



Economic and Social Council

Distr.: General
8 April 2024

English only

Economic Commission for Europe

Conference of European Statisticians

Group of Experts on National Accounts

Twenty-third session

Geneva, 23-25 April 2024

Item 2 (d) of the provisional agenda

Towards the 2025 System of National Accounts:

Digitalization

The Development of the Digital Supply and Use Tables of Georgia

Prepared by Asian Development Bank¹

Summary

Asian Development Bank's provides technical support to its developing member countries to measure the economic effects, and to assess the policy implications of digitalization in their respective economies. Developing digital supply and use tables is an important part of this initiative. This document presents the significant progress that has been made in the ongoing collaboration with the National Statistics Office of Georgia in the compilation of the country's digital supply and use tables.

The discussion covers data sources utilized and methodologies employed, the key challenges encountered in the compilation exercise and the proposed improvements and refinements based on experiences of other countries. Finally, Asian Development Bank's Input-Output tables based on digital economy framework are presented as an alternative to the digital supply and use tables in measuring the direct and indirect contribution of the digital economy to gross domestic product, along with the 2018 preliminary estimates for Georgia.

¹Prepared by Faith Hyacinth Balisacan , Maegan Saroca , Mahinthan Joseph Mariasingham. This paper is a collaborative effort by the ADB Digital Economy Team and the GEOSTAT. The authors extend their sincere appreciation to Ana Francesca Rosales, Julieta Magallanes, Irene Talam, Sameeksha Jain and Janel Raviz for their valuable comments and contributions to this work. The views expressed in this report are those of the authors and contributors and do not necessarily reflect the views of the Asian Development Bank or its Board of Governors or the governments they represent. Use of the term "country" does not imply any judgment by the authors of ADB as to the legal or other status of any territorial entity.

I. Introduction

1. Recognizing the need to underscore the significance of digitalization in the economy, especially with the occurrences of socio-economic shocks and technological disruptions (such as COVID-19 pandemic and AI), the international statistical community has intensified the effort towards its measurement in the macroeconomic accounts through the development of a digital economy satellite account. As such, in the forthcoming updates to the System of National Accounts framework (SNA2025), one of the major recommendations is to put focus on, and delineate the relevant digital products and activities through, the compilation of Digital Supply and Use Tables (DSUTs), which will form the basis of a digital economy satellite account. Building upon its initiatives over the twenty years to enhance the quality and detail of economic statistics in the Asia and the Pacific, the Asian Development Bank (ADB), through its ongoing SNA specific knowledge support and technical assistance projects, has embarked on providing technical support to its developing member countries (DMCs) to measure the economic effects, and to assess the policy implications of digitalization in their respective economies.

2. As part of this initiative by ADB to develop DSUTs, significant progress has been made in the ongoing collaboration with the National Statistics Office of Georgia (GEOSTAT) in the compilation of the country's DSUTs. Georgia's 2018 experimental SUTs², hereafter referred to as SUTs, are used as the foundation for the compilation of DSUTs. This is complemented with the primary data sources employed in the compilation of the SUTs such as business surveys, intermediate consumption surveys, and financial statements. Additionally, other datasets such as the Enterprise and Household Information and Communication Technology Usage surveys are also used to produce relevant statistics on the digital industries and products, and their delineation per transaction type (digitally ordered and/or delivered). However, despite the progress achieved thus far, the compilation of Georgia's DSUTs remains an ongoing endeavor due to the challenges encountered in the compilation process, mainly stemming from the lack of detailed information required by the DSUTs framework. These challenges will be delved in depth in the subsequent sections of this paper, alongside discussions on alternative sources and methodologies that could be explored to refine the initial compilation.

3. The next section discusses the construction of Georgia's 2018 DSUTs, focusing on the data sources utilized and methodologies employed. Section III covers the key challenges encountered in the compilation exercise and the proposed improvements and refinements based on experiences of other countries. Finally, to conclude the paper, ADB's Input-Output tables (IOT) based on digital economy framework are presented as an alternative to the DSUTs in measuring the direct and indirect contribution of the digital economy to gross domestic product (GDP), along with the 2018 preliminary estimates for Georgia.

II. Construction of Georgia's 2018 Digital Supply and Use Tables (DSUTs)

4. This section delves into the data sources and methods employed in the compilation of the DSUTs of Georgia, which aligns with the OECD framework (OECD, 2023). It also draws insights from other compiling countries who have already made significant progress and contribution in this area. However, this exercise does not cover the measurement of "digital products" and "transactions" that are currently beyond the SNA production boundary³.

5. As mentioned previously, the foundation for the construction of Georgia's DSUTs is its 2018 SUTs. The process consists of reallocation from the existing columns and rows of the SUTs to the new columns and rows for the digital industries and products, framework of which is represented by Figure 1 and Figure 2, respectively. Reallocation ratios of output and

² This refers to a more disaggregated SUT (330x64), which is available only for 2018 as an unpublished experimental version prepared within the framework of the EU-funded Twinning project with GEOSTAT.

³ Data and digital service products provided by enterprises or communities for free

intermediate consumption are calculated using the primary data used in the compilation of Georgia's SUTs and national accounts. Additional indicators and assumptions are also employed to estimate the shares of digital products and to differentiate the transaction types (digitally ordered and/or delivered) per product and industry.

