

# DIGITAL ASSETS AND CENTRAL BANK DIGITAL CURRENCIES (CBDCs)

VIRTUAL CONFERENCE

October 29, 2020

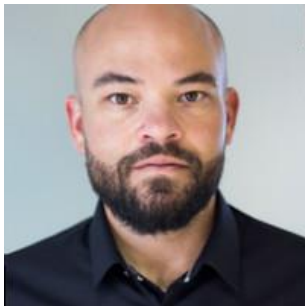
3:00 p.m. CET | 10:00 a.m ET

Event Partner:



**101 Blockchains**

# WELCOME



**Aviv Lichtigstein**  
CEO and Founder

# 101 Blockchains is the world's leading online independent global network for Enterprise Blockchain Practitioners

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67 Lessons



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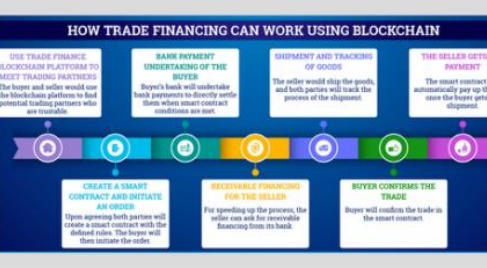


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★★★★★ (23)

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Enterprise Blockchains Actionable Templates & Tools

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- Items represent blockchain selection criteria.
- Selection via easy drop-down menus.
- Selection based on project objectives.



# UPDATES



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# 2020 EDITORIAL CALENDAR



April



May



Jun



July



September



October



November



December



A big  
thank-you  
to our  
Event  
Partner





# Digital Assets And Central Bank Digital Currencies (CBDCs)

## Program Agenda

### Session 1- **Digital Assets**

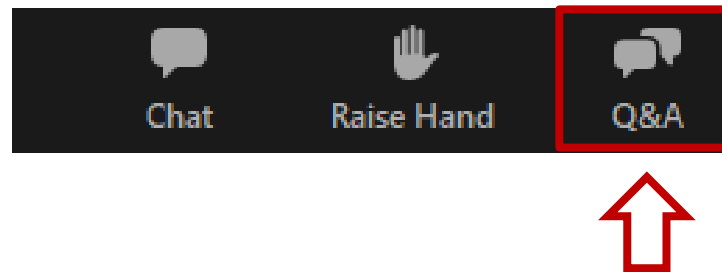
- Keynote + Q&A
- Panel
- Panel Q&A

### Session 2- **Central Bank Digital Currencies**

- Keynote + Q&A
- Panel
- Panel Q&A

# A few housekeeping tips

Use the **Q&A** tab to ask your questions



Event  
Partner:



# Digital Assets And Central Bank Digital Currencies (CBDCs)

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### Session 1- **Digital Assets**

- Keynote + Q&A
- Panel
- Panel Q&A

### Session 2- Central Bank Digital Currencies

- Keynote + Q&A
- Panel
- Panel Q&A

# Digital Assets And Central Bank Digital Currencies (CBDCs)

# DIGITAL ASSETS AND CENTRAL BANK DIGITAL CURRENCIES (CBDCs)



**SPEAKER**

**Daniel Eidan**

Solution Architect, R3



# The Impact of Digital Assets On Today's Business●

Daniel Eidan, Global Solution Architect

*Oct 2020*







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# Agenda

- Blockchains, tokenization and digital assets
- Value based and utility based digital assets
- Real world projects
- The vision



# Digital Assets, tokenization and blockchains

- Blockchain definition: A system of transaction records that is maintained across a distributed system of distrusting participants.
- Blockchain (alternative) definition: A consensus based distributed peer-2-peer transaction system of record that provides data immutability and provenance, eliminating the double spend problem.
- Digital Token definition: A digital instrument whose terms allow its owner to make a claim against its issuer.
- Digital asset definition: A digital representation of value





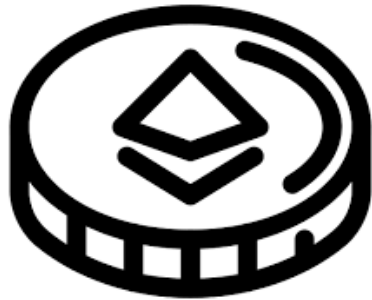
# Value based digital assets

- Digitized: security tokens, debt
- Natively digital: bitcoin



# Utility based digital assets

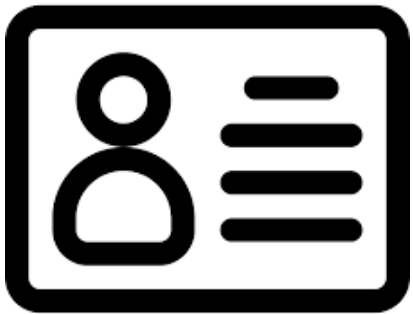
- Institutional liability: CBDC
- Asset backed: stable coins
- Crypto assets: Ethereum, Tether





## Other types of digital assets

- Digital twin supply chain
- ID and credentials
- Copyrights



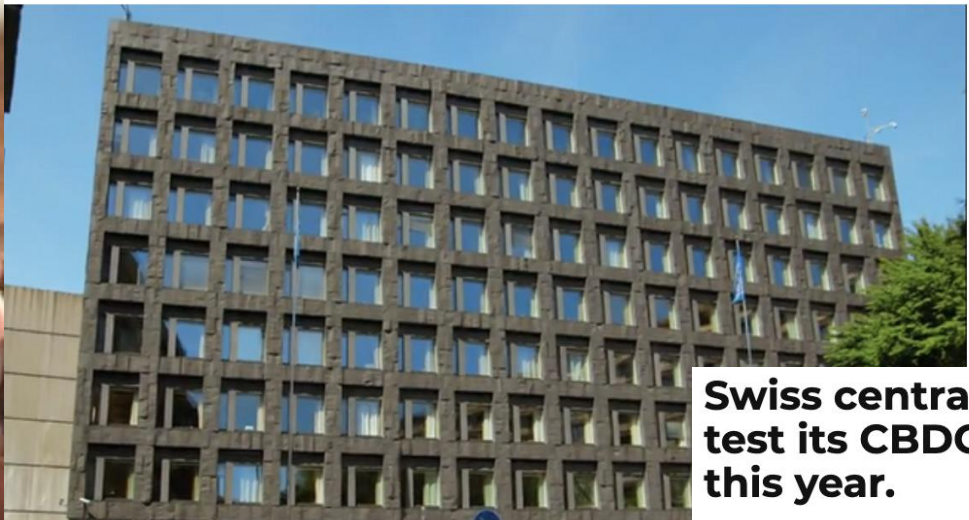
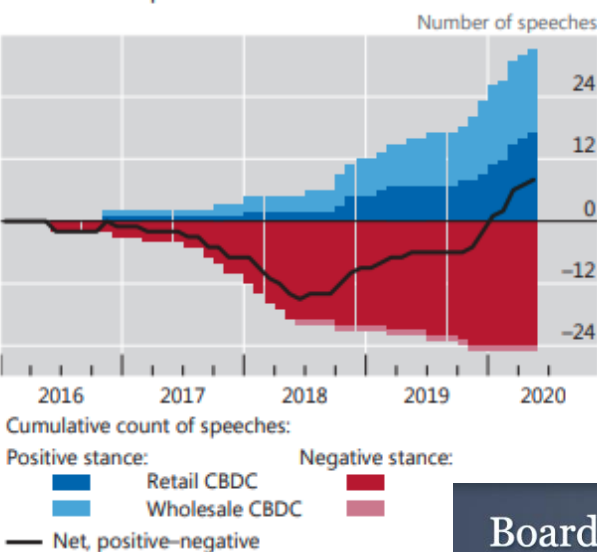


# Utility based digital assets in the real world

## Swedish central bank begins CBDC pilot with Accenture

CBDC: an increasingly likely option

Central bank speeches on CBDC<sup>1</sup>



Swiss central bank plans to test its CBDC by the end of this year.

13 hours ago  
Last Modified date - October 26, 2020  
The Swiss National Bank and the Bank for International Settlements (BIS) plan to test a central bank digital currency by the end of this year.

**Board of Governors of the Federal Reserve System**  
*The Federal Reserve, the central bank of the United States, provides the nation with a safe, flexible, and stable monetary and financial system.*

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Home > Economic Research > FEDS Notes > 2020

**FEDS Notes**

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August 13, 2020  
Comparing Means of Payment: What Role for a Central Bank Digital Currency?

Paul Wong and Jesse Leigh Maniff<sup>1</sup>



Banque de France selects eight firms to experiment with digital currency creation



**The Digital Dollar Project**

Exploring a US CBDC

May 2020



# Utility based digital assets in the real world



## ConsenSys Acquires JPMorgan's Quorum Blockchain

Aug 25, 2020 at 13:30 UTC • Updated Aug 25, 2020 at 20:33 UTC

Twitter Facebook LinkedIn



## Tether's market cap and crypto domination

By COLLIN BROWN — October 26, 2020

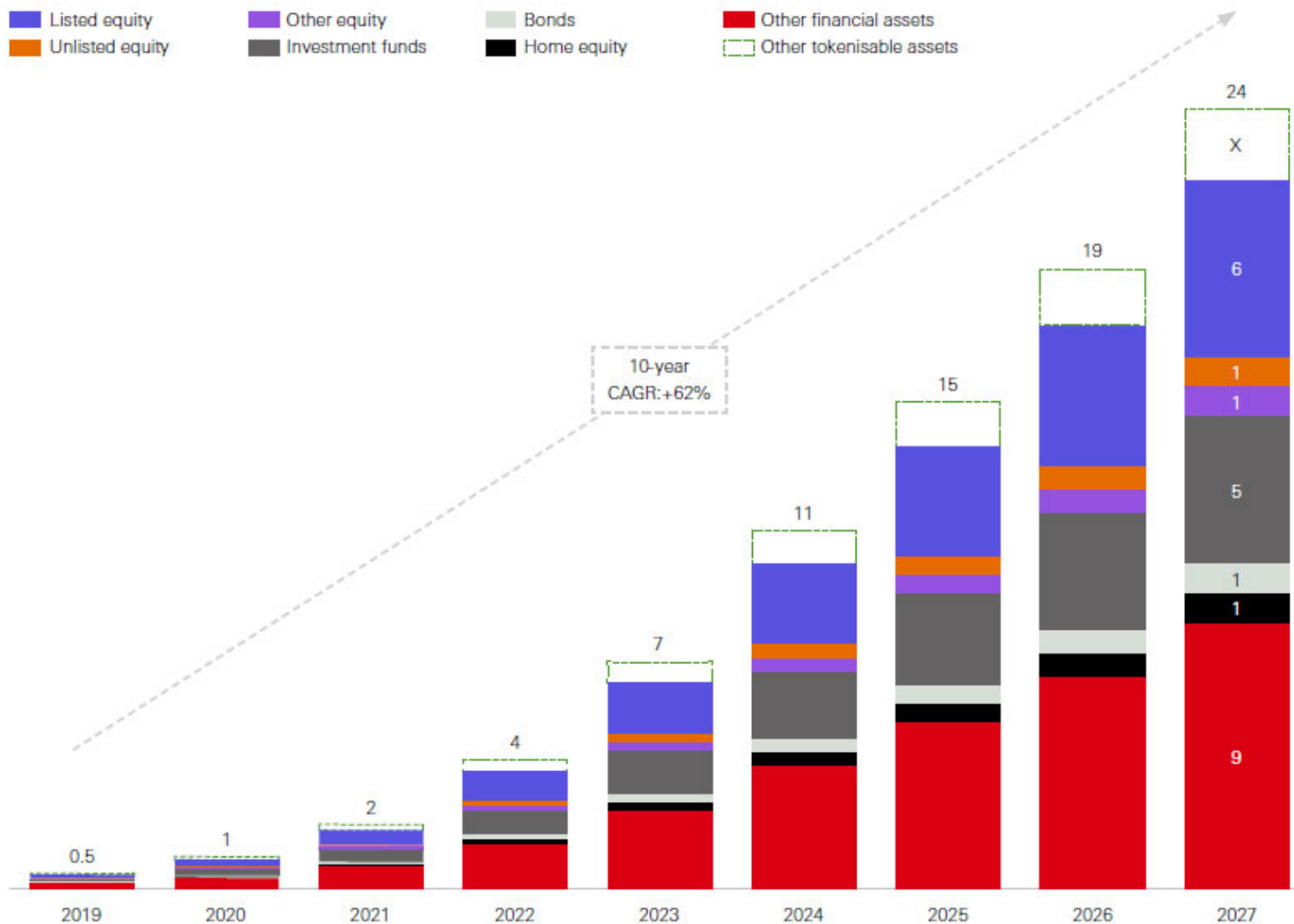
## Wells Fargo to Pilot Dollar-Linked Stablecoin for Internal Settlement

Sep 17, 2019 at 12:20 UTC • Updated Sep 17, 2019 at 21:01 UTC



# Value based digital assets in the real world

Projected tokenised market volume until 2027 (in US\$trn by asset class)<sup>10</sup>



Source: HSBC The 10x Potential of Tokenisation, Democratising investment opportunities, August 2020



# Value based digital assets in the real world

Capital markets · News

## Nasdaq adopts Corda blockchain for digital assets exchange software

6 months ago · by Ledger Insights



## InterWork Alliance

## InterWork Alliance Launches to Standardize Token-Powered Ecosystems Worldwide



## Swiss Stock Exchange SIX Launches Digital Assets Exchange Prototype

Sep 23, 2019 at 11:14 UTC

Twitter Facebook LinkedIn



## HSBC swaps paper records for blockchain to track \$20 billion worth of assets

Tom Wilson, Lawrence White

3 MIN READ

Twitter Facebook LinkedIn

LONDON (Reuters) - HSBC aims to shift \$20 billion worth of assets to a new blockchain-based custody platform by March, in one of the biggest deployments yet of the widely-hyped but still unproven technology by a global bank.



## Goldman puts McDermott in charge of digital assets team

07 August 2020

Twitter 4

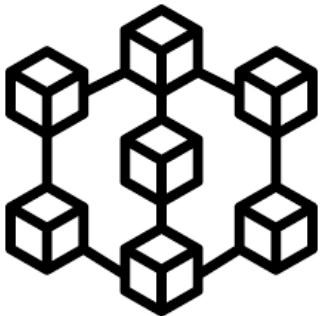
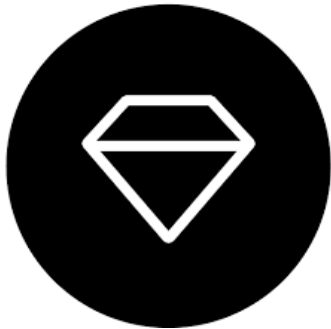
LinkedIn 2

Facebook 0



## EXPLORING DIGITALIZATION IN PUBLIC AND PRIVATE MARKETS

Two case studies from DTCC examine new ways to enhance post-trade processes through the digitalization of assets.



