

For Global Consultation

BPM7 Chapter 16/2025 SNA Chapter 22.
Digitalization: Annotated Outline

BPM7 Chapter 16/2025 SNA Chapter 22. Digitalization: Annotated Outline¹

(New SNA/BPM chapter)

This annotated outline has been prepared jointly to cover the full range of topics to be included in chapters on digitalization. In the drafting stage, only those issues that are relevant from the external sector statistics perspective will be included in the BPM; likewise, only those issues that are relevant to national accounts will be included in the SNA.

I. Introduction

- This new thematic chapter will elaborate on issues arising from digitalization that are touched upon throughout the manuals and provide a consolidated view of these issues, including definitions, explanations, and, where relevant, concise measurement guidance for the products and business models that have emerged in the digital economy.
- This section will define digitalization and note that its profound impact on production, consumption, trade, and other aspects has created needs to enhance the visibility of digital products and activities in macroeconomic accounts, to bring data assets inside the asset and production boundaries, and to provide information on the value of free digital services without changing the definition of GDP. Updates to classification systems (such as showing computer and information services as a first-level services category in the current account, and additional “of which” breakdowns in the balance of payments) and compilation of thematic accounts (digital SUTs) are some of the steps to improve visibility of digital products.
- The introductory section will then briefly indicate the aspects of the digital economy and the issues covered in the chapter. This section will mainly draw on GNs DZ.1 (sections 1 and 2), DZ.5 (sections 1–4), and C.6.
- The chapter is organized in the following sections: *Digital Goods and Services*, with subsections on cloud computing, data assets, artificial intelligence (AI), and nonfungible tokens (NFTs) (Section II); *Digital Platforms*, with subsections on definitions and classifications, nonfinancial digital intermediation platforms, and free platforms and free digital goods and services funded by advertising and data collection (Section III); *Digitalization and the Financial System*, with subsections on new financial services and means of payment enabled by digitalization, financial digital intermediation platforms, and fungible digital assets, including crypto assets (Section IV); *Measuring Prices and Volumes of Products affected by Digitalization* (Section V); and *Analytical Tools for Measuring the Impact of Digitalization*, with subsections on extended accounts for free digital platforms and digital supply and use tables (Section VI).

II. Digital Goods and Services

Cloud Computing

- This subsection will define cloud computing and hosting services and discuss the compilation

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challenges and data needs arising from the replacement of ownership of on-premises IT capital stocks by remotely accessed computing services. Guidance on determining economic ownership of IT assets, and measuring own-account investment in equipment, cross-border transactions in cloud computing services and foreign direct investment (FDI) associated with cloud computing, including foreign-hosted IT equipment recorded on an ownership basis, will also be provided.

- This subsection will also mention that distinguishing intermediate consumption of cloud computing services, as recommended in the section on the digital SUTs (Section VI), may improve measurement of cloud computing and provide important information for data users. It will also reference the discussion of cloud computing in the section on measuring prices and volumes (Section V).
- This subsection will next discuss investment in long-term licenses for software hosted in the cloud as a measurement issue arising from cloud computing. This subsection will draw on GN DZ.8 and on the cloud computing discussions in GN DZ.1.

Data Assets

- This subsection will note that data assets are central to many firms' value and operations in the digital economy, define data as an asset produced by accessing and recording observable phenomena (OP), and provide guidance on capturing gross and net investment in data assets, including the cost of procuring the OPs. It will also provide guidance on recording transactions in data copies, and on valuation techniques. It will also address distinguishing data investment from software investment. The recommendations on data as an asset will expand the software and databases category of intellectual property products of the *2008 SNA* (paragraph 10.109–10.114) and the SNA production boundary. This discussion will draw on GNs DZ.6 and DZ.4.

Artificial Intelligence (AI)

- This subsection will discuss the need to increase the visibility of AI by distinguishing AI software as a special type of software, and the inclusion of intelligent systems in the expanded definition of intellectual property products (*2008 SNA* paragraph 10.98). The discussion will also note that data assets are used to train and update AI software via machine learning (ML) and consider the boundary between AI software assets and data assets. This discussion will draw on GN DZ.7.

Non-fungible tokens (NFTs)

- This subsection will discuss Non-fungible tokens (NFTs), defined as digital records hosted on a blockchain that are associated with a digital or physical asset, but which are distinct from that asset. A classification of NFTs into (1) those that only grant personal use and display rights, (2) those that grant limited commercial rights, and (3) those that grant full ownership rights will be discussed and guidelines on the recording of each category of NFT will be presented. The recommended treatment of each type of NFT will be as shown in the endorsed GN DZ.10.

III. Digital Platforms

Definitions and Classifications

- This subsection will define digital platforms, distinguishing them from non-platforms such as

e-tailers. It will also define digital intermediation and identify the three types of digital platforms: (1) non-financial digital intermediation platforms (DIPs), which intermediate transactions in goods and nonfinancial services; (2) free platforms funded by advertising and collection of users' OP; and (3) financial DIPs, which mediate funding transactions or payment transactions (which will be discussed in a separate section on digitalization and the financial system). This discussion will be based on GNs DZ.9, DZ.1, and F.7.

