CBDC for emerging markets: The realities and expectations

Brown Bag Lunch | 29 June 2022

Presenters: Sasha Lünsche and Kinyanjui Mungai

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Outline and main objective of BBL

Main objective: Based on the latest research conducted by Cenfri, this BBL will explore the **role of CBDC** in **payment systems efficiency** and **financial inclusion** in **developing countries**.

Outline of presentation

1. Defining CBDC
2. Recap on the emergence and growth of CBDC among central banks
3. The real potential of (retail) CBDC in developing countries: expectation vs reality
4. Key risks and necessary preconditions
5. Cenfri's view on CBDC, FI and payment efficiency potential for developing countries
6. Next steps for CBDC focus area

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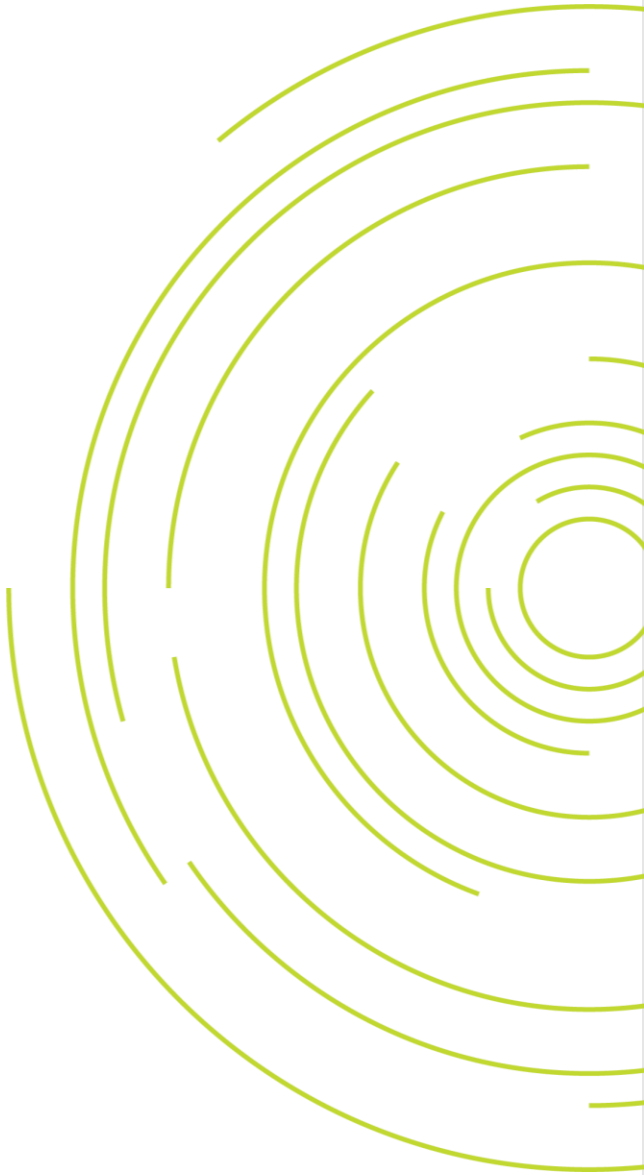
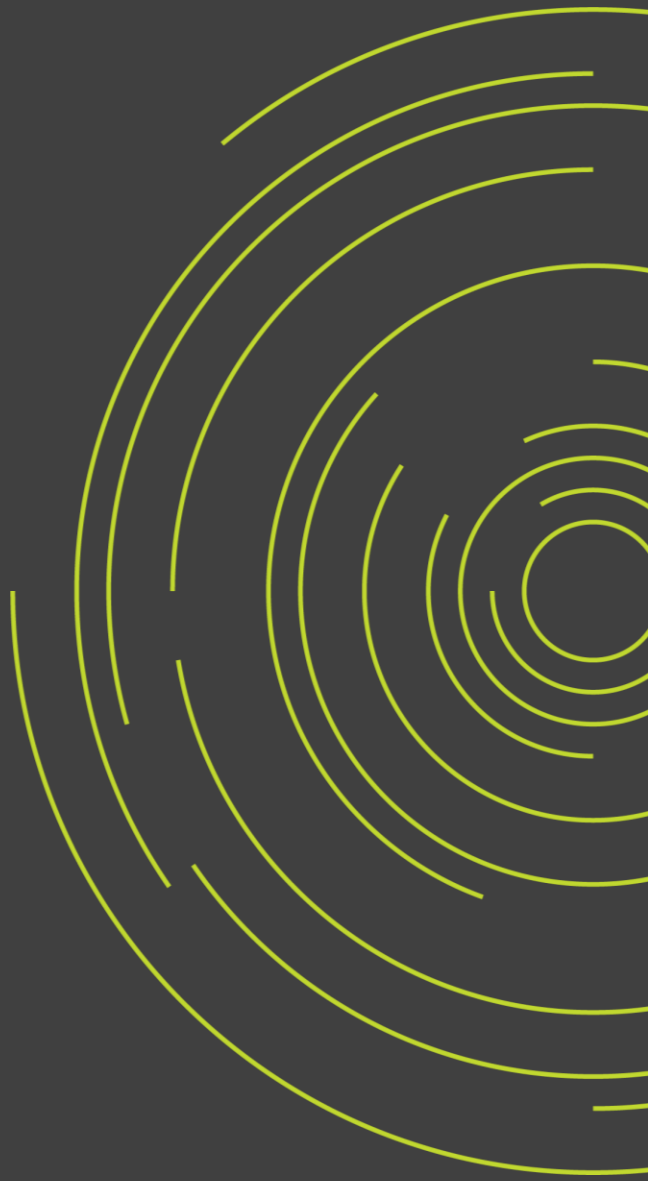
Defining CBDC



