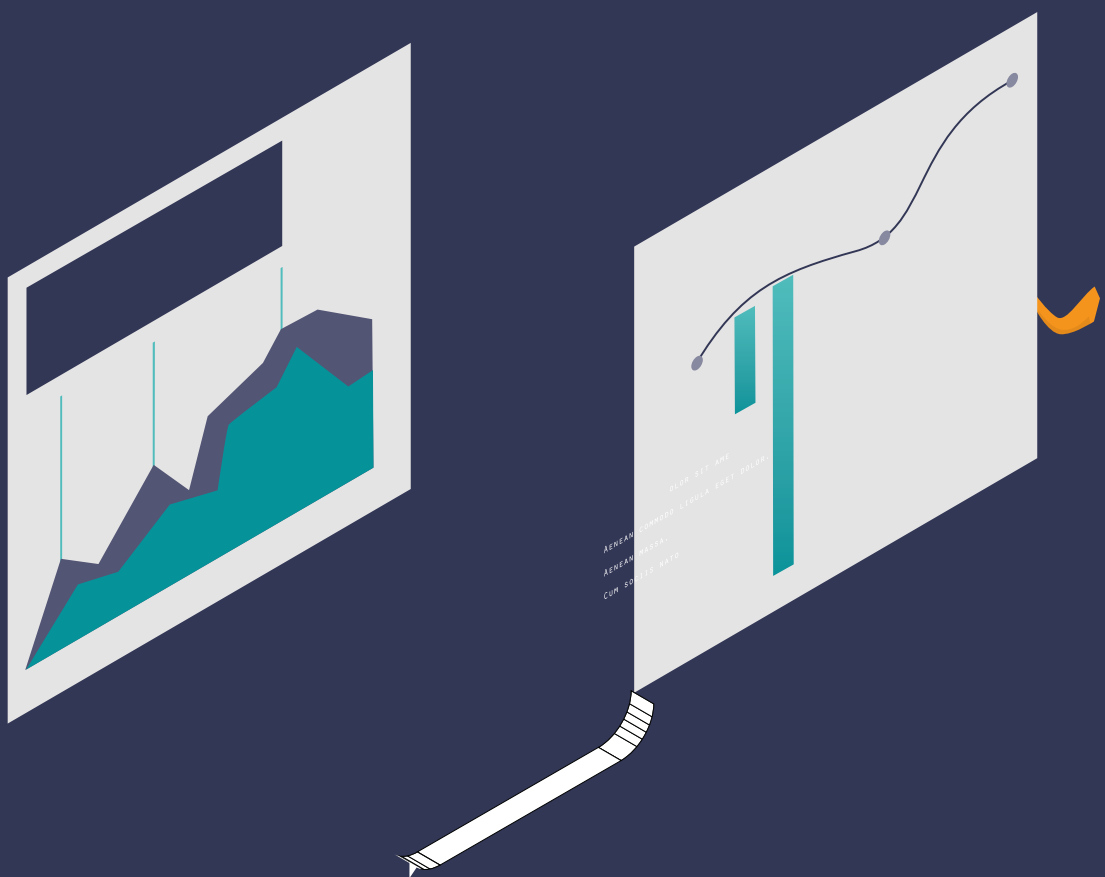


1.

Why is sure digital trade? This ultifaceted impact of tional trade a areas require and feasible

1.1

Digital technologies are transforming economic and societal processes. Major improvements in internet connectivity have enabled businesses and households to exchange and transfer information with greater variety, in increasing volume and at higher velocity. Computing power and data storage have surged as costs have declined, boosting the development of software tools as well as of advanced technologies and analytical techniques. Consequently, the number of new business models, products and modes of delivery that exploit digital technologies is rapidly increasing.

These developments re ect processes both of digitization and digitalization. Digitization is de ned as *"the conversion of analogue data and processes into a machine-readable format"* (OECD, a). Digitization can take many forms, such as the translation of analogue measurements into a digital format, the encoding of business and industrial processes, or the transmission of Voice over Internet Protocol (VoIP) (i.e., the conversion of voice into digital signals for transmission via the internet). Digitalization is a broader concept, understood as the use of digital technologies and data and the interconnections between them, which result in new activities or in changes to existing activities. Collectively, the changes produced by different forms of digitization and digitalization on economic and social activities constitute the *digital transformation*.