Nonfinancial Digital Intermediation Platforms (DIPs)

- This subsection will discuss nonfinancial DIPs, noting that they generally receive fee income for facilitating transactions and do not take ownership of the good or service being transacted. It will then mention the challenges in delineating the services of these DIPs and the activity that they intermediate, including prevalence of cross-border transactions and of informal suppliers. It will also present the “producer perspective” approach to recording these transactions and explain how it affects measurement of the cross-border transactions of DIPs. The draft *BPM7 Chapter 11 Services Account* also discusses these issues but mentions that additional details are covered in the chapter on *Digitalization*. This discussion will draw on DZ.9 and C.4.
- In addition to new material in this chapter, in Chapter 7 of the new SNA, the definition of margin services (paragraph 6.21) will be updated to clarify that margin services exclude digital intermediation services that facilitate changes in ownership of goods.

Free Digital Platforms and Free Digital Goods and Services

- This subsection will explain how free goods and services that are part of a bundle of outputs supplied by platform and non-platform market producers are included in current-price GDP. It will then explain the measurement framework of free platforms funded by advertising and creation of data assets from users' observable phenomena (OPs). It will also provide guidelines on open-source software, including the implications for measurement of software investment of free software bundled with prices services, and guidelines on user-generated content. This subsection will be based on GN DZ.3.
- The subsection will next briefly discuss free digital goods and services in measures of price and volume change and reference the longer discussion of free digital goods and services in Section V on price and volume measurement. This part of the section will draw on GN DZ.1.
- This subsection will recommend a (supplementary) extended account with an alternative treatment of free digital platforms funded by advertising and collection of users' OPs.² This part of the section will be based on GN DZ.4.

² The alternative treatment will reroute a portion of households' spending on advertised products to become direct purchases of the platforms' free services. It will also recommend the inclusion in data assets of the value of the user-generated content that households produce with intermediate inputs of the platform's free services. Any costs of procuring households' OPs by producing free services not already included in data assets will also be added to investment in data assets in the extended account.

- Finally, the subsection will note that the supplementary information provided on free goods and services could include using adjusted prices to value bundled free and marked-up items where the price of the marked-up item funds the free item, and that supplementary information could also be provided on adjusted prices for valuing investment goods that are subsidized by mark-ups on associated supplies and services.

IV. Digitalization and the Financial System

New Financial Services and Means of Payment Enabled by Digitalization

- The first part of this subsection will note that digitalization has resulted in the appearance of new financial services and payment mechanisms. It will then note that the new and enhanced services made possible by digitalization fall within existing categories of products and activities but can be shown as “of which” items if they are important and identifiable. (*BPM7* Chapter 11 *Services Account* discusses these issues noting that further details are provided in the chapter on *Digitalization*). This subsection and the next one will draw on GN F.7.

Financial Digital Intermediation Platforms

This subsection will discuss financial digital intermediation platforms as suppliers of services to facilitate peer-to-peer lending, equity-based crowdfunding, and philanthropic crowdfunding. The distinction between financial digital intermediation services (in which the platform charges fees for facilitating transactions between suppliers and users of funds) and financial intermediation services (in which the intermediary borrows from the fund suppliers and lends to the fund demanders) will be highlighted. Financial DIPs generally receive explicit fees for their matching and transaction facilitation services, so they are financial auxiliaries (S126), not financial intermediaries.

Fungible Digital Assets, including Crypto Assets

- Fungible digital assets are broadly classified into two categories: (1) those designed to act as a general medium of exchange (with and without corresponding liability); and (2) other digital assets such as security tokens. This subsection will include a decision tree to distinguish different digital assets based on Annex II.1, GN F.18. As presented in the decision tree, digital financial assets and crypto assets are partially overlapping categories of digital assets.
- This subsection will also provide definitions of various types of crypto assets and explain the roles of distributed ledger technology (DLT) and blockchains in enabling decentralized payment clearing. It will explain that crypto assets can be broken down into fungible and nonfungible crypto assets. Further, a typology of fungible crypto assets based on Annex II.2, GN F.18, will be included to explain the classification of fungible crypto assets.
- It will be noted that all fungible crypto assets meet the asset boundary. Regarding the classification of fungible crypto assets, those with a corresponding liability should be recorded as financial assets.
- The classification of fungible crypto assets designed to act as a general medium of exchange without a corresponding liability (CAWLM) and fungible crypto assets designed to act as a

medium of exchange within a platform or network without corresponding liability (CAWLP) is not yet decided. A user survey will be conducted in early 2023 and a decision will be made after evaluating the responses to the survey.