The Vision

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Thank you ●



Daniel Eidan, Global Solution Architect

*daniel.eidan@r3.com*

# Poll

What impact will digital assets have on your business?

1. None
2. Low
3. Medium
4. High

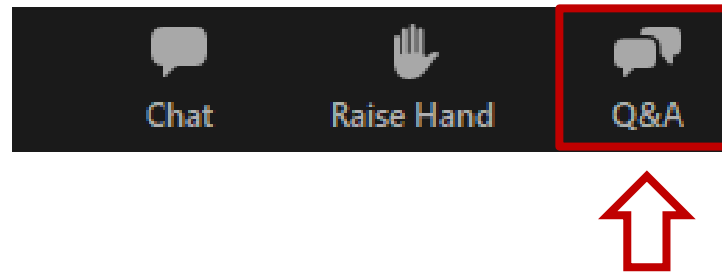
# Poll

What are you doing to prepare?

1. Education and awareness
2. Building out a digital asset strategy
3. Partnering with service providers
4. Building bespoke solutions

## Q&A time

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# Digital Assets And Central Bank Digital Currencies (CBDCs)

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# Digital Assets And Central Bank Digital Currencies (CBDCs)

## DIGITAL ASSETS AND CENTRAL BANK DIGITAL CURRENCIES (CBDCs)



**SPEAKER**

**Dean Demellweek**

Digital Transformation Leader,  
BNP Paribas



# True Value of Tokenised Securities in Capital Markets

by Dean Demellweek

# Forthcoming structural change of capital markets & financial institutions

From dematerialised security to fully dematerialised programmable digital security



Smart Contract

Ledger

P2P Computer Network

DLT Protocol

# A simplified view of a Commercial Paper workflow



Seller of  
Commercial Paper



Ledger State



Buyer

Contract Code: Commercial Paper

Data:

- Issuer
- owner
- Face value
- Maturity Data

Transfer:

- Issue
- Move
- Redeem

Executes < **issue** >

Executes < **Move Paper** >

Execute < **Move Cash** >

Output: Commercial Paper  
State ID: #10001  
Issuer: Example SA  
Face Value: €1,000, 000  
Owner: Example SA  
Maturity Date: 31/12/2020



Output: Commercial Paper  
State ID: #10001  
Issuer: Example SA  
Face Value: €1,000, 000  
Owner: Bank ABC  
Maturity Date: 31/12/2020



Output: Cash  
State ID: #10021  
Issuer: ECB  
Face Value: €900, 000  
Owner: Example SA



Output: Cash  
Contract ID: #10031  
Issuer: ECB  
Face Value: €1,000, 000  
Owner: Bank ABC



Executes < **Move Cash** >

Executes < **Redeem** >



Ok, but what are the benefits of tokenised markets?



- Transparent and automated verification of asset ownership
- Access to illiquid asset classes
- New avenues to access capital
- Creation of new financial products
- Automated compliance
- Speed of settlement, and reduced operational and custody risk
- Collateral velocity and usability
- More efficient use of balance sheet
- 24/7 access to markets and trading
- Confidence in market analysis based on immutable data history

"It may very well be the case that stocks all become tokenised"



Jay Clayton, the chairman of SEC

## From single-asset security token to multi-asset security tokens

Security Token as digital wrapper  
for existing asset classes

Security Token that derives its  
value from a basket of cashflows  
and underlying assets

Security Token that derives its  
value from underlying security  
tokens

innovation

**E.g.** Tokenisation of bonds and  
shares at point of issue

**E.g.** Tokenisation of a high yield  
secured pool of loans that are  
backed by cashflows

**E.g.** Tokenisation of a fund that is  
backed by a portfolio of security  
tokens

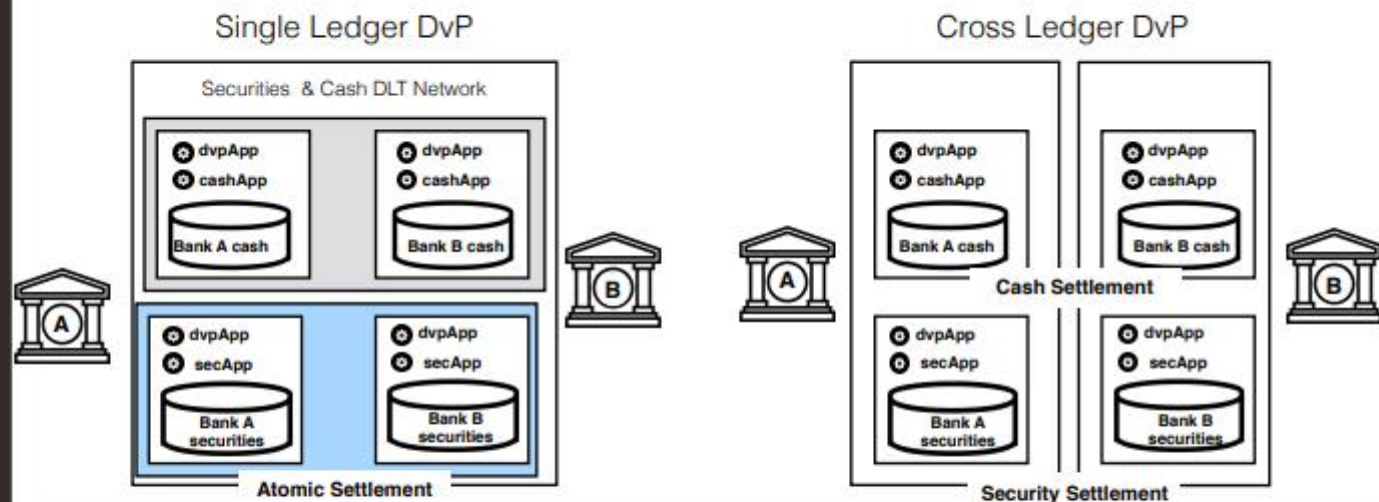


Ok, but how can tokenisation upend settlement?



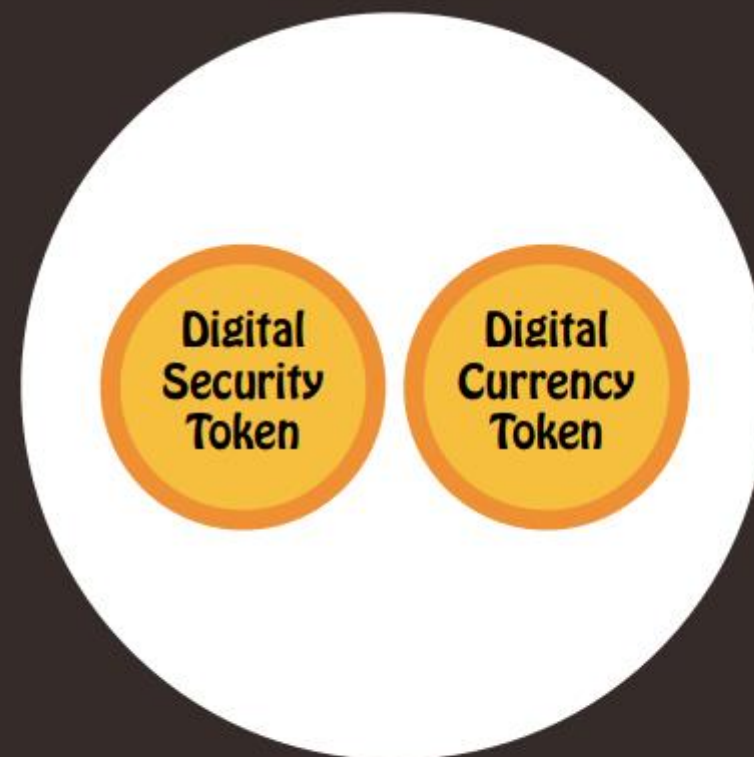
### 3 DvP approaches in DLT environments

#### Security Token v Cash Token (TvT)



#### Security Token for Cash in Account (TvA)

#### Account-based Security for Cash Token (AvT)





Nothing is more powerful than an idea  
whose time has come!

