



# **Measuring Digital Money: Data Needs and Challenges**

Ms. Padma Hurree Gobin

**Deputy Division Chief**

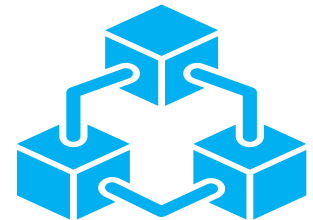
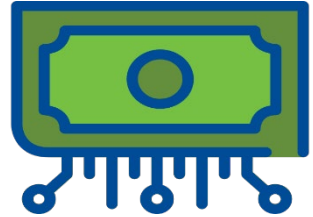
**Financial Institutions, Statistics Department, IMF**

November 2024

**The views expressed herein are those of the authors and should not be attributed to the IMF, its Executive Board, or its management.**

# Outline

- Introduction
- Methodological guidance
- Closing data gaps: DGI 3 Recommendation 11 on digital money
- Data needs and data collection
- Other projects
- Key takeaways



# Introduction: STA engagement in projects relevant for digital money and crypto assets data

## Focus on statistical methodology

### Update of Statistical Manuals (ongoing)

- SNA 2025
- BPM7
- **MFSMCG (upcoming)**  
Develop methodology on the statistical treatment of digital money including central bank digital currencies and other crypto assets.

### Crypto-assets Compilation Guidance (ongoing)

Compilation guidance for crypto-assets being undertaken under the aegis of BOPCOM. Focus on data sources, compilation challenges and discussion on potential solutions.

### Guidance Notes (published):

Under the Joint Financial and Payments Systems Task Team (FITT) established in the context of update of SNA/BPM to deal with issues arising from evolution of financial/payments systems:

- F.18 *Treatment of Crypto-Assets in Macroeconomic Statistics*
- F.7 *Impact of FinTech on Macroeconomic Statistics*

## Focus on data

### Data Gaps Initiative 3 Recommendation 11 (DGI 3 Rec 11) (ongoing):

- DGI 3 Rec 11 Task Team meetings and discussions.
- Annual hybrid workshops (2023 – 2025).
- Stock taking exercise (conducted and analyzed in 2024).
- Focus group work on test data collection templates.
- Test data collection exercise planned for first half of 2025.

## Other

11th IMF Statistical Forum:  
***Measuring Money in the Digital Age***  
in November 2023

## STA support for policy focused projects

MCM CBDC Handbook  
(published)

IMF-FSB Synthesis Paper: Policies for Crypto-Assets  
(published)

**FAD's Book on Digital Money**

# Methodological Guidance

# Guidance Notes F.18 and F.7

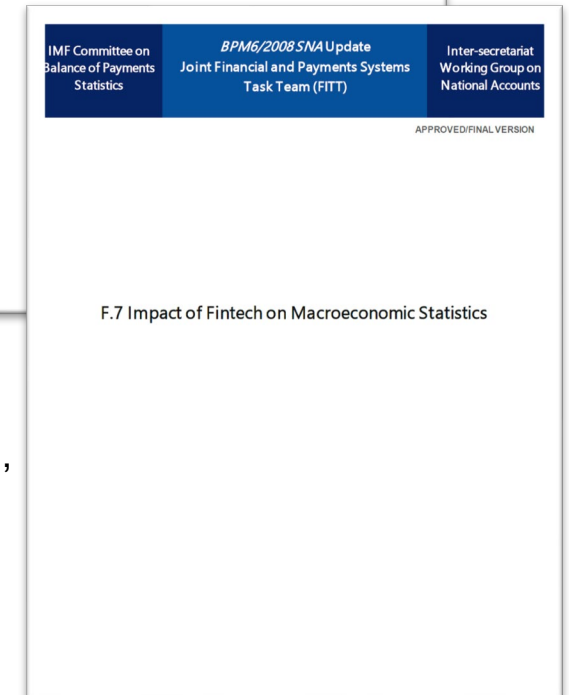
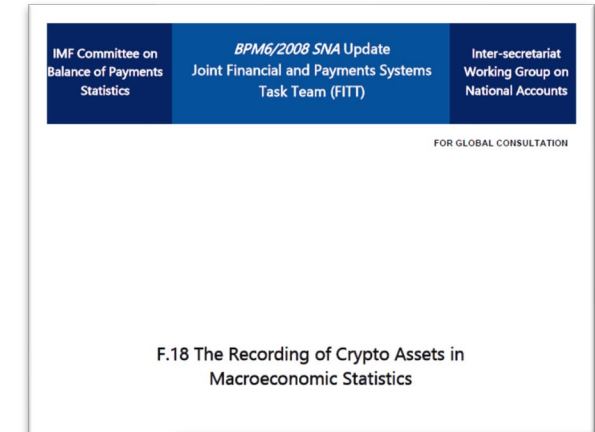
Prepared under the Joint Financial and Payments Systems Task Team (FITT) established in the context of update of SNA/BPM to deal with issues arising from evolution of financial/payments systems:

