



**CENTRAL BANK DIGITAL CURRENCY  
EXPERIMENTS  
WITH THE BANQUE DE FRANCE**

**Call for applications package**

27 March 2020

*Submission deadline: 15 May 2020 at 3 p.m. (CET)*  
*Please send submissions to: [monnaie-innovation@banque-france.fr](mailto:monnaie-innovation@banque-france.fr)*



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*“The creation of a central bank digital currency (CBDC) [...] is neither a precondition for nor a guarantee of more efficient payments. However, we as central banks must and want to take up this call for innovation at a time when private initiatives – especially payments between financial players – and technologies are accelerating, and public and political demand is increasing. Other countries have paved the way; it is now up to us to play our part, both ambitiously and methodically.”*

**François Villeroy de Galhau**, Governor of the Banque de France,

Speech on 4 December 2019 on central bank digital currency and innovative payments

## 1. Overview

In keeping with their mandates, central banks pay close attention to innovation-driven developments in the payment landscape and the questions that these developments raise for public policy in general, and for the functioning of the monetary and financial system in particular.

New technologies in the area of payments and market infrastructures are creating a wealth of opportunities. Private initiatives have already begun offering new digital channels and methods of exchange.

A host of market infrastructure projects are under way, especially in Europe, aimed at helping financial markets to function more effectively and more smoothly. These projects are focused on the creation and circulation of digital tokens intended to replace cash or represent financial instruments. They form part of an underlying trend characterised by the emergence of new forms of digital assets such as utility tokens, security tokens and stablecoins, which are prompting financial authorities to consider the associated opportunities, risks and challenges.

In this setting, central banks are studying the possibility of issuing a new kind of central bank money in digital form. Currently, central bank money exists as cash, in the form of notes and coins, which is used for retail payments and is accessible to the general public. Central bank money is also available in non-cash form, in which case it is used in accounts opened with the Banque de France by financial institutions to conduct large value payments and settlements (Europe's real-time gross settlement system Target2 and dedicated cash accounts in Target2-Securities). In the Principles for Financial Market Infrastructures (PFMI), the Bank for International Settlements recommends using central bank money in these systems. Perfectly liquid and safe, central bank money is a key settlement asset and a critically important factor in controlling the risks that affect financial market infrastructures.

In view of the opportunities opened up by technological progress and in an effort to avoid excessive fragmentation in settlement procedures, the Banque de France is taking steps to review and adjust the conditions under which it provides financial intermediaries with central bank money. With this in mind, the Banque de France is launching a programme of experiments to test the integration of a central bank digital currency (CBDC) in innovative procedures for the exchange and settlement of tokenised financial assets between financial intermediaries.

These experiments will act as a contribution by the Banque de France to a broader discussion within the Eurosystem, which will make any decision on whether to set up a CBDC. The tests are

not intended to be continued on a long-term basis or applied on a wide scale by the Banque de France itself.

This document is the first call for applications to conduct a CBDC experiment with the Banque de France. Work relating to the experiments is being coordinated by the Infrastructures, Innovation and Payments Directorate (DIIP), within the General Financial Stability and Operations Directorate (DGSO). The experiments will be conducted with support from the Banque de France's open innovation laboratory (LAB).

## 2. Aim of the call for applications

### 2.1. Objectives

The experiments have a threefold objective. The aim is: (a) to show how conventional use cases for central bank money can be achieved through a CBDC based on different technologies; (b) identify the benefits of introducing a CBDC for the current ecosystem and understand how a CBDC might foster financial innovation; (c) conduct a detailed analysis of the potential effects of introducing a CBDC on financial stability, monetary policy and the regulatory environment.

#### a) Test use cases for a CBDC

The experiments proposed by the Banque de France will cover the following use cases:

- (i) payment in central bank money against delivery of listed or unlisted financial instruments (“*delivery-versus-payment*”);
- (ii) payment in central bank money against the digital currency of another central bank (“*payment-versus-payment*”);
- (iii) payment in central bank money against digital assets (as defined in the French Monetary and Financial Code,<sup>1</sup> Article L. 54-10-1 2°).

The Banque de France is not imposing any specific technology choices, but innovativeness is a selection criterion (see Section 5 on selection criteria).

The technical capacity to process large operational volumes will not be examined as part of these experiments. However, the proposed solutions’ performance, security and continuity characteristics will be analysed.

#### b) Assess the possible consequences of introducing a CBDC for the ecosystem built around market infrastructures

The objective is to analyse the result of the experiments with regard to the existing ecosystem and the consequences of introducing a CBDC. The performance of the process(es) used in terms of security or service efficiency will be compared against those of the existing systems and processes for the three use cases. More generally, the foreseeable productivity gains for the financial sector and for the economy will be assessed.