Victor Hugo



dean.demellweek@me.com  
@deandemellweek

# Digital Assets And Central Bank Digital Currencies (CBDCs)

## DIGITAL ASSETS AND CENTRAL BANK DIGITAL CURRENCIES (CBDCs)



**SPEAKER**

**Ezechiel Copic**

Head of Official  
Sector Engagement, cLabs



**101 Blockchains**



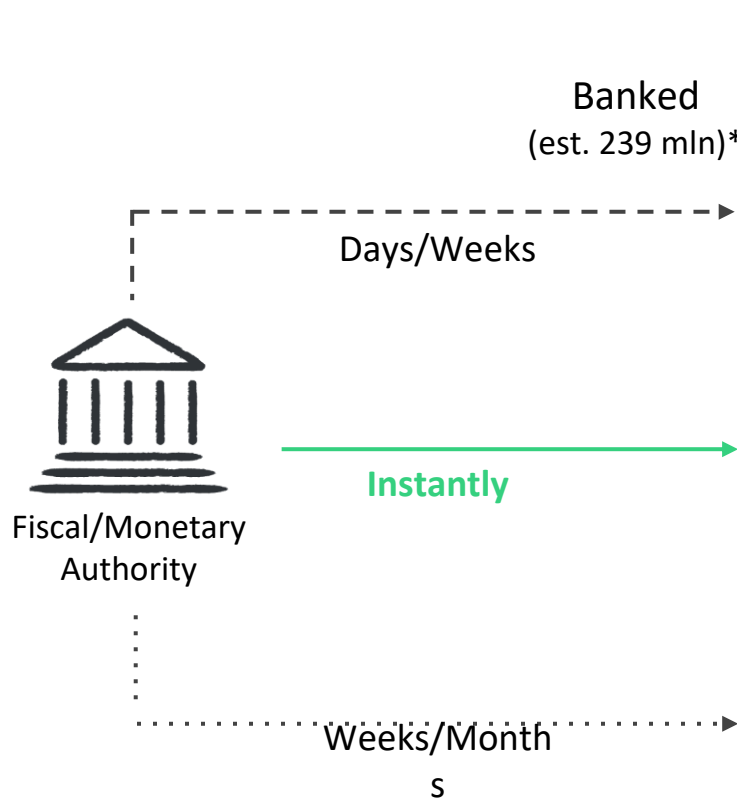
# Digital Assets: Use Case Scenarios

Ezechiel Copic  
Head of Official Sector Engagement  
October 2020

# Delivery (Stimulus funds)

1

Government decides to send stimulus funds to citizens

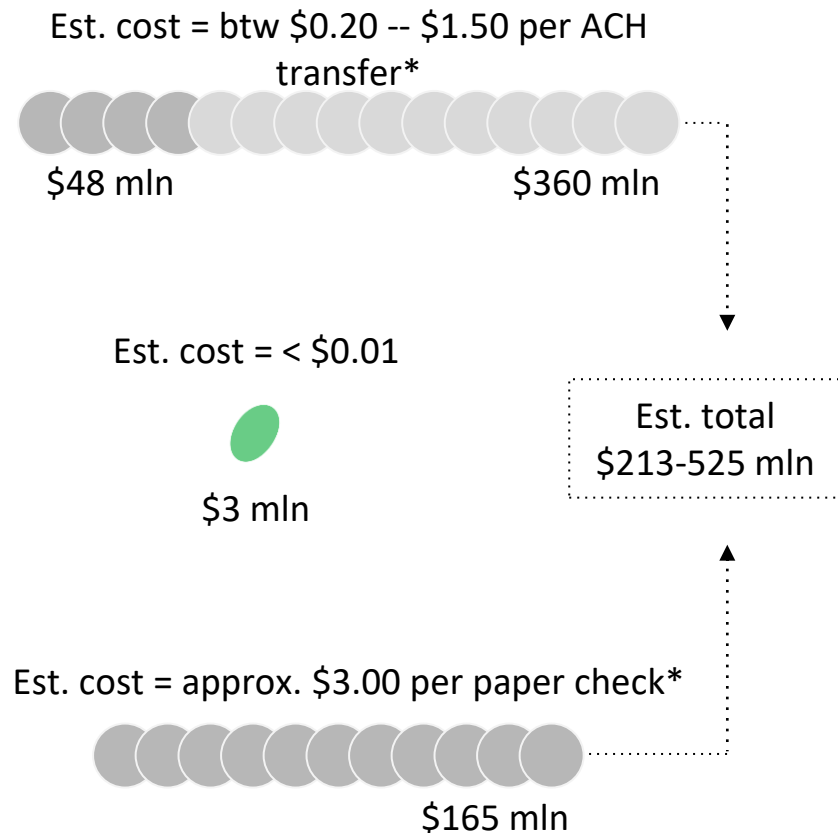


2

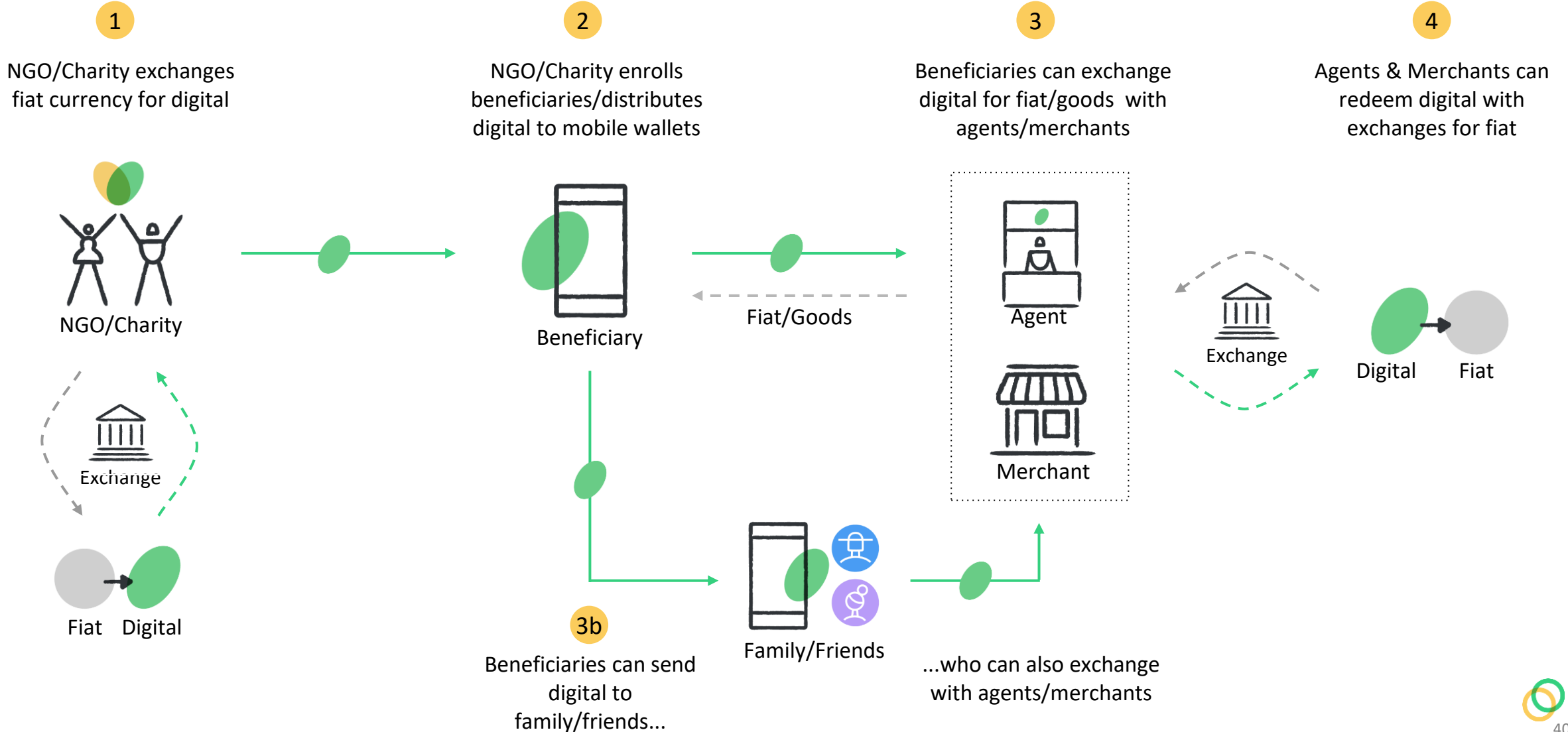
Potential delivery mechanisms available

3

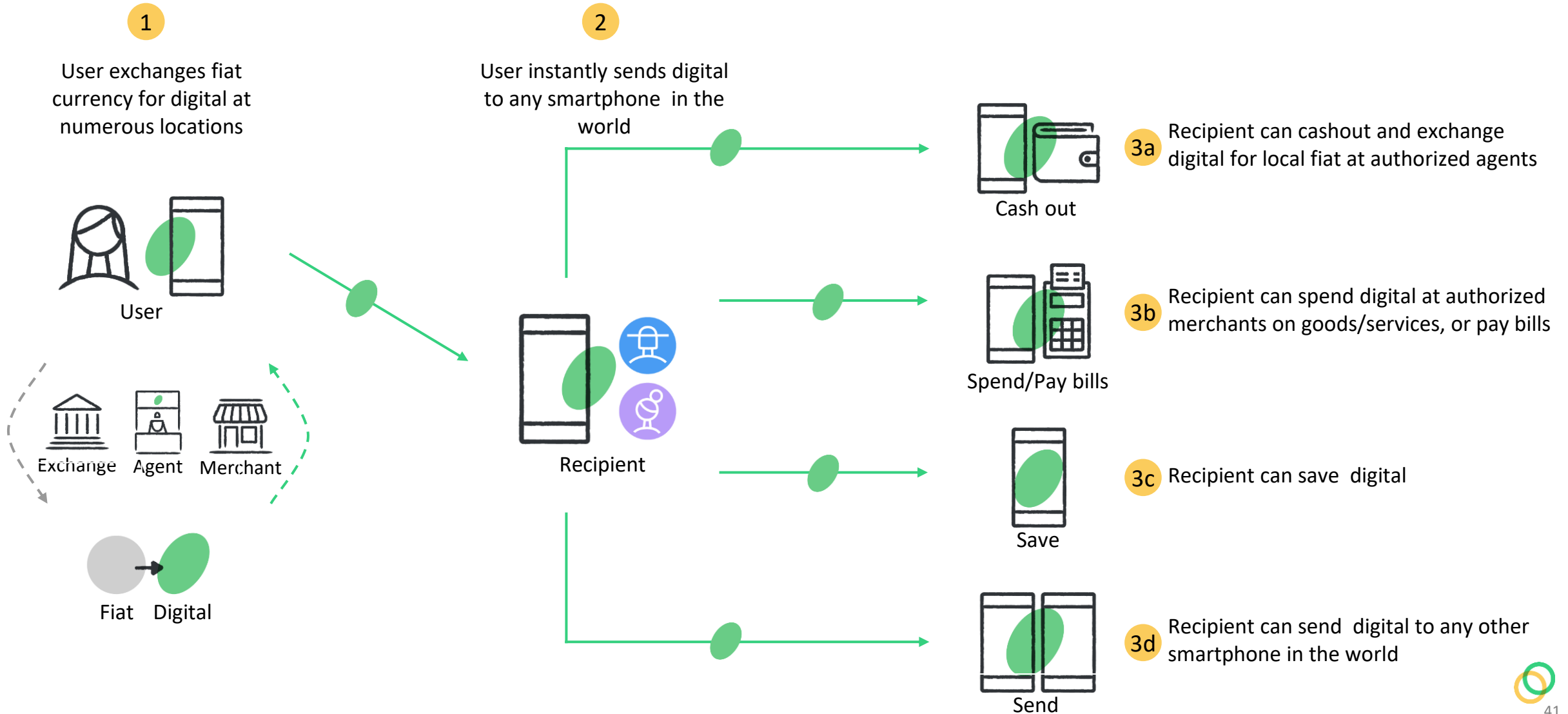
Estimated cost associated with each delivery mechanism



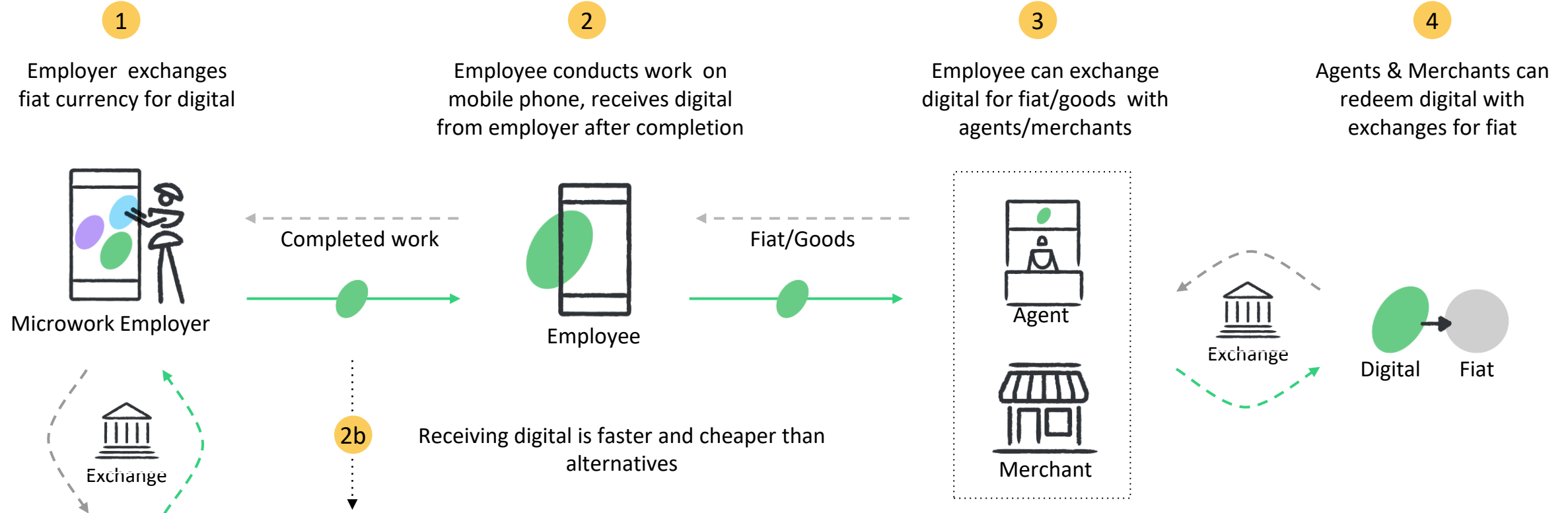
# GIVE (Cash transfers)



# SEND (Remittances)



# EARN (Microwork platform)

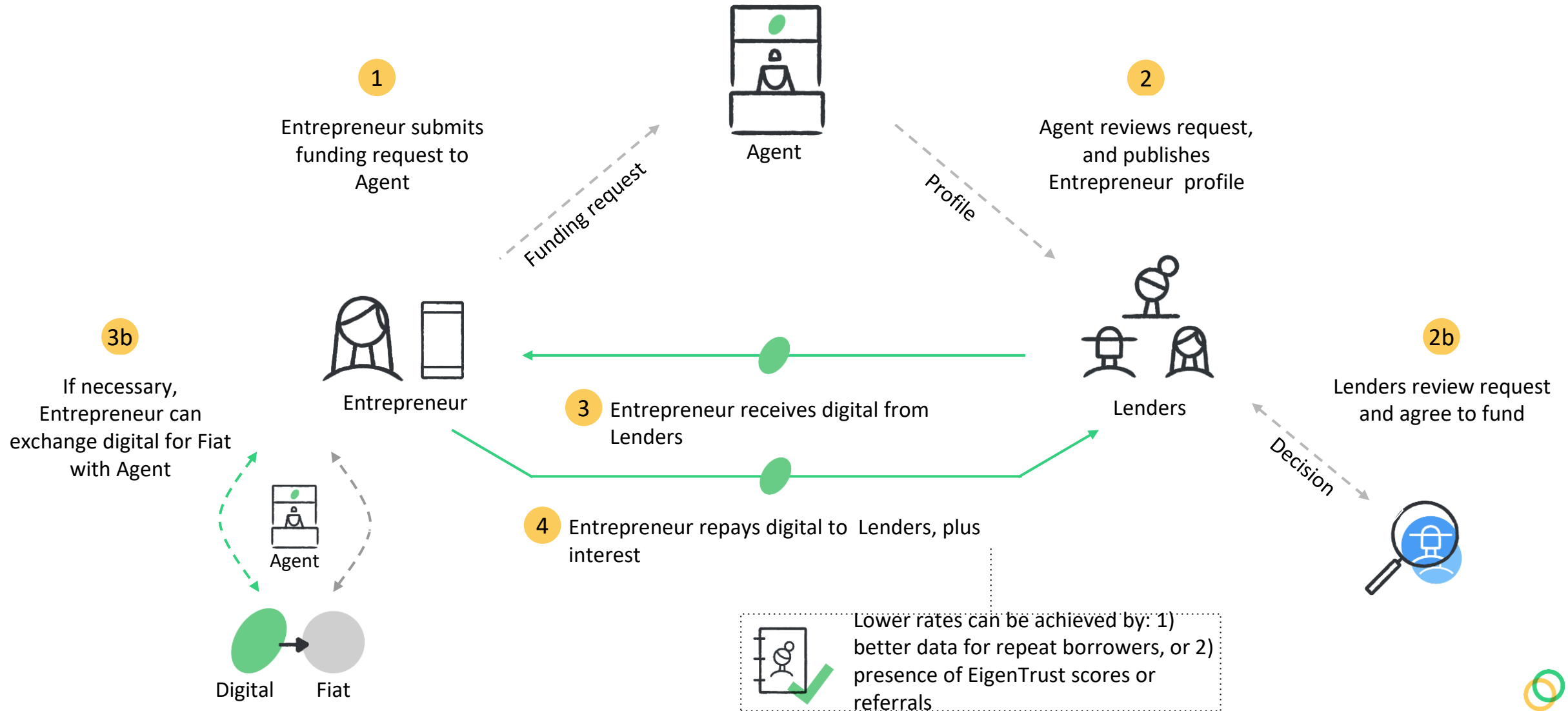


Example: sending \$5 from the U.S. to Kenya

	TransferWise	PayPal	WorldRemit	WESTERN UNION WU	celo
Fees	\$3.33 (67%)	\$1.44 (29%)	\$1.95 (39%)	\$5.55 (113%)	< \$0.01 (0.2%)
Timing	1-3 days	1-2 days	Same day	< 1 hour	5-10 seconds



# LEND (Agent model)





# Thank you!

celo.org | @CeloOrg

ezechiel@clabs.co | +1-917-608-4342

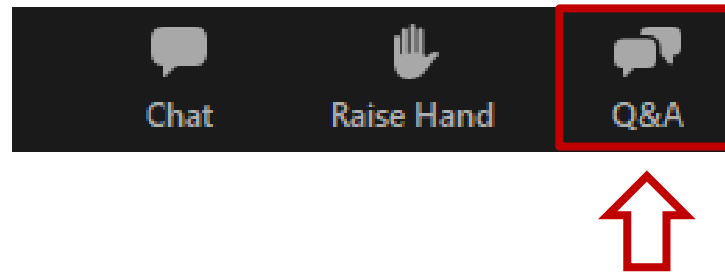
# Poll

Which use case most resonates with your needs?