- **F.18 Treatment of Crypto-Assets in Macroeconomic Statistics:**

- Classification and recording of crypto assets in macroeconomic statistics.
- Consensus that crypto assets with a corresponding liability should be recorded as financial assets.
- Recording of crypto assets without a corresponding liability designed to act as a general medium of exchange as non-produced non-financial assets.

- **F.7 Impact of FinTech on Macroeconomic Statistics:**

- Implications, from a statistical point of view, of new financial products, services, technologies, players, and access modes introduced by fintech.
- Among the recommendations was that fintech companies should be classified within the existing institutional sectors/subsectors depending on the economic objectives, functions, and behavior without introducing a new sector “Fintech”.



# Upcoming *Compilation Guidance on the Recording of Crypto Assets in Macroeconomic Statistics* (1/2)

Compilation Guidance for crypto assets being undertaken under the aegis of BOPCOM.



## Compendium for Compilers

To provide practical guidance on

- **data sources and**
- **compilation methods**

for measuring crypto assets related transactions and positions in macroeconomic statistics.

## Consistency and Comparability

To contribute to ensuring compilation and dissemination of

- **consistent and**
- **comparable**

data related to crypto assets across countries.



# Upcoming *Compilation Guidance on the Recording of Crypto Assets in Macroeconomic Statistics* (2/2)

Main purpose: to provide comprehensive compilation guidance on the recording of crypto assets

Main sections (tentative):

- I. Overview of the crypto asset's ecosystem.
- II. Methodological framework for the recording of crypto assets.
- III. Data sources, including administrative data sources and alternative data approaches, like exploration of blockchains; and compilation methods.
- IV. Use cases and country experiences.



The idea of *living document* (discussed and updated in line with future market developments)

Fast-changing nature of crypto assets ecosystem → Potential further/ongoing updates of the *Guidance*

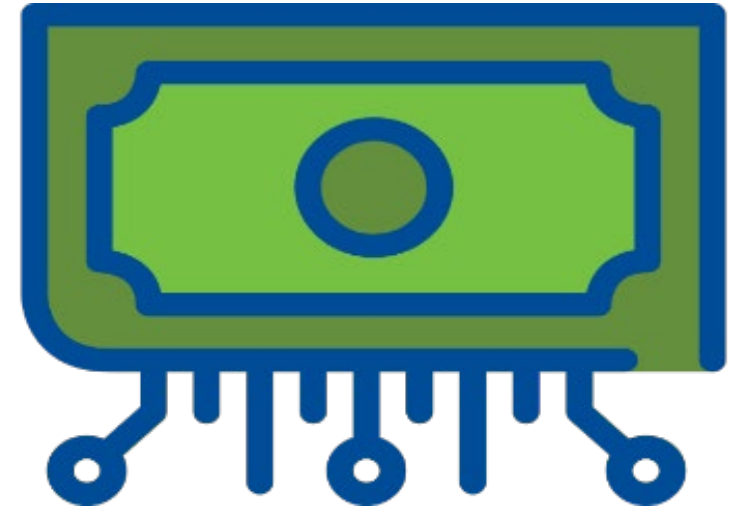
# Update of Statistical Manuals, in particular upcoming new *MFSMCG*

