SELECTED ASPECTS OF IMPLEMENTING THE NEW SYSTEM OF NATIONAL ACCOUNTS AND INTEGRATED BALANCE OF PAYMENTS IN THE CONTEXT OF DIGITAL TRANSFORMATION OF THE ECONOMY

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Data form the foundation of economic development and serve as the basis for numerous new products and services that drive increased productivity and resource efficiency across all sectors of the economy, enabling the creation of more personalized products and services. In the context of digitalization, "data" refers to any digital representation of actions, facts, or information, as well as any compilation thereof, including in the form of audio, visual, or audiovisual recordings, whereas "metadata" denotes a structured description of the content or usage of data, facilitating the discovery or utilization of such data [1].

Data as an asset are defined as informational content generated through access to and observation of phenomena, as well as the recording, organization, and storage of informational elements of these phenomena in digital format, which provides economic benefit when utilized [2]. Digital assets are elements representing the allocation of data in digital form. Data, as an important type of intellectual property product, constitute one of the ways in which digitalization is transforming the economy. Processes associated with digitalization are irreversible components of the evolutionary development of the modern global economy, made possible by various types of information and communication technology (ICT) goods and services, including the Internet, semiconductor chips, computing and electronic communication equipment, software, and Internet and wireless digital telecommunication services [3]. In the contemporary world, data processing and analysis are becoming increasingly vital for business, research, and decision-making. For this reason, a wide range of data analysis tools has emerged to simplify the processing and extraction of key insights. The core components of analytics are statistical analyses.

The profound impact of digitalization on production, consumption, operations, prices, finance, and other aspects of the economy—as well as its influence on international trade in goods and services and other cross-border transactions—necessitates improved visibility of digital activities, products, and operations. Digitalization is a multidimensional phenomenon and requires numerous indicators to understand future developments. The identification of units, as well as the collection, transmission, and publication of national statistics for enterprises, financial institutions,

governments, and all other operators in the domestic market, requires the application of unified statistical standards.

The key trends shaping the increasing role of data in the near future include: embedded systems and the Internet of Things (IoT), mobile data and real-time data, cognitive/artificial intelligence systems that are transforming the landscape, the evolution of data, and security as a critically important foundation. The International Data Corporation (IDC) estimates that by 2025, two-thirds of global financial companies will integrate cognitive data from third parties to enhance customer service through targeted product and service offerings, as well as fraud protection. Given the multitude of devices generating data, IDC segments the global data sphere and classifies data types as follows: entertainment; non-entertainment images/videos; productivity data and embedded data generated by embedded devices; machine-to-machine communication; and the Internet of Things.

According to IDC forecasts, by 2025 the global datasphere will reach 163 zettabytes, which is ten times more than in 2016. These trends are leading to the exponential growth in the total volume of all data on the planet, resulting in the creation of the so-called global datasphere and the emergence of big data programs. This growth is driven by the increasing number of devices and sensors, as well as the shift toward unstructured data, with expectations that by 2025, 80% of all data will be unstructured. In addition, it is projected that by 2025, public cloud environments will store 46% of the world's data. This is only the beginning [4].

As computing power becomes increasingly distributed-shifting to the cloud, everyday devices, and Internet of Things (IoT) infrastructure-data will continue to drive fundamental improvements in businesses, industries, and processes. The embedding of computing power into a vast number of end devices has become a key factor in the growth of data volumes in our modern era. Currently, the number of embedded system devices connected to data centers is less than one per person worldwide, but over the next ten years, this figure is projected to rise to more than four per person.

Consequently, there is a need to achieve maximum harmonization of the national statistical system with macroeconomic statistics and to implement updated standards for measuring indicators. To this end, on March 5, 2025, the UN Statistical Commission adopted the updated international statistical standard for national accounts statistics—*the 2025 System of National Accounts (SNA 2025)* [5]. This standard addresses the main conceptual and measurement challenges arising from the products, activities, and assets related to digital transformations, including their associated cross-border transactions, and recommends tools to enhance the visibility of digitalization within the national accounts. The implementation of *SNA 2025* aims to ensure the consistent compilation of internationally comparable national accounts statistics in line with best practices, enabling governments to conduct comparative analyses of their economies and make informed, data-driven decisions.

The adoption of *SNA 2025* coincided with the release of *the IMF's seventh edition of the Balance of Payments and International Investment Position Manual (BPM7)* [6], which guides countries in preparing internationally comparable statistics and producing high-quality data that reflect economic realities in a global environment [7]. *BPM7* contains updated global statistical standards for the external sector, including the balance of payments and the international investment position, and reflects key changes in the global economy regarding growing economic interconnectedness, digitalization, and financial market innovation. Chapter 16, "Digitalization," in *BPM7* is identical to the corresponding chapter in *SNA 2025* and reflects the transformation of

economic activity through the ubiquitous use of digital technologies. It offers recommendations for measuring digitalization-related activities, products, and assets within the conceptual framework of external accounts and for improving the visibility of digital activities and products in macroeconomic accounts.