Figure 1

Digital Supply Table

	Output		Total Supply Digital Industries	Total Supply Non-digital Industries	Imports	Total Supply	
	Digital industries	Other industries				Digitally-delivered	Non-digitally delivered
Digital Products							
Non-digital products affected by digitalisation							
Non-digital products							
Total Output							
Digitally-ordered							
Non-digitally ordered							

Figure 2

Digital Use Table

	Input		Total Input Digital Industries	Total Input Non-digital Industries	Domestic Final Demand	Exports		Domestic Final Demand
	Digital industries	Other industries				Digitally-delivered	Non-digitally delivered	
Digital Products								
Non-digital products affected by digitalisation								
Non-digital products								

A. Methodology and Data Sources for Estimating the Digital Industries

6. The digital industries estimated for the 2018 Georgia DSUTs are the 1) digitally enabling industries, 2) digital intermediation platforms charging a fee, and 3) E-tailers. The digital-only firms providing financial and insurance services will be covered in future versions of DSUTs since Georgia's first fully digital bank only started its operations after 2018. Moreover, the estimation of firms dependent on intermediary platforms, data and advertising driven platforms and other producers only operating digitally will be considered as part of future refinements to Georgia's DSUTs as, even though embedded in the data, they cannot be fully identified with the current classifications employed on the available datasets used for the compilation.

1. Digitally enabling

7. The digitally enabling industries refer to the 'Information and Communication Technologies' (ICT) industries. These include manufacturing of computer, electronic and optical products, wholesale and repairs of ICT products, software publishing, telecommunications and production of IT and information services. Details on these identified ICT industries are provided in Annex A.

8. Some of these ICT industries are directly mapped (or has a one-to-one correspondence) with the industries in Georgia's SUTs. These are the Manufacture of computer, electronic and optical products, Telecommunications and Computer programming, consultancy and related activities. The columns of these industries are reallocated entirely to the digitally enabling industry column. For the other ICT industries, they only constitute part of an industry in the SUTs (i.e., Wholesale trade of ICT products, Software publishing and Repair of computers). The 2018 business survey is therefore used to calculate these industries' shares of output, intermediate consumption and value added to be reallocated from the industry column to the digitally enabling industry column.

2. Digital intermediation platforms (DIPs) charging a fee

9. An online platform, as defined in the OECD handbook, refers to “a digital service that facilitates interactions between two or more distinct but interdependent sets of users (whether firms or individuals) who interact through the service via the Internet”. Firms falling under this digital industry are online platforms primarily deriving their revenues from charging fees for their intermediation services. This industry is estimated by calculating the shares of output and intermediate consumption of companies falling under NACE Codes 4799 ‘Other retail sale not in stores, stalls or markets’ and 7990 ‘Other reservation service and related activities’ from the 2018 business survey.

3. E-tailers

10. Based on experiences of other countries in estimating their respective digital economies, e-tailers refer to retail companies that generate more than 50% of their revenue through online sales. The same definition is employed for this exercise. The shares of output and intermediate consumption of companies falling under NACE Code 4791 ‘Retail sale via mail order houses or via Internet’ are also derived from the 2018 business survey, which are then applied to the industry column of NACE Code 4700 ‘Retail trade, except of motor vehicles and motorcycles’ to reallocate to the E-tailers column.

B. Methodology and Data Sources for Estimating the Digital Products

11. Only products that fall within the scope of the 2008 SNA are discerned and measured in Georgia’s DSUTs. The products in the SUTs are reorganized into 1) digital products, 2) non-digital products significantly affected by digitalization and, 3) other non-digital products. Digital products are disaggregated further into a) ICT goods, b) priced digital services, excluding digital intermediation services⁴, and c) digital intermediation services. Digital intermediation service is added as a new product in the DSUTs as this is not present in Georgia’s SUTs. Provided in Annex B is the detailed list of the products in the SUTs included under digital products and non-digital products significantly affected by digitalization.

12. Similar to the reallocation of the digital industries, the supply and use of products are disaggregated based on the corresponding ratios that are derived from the 2018 business survey. ICT goods and priced digital services with a one-to-one correspondence in Georgia’s SUTs are entirely shifted to their corresponding digital product codes. These products’ correspondence is provided in Annex C. An attempt is also made to provide further classification of priced digital services, i.e. to separately classify cloud computing services (CCS) using the Intermediate Consumption Survey of the GEOSTAT. However, given the lack of the necessary details, CCS is classified with priced digital services for the initial compilation. Furthermore, two partly ICT products, i.e. Electronic components and boards, and Data processing, hosting, web portal content, are classified as fully digital for the time being given the unavailability of disaggregation mechanism to delineate the non-digital components.

C. Methodology and Data Sources for Estimating per Transaction Type

13. This exercise also attempted to add another dimension to the DSUTs of Georgia by providing a delineation of the nature of how goods and services are transacted, i.e. if a product is digitally ordered and/or digitally delivered.

