BANK FOR INTERNATIONAL SETTLEMENTS

Request for Quotation (RFQ)

Project Pyxtrial Work Package 1

(hereinafter called "the project")

Dispatch Date	11.08.2023
Deadline for quote submission ("Submission Date")	14.09.2023
Envisaged start of contract	23.10.2023
Requestor Contact (the "Requestor")	Eryk Walczak

Confidentiality

All information contained herein is to be treated confidentially. It is to be used solely for the purpose of drawing up a quote. Please refer to section 5.3 ("Obligation of confidentiality").

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1. Introduction and Overview

1.1 The Bank for International Settlements

The Bank for International Settlements (BIS) is an international organisation with its head office at Centralbahnplatz 2, CH-4051 Basel, Switzerland, and representative offices in Mexico and Hong Kong SAR. The BIS's objectives are to promote cooperation between central banks, to provide a centre for economic and monetary research, and to act as a trustee or agent with regard to international financial arrangements. It employs approximately 650 members of staff from more than 60 countries. More information about the BIS can be found on our website: https://www.bis.org/.

As an international organisation serving central banks in pursuit of monetary and financial stability, the BIS recognises the increasing impact that technology-driven innovation will have on global financial systems and on the way central banks conduct their core public missions. In light of this, the BIS has established an Innovation Hub to serve as a dedicated platform for acquiring expertise and developing technology and digital innovation projects for the benefit of the central banking community. The BIS Innovation Hub (BISIH), which is part of the BIS itself without separate legal personality, currently has regional Hub centres in Switzerland, Hong Kong SAR, Singapore, London, the Eurosystem and Stockholm.

The mandate of the BISIH is to:

1. identify and develop in-depth insights into critical trends in financial technology of relevance to central banks,

2. explore the development of public goods to enhance the functioning of the global financial system, and

3. serve as a focal point for a network of central bank experts on innovation. It complements the already well-established cooperation within the BIS-hosted committees.

1.2 Executive summary

The project is a collaboration with the Bank of England. Its objective is to develop a prototype data reporting infrastructure that would allow regulators to understand the balance sheets of stablecoin issuers by obtaining data about their assets and liabilities. The project will provide the underlying infrastructure that could be adjusted and deployed by regulators. The project also aims to show how technology could be developed to support the supervision of novel financial products.

We are looking for visionary partners with outstanding experience and technological capabilities to join us to design and build prototypes of the data reporting pipeline. We expect bidders to provide a dedicated delivery team and are open to receiving bids from either an individual firm or a consortium.

1.3 Tendering process timetable and deadlines

Please find below the schedule for the tendering process:

Table 1 - Timeline and deadlines

Dispatch of RFQ	Friday 11 August 2023
Acknowledgment of participation in RFQ	by e-mail To: Eryk.Walczak@bisih.org CC: london.centre@bisih.org
Deadline for queries from bidders	Wednesday 30 August 2023 by e-mail To: Eryk.Walczak@bisih.org To: london.centre@bisih.org
Deadline for answers to be sent to all bidders by email	Wednesday 6 September 2023
Deadline for quote submission	Thursday 14 September 2023
Expected bidder interview period	22th to 27th September 2023
Expected date of decision being communicated	w/c 9 October 2023
Envisaged start date	Monday 23 October 2023

2. Scope and Requirements of the RFQ

2.1 Project summary

The objective of this project is to create a prototype of a data reporting pipeline that will transfer information between a stablecoin issuer and a regulator. In this project we are focusing on asset-backed[1] stablecoins only. The data pipeline should collect information about assets and liabilities specified by regulators (for instance, by using an API). The prototype should simulate the sending of this data, receiving it, and storing it in a database. The goal of this project is to develop a customizable and portable reporting system that could be used by different regulators and adjusted to their needs.

We are looking for supervisory/regulatory technology (suptech/regtech) specialists with a knowledge of data reporting, APIs, and cryptoassets to join us in developing this prototype. We are interested in working with a dedicated delivery team from either an individual firm or a consortium.

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[1] We are interested in stablecoins backed by traditional financial assets. Not in the non-backed or crypto-backed stablecoins.

2.2   Project overview (including requirements and scope)

Requirements and scope of the project are detailed below:

Business requirements

<u>Background</u>

Central banks and regulatory agencies are facing the task of supervising new financial instruments like stablecoins. New technology can help them to achieve this task efficiently. Many current regulatory returns are achieved through manual processes that could be partially automated for both regulators and issuers. Supervision of stablecoins is in its infancy. This allows the BISIH to experiment with developing a prototype SupTech solution at an early stage of development of the regulatory regimes. This project aims to demonstrate how supervision in the future could be streamlined. Pyxtrial is a prototype, so the focus is not on implementation, but on feasibility of this approach.

