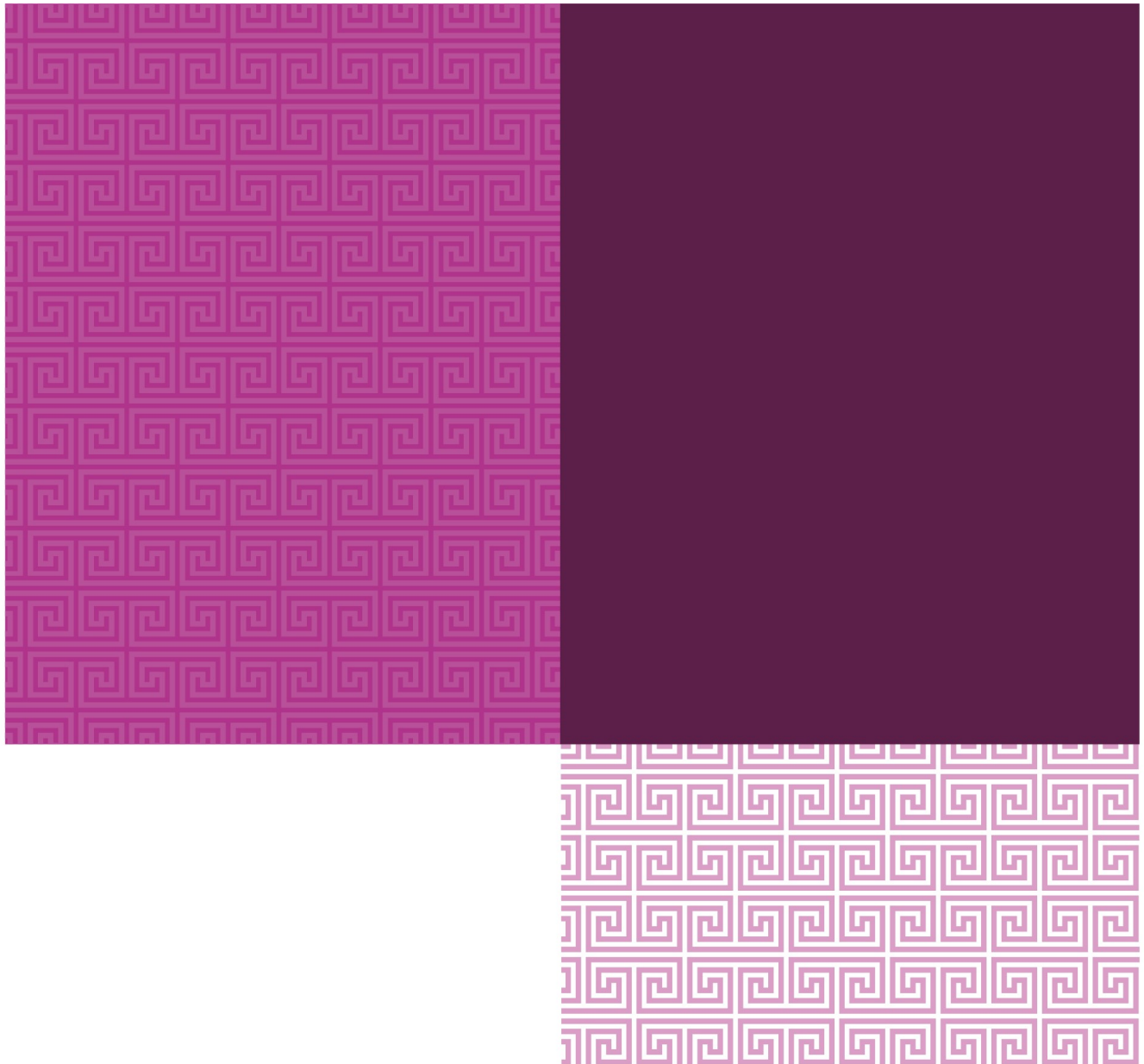




RTGS Renewal Programme

Reporting and Analytics: User Survey



1 - Introduction

A key part of the RTGS Renewal strategy is to provide the tools to enable users to exploit the rich and structured data generated in RTGS. To support this strategic aim, the Bank is replacing the current RTBI tool, which is available to CHAPS Direct Participants only. A new Reporting and Analytics (R&A) platform will be deployed for all RTGS account holders: CHAPS Direct Participants as well as holders of reserves and/or settlement accounts including those who settle in one or more of the retail payment systems.

