



FINTECH

NOTES

Central Bank Digital Currency and Other Digital Payments in Sub-Saharan Africa A Regional Survey

Luca Antonio Ricci, Calixte Ahokossi, Anna Belianska, Khushboo Khandelwal, Sunwoo Lee, Grace Li, Yibin Mu, Saad Noor Quayyum, Silvia Nunez, Jack Ree, Marcos Rietti Souto, and Felix Simione

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March 2024

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Abbreviations

AML	anti-money laundering
API.....	Application Programming Interface
BCEAO	Central Bank of West African States
BCRG	Central Bank of the Republic of Guinea
BEAC.....	Bank of Central African States
BIS.....	Bank for International Settlements
BNR.....	National Bank of Rwanda
CBDC	central bank digital currency
CBK	Central Bank of Kenya
CEMAC	Economic and Monetary Community of Central Africa
CFT	combating the financing of terrorism
CLT.....	central ledger technology
COMESA...	Common Market for Eastern and Southern Africa
DLT.....	distributed ledger technology
DPS	digital payment systems
EAC	East African Community
FPS	fast payment system
GDP.....	gross domestic product
GSC.....	global stablecoin
IT	information technology
IMF	International Monetary Fund
PSP	payment service providers
KYC	know your customer
TA.....	technical assistance
WAEMU.....	West African Economic and Monetary Union

Executive Summary

The Sub-Saharan Africa Central Bank Digital Currency (CBDC) and Digital Payments Survey takes stock of developments in CBDCs, private digital money, and crypto assets across sub-Saharan Africa. The initiative aims to gain insights into the concerns, preferences, plans, and policy considerations of country authorities. As such, it offers peer-learning opportunities for central banks and informs the IMF's analytical agenda and policy advice. It also lays a foundation for a forthcoming paper on associated policy challenges in countries in sub-Saharan Africa (IMF Departmental Paper, forthcoming).

Participation in the survey was very high, with substantial interest in engaging in CBDC work.

Thirty of the 33 central banks in sub-Saharan Africa responded to the survey. The results reveal that more than 75 percent of the countries surveyed are engaged in—or are planning to engage in—CBDC research or pilot activities. Of these, roughly two-thirds are in the research phase, and slightly over one-third are planning to conclude their CBDC pilot programs within the next two years. Notably, more than a quarter of surveyed countries are actively preparing to launch a CBDC by 2028. Countries not engaged in CBDCs are waiting for broader international experience and are relying on existing payment systems.

Financial inclusion and efficiency in domestic payments are the most dominant motivations for CBDC adoption. In addition, several countries acknowledge the potential benefits of reducing cash-related costs, fostering competition within the payment system, modernizing government-to-person and person-to-government payments, and strengthening the transmission of monetary policy. Interestingly, the decline in cash transactions witnessed during the pandemic and the progressive emergence of crypto assets have underscored concerns about monetary sovereignty, further emphasizing the need for efficient and modern payment alternatives. More than 60 percent of respondents noted that these factors accelerated the planning around CBDCs and the development of other digital payment systems.

Central banks are at varying stages of CBDC design and development. Most central banks are in the research phase. Survey responses indicated a strong interest in both retail and wholesale CBDCs, driven by the desire to facilitate financial inclusion and cross-border payments. Most central banks expressed a preference for a hybrid operation model where central banks issue a CBDC and delegate intermediaries to interact with retail customers, aiming to strike a balance between ensuring financial stability and minimizing disintermediation risk. Regarding CBDC types, the survey highlights the consideration of token-based and account-based designs. Some central banks are exploring distributed ledger technology (DLT) for CBDC implementation. Shared concerns, crucial for most central banks, include interoperability with existing domestic payment systems and collaboration between jurisdictions.

Legal challenges pose a significant hurdle to CBDC issuance. Indeed, legislative changes may be necessary in many countries. The legal challenges are mostly related to CBDC liability and chain of custody, although indemnity, political, and data integrity concerns were also raised as potential roadblocks. As a result, most interested central banks have not finalized plans for CBDC issuance, and a few are actively analyzing associated costs and considering legislative amendments.

Improving payment efficiency and facilitating remittances are identified as the main benefits of CBDCs, which are expected to enhance payment efficiency, reduce transaction costs, and promote

competition within payment systems. Furthermore, it is anticipated that CBDCs will play a central role in facilitating remittances, with cost reductions expected to benefit users. Survey responses reflected a belief that CBDCs will complement existing mobile money services, particularly by fostering interoperability across platforms.

Sub-Saharan Africa faces multiple challenges in the potential development and implementation of CBDCs, including limitations in human capital resources and physical infrastructure, cybersecurity risks, interoperability issues, and the necessity for effective public-private partnerships. Trust, reputational risks, and bank disintermediation are also areas of concern. Central banks anticipate bearing a significant portion of the costs associated with the development and operation of CBDCs.

Fast payment systems and e-Money (such as mobile money) are considered as quick wins in sub-Saharan Africa, with CBDC remaining predominately in the exploration stages. About two-thirds of countries are in the process of implementing or considering fast payment systems that are mostly accessible through mobile phones or the internet. The survey also highlights the current prevalence of mobile money services (including to make cross-border payments), and central bank authorities are looking to strengthen the mobile money payment system. Mobile money is primarily backed by bank deposits and regulated by central banks. Interoperability across different mobile money providers remains a challenge in many countries.

The use of crypto assets is limited and concentrated in a few countries, and central banks have not established regulatory frameworks for them. The adoption of crypto assets for payment purposes remains limited in the region, with most usage reportedly centered around speculation and value storage. Regulatory frameworks for crypto assets are underdeveloped in most countries. Furthermore, the integration of crypto assets into national payment systems is limited. In this context, regulation is not meant to encourage crypto usage, but to guard against financial and monetary stability risks.

Country authorities unanimously expressed the desire for future engagement with the IMF on these issues. Several central banks expressed interest in future possible technical assistance and analytical support on various aspects of CBDCs, including risk assessments, legal frameworks, consumer protection, infrastructure requirements, and the sharing of cross-country experiences. Survey responses indicate enthusiasm for participating in a multi-country pilot network group organized by the IMF to further explore issues and discuss policies related to CBDC and other digital payment systems.

The survey offers a comprehensive understanding of the evolving landscape surrounding digital currencies and payment systems across the region. It underscores the current role of private digital payment systems and the potential importance of CBDC development in addressing financial inclusion, enhancing payment efficiency, and encouraging competition while addressing unique challenges in each country. These valuable insights will guide our efforts to support central banks in their design of policies related to digital payments and finance, and foster collaboration across nations.

Introduction

The digital landscape across Sub-Saharan Africa has witnessed a dynamic transformation in recent years, with the emergence of private digital money, the usage of crypto assets, and the development of a CBDC. The “Sub-Saharan Africa CBDC and Other Digital Payments Survey” is an initiative designed to comprehensively assess these developments in sub-Saharan Africa while delving into the perspectives, priorities, and policy considerations of regional authorities. The survey, launched in February 2023, was sent to all 33 central banks in the region, including currency unions, and responses were received by April 30, 2023.¹

The survey has the widest coverage of countries in sub-Saharan Africa compared to existing surveys and contributes to the growing literature on CBDCs and other digital payment systems. The Bank for International Settlements (BIS) has been running similar surveys—focusing on CBDC and crypto assets—for a broad set of countries across the world; however, their survey covers less than half of the central banks in sub-Saharan Africa (BIS 2022 and BIS 2023). An IMF survey covering broadly similar issues for Asia-Pacific countries was conducted in 2022 (Jahan and others 2022). Compared to these surveys, the sub-Saharan Africa survey covers not only almost all countries in the region, but a broader set of issues, with a wide range of questions (see Appendix II). Overall, the survey contributes to the growing literature on digital money in general, which includes extensive and recent work at the IMF (see for example IMF 2020, 2021, and 2023a). More generally, the IMF is also providing capacity development in the form of technical assistance (TA) and a [Virtual CBDC Handbook](#) (IMF 2023b) to help countries understand the key steps, as well as how to navigate through a broad set of technical and policy considerations for exploring or adopting a CBDCs.

The high response rate to the survey testifies to the interest of country authorities in the topic (Appendix I). Approximately 90 percent of the central banks, 30 out of 33 central banks, responded to the survey, including Nigeria,² which has issued a CBDC.³ The survey responses provide a valuable resource for peer learning among central banks and an opportunity to guide the formulation of pertinent policy recommendations.

This Fintech Note reports key findings from the survey, shedding light on the motivations, benefits, and challenges of CBDC adoption, as well as the developments of digital private money and crypto assets in sub-Saharan Africa. It emphasizes the pivotal role of collaboration and shared knowledge in navigating the intricate landscape of digital currencies and assets in sub-Saharan Africa. As

¹ These comprise the Central Banks from Angola, Botswana, Burundi, CEMAC, Cape Verde, Comoros, Eswatini, Ethiopia, Gambia, Ghana, Guinea, Kenya, Liberia, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Nigeria, Rwanda, Sao Tome and Principe, Seychelles, Sierra Leone, South Africa, South Sudan, Tanzania, Uganda, WAEMU, Zambia, and Zimbabwe. The only three SSA countries that did not complete the survey are Democratic Republic of Congo, Eritrea, and Lesotho.

² Please see Nigeria’s experience with more details (Ree 2023).

³ There was only one survey response per currency union for the two unions (the CEMAC and WAEMU), thus with two central banks covering 14 countries in total.

this evolving digital frontier is explored, the experiences and aspirations of the region's central banks, as expressed in the survey, will help harness the potential for digital currencies, assets, and payments, and foster cooperation among countries in sub-Saharan Africa. A forthcoming IMF Departmental Paper will focus on key issues for countries in sub-Saharan Africa pertaining to CBDCs, private digital payments, and crypto assets. It will provide a deeper discussion of the benefits, costs, and risks of these digital payment systems and present policy options to enhance financial digital development and inclusion, while safeguarding macroeconomic and financial stability.

The note follows the structure of the survey and is organized into the following sections. Section I examines the current developments of CBDCs in sub-Saharan Africa. Sections II to VI delve into the motivations, design, issuance, benefits, and challenges of CBDC adoption. Section VII discusses fast payment systems (because they share some desirable features with CBDCs), and Section VIII covers mobile money and e-Money. Section IX explores the landscape and regulation of crypto assets. Section X addresses central banks' engagement with the IMF and policy discussions. Finally, Section XI draws conclusions from the key policy discussions in the paper. Appendix I reports on the country coverage of the survey and Appendix II offers the detailed list of questions in the survey.

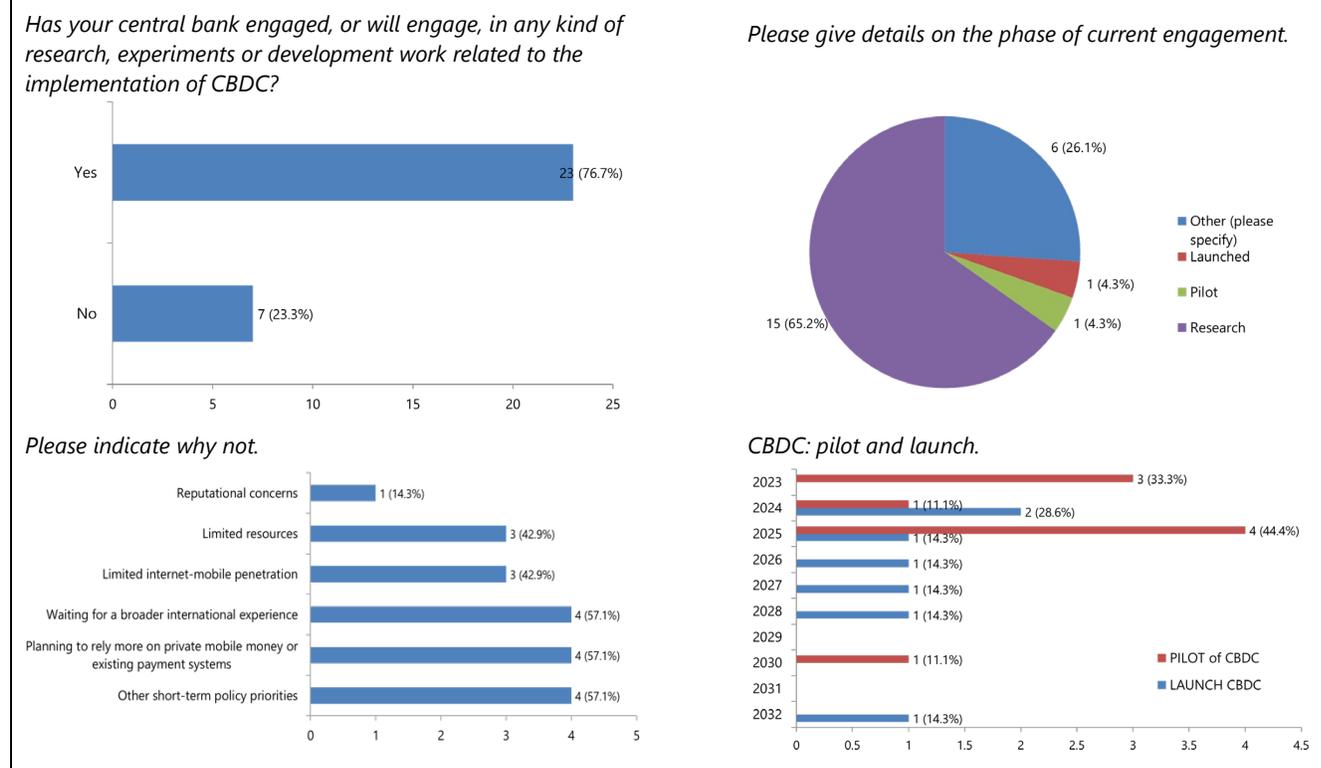
I. CBDC Stage

The survey revealed substantial interest in engaging in CBDC development. Of the 30 respondents, 23 indicated that their central bank has already engaged in or will engage in some kind of research, experiments, or developmental work related to the implementation of CBDCs. This result is broadly similar to the BIS survey, which found that 93 percent of central banks have considered undertaking CBDC work.

While most countries engaging in CBDC work are focused mainly on researching the topic, several others have concrete plans to complete their pilot or launch a CBDC in the next few years. Of the countries already engaging in CBDC work, about 67 percent are undertaking research related to CBDCs. Several countries are experimenting with pilots, sandboxes, and other tests, and a few countries plan to begin a pilot in the coming years. A little over 25 percent (6 out of 23) are planning to launch their own CBDC within the next five years, with Nigeria having launched the e-Naira in October 2021.

Countries that do not intend to engage in any CBDC work for now have indicated that they either are focusing on other short-term policy priorities, or prefer to wait and see the results of other countries' experience on the adoption of a CBDC. Over half of these countries prefer to prioritize private mobile money or other existing payment systems.

Figure 1. Setting the Stage to Engage in CBDC Work



II. Motivation for CBDC Exploration

Financial inclusion and the efficiency of domestic payments were the primary driving factors for contemplating a CBDC. Ninety percent of central banks responded that these two factors were motivations for engaging in or considering CBDC development. Additionally, payment safety and cross-border payment efficiency were cited by 70 percent and 57 percent of central banks, respectively, as motivations. Other reasons included reducing cash-related costs, modernizing government-to-person (G2P) and person-to-government (P2G) payments, and enhancing monetary policy transmission. Moreover, when asked about the extent of the importance of the various factors, financial inclusion and efficiency in domestic payments were also deemed as “very important” by about 2/3 of central banks, whereas only about 1/3 of central banks considered cross-border payments efficiency as “very important.”