V. Measuring Prices and Volumes of Products affected by Digitalization

- This section will note that many of the measurement challenges from digitalization involve volumes rather than current-price output and highlight the distinctive issues that arise in measuring price and volume change for digital products.
- The products and activities considered will include ICT goods, software and data, cloud computing and other ICT services, DIPs, e-commerce, and free platforms funded by advertising and data collection.
- The measurement issues include the frequent appearance of new or improved products and product models, customization/variety, bundling, and e-commerce.
- Methods mentioned will include quality adjustment techniques (hedonics, options pricing, producer costs), resampling (as defined in the Eurostat *Handbook on Price and Volume Measures in National Accounts*), and unit value indexes for homogeneous items.
- This section will assume that the issues in price and volume measurement are covered in more depth in Chapter 18 of the *2025 SNA*. This section will draw on GN DZ.1, the Eurostat *Handbook on Price and Volume Measures in National Accounts*, and the [Consumer Price Index Manual: Concepts and Methods](#) (2020). Research papers cited in GN DZ.1 may also be consulted.

VI. Analytical Tools to Increase the Visibility of Digitalization

Thematic Account on the Digital Economy and Extended Account on Free Digital Products

- The first part of this subsection will indicate that the extended account discussed in the section on free digital products and a more comprehensive thematic account on the digital economy will help show the impact of digitalization. The thematic account on the digital economy would show the alternative aggregations and additional detail developed in digital supply and use tables (SUTs) together with the alternative measures of free digital products based on expanded boundaries of production and consumption developed in the extended account on free digital products.

Digital Supply and Use Tables

- This subsection will present guidelines for compiling digital SUTs as a tool for showing the extent of digitalization in the economy by adding rows to the SUTs that break out transactions that are digitally ordered or digitally delivered, while also providing a breakdown of the digital products.
- The digital SUTs also contain added columns on the output, value added, and intermediate consumption of (1) ICT industries; (2) free digital platforms funded by advertising and data collection; (3) non-financial DIPs; (4) firms dependent on DIPs; (5) e-tailers; (6) digital only firms providing financial and insurance services; and (7) other producers operating only digitally.

- The section will also identify priority indicators within the digital SUTs. These will include value added of digital industries, intermediate consumption of digital intermediation services and cloud computing services, and digitally ordered transactions.
- The section will draw on, and refer to, the GN DZ.5 and on "[Digital Supply-Use Tables: A Step Toward Making Digital Transformation More Visible in Economic Statistics](#)", *Going Digital Toolkit Note*, No. 8.

Schematic Overview

I	<p>Introduction</p> <ul style="list-style-type: none"> Definition of digitalization; scope of the digital economy as covered in the chapter Organization of the chapter
II	<p>Digital Goods and Services</p> <ul style="list-style-type: none"> Cloud Computing Data Assets Artificial Intelligence (AI) Nonfungible Crypto Assets (NFTs)
III	<p>Digital Platforms</p> <ul style="list-style-type: none"> Definitions and Classifications Nonfinancial Digital Intermediation Platforms (DIPs) Free Digital Platforms and Free Digital Goods and Services
III	<p>Digitalization and the Financial System</p> <ul style="list-style-type: none"> New Financial Services and Means of Payment Enabled by Digitalization Financial Digital Intermediation Platforms Fungible Digital Assets, including Crypto Assets <ul style="list-style-type: none"> Fungible Digital Assets Decision Tree Fungible Crypto Assets
IV	<p>Measuring Prices and Volumes of Products Affected by Digitalization</p> <ul style="list-style-type: none"> Distinction between Volume Measurement and Current-Price Measurement Digital Products that Present Price and Volume Measurement Challenges Methods for Handling the Price Measurement Challenges
V	<p>Analytical Tools to Increase the Visibility of Digitalization</p> <ul style="list-style-type: none"> Thematic Account on the Digital Economy and Extended Account on Free Digital Products Digital Supply and Use Tables

References

- Guidance Notes C.4, C.6, DZ.1, DZ.2, DZ.3, DZ.4, DZ.5, DZ.6, DZ.7, DZ.8, DZ.9, F.7, and F.18
- Eurostat-OECD [Report on Intellectual Property Products](#).
- Eurostat [Handbook on Price and Volume Measures in National Accounts](#)
- IMF [Consumer Price Index Manual: Concepts and Methods](#) (2020)
- Mitchell, J. (2021) [Digital Supply-Use Tables: A Step Toward Making Digital Transformation More Visible in Economic Statistics](#), *OECD Going Digital Toolkit Note*, No. 8.
- OECD, WTO and IMF, 2020, [Handbook on Measuring Digital Trade](#)
- Shirono et al., 2021, [Is Mobile Money Part of Money? Understanding the Trends and Measurement](#), IMF Working Paper.
- *MFSMCG* Chapter 3
- *2008 SNA* Chapters 3, 4, 6, 10, and 15

Key Stakeholders Consulted:

- SNA and BPM editors
- IMF Statistics Department