- [SNA 2025 / BPM7 update](#) has covered important aspects of digitalization in economies in the new joint [SNA 2025 Chapter 22](#) and [BPM7 Chapter 16](#) on *Digitalization*.
- Upcoming *MFSMCG* update will focus on digitalization of the financial sector, in particular revisiting the definition of money in the digitalized world

Definition of digital money

Analysis of impact of digitalization and new assets' classes  
on broad money

Analysis of impact of digitalization and new assets' classes  
on liquidity aggregates





# **Initiatives aimed at closing data gaps on digital money and crypto assets**

# DGI-3 Rec 11: An overview

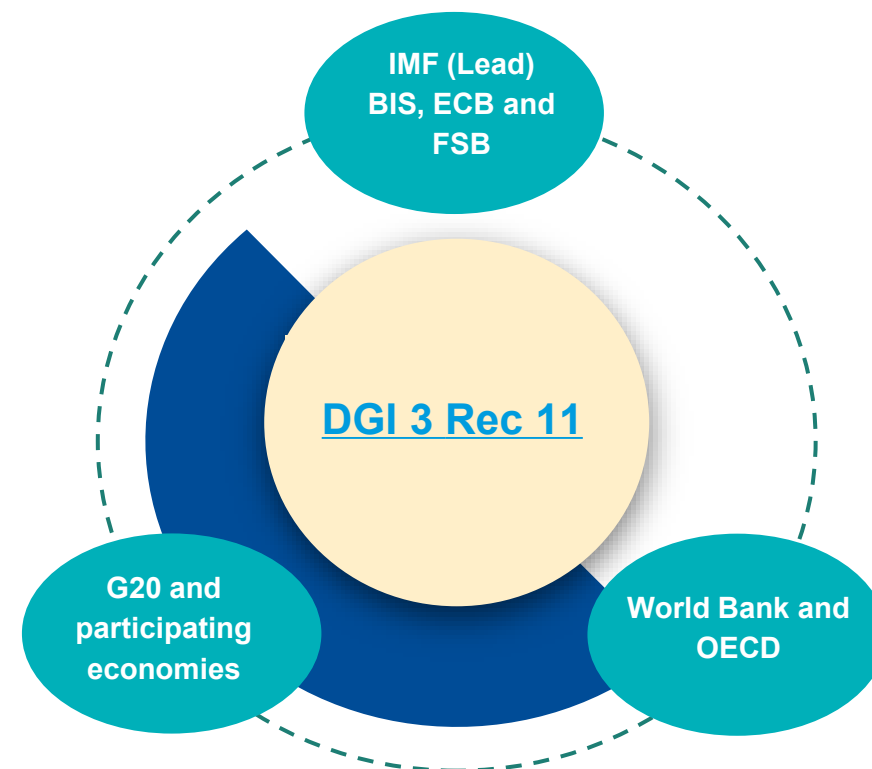


## Recommendation 11: Digital Money

**Policy Driver:** *The growing presence of new forms of digital money and crypto-assets used as a means of payment poses the potential for various policy issues such as cross-border usage and currency substitution. Establishing a data collection framework and collecting data on digital money will help policymakers to monitor these developments and any associated risks in the future, including on use of foreign CBDCs, **stablecoins**, and **other types of crypto-assets** used as means of payment to ensure the proper coverage of monetary aggregates and international capital flows.*

### Objectives of DGI 3 Rec 11:

- To develop data collection frameworks for **digital money and crypto assets**,
- To foster discussions and international collaboration as well as conduct a test data collection exercise, which will be based on a **best-effort approach**, using data / information already available in economies.



### Aspirational goal of DGI 3 Rec 11:

- Estimates of the **stocks** and **flows** of digital money and **crypto assets** used as means of payment to understand *who holds what and where*:

**Who:** crypto assets holders by institutional sector

**What:** type of instrument / asset

**Where:** crypto assets holders by country of residence

# DGI 3 Rec 11 outcomes beyond the G20 & FSB participating economies



DGI-3 Rec 11 covers **digital money and crypto assets** and discusses different potential strategies that may help in measuring these trends:

- Including strategies based on administrative data sources and strategies based on alternative data sources.