Digital technologies have profoundly impacted international trade. On the supply side, rms bene t from the use of digital technologies, as they can boost ef ciency and productivity, transform business processes and foster innovation (Nguyen and Paczos, ; Gal et al., ; Sorbe et al.,). At the same time, digitalization has spurred the use of digital technologies on the demand side. In particular, the rise of online retail, wholesale and digital platforms has eased businesses' access to markets, with consumers in turn bene tting from access to a broader selection of products and increased customization (Coreynen, Matthyssens and Van Bockhaven,).

Arguably, the most transformative impact that digitalization has had on trade has been a rapid reduction in the costs of international transactions, which has made it affordable for rms to reach global markets. In much the same way that reductions in transport and coordination costs enabled the fragmentation of production along global value chains, falling costs of sharing information are powering this digital trade revolution. The lower costs of storing and sharing information are reducing some of the traditional constraints associated with engaging in international trade, such as asymmetric information, delays in delivery, or contract enforcement. This is encouraging a greater number of businesses and consumers to connect globally, as well as leading to a faster diffusion of knowledge and ideas across borders.

The rest of the chapter is organized as follows. Section . shows some indicators providing a view of the impact of digitalization on international trade. Section . presents the statistical de nition of digital trade. Section . outlines the policy needs that call for better measurement of digital trade. Section . presents the purpose and the structure of this Handbook. Section . identi es areas where research is ongoing and may have an impact on the measurement of digital trade and the compilation guidance provided in the Handbook. Finally, Section . concludes.

1.2

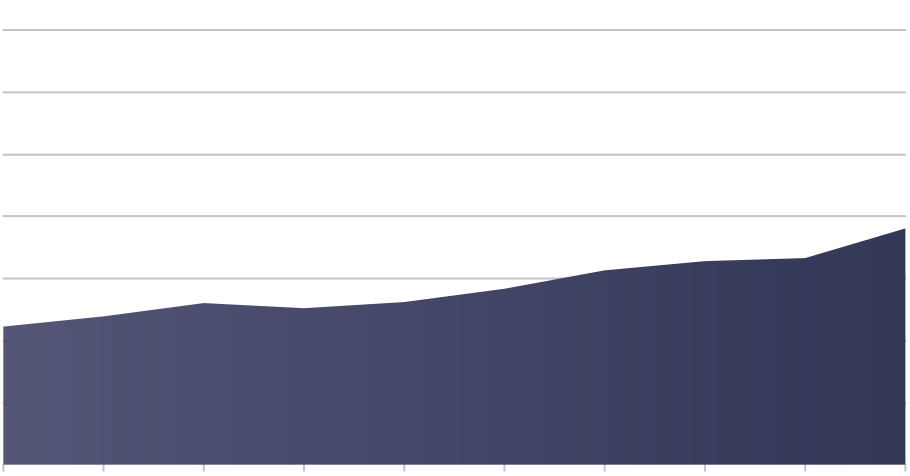
. . DIGITALIZATION HAS ENABLED THE EMERGENCE OF E-COMMERCE

Thanks to rapid technological advancements, businesses and households can now order goods and services online. The rise of e-commerce, both at domestic and international level, has spurred signi cant policy interest and motivated several measurement initiatives. Surveys of ICT usage have been used for a number of years as the main instrument to gather information on businesses' participation in e-commerce and to provide insights on e-commerce trends and dynamics (see Figure .). In , the countries reporting the highest share of rms engaged in e-

or online banking services, are increasingly traded internationally, often via digital platforms (UNCTAD, c).

In , the United States Bureau of Economic Analysis (BEA) made a rst attempt to measure trade in “digitally enabled” services, referring to services “for which digital information and communications technologies (ICT) play an important role in facilitating cross-border trade in services”. In the study, the BEA stated that “improvements in ICT technologies and reductions in their costs could be expected to contribute to growth in trade in services” (Borga and Koncz-Bruner,).

1.2:



Note: Digitally deliverable services are an aggregation of the BPM6/EBOPS 2010 service categories insurance and pension services, nancial services, charges for the use of intellectual property n.i.e., telecommunications, computer and information services, other business services, and audiovisual and related services.

