 2017 OECD WPTGS. The OECD survey was sent to statistical offices and central banks in member countries (35) plus OECD key partner countries and WPTGS invitees (10). Thirty-five responses were received. Following on from this initiative, IMF conducted the same survey among a selection of 51 non-OECD countries¹⁰, targeting institutions responsible for balance of payments compilation, from which 39 responses were received. This section presents a synthesis of the combined responses on the measurement of Digital Trade (74 countries).¹¹

A. Digital Ordering

27. In most OECD countries, statistics on the digital nature of the ordering process (ecommerce) have been developed for a number of years, mostly through ICT and ecommerce enterprise surveys (covering B2B and B2C), as well as via household surveys on internet use (covering B2C and (partly) C2C transactions). However, these currently only offer limited insights into the size and relevance (let alone partners and products) of cross-border transactions that are digitally ordered. That said, several countries are currently exploring adding additional questions to surveys regarding the breakdown of online purchases and sales into domestic and international transactions, as highlighted (e.g., by UNCTAD),¹² although it is recognized that this may entail a not insignificant increase in reporting burdens. Another possibility is to explore microdata linking, for example, by integrating merchandise trade statistics with ecommerce enterprise surveys, albeit coupled with stylised assumptions relating to foreign/domestic ecommerce splits. Further refinements could also be made in combination with BEC classifications to provide estimates of the share of cross-border sales that can be classified as B2B and as B2C.

¹⁰ These are: Algeria, Angola, Argentina, Azerbaijan, Bangladesh, Belarus, Botswana, Brazil, Bulgaria, Cameroon, Hong Kong, China, P.R.: Mainland, Colombia, Costa Rica, Croatia, Cyprus, Ecuador, Egypt, Ghana, Guatemala, India, Indonesia, Jordan, Kazakhstan, Kuwait, Lebanon, Malaysia, Malta, Mauritius, Morocco, Nigeria, Oman, Pakistan, Panama, Peru, Philippines, Qatar, Romania, Russian Federation, Saudi Arabia, Senegal, Serbia, Republic of, Seychelles, Singapore, South Africa, Thailand, Tunisia, Ukraine, Uruguay, Venezuela, República Bolivariana de, and Vietnam.

¹¹ More detailed information on answers is available on request.

¹² UNCTAD, 'In Search of Cross-Border E-Commerce Trade Data', UNCTAD, Technical Notes on ICT for Development N°6.

28. The OECD-IMF survey indicated that several OECD countries have already started concrete projects along these lines. For example, Germany is developing Trade by Enterprise Characteristics (TEC) data for Statistical Classification of Economic Activities in the European Community (NACE) Rev.2 47.91 (retail sales via mail order), and others (Luxembourg, Netherlands, Slovenia, and Serbia) are exploring the ability to capitalise on ICT surveys. Many respondents from non-OECD countries also noted the importance of the topic and had future plans in place. For example, in Russia, the share of cross border ecommerce in imports increased significantly between 2016 (2.5 percent) and the first quarter of 2017 (4.2 percent).

29. Regarding Business-to-Consumer (B2C) cross-border ecommerce, most OECD countries flagged the possibility of using credit card data to obtain insights into cross-border purchases—not only for goods but also for services. Among non-OECD countries, Brazil and Vietnam also reported to be investigating these possibilities.

