



Digital Tenge **Case study**

Payment and Financial Technologies
Development Center of the National
Bank of Kazakhstan

binur.zhalenov@nationalbank.kz

In 2021 the pilot project "Digital tenge" was implemented in close cooperation with market participants and the expert community



In 2022 the project expands in 4 areas and is expected to integrate market participants and international organizations

✓ July 2022

Deciding on a decision-making model

✓ December 2022

Deciding on the need for implementation

The Digital Tenge Hub will not only be a platform for interaction with the market, but will also embody the **strategic objectives of building a DT ecosystem**

Regulation

Elaboration of regulatory issues

Economy

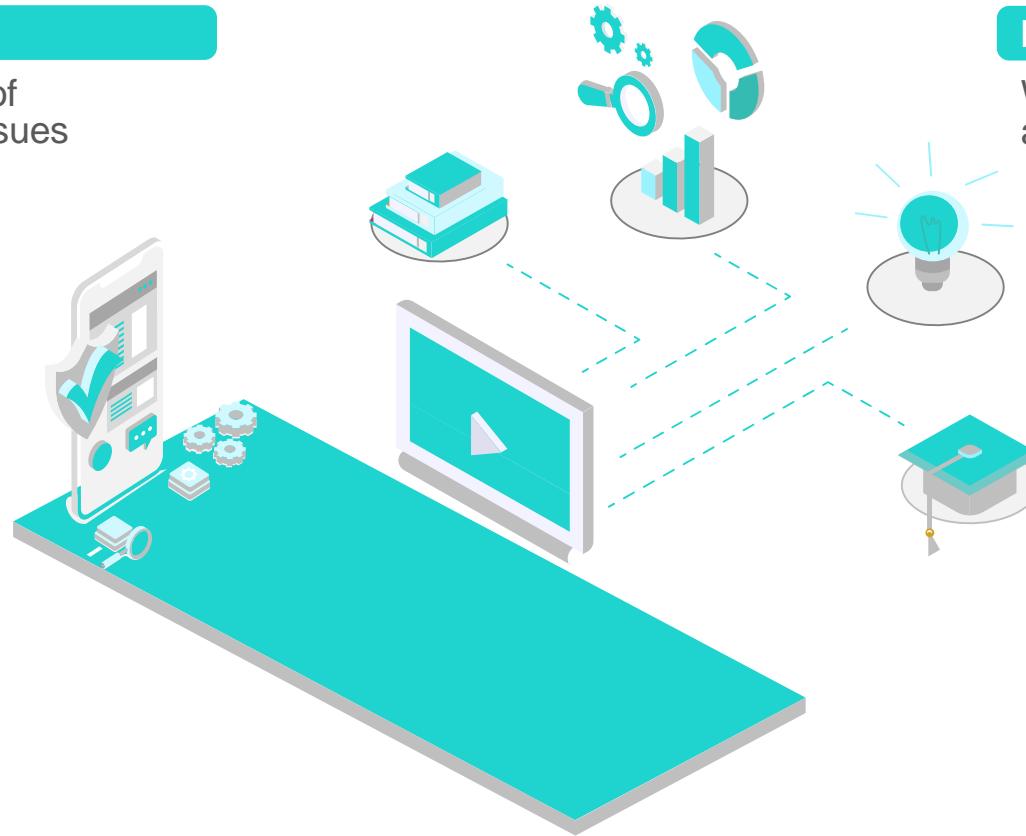
Working out the economic aspects