How would you describe CBDC?



Characteristics of a CBDC

CBDC is the digital form of cash with additional properties

Attribute	CBDC	Cash
Sovereign legal tender (issued by a central bank)*	☑ It is created, backed and explicitly regulated by the national monetary authority	☑
A store of value	☑ CBDC can transfer the purchasing power from the present day to the future	☑
A unit of account	☑ CBDC can be used as a common measure to value commodities and services	☑
Fungible	☑ CBDC can be readily exchanged as a payment instrument as one unit of CBDC is equivalent to another**	☑
Enables instant settlement	☑ CBDC is central bank value capable of being transferred and settled instantaneously as it is a payment system	☑
Programmable	☑ Capable of unlocking automation of payment transfer through programmable protocols and/or cryptography	☒
Electronic	☑ Can be traceable and enabled to easily operate within the digital economy	☒

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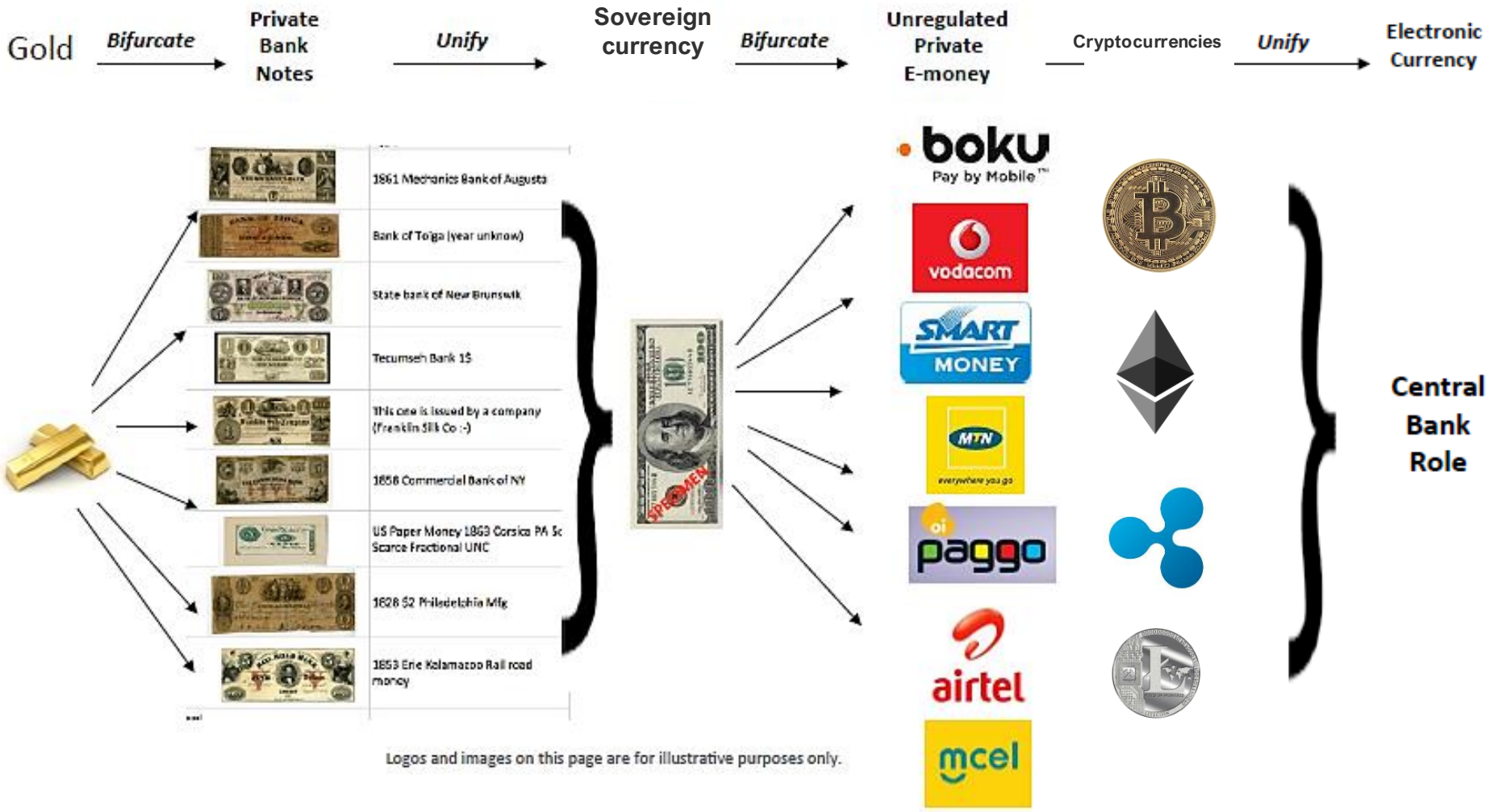
*In practice, this is likely to be considered a limited legal tender instrument as forcing universal acceptability as legal tender may promote more financial exclusion, particularly for vulnerable groups.
**All CBDC in a wallet are indistinguishable and part of a new wallet total