<u>Project objectives</u>

The objective of this project is to create a prototype of a data reporting system that acquires data from the stablecoin issuers (or their asset custodians) and transfers it to regulators. The project will explore how different technologies can interact with each other. We want to explore the use of data transmission technology to receive information about liabilities and assets from the stablecoin issuers. Additionally, for liabilities, we are interested in augmenting the submitted data with information obtained from public blockchains. This reporting pipeline could serve as an example that could be adapted for other financial instruments.

<u>Project scope</u>

This project aims to explore and demonstrate the following core functional requirements of a data reporting pipeline for stablecoins. See *Appendix 3* for more details on potential technological choices.

Core requirement 1: Full coverage of the stablecoin balance sheets
- *Demonstrate that an automated reporting pipeline could be used to supervise stablecoins.*
- *Explore and build a minimally viable data reporting system that connects an issuer with a central bank / regulator. Support push and pull approaches to receiving data.*
- *Explore and demonstrate how blockchain data can be used to validate and enrich the reporting data sent to a central bank or regulator using real blockchain data.*

Core requirement 2: Customisation / portability
- *Develop a reporting system that can be customised according to the needs of an individual central bank or regulator (e.g. by requesting different data points).*
- *Develop a reporting system that is portable and could be used by different central banks or regulators.*
- *Explore and demonstrate the potential to change the nature of reporting based on existing and potential future regulatory requirements and/or business models of issuers.*

Core requirement 3: Blockchain integration
- *Develop a system supporting parallel reporting of liabilities based on data submissions and public blockchain data.*

- *Explore and develop a system that could extract and then consolidate real blockchain data (various sources are possible, e.g. a dedicated node or third-party data provider).*
- *Explore and demonstrate the compatibility of data models between data submissions and blockchain data, and highlight discrepancies between them.*
- *Explore and demonstrate if and how the system could be generalised to private blockchains.*
- *Study potential technical barriers to acquiring blockchain data.*

Core requirement 4: Security
- *Develop financial-grade security features needed to authenticate end-users, including regulators, stablecoin issuers and their partners.*

Non-core requirement 1: Cross-border
- To enable the cross-border exchange of information and explore functionality to allow the sharing of collected data with other institutions.

Out of scope

With a focused scope on reporting of asset-backed stablecoins, we expect the project to leave the following aspects outside of its scope: Stablecoins with algorithmic stabilisation mechanisms, decentralised stablecoins (unless their balance sheets resemble that of the major asset-backed stablecoins), transactional data, direct collaboration with stablecoin issuers, legal/regulatory and other policy considerations, performance, throughput, and efficiency.

Development work

The core development team will adapt an agile and iterative approach to develop the solution incrementally, and to show results at each iteration. The team will work with the project lead to ensure the prototype delivers the core functionalities and the project scope set out above. The team will also be given the opportunity to collaborate closely with public sector stakeholders within the BISIH, Bank of England and the central banking community, and potentially with private sector participants.

The boundary between the requirements and development responsibilities are described in the Appendix (Figure 2). The BIS/BoE will provide simulated data for the purpose of demonstrating the capabilities of Pyxtrial. This data should be used for vendor's own purposes.

Deliverables

Key pieces of deliverables provided by the vendor are set out below:

1. Working prototypes of a full-stack data reporting platform demonstrating functionalities defined in the project scope (see section 2.2 above)

2. Data transmission (e.g. an API or similar technology) specifications and technical documentation to be published in an industry standard way.

3. Versions of a data transmission technology (e.g. an API or similar technology) to be exposed to interact with stakeholders.

4. Contributions to written outputs of any learning and insights gained from the project.

Timeline

Timeline for deliverables is currently estimated at 3 months. Bidders are required to provide their own estimations under section 4.

Project management

The project is owned and managed by BISIH, with a BISIH and BoE Project Board providing oversight function to ensure the development work is on track and its objectives are met. For example, the Board will be responsible for agreeing on project scope and timeline trade-offs, product backlog, the definition of 'done' and any subsequent revisions. The Board will also be responsible for agreeing on a project risk monitoring and mitigation framework.