Technology

Technological expansion of the platform

Training

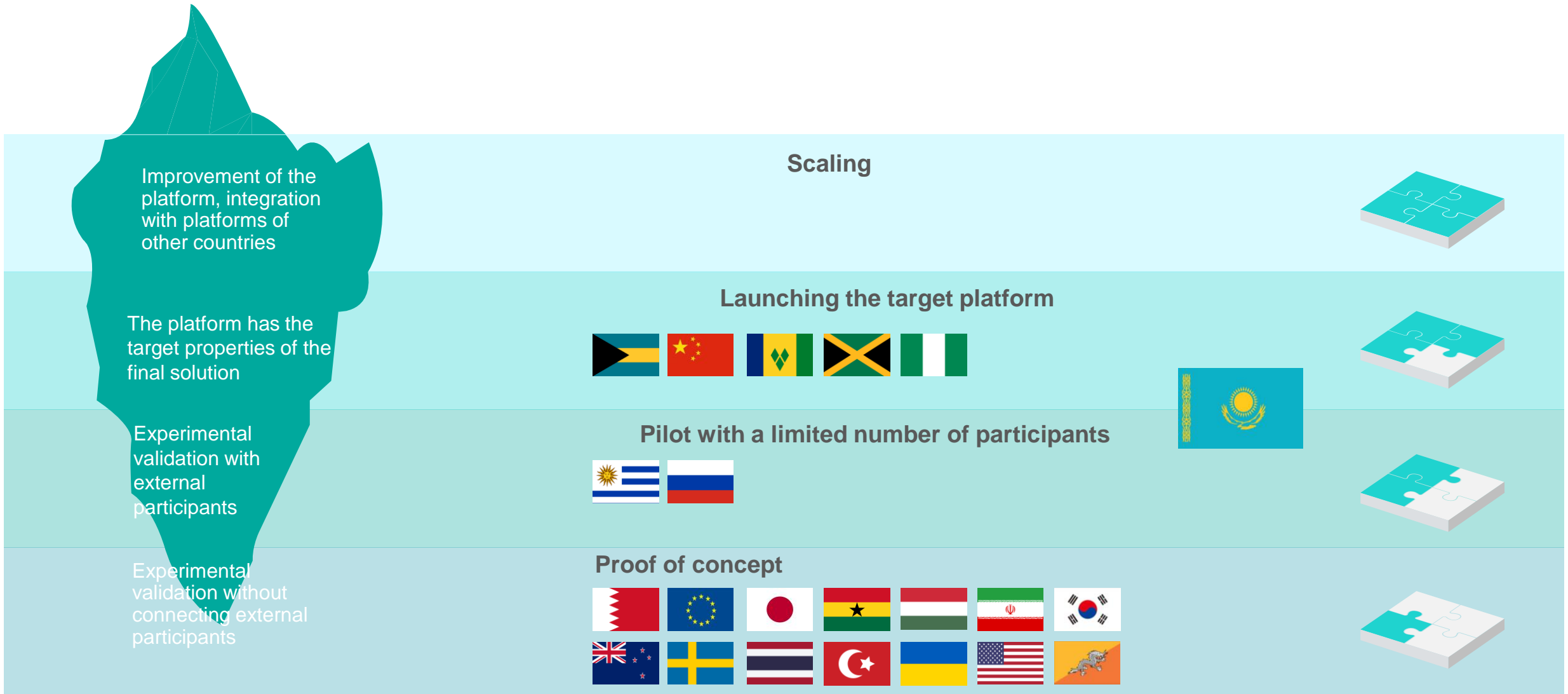
There will be training on the creation of smart contracts for market participants



NBK will provide consultation and training from international experts



As part of a pilot project **in 2022 Kazakhstan will create an MVP** - a minimum viable product for a comprehensive assessment of benefits and risks



The pilot platform will operate in 2 modes

Baseline MVP

Pilot project in a limited territory with a limited list of PSPs and consumers for end-to-end testing of platform functionality from issuance of digital tenge to its redemption

1

Connecting external participants

Testing of non-functional platform requirements: resilience, security, throughput, etc.