Sources: BIS (2020); Cooper, et al. (2019); Kiff, et al. (2020)

Where CBDC comes from

CBDC represents the natural progression of this process



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Comparing CBDC to other digital instruments

Retail CBDC offers unique advantages over existing retail instruments

Instrument	Description	Legal tender (CB issued)	A store of value	A unit of account[3]	Fungible	Enables instant settlement	Programmable	Electronic
CBDC		☑	☑	☑	☑	☑	☑	☑
An electronic funds transfer (EFT)	A standard mechanism for electronically commercial clearing instrument transmitting funds between institutions	☒	☑[2]	☑	☑	☒	☒	☑
Electronic money (e-money)	Considered as stored value held in the accounts of users, agents, and the provider of the mobile money service	☒	☑	☒	☑	☒	☒	☑
Private cryptocurrency	Virtual assets that are a digital representation of value that can be transferred digitally as a means of payment	☒	☒	☒	☑	☑[1]	☑	☑
Stablecoin	A class of cryptocurrency that is pegged to a unit of an underlying asset and may be partially or fully backed by a state currency	☒	☑	☑	(☒)	☑	☑	☑

1. Mobile money schemes clear instantly but do not settle instantly. Most regulators require mobile money schemes to hold funds equal to 100% of the electronic money float in safe, liquid investments at banks.
2. *The EFT instruction enables customers to store value in the form of bank deposits (the store of value account).
3. National unit of account

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Sources: BIS (2020), GSMA (2010), Bode, et al. (2021), FATF (2019), IFWG (2021), WEF(2022)

Different CBDC models

There are two key design features that differentiate CBDC models

Type	Distribution model
Wholesale	***Direct***
Represents CB money that is used to facilitate wholesale payments on national payment systems such as the current RTGS.	The CB issues money and performs all functions, including direct interaction with end users.
OR	AND / OR
Retail	***Multi-tier***
Like cash in that it is a retail payment instrument, issued and backed by the CB. It's typically high frequency, low-value payments, compared to wholesale, which tends to be low-frequency and high-value payments.	In the multi-tiered CBDC model, CB issues or authorises money creation, but delegates functions to non-central bank intermediaries (FSPs) who interact with end user.
Most designs focus on retail CBDC as it more directly contributes to financial inclusion by meeting the financial needs of consumers and merchants.	CBDCs typically leverage existing rails and therefore operate in a multi-tier distribution model in order to preserve fractional banking systems and processes.