A broader use base means a broader range of data will need to be presented within the new platform. At a high level, all fund transfers, balance allocations, Liquidity Saving Mechanisms (LSM) matching cycle reports and other relevant data points will be accessible. Increased access to a wider range of RTGS data also has the potential to improve the service and increase the value derived from the R&A platform.

The platform is being delivered across two phases:

- An initial R&A product launched during Transition State 2 (TS2), which will go live in June 2022. It will be part of a dual running period alongside the existing RTGS Business Intelligence (RTBI) service. Due to the phased introduction of the new RTGS platform, this will contain CHAPS payment message data and be available only to CHAPS Direct Participants.
- For Transition State 3 (TS3), going live in towards the end of 2023, a full R&A service will be launched. The existing RTBI service will be decommissioned and all RTGS participants will be able to benefit from the new service.

This paper describes the new RTGS R&A services the Bank intends to make available to all RTGS participants in 2023. It seeks input and feedback from all existing and prospective RTGS users about reporting and analytics to help us shape these services in order to meet current and future user needs. The questions are structured around types of data generated by different activities in RTGS – e.g. CHAPS data, CREST data, reserves account data etc.

Please use the link provided in the covering email to complete the survey online by 3rd September. If you have any questions please reach out via RTGSReadiness@bankofengland.co.uk. Thank you in advance for your contribution and support.

2 – Overview of the platform and its capabilities

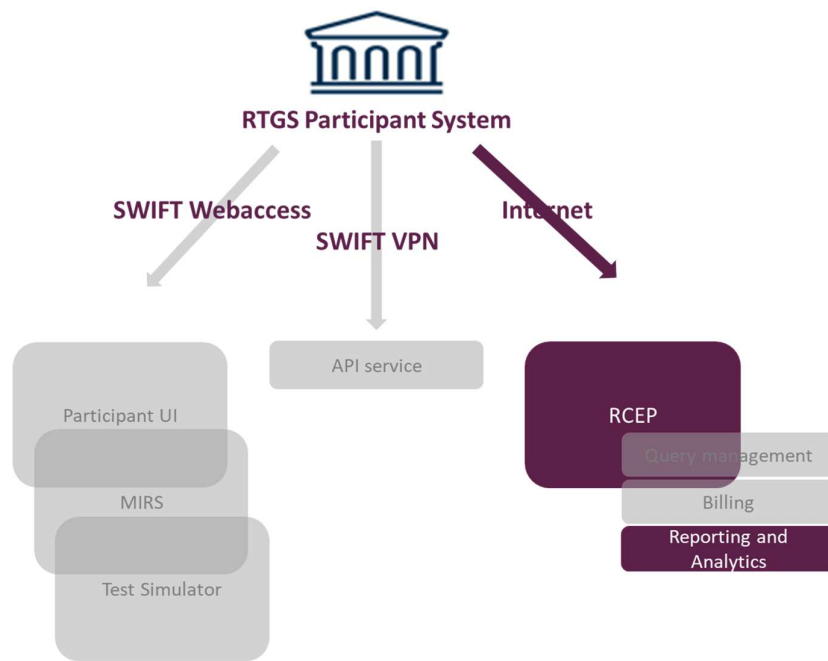
2.1 New RTGS Interfaces

The Bank expects to provide two main interfaces to RTGS users in 2023 when the Programme reaches TS3:

- 1) The **RTGS/CHAPS Engagement Portal (RCEP)** offering services for two sets of functions: (i) participant queries, on-boarding/ off-boarding and administration (new functionality) and (ii) billing, reporting and analytics (part of which is currently done through the RTBI service).
- 2) The **Payments Portal** for (i) managing payments and liquidity and (ii) account management, (currently done via Enquiry Link).