R&D sandbox

A closed test environment "technology sandbox" to explore and assess the viability of advanced functionality

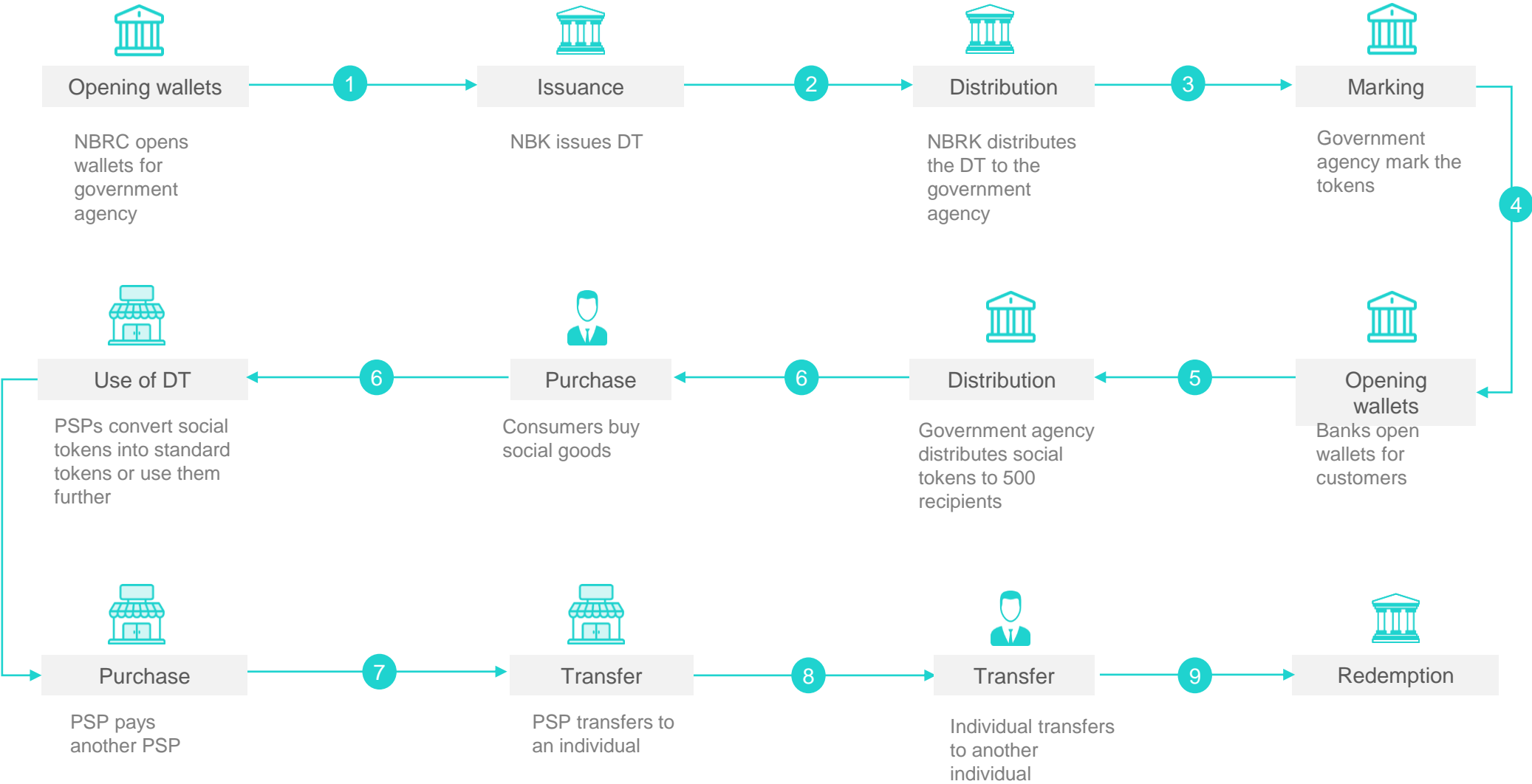
2

Elaboration of new approaches in a closed environment

Testing complex functional requirements for the platform: various smart contracts, offline chain, etc..

