

Project Rosalind Phase 1

Invitation for Expression of Interest (EOI) for API Users and Advisors Group

For companies and organizations wishing to become members of Project Rosalind API users and advisors' group (the Group).

1. What is Project Rosalind and what it aims to achieve?

Project Rosalind is a technological experimentation on retail CBDC. The project aims to develop prototypes for an application programming interface (API), to explore how it could best enable a central bank ledger to interact with private sector service providers to safely enable retail CBDC payments. It will also explore some of the functionalities required to enable a diverse and innovative set of use cases to be developed by the private sector. By exploring these elements, the project will seek to contribute knowledge about how best to lay the foundation for building a robust and vibrant ecosystem.

The project is based on a model where CBDC will be issued by a central bank and distributed through user-facing applications provided by payments interface providers (PIPs), mostly from the private sector. For this model to work, an API is needed to act as a platform to connect a central bank core ledger with PIPs. Interoperability is key as the API will need to be system and application agnostic.

We envisage Project Rosalind to be delivered in two phases. Phase 1 will focus on designing and building the open API platform, testing, and validating API functionalities through use cases. Phase 2 will focus on use cases discovery and exploration of key topics such as adoption and ecosystem building.

This invitation for EOI is relevant to phase 1 API development work. Relevant functional requirements are detailed below:

1. API Usability:

- Explore and demonstrate the optimal open API architecture (including extendibility) and standardized specifications for central bank ledger to communicate with a broad and diverse range of existing and potential future private sector systems (e.g. wallet provider, application developers and other participants).
- Explore and demonstrate how the API could work with innovative use cases and enable programmability.
- Explore and demonstrate the use of messaging standards (including ISO20222) and data models to deliver best user experience for private sector service providers.
- Study potential technical barriers to adoption and make recommendations on best practice.

2. Convertibility: explore and demonstrate API functionalities required to convert CBDC to and from other forms of money, such as commercial bank money and stablecoins.

3. Retail CBDC distribution, user authentication and payments authorization.

- Demonstrate end-to-end connectivity to enable CBDC transactions to be settled.
- Explore and build minimum viable central bank ledger structure, data and messaging flows and API functionality to support both account and token-based CBDC (or some kind of hybrid model).
- Explore and demonstrate the interaction between API functionalities and central bank settlement options.
- Study and demonstrate the trade-offs between account-based and token-based.
- Develop financial-grade API security features needed to authenticate end-users, including payment service providers and their clients.
- Develop financial-grade API security features needed to validate payments (including the use of cryptography)

Subject to project timeline and resources, phase 1 may also explore interactions between privacy and other design choices and cross-border payments. Given the focused scope, the project will not explore other important components of a retail CBDC system such as resilience, performance, throughput, efficiency, offline payments, cyber security, legal/regulatory and other policy considerations, AML and CFT.

2. What's the purpose of the Group?

To ensure Phase 1 output is fit for purpose, the project team sees a strong case to engage with API users and technical experts at the outset of the project, to embark on a journey of co-creation. We envisage this highly focused and committed Group to share their user perspective, to help explore, validate, and enrich API functionalities that are critical to support a diverse range of use cases, and to test the scope of innovation. The Group should also play a critical advisory role to help design and build a best-in-class API with high levels of scalability and extendibility. We envisage the output of this group to be critical to the success of Project Rosalind, and in terms of deepening the central banking community's understanding in how retail CBDC could be used and what the public sector could do to build a robust ecosystem for innovation.

3. How does it work?

The Group is structured into two tiers, API users and technical advisors, with different roles and responsibilities. API users will focus on use cases exploration and technical advisors on the architecture and functionality of the API. They will have the opportunity to collaborate very closely with the project team to help shape the content and quality of project output. All members are expected to provide their full commitment to participate in phase 1 work (likely to be from July 2022 to the beginning of 2023). They will be invited to regular show and tell meetings (likely to be monthly) where technical demonstration of the API work will be provided by the project team for feedback. We also envisage at least 3 sessions throughout the project for the Group to get together to discuss progress, outcomes, and share insights.

Additional activities expected of API users are listed below:

- As part of this EOI process, companies and organizations are invited to submit use case proposals for the API platform. Please see below for details.
- API users will meet with BIS/BoE business owners on monthly basis (likely to be one hour) to contribute to the content the project backlog.

- API users are required to develop their use cases into solutions in the form of proof of concepts or prototypes, in their own development environment, with their own data and their choices of programming languages and tools. Upon the completion of phase 1, they will have the opportunity to showcase their solutions together with the project team at the phase 2 global showcasing event.

In terms of additional activities expected of advisors, we envisage approximately fortnightly one-hour meetings with the project team in the first two months after the development work starts (likely to be July to September 2022) for members to advise on core technical specifications.

Note that as the project progresses, there might be cases where changes need be made to the plan we set out above. We aim to keep the overall level of commitment unchanged and will work with the Group to discuss and agree on any specific changes.