Within the scope and framework agreed with the Board, the core development team will be responsible for setting up their own work programme and deciding on priorities. Everybody within the project team will be jointly responsible for meeting agreed objectives. Given the experimental nature of this greenfield project, we will aim to provide the core development team with an autonomous space and a supportive environment.

The way we work

The team will deliver the project's objectives by working in line with the BIS Innovation Hub London Centre's values of being collaborative, open and transparent. Information will be openly exchanged between members of the project. The differing expertise and perspectives of project team members will be shared freely in a supportive environment. And delivery of our outputs will follow an evolutionary process, recalibrating and adjusting as new evidence and challenges come to light.

3. Instructions to Bidders

3.1 Scope of Quote

The bidder's quote shall be submitted in accordance with the scope and requirements of this RFQ as set out in section 2 above.

3.2 Project reference

Any document, letter or e-mail from the bidder should quote the reference "RFQ Project Pyxtrial Work Package 1".

3.3 Validity of the quote

All quotes made on the basis of this RFQ should be valid until 14 November 2023. A quote valid for a shorter period shall be rejected by the BIS as non-responsive to the RFQ requirements. In exceptional circumstances and prior to the expiration of the validity of the quotes, the BIS may request bidders to extend the period of validity of their

quotes providing the background to such request. The request and responses will be made in writing. A bidder may refuse the request. A bidder accepting the request for extension shall not be permitted to modify their quote in any way.

3.4 Language and format

Bidders should submit their quote and all accompanying documents in English in the following format:

- The quote shall be sent by e-mail to the Requestor as referenced on the cover page. The maximum size per e-mail is 25 MB.

Any correspondence related to this RFQ shall be in English.

3.5 Requests for clarification from bidders

Any requests for clarifications of this RFQ should be submitted solely via e-mail to the Requestor as soon as possible but at least 3 working days before the Submission Date.

The Requestor is the sole contact at the BIS for the bidder regarding this RFQ. Queries regarding this RFQ may not be addressed to other contacts inside or outside the BIS without prior written approval of the Requester. Non-compliance with this rule may lead to disqualification from the RFQ.

The query, as well as the BIS's response, in writing, will be notified to all bidders at the same time, without identifying the bidder who initiated the query.

3.6 Modifications by the BIS

The BIS reserves the right to amend the information and requirements contained in this RFQ at any time prior to the deadline specified on the cover page ("Deadline for submission") and for any reason (incl. in response to a clarification requested by prospective bidders). Any amendment issued shall form part of this RFQ and shall be communicated in writing to all bidders that have received this RFQ document. If the BIS deems it necessary (e.g. because the amendment to the RFQ requirements would likely lead to delays), it will extend the Submission Date and inform all bidders accordingly.

3.7 Right to terminate the RFQ procedure

The BIS reserves the right to terminate the RFQ procedure at any time prior to the award of the contract, without hereby becoming liable in any way (including for costs for the preparation of an offer) to any bidder.

3.8 Bidder's right to change/withdraw an offer, BIS's right to accept or reject an offer

Bidders have the right to change or withdraw an offer up until the deadline specified on the cover page ("Submission Date").

The BIS is entitled to reject any offer at its sole discretion and without any explanation, and without incurring any liability to the affected bidder(s). Nothing in this RFQ shall oblige the BIS to award a contract.

3.9 Costs arising from participating in the RFQ procedure

The BIS shall not be responsible for, or pay any costs or expenses which may be incurred by the bidder for participating in the RFQ, including preparation and submission of their offer.

3.10 Correction of Arithmetical Errors

If a substantially responsive quote contains arithmetical errors, the BIS shall correct these on the following basis:

1) Discrepancy between the amounts in the price breakdown and the amount given under the Total Price – the amounts in the price breakdown will prevail.

2) Discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity - the unit price shall prevail, unless there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern.

4. Content and signature of the quote

Bidder are asked to structure their offer as follows:

1. General information about the bidder, including organisational set-up, management team, industry standing (with supporting evidence), years in business and evidence to demonstrate good ethical conduct.

2. Description of the proposed goods and/or services. This should include a detailed description of the dedicated delivery team, including size, physical location, individual roles and responsibilities, with curriculum vitae provided for each team member.

3. Description of the bidder's relevant experience, and if applicable, customer testimonials and references.

4. If applicable, description of the bidder's relevant experiences in delivery projects for the public sector, such as central banks and government agencies.

5. Price information for the project (refer to section 4.1 for details). Please provide quotes separately for delivering core requirements (1-4) and non-core requirement (1) as detailed in section 2.2 above.