A change in cash usage does not appear to be a factor for considering CBDCs in most countries in the region, because many respondents do not see a decline of cash usage. The assumption here is that if there is a decline in cash usage, central banks may consider adopting CBDCs as a supplement or an alternative to cash. However, over 80 percent of respondents have not observed a decrease of cash in circulation. Furthermore, over two-thirds of respondents do not anticipate a decline of cash in use over the next six years. Only 17 percent of central banks (5 out of 30) reported that the amount of cash has been significantly declining. Indeed, some central banks noted changes in payment patterns over

recent years, such as a slow decline in cash payments, and increasing acceptance and usage of card payments, following the expansion of interbank networks.

Most respondents estimated that the emergence of crypto assets and the pandemic have accelerated the planning of CBDC development. Growing interest in private crypto assets has raised concerns among central banks about monetary sovereignty. About 40 percent of respondents noted that the COVID-19 pandemic has accelerated the planning of CBDC development, with the aim of complementing cash and in-person payments, supporting social distancing, and enabling access to central bank money in times of emergency. There was also an increased need for more efficient government transfers and the decongestion of banks during the pandemic.

Most central banks consider trust, internet penetration, and financial literacy to be key factors for the successful adoption of CBDCs by the public. More than 90 percent of respondents agree that trust of the public and internet and mobile penetration are key factors for CBDC adoption. Furthermore, for successful adoption, some central banks emphasized the importance of public awareness and the need for a well-established business case.

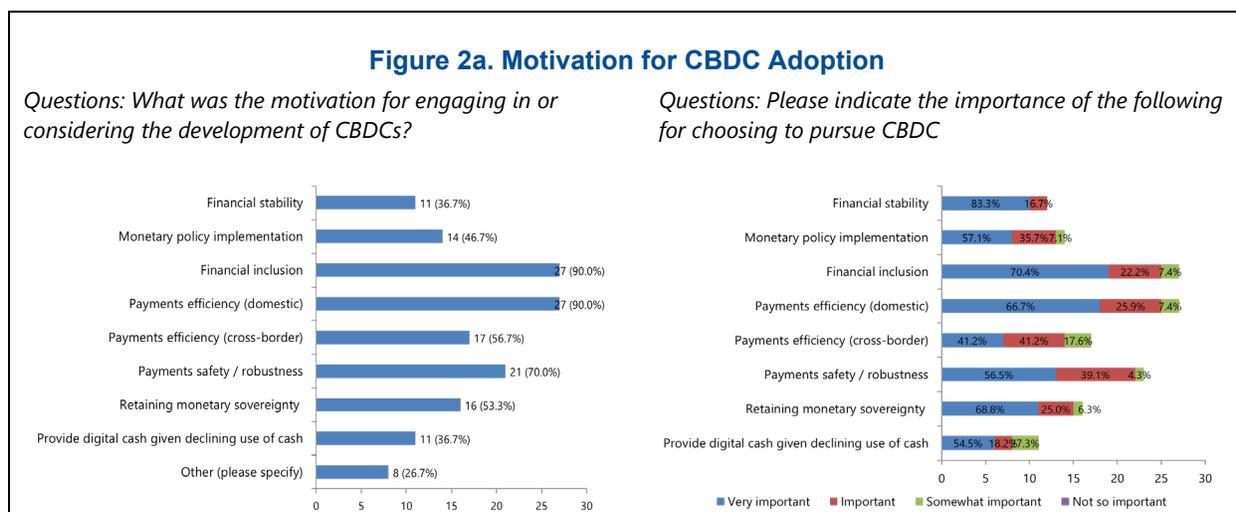
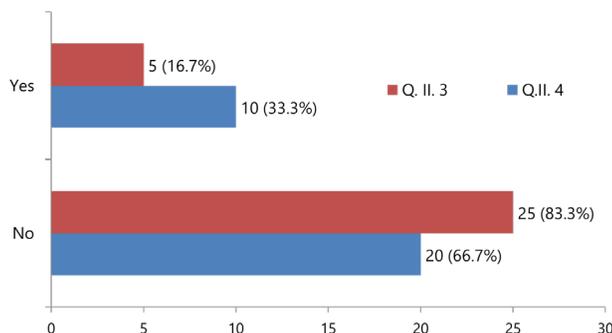
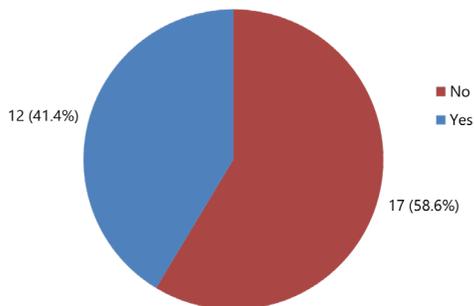


Figure 3b. Motivation for CBDC Adoption

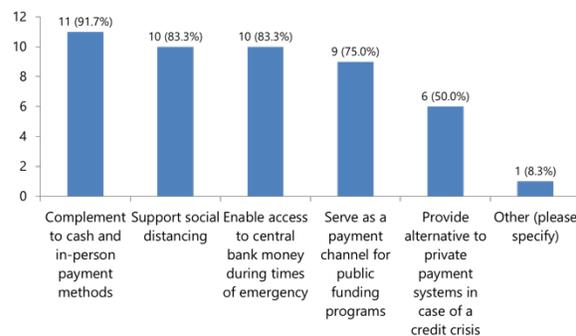
Q.II.3: Has the amount of central bank-issued cash in circulation been significantly declining?
 Q.II.4: Do you expect the amount of central bank-issued cash in circulation to significantly decline in the medium term (within six years), assuming no action is taken by the central bank or public authorities?



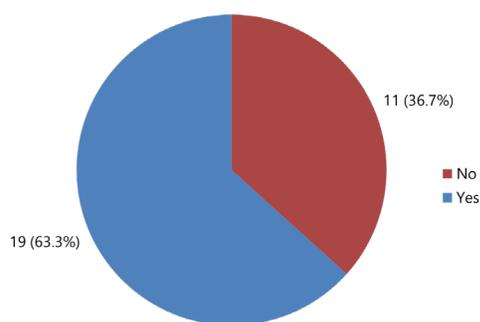
Questions: Has the COVID-19 pandemic accelerated the planning for CBDC development?



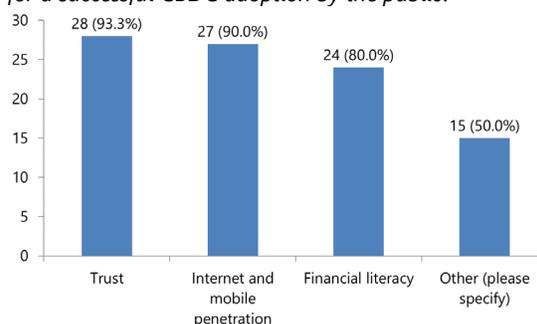
Questions: Please indicate why.



Questions: Has the emergence of crypto assets accelerated the planning for CBDC development?



Questions: What do you expect would be the key factors for a successful CBDC adoption by the public?



III. CBDC Design

Research in CBDCs is ongoing in most countries and there is no consensus on preferred design features.

While most central banks are at the research stage, nearly 60 percent of them are potentially interested in both retail and wholesale CBDCs.⁴ However, nearly 40 percent of respondents prefer a retail CBDC, with only less than 4 percent interested in just a wholesale CBDC. The facilitation of financial inclusion is cited as the main motivation for *retail* CBDCs by some countries, while more efficient and less costly cross-border payments are also cited as the main motivation for *wholesale* CBDCs.

Most central banks prefer a hybrid operation model where the central bank issues CBDCs and delegates intermediaries to interact with retail customers. Central banks believe that the hybrid model, with both centralized and decentralized features, offers several advantages, which include preserving financial stability by minimizing disintermediation risk; using efficiently and inclusively—while also improving—the expertise of third-party entities (such as commercial banks) in dealing with end-users; and keeping operational burden for the central bank low. For instance, some countries, have envisioned their “preferred” system as having a centralized issuance component at the central bank, with the distribution being decentralized. In contrast, a direct operation model is preferred by a few central banks, because they prioritize the minimization of third-party risks.

More than 80 percent of central banks would consider imposing a cap or limits on individual holdings of CBDC, and in terms of CBDC format, there is no clear preference between account-based or token-based CBDCs. CBDCs can be made available to the public through tokens or accounts, and respondents generally believe that both forms can help preserve system integrity and security to a certain extent, but with some differentiation. Token-based CBDCs can provide a certain level of privacy and anonymity in transactions. Users can generally make peer-to-peer transactions without revealing their identity to the parties involved. Transactions in an account-based CBDC system are typically linked to the identity of the account holder, enhancing traceability of compliance with regulatory requirements. This can facilitate the application of anti-money laundering/combating the financing of terrorism (AML/CFT) measures (such as due diligence) to promote financial integrity.

As for the underlying CBDC technology types—distributed ledger (DLT) or conventional (centralized ledger) technology (CLT)—there is no clear preference for one over the other. Some

⁴ For the purpose of the survey, the following definitions were adopted: a retail CBDC can be used by individuals to pay for retail transaction, or between each other; while wholesale CBDC is used between financial institutions to settle transactions in financial markets.

central banks would consider implementing DLTs (note that the Central Bank of Nigeria has adopted a specific type of DLT, Hyperledger, for its eNaira system), while others would consider centralized ledgers. Additionally, a CBDC's offline capability is considered particularly important by several countries and in a few cases has even successfully been put into tests.

Given the limited technical capabilities in most central banks, nearly 90 percent of surveyed central banks intend to engage with private sector partners for implementing CBDCs. The private sector's role is envisioned to include support for distribution, promotion of adoption, and provision of technology solutions. While most central banks are still in the internal research stage, three central banks have already initiated an engagement with external technology providers. Nevertheless, some central banks have opted to leverage internal resources and minimize the reliance on external parties.

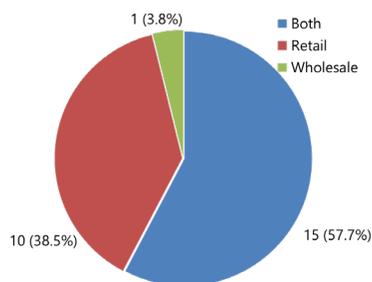
Most central banks prefer a non-interest-bearing CBDCs. The common motivation behind an interest-bearing CBDC is to improve monetary policy transmission. However, some central banks consider a non-interest-bearing CBDC as preferred, because it would allow the CBDC to operate in a similar way as cash and would preserve monetary policy passthroughs by avoiding excessive deposit withdrawals from the traditional banking system (hence preventing bank disintermediation).

Both international and domestic interoperability is deemed critical. International interoperability among CBDCs could be achieved through multilateral agreements and between-country cooperation, as well as through sharing experiences on AML/CFT, standards, rules, and regulations. Domestic interoperability would need to be achieved with existing payment systems, in particular, between mobile money, bank accounts, and domestic instant payment systems.

Despite being at the research stage, the overwhelming majority of central banks count on the development of international collaboration and agreements to safeguard IT/cybersecurity and data privacy. Establishing stringent domestic cybersecurity policy is important. For instance, some countries have domestic regulations for intermediaries to ensure compliance with industry standards; and they leverage privacy-preserving technologies. In the meantime, regarding the privacy framework, the tiered know your customer (KYC) framework (which collects different data for different categories of accounts) enables users to choose the amount of information they wish to share when registering an account. Tiers associated with lower requirements of information about users are typically more stringent on the type and size of transactions allowed. The tiered system can sometimes allow participants without national identification to benefit from CBDCs while minimizing money laundering risks.

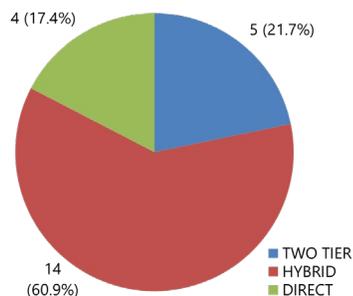
Figure 4a. CBDC Design and Characteristics

Question: What type of CBDC are you interested in?



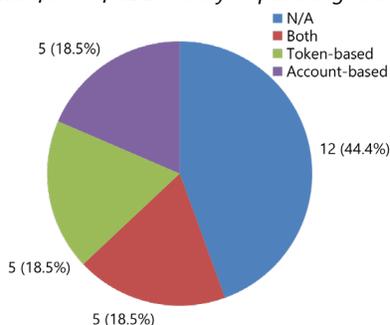
Note: **Retail CBDC**: a form of CBDC that is widely accessible to the public for retail transactions (like cash); **Wholesale CBDC**: a form of CBDC that is used to settle transactions among financial intermediaries and is not widely accessible to the public.

Question: What's the CBDC's operation model (based on BIS terminology)?



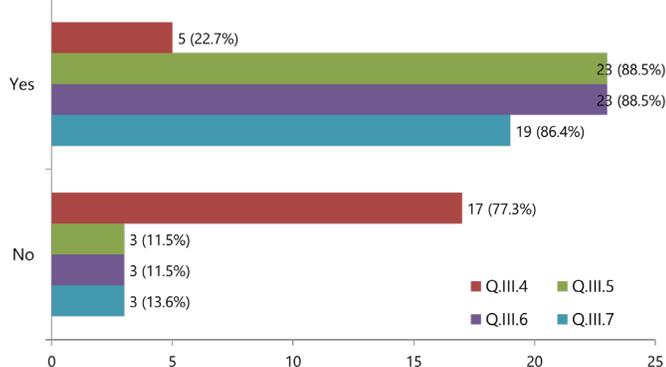
Note: **TWO TIER**: intermediaries issue CBDC (for retail use) backed by central bank's wholesale CBDC issued to them; **Hybrid CBDC**: Central bank issues CBDC & delegates intermediary to interact with retail; and, **DIRECT** (one-tier) CBDC: Central bank issues CBDC & performs all functions in the CBDC system.

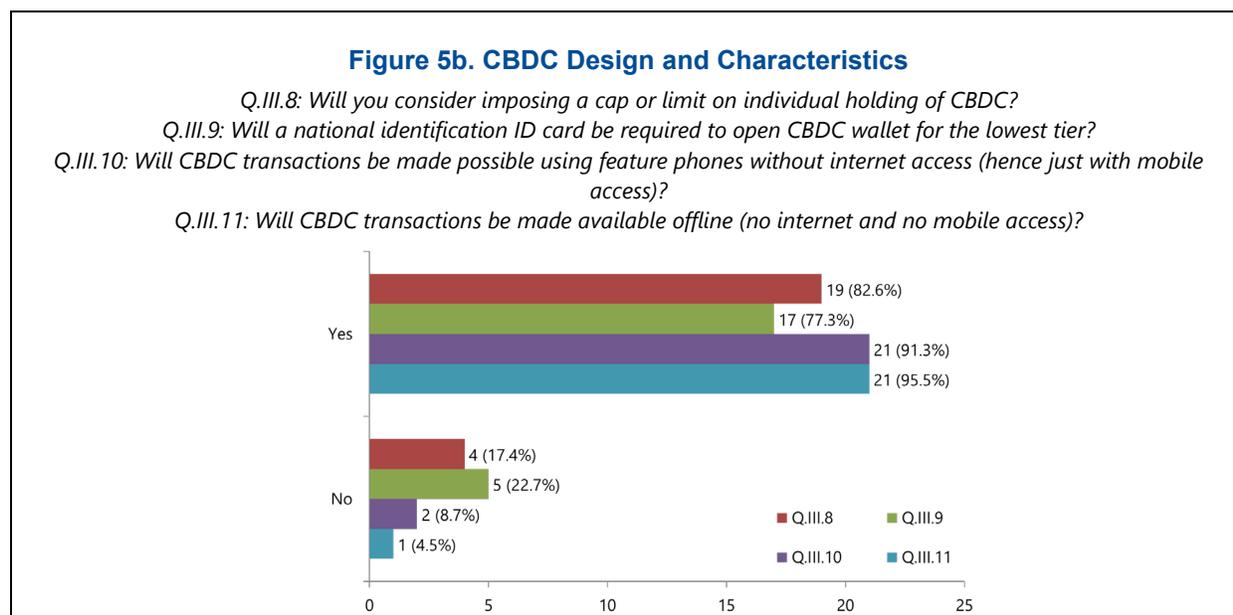
Question: Which form of CBDC are you planning to implement?