To provide a consolidated view on the measurement and reporting of key aspects of digitalization, as well as to cover additional dimensions, *BPM7* addresses the main conceptual and measurement issues related to products, activities, and assets that have emerged with digitalization, including their associated cross-border transactions. It also presents tools for enhancing the visibility of digitalization in external sector statistics. Specifically, it covers digital transactions, industries, and products; digital platforms, including non-financial digital intermediary platforms, as well as free online platforms and other free products related to digitalization; and digitalization and the financial system, with subsections on new financial services and payment methods enabled by digitalization, financial digital platforms, and fungible digital assets, including crypto-assets.

The phased implementation of these standards should be a key strategic priority for countries through 2030, taking into account global changes in accordance with the general implementation strategy for the System of National Accounts *(SNA)* [8] and the Balance of Payments *(BPM)* [9]. The overall objective of the 2025 *SNA/BPM7* implementation model and the supporting plan from international organizations is to ensure a coordinated process for implementing the standards during 2029-2030 and integrating them into the strategic plans of national statistical offices and/or central banks, with specific goals and timelines based on the guidelines for preparing a *National Strategy for the Development of Statistics (NSDS)* [10].

Given the conceptual uncertainties regarding the impact of data on the economy, the United Nations Statistical Commission has recognized "data as a product of production and an asset" within the 2025 *System of National Accounts (2025 SNA)* [11]. *The UN's Inter-Secretariat Working Group on National Accounts (ISWGNA)* has developed recommendations on how to value data as an asset in the national accounts by studying data sources and their methods and has prepared an internationally agreed-upon standard set of recommendations outlined in a manual on data measurement [12]. Additionally, *the Organization for Economic Co-operation and Development (OECD)* has prepared a draft manual on compiling indicators for the measurement and accounting of natural capital, which reflects changes and analysis aimed at enhancing the utility of the *SNA* in responding to the need for environmental and economic data, the monetary valuation of natural resources, and their depletion or restoration [13].

In 2025, the Statistical Office of the European Communities (Eurostat), the International Monetary Fund (IMF), the OECD, the United Nations Statistics Division (UNSD), and the World Bank have launched a regional round of outreach activities to support the implementation of the *SNA/BPM7* standards, in conjunction with forums such as the OECD Conference on National Economic and Financial Accounts and the UNECE Group of Experts on National Accounts, as well as other relevant forums.

The proposed joint priority measures for the implementation of *SNA/BPM7* involve, first and foremost, coordinating the implementation timelines of other statistical standards to align with standards on:

- the United Nations' International Standard Industrial Classification *(ISIC Rev. 3)* [14];
- the United Nations System of National Accounts [15];

- benchmarking for the integration of public sector accounting with the International Monetary Fund's Government Finance Statistics Manual *(GFSM 2014)* and the European System of Accounts *(ESA 2010)* [16];
- monetary and financial statistics [17];
- data compilation [18];
- the framework of the System of Environmental-Economic Accounting *(SEEA)* [19], among others.

For the 2025-2026 period, the initial organizational measures for countries to implement *SNA/BPM7* will include:

- Integrating the 2025 *SNA/BPM7* implementation into the national statistical strategy;
- Establishing overall governance and responsibility for *SNA/BPM7* implementation, with the potential creation of an Implementation Steering Committee;
- Engaging stakeholders and conducting communications;
- Assessing the country's readiness for *SNA/BPM7* implementation using tools developed by international organizations;
- Evaluating potential data sources;
- Assessing resource needs and technical requirements.

Thus, the global implementation and future application of the *SNA/BPM7* standards in international practice will serve as a benchmark for official statistics and are designed to provide a unified framework for incorporating data into the national accounts. Each country will independently decide how to apply this single set of statistical methodologies to make informed decisions.

Ukraine has the potential for successful data-driven economic development, leveraging its technology, know-how, and highly skilled specialists. The creation of a common data market with the EU involves aligning relevant legislation and governance to ensure the availability of data, tools, and infrastructure, as well as the competencies for data processing, where all data-based products and services will comply with single market norms, and market information will be reflected in asset prices in accordance with generally accepted principles of global and European statistical practice. The principles of professional activity for statistical bodies are enshrined in EU Regulation (EC) No 223/2009 [20] on the transmission of data subject to statistical confidentiality, which is a key foundational document within the implementation of the EU Statistical Compendium and is an annex to the EU-Ukraine Association Agreement (ratified by the Law of Ukraine No. 1678 of September 16, 2014).

In the near future, Ukraine must engage in the harmonization of these new global standards and prepare a detailed national strategy for their implementation, involving the National Bank of Ukraine, the Ministry of Finance of Ukraine, the Ministry of Digital Transformation of Ukraine, the State Statistics Service of Ukraine, academics, and associations to manage the process of updating official statistics.

This will be facilitated by coordinated collaboration between the national statistical system and forums such as the OECD Conference on National Economic and Financial Accounts [21] and the UNECE Group of Experts on National Accounts, among other forums, for the implementation of the updated Government Finance Statistics Manual *(GFSM)* [22] and the Monetary and Financial Statistics Manual and Compilation Guide *(MFSMCG)* [23], taking into account the latest digital transformations and the potential of artificial intelligence across all sectors of the economy.

