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Improving the visibility of digital transformation in economic statistics through the use of digital supply and use tables

Going Digital Toolkit measurement note

This Going Digital Toolkit measurement note provides information on the compilation of digital supply and use tables and how they can provide greater awareness of digital transformation in the economy. It is a contribution from the CSSP to the Going Digital II horizontal project. Once the note is approved and declassified, it will be included as part of the measurement roadmap guidance on the online Going Digital Toolkit.

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Overview

Digital transformation of the economy has increased at such a pace that, at times, it has appeared as if the economic statistics used to measure it have failed to keep up with this rapid change. While research has shown that, on balance, the current statistical standard used by countries to compile GDP, the 2008 System of National Accounts (2008 SNA), is able to appropriately incorporate the changing nature of the economy brought on by digitalisation, one may wonder whether this is enough. As digitalisation's importance increases, policy makers are continually seeking information on the speed of growth or the level of intensity of digital technologies in the economy. The digital supply and use tables (digital SUTs) may provide, at least partly, a solution to this challenge. By disaggregating established national accounts indicators, information is generated for research and policy purposes that provides better insights on digitalisation effect on the economy, while still remaining consistent with SNA principles.

This Toolkit measurement note will firstly explain the challenges presented by an absence of visible economic indicators related to digitalisation, before explaining how the digital supply and use tables will overcome these challenges. More specific information on the make-up of the digital supply use tables is included, which highlights both the specific benefits and challenges that come with their use. Numerous examples of work currently undertaken by member countries, that could contribute to the compilation of the digital SUTs is offered throughout the measurement note, as well as the Annex. Improving digitalisation visibility in economic statistics

What is digital transformation?

Digitisation is the conversion of analogue data and processes into a machine-readable format. Digitalisation is the use of digital technologies and data as well as interconnection that results in new or changes to existing activities. Digital transformation refers to the economic and societal effects of digitisation and digitalisation. Source: (OECD, 2019[1])

1. Why hidden digitalisation is a problem

1. The last several years has seen a remarkable rise in the level of digitalisation across the economy and society. Through the use of digital tools, firms are now able to radically alter production processes and access new markets. Simultaneously, the digital transformation has granted more market knowledge to consumers and provided access to a larger variety of goods and services than ever before (OECD, 2019[1]). Additionally, digitalisation has given both producers and consumers the ability to exercise greater control over the characteristics of the transaction. These longer-term trends were accelerated over the course of 2020 as the onset of the COVID-19 pandemic resulted in even greater use of digital technology to enable both professional and leisure activities in one's own home (OECD, 2020[2]). However, despite the omnipresent nature of the digital transformation in our professional and personal lives, it is not nearly as identifiable in the various established statistics currently used to measure the economy. This absence of specific information on such a key trend within the economy continues to create confusion about what is (and is not) being included and who is (or is not) benefiting from these changes.

2. This confusion has, at times, been interpreted as evidence of possible mismeasurement, creating disagreement on whether some digital aspects of the economy are, in fact, missing from macro-economic statistics rather than being difficult to identify. Papers have argued that, as currently defined and measured, the effect of digitalisation is to understate levels and growth of economic activity, and may therefore be one of the reasons for the observed productivity slowdown (Coyle, 2017[3]; Coyle, 2018[4]). Meanwhile, other research has shown that the productivity slowdown cannot be explained simply by mismeasurement of economic growth (Ahmad and Schreyer, 2016[5]; Ahmad, Ribarsky and Reinsdorf, 2017[6]).

3. Even if digitalisation does not cause any mismeasurement, the lack of published internationally comparable indicators related to the volume of e-commerce sales, the value added of digital intermediary firms or the changing expenditure by firms to leverage digitalisation restricts the amount of information, and therefore, evidence available to policy makers. Overall, the lack of statistics explicitly identifying digital activity in the national accounts causes two important issues. The perception of mismeasurement casts unwanted doubt on the accuracy of the results, while the lack of visibility restricts the interpretability, and therefore the usefulness of the national accounts for various policy requirements.

1.1. What is the best way to make digitalisation visible in economic statistics?

4. While many countries have undertaken some form of measurement of impact of digitalisation on the economy, often, this consists of measuring digitalisation based on households and businesses uptake of digital technologies and activities. This can be done relatively easily by undertaking specific ICT surveys for businesses or even by including additional questions on established population surveys. Examples of this work, which allows for easy international comparability, can be seen at the OECD's ICT access and usage database covering both households and businesses. While the level of digital saturation in our daily lives and work is of interest, these metrics do not produce a monetary estimate of the level of production associated with digitalisation or quantify any efficiency gains observed due to changing production processes. This lack of a direct relation to the level or value of production associated with digital activity or productivity gains from using digital technologies, results in the information being less useful in monitoring and analysing the impact of digitalisation on traditional macroeconomic indicators such as those included within the national accounts.