Users will also be able to access RTGS data through APIs. APIs will expose data in real-time and historic data for the past 12 months for balances and transactions. In TS2, only CHAPS transactions data will be available, with non-CHAPS transactions and balances APIs available in TS3. Other API functionality available in TS3 will include real-time bilateral and multilateral positions, payments and liquidity controls, and notifications.

Fig 1: Stylised view of RTGS External Interfaces in TS3



2.2 – Reporting and Analytics in more detail

The new RTGS/CHAPS Engagement Portal (RCEP) will be accessed via a cloud-based service. As noted above, alongside a range of enhanced participant engagement and administration functions, it will support reporting and analytics.

The renewed platform will be based on a series of Microsoft cloud service technologies, incorporating an end-to-end solution across Azure, Power BI, Power Portals and Dynamics 365.

The reporting and analytics toolkit offering will be PowerBI. Power BI is a sophisticated tool enabling the rendering of data in graphical reports that will be embedded in the RCEP portal. This will also enable secure permissions on the data within the R&A product for ad-hoc reporting.

Users of R&A will be able to access a range of pre-defined reporting and analytical outputs alongside an ad-hoc, or custom, reporting and analytical capability. Users will have access to data at varying degrees of granularity: from transaction level data through to aggregations or pre-calculated metrics (e.g. throughput).

- The **ad-hoc reporting** capability will seek to enable users to create their own reporting or analytical outputs utilising functionality offered by PowerBI. It will facilitate self-service access to the data contained within the platform.

- **Pre-defined reporting outputs** will be standardised charts or outputs, allowing easy, efficient access for users. Examples that the Bank could provide might include monthly averages of values, volumes, monthly throughput chart summaries, or reporting on overnight reserves account balances etc. It is expected that each pre-defined output will have a range of customising filters such as date and time.

Within both the pre-defined outputs and ad-hoc capability, there will be access to data at a range of granularities. At one end of the spectrum this means access to transaction level data. At the other end this means summary statistics and aggregations (e.g. monthly averages, maximums, minimums or aggregations). The Bank can also expose calculated metrics (e.g. maximum net debit position across all settlement schemes, % throughout etc.).

Finally, the new R&A will enable users to access data intra-day. The ambition is to provide certain key outputs in near real-time to support users who may wish for timelier insight.

Across each of these aspects of R&A there is scope to deliver a more or less comprehensive capability, leveraging the functionality provided by the infrastructure being utilised. The Bank will use the responses to this consultation to position the capability it delivers based on the preferences of the users for the R&A platform.

3 - Data

R&A will allow users to access a broad array of data points relating to RTGS. Depending on the extent of participation in the services offered by RTGS, users will have access to their organisation's data covering:

- 1) Payments and funds transfer data – e.g.
 - a. CHAPS MX message data
 - b. CREST settlements data
 - c. Internal transfers between CHAPS and CREST accounts
 - d. Retail settlement data
 - e. Liquidity from sources internal to RTGS
 - f. Liquidity from sources external to RTGS
 - g. Funds transfers supporting banknotes i.e. the Notes Circulation Scheme
 - h. Interest and charges on accounts
 - i. Reserves account top-ups and transfers
- 2) Account and balance data (reserves, settlement and collateral) – e.g.
 - a. Opening and closing balances
 - b. Running balances
 - c. Account Groupings, Balance Allocations and Account Books
- 3) Operational data – e.g.
 - a. LSM matching cycle and settlement summary statistics
 - b. LSM account parameters records
 - c. API usage data
- 4) Statements – e.g.
 - a. Document store of historic statements

4 - Anticipated user base

R&A will be available to all account holders in RTGS. This will expand significantly on RTBI, which is restricted to CHAPS Direct Participants. Access to R&A will be via the engagement portal (RCEP).

The Bank anticipates that users with treasury management, payment operations management, or other roles requiring analysis of RTGS data will utilise this platform. Whilst payments or Reserves management operations will be conducted via the Payments Portal, the information available from Reporting and Analytics will support those activities and provide access to additional information (in particular historical data).