Note: **Token-based CBDC**: a form of CBDC where transactions involve the transfer of an object (namely, a digital token) between wallets; **Account-based CBDC**: a form of CBDC where transactions involve the transfer of claim recorded on an account.

- Q.III.4: Will you consider opting for an interest-bearing CBDC?
- Q.III.5: Do you intend or anticipate your CBDC to be (or needing to be) interoperable in future with other countries' CBDC?
- Q.III.6: Will you be working with private sector partner(s) in implementing CBDC?
- Q.III.7: Will people be able to use CBDC without opening bank accounts?





IV. CBDC Issuance

While most countries are considering issuing a retail or wholesale CBDC, they do not expect it to happen in the near term. About ¾ of the countries responded that their central banks will very likely or somewhat likely issue a wholesale CBDC. An even larger share (>95 percent), believe their central bank will either be very likely or somewhat likely to issue a retail CBDC. However, most countries expect to issue a CBDC only within four to six years.

There are legal challenges to the issuance of a CBDC in many countries.⁵ Several central banks (at least 55 percent) would need to change their laws first before issuing a CBDC. The legal challenges to issuing a CBDC are mostly related to liability (for ⅓ of the countries) and chain of custody issues (for half of the countries). Only ⅓ of the countries cited indemnity as a potential key legal challenge.

But some countries also reported other important potential legal challenges. For instance, for several countries, political economy and data integrity/confidentiality were mentioned as potential legal challenges. In some countries, current legislation specifically refers to notes and coins as legal tender, requiring relevant laws to be amended for the issuance of a CBDC.

In other countries, however, the existing legislation either already accommodates the issuance of a CBDC or is already in the process of being changed for that purpose. One-third of countries indicated that their central banks already have the legal authority to issue a CBDC. In one case, some

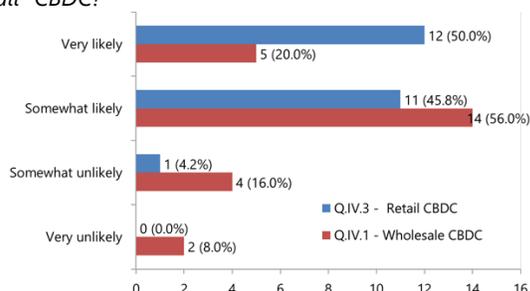
⁵ See Bossu and others (2020) for a detailed discussion.

flexibility is provided by the current law, which specifies that banknotes and coins issued by the central bank are the sole legal tender, but the central bank may issue other forms of currency as legal tender.

Figure 6. CBDC Issuance

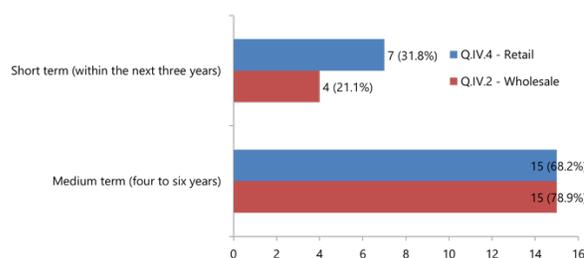
Q.IV.1: How likely is it that your central bank will issue a "wholesale" CBDC?

Q.IV.3: How likely is it that your central bank will issue a "retail" CBDC?

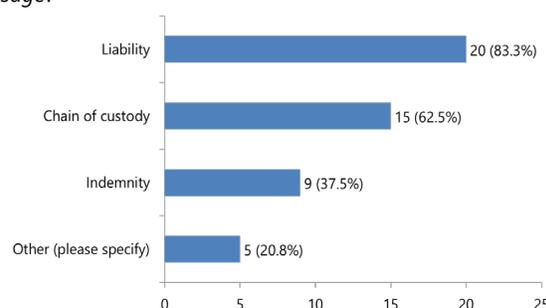


Q.IV.2: What is the time horizon? – Wholesale

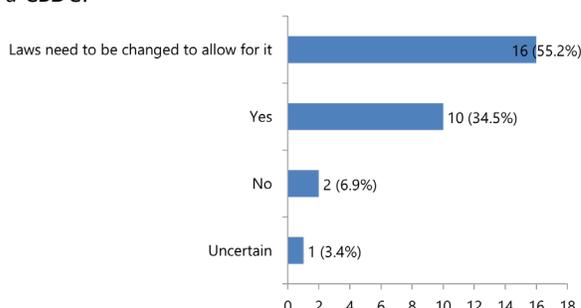
Q.IV.4: What is the time horizon? – Retail



Questions: What are the key legal challenges you envisage?



Questions: Does your central bank have the legal authority to issue a CBDC?



V. CBDC Benefits: Efficiency and Remittances

Efficiency

Central banks in sub-Saharan Africa view domestic payment efficiency (along with financial inclusion) as a major motivation for a retail CBDC and envisage CBDCs as complementary with mobile money. More than 95 percent of central banks considered CBDCs as a complement or an opportunity to expand mobile money use. Few central banks (less than 5 percent) considered CBDCs as a potential substitute to mobile money, with existing mobile payment infrastructure being used as distribution points for CBDCs. The complementarity and synergy with existing mobile money are mainly expected to arise from CBDCs functioning both as: (1) a bridge for interoperability between different

mobile money operators,⁶ and (2) a safer store of value (as a central bank’s risk-free liability)—which would contribute to enhancing the overall efficiency of sub-Saharan Africa’s payment systems, particularly considering their heavy reliance on mobile money. Consistent with this, most central banks expect CBDCs to help reduce transaction time and costs associated with financial payments. Expected **cost** savings were assessed either in the range of 5 to 30 percent (33 percent of respondents) or even 30 to 60 percent (46 percent of the respondents). About half of the respondents assessed that **time** savings will be very significant (over 60 percent).

Remittances

The potential of using CBDCs for remittances is attracting interest from central banks in sub-Saharan Africa. The recent expansion in cross-border use of digital money—for example, China’s Alipay credits used by customers outside China⁷ or discussions on the global stablecoin (GSC)⁸—and the Group of Twenty’s drive on remittance transfer cost reduction have increased interest in the potential use of CBDCs for cross-border payments.⁹ Central banks in sub-Saharan Africa seem to be interested in the potential use of CBDCs to reduce the costs of remittance transfers (see Section II). However, only 19 percent (5 central banks) envisage an independent (or unilateral) approach for the use of CBDCs in remittances—for example, by giving foreign international money transfer operators direct access to the domestic CBDC system¹⁰ as in Nigeria.¹¹ Indeed, 80 percent of respondents (21 central banks) would like to attain this goal by participating in a multi-currency CBDC system—seemingly hoping to leverage global or regional developments. In terms of the expected cost reduction of remittance transfers enabled by a CBDC, a quarter of the central banks expected it to be “very significant” (over 60 percent), while the rest of the central banks are equally split between a significant (30 to 60 percent) or moderate (5 to 30 percent) cost reduction.

⁶ For further details see pages 16–19 in [Ree \(2023\)](#).

⁷ For details see <https://www.scmp.com/presented/tech/topics/new-frontiers-digital-payments/article/3211225/how-alipay-cross-border-payment-solution-makes-it-easier-use-existing-e-wallets-around-world>.

⁸ GSCs are stablecoins, a type of private digital money issued by Big Techs with the potential for widespread adoption (IMF 2020 and FSB 2023).

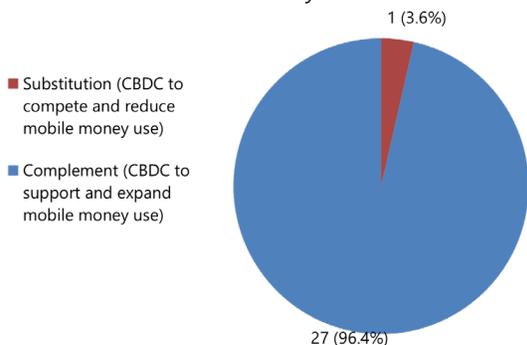
⁹ Projects that are assessing the cross-border dimension of CBDCs include a pilot multi-CBDC platform by BIS and various central banks (Australia, Malaysia, Singapore, and South Africa; see BIS [2022]).

¹⁰ As shown Nigeria’s eNaira, an independent approach for the use of a CBDC for remittances can be complemented by a multi-currency CBDC approach by designing the technological model used for an individual CBDC system in such a way that it may be interoperable with other CBDC systems (For further details see page 20 in [Ree \(2023\)](#)).

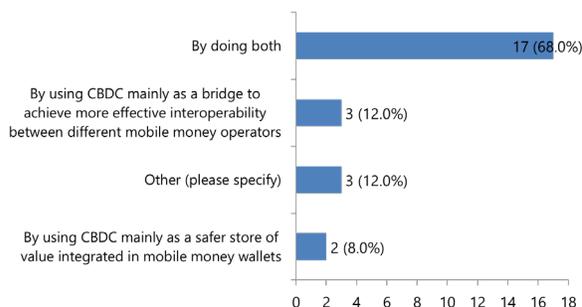
¹¹ The Central Bank of Nigeria published an “[operational framework for eNaira payment option to recipients of diaspora remittance](#)” on Jul 15, 2023, based on this approach.

Figure 7a. CBDC Benefits: Efficiency and Remittances

Questions: What would be the envisaged relationship between CBDC and mobile money?

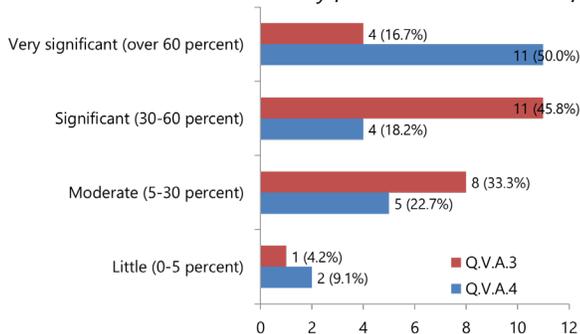


Questions: How would CBDC and mobile money synergize with each other?

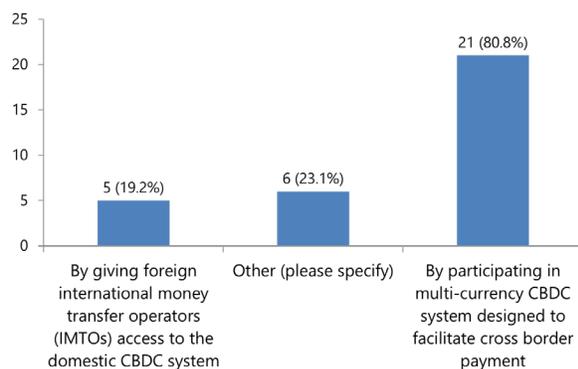


Q.V.A.3: Please indicate the expected reduction in the customer cost of financial payments from the creation of CBDC.

Q.V.A.4: Please indicate the expected reduction in the time necessary for transactions to clear from the creation of CBDC.



Questions: How do you envisage CBDC to be used for remittances?



Questions: Please indicate the expected reduction in the customer cost of remittance to be made from the use of CBDC for remittance.

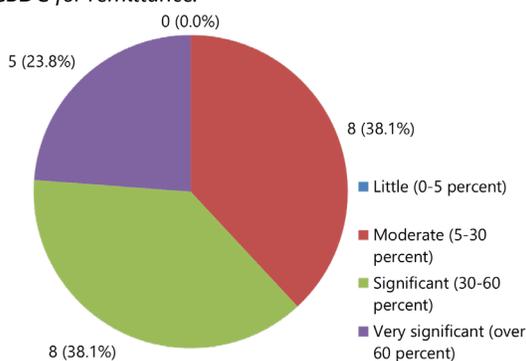
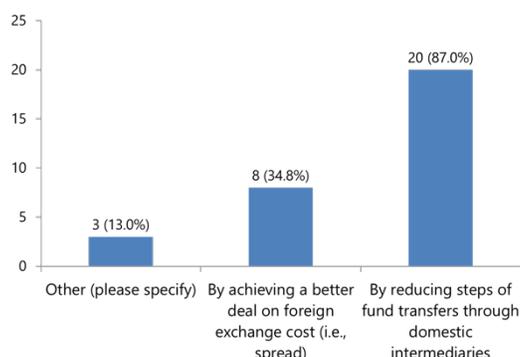


Figure 8b. CBDC Benefits: Efficiency and Remittances*Questions: Where would the cost saving come from?*

VI. CBDC Challenges

Expected Challenges in CBDC Exploration

Countries in sub-Saharan Africa face multiple complex challenges if they choose to develop and implement a CBDC. Key challenges include the lack of human resources and technological infrastructure necessary for CBDC projects (raised by 96 percent of respondents), followed by cybersecurity risks (88 percent of respondents), and interoperability and public-private partnerships (63 percent of respondents). Other challenges highlighted by surveyed central banks comprise low internet and technology penetration, low financial literacy, concerns over commercial banks' reluctance to adopt a CBDC due to disintermediation risks, larger-than-expected human and system resources required for CBDC projects, the length of time for the private sector—notably private intermediaries—to comprehend benefits of a CBDC, and reputational risk—that is, the ability of the central bank to maintain public trust during the adoption process. Since most countries are in the exploratory phase, respondents generally indicated that potential challenges have not yet been profoundly analyzed.

Addressing these challenges will require a multi-pronged approach. Central banks plan to address the expected challenges mainly through capacity building, collaboration with stakeholders, and the establishment of regulatory frameworks, including in the cybersecurity area. In addition, the respondents deemed it necessary to enhance internet penetration, financial literacy, and inclusion, and to modernize technological infrastructure, data protection, and cybersecurity according to international standards.