DGI 3 Rec 11 promotes **international collaboration** on closing data gaps in digital money and crypto assets and fosters **data sharing** and data exchanging agreements.



- Internationally comparable data on crypto assets may serve comparative economic studies, stability risks assessment and support macroeconomic statistics.



The outcomes of DGI-3 Rec 11 work, including, data templates or compilation notes may foster and spread-out **best practices** beyond G20 and FSB participating economies.

# Data Needs and Data Collection

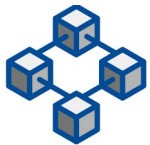
# State of play: Insights from the DGI 3 Rec 11 stocktaking exercise



A stock-taking exercise (STE) was conducted amongst the G20 and FSB participating economies.



The STE focused on CBDC, tokenized deposits and crypto assets, including both stablecoins and unbacked crypto assets.



The survey was structured in three interconnected blocks, namely:

- Regulation,
- Data collection,
- Alternative data sources and availability of estimations.

This exercise is a starting point for discussion with countries on data collection issues.

# State of play: Insights on CBDC



Jurisdictions considering issuing CBDCs, emphasized the importance of data on issuance and holdings due to their potential impact on economic policy.

Establishing a legal and regulatory framework for CBDCs is crucial for countries, primarily due to cross-border usage and its implications, including data sharing requirements.



The data generated and collected for CBDCs will depend on design choices. CBDC models vary across jurisdictions that participated in the survey:

A few economies prefer retail models, while some are testing wholesale models as standalone projects, and another four are piloting them alongside retail CBDCs.



The choice of technology (CCL& DLT or DLT alone) is almost equally distributed among countries.

# State of play: Insights on privately issued crypto assets

- Regulatory framework is still largely absent or under development.
- Some economies have existing or are in process of implementing regulations on crypto assets and stablecoins.
- Some economies ban or significantly limit the use of crypto assets, especially unbacked crypto assets.

## Regulations



Some economies collect or at least plan to collect data/information on crypto assets ecosystem including stablecoins issuers and intermediaries that provide crypto services such as:

- banks,
- crypto exchange,
- digital wallets.

## Data collection



Non-regulatory (alternative) data sources like commercial data play an important role in analyzing crypto assets' ecosystem among respondent-economies.

- In the absence of regular reporting economies also mentioned working on and using estimations on residents' holdings.

## Alternative data sources and estimations



# Data Collection Exercise

## Strategies towards data Collection

### Central Bank Digital Currency



#### Incorporation in SRF/1SR MFS reporting framework

CBDC is a direct central bank liability, which means that getting information on the issuance in a given economy will be straightforward.

Gathering more detailed information, including about holdings of CBDC with identification of the holders' institutional sector, will depend on design choices in each CBDC system, for example on the role of private intermediaries.

### Crypto assets: unbacked crypto assets and stablecoins



#### Feasibility study: exploration of possibilities of data collection and characteristics of data available

Economies are using wide range of data sources that bring some light on different segments of crypto assets ecosystem. Holistic view is currently difficult to get because of features and nature of blockchains (pseudonymity). Crypto assets market is being monitored by economies mostly for *ad-hoc* stability analysis and AML/CFT purposes.

Data availability is relatively low. Some economies rely on flow data from analysis of *on-chain* crypto activity, while some other might have fragmented information on crypto holdings (with regulated intermediaries).



# Data collection: Learning from existing template

## No standard data template or global dataset

Currently no internationally agreed-upon data template or dataset specifically for CBDCs

Several initiatives to track the status of CBDCs including by the BIS



## Useful starting point on data collection: IMF's Monetary & Financial Statistics (MFS)

MFS offers a functional data template for physical currency and other financial instruments

A global dataset with over 170 countries as reporters



## Template for CBDCs

The structure and format of SRFs can serve as a starting point for designing CBDC data templates.

Data on financial instruments in MFS includes detailed breakdowns by counterpart sector and currency.

