



CBDC – POSSIBLE TECHNICAL TESTING STRATEGIES

PRELIMINARY THOUGHTS FROM THE INTERNAL WORKING GROUP

Webinar November, 9 2020. Starts at 1415 CET

Questions to bm@norges-bank.no

Outline

- Goals for this presentation
- CBDC work in Norges Bank
- Backdrop for technical testing
- Goals for technical testing
- Possible testing methods
- Organization of testing



Goals for this presentation

- Transparency
- Engagement/inputs on how technical testing best can be performed



CBDC work in Norges Bank

- **Phase 1 2016-2017**
 - Purposes, consequences and possible technologies
- **Phase 2 2018**
 - Purpose of a Norwegian CBDC
 - Necessary and desirable characteristics
 - Technical solutions
- **Phase 3 2019-2021**
 - Analysis and validation/“Proof-of-Concept”
 - Prepare a decision basis for technical testing
- **Phase 4 (To be decided) 2021-**
 - Further analysis and experimental technical testing
 - More stakeholder dialogue, possibly incl. political engagement



Backdrop for technical testing

Norges Bank's mandate



Purpose of CBDC in Norway



Necessary and desirable characteristics



Specification and trade-offs

Technical implementations



Norges Bank's mandate

- The Central Banking Act Section 1-2
 - The purpose of the central banking activities is to maintain monetary stability and
 - to promote the stability of the financial system and an efficient and secure payment system.
 - The central bank shall contribute to high and stable output and employment.



Purpose of a Norwegian CBDC emphasized in Norges Bank (2019)

- Is CBDC necessary and desirable to ensure a secure and efficient payment system in the future and trust in the monetary system?
 - Contingency solution
 - Preserve/enhance competition
 - Precautionary principle
 - Undesirable developments in private money and payment system structures
 - Market power
 - Loss of national governance and control
- Not impede private sector's role in credit intermediation
- Not impede financial stability



Characteristics specified in Norges Bank (2019)

Necessary characteristics	Desirable characteristics
Claim on Norges Bank	Provision of the desired degree of data protection (beyond the requirements imposed by EEA law)
Value parity with bank money and cash	Offline payment functionality
Customer orientation	Platform for third-party providers
Adequate frictions in transfers between the CBDC and bank money	Monetary policy instrument
Controlled by Norges Bank	Provision of information relevant to Norges Bank's macroeconomic monitoring
Capable of functioning as legal tender	DLT compatibility
Compliant with obligations under EEA law	Attractive niche solution
CBDC payments are immediate and final	
Compliant with sound IT architecture principles	
Satisfy requirements relating to technical autonomy	
Customer communications and due diligence undertaken by third parties	

Technical solutions recommended in Norges Bank (2019):

Solution	Explanation
A CBDC in the form of register-based token money	The CBDC is linked to a register and is accessed via cryptographic codes not associated with an identity. In practice, the user interface (such as a mobile wallet app) could provide a simple and secure means of accessing the funds. Similarities with cryptocurrency technology.
Closed account solution offering the option of local storage	Account solution requiring both payer and payee to accounts at the CB. This has similarities with current e-money solutions.

It might not be appropriate to distinguish between these solutions in the testing stage as there is a continuum of hybrid solutions.



Goals for technical testing

- Validate if selected technical solutions meet specification/design characteristics
- Reveal unintended consequences
 - Security
 - Economic/financial stability effects
- Procedural goals
 - Open and transparent procedure with broad participation
 - Not exclusive to a specific supplier/specific technology
- Experimental testing
 - Gain knowledge and provide for better informed recommendations and decisions
 - Not (necessarily) to develop a product ready to be launched



Possible testing methods

Not mutually exclusive

- Several possible testing methods that can be used in combination
 - Continued Proof-of-Concept
 - Prototype(s)
 - Pilot
 - Sandbox/testnet
 - Modelling and simulation
- The suitability of a method is dependent on characteristics and modules
 - E.g. prototypes may be adequate to test potential core infrastructures in combination with modelling and simulation



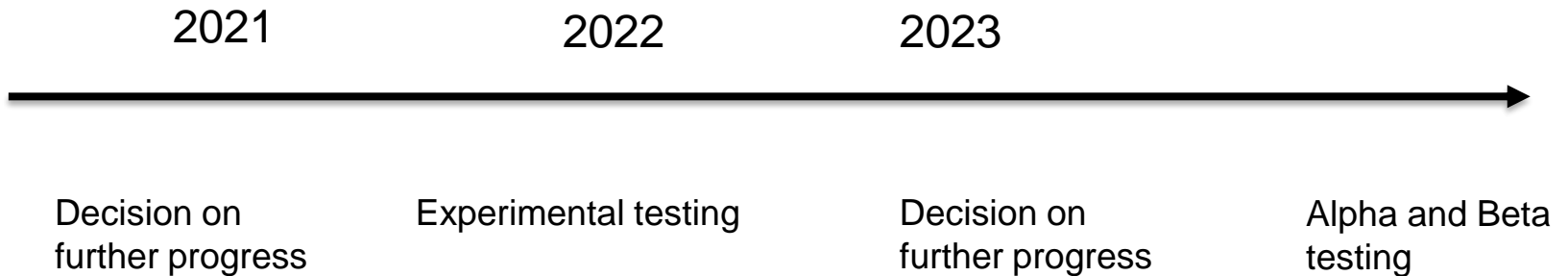
Possible organization of experimental testing

- The testing will be controlled by Norges Bank
- External project manager/adviser may be selected to assist in the set-up and administration
- One or more suppliers may receive financial support to develop prototypes or a pilot
- Mini-competitions and hackathons may promote participation in a sandbox
- External expertise may be utilized for modelling and simulation



Possible testing time-frame

To be decided



Inputs

Suggestions and comments are very valuable to us

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