5. With the increase in the prevalence of digitalisation, the lack of explicit indicators related to digitalisation in economic statistics has become more obvious over the past few years and as such, there has been growing encouragement for the broader statistical community to address the issue. A recent example of this is the G20 Digital Economy Task Force (DETF), recommending that countries should *"… work towards improving the measurement of the digital economy in existing macroeconomic frameworks, e.g. by developing satellite national accounts*" (G20 DETF, 2018[7]). A similar recommendation was made in the publication "Measuring the Digital Transformation; A Roadmap for the Future" ((OECD, 2019[1]), which stressed the importance of "*understanding the economic impacts of the digital transformation*", by appropriately "*making the digital transformation visible in economic statistics*". Box 1 gives some further information on the Going Digital Measurement Roadmap.

Box 1. The Going Digital Measurement Roadmap

The Going Digital measurement roadmap was developed as part of the OECD Going Digital horizontal project. It identifies nine actions that, if prioritised and implemented, would substantially advance the capacity of countries to monitor digital transformation and its impacts:

1. Make the digital economy visible in economic statistics
2. Understand the economic impacts of digital transformation
3. Encourage measurement of the digital transformation's impacts on social goals and people's well-being
4. Design new and interdisciplinary approaches to data collection
5. Monitor technologies underpinning the digital transformation, notably the Internet of Things, AI, and Blockchain
6. Improve the measurement of data and data flows
7. Define and measure skills needs for the digital transformation
8. Measure trust in online environments
9. Establish an impact assessment framework for digital governments

OECD Member countries endorsed the roadmap in 2019, and the OECD continues to help countries realise this ambitious agenda. For more information on the roadmap and on-going implementation efforts, visit the Going Digital Toolkit (https://oecd.org/going-digital-toolkit).

6. As countries have tried to not only show the impact of the digital transformation, but also do it in a way that is consistent with the national accounts or other economic indicators, a pertinent question has arisen time and time again: what economic activity should be considered part of the "Digital Economy"? As discussed in Box 1 below, while it is relevant to address this topic, importantly the Digital SUTs do not rely on or promote any single definition or indicator as representative of the Digital Economy.

Box 2. Defining the "digital economy"

An often-raised question when it comes to measuring digitalisation of the economy is how to actually define the "Digital Economy". Unfortunately, despite many attempts by academics, international organisations and national statistical offices, there is currently no single, generally accepted definition of what the Digital Economy includes. While acknowledgement of this is widespread, it does not mean it is any easier to come up with an internationally agreed definition. Even GDP, which is universally respected as defining the parameters of the modern economy, still elicits discussion regarding what is to be included and excluded, seventy years after its creation (Coyle, 2014[9]). Nonetheless, it is still a useful exercise to discuss briefly the various perspectives towards a definition of the Digital Economy, and why the digital SUTs, which do not advocate a particular definition of the Digital Economy, offers practical solutions to discussion.

Proponents of specific Digital Economy definitions usually favour one of two approaches; the first considers the Digital Economy as limited to a finite set of economic activities that produce specific ICT goods and digital services, which facilitate the digitalisation of the economy. This contrasts to the alternative view, in which the Digital Economy also includes the subsequent economic activity enabled by these ICT goods and digital services.

From a measurement point of view, it was more conceivable to derive a picture of the Digital Economy by aggregating certain products or industries that were considered as representing digitalisation occurring in the economy. Evidence of this latter approach was the classification and definition of the ICT sector in the International Standard Industrial Classification of All Economic Activities, Revision 4 (UNSD, 2008[10]) and the complimentary list of ICT products in the Central Product Classification (UNSD, 2015[11]). These classifications have been picked up and are now widely used internationally. From a policy point of view however, these definitions are often considered too narrow and while growth in these newly formed sectors have usually been higher than broader economic growth, it is likely that the output of these "narrow" interpretations of the Digital Economy understates the overall impact of digitalisation on the economy.