We have identified two broad categories of users for the R&A platform:

- Users for which R&A platform offered by the Bank represents **a primary source of data** for extracting descriptive or analytical outputs regarding activity within RTGS. The Bank would like support in order to clearly articulate and elaborate these user requirements, so that a sufficiently capable platform can be delivered.

Where there are common needs amongst users, the Bank seeks to provide pre-defined reporting outputs to enhance the user experience. This consultation paper seeks to clarify which aspects of the data would be most beneficial to highlight through these pre-defined outputs.

The Bank will also support exploratory or non-standardised reporting or analytics by providing access to the data in a workspace supporting ad-hoc or custom reporting and analytics. This consultation will seek to clarify the types of use cases or outputs that would be supported via this capability.

- Some users may have a **limited use of the services offered via the R&A platform**, as they use their organisation's bespoke reporting or analytical platforms. For these users it would still be helpful to understand if there are any data services that we can develop to add value to these participants, in particular regarding our aim to develop a mature API strategy enabling access to transactional and operational data within the platform.

5 - Ad-hoc and custom analytics

The ad-hoc and custom analytics capability is based around the PowerBI toolkit. It will allow users to select, manipulate, perform calculations on and visualise data. Users will be able to save, share, edit, delete and export reporting and analytical outputs within R&A workspaces.

The sophistication of this capability is a variable the Bank can control during development:

- A 'light touch' or 'raw data' approach might mean access to granular transaction or event level data with limited supportive data modelling or pre-calculation before it is exposed to the user. This can be manipulated within the workspace or exported from the platform for use in other applications or environments but the emphasis is on each user to do most data preparation, filtering and presentation themselves.
- Features that present customised views of data that could combine or pre-aggregate certain data points allowing users to manipulate this data with greater ease. Whilst it increases the cost and complexity of the custom reporting capability, it can support a wider range of user outcomes with a lower barrier to entry.

- Further features might include having pre-calculated statistics and various breakdowns available to aggregate/disaggregate the data. This could mean providing data points for maximum, minimum and average balances for each day; calculating and storing the maximum net debit position for each day across all settlement schemes etc.

In order to determine which aspects of development to prioritise, the Bank wishes to gauge user interest in this capability.

1) Please provide an indication of the level of interest in an ad-hoc, or custom reporting workspace capability:

- 1 = not interested
- 2
- 3
- 4
- 5 = very interested
- Not applicable

Provide details of the use cases or types of reporting / analytics that this capability could support for you. Please include any examples from your standard reporting or analytical outputs the Bank could look to support via this capability.

6 - Predefined reporting

The PowerBI toolkit can support pre-defined reporting or analytical templates that can standardise a particular output and enable low barriers to accessing to a particular view of the data. The Bank wishes to use this consultation to identify any key user requirements for beneficial pre-defined outputs that can be supplied alongside a self-service analytical workspace.

6.1 - CHAPS

Users from organisations which participate directly in CHAPS will have access to data from CHAPS ISO 20022 MX payment messages. Given the potential for rich, structured data contained in these messages, the Bank wishes to understand how it can support CHAPS direct participants wishing to exploit this data. The CHAPS payment message data can be summarised as containing data on:

- Who is involved?
 - o Instructing and instructed agents
 - o Other indirect participating agents
 - o End-user data
- What is the payment about?
 - o Contextual data, e.g. Purpose Codes
 - o Remittance information
- Operational / processing data (either from the message itself or the RT core)
 - o Message type
 - o Settlement time/date
 - o Settlement priority

6.1.1 Reports providing simple payment data aggregation

The dimensions listed in the previous section can be used to aggregate data and present summary views. For example simple summary views by counterparty, message type, by indirect participant or customer.

2) Please give an indication of interest in predefined summary views, e.g. aggregation or breakdowns by counterparty, message type or purpose etc.

- 1 = not interested
- 2
- 3
- 4
- 5 = very interested
- Not applicable

Please explain your choice.

If relevant, please give examples of summary reports that could be of interest.

6.1.2 Reports providing more complex payment data transformation

This CHAPS data can be used to present calculated outputs. Sometimes by including data from additional sources.