1. Digitally ordered

14. Digitally-ordered products refer to goods and services that are transacted via e-commerce channels or over “*computer networks by methods specifically designed for the purpose of receiving or placing orders.*”

⁴ Priced digital services include cloud computing services.

15. The main data source on digital ordering is the 2018 ICT Usage Survey on Enterprises which includes an E-commerce module that captures sales and purchases made over the internet, including those made over Electronic Data Interchange (EDI). However, due to data limitations, transaction breakdown for both the output and intermediate consumption of products are only presented at the aggregate level and no further disaggregation is provided on the types of ordering (i.e. via a counterparty, a resident DIP or a non-resident DIP).

16. For output of digitally-ordered products, these are estimated from the reports of firms on their revenues made over the internet and EDI-type messages. The disaggregation mechanism developed is applied to the product aggregates to derive the share of output attributed to digital ordering.

2. Digitally delivered

17. Digitally-delivered products, on the other hand, consist of transactions that are remotely delivered over computer networks. Only estimates on digitally-delivered imports and exports are attempted for the DSUTs of Georgia. This is due to the limited information provided in the 2018 ICT Usage Survey on Enterprises which does not capture how products are provided or delivered to consumers.

18. Upper bound estimates for imports and exports are based on whether a product is digitally deliverable, as identified in the digitally deliverable services list adapted from the Handbook on Measuring Digital Trade (IMF et al., 2023) (Annex D).

III. Key Challenges and Proposed Refinements to the Initial Compilation of Georgia's 2018 DSUTs

19. This section discusses the key challenges faced in the estimation of the digital industries and products, and per transaction type. The proposed refinements and improvements to the existing data sources and alternative methodologies utilized by other compiling countries are also presented in each subsection.

A. Estimation of the Digital Industries

20. In the initial compilation of Georgia's 2018 DSUTs, the main challenges encountered stemmed from the availability and the limitations of the data utilized in the estimation process. The primary sources of data such as the business and intermediate consumption surveys are able to capture some of the digital industries. However, as these are only based on a sample, a significant proportion of the digital industries may still not be captured by these datasets. Financial statements are also used to supplement the estimates, but not all the digital firms have readily available annual/corporate reports in the official portal Reportal⁵. This is the case for most of the digital firms identified given the Law of Georgia on Accounting, Reporting and Auditing which only requires Categories I to III⁶ firms to publish their reports and make available to the public. That is why a merged dataset of the statistical business register, business survey and tax revenue⁷ (will be referred to as the merged firm-level dataset from here on) is currently being prepared by the GEOSTAT for the refinement of the estimates. This dataset aims to account for all the firms in Georgia to ensure that ratios used in the estimation of the DSUTs are all-encompassing.

⁵ Georgia's first public information source containing the financial statements and management reports of the entities operating in Georgia.

⁶ These are firms which meet two out of three criteria: 1) value of total assets is above 1 million GEL; 2) revenue is above 2 million GEL; or 3) the average number of employees during the reporting period is more than 10. Any firm that falls below any of the two criteria are classified under fourth category and is not required to publish its financial reports. Specific details per category can be found in this link: <https://matsne.gov.ge/en/document/download/3311504/4/en/pdf>

⁷ This is a special tabulation of these three datasets which will capture the entire population of legal firms registered in Georgia.

21. On the digital intermediation platforms charging a fee, to supplement the available data from the 2018 business survey, a list of the DIPs not captured in the survey was determined. Firms falling under each type of DIP were manually identified given the GEOSTAT's knowledge of the Georgian economy. GEOSTAT confirmed that a number of these firms were already operating in 2018 and that their information is available in Georgia's reporting portal, however, only a few had available financial statements for the year 2018. Other data sources were investigated, such as the ORBIS⁸ and company websites, however, 2018 annual/corporate reports were not available for most of the identified firms. Hence, the merged firm-level dataset will be explored to improve the coverage of the DIPs, and other potential sources of financials of these firms will be studied to further refine the estimates..

22. On the firms dependent on intermediary platforms, an attempt was made to follow the methodology employed by the US Bureau of Economic Analysis (BEA) (OECD, 2023), as illustrated in Box 1.