1. GIVE (Cash transfers)
2. SEND (Remittances)
3. EARN (Microwork platform)
4. LEND (Agent model)

# Q&A time

Use the **Q&A** tab to ask your questions



Event  
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# Digital Assets And Central Bank Digital Currencies (CBDCs)

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- Keynote + Q&A
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### Session 2- **Central Bank Digital Currencies**

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# Digital Assets And Central Bank Digital Currencies (CBDCs)

## DIGITAL ASSETS AND CENTRAL BANK DIGITAL CURRENCIES (CBDCs)



**SPEAKER**

**Raphael Auer**

Principal Economist,  
Innovation and Digital Economy,  
Bank for International Settlements





# Rise of the CBDC: drivers, technologies and approaches

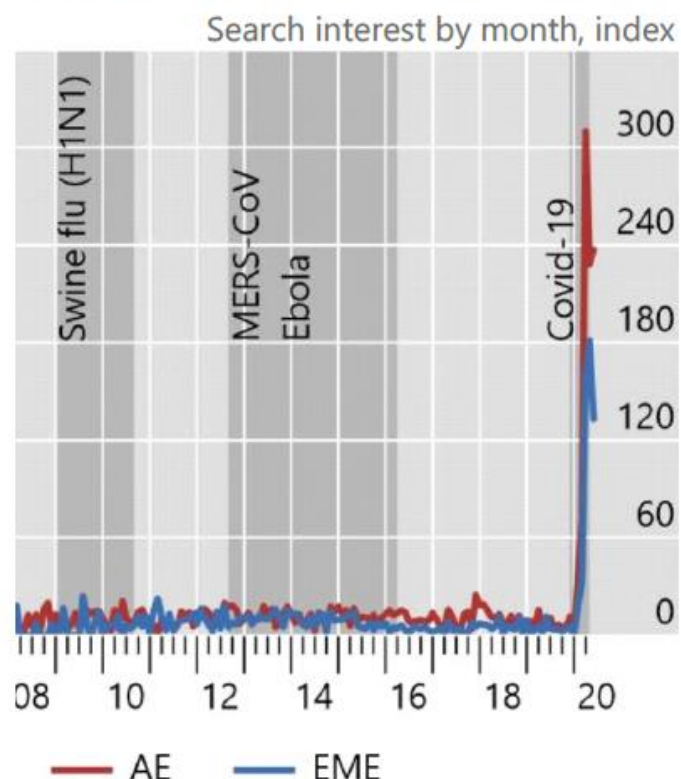
Raphael Auer\*

Keynote, DIGITAL ASSETS AND CBDCs Virtual Conference, 101Blockchains, 29.10.2020

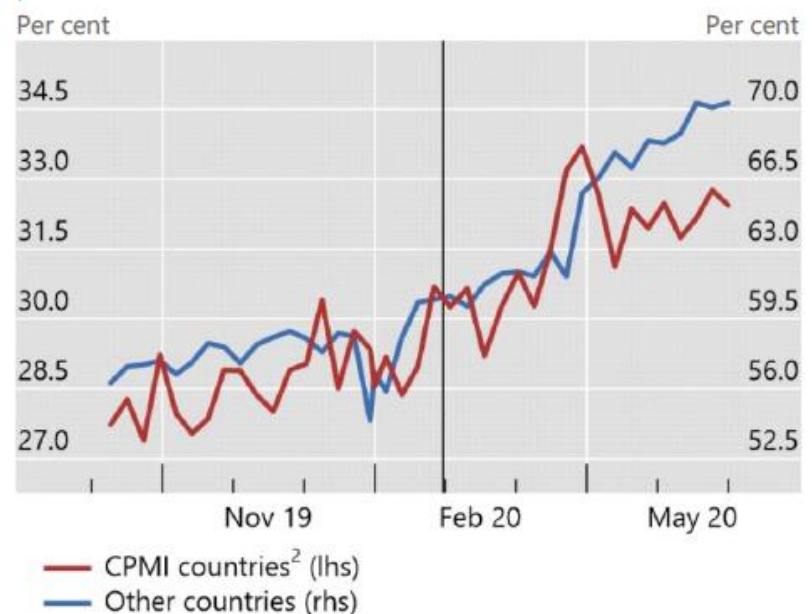
\* The views expressed here are those of the presenter and not necessarily of the Bank for International Settlements

# Cash use is declining; in some jurisdictions its general acceptance is under threat

Concerns about viruses and cash<sup>1,2</sup>



Contactless cards have seen rapid growth in the pandemic<sup>1</sup>

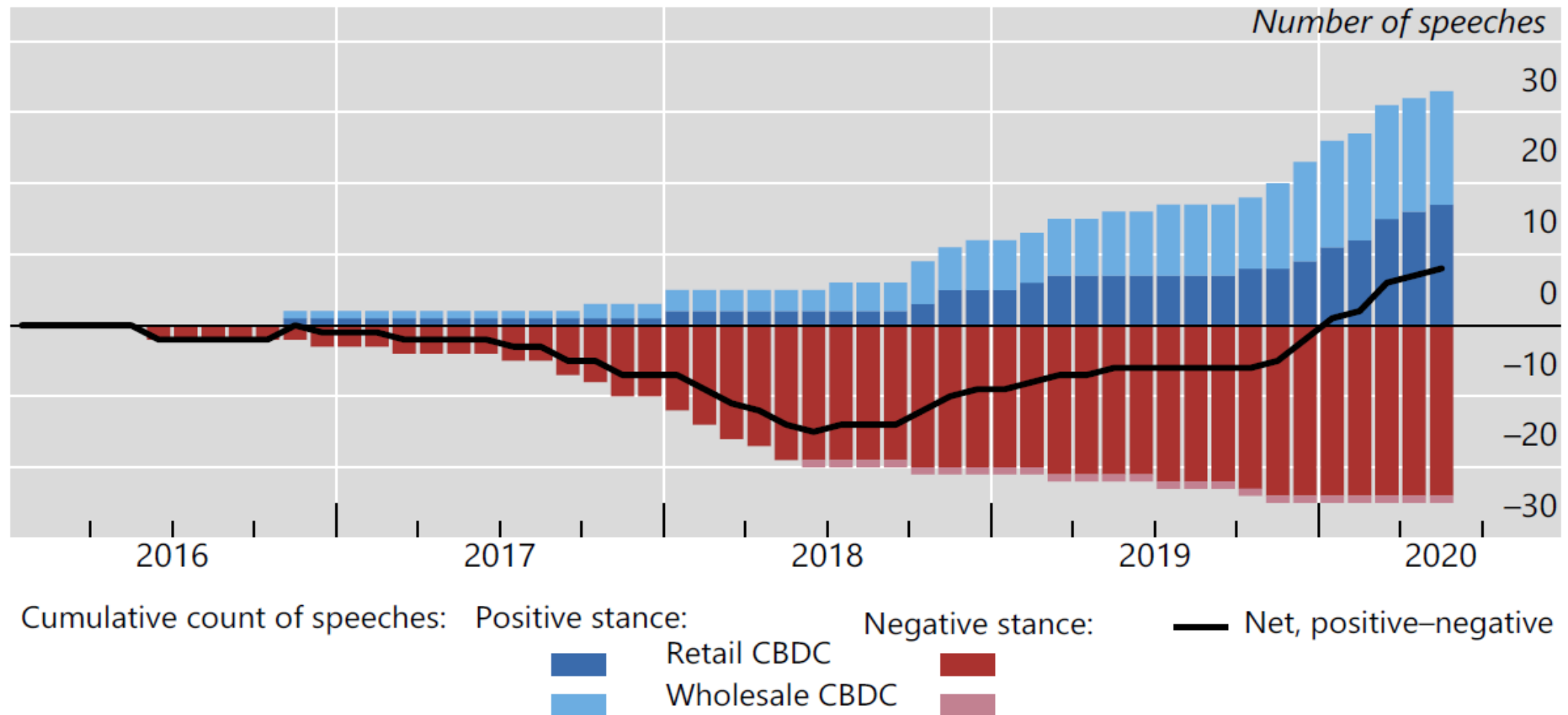


The black vertical lines indicate 30 Jan 2020, when the World Health emergency of international concern".



Source: Auer R, G Cornelli, J Frost (2020) "Covid-19, cash, and the future of payments" BIS Bulletin 3

Over time, policy maker's stance on issuance has become more positive

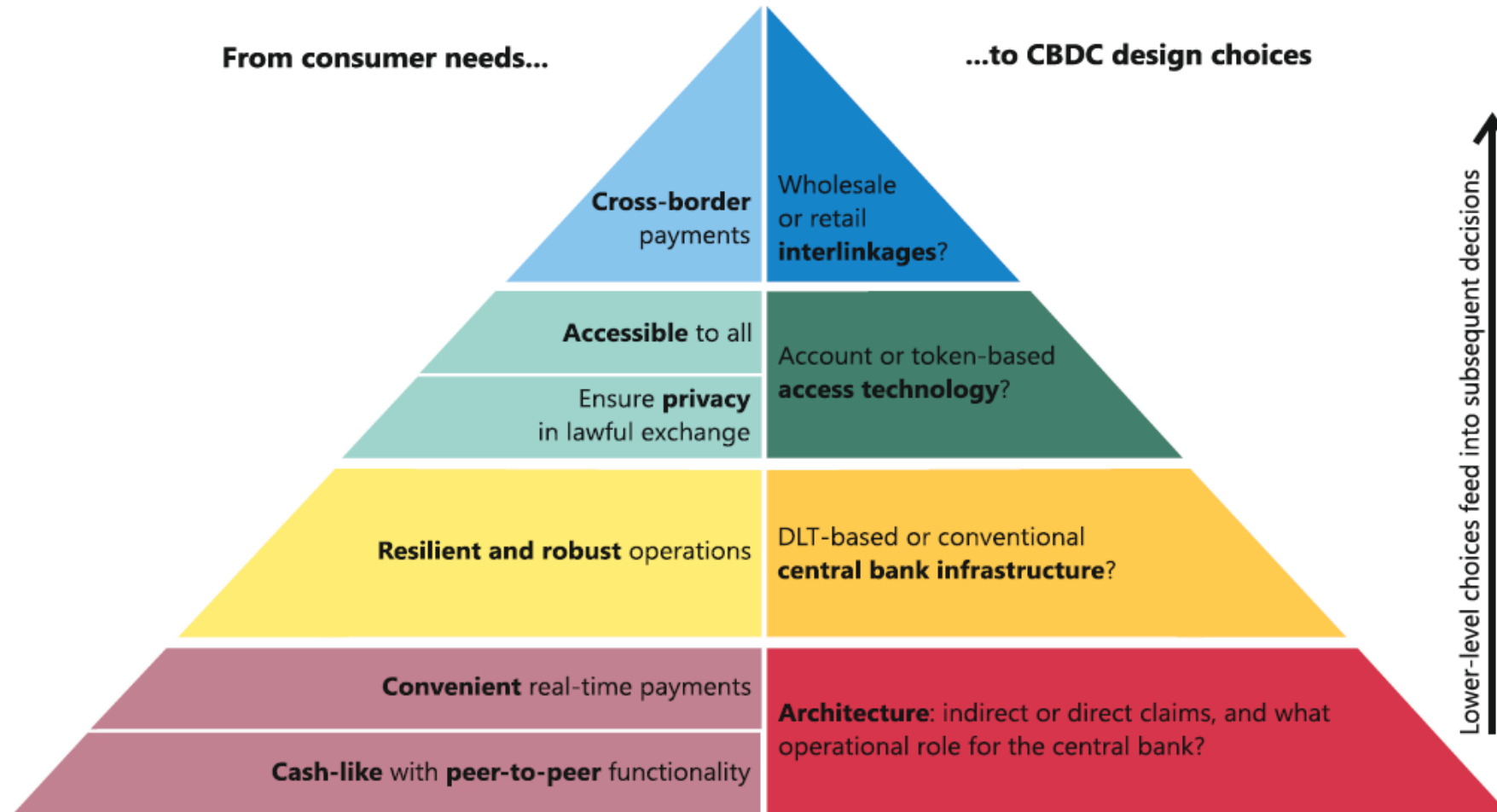




## From motives for issuance...

- Boar, Holden and Wadsworth (2020) – for retail CBDC:
  - Payments safety tops the list of motivations
  - Jurisdictions are heterogeneous – financial inclusion dominates in EME
  - Issuance has not been decided – process will take years
- Since then, *Covid-19 has exposed the need for safe and accessible electronic payments*
- What design makes for a cash-like and useful addition to existing electronic payment options?

## ...to a design framework: the CBDC pyramid



Source: Auer and Böhme (2020)

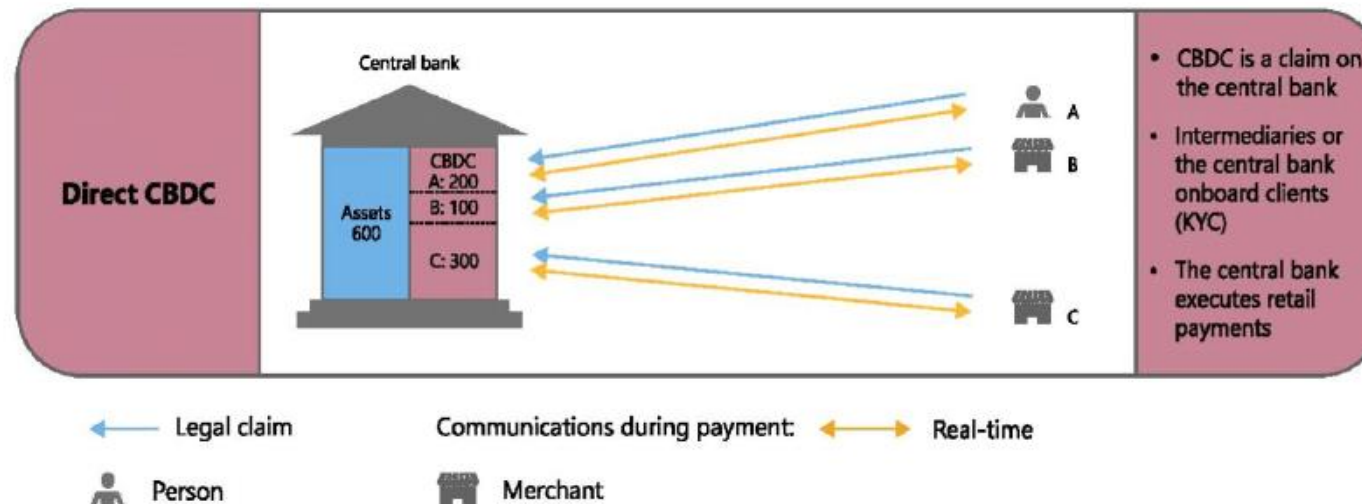
## A foundational design choice: the architecture

- Retail CBDC are issued by the central bank and available to the general population
  - But how is the CBDC issued to the population, and who executes payments?
- Architectures with different implications for the financial system:
  - I. **Indirect/Synthetic “CBDC”** – narrow payment banks
  - II. **Direct CBDC** – payments operated by the central bank
  - III. **Hybrid CBDC:** Direct claims, payments operated by private sector
    - Either the central bank operates a backup infrastructure OR wholesale accounts (intermediated)