For example:

- Monthly aggregates, averages, maximums and minimums for values and volumes
- Delay times on payments (due to LSM) by combining data from the RTGS core re settlement
- Calculated metrics like peak/net/average liquidity usage
- Throughput statistics, averaged by month and/or provided daily
- Metrics relating to indirect participants and tiering, for example total monthly % share of CHAPS values for indirect participants, % of CHAPS direct participant's daily liquidity use consumed by individual indirect participants

3) Please give an indication of interest in predefined reports representing more complex transformation, e.g. peak liquidity usage, throughput, settlement delay times, tiering metrics, etc.

- 1 = not interested
- 2
- 3
- 4
- 5 = very interested
- Not applicable

Please explain your choice.

4) These calculated views can be combined with particular summary views to provide reporting outputs grouped by themes. Please provide an indication of your interest in these types of outputs.

- 1 = not interested
- 2
- 3
- 4
- 5 = very interested
- Not applicable

If relevant, please give an indication of the themes that might interest you and specific use cases you would want the Bank to support via pre-defined reporting? E.g. throughput, liquidity reporting, indirect participant analysis.

6.1.3 Reports providing statistics around liquidity management and settlement

The Liquidity Saving Mechanisms (LSM) within CHAPS generates data about the parameters set on a given account, and on the settlement of transactions within a cycle. This could include:

- Audit log entries of changes to account parameters (e.g. multilateral/bilateral limits)
- Individual payment tracking
- Matching cycle summaries, including:
 - o Time/date
 - o Algorithm used
 - o Batch size of cycle
 - o Value/volume queued
 - o Value/volume parked ahead of the cycle
 - o Balances, headroom, refresh etc. settings
 - o Value/volume settled

- Summary settlement statistics by day, including:
 - o Date
 - o Number of cycles
 - o Average queue
 - o Max queue
 - o Average cycle time
 - o Max cycle time
 - o Total payments promoted
 - o Payments manually/automatically promoted
 - o Average/maximum time promoted payment queued
 - o Average/maximum time manually/automatically promoted payment queued
 - o Value/volume settled
 - o Value/volume settled individual gross basis (real and percentage terms)
 - o Value/volume settled bilateral algorithm basis (real and percentage terms)
 - o Value/volume settled multilateral basis (real and percentage terms)

5) Please give an indication of interest in a predefined view based on data relating to liquidity management and settlement via the Liquidity Saving Mechanisms.

- 1 = not interested
- 2
- 3
- 4
- 5 = very interested
- Not applicable

Please explain your choice and what data you would find useful. If relevant, please give examples of summary reports that could be of interest.

6.2 - CREST

Users from CREST settlement banks will have access to data from funds movements in RTGS arising from CREST settlement. This will reflect:

- a) The movements on or off CREST settlement bank CREST accounts in RTGS to reflect settlements in the CREST infrastructure
- b) Movements to position liquidity in CREST repo accounts in RTGS
- c) Intra-day top-ups between the main settlement account and the CREST account

6) Please give an indication of interest in a predefined view based on any CREST data reflecting movements between settlement accounts, repo accounts or intra-day top-ups.

- 1 = not interested
- 2
- 3
- 4
- 5 = very interested
- Not applicable

Please explain your choice and what data would beneficially be represented. If relevant, please give examples of summary reports that could be of interest.

7) CHAPS and CREST are the sterling wholesale settlement systems. Please indicate if there is interest in a predefined view based on a combined summary of these wholesale systems.

- 1 = not interested
- 2
- 3
- 4
- 5 = very interested
- Not applicable

If relevant, please provide examples of summary reports/analytics that could be of interest

6.3 – Net settlement systems

Users from organisations which participate in the retail net settlement systems, prefunded or un-prefunded, will have access to data arising from settlements as a result of the net settlements in these schemes. This will reflect:

- a) The movement of funds on or off participants' settlement accounts in RTGS to reflect settlement cycles in the retail system infrastructure
- b) Movements to position cash in prefunding accounts in RTGS, if applicable

8) Please give an indication of interest in a predefined view based on any retail net settlement systems data reflecting movements on or off settlement accounts or the positioning of cash in pre-funding accounts.