Considering that in the standard classification of industries and products published in the national accounts, digital products are currently often included in broader aggregates and are

dispersed across various categories, enhanced transparency of digital companies, products, and transactions is necessary for a full understanding of the impact of digitalization on the economy and the evolution of the digital economy. Specifically, the disaggregation of digital components from standard aggregates in accordance with *SNA/BPM7* will facilitate the measurement of the production and consumption of digital products as part of these aggregates.

Based on *SNA 2025*, the EU plans to review innovative scientific findings and, in 2025, implement a model plan for the rollout of *SNA/BPM7* [24] in national/external accounts to reflect new economic developments in areas such as globalization, digitalization, and financial innovation.

Harmonized benchmark revisions, incorporating retrospective analysis, will include new data sources and significant methodological changes, particularly concerning digitalization and its impact on production, consumption, trade, and other aspects. This creates a need for increased visibility of digital products and activities in macroeconomic accounts. This involves both *changes to classification systems and the compilation of satellite accounts for digital goods and services with information on data, artificial intelligence (AI), and cloud computing.*

Products contributing to digitalization are classified in the standards as *ICT (Information and Communication Technology)* goods for information economy products in the *Central Product Classification (CPC)* [25], software, data, and databases, as well as telecommunication and network communication services. Digital products are divided into ICT goods and digital services, with digital knowledge-capturing products, such as computer programs, data, and databases, included under digital services. Digital products include services provided via a computer network, such as cloud computing, digital intermediation, and other online platform services, digital financial and payment services, as well as transaction verification services for digital assets.

Thanks to *AI technologies*, new innovative products related to digitalization have become possible, significantly expanding the types of automated tasks [26]. These include text analysis, computer vision/image recognition, speech recognition, natural language processing, personalized recommendations, and content creation1 using generative artificial intelligence *(GenAI)*. Applications of *AI* include translation, predictive modeling, data analysis, autonomous drones and vehicles, facial recognition, and fraud detection, among others, which in turn require detailed data on assets. In this context, *AI* is classified as a special type of software with machine learning components for creating and training *AI* models, building machine learning libraries, and ensuring the scalability of data storage solutions in the cloud [27]. Within the context of the *SNA/BPM7* standards, an *AI* model is considered a benchmark for official statistics and is intended to provide a unified system for including data in the national accounts as a component of an information system that implements *AI* technology and uses computational, statistical, or machine learning2 methods to generate outputs from a given set of inputs

Measurement requirements arising in connection with *cloud computing, data assets, AI systems, and non-fungible tokens* are related to assessing the type of digital asset involved. Cloud computing services are primarily used as inputs for the production of other goods and services and consist of computing, data storage, software, and related ICT services accessed remotely over a network. [28]Remote data centers can offer the advantages of physical infrastructure that supports large-scale computing, high network bandwidth, and optimized connectivity.

In the *BPM7* standard, the *IMF* updates the balance of payments standards to reflect digital assets, including *cryptocurrencies*. This means that cryptocurrency is becoming part of the official economy and financial system, which entails new reporting obligations and the recognition of

associated risks. Financial experts and cryptocurrency industry analysts predict a significant price increase for the leading digital currency-Bitcoin (*BTC*). This optimistic forecast is explained by several factors, including the shaping of the cryptocurrency market under the influence of recent fundamental changes in US policy supporting digital assets [29]. These changes primarily affect the activities of US national banks and federal savings associations, which are granted the right to conduct activities with crypto-assets [30]. Specifically, this pertains to banks providing services such as custody of crypto-assets and holding the US dollar deposits that serve as reserves for US dollar-backed stablecoins via a distributed ledger network. Essentially, this refers to the intention to maintain the US dollar as the world's dominant reserve currency by utilizing stablecoins. To this end, in 2025, the US initiated the creation of digital asset holdings in the form of *a Strategic Bitcoin Reserve* [31], owned by *the Treasury, and a Digital Asset Stockpile (Stockpile)* [32], which is to consist of a basket of digital assets other than Bitcoin.

According to information posted on the *PaySpac*e online portal, the company *BlackRock* currently holds 636,000 *BTC* under management and is the leading provider of a Bitcoin Exchange-Traded Fund (ET*F)* by assets under management and the second-largest holder of Bitcoin in the world. An increasing share of circulating *BTC* is becoming concentrated in the hands of *ETF* issuers, leading to the centralization of the asset among large financial players (*Binance* – 629k *BTC*, *Strategy* – 579k *BTC*, *Grayscale* – 231k *BTC*) [33].