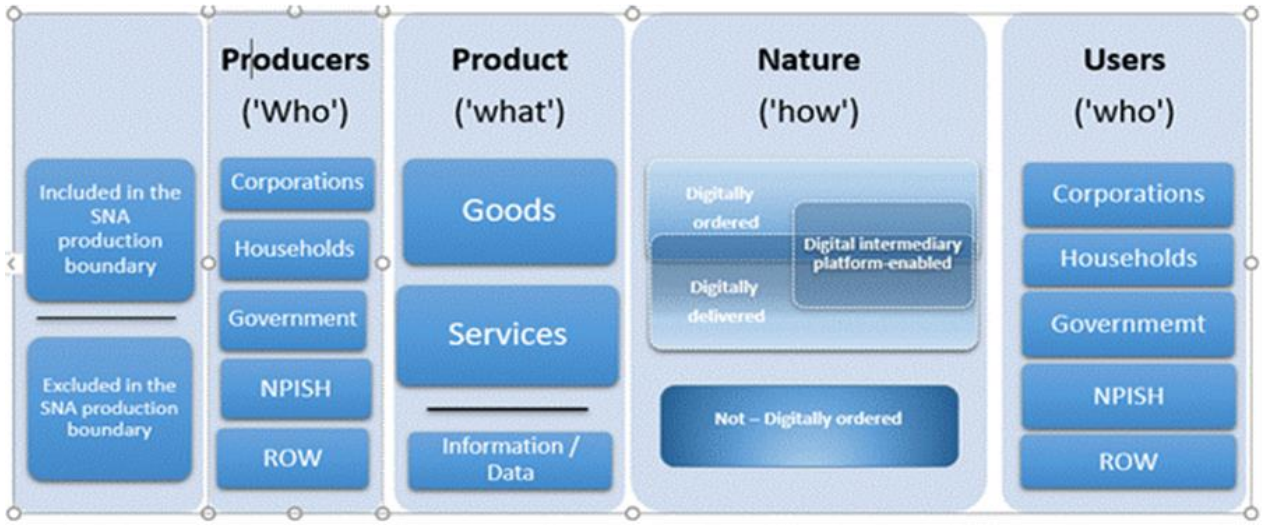
A recent attempt to merge these two approaches together was the definition acknowledged in the 2020 G20 DETF ministerial declaration. It defined the Digital Economy as "all economic activity reliant on, or significantly enhanced by the use of digital inputs, including digital technologies, digital infrastructure, digital services, and data; it refers to all producers and consumers, including government, that are utilising these digital inputs in their economic activities" (G20 DETF, 2020[12]). Importantly, a tiered definitional framework, which further delineates the impacts of digitalisation on the economy, accompanied this broad definition. These tiers, that are consistent with outputs from the digital SUTs, separate firms into those that produce ICT goods and services, those that are reliant on these digital inputs, and finally those firms that are significantly enhanced by the use of digital inputs (OECD, 2020[13]).

This recent framework, provides countries with some flexibility on the choice of definition; in doing so, it shows that increasing the visibility of digital transactions, and the products and actors involved in them is a more achievable outcome in the short term than an internationally agreed upon and statistical implementable definition.

An alternative approach to delineating the economy in relation to the Digital Economy is to consider their digital intensity and so identify digital-intensive sectors. Based on seven different metrics, (Calvino et al., 2018[14]) propose a taxonomy of sectors by digital intensity. Various indicators such as, firms' investments in "digital" assets, the (type of) human capital and skills needed for production or the way companies approach markets and interact with clients and suppliers are used to classify industries into "high", "medium-high", "medium-low" and "low" digital intensity. While this approach could be considered somewhat rudimentary as all firms in an industry are classified in the same digital intensity grouping regardless of their specific level of digitalisation, the approach has the benefit of being able to be compiled using widely available industry aggregates.

7. This rather complex question of how best to define the Digital Economy prompted early discussions on the digital SUTs to circumvent the issue of what should be included, or excluded, but rather to focus on a better understanding of *how digitalisation impacts the economic transactions being measured*. Therefore, the digital SUTs not only focus on the various products and actors associated with digitalisation, but importantly they also try to identify the nature of the transactions between the actors (see Figure 1). A fundamental principle of the framework is to delineate transactions based on whether or not they are digitally ordered and/or digitally delivered.

Figure 1. Conceptual framework for digital supply and use tables



Source: (OECD, 2019[8]), adapted.

8. Variations of this conceptual framework and its operationalisation into a supply-use framework have been presented and discussed in various fora,[1] including a final proposal put forward to the OECD Informal Advisory Group on Measuring GDP in a

[1] Over the course of 2019, papers and presentations based around this framework have been presented to: the Advisory Expert Group (AEG) on National Accounts; the General Conference of the International Association for Research in Income and Wealth (IARIW); the conference of the Economic Statistics Centre of Excellence (ESCoE); the UNECE/OECD/Eurostat Group of Experts on National Accounts; the OECD Working Party on National Accounts; and the OECD Working Party on Measurement and Analysis of the Digital Economy.

Digitalised Economy[2] (OECD, 2019[8]). This has helped to reach agreement on the basic specifications of the framework and also to define the specific product and industry classifications needed in a digital supply-use framework in order to make digitalisation more visible in the system of national accounts. The framework and associated supply-use tables have been designed with the explicit purpose of maintaining a balance between producing statistics that are relevant to policy makers but still statistically feasible for compilers.

2. Digital supply and use tables

2.1. An overview of the digital supply and use tables

9. The various perspectives outlined in Figure 1 are incorporated as additional rows and columns into the standard supply-use framework, which is currently compiled and disseminated by a majority of OECD countries. These standard supply-use tables are a collection of matrices that record the production (supply) of all goods and services in the economy and how those products are allocated (used) for either intermediate or final use. In the case of intermediate consumption, this includes the industry consuming them, while final consumption includes those allocated as exports. The additional details specified in the framework include the following:

- Seven additional industry columns, intended to move firms from existing industry classifications into new "digital industries". While one digital industry comprises the established ICT sector as firms that are enabling the digital transformation, the additional digital industries include firms that are distinguished based on how they use digitalisation within their business models, rather than their type of activity. These digital industries such as *digital intermediary platforms explicitly charging a fee*, *data and advertising driven platforms*, and *E-tailers*; include firms whose business models are entirely reliant on digitalisation. A full list of the seven industries, including their definitions and examples is provided in Annex B.
- An aggregation of product rows related to ICT goods and services. While this will provide information on the final use of ICT products, including the level of household consumption, investment and exports, an indication of the use of these products as intermediate consumption by firms can provide a simple indicator on the speed of adoption and the level of importance that digitalisation has on the production processes of existing business.
- Additional product rows that explicitly identify cloud computing services and digital intermediary services. These two specific product groupings, two highly visual examples of digitalisation in action have generated significant changes in business investment and production chains and therefore warrant explicit recording.
- Additional, more detailed rows under each product group, to delineate transactions that are digitally, or not-digitally, ordered; with digitally ordered transactions further broken down into ordered directly from the counterparty; ordered via a resident digital intermediary platform; and ordered via a non-resident platform. The latter split does

[2] At the 2016 meeting of the Committee on Statistics and Statistical Policy (CSSP), a proposal was put forward to create an Informal Advisory Group on Measuring GDP in a Digitalised Economy. The CSSP expressed strong support, endorsed the work on GDP and the digitalised economy, and agreed to the proposals. They took note that this work would be taken up and followed by the Working Party on National Accounts (WPNA). The original proposal is available at the following link: https://one.oecd.org/document/STD/CSSP(2016)16/en/pdf.

not only provide information on the importance of e-commerce, but also about the importance of digital intermediaries for the production and consumption of certain products and industries.

- Two additional columns have also been included to delineate the nature of the delivery of the service as either digitally delivered or not-digitally delivered, which is consistent with the classifications used for digital trade. Digital trade, as outlined in the OECD-WTO-IMF "Handbook on Measuring Digital Trade", is "*all trade that is digitally ordered and/or digitally delivered*".
- Additional rows representing the production and consumption of data and digital service products that are currently outside the System of National Accounts (SNA) production boundary, but are considered important to arrive at a more complete picture of the impact of digitalisation on the economy.[3]

10. When populated, the additional detail incorporated in the supply-use tables would allow for the compilation of a suite of indicators providing information to address a variety of questions posed by policy makers, regardless of how they define the Digital Economy.

11. Examples of these indicators were outlined in a paper presented to the informal advisory group in 2019 (OECD, 2019[9]) and include the following:

- Value added generated by digital industries, both those enabling digitalisation through digital technology and services and those benefiting from the enabling technology.
- Household consumption via e-commerce at both the aggregate level as well as for specific products heavily impacted by digitalisation.
- The level of ICT goods and services used as either final consumption by households or intermediate consumption by firms.
- Demand for cloud computing services and digital intermediary services by firms, broken down by industry.
- Digital trade in products, consistent with the definitions used in the OECD-WTO-IMF Handbook on Measuring Digital Trade.

2.2. The benefits of using the digital supply-use tables to visualise and monitor digital activity

12. A significant advantage of measuring the effect of digital transformation on the economy using the established boundaries of the SNA is that the vast majority of countries are already producing supply-use tables - the starting point for compiling the DSUTs. The SNA is an established international statistical standard with a long history of being used for cross-country comparisons. As pointed out by Ahmad and Schreyer, the SNA framework, as it stands currently, is generally able to capture the changes in production chains brought on by digitalisation and therefore any value added should already be included, either explicitly or implicitly, within the established supply-use framework (Ahmad and Schreyer, 2016[5]). With this in mind, the role of the digital supply-use tables is to break down the relevant rows and columns, in order to make digital activities more identifiable, with no need to define and build up a brand new output. While countries have shown initial challenges generating the additional breakdowns requested by the digital supply-use tables, mainly due to the unavailability of source data, conventional supply-use

[3] The current SNA research agenda includes research into the recording of data and "free" digital services, including whether or not these should affect the current production and asset boundaries of the system of national accounts.

tables, which are the starting point, are uniformly available. This allows preliminary estimates to be generated more easily, with more detailed estimates to follow as additional data sources are becoming available.

13. Furthermore, by starting with the overall estimate of GDP, which incorporates the entire economy, both digital and non-digital, the digital supply-use tables provide additional context on how key elements of digitalisation fit within the overall economy. Users have quite rightly looked for a derivative of GDP to be used as a metric for the size and growth of the digitalisation in the economy. An estimate output, value added, or compensation of employees, of digital industries, such as digital intermediary platforms or e-tailers, are examples of indicators from the digital supply-use tables that already come with a high level of interpretability and understanding. The widespread practice of referring to an industry (or sector) or product as "a share of GDP" is testament to the widespread usage of the GDP. Therefore, indicators which include a reference to GDP will provide important context to the estimates, perhaps more than indicators that only list a simple monetary value or proportion.

14. Finally, the pre-eminent benefit of the digital supply-use tables, considering their experimental nature, is the lack of prescriptiveness of the framework. As outlined earlier, there is a multitude of different views on what the Digital Economy does or does not contain, these may be shaped by personal opinions or dependent on how the data are used. By not dictating one particular indicator as representing the Digital Economy, the digital supply-use tables can provide estimates to suit a wide range of request. Users who prefer a more narrow perspective of the Digital Economy can focus on the value added of the digitally enabling industry or overall output of ICT goods and services. Conversely, users that favour a broader interpretation of the Digital Economy can take indicators related to the level of digital ordering and delivery, or the level of ICT goods and digital services used in production of traditional industries as an indication of how digital technology is enabling economic activities as a whole.