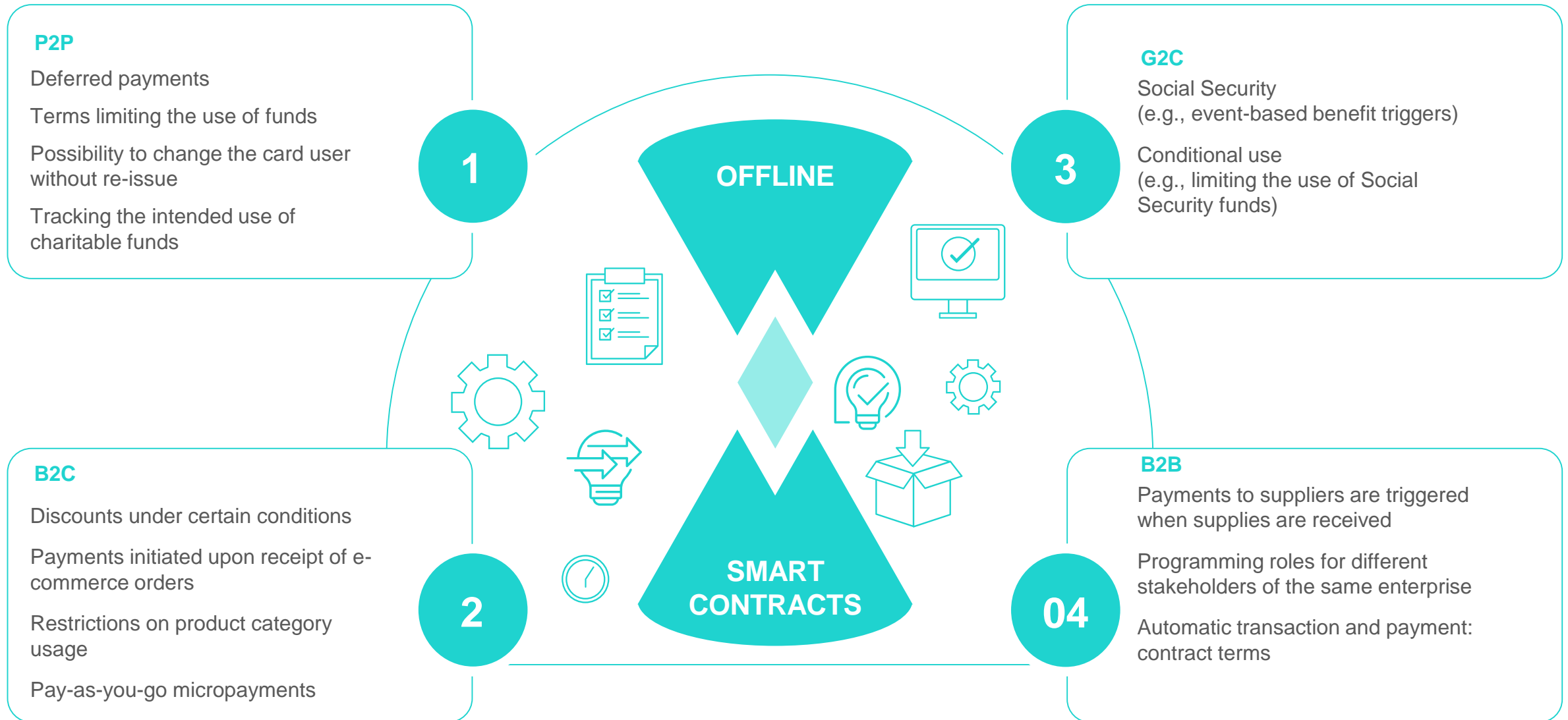


Preliminary scheme of end-to-end platform testing (baseline MVP)