SRF dimensions can be replicated for CBDCs

# Data needs for MFS: Domestic CBDCs

Currently currency in circulation doesn't have disaggregation by the counterpart holding sector

With CBDCs, identifying the counterpart holding sector may be possible

## Current

**LIABILITIES**

**CURRENCY IN CIRCULATION**

**DEPOSITS INCLUDED IN BROAD MONEY**

DEPOSITS INCLUDED IN MONETARY BASE

TRANSFERABLE DEPOSITS

In National Currency

- Transf. Dep. Other Financial Corporations NC
- Transf. Dep. State and Local Government NC
- Transf. Dep. Public Nonfinancial Corporations NC
- Transf. Dep. Other Nonfinancial Corporations NC
- Transf. Dep. Other Resident Sectors NC

In Foreign Currency

- Transf. Dep. Other Financial Corporations FC
- Transf. Dep. State and Local Government FC
- Transf. Dep. Public Nonfinancial Corporations FC
- Transf. Dep. Other Nonfinancial Corporations FC
- Transf. Dep. Other Resident Sectors FC

OTHER DEPOSITS

In National Currency

- Other Dep. Other Financial Corporations NC
- Other Dep. State and Local Government NC
- Other Dep. Public Nonfinancial Corporations NC
- Other Dep. Other Nonfinancial Corporations NC
- Other Dep. Other Resident Sectors NC

In Foreign Currency

.....  
 .....

## Proposed

**LIABILITIES**

**CURRENCY IN CIRCULATION (PHYSICAL)**

**Central Bank Digital Currency (CBDCs)**

- CBDCs Other Depository Corporations
- CBDCs Other Financial Corporations
- CBDCs Central Government
- CBDCs State and Local Government
- CBDCs Public Non-Financial Corporations
- CBDCs Other Non-Financial Corporations
- CBDCs Households and Nonprofit Institutions Serving Households
- CBDCs Non-residents

**DEPOSITS INCLUDED IN BROAD MONEY AND MONETARY BASE**

TRANSFERABLE DEPOSITS

In Domestic Currency

- Transf. Dep. in BM and MB Other Financial Corporations DC
- Transf. Dep. in BM and MB State and Local Government DC
- Transf. Dep. in BM and MB Public Nonfinancial Corporations DC
- Transf. Dep. in BM and MB Other Nonfinancial Corporations DC
- Transf. Dep. in BM and MB Households and Nonprofit Institutions Serving Households DC

In Foreign Currency

- Transf. Dep. in BM and MB Other Financial Corporations FC
- Transf. Dep. in BM and MB State and Local Government FC
- Transf. Dep. in BM and MB Public Nonfinancial Corporations FC
- Transf. Dep. in BM and MB Other Nonfinancial Corporations FC
- Transf. Dep. in BM and MB Households and Nonprofit Institutions Serving Households FC

OTHER DEPOSITS

In Domestic Currency

- Other Dep. in BM and MB Other Financial Corporations DC
- Other Dep. in BM and MB State and Local Government DC
- Other Dep. in BM and MB Public Nonfinancial Corporations DC
- Other Dep. in BM and MB Other Nonfinancial Corporations DC
- Other Dep. in BM and MB Households and Nonprofit Institutions Serving Households DC

In Foreign Currency

.....  
 .....

# Other projects

# IMF-FSB Synthesis Paper and MCM CBDC Handbook

- **IMF-FSB Synthesis Paper: Policies for Crypto-Assets:**

- Policy and regulatory recommendations by IMF (International Monetary Fund) and FSB (Financial Stability Board).
- Crypto assets implications for: macroeconomic stability (including monetary and fiscal issues, capital flows management measures, payment systems), financial stability and regulatory issues, legal risks, financial and market integrity, environmental issues, followed by discussion on potential high-level policy responses/recommendations, and policy implementation roadmap with emphasis among others on **addressing data gaps** and **developing methodological guidance** for measuring developments in crypto assets ecosystem.