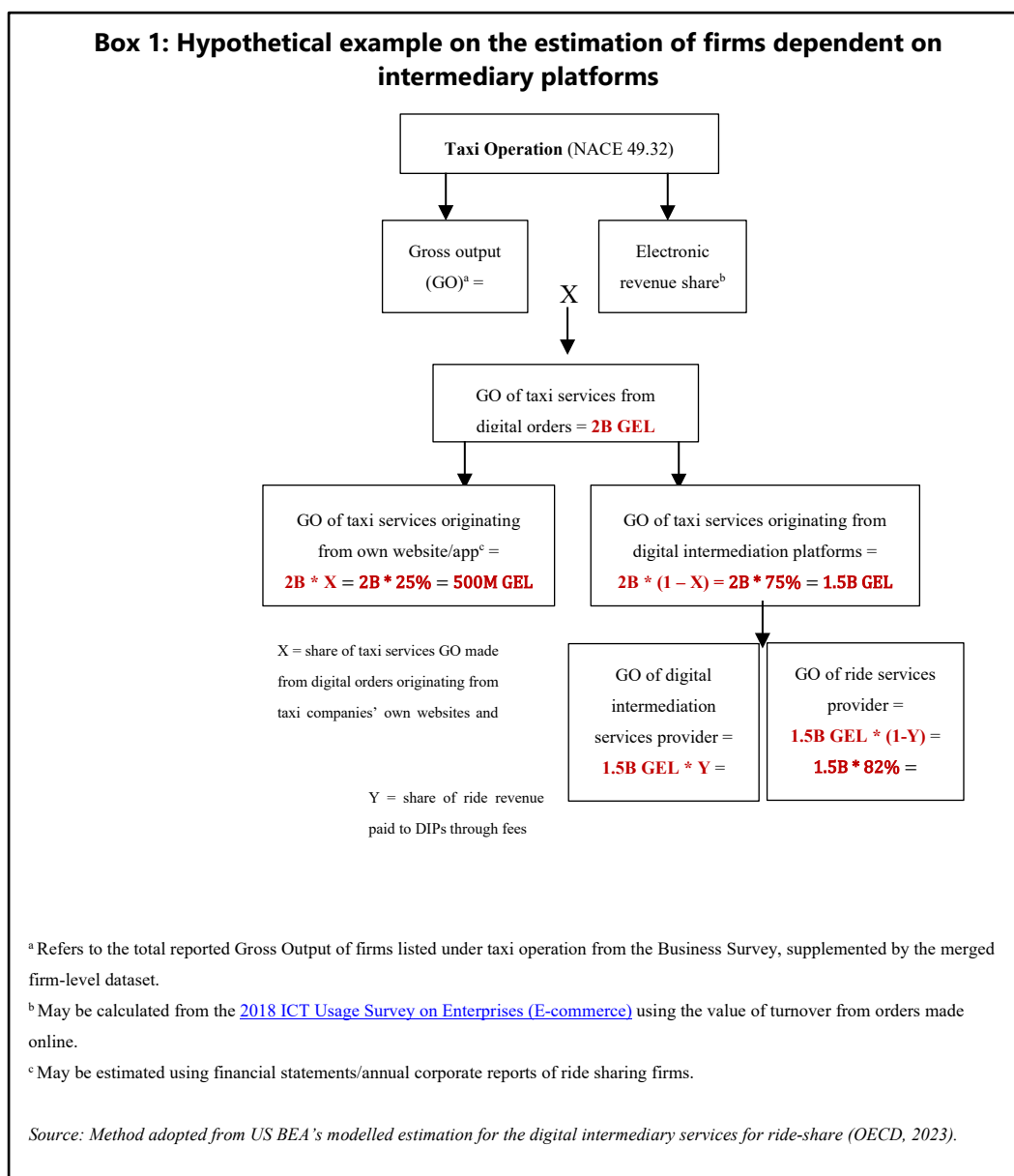
23. Following BEA's estimation methodology, it was feasible to calculate only the gross output of taxi services from digital orders. This was due to the unavailability of the financial statements of the ride sharing firms identified. Discussions are planned with relevant sources and holders of data in Georgia to see if the annual/corporate reports of the identified ride sharing firms could be obtained through other sources, to include estimates for firms dependent on intermediary platforms in Georgia's 2018 DSUTs.

24. As mentioned in the second section of this paper, highlighting the data and advertising driven platforms and other producers only operating digitally will also be considered for the future refinements of Georgia's DSUTs. Moreover, the digital only firms providing financial and insurance services will also be considered in more recent version/s of the DSUT as they have only started operations in Georgia after 2018. Nevertheless, after a thorough assessment of the current data sources available for the estimation, the coverage was comprehensive enough to be able to capture some of the digital industries. This will be enhanced further through the incorporation of the data to be obtained from the merged firm-level dataset and through the proposed improvements to the existing business and ICT surveys. Expounding the current questions and adding more questions that are relevant to the estimation of the digital industries to the business and ICT surveys will address the aforementioned issues regarding underestimation and non-coverage.

⁸ An analytics company providing information on private companies.

B. Estimation of the Digital Products

25. For the estimation of the digital products, the output of the digital intermediation services is initially calculated as the proportion of the output of DIPs falling under NACE Codes 4799 ‘Other retail sale not in stores, stalls or markets’ and 7990 ‘Other reservation service and related activities’. However, these initial estimates may still be improved by supplementing the output of DIPs using financial statements or annual/corporate reports. This will be part of the efforts to find other possible sources of financials for intermediary platforms. This issue may also be addressed through the refinement of the E-commerce survey, by adding a section on questions related to digital intermediation platforms.



C. Estimating per Transaction Type

26. In estimating the digitally delivered services, the ICT Usage Survey of Enterprises and Households was explored. Indicators on the share of the population using the internet for buying/ordering goods and services are available from this survey. However, these indicators only provide the number of households and not the value of transactions. This is similar to the case of digitally delivered services for non-residents, wherein only the number of non-residents buying/ordering goods and services online are available from the survey. As a

refinement, the values of these transactions may also be captured in the survey so that they could be used as alternative or additional sources for estimating the digitally delivered services to households and exports of services.