The U.S. *Securities and Exchange Commission (SEC)* has begun developing new rules related to cryptocurrency and reviewing existing rules concerning private funds [34]. The *SEC's* priorities for the near future have been identified as: regulation of digital assets; tailoring regulatory requirements; capital formation and market access; and political neutrality in rulemaking. The implementation of relevant organizational measures is proceeding at an extremely rapid pace. For instance, in May 2025, *$XRP* futures [35], were officially launched for the first time on the *Chicago Mercantile Exchange (CME)*, signifying the recognition of *XRP* as a full-fledged cryptocurrency that can not only be invested in but also used for exchange with other currencies and for settlement in financial transactions. Recently, the cryptocurrency Ripple, also known as *XRP coin*, has gained significant popularity in the digital asset market due to its high transaction speed, low fees, and scalability. *Ripple*, as a payment network based on its eponymous cryptocurrency *XRP*, allows for instant and cheap international payments. *XRP* can not only be invested in but also used for exchanging other currencies and for settling financial transactions on the *Ripple* network. Besides stablecoins and exchange tokens, *XRP* has the third-largest market capitalization after Bitcoin and Ethereum. Consequently, *XRP* is becoming the infrastructure of the new financial world, which is the first step towards its full integration into the global financial system, initiated by the international financial messaging standard *ISO 20022*, aimed at simplifying data exchange between financial institutions and digital cross-border payments [36].

The EU has recognized the importance of digital assets as part of a broader digital finance package. This package includes the *Digital Operational Resilience Act (DORA*) [37], the pilot regime for distributed ledger technology (DLT), and the development of the Markets in Crypto-Assets (MiCA) regulation [38]. This was done with the aim of establishing standards and addressing gaps in the existing financial services regulatory framework regarding:

- ensuring legal certainty for digital assets;
- establishing uniform rules for *Crypto-Asset Service Providers (CASPs)* and issuers of digital assets in the EU;
- replacing existing national frameworks for digital assets;

- creating specific rules for stablecoins, including *e-money Tokens (EMT)* and *asset-referenced Tokens (ART)*, but excluding unbacked or algorithmic stablecoins [39].

Since MiCA is a regulation, national implementing legislation is not mandatory for EU member states; however, states must ensure their national legislation conforms to MiCA. In 2024, the German national parliament passed the Financial Market Digitalisation Act *(Gesetz über die Digitalisierung des Finanzmarktes, Finanzmarktdigitalisierungsgesetz)* [40], which facilitates the implementation of MiCA. It is projected that the cryptocurrency market size will increase by US$39.75 billion, with an average growth rate of 16.7% between 2024 and 2029 [41]. Germany leads the EU-27 countries in the adoption of digital assets, with a particular focus on blockchain technology and the broad acceptance of cryptocurrencies. According to forecasts from the German online platform *Statista*, which specializes in data collection and visualization, the digital asset market in the EU, currently valued at US$9.6 billion, is expected to reach a revenue of US$9.0 billion by 2025 [42].

However, European countries are currently dependent on foreign digital payment infrastructure, as *MasterCard*, *Visa*, *PayPal*, and Alipay are controlled by American or Chinese companies. The largest banks in the European Union are creating a new mobile payment system intended to replace *Giropay* in Germany, *Paylib* in France, *Payconiq* in Belgium and Luxembourg, and *iDEAL* in the Netherlands. The service aims to compete with foreign infrastructure like *PayPal* by launching as a real-time payment system with expanded online payment functionality and subsequently forming blockchain platforms. Nevertheless, according to experts, the "race of digital civilizations"—from the US dollar to the Chinese yuan, from *SWIFT* to *CIPS*-is now building an entirely new alternative digital architecture for the global future, where digital currencies, payment systems, and virtual spaces become parts of a single geopolitical space. The launch of the *CIPS 2.0* platform in China, based on the digital yuan in 16 ASEAN and Middle Eastern countries, challenges the dominance of *SWIFT* and the digital dollar and the creation of a European alternative to *Visa* and *Mastercard*.

According to the definitions provided in *BPM7*, crypto-assets and related digital assets are divided into two categories: those intended for use as a general medium of exchange, and other digital assets, such as security tokens. Consequently, cryptocurrencies like Bitcoin are now classified as non-produced, non-financial assets, while some tokens are treated similarly to equities. Assets that have value but are not linked to a production process are classified as capital assets without any financial liability. This updated, standardized approach improves the tracking of cross-border cryptocurrency capital flows through reporting.

Financial expert Robert Kiyosaki has predicted that Bitcoin will soar to incredible heights as the current "Marxist" financial system collapses due to investors' lack of confidence in the sustainability of US debt; therefore, gold, silver, and Bitcoin will sharply increase in price [43]. However, there are other considerations. For instance, Nobel laureate in economics Eugene Fama expresses a pessimistic view on cryptocurrency, believing that the value of Bitcoin has a high probability of reaching zero within the next 10 years. He noted that "Bitcoin does not maintain a stable real value and has a volatile real value," adding that "due to its limited supply, the price is determined solely by demand, which causes extreme volatility, making it unsuitable for exchange" [44]. The United Kingdom has also published a discussion paper, "Cryptoasset regulation: recognition and disclosure, and a market abuse regime for cryptoassets" [45]. Overall, despite predominantly optimistic forecasts, even the most optimistic analysts expect significant volatility in *BTC* prices as early as 2025. Moreover, general macroeconomic risks remain. Renewed fears

about the imposition of US tariffs, rising US government bond yields, and a strengthening US dollar could cause increased volatility.