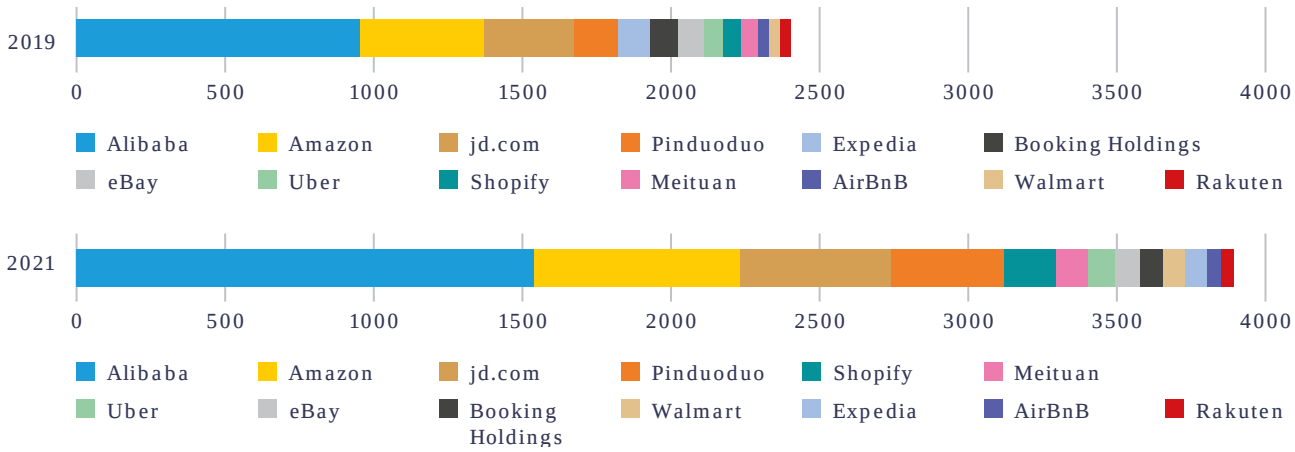
Source: UNCTAD calculations based on WTO and UNCTAD (2022).

platforms is still piecemeal, focused on a speci c subset of platforms, and not comparable across countries because of differences in de nitions and compilation methods (OECD, a).

Over the last twenty years, a number of initiatives have emerged to measure different aspects of digitalization. The most important measurement initiatives on which this Handbook draws are the OECD and UNCTAD work on de ning and measuring e-commerce, UNCTAD's work on ICT-enabled trade, and the OECD's broader efforts on measurement in the context of the Going Digital Project. On the policy front, the WTO Work Programme on Electronic Commerce, established in , de nes e-commerce as the "production, distribution, marketing, sale or delivery of goods and services by electronic means" (WTO, a). More recently, the work of López-González and Jouanjean ( ) proposes a framework for digital trade useful for trade policy analysis, by which all digitally enabled transactions are considered to be in scope for digital trade.

Building on all of the above, the rst edition of this Handbook (OECD, WTO and IMF,) formalized for the rst time a statistical de nition of digital trade, combining the two key criteria of digital ordering and digital delivery:*"digital trade is all international trade*

1.3:



Note: The chart covers digital intermediation platforms as de ned in this Handbook (e.g., Uber), as well as e-tailers. In some cases, both business models may co-exist on the same platform (e.g., Amazon, Alibaba). The gures re ect the gross value of goods and services sold by/through these companies.

Source: UNCTAD (2022a), based on company reports.

that is digitally ordered and/or digitally delivered" This de nition re ects the multi-dimensional character of the phenomenon by identifying the nature of the transaction as the de ning characteristic of digital trade and acknowledges the overlap that may exist between digitally ordered and digitally delivered trade.

Digitally ordered trade, de ned in this Handbook as *"the international sale or purchase of a good or service, conducted over computer networks by methods speci cally designed for the purpose of receiving or placing orders"*, echoes the OECD de nition of e-commerce (OECD,). Digitally delivered trade, which only covers services, is de ned as *"all international trade transactions that are delivered remotely over computer networks"* and builds on the concept of ICT-enabled services transactions developed by TGServ (UNCTAD,). This de nition of digitally delivered trade is broader than that in the rst version of this Handbook, as it covers any form of digital delivery, not only delivery methods "speci cally designed for the purpose of delivering services" (see Chapter). The de nition thereby becomes more straightforward to interpret and to implement in practice.

The alignment in concepts and terminology with previous initiatives provides clarity for users and ensures that compilers can leverage the measurement instruments already in place to produce estimates of digital trade. Importantly, the two statistical criteria of digital ordering and digital delivery are inherently encompassed by the WTO de nition of e-commerce cited above. Figure . illustrates the relationships between e-commerce, digital trade and their components.