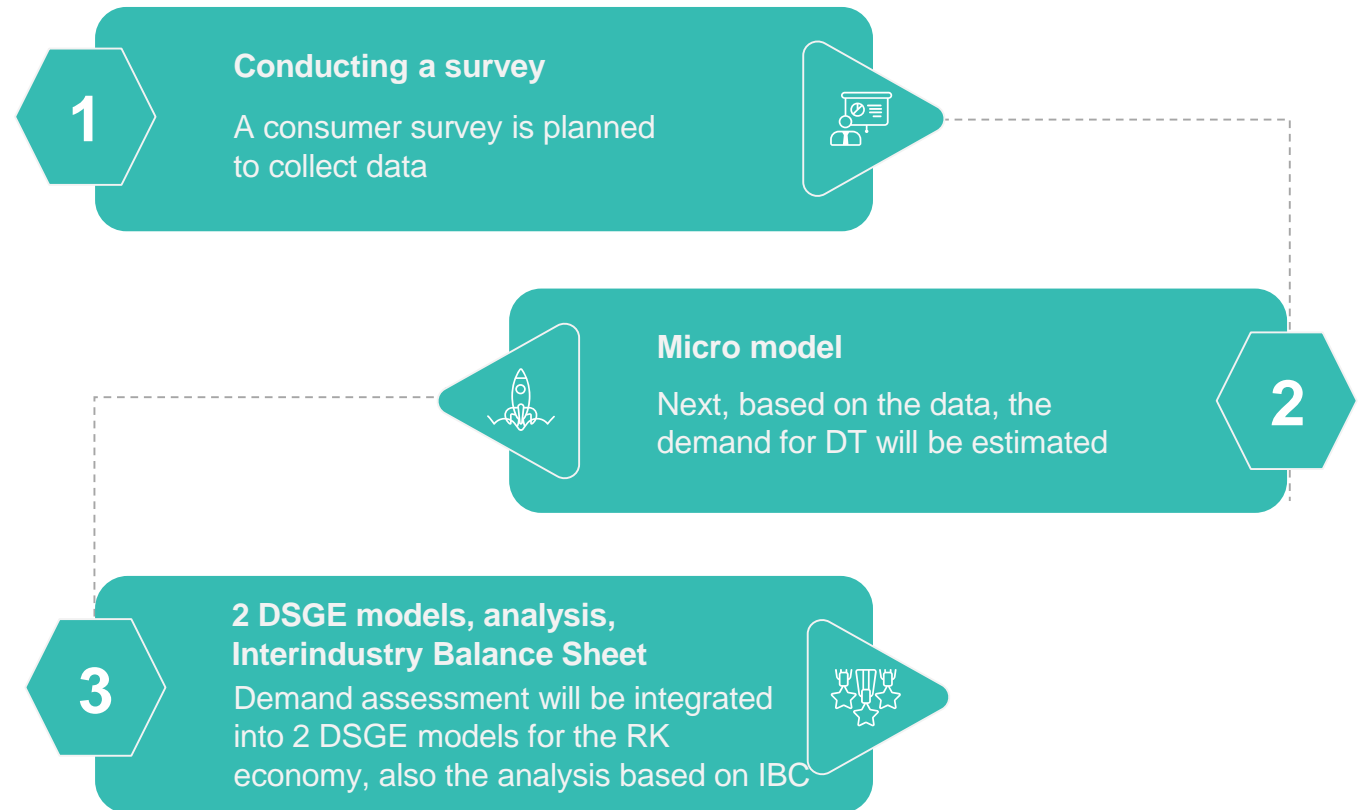
Due to the presumed participation of real PSPs and consumers, the project is expected to be implemented as part of the regulatory sandbox of the NBK

The R&D sandbox will explore different scenarios using smart contracts



The economic effects of DT will be estimated with the application of advanced modeling techniques to have a quantitative estimates

1. Most economists use general equilibrium models to estimate the impact of CBDC on the structure of the economy
 - ✓ but they are not entirely practical and show only the generalized theoretical role of CBDC in the economy
 - ✓ for practical application and taking into account the specifics of the RK economy, we are planning not just a general equilibrium model, but a DSGE
2. This is the first time that the combined micro-model and DSGE approach will be used with respect to CBDC. Other DSGE works express the elasticity of CBDC as a function of the elasticity of cash only