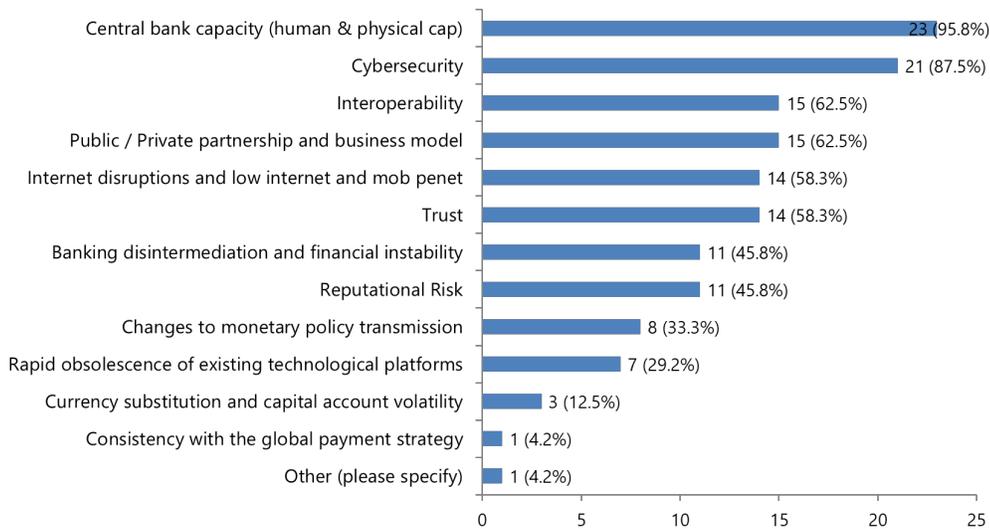
Central banks generally expect to bear the cost of CBDC development and operation, at least partially, but they have not yet estimated these costs. Two-thirds of central banks indicated that they would hire external technical consultants to help with CBDC projects. Estimates of the total costs, either of developing and operating a CBDC, or of related infrastructure, are not available yet because central

banks are either conducting research to estimate these costs or have not yet taken a decision to develop a CBDC. Nevertheless, a few central banks do hold estimates of the CBDC-related costs which range from \$1 million to \$3 million for development, \$100,000 to \$500,000 for annual operating costs, and \$800,000 to \$3 million for central bank infrastructure (these figures should be considered as indicative because they reflect responses from only a few central banks and are highly preliminary). Regarding the cost for additional needed national infrastructure (for example, for internet or mobile networks), the estimates depend on the country's size and are surrounded by uncertainty not least because the cost would be heavily dependent on the set up of data centers.

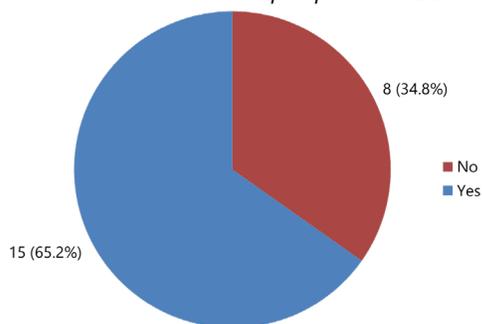
While an estimate of the number of necessary staff for CBDC projects is not known yet, respondents anticipate the need to hire additional staff or retrain existing staff. Central banks see the need for experts in the following areas: economics, information technology, cybersecurity and legal issues, payment systems, and risk management. Expectations of the number of staff are generally dependent on the size of the central bank, with large central banks envisaging possible needs of more than 100 new staff, while smaller central banks consider the needs at one or two dozen additional staff.

Figure 9. CBDC Challenges

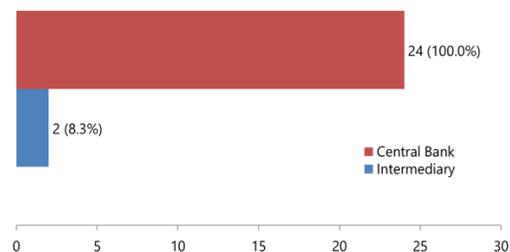
Questions: What are the main challenges you are facing in developing and implementing CBDCs?



Questions: Are you hiring any external consultants or technical advisors to help implement CBDC?



Questions: Who will bear the costs to develop and operate the CBDC program?



VII. Fast Payment Systems

While CBDCs are largely in the exploration stages, the majority of countries in sub-Saharan Africa already have a fast payment system (FPS)¹² in place or are actively considering one. FPSs can be accessed through mobile phones or internet connections in more than 80 percent of the countries in sub-Saharan Africa. In more than 70 percent of the responding countries, the access would require a national ID.

FPSs are maintained and managed by the private sector in two-thirds of the countries and regulated by central banks in most jurisdictions. The few exceptions are related to cases where a different regulatory body supervises the payment system, or where the systems are under the supervision of both the central bank and the regulatory agency for post and telecommunications. FPSs are integrated with existing digital payment systems through central bank payment systems, an application programming interface, and bilateral or multilateral arrangements with payment service providers and other financial institutions. Several central banks reported that they require—or plan to require—participation in a national payment system (generally central bank-managed) as a solution to interoperability challenges.

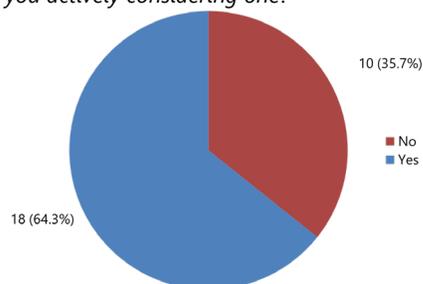
FPS fees are generally set low, especially for small transactions, but they are not yet negligible. In most responding countries, the average fees are below 50 cents per transaction or 2 percent of transaction volume, while the fee structure varied across countries. While these fees are not high (especially when compared with cross-border fees), they may still be non-negligible for the poor, depending on their transaction volume and/or value.

FPS-based cross-border services are available in many countries. Several countries reported bilateral or multilateral arrangements with other countries or regional communities for cross-border transactions. For example, one country integrates its FPS with another country's FPS, operated by a common payment corporation for cross-border payments between the two countries. Alternatively, another country employs transactions cleared on an immediate basis for cross-border transactions within a regional community. In addition, cross-border payment services are also achieved through bilateral arrangements with organizations from regional blocs or economic or monetary unions.

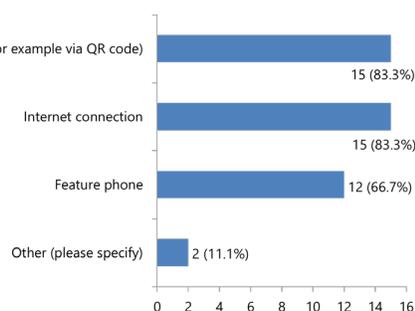
¹² FPS refers to an infrastructure which allows retail funds transfers “in which the transmission of the payment message and the availability of final funds to the payee to occur in real-time or near real-time and on as near to a 24-hour and 7-day (24/7) basis as possible.” See Committee on Payments and Market Infrastructures (2016): [“Fast payments - Enhancing the speed and availability of retail payments.”](#)

Figure 10. Fast Payment Systems

Questions: Do you have a Fast Payment System in place or are you actively considering one?

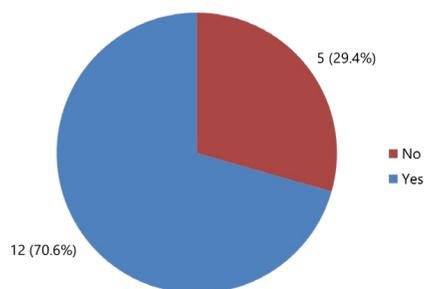


Questions: How can the Fast Payment System be accessed?

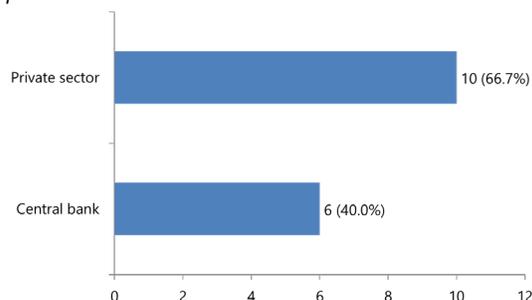


Note: **Fast Payment Systems (FPS)** refer to an infrastructure which allows retail funds transfers “in which the transmission of the payment message and the availability of final funds to the payee occur in real-time or near real-time and on as near to a 24-hour and 7-day (24/7) basis as possible” (BIS CPII Report, 2016).

Questions: Would people also need the national ID?



Questions: Are the platforms for Fast Payment Systems maintained and managed by the central bank or by the private sector?



VIII. Mobile Money (and e-Money)

Nearly all countries in sub-Saharan Africa have privately issued e-money, such as mobile money, circulating in their economies (Figure 8a).¹³ The number of mobile money users was reported to exceed 25 million in some major markets, mostly in east Africa (Ghana, Kenya, Tanzania, and Uganda). Countries with largest amount of transactions as a share of GDP include Cameroon, Ghana, and Uganda (see Figure 8c). Mobile money services are provided by domestic companies in all countries, but about one-third of the countries also reported the presence of foreign companies in the market (Figure 8a). The platform for digital money is typically maintained by the private sector (Figure 8a). In nearly all countries, mobile money is regulated by the central bank.

¹³ Sao Tome is the only country in the region that reported that there was no private digital money such as mobile money circulating in its economy.

Mobile money can be usefully leveraged to achieve many of the policy objectives driving countries' interest in CBDC. Mobile money has a strong track record of improving financial inclusion and is associated with low costs of sending remittances (see [World Bank 2023](#)). Improvements in the infrastructure associated with mobile money, such as modernization of the settlements process, together with widening access to mobile networks and phones, can play an important role in achieving these objectives.

Mobile money is 100 percent backed by underlying assets in all countries. All countries reported that mobile money was backed by bank deposits, central bank reserves, government bonds, and other assets and can be exchanged one for one for the legal tender in all countries. In half of the countries, mobile money could be used for cross-border payments.

Lack of domestic interoperability across different e-money systems within a central bank's jurisdiction is a challenge, and improvement measures are planned in some countries. In some jurisdictions, interoperability across different e-money providers exists, but in most cases the market is fragmented. Many countries are looking to enhance interoperability through use of a national switch.¹⁴ A few are planning to strengthen regulations, or to revisit their policy position regarding interoperability, or to improve stakeholder collaboration to enhance interoperability.

Transaction costs (of exchanging with legal tender) vary depending on the size of the transaction but are generally low (with a few exceptions). Fees vary depending on the amount of the transfer and its nature (deposit vs. withdrawal). Lower value transfers typically entail higher fees in percentage of the transfer amount. Several central banks reported that there are no fees for exchanging e-money with the legal tender. Others reported fees that vary and range from 0 to 1 percent (4 central banks), 1 to 2 percent (1 central bank), 0 to 4 percent (1 central bank), and 0 to 6 percent (1 central bank).

Countries have in place (or are considering putting in place) various security measures. These measures include having pin codes and biometrics, as well as regulatory guidelines and frameworks (including related to trust accounts, consumer protection and operational risks, risk-based supervision, application of best practice standards, and mapping of risks related to innovative financial services). Central banks reported monitoring the issuance of mobile money in real time to ensure the tallying of issued mobile money and cash received in trust accounts every time mobile money is issued.¹⁵ They also noted that IT security control systems, AML/CFT controls, internal controls, and the governance process of risk oversight were in place.¹⁶ Some central banks highlighted that all payment service providers

¹⁴ National switch is a platform that provides interoperability and reciprocity between payment system providers and operators to route transactions between endpoints and facilitate payment clearing and settlement.

¹⁵ Each mobile money issuer is required to maintain a "Trust Account" (typically with a commercial bank) that has deposits or assets equivalent to the amount of the mobile money issued by the issuer. For example, when a user buys a unit of mobile money with cash, the assets in the Trust Account should increase by the amount of the cash received from the user (minus any fees) so that there is a one-to-one parity of the mobile money in circulation and the amount of money in the Trust Account.

¹⁶ Generally speaking, internal controls are standardized operating procedures used by companies in their accounts payable workflow to mitigate the risk of human error, prevent fraud, reduce improper payments, and ensure regulatory compliance.

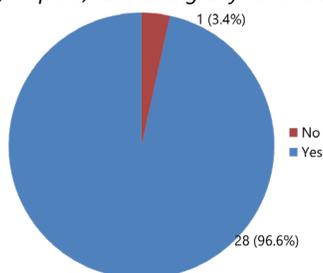
(PSPs) have to put in place a comprehensive framework on risk management that the central bank evaluates and approves before it licenses any PSP, and as part of ongoing compliance obligations. These risk management measures in the framework range from ensuring effective governance of PSPs to system audits, and the regulations require that the digital money providers have a risk management framework, IT policy, and cybersecurity policy in place, as well as sanctions screening platforms (that is, practices that financial institutions undertake to ensure that counterparties are not subject to sanctions).¹⁷

Going forward, most central banks are looking to improve the efficiency of the e-money system through different reforms. These include developing a new national payment strategy, reviewing and strengthening existing regulations, allowing nonbank entities to provide payment services associated with the pooling of funds (together with clearing and settlement of payments, and without the need to partner with a bank), improving interoperability, and promoting competition through encouraging new players. Some countries are expecting to set up a cross-border retail payment system. Central banks aim to modernize their payment platforms, with the goal of promoting cooperation and networking between commercial banks and electronic money institutions, expanding coverage of mobile money and integrating mobile money accounts with microfinance accounts, and increasing awareness of mobile money and acceptance among businesses and governments.

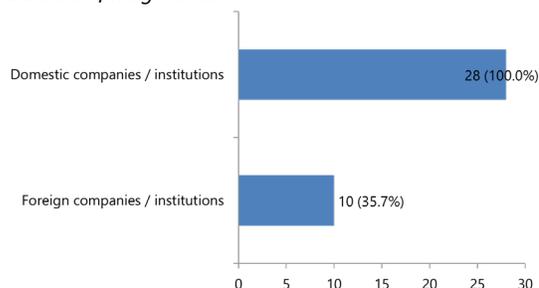
¹⁷ Sanctions screening software is provided by private companies to track the latest sanctions lists from various bodies, including the United Nations, the Office of Foreign Assets Control in the United States, and the European Union External Action Services, and ensure that financial transactions are compliant with sanctions imposed by these bodies.

Figure 11a. Privately Issued Electronic Money/Mobile Money

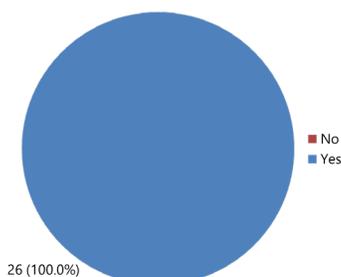
Questions: Are there any forms of digital money (e.g. mobile money, m-pesa) circulating in your country?



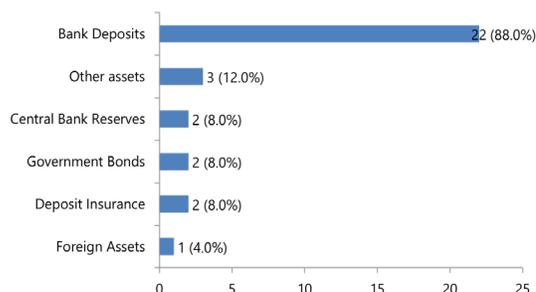
Questions: Are they offered by domestic companies / institutions or foreign ones?



Questions: Are they backed 100 percent?

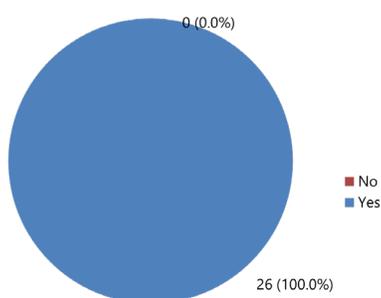


Questions: What are the underlying assets that back their value?



Note: 5 country authorities (Botswana, Burundi, Comoros, Guinea and Seychelles) revised their initial answers after country teams followed up bilaterally with them.

Questions: Can they be exchanged with the legal tender?



Questions: Are the platforms for the digital money transactions maintained and managed by the central bank or by the private sector?