#### c) Analyse the macroeconomic, monetary, financial and legal consequences of introducing a CBDC

These experiments should enable an initial assessment to be made of:

- the possibilities for developing transactions relating to financial assets, including existing financial instruments as well as new assets, on the basis of new technologies;

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<sup>1</sup> Article L. 54-10-1 of the French Monetary and Financial Code.

- the potential consequences for trading volumes and the intraday distribution of trading on the intraday money market, notably owing to the 24/24 availability of the CBDC;
- the impact on monetary policy transmission;
- possible restrictions imposed by the existing legal and regulatory framework.

## 2.2. Business scope

To address the objectives of the experiments, the scope covers the three following use cases.

- Payment by means of a token<sup>2</sup> (or any other dematerialisation process), representing central bank money, against delivery of a listed or unlisted financial instrument. Provided that the domestic and European regulatory framework is complied with, the financial instruments may be issued and exchanged over a period extending beyond the experiment. However, representation of central bank money shall be limited to the accounting day on which payment is made, and payment finality shall be recorded in the accounts in central bank money, as the token has no legal force.
- Payment by means of a token (or any other dematerialisation process) representing central bank money, against a digital currency of another central bank. Representation of central bank money shall be limited to the accounting day on which payment is made, and payment finality shall be recorded in the accounts in central bank money, as the token has no legal force.
- Payment by means of a token (or any other dematerialisation process), representing central bank money, against digital assets as defined by Article L. 54-10-1 2° of the French Monetary and Financial Code.<sup>3</sup> Representation of central bank money shall be limited to the accounting day on which payment is made, and payment finality shall be recorded in the accounts in central bank money, as the token has no legal force.

The Banque de France will not engage in money creation in the context of these experiments. The token reflecting the amount in euros in digital form will be destroyed at the end of the accounting day on which payment was made. Payment in central bank money will be made in accounts opened with the Banque de France and the corresponding amounts will be covered, as need be, by collateral in one or more segregated accounts opened by the Banque de France in its own name (see Section 3 on provision of resources by the Banque de France).

The tested functions should make it possible to perform all of the following operations:

- management of reference data needed for transactions (notably those used to manage market participants);
- issuance of a token or any dematerialisation process reflecting movements of central bank money;
- establishment of a business process to use the token or any other dematerialisation process to settle a financial instrument or a digital asset or make a payment against a digital currency of another central bank;

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<sup>2</sup> The token (or any other dematerialisation process) representing central bank money is not a digital asset within the meaning of Article L. 54-10-1 of the French Monetary and Financial Code, which was introduced by Law No. 2019-486 of 22 May 2019 on business growth and transformation.

<sup>3</sup> Article L. 54-10-1 of the French Monetary and Financial Code, Law No. 2019-486 of 22 May 2019 on business growth and transformation.

- establishment of a system to trigger payment in central bank money;
- consultation of movements and reconciliation of assets;
- creation of an audit trail and establishment of mechanisms to measure results (notably information reporting) and supervision and control tools.

### 3. Provision of resources by the Banque de France

In the context of the experiments, the Banque de France shall make the following resources available.

- Issuance of the token (or any other dematerialisation process) representing central bank money in accordance with the technical procedures to be determined for each selected experiment. In this regard, the Banque de France does not intend to favour a specific technology.
- Finality of payment transactions will take place, as applicable, in the French component of Target2, (“T2-BF”), by debiting and crediting the affected cash account(s). The Banque de France shall transfer funds in and out of the affected cash accounts in T2-BF for all participants.
- An interface, as required, with Target2-Securities, the technical platform that allows central securities depositories to manage their business of delivery-versus-payment of securities in central bank money, in accordance with Guideline ECB/2012/13 (recast) on Target2-Securities.

The Banque de France may also provide some or all of the following services:

- delivery-versus-payment process, making it possible to perform the services currently offered in Target2-Securities, especially clearing, optimisation mechanisms and auto-collateralisation for credit purposes;
- payment-versus-payment process.

The Banque de France shall not perform the functions of financial instrument, foreign currency or digital asset issuance.

## 4. Description of the application

### 4.1. Eligibility criteria

Applicants may submit individually or as part of a temporary business grouping. In the latter case, the party submitting the application must provide an authorisation signed by the grouping's members.

Applications that meet all the following criteria shall be eligible.