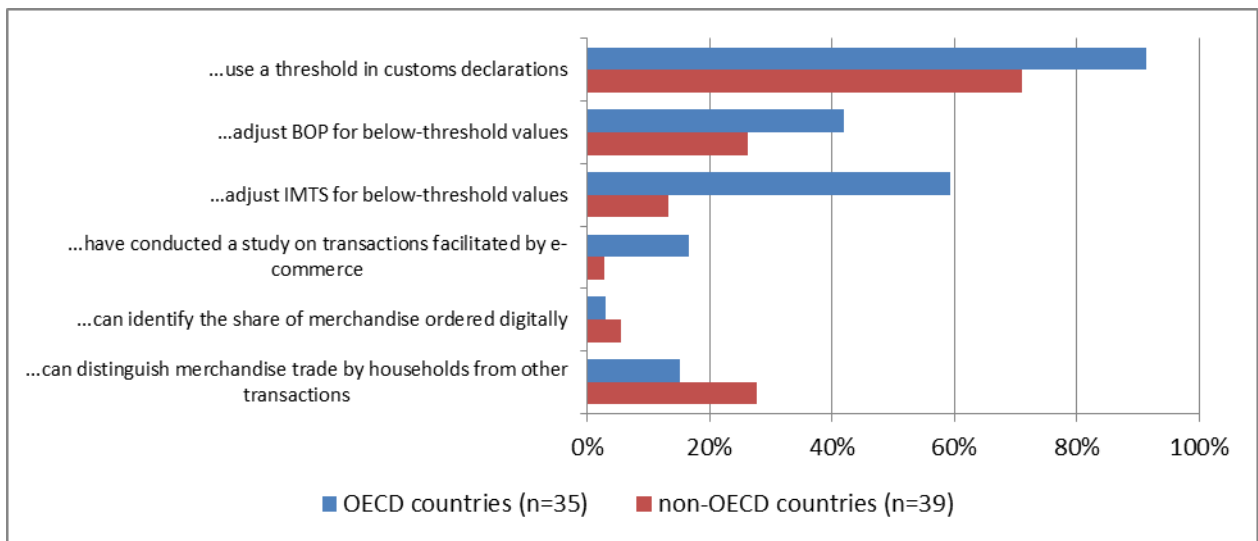
30. More detailed statistics on cross-border transactions may be obtained from new developments in the area of Customs and merchandise trade statistics, where work has started, led by the WCO, to develop the tools and systems, in collaboration, where possible, with large ecommerce enterprises; which may in turn benefit from more efficient customs procedures. In China, for example, the Customs authorities are working towards incorporating a module that identifies ecommerce exchanges in their systems.

31. In addition to identifying within current customs/merchandise trade statistics which transactions were ordered digitally, the recent and ongoing increase in cross-border Digital Trade has led to an apparent increase in small transactions, which are below the *de minimis* threshold—a minimum value and/or a minimum amount of imports below which no duties and taxes will be collected. This trend is partly driven by the growth in merchandise goods acquired by households via ecommerce (i.e., ordering online via Amazon, eBay, Alibaba, other on-line business sales), which are typically smaller in size, or by businesses (including via EDI) as part of a ‘just in time’ inventory management systems, which also reduces average order size.

32. All responding OECD members (with the exception of Turkey) reported *de minimis* rules. The *de minimis* values range from GBP15 in the United Kingdom to USD2500 in the United States. Some countries also apply a volume threshold and varying thresholds on which taxes and duties are applied. A large majority of the non-OECD surveyed countries also declared a customs threshold, whose values range from a minimum of about USD25 (Belarus, Philippines, Mauritius) to USD2,000 (or less than 50kg) at imports and USD5,000 at export in Colombia. A number of countries (seven) also indicated having different thresholds for postal shipments and some by type of transport. China is the world’s largest economy without a customs threshold, while in Russia different thresholds are applied by mode of transport on duty-free imports by individuals.

33. Around half of the OECD countries, as well as several non-OECD countries, produce below-the-threshold estimates for balance of payments purposes, using sources such as the National Postal Service, administrative reports from Customs, previous studies, credit card information or estimation models. Estimates for the share of below-the-threshold value in total exports or imports, where available, range from below 0.1 percent in the past 10 years (Hong Kong) to about 15 percent in Q1 2017 (Azerbaijan). The United States stated that these estimates made up to 2.15 percent of goods imports and 0.75 percent of goods exports in 2015. Countries that do not produce such estimates often cite limitations in source data or consider these flows as insignificant. In other cases, such estimates are not necessary due to the absence of a customs threshold.