Following extensive consultations with compilers and policymakers, this de nition of digital trade is now widely accepted and has proven feasible and practicable for statistical compilers. Several countries have started to implement the concepts and measurement approaches introduced by the previous edition of the Handbook (see, for example, the case studies in Chapter). Furthermore, the concepts of digital ordering and digital delivery have been fully integrated into, and are consistent with, the framework of digital supply and use tables (see Annex A and the OECD Handbook on Compiling Digital Supply and Use Tables (OECD,)).

1.4

The goal of this Handbook is to help statistical compilers to address policymakers' demands for better statistical evidence on digital trade.

Starting with its Chinese presidency in , the Group of (G) has been placing signi cant emphasis on the measurement of the digital economy and, by extension, the measurement of digital trade. The G Digital Economy Ministerial Declaration, under the German Presidency, called for a review of the statistical frameworks to encompass and separately

suggests that domestic regulation affecting digital trade has become increasingly tight. Measures concerning infrastructure and connectivity, which include restrictions on cross-border data ows and data localization requirements, account for the bulk of the increase in the index (see Figure .).

Quantifying digital trade ows in an accurate and comparable way would not only provide long-awaited information to support trade policy discussions, but also provide a basis to analyse and understand the digital trade implications of national regulatory changes, whether through the removal of restrictive measures or the introduction of new ones, and to establish good regulatory practices.

. . TRADE IN LOW-VALUE GOODS AND *DE MINIMIS* THRESHOLDSOW

. . ECONOMIC GROWTH AND DEVELOPMENT

Although it is widely accepted that digital trade provides signi cant new opportunities, there is also a sense that many developing economies are lagging behind in terms of the infrastructure, skills and regulatory environment needed to take advantage of these opportunities (UNCTAD, d). Market openness is a necessary element to enable bene ts from digital trade, but it is not suf cient. Comprehensive policy action is needed across skills, trade, competition, taxation, innovation and connectivity policies, if we are to avoid a growing digital divide.

At the th WTO Ministerial Conference, WTO members agreed to reinvigorate work under the Work Programme on Electronic Commerce, particularly in line with its development dimension. WTO members have also agreed that digital connectivity will be one of the three priority areas in the WTO Aid for Trade work programme for - . Development cooperation activities should contribute to bridging gaps in digital connectivity and information technology (IT) to support an enabling environment for business and trade facilitation in developing countries and least-developed countries (LDCs).

A challenge here is to ensure that developing economies are also not left behind in their ability to produce evidence for policymaking. This Handbook showcases various developing economy experiences of producing insights on digital trade (see Chapter).

1.5

The objective of this Handbook is to provide compilers with a statistical de nition of digital trade, a conceptual measurement framework and practical compilation guidance on how to make digital trade transactions more visible in existing statistics on international merchandise and services trade.

Building and expanding on its rst edition (OECD, WTO and IMF,), this second edition of the Handbook provides several conceptual clari cations, while keeping the de nition and the measurement framework broadly unchanged. It builds on extensive consultations with a wide range of national statistical compilers, international organizations and other key stakeholders in the domain of trade statistics and policy analysis. The work presented in this Handbook is at the frontier of statistical measurement and contributes to developing the domain of digital trade statistics by:

- Providing a statistical de nition of digital trade and its components;
- Establishing a conceptual framework on how to measure digital trade;
- Proposing a reporting template to record digital trade transactions;
- Providing speci c compilation guidance;
- Sharing best practices and case studies.

The Handbook is structured as follows:

Chapter introduces the conceptual framework and reporting template for digital trade.

Chapters , and provide compilation guidance on the components of digital trade identi ed in the conceptual framework: Chapter focuses on the measurement of digitally ordered trade, Chapter presents the measurement of digitally delivered trade, and Chapter addresses the speci c challenges related to the recording of transactions enabled by digital intermediation platforms.

Finally, Chapter presents detailed case studies contributed by China, Jamaica, Spain and Türkiye.

The chapters build on existing compilation practices and have greatly bene tted from inputs received from national compilers. Nevertheless, as the domain is still evolving, and compilation practices are not yet well established, the authors of the Handbook recognise that coordinated international effort is still required to address the remaining practical and conceptual challenges.

1.6

To the extent possible, this Handbook attempts to cover all of the digitalization issues which are of relevance for trade statistics. Nevertheless, it also recognises that in some areas, measurement efforts are still in their infancy, and therefore further conceptual research, as well as empirical testing, will be needed to improve and re ne the guidance provided in this Handbook.

For example, more research is needed concerning Finallyall

. . DIGITALIZATION, INVESTMENT AND INTELLECTUAL PROPERTY

Digitalization exacerbates some of the best-known challenges to measuring international trade. For example, intellectual property products can easily be “moved” across international borders, often within the same MNE, and in this case, attributing economic ownership of those intellectual property products, and thus determining the type and direction of the related transactions, is no trivial task (IMF,).