- **MCM CBDC Handbook, chapter on: CBDC Data Use and Privacy Protection:**

- Framework to help countries navigate the trade-offs between CBDC data use and privacy protection in their CBDC projects.
- In-depth discussion on institutional arrangements, data collection, access and storage policies, design choices, and technological solutions in the context of preserving privacy in CBDC systems.
- Elaboration on *privacy-by-design* approach including the use of privacy-enhancing technologies.
- Overview from monetary and financial statistics perspective: The anonymity of private individual information is always preserved as macro statistics operate on aggregated data.



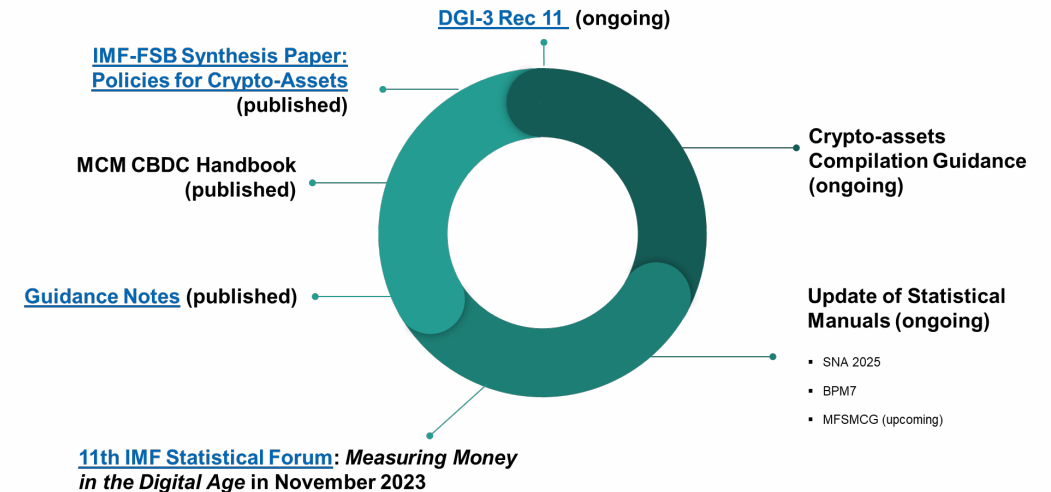
# Key takeaways

# Key Take Aways

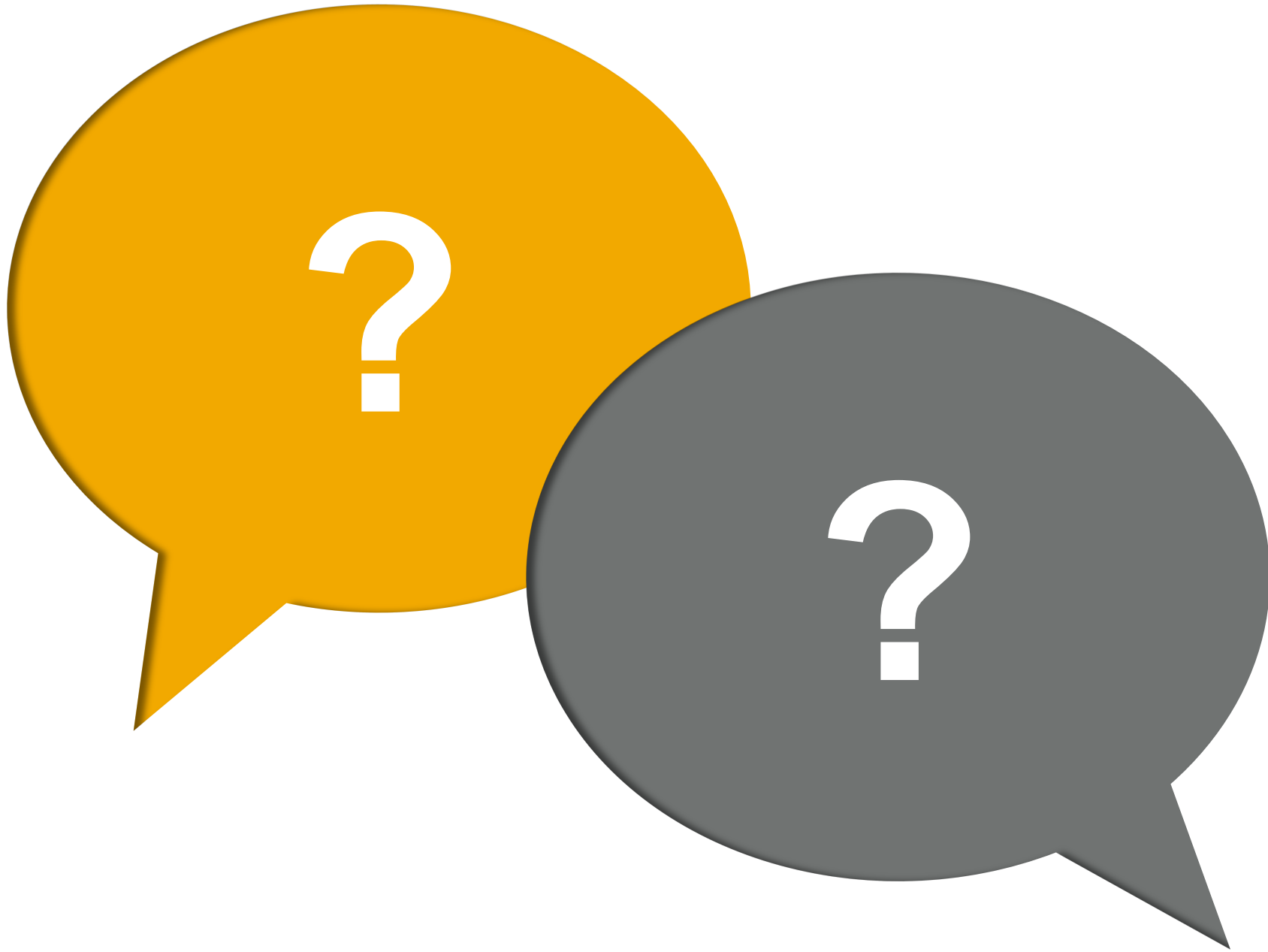
1. STA IMF is contributing to global debate on digital money and crypto assets by:

- coordinating the debate on framework for closing the data gaps,
- contributing to developing the methodology for recording digital money and crypto assets in the macroeconomic statistics,
- providing inputs for policy focused projects.

2. Due to fast-changing markets and rapid technological advancements, the projects described in this presentation will be continued and recommendations might be updated periodically, according to the future developments.