Figure 1. Percentage of Respondents that...



Note: it is likely that the lower number of respondents that indicate to adjust Balance of Payments figures compared to IMTS is influenced by the organization answering the questionnaire.

B. Digital Intermediaries

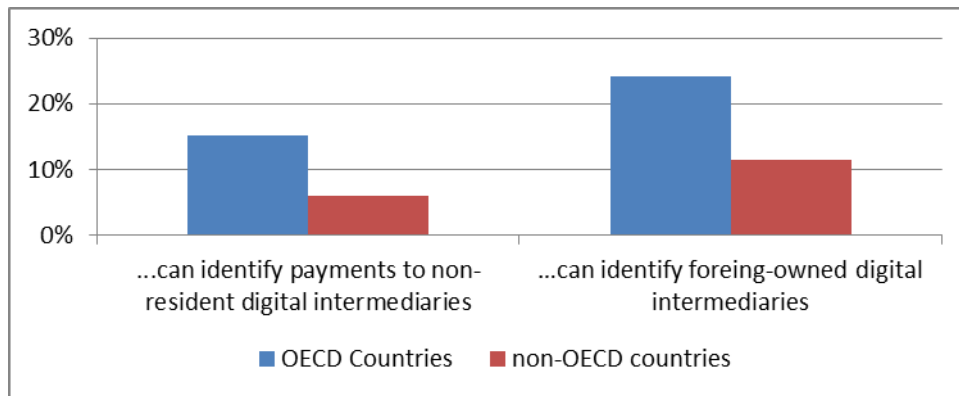
34. An important characteristic of digitalization is the advent of digital intermediaries such as AirBnB, Uber, Amazon, eBay, or Alibaba, that facilitate (cross-border) Digital Trade in goods and services. Better understanding their role in international trade is an important policy objective. In addition, there is also a need to have more insights on domestic transactions that are facilitated by a foreign (or indeed foreign-owned) digital intermediary. In theory, the transactions related to payments for intermediation services should be recorded as payments for services within current statistics, but in practice it may be difficult to separate the intermediation fees from the value of the service provided.

35. At present, eight OECD and four non-OECD countries are able to identify foreign-owned digital intermediaries in their economy, while five OECD and two non-OECD countries are able to identify payments to nonresident digital intermediaries. Most countries

noted that digital intermediaries should be in the business register or other administrative registers (e.g., Ministry of Commerce for Tunisia), but that formal identification could be difficult in the absence of a specific industry classification in which these enterprises are active. Identification based on business name would be feasible.

36. Responses from OECD countries indicated the likelihood, in most cases, that cross-border trade in services transactions of such intermediaries would be classified under trade related services, but further investigation would be needed. The large majority of non-OECD countries indicated that obtaining information on digital intermediaries is currently not possible, and very few have concrete plans to study the phenomenon in the near future. Thailand however is currently working on linking different source data to estimate the value of such transactions.

Figure 2. Percentage of Respondents that...



C. Digital Delivery

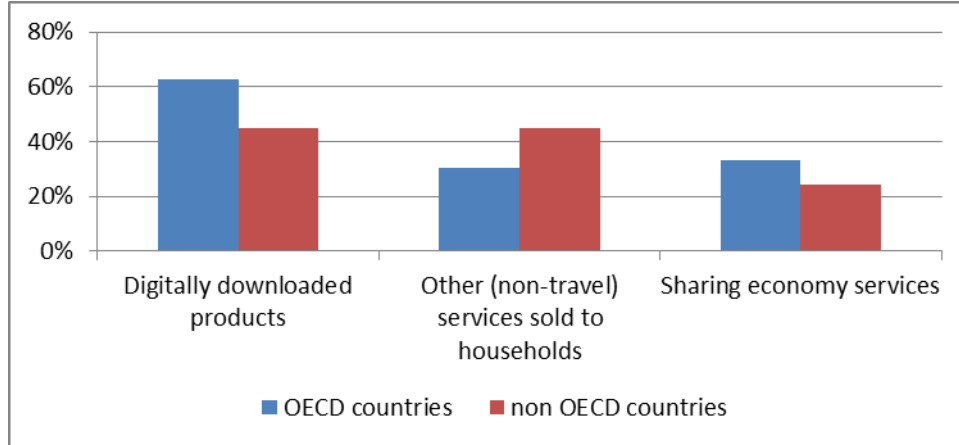
37. While for trade in goods, the concept of ‘digital trade’ often refers primarily to the nature of the ordering process, the concept of digital delivery is more prominent in the realm of trade in services, even if a significant part of digitally delivered transactions will also be facilitated via a digitally ordering process, especially fully digital and downloadable products, such as software, music, e-books, data, and database services. However, there is likely a sizeable group of services that are digitally delivered but not digitally ordered: especially intra-firm cross-border transactions, including those involving data, which will likely involve ‘analogue’ contracts (or even none at all).