Papers will be available on December 15

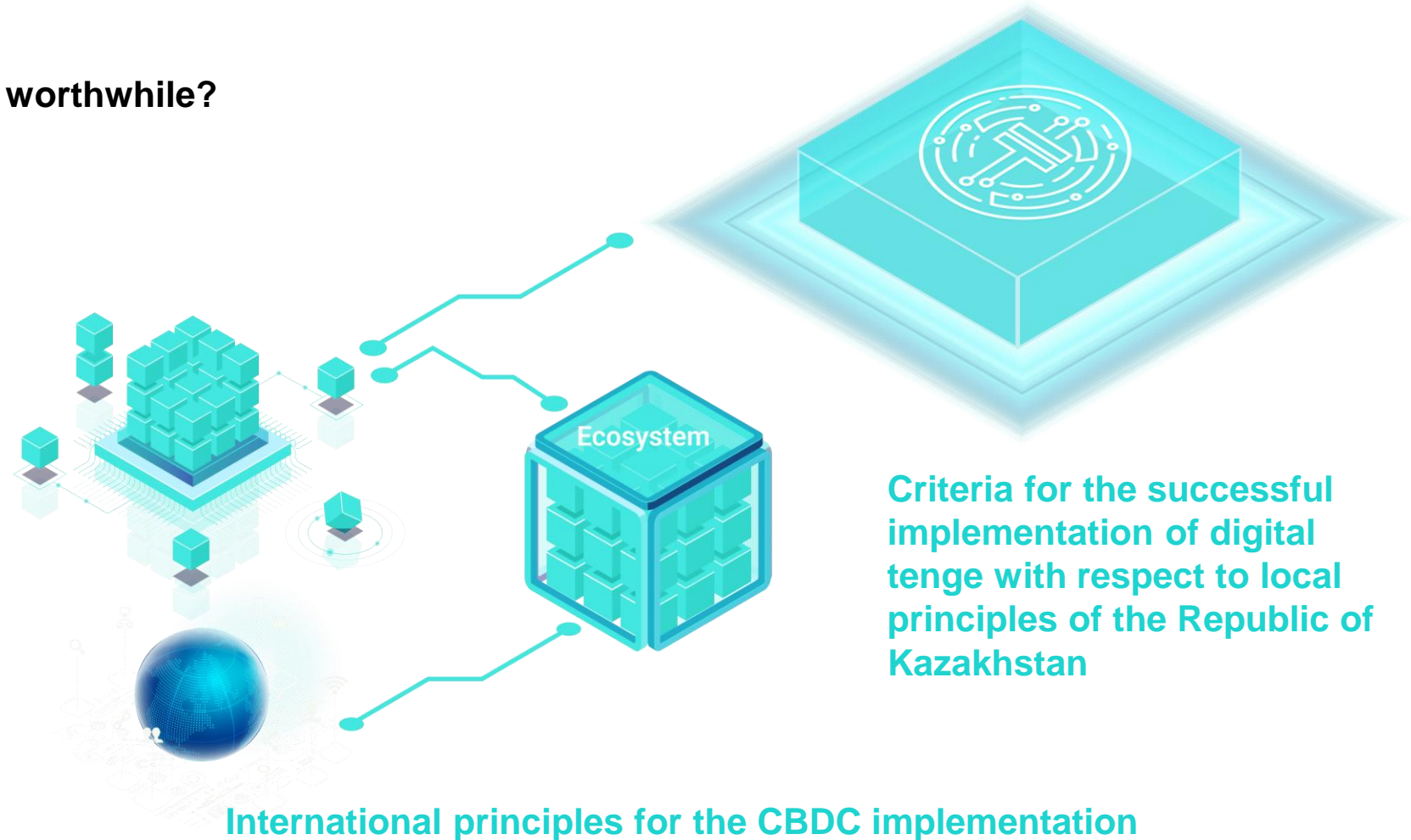
Decision-making framework considers the goals and objectives as well as the fundamental principles of DT implementation

Main question

Is the implementation of digital tenge worthwhile?