Digitalization has also further blurred the lines between cross-border services transactions (as covered in the balance of payments) and services sales/output through the establishment of foreign af liates. In the case of digital intermediation platforms and other platforms providing access to intellectual property product content, such as streaming platforms, the lines can become even less clear.

While these issues do not undermine the conceptual measurement framework presented in this Handbook, the complexity of the related transactions calls for the development of further guidance on feasible and comparable compilation approaches based upon country experiences.

. . CROSS-BORDER DATA FLOWS

Trade and production can be heavily dependent on data and information, which are increasingly being exchanged across borders. Cross-border data ows create new trading opportunities, but also amplify concerns related to privacy protection, digital security, national security, regulatory reach, competition and industrial policy. In order to shape adequate policies around cross-border data ows, it is crucial to develop better measurement of the volume of international data ows and better assessments of the conditions under which data cross borders effectively.

Some international data ows are a direct manifestation of digital trade, arising in the process of an order being placed, or of a service being delivered, through computer networks. The economic value associated with these data ows is accounted for by recording the value of the transaction they facilitate in digital trade6Dahi[(oa4.089 Tw 10.0519 0 0 10r.00.079 Tm [(Some ine6D0 5Tw 0 -1 0 Ts)st)-2.089 d 0 10 56.69.5 (at)-20.5 (a)01

Given the relationship between e-commerce and

1 https://ec.europa.eu/eurostat/web/digital-economy-and-society/data/database.

2 https://stats.oecd.org/Index.aspx?DataSetCode=ICT_BUS.

3 https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=81140&IF_Language=eng.

4 Members of the Task Group included UNCTAD, the United Nations Statistics Division (UNSD), the Organisation for Economic Co-operation and Development (OECD), the World Trade Organization (WTO), the International Telecommunication Union (ITU), the Economic and Social Commission for Western Asia (UNESCWA) and the World Bank.

5 See https://www.oecd.org/digital/going-digital-project/.

6 The OECD Working Party on International Trade in Goods and Services Statistics (WPTGS) widely discussed and endorsed this Handbook in their 2020, 2021 and 2022 annual meetings. This Handbook has also been extensively discussed at the UNCTAD Working Group on Measuring E-commerce and the Digital Economy.

7 Important progress has also been achieved through the recently agreed G7 Trade Ministers' Digital Trade Principles (https://www.gov.uk/government/news/g7-trade-ministers-digital-trade-principles), which cover open digital markets, data free ow with trust, safeguards for workers, consumers and businesses, digital trading systems, and fair and inclusive global governance.

8 The original moratorium decision refers to WTO (1998b), while the latest extension is contained in WT/L/1143 and WT/MIN(22)/32 (https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx? lename=q:/WT/MIN22/32.pdf&Open=True).

9 The original Joint Statement on Electronic Commerce from 2017 is accessible here: https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx? lename=q:/WT/MIN17/60.pdf. In January 2019, participants con rmed their intention to commence negotiations on e-commerce (https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx? lename=q:/WT/L/1056.pdf&Open=True). In a statement dated 20 January 2023, the co-chairs of the discussions (Australia, Japan and Singapore) noted progress on ten articles – "paperless trading, electronic contracts, electronic authentication and electronic signatures, unsolicited commercial electronic messages, online consumer protection, open government data, open internet access, transparency, cybersecurity, and electronic transactions frameworks". (https://www.wto.org/english/news_e/news23_e/igo_20jan23_e.pdf).

10 In addition to the recent DEA between the United Kingdom and Singapore (December 2021), Canada has expressed interest in joining the DEPA, China of cially led an application to join (November 2021), and an agreement has been reached for the Republic of Korea to begin negotiations to join formally. Moreover, in December 2021 Singapore and the Republic of Korea concluded discussion on their Digital Partnership Agreement Korea Singapore Digital Partnership Agreement (KSDPA), which entered into force on 14 January 2023.

11 See https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx? lename=q:/WT/MIN22/32.pdf&Open=True.

12 See https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx? lename=q:/WT/COMTD/AFTW95.pdf&Open=True.

13 See https://unstats.un.org/unsd/nationalaccount/sna.asp.

14 Fungible crypto assets with corresponding liability, such as stable coins with a claim on the issuer, are considered as nancial assets and are also not in scope for international trade.