38. The concept of digital delivery is consistent with what is described by the TGServ Task Group as ICT-enabled services (i.e., ‘services products delivered remotely over ICT networks’). While not all services can be delivered remotely over ICT networks (as many services require physical proximity for delivery and consumption), ideally, from a data collection point of view, all international trade in services transactions, should be divided into those that are ‘digitally delivered’ (e.g., apps, games, music, consultancy services, etc.) and those that are ‘not digitally delivered’ (e.g., construction, transport, etc.).

39. Digitally delivered services, especially those to households, pose important measurement challenges, and the survey among the 74 countries indicated that most countries recognized the likelihood of under-reporting, notably with respect to imports, reflecting the fact that it was difficult to know, and therefore adequately sample, the population of importing entities, unlike exporters. In addition, transactions involving households require additional data sources such as household surveys (or ICT use surveys). Only a very small number of countries stated that they had such data, particularly relating to whether purchases were cross-border or not.

40. A number of OECD countries, however, thought that household transactions of cross-border services could potentially be captured through credit card data (as they could for goods), and a few countries have started investigation work on this source. Many non-OECD countries consider these services might be captured implicitly through the International Transactions Reporting System (ITRS), while others are using credit card information or surveys. However, in most cases, these services are not clearly identifiable. In particular, in the cases where the ITRS is used and a threshold is in place, a proper identification of such services may not be possible. Other sources that are being considered by countries include Gaming Authorities (for gambling transactions done through overseas websites, the United Kingdom, for example, estimated this at GBP2 billion in 2015), Apple and Google data, tourism surveys, tax records, and other administrative data (for example, Hong Kong is compiling the services purchased from abroad by households, such as transportation, using administrative data).

41. With respect to the ‘sharing’ economy—consumer-to-consumer or C2C transactions—only the United Kingdom, Denmark, and Canada reported to currently undertake active investigations into the international trade dimensions. Again, a sizable number of countries suggested the possibility of using credit card data or surveys. However, most non-OECD countries are not explicitly capturing these flows currently, and few have concrete plans to do so in the near future.

Figure 3. Percentage of Respondents Where Trade in Services Surveys Capture...

D. Cross-border Data Flows

42. Cross-border data flows do not necessarily result in a monetary transaction per se, but they may support one, such as generating advertising revenue. For example, a social networking site such as Facebook offers "free" services to users who, in exchange, provide their data. There is no monetary transaction between Facebook and the user (and in terms of existing international standards, no trade); however, the data collected by Facebook is the basis of the revenue that the company receives from advertisers. While the advertising revenue monetary flow is (should be) captured in trade statistics, the data flows upon which they depend are not. In addition, intra-firm transactions in cross-border data flows are unlikely to be recorded at all.

43. Responses to the OECD survey highlighted that this is a topic at the frontier of statistical knowledge, and similar questions were therefore not included in the survey conducted by IMF. At present, none of the 33 OECD respondents has conducted a study into quantifying cross-border data flows. Similarly, no country has yet investigated the size of intra-firm data flows. Countries were also not convinced of the need to add imputations for the value of cross-border data flows into balance of payments statistics (with 15 out of 16 countries against).