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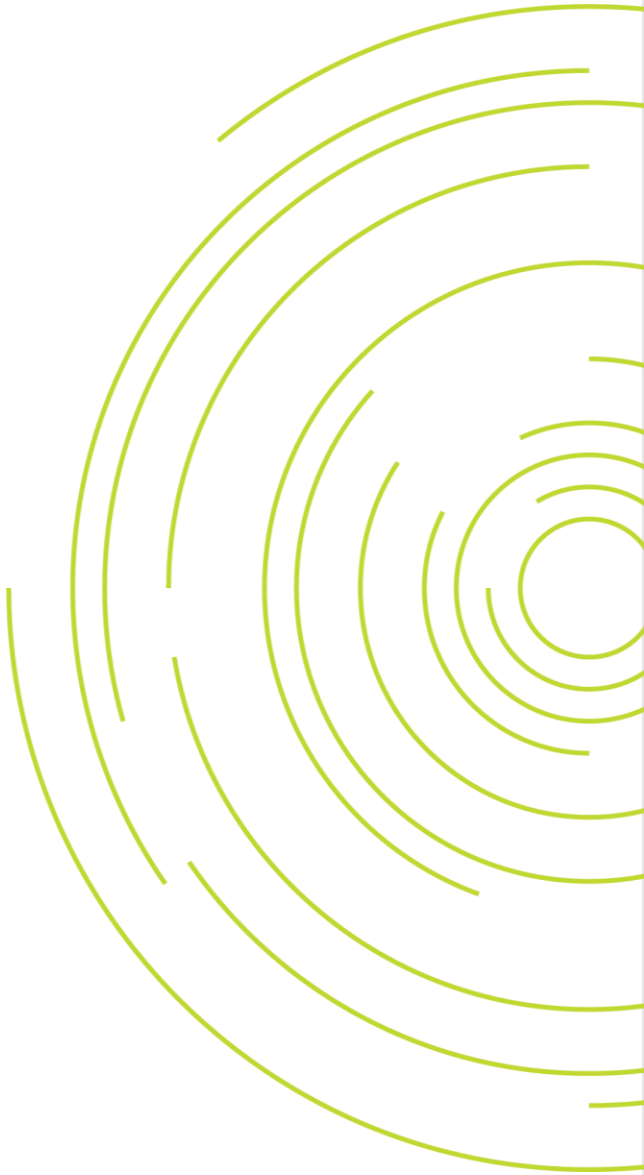
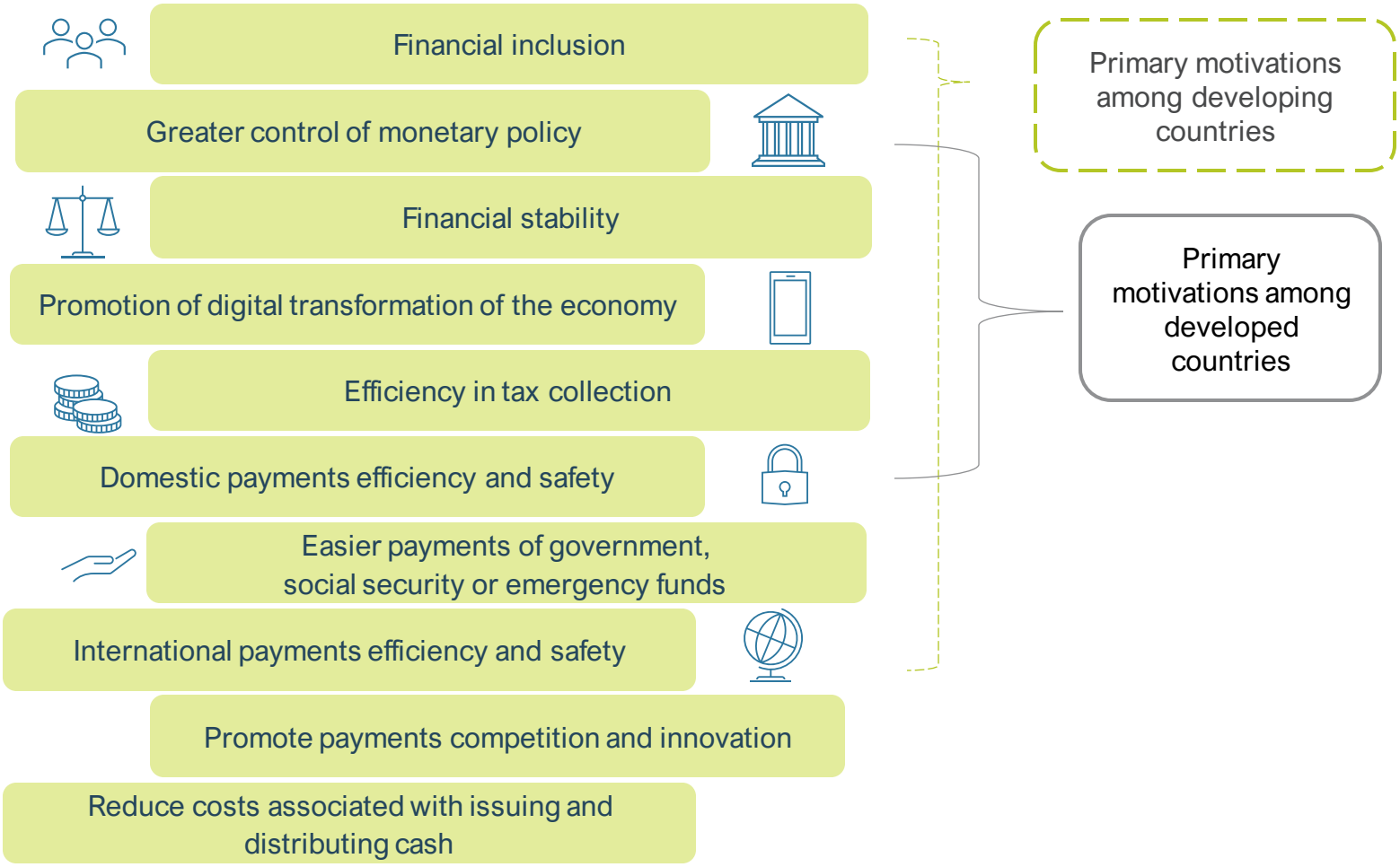
Source: BIS (2020); Cooper, Esser and Allen (2019)

Why we care about CBDCs



CBDC has been identified by central banks as a key tool for financial inclusion and payment system efficiency

Financial inclusion and payment system efficiency are key drivers for developing and emerging markets to pursue a retail CBDC