Goals and objectives of DT implementation

- ✓ to increase competition in the national financial market
- ✓ to increase proliferation of cashless payments
- ✓ to ensure continuous functioning of the National Payment System
- ✓ to increase efficiency of payments with the participation of the state
- ✓ to increase financial market's competitiveness in relation to players from different sectors and countries



It covers technological assessment, economic modeling, elaboration of regulation and ecosystem development issues



DT design

Taking into account the goals and objectives, local success criteria, and international principles of DT implementation, the DT design will be determined



Viability

Next, the technological feasibility of DT design, the economic risks of DT implementation, as well as the possibility of interaction between the participants of the new DT ecosystem according to the selected operating model will be assessed

Technology

Pilot platform in two modes: MVP, technology sandbox

Economics

Survey, microeconomic model, 2 DSGE models, design sessions with the market, experts

Collaboration

Digital Tenge Hub for design sessions and development of integrations with the DT platform

Regulation

Comprehensive evaluation of results

NBK, PFTDC

Recommendations

Advisory Board

If YES

Roadmap



For the purposes of objective analyses, members of the Advisory Board of the DT project are invited to interpret the results

7 criteria

Advisory Board - an independent commission of experts

Kazakhstani experts

Discussion and assessment of the relevance of the results to the specifics of the RK

Government figures

Public opinion leaders

Expert evaluation of the decision-making model, the final report, consultation with market participants