44. Regarding future work on measuring cross-border data flows, respondents flagged a variety of concerns: conceptual and practical. Conceptual issues revolved around how such flows would fit into the overall accounting framework. Practical issues included the absence of an internationally agreed methodology on the valuation of data and the subsequent classification and treatment of such flows as well as feasibility challenges.

45. The United States pointed to a U.S. Department of Commerce study, *Measuring the Value of Cross-Border Data Flows* undertaken in September 2016. The recommendations

from this report echoed a number of the comments received from countries, and are summarized below:

- Improve the overall coverage and quality of official statistics on the service-sector.
- Develop a standard nomenclature or standard definitions for concepts related to cross-border data flows, distinguishing between concepts such as digital economy, digitally-intensive, digitally enabled economy, and information and communications technologies (ICT).
- Develop a greater understanding of how firms use cross-border data flows and what economic value the data flows provide.
- Develop improved and consistent macro-economic statistics to measure the value of cross-border data flows and the digital economy, such as the contribution of data flows and the digital economy to gross domestic product (GDP).
- Continue the dialogue with private industry to facilitate data sharing and the linking of public and private datasets, where legally and logistically feasible and consistent with strong privacy protections for firms.
- Continue the collaborative efforts with international organizations to ensure that metrics on cross-border data flows and the digital economy are widely available for countries around the world.

IV. CONCLUSIONS AND NEXT STEPS

46. This paper illustrated that important measurement challenges exist when trying to capture Digital Trade, although good progress on which to build further has already been made in some areas. It is important to note that the measurement framework and typology for Digital Trade outlined in this paper is not set in stone but rather it serves as the starting point for discussions. Indeed, refinements have already been incorporated in the light of feedback from Balance of Payments compilers, international organizations, as well as the work in the National Accounts community on measuring the Digital Economy, and such refinements are expected to continue.

47. The OECD-IMF stocktaking exercise indicated that countries are already exploring a variety of pilot studies for data compilation, combining existing data sources with new approaches, involving either new questions in surveys, data linking—in particular building on the strong expertise of OECD members in this area—or the exploration of new data sources including credit card information or other private sector sources. Results of this work at the national level will also be discussed at the Expert Group Meeting Measuring Digital Trade organized by the Inter-Agency Task Force on International Trade Statistics, which takes place on October 11 and 12, 2017.

48. Notwithstanding the conclusions from this Expert Group Meeting (not yet known at the time of writing of this paper), a variety of concrete steps forward are envisaged.

49. First, OECD will prepare a draft paper with recommendations for the 2018 G20 Trade and Investment Working Group meeting in Argentina, which will set out a definition and typology of digital trade; highlight gaps in measuring and mapping digital trade; identify potential biases in international trade statistics; and provide recommendations, where necessary, on data sources and accounting standards. The paper will be fully coordinated with all relevant related fora; especially if the emerging recommendations point to potential changes in accounting practices that have wider consequences for the economic accounting system, for example, concerning valuations of data flows and transactions without a monetary footprint, where recommendations may have implications for GDP (2008 SNA) and Balance of Payments (BPM6) international accounting standards.

50. Feedback from the 2018 TIWG will result in a revised paper that will be discussed at the 2018 OECD WPTGS meeting, which will feature a special session/workshop (including participation by non-members) on Measuring Digital Trade, following which countries would be invited to assist in the development (and timing of) a Handbook on Digital trade. The expectation at that stage would be to target the development of a draft Handbook in time for the Autumn 2018 TFITS and IMF BOPCOM meetings for feedback, with a view to circulation for global consultation and, ideally, White Paper endorsement at the 2019 UN Statistics Commission meeting. The aim of the Handbook would be to describe recommendations for improved measurement of Digital Trade within current accounting standards. If, in the course of this research, desirable changes to current SNA and BPM accounting standards would emerge, the Handbook would highlight these as issues requiring further consultation, within the consultation frameworks of the IWGNA and BOPCOM.