Sources: B. Cooper, J. Kiff and A. Esser, (2021); AFI (2022)

Why we are interested in CBDC

Developing markets have strong incentives for CBDC to deliver on its potential

- Although developing countries cite financial inclusion and payment system efficiency as two of their main use cases for explo ring CBDC, the reality is that **CBDC is not a panacea for solving these issues**
  - If the CBDC is not context specific and fit for purpose in its design, it **could end up being ineffective, costly and potentially have unintended consequences.**
  - The benefits of a CBDC are therefore not a certainty and could present risks for regulators/ecosystems, as with any innovation.
- **Our work's objective** has therefore been to evaluate if the promised benefits of CBDC could be realistically achieved in the developing world context, and how that can happen without increasing risks for countries.

To date Cenfri has been an important thought partner to central banks and other development agencies through the following CBDC projects:

Our work

- ITU inputs and collaboration
- The benefits and potential risks of digital fiat currencies (concept note)
- CBDC and financial inclusion mobile money
- Eswatini CBDC diagnostic
- GIZ CBDC study on Tunisia
- The implications of CDBC for revenue authorities in developing countries
- AFI CBDC and financial inclusion

Most recent work (2021-2022)

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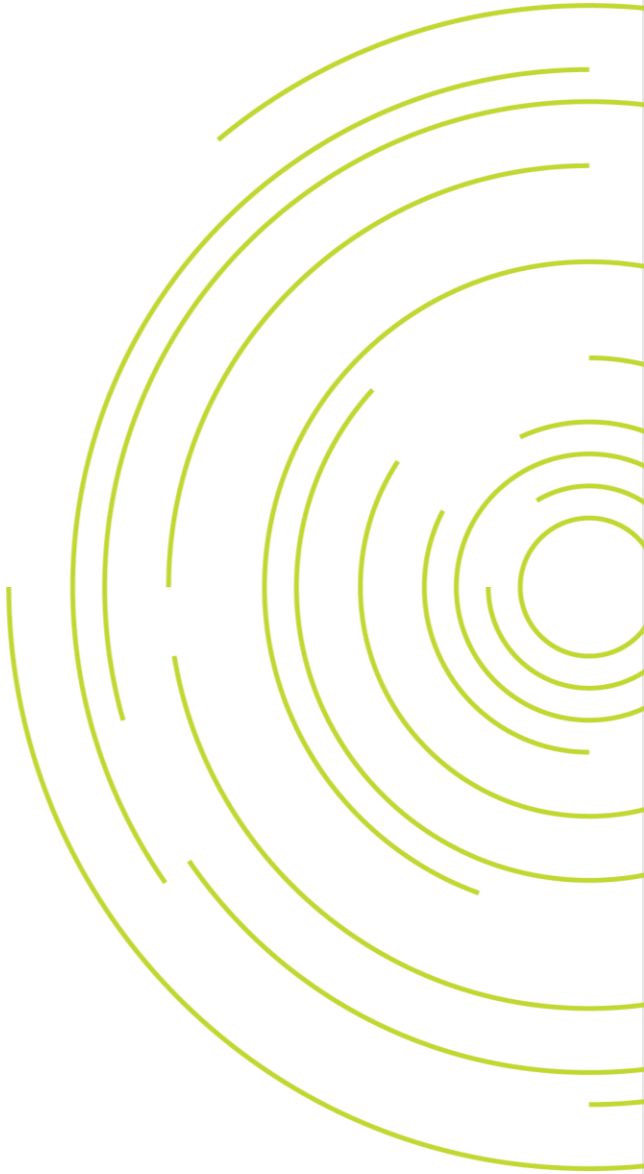
The real potential of (retail) CBDC in developing countries: expectation vs reality



How CBDC can address payments efficiency issues

Overview of CBDC features to address payment efficiency challenges

Use cases	Person-to-person (P2P) payments	Person-to-business or -merchant (P2B) payments	Government-to-person (G2P) payments	Person-to-government (P2G) payments	Cross-border payments
Selected barriers	Costly and complex inter-provider payments due to a lack of interoperability.	Delayed clearing/settlement results in significant risk for merchants.	Poor liquidity management affects how much recipients trust the digital ecosystem and how easily they can access their funds.	Lack of integrated bill payments makes payments and collections of bill payments inefficient.	Slow settlements heavily affected by differences in operating hours.
Potential benefits of CBDC	CBDC can lower provider costs and complexity by eliminating the need for third parties and enable payment instrument standardisation.	CBDC to facilitate instant value transfer, lowering credit, counterparty and settlement risks.	• CBDC can enable direct rebalancing of agent float at greater speeds and improve liquidity management whilst lowering liquidity risks. • Improved liquidity can build trust among G2P recipients around the efficiency of the payments system in making their funds available.	• CBDC can support the integration of multiple P2G use cases for more efficient collection and payment. • Programmability and smart contracts could allow for the automation of Value Added Taxes (VAT) at source.	CBDC could reduce settlement times through eliminating the need for intermediaries.