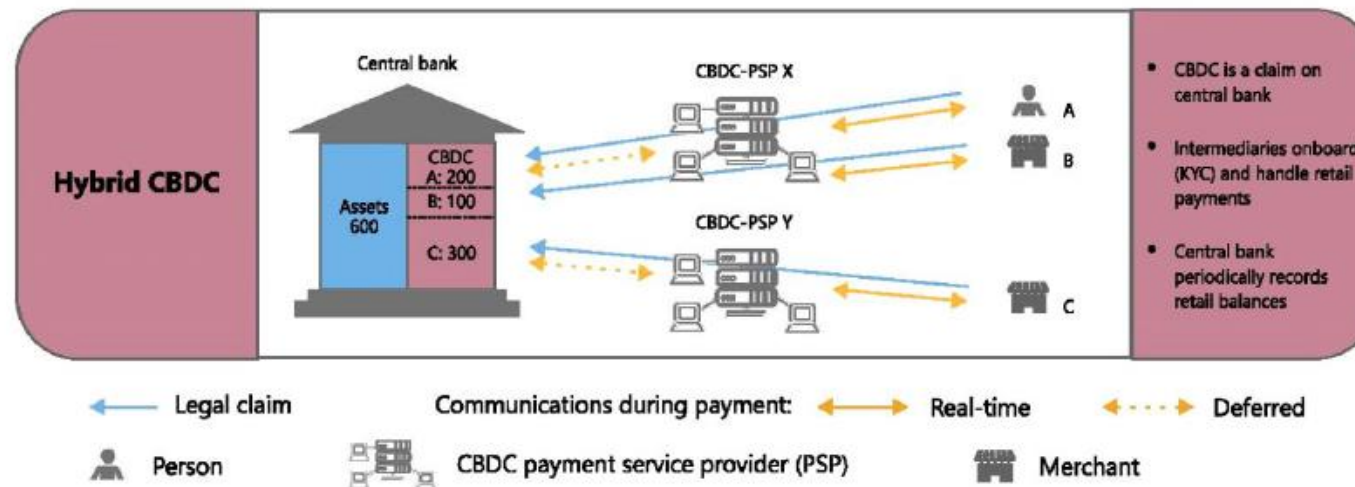
# The Direct CBDC: central bank operated payments

- Direct claims on the central bank
- Private sector payment at most provides KYC
- Central bank operates payments:
  - How well-suited is the central bank for this activity?
  - Absence of risk-taking may impair real time payments



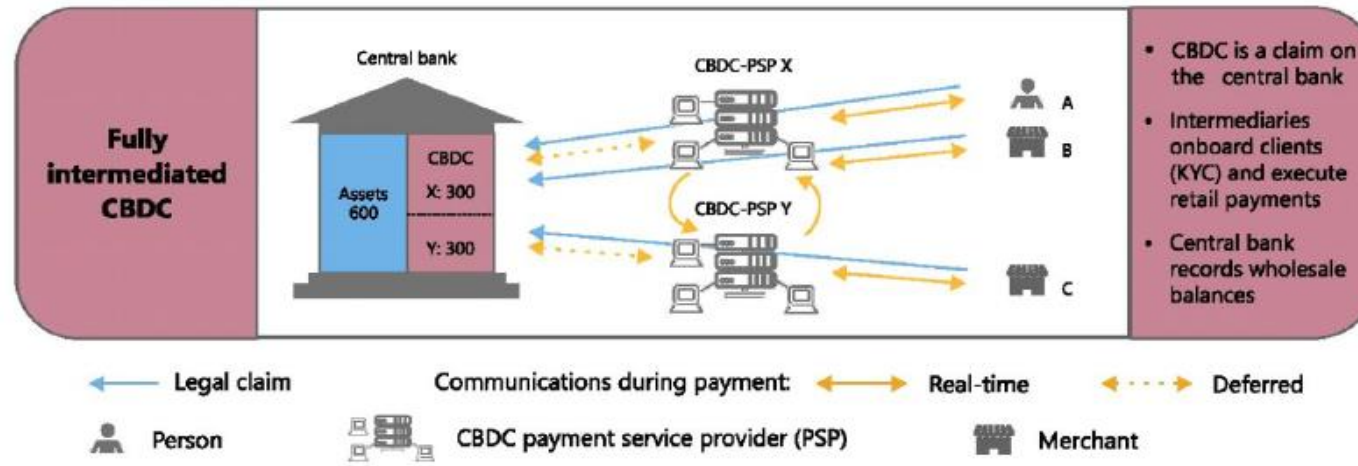
# The Hybrid CBDC with a central bank backup

- Auer and Böhme (2020) propose hybrid approach:
  - Direct claims on the central bank
  - Private sector payment providers perform onboarding, due diligence, and payments
  - The central bank has the technical means and legal power to switch retail client relations from a failing PSP to a working one.

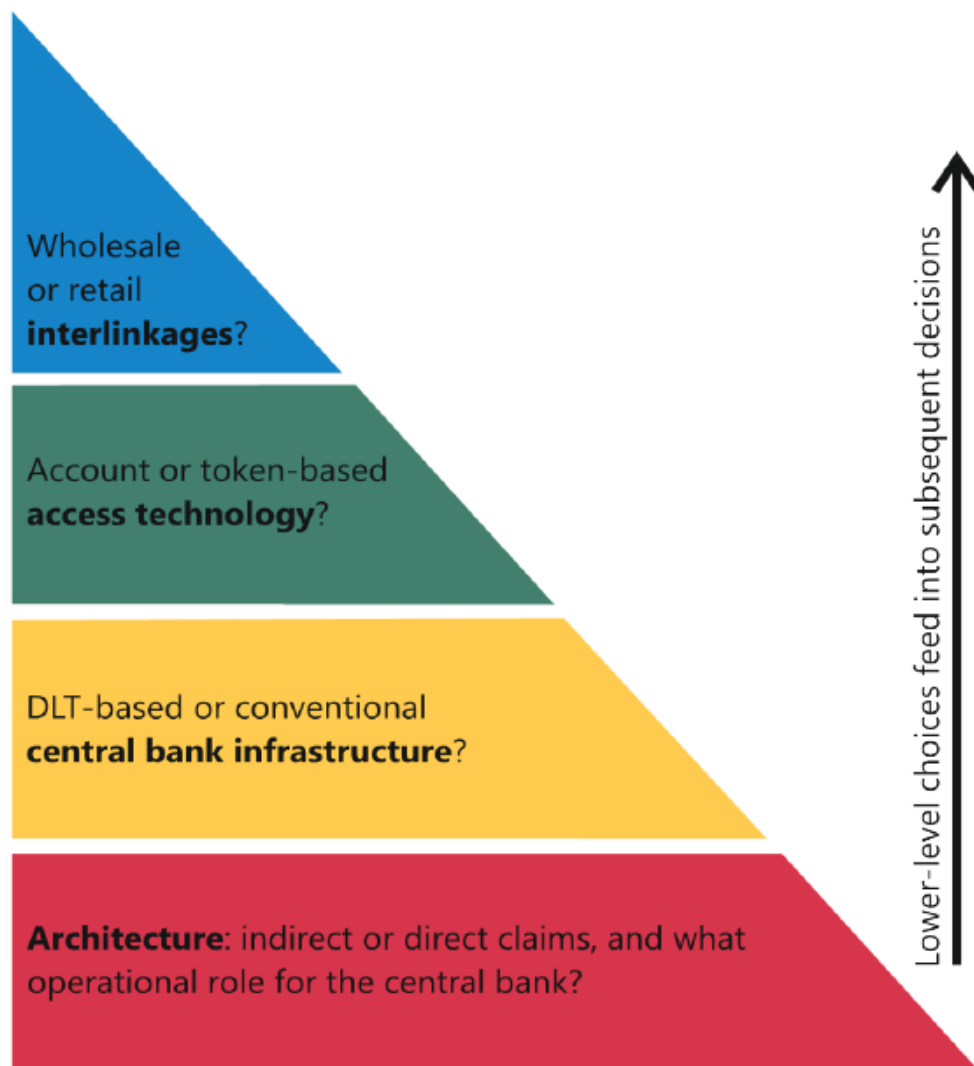


## Hybrid CBDC without a backup: fully intermediated CBDC

- Direct claims on the central bank
- But central bank only operates a wholesale ledger
  - Raises the new for financial supervision



## Moving up the CBDC pyramid: some considerations

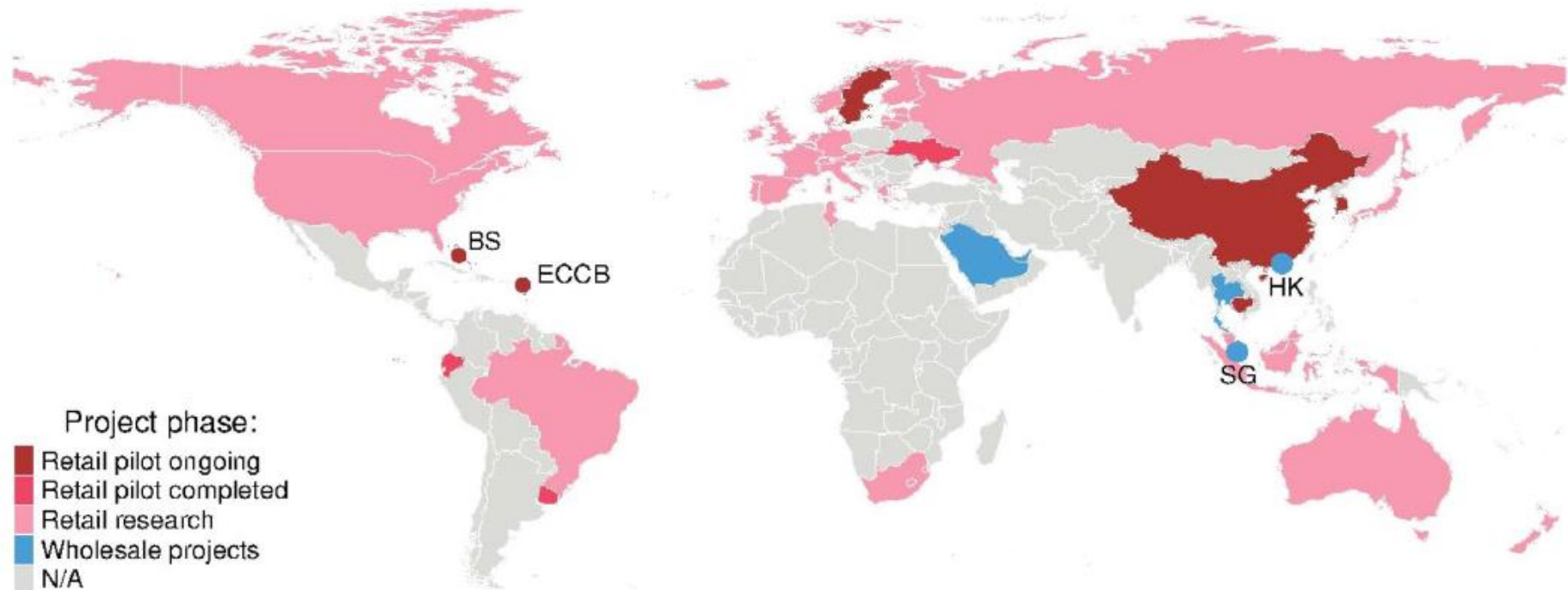


- Does the domestic access framework allow non-residents to hold CBDC?
- Token-based (or value-based) access does not require DLT
- DLT is only an option for some architectures (and not required for any)
- Different architectures come with different operational requirements for central bank



## CBDCs research and pilots around the globe: a stock take

- R Auer, G Cornelli and J Frost (2020): "Rise of the central bank digital currencies: drivers, approaches and technologies" BIS Working Papers, No 880, August.



BS = The Bahamas; ECCB = Eastern Caribbean central bank; HK = Hong Kong SAR; SG = Singapore.

## Design characteristics of the PBC's DC/EP project (pilot)

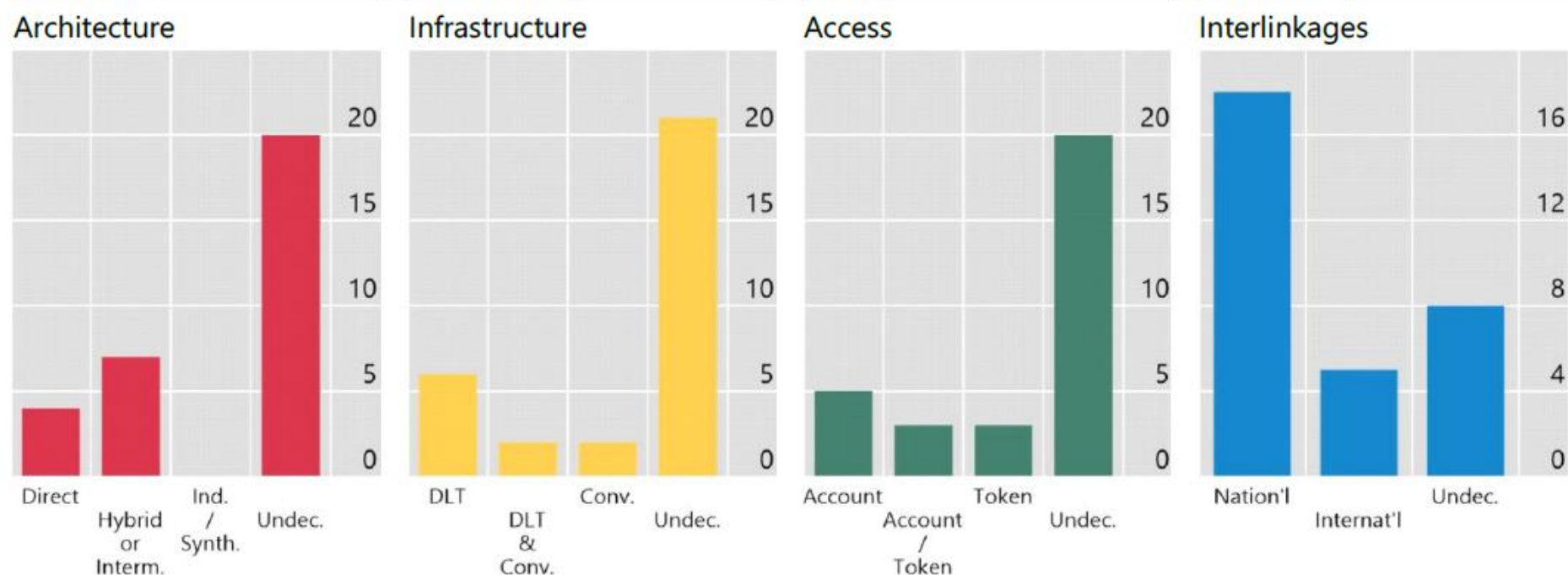
Design aspect	PBC DC/EP design choices	Details
Inter-linkages	Retail & wholesale linkages	Tourists and business travellers may be able to use CBDC domestically in China with a foreign cell phone number.
Account or token-based access?	Mostly <b>account-based</b> , allowing for smart money interfaces	Different levels of user identification. Balances and transaction limits increase with the strength of the KYC requirements.
DLT-based or conventional <b>CB infrastructure</b> ?	PBC runs <b>conventional</b> infrastructure and <b>DLT</b>	PBC runs conventional infrastructure and DLT, private sector free to choose.
<b>Architecture</b> : indirect or direct claims, and what operational role for the central bank?	<b>Hybrid</b> CBDC	CBDC is a direct claim on the central bank, private sector intermediaries ("Authorised operators") execute payments, central bank periodically receives a backup copy of holdings and transactions.