Box 3. Digital economy satellite accounts

Turning digital supply-use tables into a broader satellite account

It is important to remember that, while the digital supply-use tables are a useful statistical output by themselves, an important additional advantage of these tables is that they are the very foundation for the compilation of Digital Economy Satellite Accounts (DESA). Satellite accounts are a fundamental component of the SNA allowing statistical offices to slightly alter the standard production and asset boundaries used in the core accounts, and in the case of the DESA, to "make apparent and to describe in more depth aspects that are hidden in the accounts of the central framework" §2.166 (UN, 2010[17]).

Satellite accounts focussing on such things as tourism, culture, or the environment are already common outputs from statistical offices. A DESA would provide the opportunity to combine core national accounting concepts from the digital supply-use tables with estimates for phenomena that are not currently included within the central SNA framework. Examples of these additional outputs might include labour or occupation indicators for digital industries, the value of "free" digital services provided in exchange for personal information, value of data assets currently held by firms, or the amount of time consumers spent using digital platforms. DESA would thus provide a better overall picture of how digitalisation is affecting broader societal developments,

in addition to and combined with a more economically oriented perspective provided by the digital supply-use tables.

2.3. Challenges in compiling digital supply-use tables

15. Despite broad support for the project over the past year, discussions held at the most recent Informal Advisory Group still showed considerable hurdles for national statistical offices to compile digital supply-use tables, particularly as the overall project moves from the conceptual challenges to more practical compilation challenges. The most obvious of these challenges is the limited availability of data sources. Most current methods used in compiling supply-use tables start from business surveys or administrative data that do not currently lend themselves to providing additional information on the nature of the transaction. Furthermore, statistical business registers often lack the required level of detail to distinguish units that are fundamentally leveraging of digitalisation, such as platforms providing digital intermediary services, or the firms that are reliant on digital technologies, and to separate them from the broader ISIC based industry classification in which they are currently classified.

16. That said, it is important to recognise that none of these challenges are conceptually unsolvable, and that the majority of national statistical offices are able to address these concerns, if equipped with the additional resources. In anticipation of this, it is useful to look upon the compilation of the digital supply-use tables as a continually evolving process, one that permits countries to complete elements of the tables, as soon as additional source data become available. Countries are therefore encouraged to complete what they can, as soon as they can, with the idea of continually sharing best practice to ensure that other countries can catch up with those first able to complete key parts of the tables. In this way, the digital supply-use tables act as a roadmap, providing clear targets for countries on what they might aim for when dealing with the challenge of making digital transformation more visible in economic statistics. When developing new data sources, having this type of clear targets in mind will assist in understanding the specific information that does (or does not) need to be collected.

17. At first glance, an additional compilation challenge created by digital supply-use tables is the sheer size of the tables. When considered in isolation, one may get the impression that a huge amount of information is being requested. However, this should be viewed as an externality of using the standard supply-use tables, which themselves are already quite large, as the starting point. While the reasons for doing this have been well documented, the particular statistical challenge has been addressed by the Informal Advisory Group's preference to focus on specific high priority indicators (OECD, 2019[9]). These indicators have been chosen based on their importance to the policy debate as well as the feasibility for countries to compile them in the shorter term. The high priority indicators are as follows:

- Output, gross value added, and its components of digital industries.
- Intermediate consumption of digital intermediary services (DIS), cloud computing services, and total ICT goods and digital services.
- Expenditures split by nature of the transaction, including estimates of digital trade.

18. While no member country has currently published estimates explicitly as output of the digital SUTs, as outlined in Annex A, there is a large amount of work already completed that is highly adaptable to the production of digital SUTs outputs.

3. Final considerations

19. There is a strong desire from users of economic statistics for information that sheds more light on the impact of the digital transformation of the economy. While national statistical offices are equally keen to produce economic indicators that does just this, there are significant conceptual and practical measurement challenges that need to be addressed. The digital supply-use tables are a response to these challenges, by creating a realistic framework that statistical offices can use to compile estimates that provide useful information to users on the level and intensity of digitalisation in the economy.

20. Information derived from the digital supply-use tables can provide clarity on how digitalisation is influencing the economy, for example, the "digital industries" provide a clear delineation between firms that are reliant on digital inputs compared to those that are enhanced by it. Importantly, this information is conveyed using indicators already used within the system of national accounts. Due to this, estimates of output and value added of these industries, including the "digital industry" based on the "ICT-sector", provide informative estimates understood by all users. At the same time, estimates based on the nature of the transaction (an additional breakdown on top of those provided in the SNA) should provide useful information on the changing habits of consumers- both household and businesses - as they adjust to the digital world.

21. While the work is still in its infancy, with most countries still developing data sources and methodologies, the list of work in Annex A shows that many countries already have some statistics that can be used to populate elements of the digital supply-use tables now. The OECDs Informal Advisory Group will continue to work with these countries to develop the practical implementation of the framework. As countries are compiling these outputs for the first time, this work will benefit from ongoing exchanges of countries experiences and the sharing of more detailed guidance on compilation best practice once developed. The Informal Advisory Group will begin to collect experimental outputs of the table over the course of 2021.