The absence of comprehensive regulation for digital assets is a major obstacle for institutions wishing to capitalize on the opportunities presented by blockchain technology. According to the *SNA/BPM7* standards, all types of crypto-assets must now be included in the *System of National Accounts (SNA)*. Crypto-assets with a corresponding liability are classified as financial assets. Specifically, crypto-assets with a corresponding liability intended for use as a general medium of exchange are identified separately as "currency and deposits," while those intended for use as a medium of exchange within a platform are treated as crypto-assets in the form of equity or debt securities [46].

Furthermore, blockchain-based *non-fungible tokens (NFTs)*, each representing a unique asset, are defined in the standards as their digital records residing on a blockchain, which are linked to a digital or physical asset but are distinct from that asset. In fact, *BPM7* provides a classification and definition of various types of crypto-assets and places special emphasis on *DLT* and blockchain technologies in ensuring decentralized payment clearing. *NFTs* certify ownership of the rights to use and benefit from an asset and also serve to authenticate the asset. They are non-fungible because the associated asset is unique and not interchangeable with other assets of the same class in the same way that units of fungible crypto-assets are. Payments for *NFTs* must typically be made in the fungible crypto-asset native to the blockchain on which the *NFT* resides. In international practice, *NFTs* are classified into those that: do not transfer ownership rights; provide limited ownership rights; and provide full ownership rights to another specified asset or product [47]. The primary classification of *NFTs* is based on the type of rights conferred, not on the characteristics of the associated asset or good [48]. The purchase of an *NFT*, based on these rights, can be classified as consumption, as the acquisition of a non-produced asset, or as neither. However, *NFTs* vary greatly both in the ownership rights they grant and in the type of digital and physical asset or good with which they are associated.

BPM7 resolves the distinction between tokens and financial instruments. Tokens are classified as either fungible or non-fungible, and a further distinction is made based on whether they carry a liability. Cryptocurrencies without liabilities, such as Bitcoin, are classified as non-produced assets, while stablecoins backed by liabilities are considered financial instruments. Thus, the new edition of *BPM7* introduces the classification of cryptocurrencies and token-based assets for global economic reporting. Tokens associated with platforms like *Ethereum* or *Solana* are similar to equity capital and are treated like investments in foreign stocks. This aligns digital tokens with traditional financial reporting systems.

In Ukraine, the implementation of global standards for the system of national accounts and the integrated balance of payments is in its initial stage. A draft law submitted for consideration to the Verkhovna Rada of Ukraine concerning the regulation of the circulation of virtual assets in Ukraine [49] proposes the introduction of the following classification of virtual assets:

- asset-referenced tokens, which are stabilized relative to currencies or property;
- e-money tokens, which are pegged to an official currency;
- other virtual assets that do not fall into the first two categories and for which a classification mechanism via the regulator is foreseen.

In light of Ukraine obtaining EU candidate status, the National Bank of Ukraine has migrated its System of Electronic Payments (SEP) to a new generation built on the basis of the international standard ISO 20022 and the growing integration of blockchain technologies into institutional

financial systems. A phased, systemic reformatting of the principles for the circulation of digital assets is underway [50].

Web3 is a new paradigm combining blockchain technology, cryptocurrencies, edge computing, and decentralized applications [51]. It represents the next stage in the evolution of the internet. The accelerating concentration of technology, capital, and digital transformation is propelling the transition to Society 5.0. One of the main opportunities Web3 offers Ukraine is the ability to create decentralized platforms for exchanging data and services. Applications for cryptocurrency exchange, decentralized social networks, and labor markets, for example, can serve as new tools for Ukraine's economic and social development, particularly in the context of war and post-war reconstruction. A new level of connectivity will facilitate this by reducing data processing delays and expanding opportunities for creating interactive three-dimensional worlds. China, for example, made another breakthrough in digital technology in April 2025 by launching the world's first 10-gigabit next-generation broadband network [52].

However, along with these opportunities come challenges. Issues requiring resolution include data privacy and security, the regulation of cryptocurrencies and blockchain technologies, as well as ensuring accessibility and inclusivity for all users. This demands the development and implementation of an appropriate regulatory framework and the advancement of technological infrastructure.

In recent years, the field of cryptocurrency has undergone a substantial evolution, giving rise to a wide array of types and models. Specifically, the virtual asset ecosystem is experiencing growth in *anonymity-enhancing cryptocurrencies (AECs)*, mixers and tumblers, decentralized platforms and exchanges, privacy wallets, and other products and services that increase the obfuscation of financial flows. These phenomena also give rise to the emergence of other virtual asset business models or activities, such as *Initial Coin Offerings (ICOs)*, which engender market manipulation risks. In order to address these issues, the *Financial Action Task Force (FATF)* has implemented a set of new standards and recommendations for the regulation and supervision of virtual assets and *virtual asset service providers (VASPs).* In particular, guidance has been published on key definitions of virtual currency [53], a risk-based approach to virtual currencies, and a glossary defining the terms *"virtual asset" (VA)* and *"virtual asset service provider" (VASP)* [54]. Virtual assets are defined as "a digital representation of value that can be digitally traded or transferred, and can be used for payment or investment purposes." *Virtual Asset Service Providers (VASPs)* are defined as "any natural or legal person who is not covered elsewhere under the Recommendations, and conducts one or more of the following activities or operations for or on behalf of another person: exchange between virtual assets and fiat currencies; exchange between one or more forms of virtual assets; transfer of virtual assets; safekeeping and/or administration of virtual assets or instruments enabling control over virtual assets; and participation in and provision of financial services related to an issuer's offer and/or sale of a virtual asset" [55].