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Sources: B. Cooper, J. Kiff and A. Esser, (2021)., AFI (2022)

Barriers CBDC needs to address to support financial inclusion

Overview of CBDC features to address financial inclusion barriers

Use cases	Person-to-person (P2P) payments	Person-to-business or -merchant (P2B) payments	Government-to-person (G2P) payments	Person-to-government (P2G) payments	Cross-border payments
Selected barriers	Perceived lack of DFS affordability reinforces cash dominance	Poor connectivity hinders the adoption of digital payments for merchant payments	G2P relies on accurate, basic identification of the recipient. Where there is insufficient identification, vulnerable recipients tend to be invisible to the system.	Exclusion from the direct tax net; tax payments can be onerous from a payer perspective: tax amount calculation, payment modes, time of payment	The costs of cross-border transactions are significant, which encourages the use of informal methods of cross-border transfers.
Potential benefits of CBDC	• Fewer intermediaries • Fewer administrative costs • Aggregation of scale advantages	CBDC could be expanded to include contactless hard wallets and NFC wearables that enable consumers to make face-to-face payments without needing a smartphone	CBDC can become a digital proxy identifier, and offer risk-based approach options to customer due diligence	• Inclusion into the direct tax net • Reduce overall tax burden: easier calculation, payment, reduced admin burden	CBDC could lower the costs of cross-border payments through eliminating the costs associated with correspondent banks and other intermediaries.

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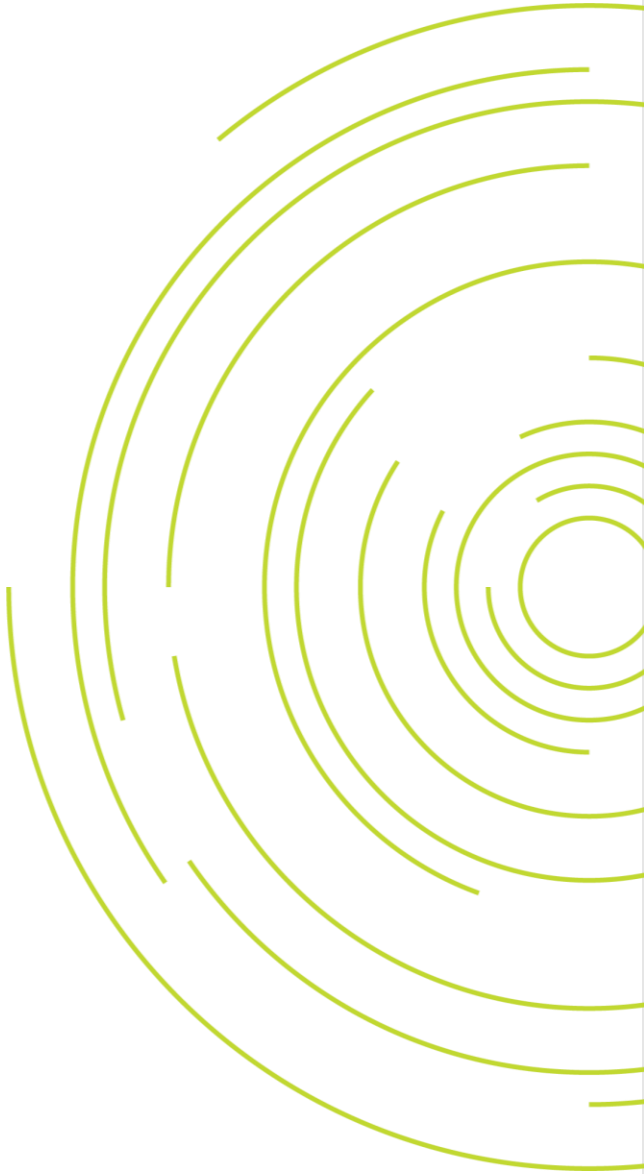
Sources: B. Cooper, J. Kiff and A. Esser, (2021)., AFI (2022)

Key risks and necessary preconditions



Potential risks and unintended consequences

Risk and unintended consequences could manifest for specific parties

Consumer

- Increase the digital divide
- Shift to cash to retain their anonymity
- Potential to infringe on consumer's privacy rights
- Applying a copy and paste approach to CBDC regulations could reinforce existing barriers

Government institutions

- CBs could risk their reputation
- CBs may be exposed to additional financial stability risks
- RAs face operational risk in transitioning to new ICT infrastructure

Payment service providers

- Undermine PSPs' business models
- Undermine encashment infrastructure

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Sources: Sofrecom (2019); Stakeholder consultation (2022); AFI (2021); Disparte (2021); UNCTAD (2022); Cooper, et al.(2020); AFI (2021); Light (2022); House of Lords (2022); Mookerjee(2021); Deloitte (2022)

Potential risks and unintended consequences

Risks and unintended consequences could be cross-cutting and affect all parties involved

Cybersecurity is likely the biggest risk for everyone involved

End users run the risk of their CBDC wallet being compromised. In addition, while many CBDCs will use DLT, it will require some level of centralisation from the central banks. It could make a central bank and its CBDC system an attractive target for more sophisticated attacks.