Sources: Adapted from R Auer and R Boehme (2020), "The technology of retail central bank digital currency", *BIS Quarterly Review*, March, p85-100; Fan (2020) and conversations with PBC staff.



# Histograms on design choices of retail CBDCs

Number of retail CBDC projects investigating each design option



Interm. = Intermediated; Ind. = Indirect; Synth. = Synthetic; Undec. = undecided/unspecified or multiple options under consideration; DLT = distributed ledger technology; Conv. = Conventional; Nation'l = national use; Internat'l = international use.

Sources: Central bank websites; authors' calculations.

## Conclusion

- Retail CBDCs are not created equal
  - How distinct is a CBDC from existing electronic payment options?
  - How would issuance affect the monetary and financial system?
- Wide range of options are being considered, but tendency is:
  - Complement cash rather than replace it
  - Offer a solution with cash-like claims on central bank and an important role for the private sector ("Hybrid" design)
- International cooperation is key to foster exchange of knowledge and experiences

**"Central bank digital currencies: foundational principles and core features"**, joint report by Bank of Canada, ECB, Bank of Japan, Sveriges Riksbank, Swiss National Bank, Bank of England, Board of Governors of the Federal Reserve and BIS

# Poll

What is the main advantage of issuing a CBDC?

1. Better privacy in payments
2. Inexpensive and resilient payments
3. A safe store of value
4. New possibilities for monetary policy
5. A basis for innovation built on smart money

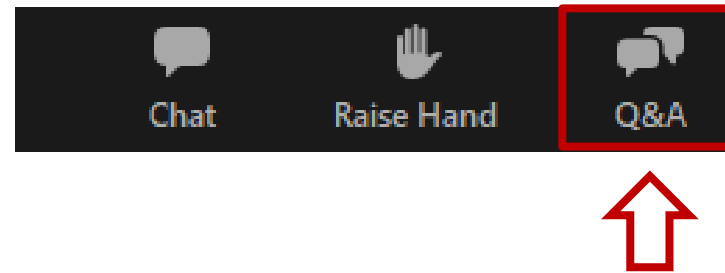
# Poll

Would you want your country to consider issuing a retail CBDC?

1. No, this is not needed or even harmful
2. Maybe, if the circumstances are right and the technology is ready
3. Yes, it offers great advantages

## Q&A time

Use the **Q&A** tab to ask your questions



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# Digital Assets And Central Bank Digital Currencies (CBDCs)

## DIGITAL ASSETS AND CENTRAL BANK DIGITAL CURRENCIES (CBDCs)



**SPEAKER**

**John Ho**

Head, Legal, Financial Markets,  
Standard Chartered Bank

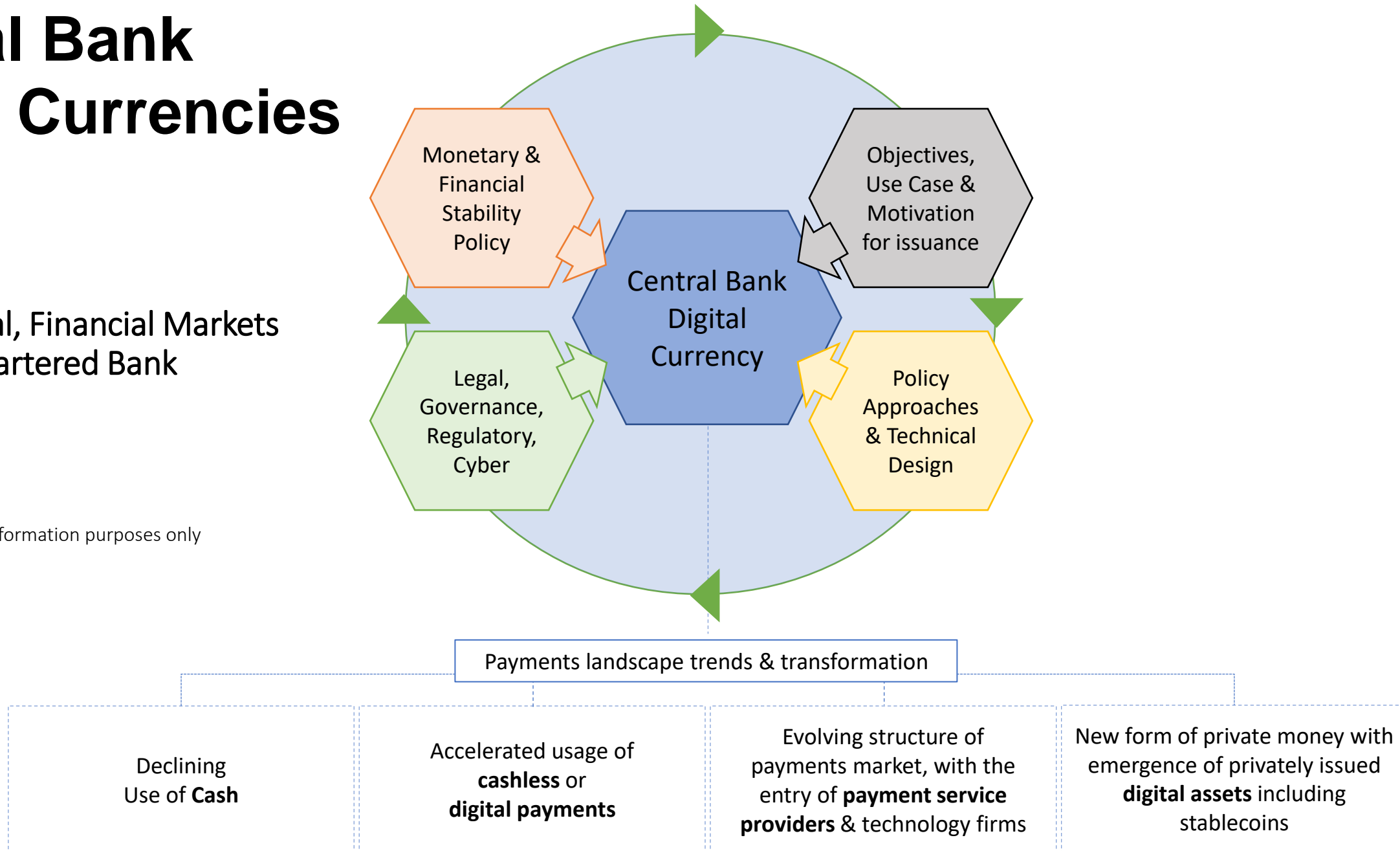


**101 Blockchains**

# Central Bank Digital Currencies

John Ho  
Head of Legal, Financial Markets  
Standard Chartered Bank

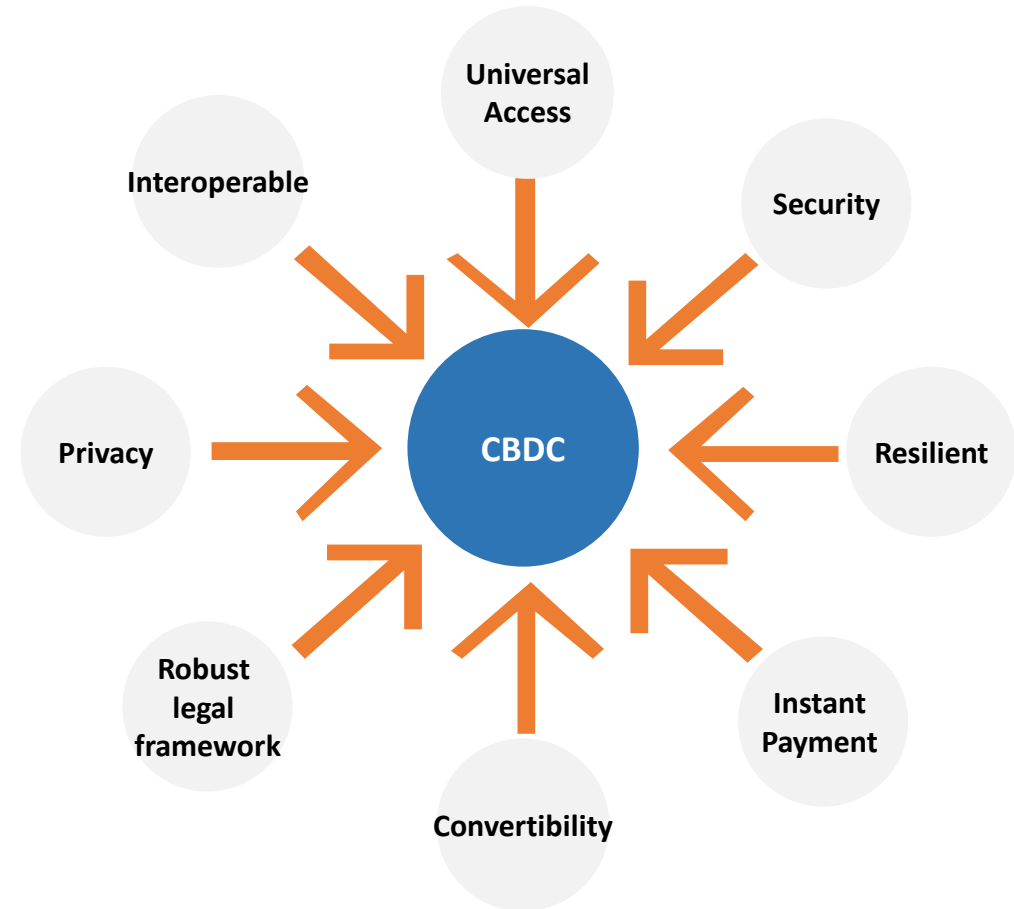
Presentation – For information purposes only  
29 October 2020



# What is Central Bank Digital Currency?

- A Central Bank Digital Currency (CBDC) is a state-backed digital or electronic form of central bank money.
- CBDC could be established as money and/or legal tender by government, legislation or regulation.
- CBDC could be used as a means of payment, a unit of account and storage of value.
- By design, a CBDC could be value-based (ie. resembling cash in digital form), account-based (ie. form of an account at central bank) or token-based (ie. involves transfer of digital tokens between transacting parties).
- The main types of CBDCs are wholesale, retail/general purpose and hybrid structure CBDCs.
- General perception about CBDC is shifting towards positive. 80% of the world's central banks had already started to conceptualize and research the potential for CBDCs.
- More than 80 CBDCs projects around the world – 40% building proofs-of-concept (POCs) and 10% were deploying pilot projects, according to recent 2020 BIS research

**Core Features required for CBDC include, without limitation, the following:**



# Potential benefits & risks associated with CBDC



## Benefits

- Support liquidity, settlement, finality and trust in the value of the currency
- Improve efficiency of payment systems, promote payment diversity & cross border payment faster and cheaper
- Maintaining demand for central bank money
- Promote greater financial inclusion by reducing transaction costs
- Reduce the costs of maintaining printed notes or cash
- Reduce counterparty credit and liquidity risks
- Help central banks strengthen consumer protection and security of, and trust in, the payment system.



## Risks

- Impact of CBDC on interest rates, financial intermediation, financial resilience, transmission channels, monetary policy, financial stability & security
- For Distributed Ledger Technology (DLT)-based CBDCs, risks associated with nascent technology such as performance, interoperability, scalability, cyberattacks & security, data protection, etc.
- Risks associated with Anti-Money Laundering (AML), Customer Due Diligence (CDD), & Counter Terrorism Financing (CTF).
- Legal and regulatory framework need to be in place to ensure settlement and payment finality risks/uncertainty.



# CBDC – Principles & Key Considerations

## Common Public Policy Objectives

A recent Oct 2020 report on CBDC<sup>1</sup> by the Bank for International Settlements (BIS) and the central banks of Canada, the euro area, Japan, Sweden, Switzerland, the United Kingdom and the United States sets out policy principles for a central bank's consideration of CBDC issuance that flow from their common mandate for monetary & financial stability.



## 'Monetary Hippocratic Oath' – CBDC Principles

- **Do no harm.** Any potential CBDC should 'do no harm' to central bank monetary & financial stability mandates.
- **Co-existence:** A CBDC should complement (& not replace) cash in a flexible and innovative payment ecosystem.
- **Innovation & Efficiency:** A CBDC could complement safe payment instruments or private money in a new monetary ecosystem that nurtures innovation, efficiency and accessible system.