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Annex A.

Examples of work undertaken by national statistical offices to improve the visibility of digital activity in economic statistics, including work that could contribute to the compilation of digital SUTs.

Measuring the overall value added of digitalisation, calculated using selected digital products

Defining and measuring the Digital Economy, USA
Organisation: Bureau of economic analysis (BEA), USA
Description: This paper describes the work of the US Bureau of Economic Analysis (BEA) to develop estimates towards the construction of a new Digital Economy satellite account. These estimates are the first step to a comprehensive measure of the contribution of the Digital Economy to gross domestic product (GDP).
Read more: https://www.bea.gov/system/files/papers/WP2018-4.pdf

Measuring digital economic activities in Canada
Organisation: Statistics Canada
Description: This paper presents Statistics Canada's working definition of the digital economy as well as initial estimates on output, value added and jobs associated with the relevant activities.
Read more: https://www150.statcan.gc.ca/n1/en/pub/13-605-x/2019001/article/00002-eng.pdf?st=7ni5lxtM

Measuring digital activities in the Australian economy
Organisation: Australian Bureau of Statistics (ABS)
Description: The ABS has applied the BEA approach to estimate digital activity in Australia using selected separately identifiable digital products from the ABS supply-use tables. The preliminary estimates provide insights into digital activities through a national accounts lens.
Read more:
https://www.abs.gov.au/websitedbs/D3310114.nsf/home/ABS+Chief+Economist+-+Measuring+Digital+Activities+in+the+Australian+Economy

Measuring the intensity of use of digital platforms

Results from the digital economy survey, Canada
Organisation: Statistics Canada
Description: The digital economy survey developed by Statistics Canada explores the activities of Canadians (18 years and older) in the digital economy from July 2017 to June 2018.
Read more:
https://www150.statcan.gc.ca/n1/en/pub/11-627-m/11-627-m2018028-eng.pdf?st=OekfrOix

The use of digital platforms, Netherlands
Organisation: Statistics Netherlands (CBS)

Description: Estimates of their use of online platforms to order or exchange goods or services by the Dutch population aged 12 years and over.
Read more:
https://www.cbs.nl/en-gb/news/2020/14/nearly-3-in-5-dutch-people-used-online-platforms-in-2019

Outputs related to E-Commerce

Internet sales as a percentage of total retail sales, UK
Organisation: Office of National Statistics (ONS), United Kingdom
Read more: This quarterly publication displays estimates of internet sales as a proposition of overall retail sales. The data is collected using the same sample as total retail sales.
https://www.ons.gov.uk/businessindustryandtrade/retailindustry/timeseries/j4mc/drsi

Bought/ordered goods and services via the Internet, Sweden
Organisation: Statistics Sweden
Description: Estimates related to Internet purchases by 16-85 year olds on household goods, electronic equipment, telecommunication services, holiday accommodation, travel arrangements, tickets for events, films or music, books, magazines, newspapers, video or computer games, computer software, and insurance policies.
Read more:
http://www.statistikdatabasen.scb.se/pxweb/en/ssd/START__LE__LE0108__LE0108G/LE0108T23

Retail Trade, online sales, Australia
Organisation: Australian Bureau of Statistics (ABS)
Description: An estimate of online sales has been included in the Retail Trade survey since the March quarter 2013. The data was previously published as an experimental series, in original data only, as an Appendix to the Retail Trade publication. It was disaggregated by whether the retailer was "Pure-play" (online only) or "Multi-channel" (mix of online and physical stores).
Read more:
https://www.abs.gov.au/statistics/industry/retail-and-wholesale-trade/retail-trade-australia/latest-release#supplementary-covid-19-analysis-online-sales

Retail trade; turnover changes, internet sales, Netherlands
Organisation: Statistics Netherlands (CBS)
Description: The data presents information about internet purchases and can be broken down by different types of shops: including those that predominantly sell goods online and those that predominantly sell goods through other sales channels (physical shops, markets, etc.). The survey used to measure turnover change for online sales covers retail trade companies with 10 or more employees; which represents 65-70 percent of total online sales. Small businesses are not covered.
Read more:
https://www.cbs.nl/en-gb/figures/detail/83867ENG

Gross Value Added of E-commerce, Mexico.
Organisation: National Institute of Statistics and Geography (INEGI)
Description: This annual publication displays estimates of the percentage of the total sales revenue made electronically by economic activity and its share to gross domestic product.

Read more:
https://www.inegi.org.mx/temas/vabcoel/default.html#Tabulados (Spanish)

Estimates related to digital intermediary platforms

Measuring challenges of the sharing economy: The case of Airbnb
Organisation: Statistics Netherlands (CBS)
Description: The paper present a methodology for the measuring the rental market created by the use of Airbnb. It includes suggestions on how to get the information needed and how to fit this information in the existing national accounts framework
Read more:
http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=STD/CSSP/WPNA(2017)9&docLanguage=En

Accommodation and the sharing economy in New Zealand
Organisation: Statistics New Zealand
Description: The paper outlines the data sources and the methods used to estimate the "accommodation-sharing" economy in New Zealand from 2013 to 2018. While experimental in nature due to the assumptions required to calculate the estimates. The estimates were compiled as part of an attempt to understand the size of the digital economy and the impact of this activity on national accounts.
Read more:
https://www.stats.govt.nz/experimental/accommodation-and-the-sharing-economy-in-new-zealand

Estimates related to the production of data.