Failure to future proof CBDC for additional use cases and global transactions

Central banks may inadvertently design their CBDCs for the needs and challenges of today rather than considering the evolving trends/needs/requirements of the digital and payment landscape, including designing to accommodate cross-border payments and environmental concerns relating to energy-intensive minting and distribution.

Retail CBDC risks being a hammer in search of nails

CBDC may not be the best tool to solve every barrier. CBDC could offer another layer of complexity to models that need to be simple and efficient to contribute to financial inclusion while also further straining institutional capacity.

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Sources: Sofrecom (2019); Stakeholder consultation (2022); AFI (2021); Disparte (2021); UNCTAD (2022); Cooper, et al.(2020);AFI (2021); Light (2022); House of Lords (2022); Mookerjee(2021); Deloitte (2022)

CBDC ecosystem preconditions

Developing a conducive and enabling environment

Demand-side

- Trust in government and CB
- Digital awareness and digital literacy
- Digital device/ mechanism accessibility and affordability

Infrastructure

- Electricity coverage
- Telecom infrastructure and broad coverage
- Data-sharing infrastructure with the revenue authority (RA) and integration with current tax systems and legacy systems

Supply-side

- Investment from government into payment systems infrastructure
- Industry buy-in for the value and relevance of CBDC
- Developing a cooperative and competitive space where industry players can compete on value add not on payments infrastructure

Regulatory

- Consumer protection
- Develop bespoke AML/CFT compliance guidelines for CBDC
- Digital identification and guidance on developing ID proxies
- Cooperative and competitive environment
- Shared strategy and vision for FI and digitalisation
- Coordinate between financial and non-financial regulators (e.g. RAs)

Key actors in ensuring these preconditions are met include **regulators, policymakers, industry and independent research organizations, like Cenfri, to provide a critical assessment of whether the building blocks are in place.**

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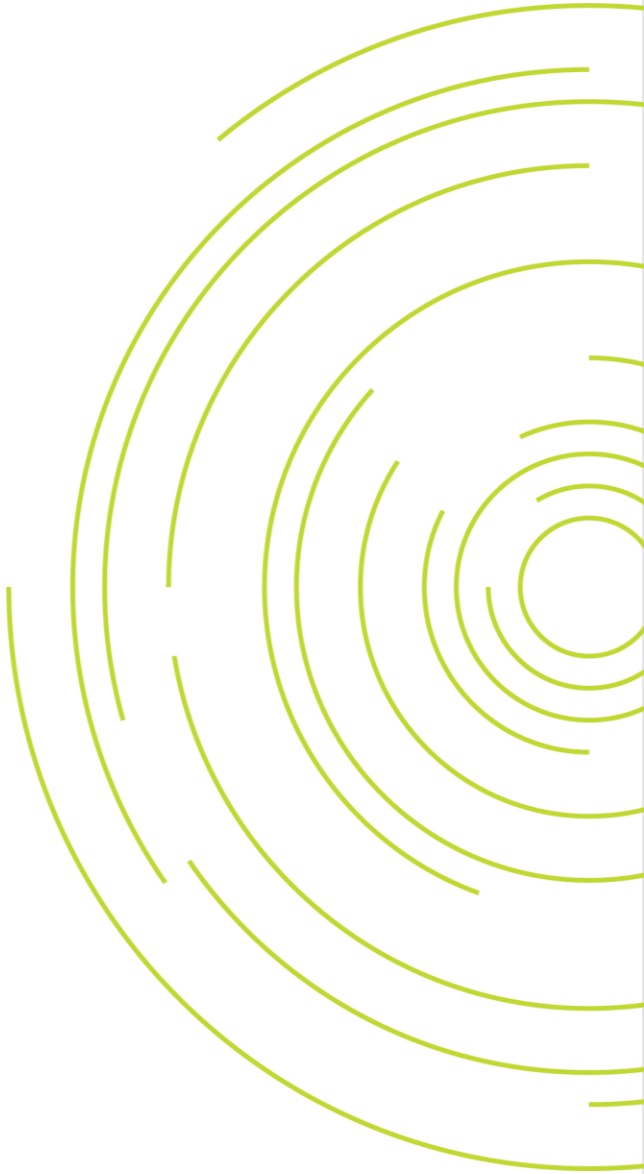
Cenfri's view on CBDC, FI and payment efficiency potential for developing countries



CBDC needs to be agile, fit for purpose, context-specific and be developed considering ecosystem partnerships

CBDC should be agile.

CBDC needs to be extensible to additional functionalities to **meet new use cases and evolving demands**. This ensures that CBDC is a future-proof investment.

CBDC needs to be context specific.