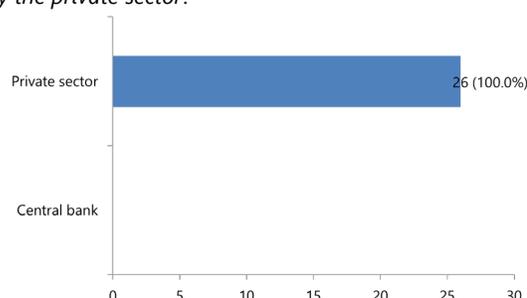
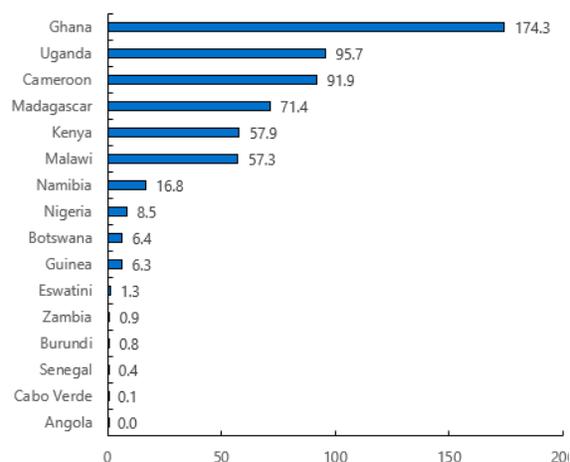


Figure 8b. Privately Issued Electronic Money/Mobile Money—Other Characteristics

Question	No	Yes	Number of respondents
Q.VIII.7 Are these forms of digital money regulated?	4%	96%	26
Q.VIII.8 Are these forms of digital money in circulation outside the jurisdiction and being used for cross-border payments?	48%	52%	27
Q.VIII.9 Are the authorities planning to enhance the mobile money payment system?	8%	92%	25
Q.VIII.10 Are mobile money issuers allowed to hold central bank reserves?	96%	4%	26

Figure 8c. Sub-Saharan Africa: Market Size of Privately Issued Money

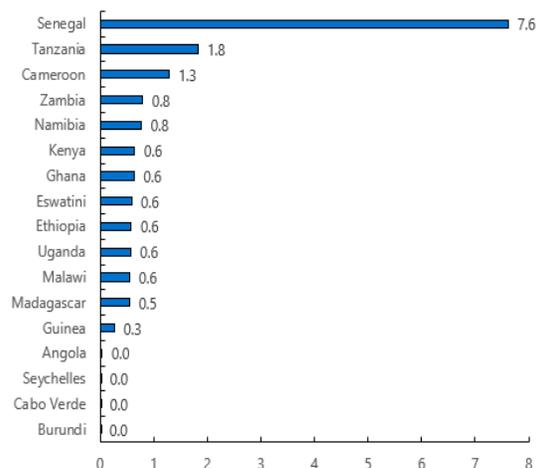
(Percent of GDP)



Notes: (*) Latest available year is 2022, except Burundi, Botswana, Guinea, Nigeria, and Senegal (2021).
Source: Authorities' Data; and IMF staff calculations.

Figure 8c. Sub-Saharan Africa Number of Privately Issued Money Accounts

(Number of accounts per person)



Notes: (*) Latest available year is 2022, except for Burundi, Guinea, Senegal, and Tanzania (2021).
Source: Authorities' Data; and IMF staff calculations.

IX. Crypto Assets: Landscape and Regulations

Landscape

Most surveyed central banks see small use of crypto assets in transactions, but a thorough assessment is often constrained by the limited availability of data. In all countries, less than 10 percent of the population uses crypto assets and they are not integrated within national payment systems.¹⁸

Crypto assets are adopted and used mainly for speculative purposes and cross-border transactions. Speculation is seen as the main reason for using crypto assets. In addition, quicker and cheaper cross-border and remittance payments are also seen as a possible factor driving the adoption of private crypto assets. Most respondents perceive that crypto assets are mainly used to circumvent exchange controls. In a few countries, they are also used to exploit pricing differences between local and global prices of crypto assets in arbitrage trading.

Due to the limited regional uptake, most central banks have not experienced a threat to financial stability or monetary policy transmission, or a significant impact on capital flows. Some central banks see that a parallel system outside the central bank's control coupled with limited information about crypto asset transactions could weaken monetary policy transmission and financial stability. Alternatively, some others pointed to crypto assets as an alternative for settling cross-border payments, which preserves a country's foreign exchange reserves (to the extent the original crypto inflow would not have occurred in the absence of a crypto trading opportunity). In about 85 percent of countries, the use of crypto assets has not resulted in increased dollarization to date, and crypto assets are issued almost entirely by external agents. Nevertheless, a few surveyed central banks expressed concerns that crypto assets could undermine the effectiveness of monetary policy, help circumvent capital controls and exchange rate controls, and pose a contagion risk for financial stability.

Regulations

About 85 percent of surveyed countries have not established crypto assets regulation. Most responding central banks do not currently oversee, supervise, or regulate crypto assets, and frequently no other national institution is charged with regulating crypto assets. Central banks are responsible for the regulation of crypto assets in a few countries. Existing measures taken by some countries to mitigate crypto-associated risks are outright bans. Eighty percent of respondents report that people are not legally allowed to hold and transact in crypto assets, which also cannot be exchanged for legal tender. Generally, crypto assets are not accepted as a means of payment, but in some countries some

¹⁸ This result is in line with the [Triple-A](#) estimates for Nigeria and South Africa, where 22 million and 6 million people, respectively, or 10.3 and 9.44 percent of total population, are reported to own cryptocurrency as of 2021.

merchants do accept payments in crypto assets. Similarly, in most countries, crypto assets cannot be bought and sold through payments from bank accounts, with some exceptions.

Several countries have been developing or adjusting existing frameworks to regulate crypto assets to address emerging risks. Countries that have regulations on crypto assets have devised advisory cautionary notes on crypto asset use. Some are conducting communication campaigns warning the public about evolving risks associated with trading in and using crypto assets.

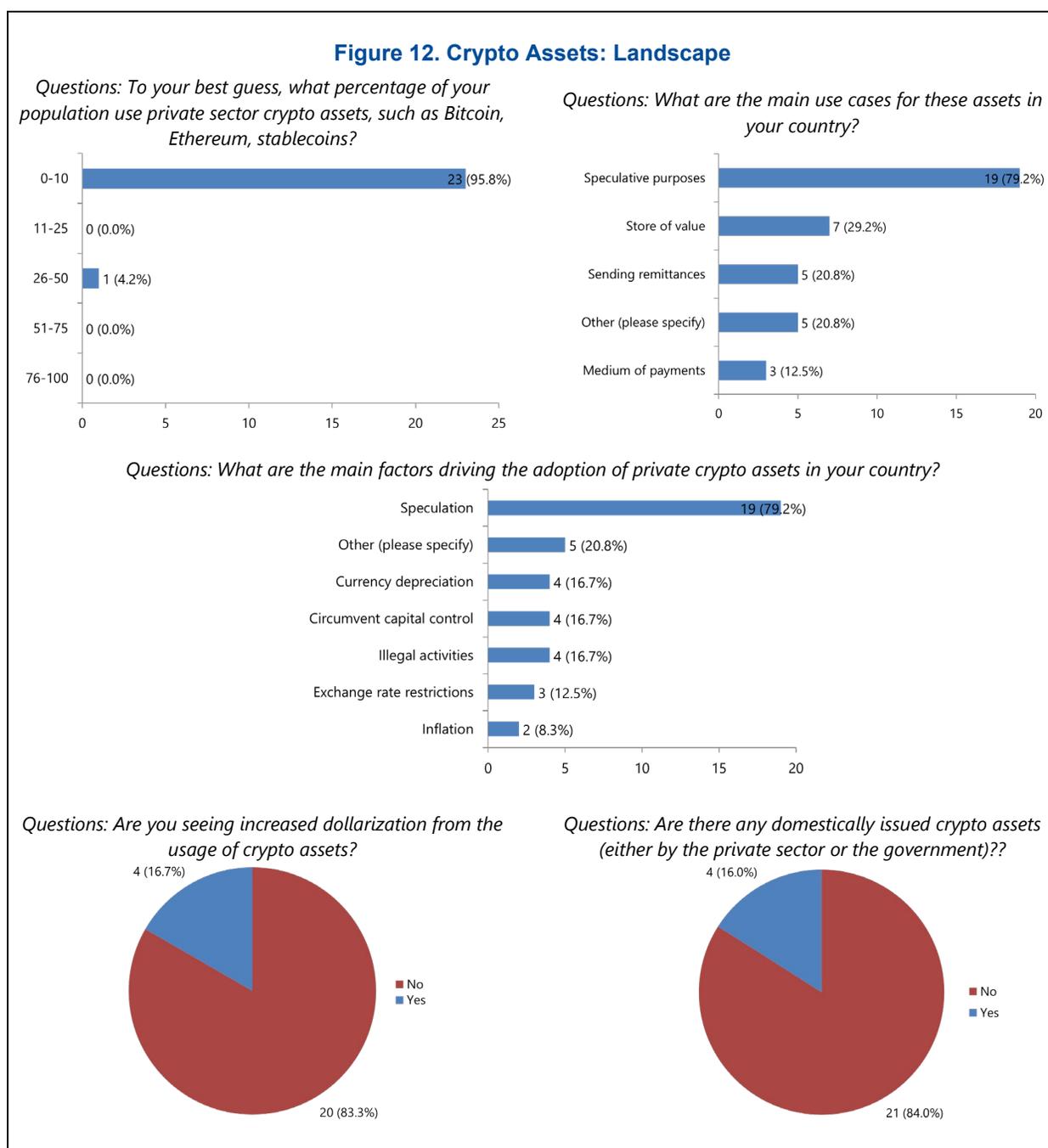
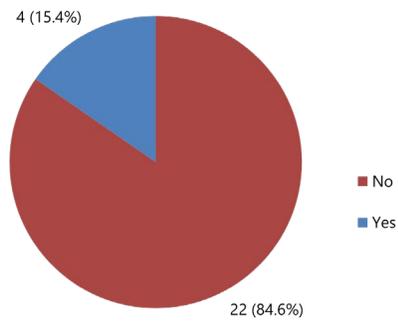
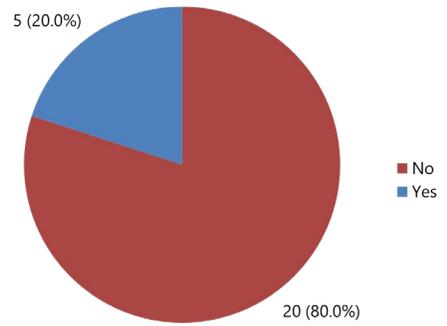


Figure 13. Crypto Assets: Regulation

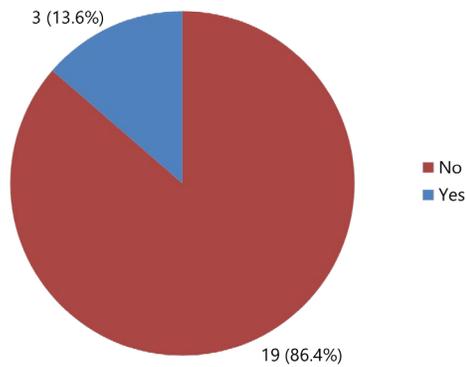
Question: Are there any regulations in place regarding use and trade of crypto assets?



Question: Are people legally allowed to hold and transact in crypto assets?



Question: Can crypto assets be exchanged with the legal tender?



X. Engagement with the IMF

The IMF has been providing support to country authorities on CBDCs and other digital payment systems. The IMF has engaged with more than 50 countries on CBDC exploration to date and has provided TA on a wide range of topics, such as policy objectives, design, macrofinancial implications, and legal and technology issues on CBDC and other digital payment systems (DPS). To document emerging lessons in a fast-moving field and findings of analytical work, in 2023, the IMF launched a [CBDC Virtual Handbook](#) (IMF 2023b) as the basis for capacity development engagement. This section focuses on which further engagements countries in sub-Saharan Africa would envisage with the IMF.

While several countries in sub-Saharan Africa find it too early to request TA, many central banks have already expressed their preferred areas in which to receive technical support. Generally, countries would like to receive TA and see analytical work on: (i) risks associated with the adoption of a CBDC; (ii) the legal regime needed; (iii) ensuring consumer protection; (iv) the needed changes in payment systems; (v) the relationship between CBDCs and other DPS; (vi) infrastructure needs and associated costs; and (vii) cross-country experiences.

There seems to be unanimity in the desire to participate in a pilot network organized by the IMF. Most central banks would like to participate in a multi-country pilot network group organized from the IMF African Department. The operational aspects of the network would envisage regular meetings between the IMF African Department and leading experts at central banks in sub-Saharan Africa to discuss policy issues related to CBDCs and other DPS. The network would be an opportunity to share preliminary explorations and experiences, as well as to lay out concerns and debate potential policy solutions. Some central banks report that the adoption of crypto/CBDCs has attracted increasing interest of the public in learning more about the subject, which has contributed to motivating central banks to engage in the topic. A few central banks have already formed or are planning to form groups to evaluate risks, impact, and the feasibility of using CBDCs.

XI. Conclusion and the Way Forward

The Sub-Saharan Africa CBDC and Other Digital Payments Survey has provided a comprehensive overview of the digital currency landscape in the region. This paper summarizes the survey results, shedding light on the dynamic developments related to CBDCs, e-money, and crypto assets, and offering insights into the aspirations, concerns, preferences, and plans of central banks, as well as the related policy issues. The remarkably high participation rate underscores the keen interest in CBDCs and other DPS and their potential to reshape the financial and economic landscape in sub-Saharan Africa.

Most countries are interested in exploring and possibly developing CBDCs. The primary motivations behind CBDC exploration and development relate to deepening financial inclusion and enhancing efficiency and competition in the payment system (also cross-border), and to promoting financial stability, transparency, and safety. Notably, half of the respondents indicated they expect the transaction cost reduction to be very significant (more than 60 percent). The recent emergence of crypto assets has contributed to the motivations, given possible concerns related to financial stability and integrity, as well as monetary sovereignty. A few countries prefer to wait for broader international experience while continuing to rely on existing payment systems. Key factors that can be expected to facilitate CBDC adoption are trust, internet and mobile penetration, and financial literacy.

While the survey reveals significant progress in CBDC research and development, it also highlights the intricate challenges ahead. Technical and human capacity challenges, infrastructure requirements, legal barriers, cybersecurity risks, and the need for interoperability—both domestically and internationally—pose formidable hurdles. Achieving a harmonious balance between innovation and financial stability remains paramount. Collaboration at both regional and international levels is essential for navigating these complexities successfully.