The regulation of cryptocurrency entails the establishment of a system that facilitates the secure and lawful utilization of cryptocurrencies, incorporating risk assessment (RA). The decision regarding the prohibition or restriction of virtual assets or VASPs is to be made independently by countries, contingent upon a risk assessment and consideration of the national regulatory context. This determination is to be informed by an evaluation of the technical capabilities and resources available. The systematic collection of quantitative data can play a crucial role in the effectiveness of economic risk assessment.

To this end, global standards mandate the compilation of a thematic account of the digital economy and its associated digital tables. The purpose of this mandate is to enhance the visibility of activities, products, and transactions impacted by digitalization. These are otherwise included within broader aggregates in standard national accounts classifications. The thematic account of the digital economy facilitates the establishment of alternative aggregations and offers supplementary detail on products and transactions, thereby enabling the discrete identification of digital segments within industries, digital products, and digital transactions. Moreover, digital supply tables segment the analysis of digitalization's impact along three dimensions of transaction characteristics: digital ordering, digital delivery, or digital intermediation of products and industries. This approach ensures that the analytical framework for digital transactions, products, and industries is aligned with existing classifications.

REFERENCES

1. Regulation (EU) 2023/2854 of the European Parliament and of the Council of 13 December 2023 on harmonized rules on fair access to and use of data and amending Regulation (EU) 2017/2394 and Directive (EU) 2020/1828 (Data Act). URL: https://eur-lex.europa.eu/eli/reg/2023/2854/oj
2. Handbook on Data as an asset 27th meeting of the Advisory Expert Group on National Accounts 28-30 October 2024, Washington DC, USA Erich Strassner – IMF Nicola Massarelli – Eurostat Slides prepared by John Mitchell – consultant. URL:https://unstats.un.org/unsd/nationalaccount/aeg/2024/M27/M27_03_Data_Handbook_Pres.pdfhttps://unstats.un.org/unsd/nationalaccount/aeg/2024/M27/M27_03_Data_Handbook_Pres.pdf
3. The Economics and Implications of Data An Integrated Perspective Yan Carrière-Swallow and Vikram Haksar/ Strategy, Policy, and Review Department No. 19/16 September 23, 2019. URL: https://www.imf.org/en/Publications/Departmental-Papers-Policy-Papers/Issues/2019/09/20/The-Economics-and-Implications-of-Data-An-Integrated-Perspective-48596
4. Data Age 2025: The Evolution of Data to Life-Critical Don't Focus on Big Data; Focus on the Data That's Big. URL: https://www.seagate.com/files/www-content/our-story/trends/files/Seagate-WP-DataAge2025-March-2017.pdf
5. System of National Accounts 2025. URL: https://unstats.un.org/unsd/nationalaccount/snaupdate/2025/2025_SNA_Combined.pdf
6. Integrated Balance of Payments and International Investment Position Manual, Seventh Edition (BPM7) White Cover (Pre-Edited) Version March 2025 Suggested Citation: International Monetary Fund (IMF). 2025White Cover version, pre-edited text subject to official editing. Washington, DC.
7. STRENGTHENING AMERICAN LEADERSHIP IN DIGITAL FINANCIAL TECHNOLOGY.URL:https://www.whitehouse.gov/presidential-actions/2025/01/strengthening-american-leadership-in-digital-financial-technology
8. Strategy for Implementing 2025 SNA and BPM7. URL: https://unstats.un.org/unsd/nationalaccount/docs/Implementation_Strategy_UNSC_ENDORSED.pdf
9. Dylan Yaga et al., Blockchain Technology Overview, National Institute of Standards and Technology, October 2018, p. iv. URL: https://nvlpubs.nist.gov/nistpubs/ir/2018/NIST.IR.8202.pdf
10. NSDS GUIDELINES Guidelines for the elaboration of a National Strategy for the Development of Statistics. April 2018. URL: https://old.nsdsguidelines.paris21.org/NSDS-GUIDELINES-full-lang-en.pdf
11. System of National Accounts 2025. URL: https://unstats.un.org/unsd/nationalaccount/snaupdate/2025/2025_SNA_Combined.pdf
12. Handbook on measuring data in the System of National Accounts. URL: https://unstats.un.org/unsd/nationalaccount/aeg/2024/M27/M27_03_Data_Handbook.pdf
13. DRAFT Measuring natural resources in the national accounts: a compilation guide. URL: https://unstats.un.org/unsd/nationalaccount/RAdocs/DraftNatResGuide15022025.pdf
14. International Standard Industrial Classification of All Economic Activities ISIC Rev. 3.1. URL: https://unstats.un.org/unsd/classifications/Econ/Download/In%20Text/ISIC_Rev_3_English.pd
15. The System of National Accounts (SNA). URL: https://unstats.un.org/unsd/nationalaccount/sna.asp
16. Benchmarking Guide: Integrated PSA and GFS. URL: https://cfrr.worldbank.org/publications/benchmarking-guide-integrated-psa-and-gfs