- Applications must be submitted by applicants established in the European Union or in a state party to the European Economic Area agreement.
- Applications must be complete, i.e. include the identity of the applicant(s), and a confidentiality commitment, which should be signed and appended (see appendix 1).
- Applications must include a proposal for an experiment covering at least one of the three use cases described in Section 2.2 on business scope.
- The applicant or at least one of its members must have a payment account in the French component of Target2, T2-BF, or be an indirect or addressable participant of a direct participant, regardless of the proposed use case described in Section 2.2 on business scope. Participation in T2-BF must comply with the membership requirements and procedures set down in the T2-BF Agreement and also be in compliance with Guideline ECB/2012/27 (recast) on a Trans-European Automated Real-time Gross settlement Express Transfer system (Target2).
- The applicant or at least one of its members must be a participant of a Central Securities Depository (CSD) in Target2-Securities, if it proposes a use case relating to payment in central bank money against delivery of a financial instrument admitted to the operations of a CSD, described in Section 2.2 on business scope.
- Applications must the functions that make possible to perform all of the operations described in Section 2.2 on business scope.
- Applications must describe the resources implemented to comply with all the following non-functional requirements:
  - data integrity, meaning the capacity to safeguard data during processing, transmission and retention over the course of the experiment;
  - sufficient data availability to ensure that the experiment goes smoothly;
  - indivisibility, meaning the ability to ensure that a set of transactions is executed on an "all or nothing" basis, i.e. if one transaction in the set cannot be executed, then none of the transactions shall be;
  - confidentiality, meaning anonymity;
  - data segregation by class of activity;
  - traceability, meaning the creation of an audit trail.

Applications may be submitted in French or English. However, only the French version of this document, the confidentiality agreement and the contract signed with each applicant shall be authoritative.



Applicants may send their applications electronically until 15 May 2020 at 3p.m. (CET) to the following address:

[monnaie-innovation@banque-france.fr](mailto:monnaie-innovation@banque-france.fr)

Questions may also be sent to the Banque de France until 20 April 2020 at 3 p.m. (CET). Please use the same address, that is:

[monnaie-innovation@banque-france.fr](mailto:monnaie-innovation@banque-france.fr)

Each individual file making up the application package may not exceed 12 Mb in size.

Documents in the application package may be provided in the following electronic formats: Word, Excel and PDF.

Each document must be signed electronically by an individual who is authorised to sign for the applicant or, in the event of a grouping, by the representative of the grouping or each company in the grouping, by means of a certificate drawn up in the individual's name.

Electronically submitted applications in which the Banque de France detects malware will not be repaired and will be eliminated.

Any application that is incomplete or submitted after the submission deadline will be rejected automatically.

## 4.2. Selection criteria

Projects will be selected from the list of eligible applications based on the selection criteria listed below in Section 5.

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Each selection criterion will be scored from 1 to 5, with 5 being the best score.

## 4.3. Purpose

Conducting an experiment with the experiment provider shall in no way imply that the tested solution is to be deployed in the future.

## 4.4. Number of applications selected

The Banque de France will select a maximum of ten submissions from the list of eligible applications. An applicant may submit only one application package, but an individual package may contain several experiment proposals, which the Banque de France may select in whole or in part.

## 4.5. Conduct of the experiment

Each experiment will comprise three phases, to be carried out jointly with the Banque de France. An experiment may be interrupted during or at the end of the process, as per the terms set down below.

The three phases are defined as follows:

- Phase 1: Design
  - team set-up;
  - definition of operating procedures;
  - definition of IT architecture;
  - validation of expressions of functional and non-functional requirements.

If the design stage proves conclusive for both parties, that is, if the selected applicant and the Banque de France agree on the experiment to be conducted, the experiment moves to phase 2. If no agreement is reached, the experiment ends.

Furthermore, if phase 1 work reveals any risk of incompatibility with existing regulatory frameworks that was not previously identified, the Banque de France will assess whether or not to implement phase 2 of the experiment as described below.

- Phase 2: Prototype
  - provision of technical environments;
  - IT developments;
  - execution of tests using fictitious data;
  - analysis of business impacts and characterisation of results.

If phase 2 work reveals any risk of incompatibility with existing regulatory frameworks that was not previously identified, the Banque de France will assess whether or not to implement phase 3 of the experiment as described below. Furthermore, the Banque de France will assess whether the test results are consistent with expectations from a functional and technical perspective before moving on to phase 3.

- Phase 3: Conduct of the experiment
  - execution of operations;
  - formal recording and analysis of results.

## 4.6. Framework applicable to the experiment

### 4.6.1. Experiment protocol and governance

Selected applicants agree to sign a specific contract, in French, with the Banque de France, covering their experiment and consistent with the agreement template appended (see appendix 2), prior to implementation of phase 1 described in Section 4.5 on conduct of the experiment.