6. Estimated delivery timeline and potential project risks.

Consortia bidding is welcome. Please provide the relevant information on each of your members as detailed above. Consortiums are also asked to provide the following additional information:

1. The type of legal forms you can enter for the contract.

2. Roles of each consortium member and governance arrangements.

4.1 Price information

All prices and rates shall be quoted in Swiss Francs (CHF).

We expect a quote and an estimate of the hours of work that would be required to complete the project.

The prices submitted in the quote are considered to be final and they will therefore not be subject to a round of competitive renegotiation amongst the bidders. If required, a clarification of the costs and its assumptions can be made.

Quotes should also include a cost per day of extension to the project in case the scope of the project needs to be expanded.

The BIS as an international organisation enjoys a special tax status in the United Kingdom. Therefore, in the event a contract is awarded, any invoice for goods delivered to the BIS's BISIH London Centre or for services rendered in the UK must contain the itemized VAT amount. Any other taxes or dues incorporated in the price must be clearly disclosed on the invoices, so as to allow the BIS to claim exemption. The BIS is exempt in the United Kingdom from all customs duties, taxes and other levies on imports and exports on all goods and articles for its official use.

4.2 Invoicing

Payment will be made based on completion of the following milestone deliverables, payable within 30 days net after receipt of invoice.

- 60% to be disbursed on completion of all the core requirements (1-4) of the project as described in section 2.2.

- 10% to be disbursed on completion of the non-core requirement of the project (1) as described in section 2.2.

- 30% to be disbursed on completion of Project Pyxtrial, after BISIH public announcement acknowledging the end of the project.

4.3 Signature

An offer submitted to the BIS pursuant to this RFQ shall be signed by a duly authorised representative of the bidder so as to be legally binding on the bidder, in the event of an award of contract.

5. General terms and conditions for this RFQ

5.1 General terms and conditions

Any award under this RFQ shall be binding and is subject to the conclusion of a written contract between the BIS and the bidder. Any contract concluded based on this RFQ shall be governed by and construed under the laws of Switzerland, and in the event of a dispute, Basel-Stadt/CH shall be the exclusive place of jurisdiction.

Submission of a quote constitutes acceptance of the attached BIS Terms and Conditions, without any changes (see Annex 1).

The BIS will not accept any terms & conditions of a bidder which conflict with the terms & conditions of the BIS and/or its standard agreements. If the RFQ scope requires a subscription or software license, please add these specific terms in addition to the acceptance of the BIS Terms and Conditions.

By submitting a quote, the bidder agrees that in case of an award of the contract the BIS will become the exclusive owner of intellectual property rights and any other proprietary rights of all deliverables, including materials, standards, concepts, files, software or technology, developed or produced by the bidder, either on its own or in collaboration with the BIS, as part of the contract performance. The bidder shall also, in case of an award of the contract, take all necessary steps, execute all necessary documents, and generally assist in securing such proprietary rights and transferring or licensing them to the BIS in compliance with the requirements of the applicable law.

The BIS retains the right to verify all information supplied by the bidder and request any further supporting documentation it deems necessary.

5.2 Conflict of interest

The bidder warrants that its participation in this RFQ and contractual performance, if awarded the contract pursuant to this RFQ, would not give rise to any actual or potential conflict of interest. The bidder must immediately inform the Requester of any potential conflict, including if they are in doubt as to whether a conflict of interest exists. In all cases, the Bank's determination as to whether a conflict of interest exists shall be final.

In addition, the bidder warrants that it, its directors, employees, agents, subcontractors, suppliers, and any other affiliated entities (natural or legal) shall observe the highest standards of transparency and integrity during the procurement, execution and implementation of any contract awarded pursuant to this RFQ.

The bidder further warrants that it, its directors, employees, agents, subcontractors, suppliers, and any other affiliated entities (natural of legal) have not and will not engage in any corrupt, coercive, collusive, fraudulent or obstructive practices, theft or misuse of the BIS resources.

Failure to meet any of the requirements and warranties under this section will result in immediate disqualification of a bidder, or cancellation of award and/or termination of contract and indemnification to the BIS, if the failure to meet such requirements and warranties is discovered after the award and/or conclusion of the contract.

The BIS retains the right to request the signing of a conflict of interest statement when deemed necessary.

5.3 Obligation of confidentiality

The Bidder undertakes not to publish any information relating to the RFQ or to mention such information in any reference list without the prior written consent of the BIS.

The BIS will treat as confidential all information relating to the submitted quote.