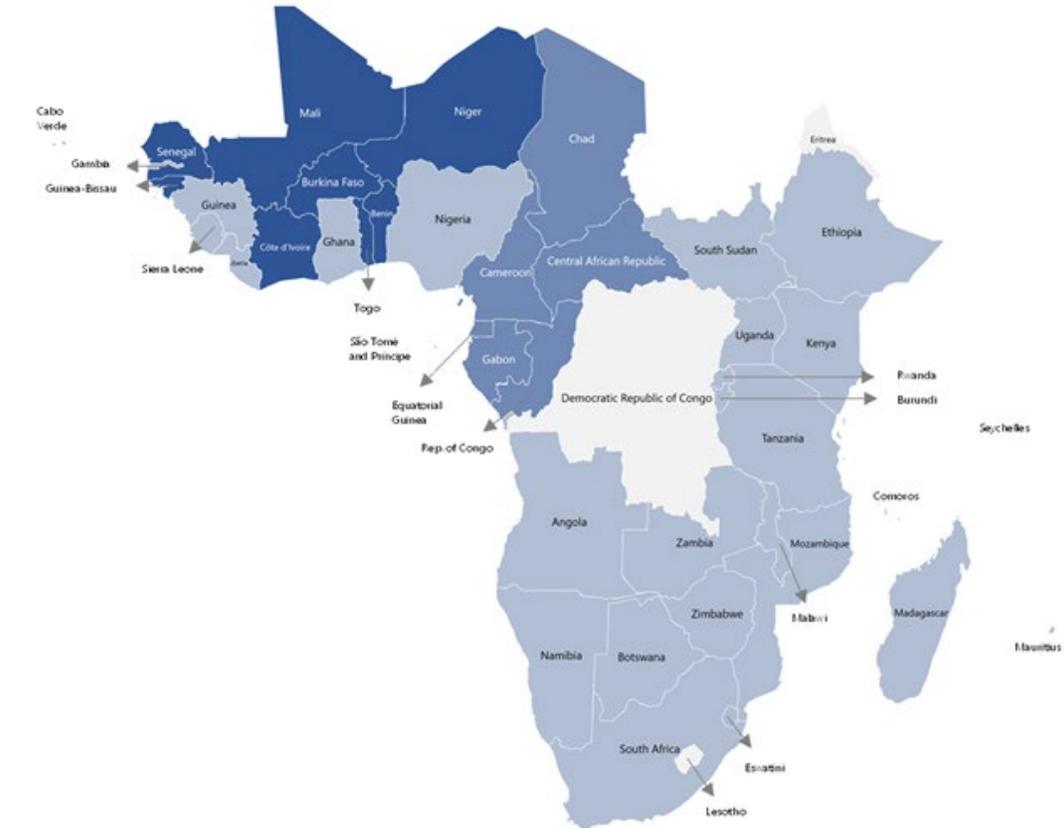
Most countries are also interested in further developing private digital money and FPS, which are often considered low-hanging fruits and potential quick wins. In almost all countries, there is some form of mobile money or e-Money, generally offered and operated by domestic companies and mostly backed by bank deposits. In half of the countries, they are also used for cross-border transactions. There is a role for the public sector to play in developing digital currencies and payment systems, ranging from creating conditions that are conducive to private sector engagement, including regulations (for e-Money, crypto assets, and so on) to bearing the full cost of a CBDC. Crypto assets constitute a small share of financial transactions and are generally used for speculative purposes and cross-border transactions, and in most countries are not regulated.

The unanimous desire for future engagement and support signals a collective commitment to advancing digital payment solutions in the sub-Saharan Africa region. While IMF TA requests may vary depending on country-specific situations, the enthusiasm for analytical support and participation in multilateral pilot groups is evident. As sub-Saharan Africa embarks on its

digital payments journey, cooperation and shared knowledge will be pivotal in unlocking the full potential of CBDCs and other forms of digital payments.

In conclusion, the Sub-Saharan Africa Digital Currency and Other Forms of Digital Payments Survey serves as a stocktaking of the region’s digital journey and a starting point for further discussions and analysis on the topic. It highlights the perception of CBDCs as potentially transformative in achieving financial inclusion and economic efficiency while acknowledging the intricacy of challenges that must be navigated. At the same time, further progress in promoting mobile payment systems and potentially developing fast payment platforms seems to be a more immediate priority, together with regulating the use of crypto assets to guard against financial and monetary stability risks.

Appendix I: Sub-Saharan Africa CBDC Survey



■ WAEMU countries (Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, Togo)
■ CEMAC countries (Cameroon, Central African Republic, Chad, Republic of Congo, Equatorial Guinea, Gabon)
 Note: Countries that responded to the survey are in color and comprise Angola, Botswana, Burundi, CEMAC, Cabo Verde, Comoros, Eswatini, Ethiopia, Gambia, Ghana, Guinea, Kenya, Liberia, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Nigeria, Rwanda, Sao Tome and Principe, Seychelles, Sierra Leone, South Africa, South Sudan, Tanzania, Uganda, WAEMU, Zambia, and Zimbabwe. CEMAC and WAEMU countries are shown in different shades as BEAC (Bank of Central African States) and BCEAO (Central Bank of West African States) responded on behalf of their respective constituencies.

Appendix II: Survey Questions



IMF African Department Survey of SSA Central Banks on CBDC and Digital Payments

Purpose

The purpose of this survey is to take stock of CBDC, private digital money, and crypto-assets developments across the Sub-Saharan Africa region, and learn about authorities' concerns, preferences, plans, and policy considerations. This will help us generate peer-learning opportunities for central banks, design our analytical agenda, shape our policy advice, and draft a departmental paper on developments and policy issues across countries. Even if you are not considering to engage on any kind of CBDC at this stage, we would still appreciate the opportunity to hear your perspectives on the digital payment system.

Instructions

The survey consists of 10 sections and may take 60-90 minutes to complete. You can either complete it in one-go or stop and save the inputs at any point and resume later. Your saved input will be retrieved automatically when you log back again. Once submitted, if you would like to make changes, you can let us know and we can re-open the survey. Please note that only the last answer reported for each question would be recorded. For a preview of the questionnaire, please [click here](#). At the end of the survey, you will find the option to add any comments and upload any file you would like to share.

Questions

If you have any questions, please address them via email to IMFAFRDigitalPayments@imf.org (and possibly indicate to which section it belongs).

Definitions

CBDC: IMF defines a CBDC as “a public digital form of money issued by a central bank. It is commonly denominated in the national currency and is typically convertible to other forms of central bank money. Depending on the objectives, it can be made accessible for all domestic users to serve as a substitute for cash (retail CBDC), or only to selected financial institutions to help improve financial market efficiency (wholesale CBDC)”. (Source: GFSR October 2021, Chapter 3 and online annex).

Fast payment systems: Fast Payments Systems refer to an infrastructure which allows retail funds transfers "in which the transmission of the payment message and the availability of final funds to the payee occur in real-time or near real-time and on as near to a 24-hour and 7-day (24/7) basis as possible". (Source: <https://www.bis.org/cpmi/publ/d154.htm>)

For the purpose of this survey, Private Digital Payment instruments are defined as follows: Privately issued money includes eMoney, mobile money (which is growing rapidly in East Africa), stablecoins, tokenized bank deposits, tokenized financial assets that can be seamlessly traded on liquid markets (related to the concept of iMoney in Adrian and Mancini-Griffoli (2019, <https://www.imf.org/-/media/Files/Publications/FTN063/2019/English/FTNEA2019001.ashx>) and financial services emerging from Decentralized Finance, or DeFi, discussed in IMF (2021a) <https://www.imf.org/-/media/Files/Publications/PP/2021/English/PPEA2021054.ashx>), and even crypto-assets (which are too volatile to be technically labelled as money, though are accepted for payment). (Source: The Rise of Public and Private Digital Money: A Strategy to Continue Delivering on The IMF's Mandate, page 5, <https://www.imf.org/en/Publications/Policy-Papers/Issues/2021/07/28/The-Rise-of-Public-and-Private-Digital-Money-462919>).

We divide Private Digital Payment instruments in two categories:

Mobile Money (eMoney): For Mobile Money and E-money we refer to fully-backed digital payment systems (backed electronic wallets), similar to what defined by "Marc Dobler, José Garrido, Dirk Jan Grolleman, Tanai Khiaonrong, and Jan Nolte, E-money: E-Money—Prudential Supervision, Oversight, and User Protection, IMF Departmental Paper, Dec 2021".

Crypto-assets and other Private Digital Instruments: All other Digital Private instruments, mainly crypto-assets

Memo Item: Stablecoins. Stablecoins are crypto-assets that aim to maintain a stable value relative to a specified asset or a pool or basket of assets. (Source: <https://www.fsb.org/work-of-the-fsb/financial-innovation-and-structural-change/crypto-assets-and-global-stablecoins/>)

Questions

*Institution	<input style="width: 90%;" type="text"/>
*Department	<input style="width: 90%;" type="text"/>
*Survey Access ID	<input style="width: 90%;" type="text"/>
<i>All fields with an asterisk (*) are required.</i>	

*1. Country(*Required)

	Choice
<input type="radio"/>	Angola
<input type="radio"/>	Burundi
<input type="radio"/>	Democratic Republic of the Congo
<input type="radio"/>	Cameroon
<input type="radio"/>	Central African Republic
<input type="radio"/>	Chad
<input type="radio"/>	Republic of the Congo
<input type="radio"/>	Equatorial Guinea
<input type="radio"/>	Gabon
<input type="radio"/>	Kenya
<input type="radio"/>	Nigeria
<input type="radio"/>	Rwanda
<input type="radio"/>	São Tomé and Príncipe

<input type="radio"/>	Tanzania
<input type="radio"/>	Uganda
<input type="radio"/>	Sudan
<input type="radio"/>	South Sudan
<input type="radio"/>	Djibouti
<input type="radio"/>	Eritrea
<input type="radio"/>	Ethiopia
<input type="radio"/>	Somalia
<input type="radio"/>	Botswana
<input type="radio"/>	Comoros
<input type="radio"/>	Lesotho
<input type="radio"/>	Madagascar
<input type="radio"/>	Malawi
<input type="radio"/>	Mauritius
<input type="radio"/>	Mozambique
<input type="radio"/>	Namibia
<input type="radio"/>	Seychelles
<input type="radio"/>	South Africa
<input type="radio"/>	Eswatini
<input type="radio"/>	Zambia
<input type="radio"/>	Zimbabwe
<input type="radio"/>	Benin
<input type="radio"/>	Mali
<input type="radio"/>	Burkina Faso

<input type="radio"/>	Cape Verde
<input type="radio"/>	Ivory Coast
<input type="radio"/>	Gambia
<input type="radio"/>	Ghana
<input type="radio"/>	Guinea
<input type="radio"/>	Guinea-Bissau
<input type="radio"/>	Liberia
<input type="radio"/>	Mauritania
<input type="radio"/>	Niger
<input type="radio"/>	Senegal
<input type="radio"/>	Sierra Leone
<input type="radio"/>	Togo

***2. Please provide main contact information of the person that supervised the compilation of the survey. (*Required)**

Category	Choice
Name	<input type="text"/>
Email address	<input type="text"/>
Position	<input type="text"/>
Country code	<input type="text"/>
Phone number	<input type="text"/>

***3. Please provide main contact information of the key contact person for the agenda on CBDC and/or digital money at the Central Bank. (*Required)**

Category	Choice
Name	<input type="text"/>
Email address	<input type="text"/>
Position	<input type="text"/>
Country code	<input type="text"/>
Phone number	<input type="text"/>

***4. Please provide main contact information of the key contact person for the agenda on CBDC and/or digital money at the Ministry of Finance (or another government institution). (*Required)**

Category	Choice
Name	<input type="text"/>
Email address	<input type="text"/>
Position	<input type="text"/>
Country code	<input type="text"/>
Phone number	<input type="text"/>

I. CBDC Stage

5. Has your central bank engaged, or will engage, in any kind of research, experiments or development work related to the implementation of CBDC?	
	Choice
<input type="radio"/>	Yes
<input type="radio"/>	No

5.1. Please give details on the phase of current engagement.	
<p>Consider it, if any of following answers are matched for "Has your central bank engaged, or will engage, in any kind of research, experiments or development work related to the implementation of CBDC?" Question:</p> <ul style="list-style-type: none"> • Yes 	
	Choice
<input type="radio"/>	Research
<input type="radio"/>	Pilot
<input type="radio"/>	Launched
<input type="radio"/>	Other (please specify)

5.2. Please indicate why not.																			
<p>Consider it, if any of following answers are matched for "Has your central bank engaged, or will engage, in any kind of research, experiments or development work related to the implementation of CBDC?" Question:</p> <ul style="list-style-type: none"> • No 																			
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;"></th> <th style="text-align: center;">Choice</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Waiting for a broader international experience</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Not deemed necessary</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Planning to rely more on private mobile money or existing payment systems</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Limited resources</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Other short-term policy priorities</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Limited internet-mobile penetration</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Reputational concerns</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Other (please specify)</td> </tr> </tbody> </table>		Choice	<input type="checkbox"/>	Waiting for a broader international experience	<input type="checkbox"/>	Not deemed necessary	<input type="checkbox"/>	Planning to rely more on private mobile money or existing payment systems	<input type="checkbox"/>	Limited resources	<input type="checkbox"/>	Other short-term policy priorities	<input type="checkbox"/>	Limited internet-mobile penetration	<input type="checkbox"/>	Reputational concerns	<input type="checkbox"/>	Other (please specify)
	Choice																		
<input type="checkbox"/>	Waiting for a broader international experience																		
<input type="checkbox"/>	Not deemed necessary																		
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<input type="checkbox"/>	Limited resources																		
<input type="checkbox"/>	Other short-term policy priorities																		
<input type="checkbox"/>	Limited internet-mobile penetration																		
<input type="checkbox"/>	Reputational concerns																		
<input type="checkbox"/>	Other (please specify)																		

5.3. Expected completion of current phase of engagement.									
<p>Consider it, if any of following answers are matched for "Has your central bank engaged, or will engage, in any kind of research, experiments or development work related to the implementation of CBDC?" Question:</p> <ul style="list-style-type: none"> • Yes 									
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;">Category</th> <th style="width: 50%; text-align: center;">Choice</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Quarter</td> <td style="border: 1px solid black; height: 20px;"></td> </tr> <tr> <td style="text-align: center;">Quarter</td> <td style="border: 1px solid black; height: 20px;"></td> </tr> <tr> <td style="text-align: center;">Quarter</td> <td style="border: 1px solid black; height: 20px;"></td> </tr> </tbody> </table>	Category	Choice	Quarter		Quarter		Quarter	
Category	Choice								
Quarter									
Quarter									
Quarter									

5.4. Expected year to complete PILOT of CBDC.

Consider it, if any of following answers are matched for "Has your central bank engaged, or will engage, in any kind of research, experiments or development work related to the implementation of CBDC?" Question:

- Yes

	Choice
<input type="radio"/>	2023
<input type="radio"/>	2024
<input type="radio"/>	2025
<input type="radio"/>	2026
<input type="radio"/>	2027
<input type="radio"/>	2028
<input type="radio"/>	2029
<input type="radio"/>	2030
<input type="radio"/>	2031
<input type="radio"/>	2032
<input type="radio"/>	2033
<input type="radio"/>	2034
<input type="radio"/>	2035
<input type="radio"/>	2036
<input type="radio"/>	2037
<input type="radio"/>	2038
<input type="radio"/>	2039
<input type="radio"/>	2040

5.5. Expected year to LAUNCH CBDC.

Consider it, if any of following answers are matched for "Has your central bank engaged, or will engage, in any kind of research, experiments or development work related to the implementation of CBDC?" Question:

- Yes

	Choice
<input type="radio"/>	2023
<input type="radio"/>	2024
<input type="radio"/>	2025
<input type="radio"/>	2026
<input type="radio"/>	2027
<input type="radio"/>	2028
<input type="radio"/>	2029
<input type="radio"/>	2030
<input type="radio"/>	2031
<input type="radio"/>	2032
<input type="radio"/>	2033
<input type="radio"/>	2034
<input type="radio"/>	2035
<input type="radio"/>	2036
<input type="radio"/>	2037
<input type="radio"/>	2038
<input type="radio"/>	2039
<input type="radio"/>	2040