17. MONETARY AND FINANCIAL STATISTICS MANUAL. URL: https://www.imf.org/external/pubs/ft/mfs/manual/pdf/mmfsft.pdf
18. Developing practical compilation guidance on the production of Data in the National Accounts. URL: https://unstats.un.org/unsd/nationalaccount/aeg/2024/M26/M26_3_Implementation_Guide_Data_as_an_Asset_Pres.pdf
19. System of Environmental-Economic Accounting (SEEA). URL: https://seea.un.org/
20. Regulation (EC) No 223/2009 of the European Parliament and of the Council of 11 March 2009 on European statistics and repealing Regulation (EC, Euratom) No 1101/2008 of the European Parliament and of the Council on the transmission of data subject to statistical confidentiality to the Statistical Office of the European Communities, Council Regulation (EC) No 322/97 on Community Statistics, and Council Decision 89/382/EEC, Euratom establishing a Committee on the Statistical Programmes of the European Communities. URL: https://eur-lex.europa.eu/eli/reg/2009/223/oj/eng
21. 21st Annual Meeting of the OECD Network on Fiscal Relations Across Levels of Government. URL: https://www.oecd.org/en/events/2025/04/21st-annual-meeting-of-the-oecd-network-on-fiscal-relations.html
22. GOVERNMENT FINANCE STATISTICS MANUAL 2014. URL: https://www.imf.org/external/pubs/ft/gfs/manual/2014/gfsfinal.pdf
23. IMF STATISTICS MANUALS AND REFERENCES. URL: https://www.imf.org/en/Data/Manuals-and-Guides
24. BPM7/SNA 2025 IMPLEMENTATION. URL: https://ccamtac.imf.org/content/dam/CCAMTAC/Schedule/FY-26/EN/9.%20BPM7%20Implementation%20(Aug%2025-27,%202025).pdf
25. Central Product Classification (CPC) Version 2.1. URL: https://unstats.un.org/unsd/classifications/unsdclassifications/cpcv21.pdf
26. Aghion, P., Jones, K.I. and Jones, B.F., "Artificial Intelligence and Economic Growth" (eds.), Agrawal, A., Hans, J. and Goldfarb, A., The Economics of Artificial Intelligence: An Agenda, University of Chicago Press, May 2019
27. Data science for engineering design: State of the art and future directions Filippo Chiarello∗, Paola Belingheri, Gualtiero Fantoni. URL: https://iris.luiss.it/retrieve/c3c7cb83-3b29-460f-b24a8a3bb90f9e7c/Data%20science%20for%20engineering%20design%20State%20of%20the%20art%20and%20future%20directions.pdf
28. BPM7 Chapter 16/2025 SNA Chapter 22. Digitalization: Annotated Outline. URL: https://unstats.un.org/unsd/nationalaccount/aeg/2022/M21/SNA_AO_Ch22_BPM_Ch16.pdf
29. STRENGTHENING AMERICAN LEADERSHIP IN DIGITAL FINANCIAL TECHNOLOGY. URL: https://www.whitehouse.gov/presidential-actions/2025/01/strengthening-american-leadership-in-digital-financial-technology/
30. OCC Issues Interpretive Letter to Clarify Authority of Banks to Engage in Crypto-asset Activities. URL: https://www.willkie.com/-/media/files/publications/2025/03/occ-issues-interpretive-letter-to-clarify-authority-of-banks-to-engage-in-crypto-asset-activities.pdf#:~:text=With%20Interpretive%20Letter%201179%20now,in%20such%20crypto%2Dasset%20activities
31. Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on markets in crypto-assets, and amending Regulations (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937 (Text with EEA relevance). URL: https://eur-lex.europa.eu/eli/reg/2023/1114/oj/eng
32. MiCA: The EU's Path to Digital Assets Regulation. URL: https://www.fidelitydigitalassets.com/sites/g/files/djuvja3256/files/acquiadam/1099400.5.0%20FDAS%20MiCA.pdf
33. Nazvano naibilshykh vlasnykiv Bitkoina.URL: https://psm7.com/uk/bitcoin/nazvano-najbilshyh-vlasnykiv-bitkoyina.html
34. SEC NEWS AND SPEECHES—Atkins declares it's 'a new day' at the SEC, time to embrace innovation, (May 19, 2025). URL: https://www.vitallaw.com/news/sec-news-and-speeches-atkins-declares-it-s-a-new-day-at-the-sec-time-to-embrace-innovation/sld014e4a001260614fd58ee65cf9240bec91?refURL=https%3A%2F%2Fwww.google.com%2F#
35. For reference: XRP is a real-time gross settlement, currency exchange, and money transfer system. It is built on an open-source, distributed Internet protocol and consensus ledger. It also has its own cryptocurrency, XRP.
36. PN-ISO 20022-1:2020-04 Financial services - Universal financial industry messaging scheme - Part 1: Model flowchart. URL: https://www.intertekinform.com/en-gb/standards/pn-iso-20022-1-2020-04-939454_saig_pkn_pkn_2832100/?srsltid=AfmBOorACo8H65t7hqWmlxp-hbIXjc8pc3rFWD5R92sLzWSzyn63rTXl