6. Annexes

Annex 1: BIS general terms and conditions

Annex 2: Conflict of interest form

Annex 3: Overview of Project Pyxtrial

Annex 1: BIS general terms and conditions

See attached.

Annex 2: Conflict of interest form

See attached.

Annex 1: BIS general terms and conditions

Annex 3: Overview of Project Pyxtrial

Project Pyxtrial is the latest project from the BIS Innovation Hub London Centre that is exploring technology solutions to enable the monitoring of liabilities of asset-backed stablecoins and the assets that back them (see Figure 1 for an overview).
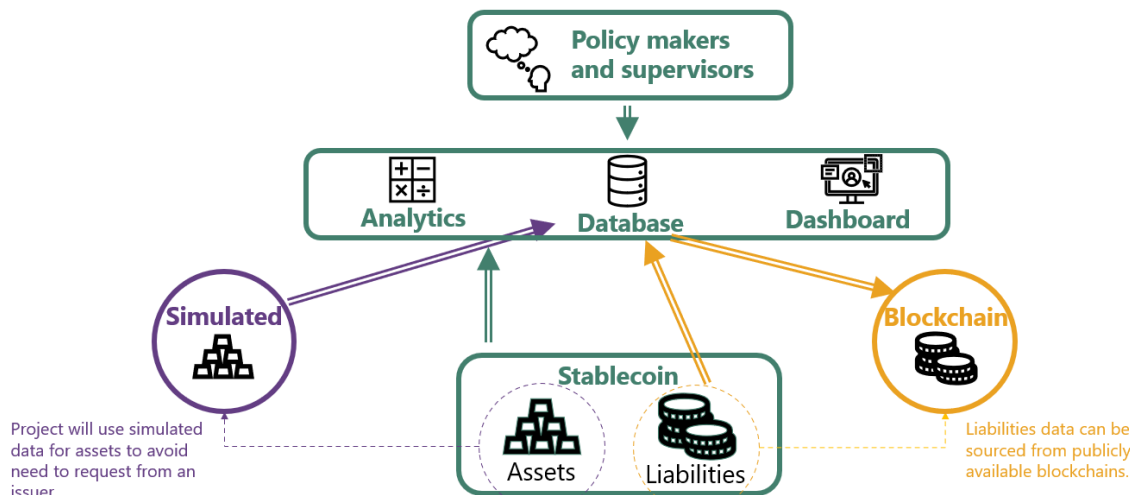

Figure 1: The project overview.

Pyxtrial aims to develop a prototype data-analytic pipeline, including data collection, storage, and analytics, to investigate possible asset-liability mismatches. The technology could be used to help regulators build policy frameworks based on integrated data. The analytics and dashboard will be developed in-house (see Figure 2). The goal of the data collection and the dashboard is to gather data and to use it for showing the entire balance sheet (i.e. assets and liabilities).
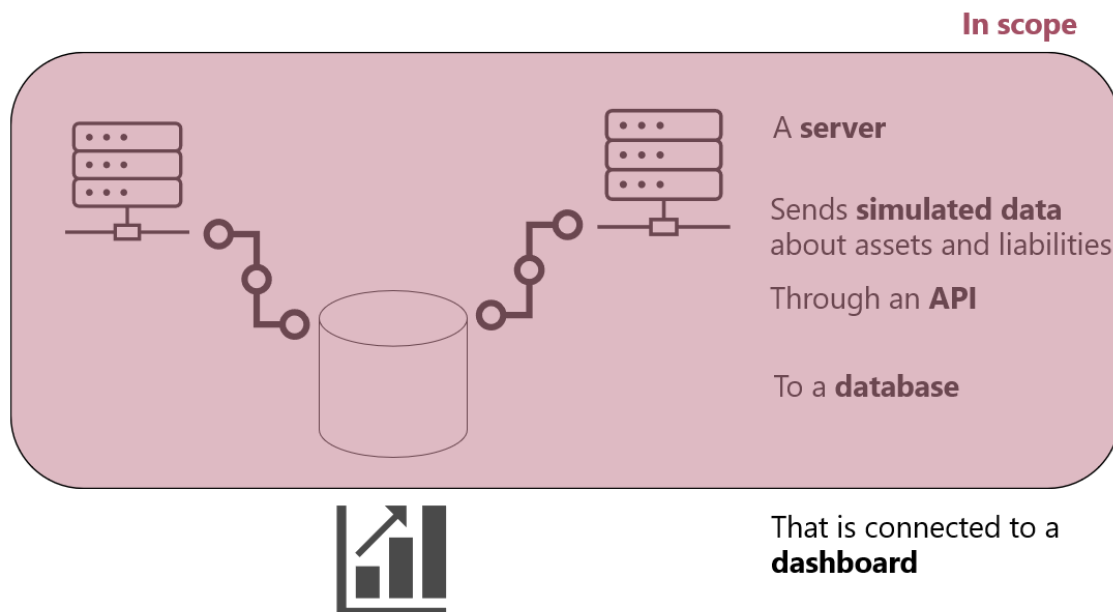

Figure 2: Potential project technologies and scope for vendors.