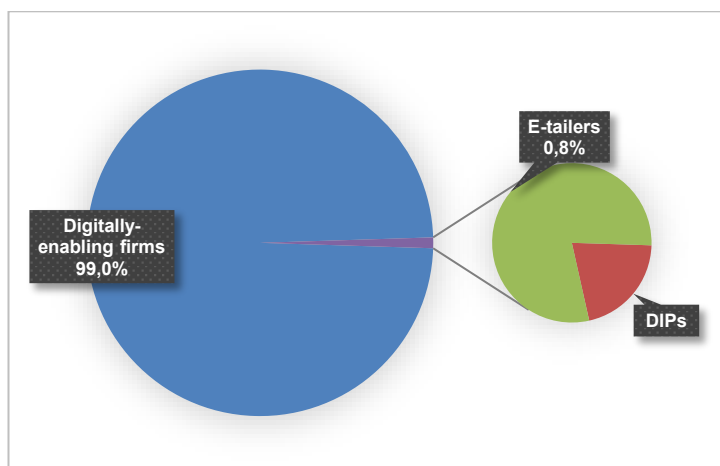
IV. Preliminary Aggregate Results

27. Based on relevant data available with GEOSTAT, preliminary estimates show that the value-added contribution of digital industries (or the digital value added) stands at 2.19% of the economy-wide GDP in 2018. This is dominated by the digital value-added attributed to the Digitally-enabling industries, as illustrated in Figure 3. However, it is important to note that this distribution may be influenced by the potential under-coverage of specific sectors such as the DIPs and E-tailers. Currently, the reporting firms considered are based only on a sample, which warrants further analysis, and refinements, using the merged firm-level dataset, to ensure a more comprehensive and precise understanding of each digital industries' contributions.

28. Aggregate figures from the preliminary 2018 digital supply table show that approximately only 0.72% of the total industry output is digitally ordered. Meanwhile, approximately 15.9% of the total supply was digitally-delivered. And digital delivery covered only 1.9% of the total exports.

Figure 3

Industry share to the total Digital Value Added, 2018



V. ADB's Input-Output Approach to Measuring the Digital Economy

29. Given the extensive data requirements of the DSUTs and related data gap issues and challenges, an alternative statistical framework is proposed by the ADB to discern and measure the state and evolution of digitalization through the estimation of direct and in-direct value added contribution of digital industries to economy-wide GDP. The IOT-based measurement framework developed by the ADB is a value-added calculation rooted in Leontief's Input Output analysis (ADB, 2021). This measurement approach captures the digital economy by measuring the value-added contribution of identified digital industries to the final goods and services production. Through this approach, five main product groupings are identified to be within the scope of the digital economy: 1) hardware, 2) software services, 3) web services, 4) telecommunications services, and 5) specialized and support services. The primary producers of these products comprise the digital industries (Annex E). By capturing only the core aspects of the digital economy, the framework allows for the compilation of lower-bound estimates that enable informed decisions and policy-making, while avoiding potential inaccuracies that may result from having to determine the proportions of how "digital" certain products are (e.g. smart equipment).

30. The core-digital GDP equation used in this measurement framework is specified as follows:

$$\text{GDP}_{\text{digital}} = \underbrace{\mathbf{i}^T \hat{\mathbf{v}} \mathbf{B} \hat{\mathbf{y}} \boldsymbol{\varepsilon}_1}_{\text{Backward linkage}} + \underbrace{\mathbf{i}^T (\hat{\mathbf{v}} \mathbf{B} \hat{\mathbf{y}})^T \boldsymbol{\varepsilon}_1}_{\text{Forward linkage}} - \underbrace{[\text{diag}(\hat{\mathbf{v}} \mathbf{B} \hat{\mathbf{y}})]^T \boldsymbol{\varepsilon}_1}_{\text{Double-counted term}} + \underbrace{(\mathbf{i} - \boldsymbol{\varepsilon}_1)^T \hat{\mathbf{v}} \mathbf{B} \hat{\mathbf{y}} \boldsymbol{\varepsilon}_2}_{\text{Backward linkage to other fixed investments by digital sectors}}$$

31. where $\hat{\mathbf{v}}$ is the diagonalized vector of value-added to gross output ratios, \mathbf{B} is the Leontief inverse, $\hat{\mathbf{y}}$ is the diagonalized vector final demands, \mathbf{i} is a summation vector, and $\boldsymbol{\varepsilon}_1$ and $\boldsymbol{\varepsilon}_2$ are the first eliminator vector that excludes transactions related to non-digital industries and second eliminator vector that excludes fixed assets in digital products, respectively.

32. The digital GDP's first term corresponds to the backward linkages, referring to the link between the digital industries and the industries from where they purchase inputs, or which may be interpreted as the "digitally enabling industries." Conversely, the second term represents the value-added contributions of the digital industries to those sectors to which they sell, or the "digitally enabled industries." The third term captures the double-counted term, which refers to the amount of digital inputs that digital sectors use for the production of their own products. This term is to be deducted in the equation as this has already been accounted for twice, in the first two terms. Finally, the fourth term captures the value-added contributions of the digitally enabling industries through the production of the fixed capital goods that the core digital sectors invest in.