6. Additional Comments.

II. Motivation for CBDC adoption

7. What was the motivation for engaging in or considering the development of CBDCs?	
	Choice
<input type="checkbox"/>	Financial stability
<input type="checkbox"/>	Monetary policy implementation
<input type="checkbox"/>	Financial inclusion
<input type="checkbox"/>	Payments efficiency (domestic)
<input type="checkbox"/>	Payments efficiency (cross-border)
<input type="checkbox"/>	Payments safety / robustness
<input type="checkbox"/>	Retaining monetary sovereignty (given increase in digital assets development)
<input type="checkbox"/>	Provide digital cash given declining use of cash
<input type="checkbox"/>	Other (please specify)

8. Please indicate the importance of the following for choosing to pursue CBDC.

Consider it, If all of the below is Correct :

- What was the motivation for engaging in or considering the development of CBDCs? includes any "Financial stability, Monetary policy implementation, Financial inclusion, Payments efficiency (domestic), Payments efficiency (cross-border), Payments safety / robustness, Retaining monetary sovereignty (given increase in digital assets development), Provide digital cash given declining use of cash"

The Category of this question depends on the selected choices in "What was the motivation for engaging in or considering the development of CBDCs?" Question

	Category	Choice
<input type="radio"/>	Financial stability	Very important
<input type="radio"/>	Financial stability	Important
<input type="radio"/>	Financial stability	Somewhat important
<input type="radio"/>	Financial stability	Not so important
<input type="radio"/>	Monetary policy implementation	Very important
<input type="radio"/>	Monetary policy implementation	Important
<input type="radio"/>	Monetary policy implementation	Somewhat important
<input type="radio"/>	Monetary policy implementation	Not so important
<input type="radio"/>	Financial inclusion	Very important
<input type="radio"/>	Financial inclusion	Important
<input type="radio"/>	Financial inclusion	Somewhat important
<input type="radio"/>	Financial inclusion	Not so important
<input type="radio"/>	Payments efficiency (domestic)	Very important
<input type="radio"/>	Payments efficiency (domestic)	Important

<input type="radio"/>	Payments efficiency (domestic)	Somewhat important
<input type="radio"/>	Payments efficiency (domestic)	Not so important
<input type="radio"/>	Payments efficiency (cross-border)	Very important
<input type="radio"/>	Payments efficiency (cross-border)	Important
<input type="radio"/>	Payments efficiency (cross-border)	Somewhat important
<input type="radio"/>	Payments efficiency (cross-border)	Not so important
<input type="radio"/>	Payments safety / robustness	Very important
<input type="radio"/>	Payments safety / robustness	Important
<input type="radio"/>	Payments safety / robustness	Somewhat important
<input type="radio"/>	Payments safety / robustness	Not so important
<input type="radio"/>	Retaining monetary sovereignty (given increase in digital assets development)	Very important
<input type="radio"/>	Retaining monetary sovereignty (given increase in digital assets development)	Important
<input type="radio"/>	Retaining monetary sovereignty (given increase in digital assets development)	Somewhat important
<input type="radio"/>	Retaining monetary sovereignty (given increase in digital assets development)	Not so important
<input type="radio"/>	Provide digital cash given declining use of cash	Very important
<input type="radio"/>	Provide digital cash given declining use of cash	Important
<input type="radio"/>	Provide digital cash given declining use of cash	Somewhat important
<input type="radio"/>	Provide digital cash given declining use of cash	Not so important

9. Please provide any comments on your motivations for any aspects you considered as very important or important.

--

10. Has the amount of central bank-issued cash in circulation been significantly declining?

	Choice
<input type="radio"/>	Yes
<input type="radio"/>	No

11. Do you expect the amount of central bank-issued cash in circulation to significantly decline in the medium term (within six years), assuming no action is taken by the central bank or public authorities?

	Choice
<input type="radio"/>	Yes
<input type="radio"/>	No

12. Has the Covid-19 pandemic accelerated the planning for CBDC development?

	Choice
<input type="radio"/>	Yes
<input type="radio"/>	No

12.1. Please indicate why.															
<p>Consider it, if any of following answers are matched for "Has the Covid-19 pandemic accelerated the planning for CBDC development?" Question:</p> <ul style="list-style-type: none"> • Yes 															
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;"></th> <th style="text-align: left; padding: 5px;">Choice</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; vertical-align: middle;"><input type="checkbox"/></td> <td style="padding: 5px;">Enable access to central bank money during times of emergency</td> </tr> <tr> <td style="text-align: center; vertical-align: middle;"><input type="checkbox"/></td> <td style="padding: 5px;">Serve as a payment channel for public funding programs</td> </tr> <tr> <td style="text-align: center; vertical-align: middle;"><input type="checkbox"/></td> <td style="padding: 5px;">Complement to cash and in-person payment methods</td> </tr> <tr> <td style="text-align: center; vertical-align: middle;"><input type="checkbox"/></td> <td style="padding: 5px;">Support social distancing</td> </tr> <tr> <td style="text-align: center; vertical-align: middle;"><input type="checkbox"/></td> <td style="padding: 5px;">Provide alternative to private payment systems in case of a credit crisis</td> </tr> <tr> <td style="text-align: center; vertical-align: middle;"><input type="checkbox"/></td> <td style="padding: 5px;">Other (please specify)</td> </tr> </tbody> </table>		Choice	<input type="checkbox"/>	Enable access to central bank money during times of emergency	<input type="checkbox"/>	Serve as a payment channel for public funding programs	<input type="checkbox"/>	Complement to cash and in-person payment methods	<input type="checkbox"/>	Support social distancing	<input type="checkbox"/>	Provide alternative to private payment systems in case of a credit crisis	<input type="checkbox"/>	Other (please specify)
	Choice														
<input type="checkbox"/>	Enable access to central bank money during times of emergency														
<input type="checkbox"/>	Serve as a payment channel for public funding programs														
<input type="checkbox"/>	Complement to cash and in-person payment methods														
<input type="checkbox"/>	Support social distancing														
<input type="checkbox"/>	Provide alternative to private payment systems in case of a credit crisis														
<input type="checkbox"/>	Other (please specify)														

12.2. Please provide an explanation for your selection.	
<p>Consider it, if any of following answers are matched for "Has the Covid-19 pandemic accelerated the planning for CBDC development?" Question:</p> <ul style="list-style-type: none"> • Yes 	

13. Has the emergence of crypto-assets accelerated the planning for CBDC development?							
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;"></th> <th style="text-align: left; padding: 5px;">Choice</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; vertical-align: middle;"><input type="radio"/></td> <td style="padding: 5px;">Yes</td> </tr> <tr> <td style="text-align: center; vertical-align: middle;"><input type="radio"/></td> <td style="padding: 5px;">No</td> </tr> </tbody> </table>		Choice	<input type="radio"/>	Yes	<input type="radio"/>	No
	Choice						
<input type="radio"/>	Yes						
<input type="radio"/>	No						

14. What do you expect would be the key factors for a successful CBDC adoption by the public?

	Choice
<input type="checkbox"/>	Trust
<input type="checkbox"/>	Financial literacy
<input type="checkbox"/>	Internet and mobile penetration
<input type="checkbox"/>	Other (please specify)

15. Any additional comments.

III. CBDC Design

16. What type of CBDC are you interested in?

	Choice
<input type="radio"/>	Wholesale
<input type="radio"/>	Both

17. Please explain why you are interested in this type of CBDC?

18. What's the CBDC's operation model (based on BIS terminology)?

	Choice
<input type="radio"/>	DIRECT: Central bank issues CBDC & performs all functions
<input type="radio"/>	HYBRID: Central bank issues CBDC & delegates intermediary to interact with retail
<input type="radio"/>	TWO TIER: Intermediary issues CBDC (for retail use) backed by central bank's wholesale CBDC issued to them

19. Please explain the reason for your choice.

--

20. Which form of CBDC are you planning to implement?

	Choice
<input type="radio"/>	Account-based
<input type="radio"/>	Token-based
<input type="radio"/>	Both
<input type="radio"/>	N/A

21. Please explain why you are interested in this type of CBDC?

--

22. What ledger design would you consider (like DLT, Centralized Ledger, Hyperledger, etc.)?

--

**23. About the ledger design
Which technology provider are you planning to work with/discuss?**

--

**24. About the ledger design and provider
Please explain the reason for your choices.**

--

25. Will you consider opting for an interest-bearing CBDC?

	Choice
<input type="radio"/>	Yes
<input type="radio"/>	No

25.1. Please explain the reason for your choice.

Consider it, if any of following answers are matched for "Will you consider opting for an interest-bearing CBDC? " Question:

- Yes
- No

26. Do you intend or anticipate your CBDC to be (or needing to be) interoperable in future with other countries' CBDC?

	Choice
<input type="radio"/>	Yes
<input type="radio"/>	No

26.1. How can the "international" interoperability be achieved?

Consider it, if any of following answers are matched for "Do you intend or anticipate your CBDC to be (or needing to be) interoperable in future with other countries' CBDC?" Question:

- Yes

27. Are you planning to ensure the potential CBDC will be interoperable with existing "domestic" payment systems? Please elaborate.

28. Will you be working with private sector partner(s) in implementing CBDC?	
	Choice
<input type="radio"/>	Yes
<input type="radio"/>	No

28.1. What would be the private sector role?
<p>Consider it, if any of following answers are matched for "Will you be working with private sector partner(s) in implementing CBDC?" Question:</p> <ul style="list-style-type: none"> • Yes

29. Who will maintain the technical infrastructure and the CBDC data?

30. What measures to safeguard data privacy do you envisage?

31. What measures to safeguard IT/cyber security do you envisage?

32. What measures to safeguard KYC and address anti-money laundering/combating financing of terrorism do you envisage?

33. What kind of user / transaction data will be collected through your CBDC system?

34. Who are the owners of CBDC transaction data? Who will be able to use the data, for what purpose, and to what extent?

The following questions are for retail CBDC programs only.

35. Will people be able to use CBDC without opening bank accounts?	
	Choice
<input type="radio"/>	Yes

<input type="radio"/>	No
-----------------------	----

36. Will you consider imposing a cap or limit on individual holding of CBDC?

	Choice
<input type="radio"/>	Yes
<input type="radio"/>	No

37. Please explain the reason for your choice.

38. Will a national identification ID card be required to open CBDC wallet for the lowest tier?

	Choice
<input type="radio"/>	Yes
<input type="radio"/>	No

39. Will CBDC transactions be made possible using feature phones without internet access (hence just with mobile access)?

	Choice
<input type="radio"/>	Yes
<input type="radio"/>	No

40. Will CBDC transactions be made available offline (no internet and no mobile access)?	
	Choice
<input type="radio"/>	Yes
<input type="radio"/>	No

41. Additional Comments.

IV. CBDC Issuance

42. How likely is it that your central bank will issue a "wholesale" CBDC?	
	Choice
<input type="radio"/>	Very likely
<input type="radio"/>	Somewhat likely
<input type="radio"/>	Somewhat unlikely
<input type="radio"/>	Very unlikely

42.1. What is the time horizon?	
<p>Consider it, if any of following answers are matched for "How likely is it that your central bank will issue a "wholesale" CBDC?" Question:</p> <ul style="list-style-type: none"> • Very likely • Somewhat likely 	
	Choice
<input type="radio"/>	Short term (within the next three years)
<input type="radio"/>	Medium term (four to six years)

43. How likely is it that your central bank will issue a "retail" CBDC?	
	Choice
<input type="radio"/>	Very likely
<input type="radio"/>	Somewhat likely
<input type="radio"/>	Somewhat unlikely
<input type="radio"/>	Very unlikely

43.1. What is the time horizon?	
<p>Consider it, if any of following answers are matched for "How likely is it that your central bank will issue a "retail" CBDC?" Question:</p> <ul style="list-style-type: none"> • Very likely • Somewhat likely 	
	Choice
<input type="radio"/>	Short term (within the next three years)
<input type="radio"/>	Medium term (four to six years)

44. What are the key legal challenges you envisage?	
	Choice
<input type="checkbox"/>	Liability
<input type="checkbox"/>	Indemnity
<input type="checkbox"/>	Chain of custody
<input type="checkbox"/>	Other (please specify)

45. Does your central bank have the legal authority to issue a CBDC?	
	Choice
<input type="radio"/>	Yes
<input type="radio"/>	No
<input type="radio"/>	Uncertain
<input type="radio"/>	Laws need to be changed to allow for it

45.1. Please explain if plans are underway to provide legal authority.
<p>Consider it, if any of following answers are matched for "Does your central bank have the legal authority to issue a CBDC? " Question:</p> <ul style="list-style-type: none"> No
<div style="border: 1px solid black; height: 60px; width: 100%;"></div>

46. Any additional comments.

V. CBDC Benefits

V.A. Efficiency

47. What would be the envisaged relationship between CBDC and mobile money?	
	Choice
<input type="radio"/>	Complement (CBDC to support and expand mobile money use)
<input type="radio"/>	Substitution (CBDC to compete and reduce mobile money use)

47.1. How would CBDC and mobile money synergize with each other?	
<p>Consider it, if any of following answers are matched for "What would be the envisaged relationship between CBDC and mobile money?" Question:</p> <ul style="list-style-type: none"> Complement (CBDC to support and expand mobile money use) 	
	Choice
<input type="radio"/>	By using CBDC mainly as a bridge to achieve more effective interoperability between different mobile money operators
<input type="radio"/>	By using CBDC mainly as a safer store of value integrated in mobile money wallets
<input type="radio"/>	By doing both
<input type="radio"/>	Other (please specify)

47.2. Please explain what you envisage the relationship between the two instruments to be.

Consider it, if any of following answers are matched for "What would be the envisaged relationship between CBDC and mobile money?" Question:

- Substitution (CBDC to compete and reduce mobile money use)

48. What are the expected benefits from your choice in the previous question (e.g., enhancing competition).

49. Please indicate the expected reduction in the customer cost of financial payments from the creation of CBDC.

	Choice
<input type="radio"/>	Very significant (over 60 percent)
<input type="radio"/>	Significant (30-60 percent)
<input type="radio"/>	Moderate (5-30 percent)
<input type="radio"/>	Little (0-5 percent)

50. Please indicate the expected reduction in the time necessary for transactions to clear from the creation of CBDC.

	Choice
<input type="radio"/>	Very significant (over 60 percent)

<input type="radio"/>	Significant (30-60 percent)
<input type="radio"/>	Moderate (5-30 percent)
<input type="radio"/>	Little (0-5 percent)

51. How will CBDC affect competition among traditional players in the financial sector?

--

V. CBDC Benefits

V.B. Remittances

52. How do you envisage CBDC to be used for remittances?

	Choice
<input type="checkbox"/>	By giving foreign international money transfer operators (IMTOs) access to the domestic CBDC system
<input type="checkbox"/>	By participating in multi-currency CBDC system designed to facilitate cross border payment
<input type="checkbox"/>	Other (please specify)

53. Please indicate the expected reduction in the customer cost of remittance to be made from the use of CBDC for remittance.