Central Banks have been evaluating CBDCs across the following dimensions<sup>2</sup>

## Central Bank Objectives

Monetary Policy, Financial Stability, Financial Integrity, Financial Inclusion, Consumer Protection, Economic Growth, Efficiencies

## Design Considerations

### Key Considerations

- User-centered Design
- Risk-based security design
- Flexibility

### Country – Specific Design Options

- Degree of anonymity
- Identity management
- Availability
- Interest and fees
- Programmability

### Implementation

- Process, roles, responsibilities
- Project Management
- Cyber security

## Foundational issues

### Legal Framework, Regulation, Supervision

Legal tender designation, 3<sup>rd</sup> party service and wallet providers

International Regulation

### Governance, Organization, Risk Management

Participants, Cybersecurity

Privacy laws, crimes, Cyber risks

### Infrastructure, Technology

Technical Skills and Capacity

Electricity, internet coverage, geographical constraints













Within Central Bank Purview

Outside Central Bank Purview

1. BIS Report , Oct 9, 2020 "Central Bank Digital Currencies: foundational principles & core features"  
2. IMF Working Paper, June 2020, "A Survey of Research on Retail Central Bank Digital Currency"

# Central Bank Digital Currency (CBDC) Projects

## *Selected cases*

 <p>European Central Bank</p> <p><b>DIGITAL EURO</b></p> <p>The ECB has launched a public consultation to seek views on the benefits &amp; challenges of digital Euro, including its possible design. ECB is expected to consider its position in mid 2021.</p>	 <p>Bank of England</p> <p><b>CBDC DISCUSSION</b></p> <p>BoE has published a discussion paper on CBDC: Opportunities, challenges and design. It is considering how to follow up its discussion paper with stakeholders on the merits of CBDCs.</p>	 <p>Bank of France</p> <p><b>CBDC POC</b></p> <p>Banque de France has successfully experimented the use of CBDC (digital euro) in order to settle a securities token transaction on a blockchain platform. Other POCs and experiments are being planned</p>	 <p>U.S. Federal Reserve</p> <p><b>DIGITAL DOLLAR</b></p> <p>The U.S. Fed is studying the opportunities &amp; challenges presented by CBDC, with no decision made to issue CBDC. The Boston Fed is collaborating with MIT on CBDC projects</p>	 <p>The People's Bank of China</p> <p><b>DIGITAL RENMINBI</b></p> <p>Digital Currency Electronic Payment (DC/EP) is a payment arrangement for digital Renminbi (RMB), also known as e-CNY or e-Yuan. This CBDC is being piloted in 4 cities in China.</p>	 <p>BIS &amp; Swiss National Bank</p> <p><b>CBDC POC</b></p> <p>The Bank of International Settlements (BIS) &amp; the Swiss National Bank are working to develop a digital currency proof of concept by end 2020</p>
 <p>Swiss Central Bank (Sveriges Riksbank)</p> <p><b>"E-KRONA" PROJECT</b></p> <p>Riksbank is conducting a pilot project to develop a technical solution for an "e-krona" given the declining use of cash in Sweden</p>	 <p>Bank of Thailand HKMA</p> <p><b>INTHANON - LIONROCK</b></p> <p>The central banks of Thailand and Hong Kong are conducting a joint CBDC project to facilitate efficient cross-border payments between the 2 countries</p>	 <p>Monetary Authority of Singapore</p> <p><b>PROJECT UBIN V</b></p> <p>Ubin V provides connectivity to "currency issuers" for the issuance or distribution of digital currencies on the network. Where the issuer is a central bank, the digital currency on the network would be CBDC.</p>	 <p>CENTRAL BANK OF THE BAHAMAS</p> <p><b>PROJECT SANDDOLLAR</b></p> <p>The Central Bank of Bahamas has launched the initial phase of its CBDC targeting low-value, personal &amp; enterprise accounts. 2<sup>nd</sup> phase will target Govt services and utilities in H1 2021.</p>	 <p>BANK OF JAPAN</p> <p><b>DIGITAL YEN</b></p> <p>The Bank of Japan (BoJ) has published its approach to digital Yen. BoJ plans for initial proof of concept trials with financial institutions &amp; payment service providers in early 2021</p>	 <p>BANK OF CANADA BANQUE DU CANADA</p> <p><b>PROJECT JASPER</b></p> <p>Besides Project Jasper, Bank of Canada is conducting work on retail CBDC as a contingency plan in case cash use suddenly declines or private digital currency is widely adopted in Canada</p>

# Key Takeaways - CBDCs

## Future of Payments

- The shift towards a cashless society & innovation in payments are shaking up payment systems globally, particularly in the area of digital currencies.
- The trends towards digital payment is here to stay.
- CBDC could shape & promote the digitalization of payments & offer broad access to central bank money in a digital form. This in turn supports the digitalization & modernization of the payment infrastructure & ecosystem.
- CBDC could be designed to provide quick, convenient, secure & cheap payment methods – including payments abroad.
- CBDC would enable a central bank to maintain its sovereign currency as the anchor of the country's payment system.



## Regulatory Framework

- Certain countries such as China, Japan, Thailand & the Bahamas are considering or proposing amendments to existing laws to provide legislative & regulatory framework for CBDC issuance and use.
- International financial authorities (eg. FSB, BIS, IMF, the World) and 20 of the world's largest economies are collaborating to establish official standards for regulating and issuing sovereign digital currencies by end 2022.
- Private and public sector are in collaboration to improve cross-border payment framework and infrastructure (eg. interoperability & connectivity amongst central & commercial bank systems for CBDCs to function effectively)



## Ideation to Reality

- Central banks around the world are collaborating on CBDC research, projects and sharing lessons learned from the CBDC experiments.
- Many policymakers are positive about CBDC prospects. The CBDC debate has progressed from “If” to “How” and “When”.
- Some countries that are in an advanced stage of CBDC initiative have developed a roadmap for the issuance of CBDC (eg. Thailand, the Bahamas, China).



# Thank you



# Digital Assets And Central Bank Digital Currencies (CBDCs)

## DIGITAL ASSETS AND CENTRAL BANK DIGITAL CURRENCIES (CBDCs)



**SPEAKER**

**John Velissarios**

Global Managing Director,  
Blockchain Technology Lead,  
Accenture



101 Blockchains Virtual Conference – 29 Oct 2020

# FINANCIAL ECOSYSTEMS 2.0

## THE ROLE OF CBDC IN THE EMERGING DLT-BASED FINANCIAL ECOSYSTEM

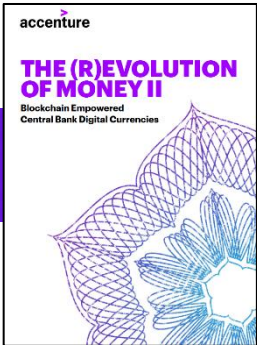
# INTRODUCTION

# ACCENTURE'S SELECTED THOUGHT LEADERSHIP & RESEARCH STUDIES

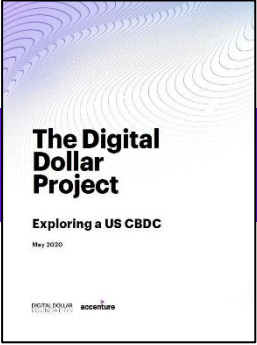
WE HAVE PUBLISHED A NUMBER OF WHITE PAPERS AND RESEARCH STUDIES IN BLOCKCHAIN & CBDC. MANY CENTRAL BANK PUBLICATIONS HAVE BEEN CO-AUTHORED / SUPPORTED BY ACCENTURE.



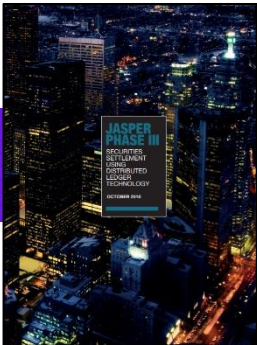
The (R)evolution of Money: Blockchain Empowered Digital Currencies



The (R)evolution of Money II: Blockchain Empowered Central Bank Digital Currencies



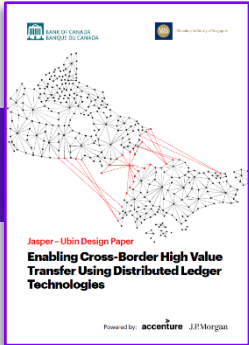
The Digital Dollar Project



Jasper Phase III



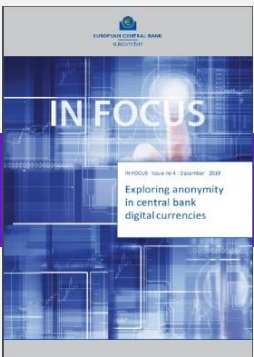
Ubin Project Phase II



Jasper-Ubin Design Paper



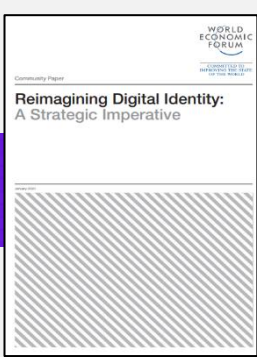
Project Ubin Phase 5



Exploring anonymity in central bank digital currencies with European Central Bank



Connected Ecosystems



Reimagining Digital Identity: A Strategic Imperative



Governing DLT Networks, DLT Governance for Private Permissioned Networks,



Identity in a Digital World: A new chapter in the social contract

# GLOBAL TRENDS IN CBDC



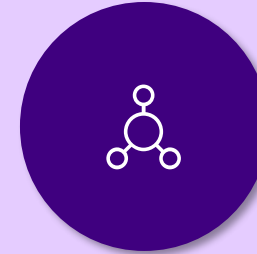
## Central Bank Focus Intensifying

People's Bank of China  
Digital Dollar Foundation  
European Central Bank  
Pivoting wholesale to retail  
80% CB's experimenting,  
10% close to implementing<sup>1</sup>



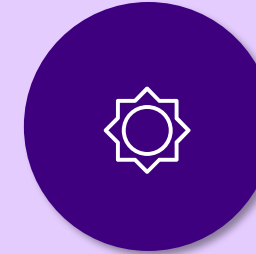
## Advanced Research & Experimentation

Completed: Jasper, UBIN, Stellar, Inthanon, LionRock, Khokha, Aber, Sand Dollar  
Additive: BoC & MAS, BoT & HKMA, ECB & BoJ, EuroChain  
Regional: Caribbean, Asia South Africa, Middle East



## Maturing Vendor Ecosystem

Feature rich solutions emerging (tokens, wallets)  
Non-functional: performance, scalability & security & resilience  
Increasing focus on standardization & interoperability



## Optimal Configurations Emerging

There are a wide variety of requirements and options  
Optimal configuration / balance & stakeholder alignment non-trivial  
Multi-faceted for optimal solution design & stakeholder acceptance

<sup>1</sup> BIS Papers No 107: Impending arrival – a sequel to the survey on central bank digital currency

# EMERGING MARKET TRENDS

1

## Token-Based Asset Exchanges

Asset Issuance  
Digital Exchanges  
Custodians, CCP's  
Financial Market Infrastructure

2

## Tokenized Cash

Settlement Coins: Stable, Bank and Consortium  
Wholesale Central Bank Digital Currency  
Retail Central Bank Digital Currency

3

## Token Enabled Systems

DLT Augmented RTGS Tokenizing Payment Rails  
Hybrid Solutions (Part Token) Being Explored

4

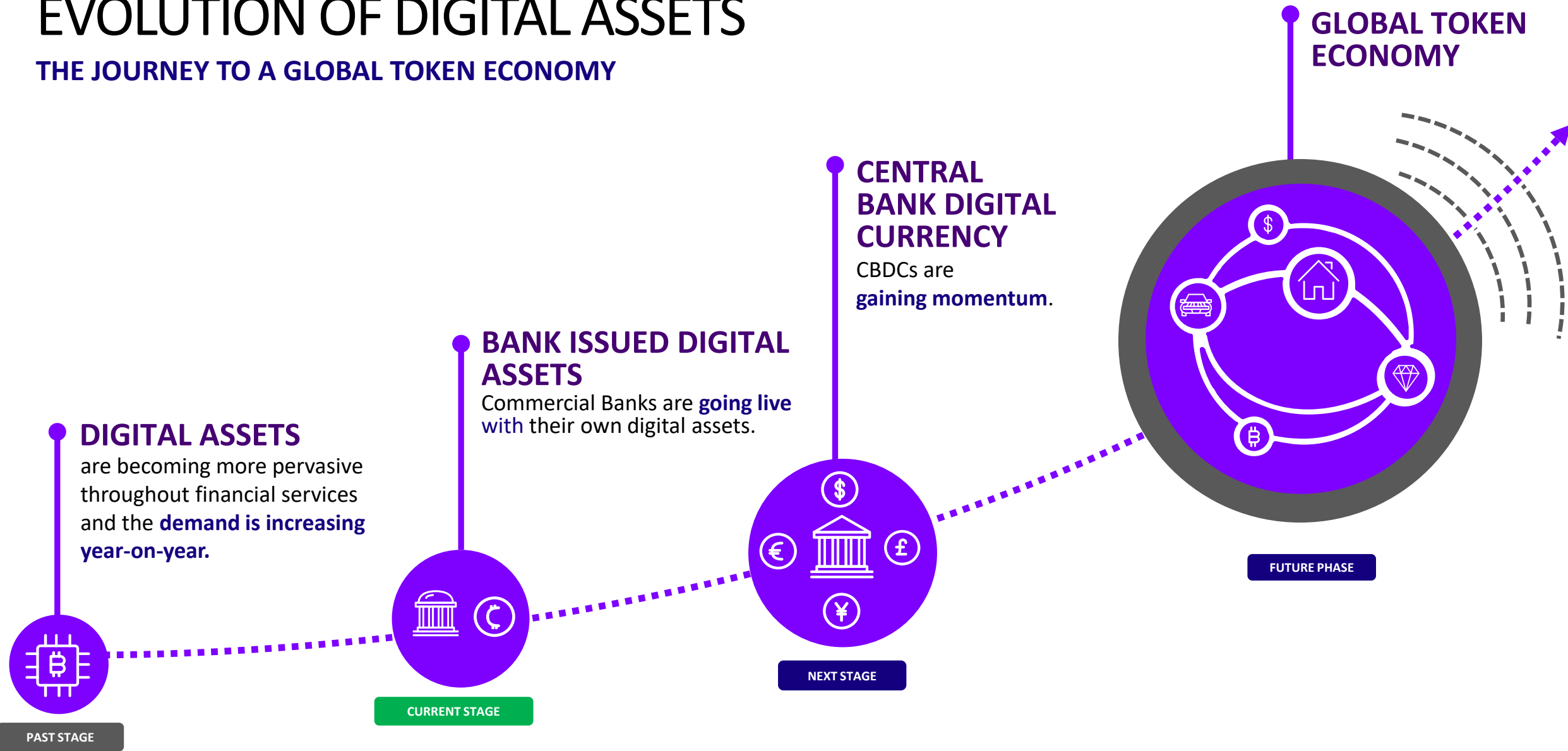
## Convergence

Key Research Addressed (e.g. Performance, Scalability, Security)  
Additive Experimentation  
Trends 1-3 Coming Together