33. Each of the terms of the digital GDP relate to different measures, so users may choose to highlight terms that are most applicable. Moreover, the framework may also be tailor-fitted to meet specific needs (e.g. extension of the scope of products, to include those that economies deem to contribute significantly to their digital economy such as semiconductors, and analyses (i.e., measurement of global value chain indicators)). The comprehensive discussion of this IOT-based measurement framework and its application and extensions is provided in ADB's Special Supplement to the Key Indicators for the Asia and the Pacific 2021 (ADB, 2021).

34. In the case of Georgia, initial estimates based on the preliminary DSUTs indicate that the digital value-added share was 2.2% of the overall GDP in 2018, whereas those based on the ADB's value-flow method show that the direct and indirect value-added contribution of the country's digital economy constituted 2.5% of its GDP. The slight difference between these two figures stem from the aspects of digital economy covered by the respective methodologies employed. The ADB approach captures not only the direct economic (value-added) contributions of the digital industries – their forward linkages, but also their indirect contributions as captured by the backward linkages as well as the value-added generated due to the production of non-digital capital goods used by digital industries. The initial estimate of the share of the core digital industries' direct contribution to GDP (due to forward linkage – second expression in the equation above), interpreted as the value-added contribution of the digital sector to itself and the rest of the economy, is 1.9%. While the DSUT and the IOT based forward value-flow approaches measure the same concept the difference in the estimates could be attributed to data gap issues and the level of completeness of the 2018 SUTs and DSUTs. As the project progresses, with further refinements and enhancements to the tables, the estimates based on the two approaches are expected to converge.

35. Table 1 presents a comparison of selected countries' official estimates of digital economy as a percentage of GDP to those based on the ADB framework. The figures reveal the proximity between the two sets of estimates - specifically for Canada, which utilized the DSUTs framework to measure its digital economy's contribution to the overall GDP. This shows that the ADB measurement framework may reliably be used as a framework and tool for measuring and analyzing digital economy.

Table 1
Digital Economy as a Proportion of Total Economy (% of gross domestic product): a comparison of ADB framework estimates⁹ and National Statistics Offices' official estimates

ADB Framework Estimates (Core)		Economy	National Statistics Offices' Estimates		
Percentage of GDP	Year		Percentage of GDP	Year	Definition/Coverage
5.0	2018	AUS	5.6	2019	Value added of digital enabling infrastructure, digital media, and e-commerce
			5.9	2020	
5.3	2021		6.1	2021	
5.6	2016	CAN	5.4	2018	Includes e-tailers, digital-only firms providing financial and insurance services, and digital intermediary platforms
5.9	2019		5.5	2019	Includes e-tailers, digital-only firms providing financial and insurance services, and digital intermediary platforms
4.4	2015	FJ*	3.8	2014	
2.5	2018	GEO			
3.5	2010	GER			
3.5	2016		4.8	2016	Value-added of the German ICT sector
4.0	2016	INO	4.5	2020	Value-added of ICT sector
7.6	2015	MAL	18.5	2018	Value-added of ICT and E-Commerce of Non-ICT industry
8.7	2020		15.6	2020	Includes production and use of digital technology by households, businesses, and government.
4.7	2012	PRC	32.9	2017	Includes the information industry and the improvements on traditional industry by using information and communication technology (ICT) as main content.
9.8	2020	SIN*	39.8	2021	Value of technology products and integrated digital inputs
6.8	2016		8.3	2014	Value added of Infocomm Media sector
6.5	2019		9.0	2017	ICT sector value added as a share of GDP
5.2	2015	THA	17.0	2018	Digital economy consists of digital sector plus digital and platform services (adapted definition of Bukht & Heeks 2017)
9.2	2019	USA	9.0	2018	Value added of ICT sector as defined by US BEA
9.8	2021		10.3	2021	

AUS = Australia; CAN = Canada; FJ = Fiji; GEO = Georgia; GER = Germany; MAL = Malaysia; PRC = People's Republic of China; SIN = Singapore; THA = Thailand; USA = United States.

Note: * FJ & SIN - No official estimates but UNCTAD estimates using 2-digit ISIC (ICT Manufacturing industries & ICT Service Industries) from NSO

Source: Data as published from various national statistics offices.

VI. Conclusion

36. Building on the efforts of the international statistical community to integrate measures of digital economy in the macroeconomic accounts, ADB has been providing technical assistance to a number of its DMCs to compile DSUTs. ADB's collaboration with GEOSTAT to produce the Georgia's DSUT which commenced in early 2022 has made significant progress, although certain critical data related challenges still need to be resolved.

37. While significant strides have been made to populate the tables, there remain gaps in the data and coverage of the preliminary estimates. Nonetheless, initiatives and discussions are underway to leverage supplementary data sources, such as the special tabulation of the merged firm-level dataset, to bridge the data gaps and produce a viable DSUT for Georgia.

38. Additionally, alternative approaches, such as the ADB's IOT based measurement framework, offer complementary methods for compiling and analyzing statistics on digital economy. By focusing on the core digital industries and the value-added concept, the ADB framework provides valuable insights into the generation and flow of value attributed to activities in the digital economy. As demonstrated in this paper, such a model based approach while providing a simple and neat way to measure digital economy enables cross-country and time series analysis. Further, the framework could also serve as a validator for the DSUTs since both derived from SUTs.