**Thank you**





# Appendix

# Appendix – Basic Definitions

**Crypto assets (CA)** are digital representations of value that rely on cryptography and decentralized peer-to-peer architecture based on distributed ledger technology (DLT), which enables two parties to directly transact with each other without the need for a trusted intermediary.

**Unbacked CA (BTC-like)** - crypto assets that do not represent any corresponding liability and do not have any mechanism for stabilization of their price. In GN. F.18 referred to as crypto assets without a corresponding liability designed to act as a general medium of exchange (CAWLM).

**Backed stablecoins (collateralized outside the CA ecosystem)** - crypto assets that aim to maintain a stable price relative to a specified asset or a pool of assets, backed by traditional assets, in particular financial ones. The backing assets can be fiat currencies, bank deposits, short-term debt instruments.

**Backed stablecoins (collateralized by CA)** - stablecoins backed by crypto assets, usually backing assets are BTC-like CA, with the aim to maintain stable price to the specified basket of CA.

**Algorithmic stablecoins** - separate category of crypto assets - unbacked, but with similar goal to stablecoins i.e., to maintain a stable value, however through protocols that adjust the supply of stablecoins in response to demand changes.

# Important DGI links

- *G20 DGI-3 Workplan People Planet Economy*, March 2023: [link1](#)
- *G20 DGI-3 Global Conference Key Messages*, June 13-15, 2023: [link2](#)
- *People. Planet. Economy. Third Phase of the G20 Data Gaps Initiative (DGI-3) First Progress Report*, October 2023: [link3](#)