International experts

Evaluation of project results in comparison with international projects

IMF, BIS, CBDC
TT, ITU

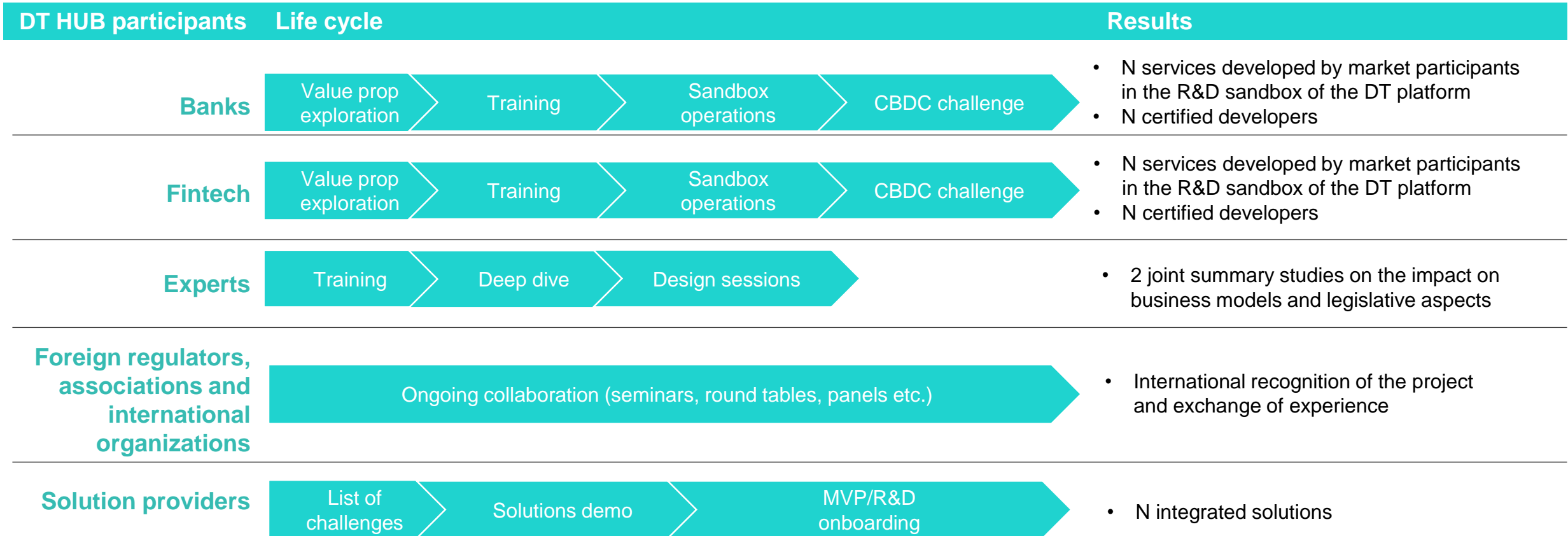
Digital Disruptions,
Digital Euro

Expert evaluation of the decision-making model, the final report

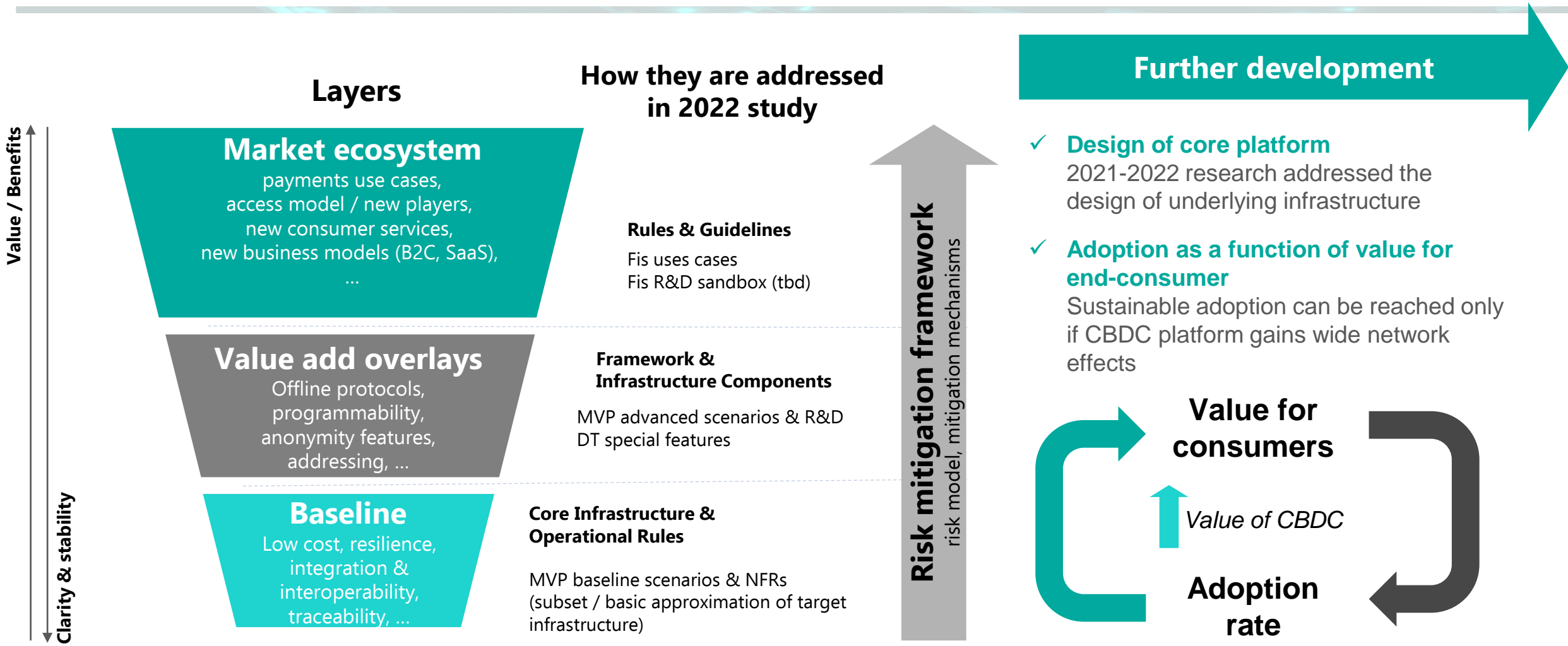
1. Are there unique technological advantages shaping relevant value proposition that can be viably delivered?
2. What is the level of technology and cyber risks? Are we ready to control them?
3. What is economic impact and financial stability implications?
4. Can we control potential financial stability and competition risks?
5. Is the market ready to engage?
6. What is regulatory burden and expenditures?
7. Cost-and-benefit analysis (tactical)

DT Hub provides an opportunity for collaboration with infrastructure players, international partners, market representatives and consumers

Digital Tenge Hub – is a collaborative platform of the "Digital Tenge" project "Digital Tenge", uniting all interested parties to jointly study the implementation of the national digital currency in Kazakhstan



The value for end consumers can be reached only through **effective collaboration between central bank and payment system providers**



Right choice of initial business cases for CBDC staged implementation is a key – they should enable gain of network effects, stimulate demand for CBDC, and consequently create a market for PSPs

Next stages (if decision will be “to go”)