The value of data in Canada: Experimental estimates Statistics Canada
Organisation: Statistics Canada
Description: The paper extends, and to a certain extent tests, a statistical framework created in order to provide an estimate of the value of data used in production in Canada. It presents a preliminary set of statistical estimates of the amounts invested to produce Canadian data, databases and data science in recent years. The estimates are calculated from employment and wage information collected by the quinquennial Census of Population and the monthly Labour Force Survey, combined with a number of important, but as yet largely untested, assumptions. The results indicate rapid growth in investment in data, databases and data science and a significant accumulation of these kinds of capital over time.
Read more:
https://www150.statcan.gc.ca/n1/en/pub/13-605-x/2019001/article/00009-eng.pdf?st=Wzd1A5d8

Estimates of imports / exports of digital products

New Zealand - Imports of digital services
Organisation: Statistics New Zealand

Description: Since October 2016, the New Zealand tax office has applied goods and services tax (GST) on remote services imports. These services include: digital services such as e-books, music, videos, and software downloads; non-digital services such as general insurance, consulting, accounting, and legal services; webinars, distance learning, gambling services, website design, or publishing. As of the June 2020 quarter, Statistics New Zealand are now using this tax data, in order to improve the estimate of remote services imports included in the goods and services and balance of payments releases. These estimates have been modelled back to the September 2014 quarter and will be included in the following series: telecommunications, computer, and information services; personal, cultural, and recreational services; other business services.
Read more:
https://www.stats.govt.nz/methods/international-trade-june-2020-quarter-data-sources-and-methods

Measuring digital trade, Imports of digital services, Germany.
Organisation: Deutsche Bundesbank and Destatis
Description: This presentation outlines the methodology used to derive initial estimates of digital imports of video on demand, music on demand, buying and using software, gambling, and cloud computing. While not published at such a fine level, these initial estimates were subsequently included in the aggregate estimates of import services within the balance of payments and the national accounts.
Read more: https://community.oecd.org/docs/DOC-155556

Recording of crossborder transactions related to digitised products and services, Netherlands
Organisation: Statistics Netherlands (CBS)
Description: This experimental study, using national account concepts and definitions looks into the export of so-called digitised products and services of the Dutch economy. The study is an explorative attempt to make transactions related to digitalisation more visible in existing statistics and to explore where data issues exist in existing statistics.
Read more: https://www.cbs.nl/en-gb/background/2019/49/digital-crossboarding-transactions-

Additional work that would contribute to compilation of Digital SUTs

Measuring the internet economy in the Netherlands 2016-2018
Organisation: Statistics Netherlands (CBS)
Description: In 2016, Statistics Netherlands carried out a first study, which defined the internet economy, developed a methodology to measure it, and produced statistics for the year 2015. This study repeats this work for multiple years, creating a time-series of data on the internet economy, allowing for the analyses of trends, and providing a new angle for evaluating the big data approach.
Read more:
https://www.cbs.nl/en-gb/background/2020/19/measuring-the-internet-economy-with-big-data

Annex B.

Digital industries and products included in the digital supply and use tables

Digital Industries
Digitally enabling industries
Simple definition: Digitally enabling industries includes businesses engaging in production that enables the function of information processing and communication by electronic means including transmission and display; explicitly it is those industries defined in the ICT sector list in ISIC Rev. 4. (included in Annex C)
It includes; Internet service providers, telecommunications companies, providers and developers of software, Computer manufacturers, and website developers. *While excluding;* free and priced digital media providers, social media providers, digital platforms directly or intermediately providing goods and services not included in the defined ICT sector list for ISIC Rev.4.
Examples: Amazon Web Services, BSNL, Dell, Indosat, Ooredoo, Orange, Verizon.
Digital intermediary platforms charging a fee
Simple definition: Business that operate 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).
It includes; food delivery companies, travel booking portals, platforms facilitating online auctions or marketplaces that assume no ownership of stock. *While excluding;* digital platforms that sell their own goods or services, platforms that do not receive an explicit monetary fee from either the producer or consumer.
Examples: Airbnb, Booking.com, Deliveroo, Didi, Mercado Libre, OLA, Trivago, Uber.
Data and advertising driven digital platforms
Simple definition: Businesses that are operating exclusively online that predominately generate revenue via selling data or advertising space.
It includes; search engines, social media platforms, developers of zero-priced phone applications and information sharing platforms. *While excluding;* business that sell goods or service (excluding data or advertising space) for a monetary price, subscription based services providers, priced phone applications and information sharing platforms.
Examples: Citymapper, Facebook, Google, Tik Tok, Twitch, Youku