	Choice
<input type="radio"/>	Very significant (over 60 percent)

<input type="radio"/>	Significant (30-60 percent)
<input type="radio"/>	Moderate (5-30 percent)
<input type="radio"/>	Little (0-5 percent)

54. Where would the cost saving come from?

	Choice
<input type="checkbox"/>	By reducing steps of fund transfers through domestic intermediaries
<input type="checkbox"/>	By achieving a better deal on foreign exchange cost (i.e., spread)
<input type="checkbox"/>	Other (please specify)

55. Any additional comments.

VI. CBDC Challenges

56. What are the main challenges you are facing in developing and implementing CBDCs?

	Choice
<input type="checkbox"/>	Banking disintermediation and financial instability
<input type="checkbox"/>	Changes to monetary policy transmission
<input type="checkbox"/>	Central bank capacity (human capital and physical infrastructure)
<input type="checkbox"/>	Interoperability
<input type="checkbox"/>	Currency substitution and capital account volatility

<input type="checkbox"/>	Cybersecurity
<input type="checkbox"/>	Rapid obsolescence of existing technological platforms
<input type="checkbox"/>	Internet disruptions and low internet and mobile penetration
<input type="checkbox"/>	Public / Private partnership and business model
<input type="checkbox"/>	Consistency with the global payment strategy
<input type="checkbox"/>	Reputational Risk
<input type="checkbox"/>	Trust
<input type="checkbox"/>	Other (please specify)

57. Please provide details on the challenges.

58. How are you planning to address these challenges?

59. Are you hiring any external consultants or technical advisors to help implement CBDC?

	Choice
<input type="radio"/>	Yes
<input type="radio"/>	No

60. What are the total expected costs (in \$US) of "developing" a CBDC?

61. What are the expected costs (in \$US) of "operating" the CBDC?

62. Who will bear the costs to develop and operate the CBDC program?

	Choice
<input type="checkbox"/>	Central Bank
<input type="checkbox"/>	Intermediary
<input type="checkbox"/>	Users

63. In your view, what would be staffing requirement at the central bank for implementing a CBDC?

64. In particular, what would be the cost of additional central bank infrastructure in US\$ (for example, 0, if you currently have the necessary central bank infrastructure)?

65. In particular, what would be the cost for additional national infrastructure if needed, like for internet or mobile network (in \$US)?

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66. Any additional comments.

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VII. Fast Payment Systems

67. Do you have a Fast Payment System in place or are you actively considering one?

	Choice
<input type="radio"/>	Yes
<input type="radio"/>	No

67.1. How can the Fast Payment System be accessed?

Consider it, if any of following answers are matched for "Do you have a Fast Payment System in place or are you actively considering one? " Question:

- Yes

	Choice
<input type="checkbox"/>	Mobile phones (for example via QR code)
<input type="checkbox"/>	Internet connection

<input type="checkbox"/>	Feature phone
<input type="checkbox"/>	Other (please specify)

67.2. Would people also need the national ID?

Consider it, if any of following answers are matched for "Do you have a Fast Payment System in place or are you actively considering one? " Question:

- Yes

	Choice
<input type="radio"/>	Yes
<input type="radio"/>	No

67.3. How much are average peer-to-peer transfer fees associated with the Fast Payment System?

Consider it, if any of following answers are matched for "Do you have a Fast Payment System in place or are you actively considering one? " Question:

- Yes

67.4. If you are considering a CBDC (or already have a CBDC in place), do you anticipate that the CBDC will be more efficient (faster and cheaper) than the Fast Payment Systems?

Consider it, if any of following answers are matched for "Do you have a Fast Payment System in place or are you actively considering one?" Question:

- Yes

67.5. Are the platforms for Fast Payment Systems maintained and managed by the central bank or by the private sector?

Consider it, if any of following answers are matched for "Do you have a Fast Payment System in place or are you actively considering one?" Question:

- Yes

	Choice
<input type="checkbox"/>	Private sector
<input type="checkbox"/>	Central bank

67.6. How are Fast Payment Systems integrated with the existing digital payment systems?

Consider it, if any of following answers are matched for "Do you have a Fast Payment System in place or are you actively considering one?" Question:

- Yes

67.7. Are Fast Payment Systems (or will be) regulated by anybody apart from the Central Bank? If yes, by whom?

Consider it, if any of following answers are matched for "Do you have a Fast Payment System in place or are you actively considering one? " Question:

- Yes

67.8. Are these payment systems operating outside of the national jurisdiction and being used for cross-border payments?

Consider it, if any of following answers are matched for "Do you have a Fast Payment System in place or are you actively considering one? " Question:

- Yes

67.9. How will inter-operability challenges between multiple providers, if any, be addressed?

Consider it, if any of following answers are matched for "Do you have a Fast Payment System in place or are you actively considering one? " Question:

- Yes

67.10. What security and risk control systems do you have or anticipate putting in place?

Consider it, if any of following answers are matched for "Do you have a Fast Payment System in place or are you actively considering one?" Question:

- Yes

68. Any additional comments.

VIII. Mobile Money (and eMoney)

69. Are there any forms of digital money (e.g, mobile money, m-pesa) circulating in your country?

	Choice
<input type="radio"/>	Yes
<input type="radio"/>	No

69.1. What are they?
<p>Consider it, if any of following answers are matched for "Are there any forms of digital money (e.g, mobile money, m-pesa) circulating in your country?" Question:</p> <ul style="list-style-type: none"> • Yes

69.2. What are their legal status?
<p>Consider it, if any of following answers are matched for "Are there any forms of digital money (e.g, mobile money, m-pesa) circulating in your country?" Question:</p> <ul style="list-style-type: none"> • Yes

69.3. Are they offered by domestic companies/institutions or foreign ones?						
<p>Consider it, if any of following answers are matched for "Are there any forms of digital money (e.g, mobile money, m-pesa) circulating in your country?" Question:</p> <ul style="list-style-type: none"> • Yes 						
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;"></th> <th style="text-align: left;">Choice</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Domestic companies / institutions</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Foreign companies / institutions</td> </tr> </tbody> </table>		Choice	<input type="checkbox"/>	Domestic companies / institutions	<input type="checkbox"/>	Foreign companies / institutions
	Choice					
<input type="checkbox"/>	Domestic companies / institutions					
<input type="checkbox"/>	Foreign companies / institutions					

69.4. Are they backed 100 percent?	
Consider it, if any of following answers are matched for "Are there any forms of digital money (e.g, mobile money, m-pesa) circulating in your country?" Question:	
<ul style="list-style-type: none"> • Yes 	
	Choice
<input type="radio"/>	Yes
<input type="radio"/>	No

69.5. What are the underlying assets that back their value?	
Consider it, if any of following answers are matched for "Are there any forms of digital money (e.g, mobile money, m-pesa) circulating in your country?" Question:	
<ul style="list-style-type: none"> • Yes 	
	Choice
<input type="checkbox"/>	Central Bank Reserves
<input type="checkbox"/>	Bank Deposits
<input type="checkbox"/>	Government Bonds
<input type="checkbox"/>	Foreign Assets
<input type="checkbox"/>	Deposit Insurance
<input type="checkbox"/>	Other assets

69.6. What is the size of the market for privately issued money (value of total transactions in local currency, year)?

Consider it, if any of following answers are matched for "Are there any forms of digital money (e.g, mobile money, m-pesa) circulating in your country?" Question:

- Yes

69.7. If possible, pls provide past five years data for the size of the market, via separate file.

Consider it, if any of following answers are matched for "Are there any forms of digital money (e.g, mobile money, m-pesa) circulating in your country?" Question:

- Yes

69.8. What is the current number of accounts (approximate number, year).

Consider it, if any of following answers are matched for "Are there any forms of digital money (e.g, mobile money, m-pesa) circulating in your country?" Question:

- Yes

69.9. What is the current number of users (approximate number, year).
Consider it, if any of following answers are matched for "Are there any forms of digital money (e.g, mobile money, m-pesa) circulating in your country?" Question: <ul style="list-style-type: none"> • Yes
<input style="width: 100%; height: 20px;" type="text"/>

69.10. Can they be exchanged with the legal tender?						
Consider it, if any of following answers are matched for "Are there any forms of digital money (e.g, mobile money, m-pesa) circulating in your country?" Question: <ul style="list-style-type: none"> • Yes 						
<table border="1"> <thead> <tr> <th></th> <th>Choice</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"><input type="radio"/></td> <td>Yes</td> </tr> <tr> <td style="text-align: center;"><input type="radio"/></td> <td>No</td> </tr> </tbody> </table>		Choice	<input type="radio"/>	Yes	<input type="radio"/>	No
	Choice					
<input type="radio"/>	Yes					
<input type="radio"/>	No					

69.11. Is there any fee for this exchange and if so, how much is it?
Consider it, if any of following answers are matched for "Are there any forms of digital money (e.g, mobile money, m-pesa) circulating in your country?" Question: <ul style="list-style-type: none"> • Yes
<input style="width: 100%; height: 60px;" type="text"/>

69.12. Are the platforms for the digital money transactions maintained and managed by the central bank or by the private sector?

Consider it, if any of following answers are matched for "Are there any forms of digital money (e.g, mobile money, m-pesa) circulating in your country?" Question:

- Yes

	Choice
<input type="checkbox"/>	Private sector
<input type="checkbox"/>	Central bank

69.13. How will inter-operability challenges between multiple providers be addressed?

Consider it, if any of following answers are matched for "Are there any forms of digital money (e.g, mobile money, m-pesa) circulating in your country?" Question:

- Yes

--

69.14. Are these forms of digital money regulated?

Consider it, if any of following answers are matched for "Are there any forms of digital money (e.g, mobile money, m-pesa) circulating in your country?" Question:

- Yes

	Choice
<input type="radio"/>	Yes
<input type="radio"/>	No

69.14.1. Who is regulating them?
<p>Consider it, if any of following answers are matched for "Are these forms of digital money regulated?"</p> <p>" Question:</p> <ul style="list-style-type: none"> • Yes
<div style="border: 1px solid black; height: 60px;"></div>

69.14.2. Is there any plan to regulate them?
<p>Consider it, if any of following answers are matched for "Are these forms of digital money regulated?"</p> <p>" Question:</p> <ul style="list-style-type: none"> • No
<div style="border: 1px solid black; height: 60px;"></div>

69.15. Are these forms of digital money in circulation outside the jurisdiction and being used for cross-border payments?						
<p>Consider it, if any of following answers are matched for "Are there any forms of digital money (e.g, mobile money, m-pesa) circulating in your country?" Question:</p> <ul style="list-style-type: none"> • Yes 						
<table border="1"> <thead> <tr> <th></th> <th>Choice</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"><input type="radio"/></td> <td>Yes</td> </tr> <tr> <td style="text-align: center;"><input type="radio"/></td> <td>No</td> </tr> </tbody> </table>		Choice	<input type="radio"/>	Yes	<input type="radio"/>	No
	Choice					
<input type="radio"/>	Yes					
<input type="radio"/>	No					

69.16. Are the authorities planning to enhance the mobile money payment system?	
Consider it, if any of following answers are matched for "Are there any forms of digital money (e.g, mobile money, m-pesa) circulating in your country?" Question:	
<ul style="list-style-type: none"> • Yes 	
	Choice
<input type="radio"/>	Yes
<input type="radio"/>	No

69.16.1. What steps are being planned to improve efficiency?
Consider it, if any of following answers are matched for "Are the authorities planning to enhance the mobile money payment system?" Question:
<ul style="list-style-type: none"> • Yes

69.17. How will inter-operability challenges between multiple providers be addressed?
Consider it, if any of following answers are matched for "Are there any forms of digital money (e.g, mobile money, m-pesa) circulating in your country?" Question:
<ul style="list-style-type: none"> • Yes

69.18. Are mobile money issuers allowed to hold central bank reserves?	
<p>Consider it, if any of following answers are matched for "Are there any forms of digital money (e.g, mobile money, m-pesa) circulating in your country?" Question:</p> <ul style="list-style-type: none"> • Yes 	
	Choice
<input type="radio"/>	Yes
<input type="radio"/>	No

69.19. What security and risk control systems do you have or anticipate putting in place?	
<p>Consider it, if any of following answers are matched for "Are there any forms of digital money (e.g, mobile money, m-pesa) circulating in your country?" Question:</p> <ul style="list-style-type: none"> • Yes 	

70. Any additional comments.	

IX. Crypto-Assets

IX. A. Landscape

71. To your best guess, what percentage of your population use private sector crypto-assets, such as bitcoin, ethereum, stablecoins?

	Choice
<input type="radio"/>	0-10
<input type="radio"/>	11-25
<input type="radio"/>	26-50
<input type="radio"/>	51-75
<input type="radio"/>	76-100

72. What are the main use cases for these assets in your country?

	Choice
<input type="checkbox"/>	Speculative purposes
<input type="checkbox"/>	Medium of payments
<input type="checkbox"/>	Sending remittances
<input type="checkbox"/>	Store of value
<input type="checkbox"/>	Other (please specify)

73. What are the main factors driving the adoption of private crypto-assets in your country?

	Choice
<input type="checkbox"/>	Inflation
<input type="checkbox"/>	Currency depreciation
<input type="checkbox"/>	Exchange rate restrictions
<input type="checkbox"/>	Circumvent capital control

<input type="checkbox"/>	Speculation
<input type="checkbox"/>	Illegal activities
<input type="checkbox"/>	Other (please specify)

74. Are you seeing increased dollarization from the usage of crypto-assets?

	Choice
<input type="radio"/>	Yes
<input type="radio"/>	No

75. What do you see as crypto's impact on financial stability and monetary policy transmission?

76. What do you see as the impact of crypto on capital flows?

77. What are the forms of crypto-assets (such as stablecoins, volatile cryptocurrency like bitcoin, ethereum etc.) circulating in your country?

78. What is the size of the market for crypto-assets (value of transactions in local currency, year)?

79. If possible, please provide past five years data for the size of this market.

80. What is the current number of accounts (approximate number, year).

81. What is the current number of users (approximate number, year).

82. Are there any domestically issued crypto-assets (either by the private sector or the government)?

	Choice
<input type="radio"/>	Yes
<input type="radio"/>	No

83. Could you report the approximate market share (in terms of transaction volume) that is issued by domestic (as opposed to foreign) companies/institutions?

--

84. What types of crypto-related businesses currently exist in your country?

--

85. What platforms are crypto-assets transacted / traded on?

--

86. How are crypto-assets integrated with the existing payment systems?

--

IX. Crypto-Assets

IX. B. Regulation

87. Are there any regulations in place regarding use and trade of crypto-assets?

	Choice
<input type="radio"/>	Yes

<input type="radio"/>	No
-----------------------	----

88. What regulations are in place?

89. Which government body is in charge of crypto regulations?

90. Are people legally allowed to hold and transact in crypto-assets?

	Choice
<input type="radio"/>	Yes
<input type="radio"/>	No

91. If issued by domestic institutions, are you requiring underlying assets to back their value?

92. Can crypto-assets be exchanged with the legal tender?

	Choice

<input type="radio"/>	Yes
<input type="radio"/>	No

92.1. Is there any fee for this exchange and if so, how much is it?

Consider it, if any of following answers are matched for "Can crypto-assets be exchanged with the legal tender?" Question:

- Yes

93. Are crypto-assets accepted as means of payment by merchants?

94. Can crypto-assets be bought and sold through payments from bank accounts?

95. Are financial institutions such as banks, insurance and pension funds allowed to hold crypto-assets?

96. Are there specific regulations that prevent people from transferring money abroad using crypto-assets?

--

IX. Crypto-Assets

IX.C. Exchanges

97. Are local crypto "exchanges" regulated?

--

98. How many crypto exchanges currently operate in your country?

--

99. What are their average daily trading volumes?

--

100. How many accounts are registered in the crypto exchanges?

--

101. Additional comments.

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X. IMF Engagement

102. What kind of assistance would you like from the IMF for the development of CBDCs or Private Digital Payment Systems?

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103. What kind of analytical work would you like to see from the IMF? And from the African department specifically?

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104. Would you like to be part of a multi-country pilot group organized from the IMF African Department, discussing policy issues related to CBDCs and Private Digital Payment Systems?

105. Additional comments.

106. Overall comment

107. Please upload any additional documentation you would like to provide.

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