Participation in the Group will be governed by a set of Terms of Reference (**Annex 1**). Participants will be asked to provide their consent prior to their participation.

4. How will the members be selected?

We expect membership composition of the Group to reflect the specific scope and core functional requirements of the project. For API users, we expect their use cases to provide a balanced coverage of different consumer domains and features, and to represent existing and emerging applications and technology. Due to the experimental nature of the project, we welcome companies and organizations with innovative and untested ideas and accept that many assumptions would have to be made for a solution to be developed. For technical advisors, we seek a diverse group of experts with deep technical knowledge and experience in API development, open banking and payments.

We set out below the specific selection criteria separately for API users and technical advisors:

API users' selection criteria:

Membership selection will be based on an assessment of the following, both at individual and collective level.

Individually:

- Whether the use cases submitted are within the scope and requirements for the project.
- Whether the company or organization has demonstrated its capability and willingness to commit and participate throughout the development period.

Collectively for the portfolio of use cases, we aim to achieve the following:

- The portfolio of use cases should be able to fully support the scope and functional requirements of the API development.
- Cover a broad and diverse range of consumer domains and features, for both payments and non-payments related transactions and activities. **Table 1** below provides a non-exhaustive list of these domains and features.
- The portfolio of use cases should contain innovative elements, representing improvements to existing applications or something entirely new. For example, these could be ideas to solve

existing or future problems, or potentially new consumer domains and capabilities that could be made possible by applying merging or future technology.

Table 1: Non-exhaustive list of consumer domains and features

	Payments	Non-Payments	Cross-border
Consumer Domains	Individuals: low and high value, salary, food and groceries, housing (rent or mortgage), education, transport, large sum life events, luxury goods, hobbies, holidays, domestic and international. Merchants: low and high value, sales, suppliers, employees, tax payments, plant and buildings, equipment, domestic and international, delivery vs payments (DvP).	• Transaction reporting • Spending management • cash flow management • Financing • Investment/wealth management • Buy and sell other forms of money	• Remittance • Overseas travel
Features	Where: in-store, online, peer-to-peer(P2P), domestic and international Means of payment: phone apps, web-based apps, near-field communication (NFC), smart assistants, smart cards, Point of Sale (PoS) and QR codes Transaction types: pull and push, recurring, batch payments Programmability: DvP, payments vs payments (PvP), Escrow, Micropayments		

Technical Advisors selection criteria:

Membership selection will be based on an assessment at both individual and collective level.

Individually, whether the applicant has relevant experience and knowledge in payments, API and/or other relevant areas. Collectively whether the group of advisors could provide a balanced coverage of all the technical areas as well as a diverse range of perspectives.

5. What are the key timelines and processes?

As the API development work is expected to run from July 2022 to the beginning of 2023, we aim to have the Group formed in the second half of July and with its work completed when the project finishes. Expected timeline are as follows:

- Q&A session 1 on 29th June 2022 at 1-2pm (BST)
- Q&A session 2 on 5th July 2022 at 1-2pm (BST)
- EOI due on 8th July 2022
- Member selection process to be completed by 15th July 2022
- Introductory meeting on 19th July 2022 at 1-2pm (BST)
- Phase 1 is expected to run from July 2022 to the beginning of 2023
- Phase 2 global showcasing event likely to be held in Q4 2022/Q1 2023. The exact date will be confirmed later.

6. What happens to companies and organizations that have not been selected?

Due to limited space and specific project development needs, we expect that we may not be able to accept all applications. They will be automatically invited to participate in Project Rosalind Phase 2, which includes a series of engagement throughout phase 1 and a global showcasing event in Q4 2022/Q1 2023. Teams will be provided with a co-creating space to build and present their solutions. Details on Phase 2 will be announced in due course.

7. Who is invited to participate?

This invitation is open to all private and public sector companies and organizations from technology, payments, banking, and other relevant sectors that are interested in hands-on exploration of retail CBDC. Participants can express their interest in both API user and advisor roles in the Group.

8. How to submit your expression of interest?

To express your interest, please submit the following information in no more than five A4 pages to Amy.Jiang@bisih.org and Londoncentre@bisih.org by 8th July 2022. Please use the same email address to register for the Q&A sessions.

1. For API users, your use case proposal, which should set out clearly the problem statement, the relevant consumer domain, technology, and the underlying assumptions. It should also provide a meaningful breakdown of API functionalities required, with a clear indication of which of these could be mapped to the list provided in **Table 2** below, and what's over and above. Note that the list in **Table 2** is mostly focused on payments, but our experimentation is not limited to payments.

Table 2: Examples of basic API functionalities on payments

Account/Wallet	• Create wallet • Close wallet • Disable wallet • Get Balance • Get Transaction history
Transaction	• Transfer other forms of money into CBDC wallet • Transfer CBDC out of wallet into other forms of money
Payments	• Payments in store • Online payment • P2P payment

2. For technical advisors, please submit your CV and a cover letter setting out your motivation, core values and how your experience is relevant to this project.