37. 37 Regulation (EU) 2022/2554 of the European Parliament and of the Council of 14 December 2022 on digital operational resilience for the financial sector and amending Regulations (EC) No 1060/2009, (EU) No 648/2012, (EU) No 600/2014, (EU) No 909/2014 and (EU) 2016/1011. URL: https://eur-lex.europa.eu/eli/reg/2022/2554/oj/eng
38. Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on markets in crypto-assets, and amending Regulations (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937 (Text with EEA relevance). URL: https://eur-lex.europa.eu/eli/reg/2023/1114/oj/eng
39. MiCA: The EU's Path to Digital Assets Regulation. URL: https://www.fidelitydigitalassets.com/sites/g/files/djuvja3256/files/acquiadam/1099400.5.0%20FDAS%20MiCA.pdf
40. Gesetz über die Digitalisierung des Finanzmarktes (Finanzmarktdigitalisierungsgesetz - FinmadiG). URL:https://www.bundesfinanzministerium.de/Content/DE/Gesetzestexte/Gesetze_Gesetzesvorhaben/Abteilungen/Abteilung_VII/20_Legislaturperiode/2023-12-20-FinmadiG/0-Gesetz.html
41. Analiz rynku kryptovaliut Pivnichnoi Ameryky, Yevropy, Aziatsko-Tykhookeanskoho rehionu, Pivdennoi Ameryky, Blyzkoho Skhodu ta Afryky - SShA, Velyka Brytaniia, Nimechchyna, Shveitsariia, Brazyliia, Kytai, Kanada, Yaponiia, Italiia, Niderlandy - Rozmir ta prohnoz na 2025-2029 roky. URL: https://www.technavio.com/report/cryptocurrency-market-industry-analysis
42. Digital Assets -EU-27.URL: https://www.statista.com/outlook/fmo/digital-assets/eu-27
43. Tsi dva aktyvy skoro dosiahnut novykh vysot - Kiiosaki. URL: https://starkon.com.ua/czi-dva-aktyvy-skoro-dosyagnut-novyh-vysot-kijosaki/
44. Nobel Laureate Eugene Fama Predicts Bitcoin Will Become Worthless. URL: https://www.promarket.org/2025/01/30/nobel-laureate-eugene-fama-predicts-bitcoin-will-become-worthless/
45. Market Abuse Rules for Cryptoassets - The New UK Regime. URL: https://www.paulhastings.com/insights/client-alerts/market-abuse-rules-for-cryptoassets-the-new-uk-regime
46. F.18 Recording of Crypto Assets in Macroeconomic Statistics: Outcome of Global Consultation https://www.imf.org/external/pubs/ft/bop/2022/pdf/38/22-06a.pdf
47. PwC Global Crypto Regulation Report 2025. Navigating the Global Landscape March 2025/ https://legal.pwc.de/content/services/global-crypto-regulation-report/pwc-global-crypto-regulation-report-2025.pdf
48. Trade mark guidelines4.4 Virtual goods, services in virtual environments and NFTs https://guidelines.euipo.europa.eu/2214311/2215372/trade-mark-guidelines/4-4-3-non-fungible-tokens--nfts-
49. Pro vnesennia zmin do Podatkovoho kodeksu Ukrainy ta deiakykh inshykh zakonodavchykh aktiv Ukrainy shchodo vrehuliuvannia oborotu virtualnykh aktyviv v Ukraini: zakonoproekt №10225-d vid 24.04.2025. URL: https://itd.rada.gov.ua/billinfo/Bills/Card/56271
50. У ISO 20022 implementation in the payment infrastructure of Ukraine. URL: https://bank.gov.ua/ua/payments/project-iso20022
51. Genesis of Legal Regulation Web and the Model of the Electronic Jurisdiction of the Metaverse. (2022). Bratislava Law Review, 6(2), 21-36. URL: https://blr.flaw.uniba.sk/index.php/BLR/article/view/316
52. . U Kytai zapustyly pershyi u sviti 10G internet: filmy u 8K zavantazhuiutsia za sekundy. URL: https://www.unian.ua/techno/communications/u-kitaji-zapustili-pershiy-u-sviti-10g-internet-12983118.html
53. Virtual Currencies: Key Definitions and Potential AML/CFT Risks. URL: https://www.fatf-gafi.org/en/publications/Methodsandtrends/Virtual-currency-definitions-aml-cft-risk.htm
54. Guidance for a Risk-Based Approach to Virtual Currencies. URL: https://www.fatf-gafi.org/en/publications/Fatfgeneral/Guidance-rba-virtual-currencies.html
55. THE EU GLOBAL FACILITY'S STRATEGY ON CRYPTOCURRENCIES TOWARDS A SAFER WORLD USING VIRTUAL ASSETS. URL: https://www.global-amlcft.eu/wp-content/uploads/2023/06/VA-Strategy_EU_GLOBAL_Facility_compressed.pdf