Firms dependent on intermediary platforms
Simple definition: Businesses that always or a significant majority of the time transact with consumers via an independently owner third party digital platform.
It includes; independent service providers who source work from digital platforms, business who sell via a third party digital platform. *While excluding;* business who sell predominately digitally but do so via their own website/digital platform.
Examples: Bicycle couriers, Ghost kitchens, Uber drivers
E-tailers
Simple definition: Retail and wholesale businesses engaged in purchasing and reselling goods or services who receive a majority of their orders digitally.
It includes; businesses receiving orders digitally that sell their own inventory and/or have set contracts with producers and suppliers. *While excluding;* businesses that carry no ownership of the purchased good or service, businesses who contribute no additional value added to the consumed good or service.
Examples: ISOS, JD.com, Sarenza, Yesstyle, Zalando.
Digital only firms providing financial and insurance services
Simple definition: Businesses providing financial and insurance services that are operating exclusively digitally, with no interaction with consumers physically.
It includes; online only banks and other financial service providers, online only payment system providers. *While excluding;* banks and other financial service providers that include consumer-facing locations, platforms solely acting as intermediaries between lender and borrower (i.e. crowd funding websites).
Examples: Ally financial, Directline, Fidor bank, Open bank, Paypal, Seven bank, Transferwise.
Other producers only operating digitally
Simple definition: Businesses that produce their own services for sale but operate exclusively digitally.
It includes; priced digital media providers, subscription based service providers (assuming the service is delivered digitally) *While excluding;* business who do not deliver their good or service digitally regardless of how they receive orders.
Examples: Bet365, The Independent newspaper, Netflix, Showmax, Spotify, Starz Play

Digital Products
ICT goods
Simple definition: ICT goods consists of products that "must primarily be intended to fulfil or enable the function of information processing and communication by electronic means, including transmission and display".
It includes; Goods that contribute to the alternative classification of ICT products, as included in the CPC 2.1. In this alternative classification, four types of ICT products have been distinguished as ICT goods: (i) Computers and peripheral equipment; (ii) Communication equipment; (iii) Consumer electronic equipment; and (iv) Miscellaneous ICT components and goods.
Examples: Computer hardware, Communication equipment, routers.
ICT services – except cloud computing services and digital intermediary services
Simple definition: ICT services covers all services included in the alternative classification for products of the ICT sector as discussed above, with the exception of digital intermediary services and cloud computing services, which are defined separately below.
It includes; Services that contribute to the alternative classification of ICT products, as included in the CPC 2.1. In this alternative classification, six types of ICT products have been distinguished as ICT services: (i) Manufacturing services for ICT equipment; (ii) Business and productivity software and licensing services; (iii) Information technology consultancy and services; (iv) Telecommunications services; (v) Leasing or rental services for ICT equipment; and (vi) Other ICT services
Examples: Provision of telecommunication networks, Software development and engineering.,
Priced Cloud computing services
Simple definition: The OECD has defined cloud computing as follows: *"Computing services based on a set of computing resources that can be accessed in a flexible, elastic, on-demand way with low management effort."*
It includes; The full suite of services related to cloud computing. These models include; the consumer simply accessing the provider's applications (Software as a Services, SaaS); the consumer deploying their own applications onto the providers infrastructure (Platform as a Service, PaaS); and the consumer taking control over operating systems, storage, and deployed applications (Infrastructure as a Service, IaaS).
Examples: AWS, Oracle, Azure, Alibaba cloud
Priced Digital intermediary services

Simple definition: There is no formal definition for priced digital intermediary services, in the various international classifications. While components of intermediation services forms part of various products within CPC 2.1, they are specifically linked to an underlying product and need not necessarily be produced via digital means.
It includes; For the purpose of Digital SUTs, the following definition of priced digital intermediary services, is applied: *"The service of providing information on and successfully matching two independent parties to a transaction via a digital platform in return for an explicit fee."* The output of these platforms typically consists of the fees paid by the producer and/or the consumer of the product being intermediated.
Examples: The margin collected by UBER, Airbnb, Trivago etc. represent the provision of this product.

Annex C.

Information and Communication Technologies (ICT), as defined in the International Standard Industrial Classification, Revision 4

ISIC Sub-division	Industry description
ICT manufacturing industries	
2610	Manufacture of electronic components and boards
2620	Manufacture of computers and peripheral equipment
2630	Manufacture of communication equipment
2640	Manufacture of communication equipment
2680	Manufacture of magnetic and optical media
ICT trade industries	
4651	Wholesale of computers, computer peripheral equipment and software
4652	Wholesale of electronic and telecommunications equipment and parts
ICT services industries	
5820	Software publishing
6110	Wired telecommunications activities
6120	Wireless telecommunications activities
6130	Satellite telecommunications activities
6190	Other telecommunications activities
62	Computer programming, consultancy and related activities
6201	Computer programming activities
6202	Computer consultancy and computer facilities management activities
6209	Other information technology and computer service activities
631	Data processing, hosting and related activities; web portals
6311	Data processing, hosting and related activities
6312	Web portals
951	Repair of computers and communication equipment
9511	Repair of computers and peripheral equipment
9512	Repair of communication equipment