A copy-paste approach cannot be taken as there are different levels of market, **infrastructure**, and **regulatory readiness** across different countries and regions. The design of the CBDC must also be tailored to **meet specific market needs** and use cases.

CBDC should be fit for purpose.

CBDC needs to be fit for purpose through **addressing key needs and barriers**. A poorly designed CBDC that does not address key needs will not be sustainable and may lead to reputational risk for the central bank.

Use cases are connected and exist in a circulation ecosystem:

It is critical to design and implement all use cases rather than in single use case

A potential pitfall exists in considering the **use cases** in isolation rather than as part of a circulatory system where they **are connected and interdependent.**

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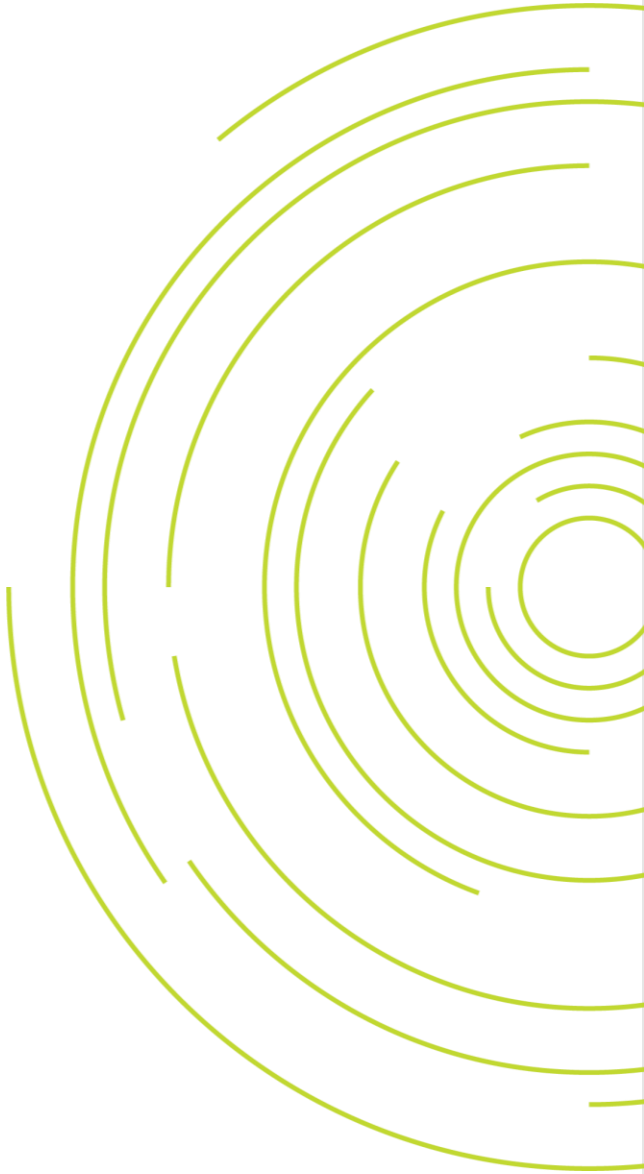
Next steps for CBDC focus area



Next steps for CBDC focus area

Going beyond ex-ante research stage, to assisting with deployment and evaluation

Analysis framework for CBDC	Deeper focus on implementation	Evaluating results post pilots
Further refinement of a harmonised framework for evaluating the feasibility of a CBDC	Working with central banks on the rollout of CBDCs; participate in and lead local/regional/global discussions	Retrospective analysis of the CBDCs deployment and extracting key learnings

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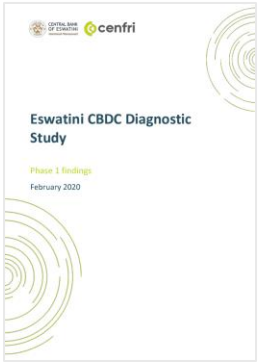
Cenfri's CBDC portfolio to date

B. Cooper, A. Esser and M. Allen, 2019. *The use cases of central bank digital currency for financial inclusion: A case for mobile money.* Available at: [cenfri.org]



Central Bank of Eswatini and Cenfri, 2020. E*swatini CBDC diagnostic study.* Available at: [centralbank.org.sz]

The following studies are forthcoming and will be shared via our website in due course:

1. B. Cooper, J. Kiff and A. Esser, 2021. *Opportunities for establishing a Central Bank Digital Currency in Tunisia*
2. International Center for Tax, 2022. *The implications of CDBC for revenue authorities in developing countries*
3. AFI, 2022. *CBDC and financial inclusion*

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Thank you

Sasha Lünsche and Kinyanjui Mungai

About Cenfri

Cenfri is a global think-tank and non-profit enterprise that bridges the gap between insights and impact in the financial sector. Cenfri's people are driven by a vision of a world where all people live their financial lives optimally to enhance welfare and grow the economy. Its core focus is on generating insights that can inform policymakers, market players and donors who seek to unlock development outcomes through inclusive financial services and the financial sector more broadly.

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