The project will model pushing data by an issuer via specialised channels (e.g. an API) and pulling data by a regulators from blockchain (either directly or indirectly) – see Figure 3.
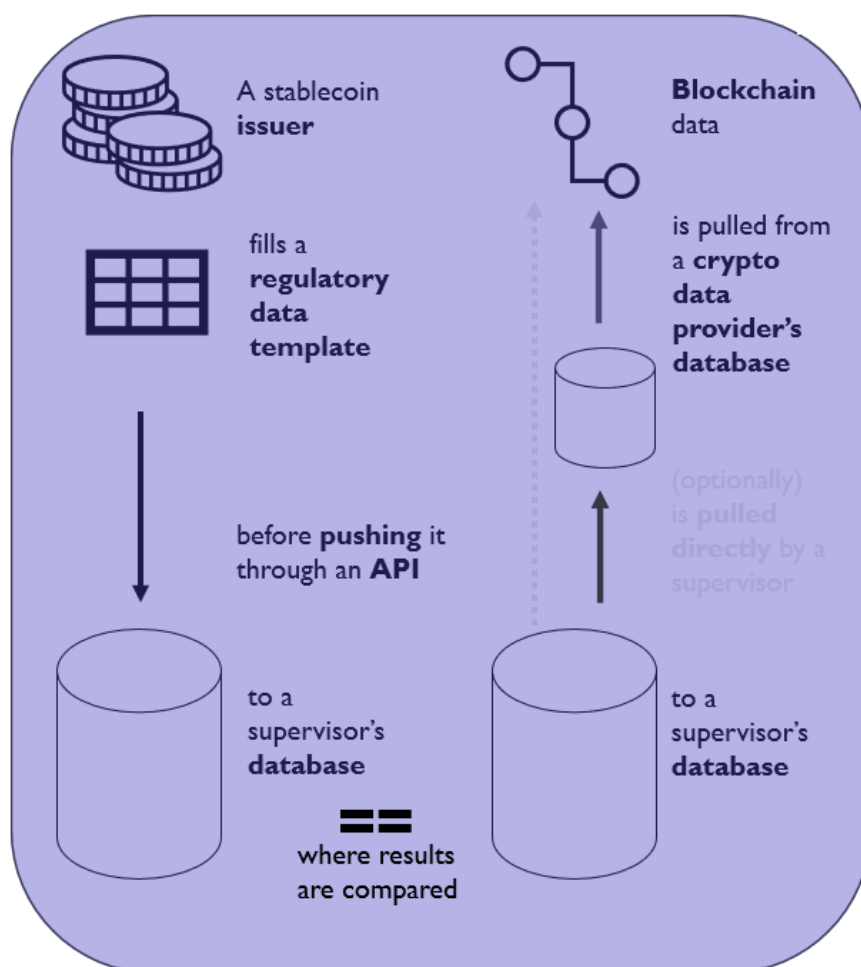
Figure 3: A parallel approach (push and pull) to monitoring liabilities.

Further description of the technical project components:

Data model
- Simulated/synthetic data on assets (including private / non-traded assets) will be fed through the system. This data will be provided by the BIS/BoE and will be based on internally developed prototypes of reporting templates (including asset taxonomies and identifiers). The liabilities data should be real blockchain data – this project is a prototype so high-level description of liabilities would be sufficient, however having more granular information would be an extra feature.
- The data model needs to be adaptable to changes in requirements. Ideally, without a minimal adaptation to the rest of the data pipeline.
- Ability of business area to interact with the conceptual data model.

Database(s)
- The main database would serve as the source of the intelligence for the regulators.
- Potential intermediate databases/layers might be used for data collection or data sharing.
- Access to the main/analytic database will be required for the BIS/BoE tech teams that will build dashboards and/or analytic processes on top.

Data transmission
- Support for pull/push approaches to move data from source through to destination.
- Consideration of various transmission approaches (API, batch uploads, and streaming). An API seems to be the most universal.