⁹ Results extracted from the updated ADB method estimates as published in [ADB's 2023 Key Indicators Database](#).

Annex A

Information and Communication Technology (ICT) Industries

40. The Georgian SUTs use the Eurostat's NACE Rev. 2 (Statistical Classification of Economic Activities in the European Community) for the industry classification. Following the NACE classification, some industries are allocated partially to the ICT sector.

NACE Code	Description	Allocation
2600	Manufacture of computer, electronic and optical products	Full
4600	Wholesale trade, except of motor vehicles and motorcycles	Partial
5800	Publishing Activities	Partial
6100	Telecommunications	Full
6200	Computer programming, consultancy and related activities	Full
9500	Repair of computers and personal and household goods	Partial

Annex B

Digital products and non-digital products significantly affected by digitalization

41. The Georgian SUTs use the Eurostat's CPA 2008 (Classification of products (goods and services) in the European Union) for the product classification.

CPA Code	Description
<i>ICT Goods</i>	
26.1	Electronic components and boards
26.2	Computers and peripheral equipment
26.3	Communication equipment
26.4	Consumer electronics
<i>Priced digital services except digital intermediation services (includes cloud computing services)</i>	
47.0	Retail trade services, except of motor vehicles and motorcycles
58.2	Software publishing services
61.1	Wired telecommunications services
61.2	Wireless telecommunications services
61.3	Satellite telecommunications services
62.01	Computer programming services
62.02	Computer consultancy services
62.03	Computer facilities management services
63.1	Data processing, hosting and related services; web portals
95.0	Repair services of computers and personal and household goods
<i>Digital Intermediation Services</i>	
DIS	Digital intermediation services
<i>Non-digital products significantly affected by digitalization</i>	
49.1	Passenger rail transport services, interurban
49.2	Freight rail transport services
49.31	Urban and suburban passenger land transport services
49.32	Taxi operation services
49.39	Other passenger land transport services n.e.c.
49.4	Freight transport services by road and removal services
49.5	Transport services via pipeline

55.0	Accommodation services
56.0	Food and beverage serving services
58.11	Book publishing services
58.13	Publishing services of newspapers
58.14	Publishing services of journals and periodicals
58.18	Other publishing: directories, mailing lists
58.18.6	Other publishing NPISH sales
58.18.7	Other publishing NPISH final consumption
58.21	Publishing services of computer games
59.11	Motion picture, video and television programme services
59.11.6	Motion picture, video and television programme services NPISH sales
59.11.7	Motion picture, video and television programme services NPISH final consumption
59.12	Motion picture, video and television programme post-production services
59.13	Motion picture, video and television programme distribution services
59.14	Motion picture projection services
59.14.6	Motion picture projection services NPISH sales
59.14.7	Motion picture projection services NPISH final consumption
59.20	Sound recording and music publishing services
59.20.7	Sound recording and music publishing services NPISH final consumption
65.13.0	Life insurance and pension funding
65.18.0	Non-life insurance services, reinsurance
66.10	Services auxiliary to financial services, except insurance and pension funding
73.0	Advertising and market research services
73.00.7	Advertising and market research services, NPISH final consumption
79.12	Tour operator services
79.18	Travel agency and other reservation services
85.0	Education services
85.00.6	Education services NPISH sales
85.00.7	Education services NPISH final consumption
85.00.8	Education services government sales
85.00.9	Education services government final consumption
92.0	Gambling and betting services

Annex C

Correspondence of standard SUTs products to the DSUTs products

Standard SUT product	Digital product classification
Electronic components and boards	ICT goods
Computers and peripheral equipment	ICT goods
Communication equipment	ICT goods
Consumer electronics	ICT goods
Retail trade	E-tail services
Software publishing excl.computer games	Priced digital services
Wired telecommunications services	Priced digital services
Wireless telecommunications services	Priced digital services
Satellite and other telecommunications services	Priced digital services
Computer programming services	Priced digital services
Computer consultancy services	Priced digital services
Facility management, other information tech.serv.	Priced digital services
Data processing, hosting, web portal content	Priced digital services
Repair of IT, personal and househ.goods	Priced digital services