Steering arrangements for each project may vary as a function of the experiment to be conducted and shall be based on:

- the appointment of an experiment leader for each of the participants;
- a working group comprising teams of experts;
- a decision-making experiment committee co-chaired by the Banque de France and the selected applicant, which shall meet on an ad hoc basis.

#### **4.6.2. Intellectual property**

Rights and obligations relating to intellectual property are set out in the contract signed by the participants before implementation of phase 1 of the experiment (see Sections 4.5 and 4.6.1).

Execution of the experiment shall not lead to any transfer of intellectual property rights to data, files, documents, codes and media to selected applicants.

#### **4.6.3. Confidentiality**

The Banque de France undertakes to keep all applications confidential, including non-selected applications.

The confidentiality obligations applicable to each party are set out in the contract signed by the participants before implementation of phase 1 of the experiment (see Sections 4.5 and 4.6.1).

In accordance with these obligations, the Banque de France reserves the right to communicate concerning the findings obtained from all of the experiments that are conducted.

#### **4.6.4. Applicable law**

The call for applications exists in both French and English. However, only the French version is authoritative.

Work relating to the experiments shall be subject to French law.

## 5. Selection criteria

### 5.1. Experiment description

SC1 The experiment provider must provide a detailed functional and technical description of the proposal, demonstrating the innovativeness of the proposed solutions as well as the relevant nature of the experiment, and provide any elements that may be used to assess the progress made by the proposed experiment. Clarity of the application will be a key factor in assessment.

### 5.2. Resources

SC2 The experiment provider must show that the human and material resources (project ownership and management arrangements, etc.) that it plans to deploy are adequate to meet the target goals.

### 5.3. Steering arrangements

SC3 The experiment provider shall provide information, including name, background and experience, about the person appointed to be the experiment leader or the person authorised to take part in the experiment selection phase, governance and follow-up meetings.

### 5.4. Security and access control

Measures must be implemented to protect the experiment against fraudulent activities, intrusion, disclosure and unauthorised modification of data transiting through the network.

SC4 The experiment must be protected against all intrusion: the applicant shall describe the measures and procedures that shall be proportionate to the experiment while ensuring security and controlling access.

### 5.5. Confidentiality

Confidentiality refers to the ability of a system to protect all its data and functions and to ensure supervision, selectivity and access control.

As in all of their duties, staff of the Banque de France and, where applicable, the *Autorité de contrôle prudentiel et de résolution* (ACPR) taking part in the experiments shall be subject to professional secrecy requirements as regards elements presented by the experiment provider (Article L. 142-9 and L. 612-17 of the French Monetary and Financial Code).

SC5 The experiment provider shall provide a detailed description in the application showing how it intends to ensure data confidentiality and protect access to data.

SC6 The experiment provider shall provide a detailed description in the application showing how it intends to protect Banque de France data and ensure that its solution complies with legislative and regulatory requirements (Data Privacy Authority – Commission Nationale de l'Informatique et des Libertés - CNIL - and General Data Protection Regulation - GDPR).

## 5.6. Compliance with existing regulations

SC7 The experiment provider shall specify in the application whether compliance with national, European and international regulatory frameworks renders the feasibility of the experiment subject to particular restrictions, such as the need to obtain a third party's consent.

## 6. Returning information

Following the experiment, the experiment provider undertakes to return or destroy Banque de France information relating to the experiment that is still in its possession at the end of the experiment.

## 7. Absence of remuneration

The experiment shall not give rise to remuneration. Each party shall bear its own costs arising from taking part in the experiment.

## 8. Place of performance

The experiment shall be performed on the premises of the Banque de France and its annexes, and if need be on the experiment provider's premises provided security requirements are met.

Costs involved in travel and trips made by the experiment provider to come to the Ile de France region, regardless of the starting point of such travel, shall be borne by the experiment provider.

## 9. Provisional timetable

<b>Publication date of the call for applications</b>	27 March 2020
<b>Deadline for applicants to submit questions to the Banque de France</b>	20 April 2020 at 3 p.m. (CET)
<b>Deadline for the Banque de France to respond to applicants' questions</b>	30 April 2020
<b>Submission deadline for digital applications</b>	15 May 2020 at 3 p.m. (CET)
<b>Interviews with applicants submitting eligible packages</b>	June 2020
<b>Selection of applications</b>	10 July 2020
<b>Signature of contracts prior to start-up of experiments</b>	From 13 July 2020

## 10. Appendices

The call for applications contains two appendices available on the Banque de France's website:

- Appendix 1 related to the confidentiality commitment;
- Appendix 2 related to the agreement template.