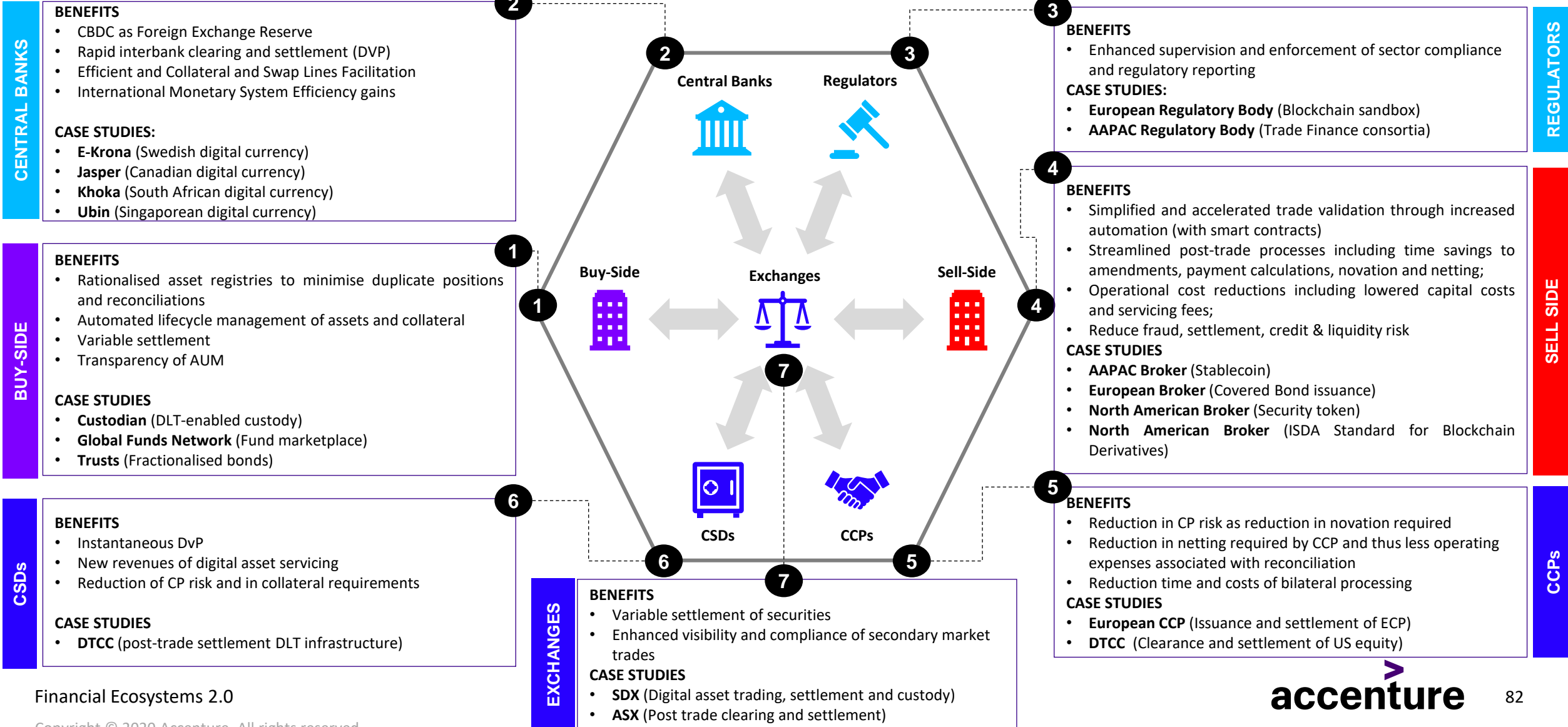
# EVOLUTION OF DIGITAL ASSETS

## THE JOURNEY TO A GLOBAL TOKEN ECONOMY

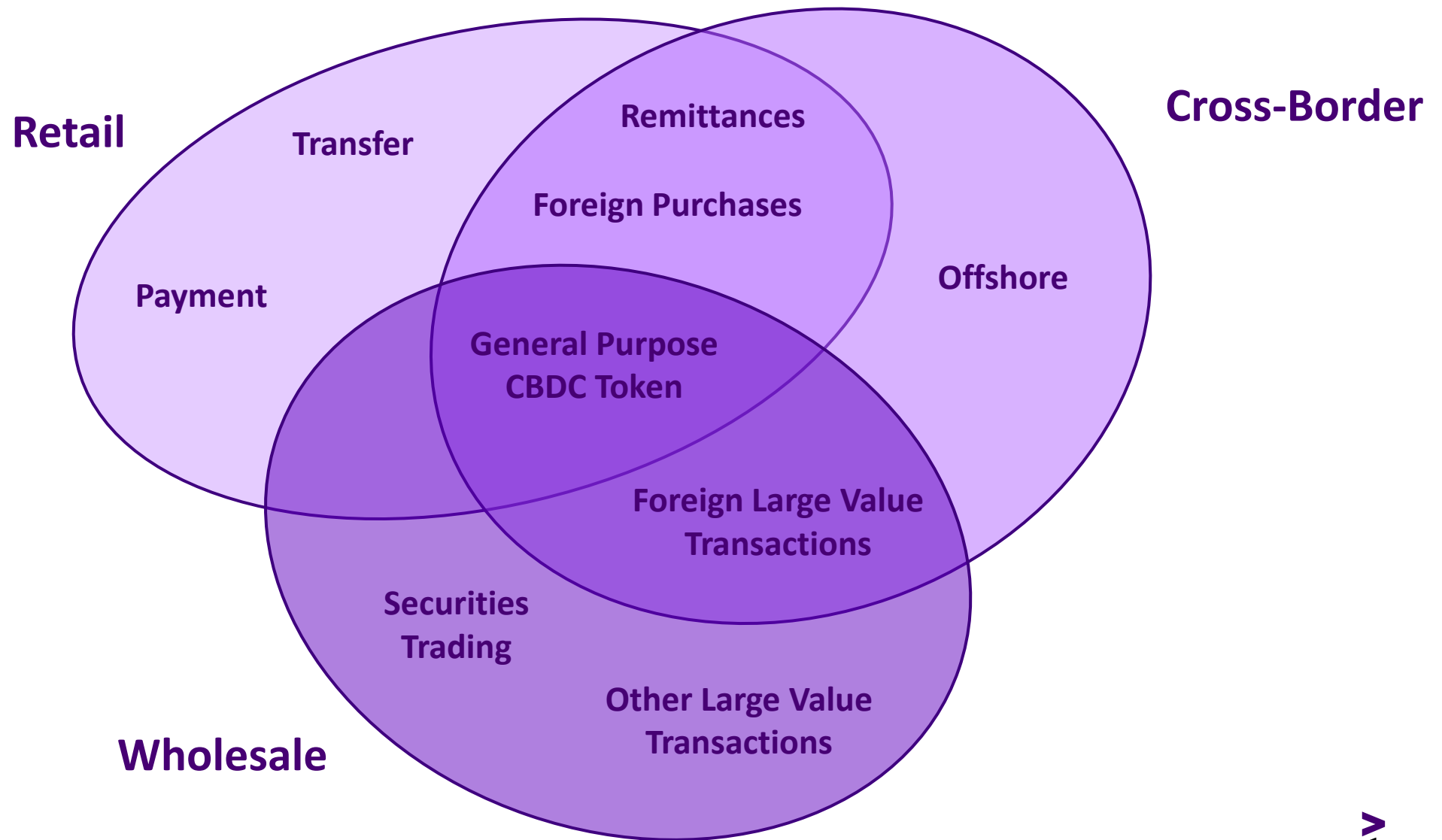


# CAPITAL MARKETS OF THE FUTURE

## A SINGLE SOURCE OF TRUTH FOR EXCHANGE TRADED SECURITIES TRANSACTIONS



# CBDC APPLICATIONS



# FOUR CRITICAL DIGITAL CURRENCY THEMES

1

## Diversification

Payment system diversification to increase resilience, access and autonomy

2

## Settlement

Enable end-to-end settlement for token-based financial market infrastructures

3

## Functionality

New possibilities for money settlement offshore and as substitute for foreign exchange reserve assets

4

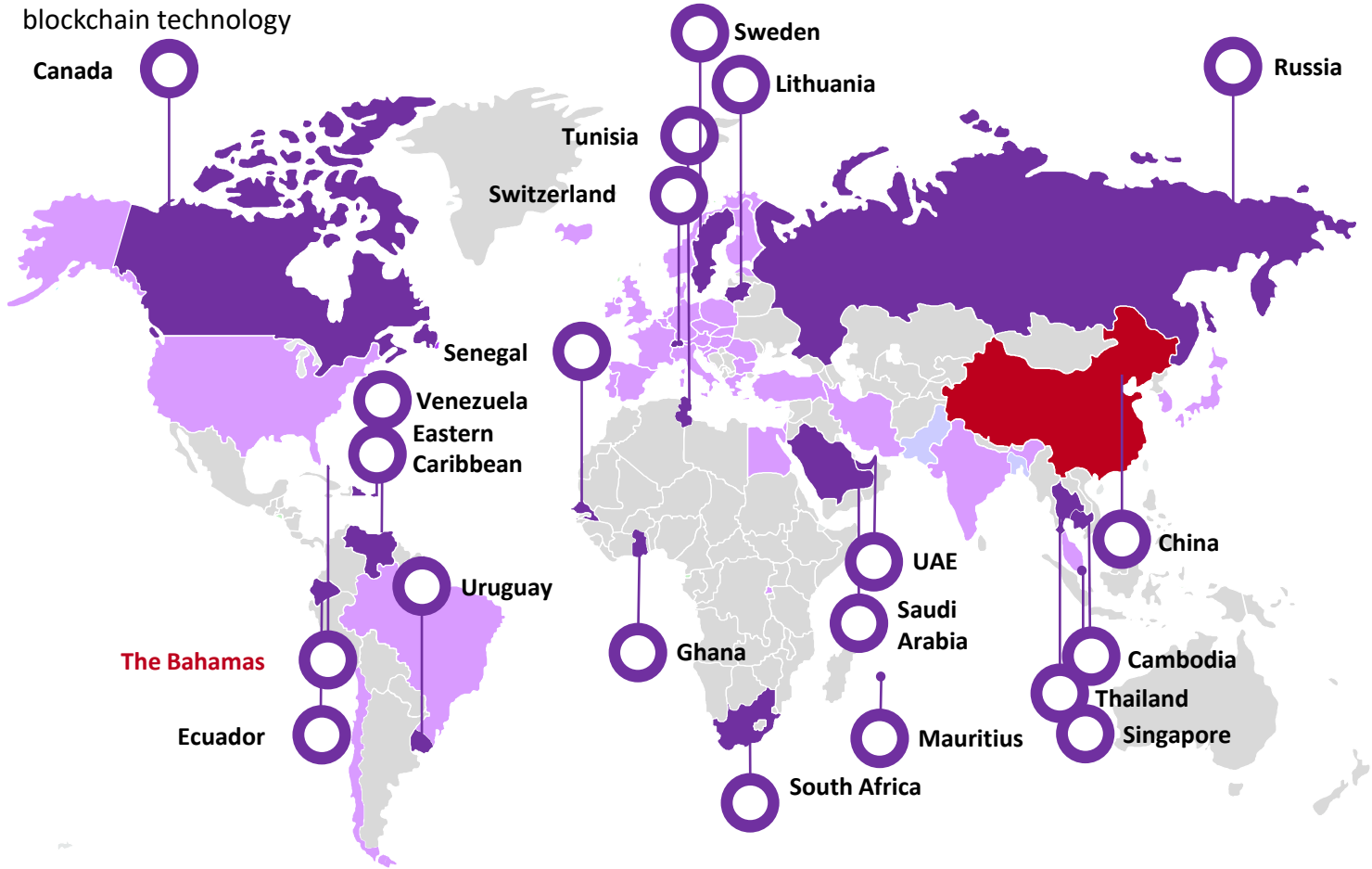
## Co-Existence


Co-existence of private and official currencies amid new scope of forming optimum currency areas

# CBDC (RETAIL & WHOLESALE)

## Central banks are researching, experimenting and implementing CBDC solutions globally

According to the World Economic Forum more than 40 central banks worldwide are experimenting with blockchain technology







**Monetary Authority of Singapore and Bank of Canada**  
Jasper - Ubin project is a collaboration exploring cross-border and cross-currency transactions across different DLT platforms. The project builds on experience from separate projects experimenting with DLT for domestic interbank settlements.




**The United Arab Emirates Central Bank and the Saudi Arabian Monetary Authority** – Launching project ‘Aber’. Aber will be used in financial settlements between the two countries.



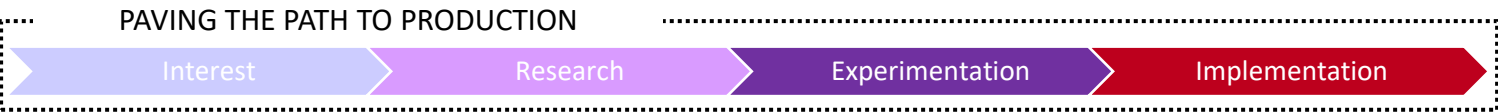
**Central Bank of The Bahamas** – Seeks to provide access to digital payment capabilities while simultaneously reducing cash transactions and cutting delivery costs.



**The Eastern Caribbean Central Bank** – Aims to issue world’s first blockchain-based digital currency. Pilot will involve a securely minted and issued digital version of the EC dollar.



**South African Reserve Bank** – Exploring CBDC for domestic interbank payment and settlement efficiency with project Khokha.



Financial Ecosystems 2.0



# CONTACTS

## **John Velissarios**

Global Managing Director

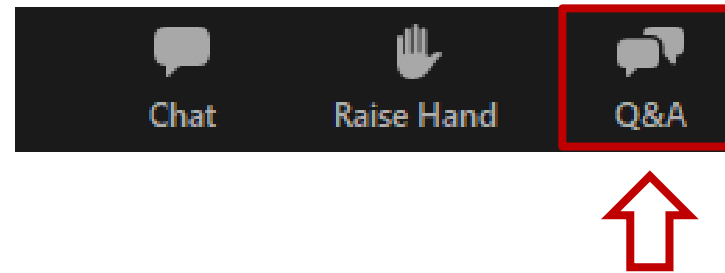
Digital Assets, Custody & CBDC Lead

[john.velissarios@accenture.com](mailto:john.velissarios@accenture.com)

London, United Kingdom

## Q&A time

Use the **Q&A** tab to ask your questions



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67 Lessons



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Enterprise Blockchains and Supply Chain Management

★★★★★ (27)

20 Lessons




All Courses, Blockchain Training

Enterprise Blockchains and Trade Finance

★★★★★ (23)

20 Lessons




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Enterprise Blockchains Actionable Templates & Tools

★★★★★ (18)

17 Lessons



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- Items represent blockchain selection criteria.
- Selection via easy drop-down menus.
- Selection based on project objectives.

# 2020 EDITORIAL CALENDAR



April



May



Jun



July



September



October



November



December



A big  
thank-you  
to our  
Event  
Partner





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