Questions for the IMF Balance of Payments Committee:

1. *What are the Committee member's views on the adequacy of the proposed working definition and perimeter of measurement framework for Digital Trade as foundation for further work in this area?*
2. *Do the Committee members agree on the next steps outlined in the conclusions and the proposed time frame? Considering the potential substantial impact on the overall measurement, what are the Committee members' views on the aspects that should receive priority?*
3. *Would individual Committee members that have not yet participated in the TFITS Expert Group Meeting on Measuring Digital Trade be interested in participating in similar, future Expert Group Meetings?*

ANNEX TABLE 1. EXAMPLES OF DIGITAL TRADE BY CATEGORY

How?			What	Who	Description
Digitally ordered?	Platform enabled?	Digitally Delivered?			
Y	N	N	Good	B2B	An enterprise in country A purchases a good online, directly at the supplier of the products located in country B, via the supplier's web-shop or EDI. For example, a component used in the production.
Y	N	N	Good	B2C	A consumer in country A purchases a good (e.g. clothes) online (for final consumption), directly at the web-shop of the supplier of this product located in country B.
Y	Y	N	Good	B2B	An enterprise in country A purchases goods, from a supplier in country B, via an online platform which may be located in country A, country B or elsewhere. For example, the ordering of office furniture via eBay.
Y	Y	N	Good	B2C	A consumer in country A purchases a good online from a supplier in country B, via an online platform, which may be located in country A, country B or elsewhere, for final consumption, for example, ordering a book on Amazon.
Y	N	N	Service	B2B	An enterprise in country A purchases a service online, directly at the supplier, but the service is delivered physically (for example, a transportation service).
Y	N	N	Service	B2C	A consumer in country A purchases a service online, directly at the supplier in country B, and the service is delivered physically (for example, a hotel reservation made via the online reservations system of the hotel itself).
Y	Y	N	Service	B2B	An enterprise in country A purchases a service online from a supplier in country B, via an online platform, which may be located in country A, B or elsewhere. The service is subsequently physically delivered (for example, standardized maintenance or repair services).
Y	Y	N	Service	B2C	A consumer in country A purchases a service from a supplier in country B, via an online platform; the services is subsequently physically delivered, for example, tourist ordering a ride-sharing service (Uber).
Y	N	Y	Service	B2B	An enterprise in country A purchases a service online, directly at the supplier, which is subsequently also delivered digitally (for example, standardized maintenance or repair services)
Y	N	Y	Service	B2C	A consumer in country A purchases a service online, directly at the supplier from country B, which is subsequently also delivered digitally, for example, an insurance policy
Y	Y	Y	Service	B2B	An enterprise in country A purchases a service from a supplier in country B via an online platform, which may be located in country A, B or elsewhere. The service is delivered digitally. For example, a firm orders a logo design via a platform for graphical designers.
Y	Y	Y	Service	B2C	A consumer in country A purchases a service from a supplier in country B, via an online platform, which may be located in country A, B or elsewhere. The service is delivered digitally. For example, music streaming subscriptions
N	N	Y	Service	B2B	An enterprise in country A places an <i>offline</i> order for a service at a supplier in country B, the service is subsequently digitally delivered. For example, bespoke consultancy services, BPO services.
N	N	Y	Service	B2C	A consumer in country A purchases a service <i>offline</i> at a supplier in country B, but the service is digitally delivered. For example, educational services with online lectures.
Y	Y	N	Service	C2C	A consumer in country A purchases a service from another consumer in country B, via an online platform, located in country A, B or elsewhere. The service is physically delivered. For example, accommodation sharing (AirBnB)
Y	Y	N	Good	C2C	A consumer in country A purchases a good from another consumer in country B, via an online platform, located in country A, B or elsewhere. For example, second hand goods transactions via online market places.
...