Annex D

List of digitally deliverable services

CPC 2.1 product codes	CPC 2.1 Products
611	Wholesale trade services, except on a fee or contract basis
612	Wholesale trade services on a fee or contract basis
621	Non-specialised store retail trade services
622	Specialised store retail trade services
623	Mail order or internet retail trade services
624	Other non-store retail trade services
625	Retail trade services on a fee or contract basis
69112	Electricity distribution (on own account)
692	Water distribution (on own account)
7111	Central Banking services
7112	Deposit services
7113	Credit-granting services
7114	Financial leasing services
7119	Other financial services, except investment banking, insurance services and pension services
712	Investment banking services
71311	Life insurance services
71312	Individual pension services
71313	Group pension services
7132	Accident and health insurance services
71331	Motor vehicle insurance services
71332	Marine, aviation and other transport insurance services
71333	Freight insurance services
71334	Other property insurance services
71335	General liability insurance services
71336	Credit and surety insurance services
71337	Travel insurance services
71339	Other non-life insurance services
714	Reinsurance services
715	Services auxiliary to financial services other than to insurance and pensions
7161	Insurance brokerage and agency services
7162	Insurance claims adjustment services
7163	Actuarial services
7164	Pension fund management services
7169	Other services auxiliary to insurance and pensions
717	Services of holding financial assets
7212	Trade services of buildings
722	Real estate services on a fee or contract basis
73220	Leasing or rental services concerning video tapes and disks
73311	Licensing services for the right to use computer software
73312	Licensing services for the right to use databases
7332	Licensing services for the right to use entertainment, literary or artistic originals
7333	Licensing services for the right to use R&D products
73340	Licensing services for the right to use trademarks and franchises
7335	Licensing services for the right to use mineral exploration and evaluation
7339	Licensing services for the right to use other intellectual property products
811	Research and experimental development services in natural sciences and engineering
812	Research and experimental development services in social sciences and humanities
813	Interdisciplinary research and experimental development services
814	Research and development originals

821	Legal services
822	Accounting, auditing and bookkeeping services
823	Tax consultancy and preparation services
824	Insolvency and receivership services
8311	Management consulting and management services
8312	Business consulting services
8313	IT consulting and support services
83141	IT design and development services for applications
83142	IT design and development services for networks and systems
83143	Software originals
8315	Hosting and IT infrastructure provisioning services
8316	IT infrastructure and network management services
8319	Other management services, except construction project management services
832	Architectural services, urban and land planning and landscape architectural services
833	Engineering services
8342	Surface surveying and map-making services
8343	Weather forecasting and meteorological services
8344	Technical testing and analysis services
836	Advertising services and provision of advertising space or time
837	Market research and public opinion polling services
83811	Portrait photography services
83812	Advertising and related photography services
83814	Specialty photography services
83815	Restoration and retouching services of photography
83815	Restoration and retouching services of photography
83819	Other photography services
8382	Photographic processing services
83911	Interior design services
83912	Industrial design services
83919	Other specialty design services
8392	Design originals
8393	Scientific and technical consulting services n.e.c.
8394	Original compilations of facts/information
8395	Translation and interpretation services
8396	Trademarks and franchises
8399	All other professional, technical and business services, n.e.c.
8399	All other professional, technical and business services, n.e.c.
841	Telephony and other telecommunications services
842	Internet telecommunications services
84311	On-line books
84312	On-line newspapers and periodicals
84313	On-line directories and mailing lists
8432	On-line audio content
8433	On-line video content
8434	Software downloads
84391	On-line games
84392	On-line software
84393	On-line adult content
84394	Web search portal content
84399	Other on-line content n.e.c.
844	News agency services
845	Library and archive services
8461	Radio and television broadcast originals
8462	Radio and television channel programmes
84631	Broadcasting services
84632	Home programme distribution services, basic programming package
84633	Home programme distribution services, discretionary programming package

84634	Home programme distribution services, pay-per-view
851	Employment services
8521	Investigationservices
8522	Security consulting services
855	Travel arrangements, tour operator and related services
8591	Credit reporting services
8592	Collection agency services
8593	Telephone-based support services
8594	Combined office administrative services
8595	Specialised office support services
8596	Convention and trade show assistance and organization services
8599	Other information and support services n.e.c.
86312	Support services to electricity distribution
8713	Maintenance and repair services of computers and peripheral equipment
891	Publishing, printing and reproduction services
921	Pre-primary education services
922	Primary education services
923	Secondary education services
924	Post-secondary non-tertiary education services
925	Tertiary education services
92911	Cultural education services
92912	Sports and recreation education services
92919	Other education and training services, n.e.c.
92919	Other education and training services, n.e.c
9292	Educational support services
931	Human health services
961	Audiovisual and related services
963	Services of performing and other artists
96511	Sports and recreational sports event promotion services
969	Other amusement and recreational services
96921	On-line gambling services

Annex E

Main Digital Industries by International Standard Industrial Classification of All Economic Activities Revision 4

Main Activity Group	Code	Industry
Hardware	2620	Manufacture of computers and peripheral equipment
	2680	Manufacture of magnetic and optical media
Software publishing	5820	Software publishing
Web publishing	6312	Web portals
Telecommunications services	61	Telecommunications services
Specialized and support services	62	Computer programming services, consulting, and other related services
	6311	Data processing, hosting and related activities

References

Asian Development Bank (2021), *Capturing The Digital Economy – A Proposed Measurement*

Framework and Its Applications – A Special Supplement to Key Indicators for Asia and the Pacific

2021, <https://www.adb.org/publications/capturing-digital-economy-measurement-framework>

IMF et al. (2023), *Handbook on Measuring Digital Trade, Second Edition*, OECD Publishing, Paris/International Monetary Fund, /UNCTAD, Geneva 10/WTO, Geneva, <https://doi.org/10.1787/ac99e6d3-en>.

OECD (2023), *OECD Handbook on Compiling Digital Supply and Use Tables*, OECD Publishing, Paris, <https://doi.org/10.1787/11a0db02-en>.