- 1 = not interested
- 2
- 3
- 4
- 5 = very interested
- Not applicable

Please explain your choice and what data would beneficially be represented. If relevant, please give examples of summary reports that could be of interest.

6.4 - Other funds transfer data

There are a range of other types of funds transfers that generate data in RTGS. At a high level these are:

- c) Liquidity from sources internal to RTGS (intra-day liquidity generation)
- d) Liquidity from sources external to RTGS (e.g. Euro liquidity bridge)
- e) Funds transfers supporting banknotes
- f) Interest and charges on accounts
- g) Reserves account top-ups and transfers

9) Please give an indication of interest in a predefined view based on any of these types of additional funds transfers such as liquidity within RTGS, banknotes transfers, interest or charges, etc.

- 1 = not interested
- 2
- 3
- 4
- 5 = very interested
- Not applicable

Please explain your choice and what data would beneficially be represented. If relevant, please give examples of summary reports that could be of interest.

6.5 - Balances and account groupings

Users will be able to access balance data from accounts in RTGS. The data will reflect the flexible account structure which is being developed in the renewed RTGS. The key features of this new account structure are:

- a) Account books, an optional level which can be used to separate funds across different business units (e.g. own funds/client funds)
- b) Scheme settlement, which must be designated to a specific account
- c) Balance allocations, which allows the separation of funds within an account to allocate to settlement of a particular scheme
- d) Prefunding accounts, which support participation in retail payment schemes which require segregated prefunding
- e) Liquidity accounts, a location from which intra-day liquidity is generated to and removed from

Given these features, the Bank can supply data about balances across books, accounts and allocations as they move with various postings throughout the settlement day. Across settlement, reserves, collateral and liquidity account this could be, for example:

- Point in time balances per account, allocation or book
- Simple calculations such as average, maximum or minimum within an allocation
- Calculated metrics spanning account groupings, such as the maximum net debit position across all settlements in a day

10) Please give an indication of interest in a balance based predefined view exposing data at account, allocation or book level.

- 1 = not interested
- 2
- 3
- 4
- 5 = very interested
- Not applicable

Please explain your choice and what data would beneficially be represented.

11) Balance data and funds transfer data can be combined to provide insight into drivers of liquidity usage, amongst other things. Please provide an indication of the themes that might interest you and specific use cases you would want the Bank to support via pre-defined reporting of movements and balances?

- 1 = not interested
- 2
- 3
- 4
- 5 = very interested
- Not applicable

If relevant, please give examples of summary reports that could be of interest.

6.6 – Data available regarding APIs

In addition to the above, the reporting and analytics platform has the capability to contain data about new functionality being delivered by RT2, for example API usage. Regarding APIs, data of interest could include:

- Party calling
- Time called
- Time to generate a response
- Which endpoint was called
- What verb was called
- What was the response
- Source of message
- Size of data packet transferred

12) Please give an indication of interest in a predefined view based on API usage data.

- 1 = not interested
- 2
- 3
- 4
- 5 = very interested
- Not applicable

Please explain your choice and what data would beneficially be represented. If relevant, please give examples of summary reports that could be of interest.

7 - Historic data

The Reporting and Analytics platform will be the primary source of historic data generated in RTGS. The API channel, by contrast, will be limited to 12 months' worth of data. Historic data is important in time-series, trend or comparative analysis.

In order to support this capability, a data migration project will be undertaken to ensure that sufficient historic records are available from go-live. This migration project will merge historic data with the data being generated from the renewed RTGS infrastructure

13) Please give an indication of the minimum number of years' worth of historic data needed within the platform.

- 1 – 2 years
- 3 – 5 years
- 6 – 8 years
- More than 8 years

Please indicate whether you would consider additional membership fees to access additional years of historic data.

- Yes
- No

7 – Additional questions

14) Please provide an indication if there are any other features or capabilities within the RTGS platform, which have not been represented in this paper, for which you have a data need.

15) If you have any additional comments, please include them here:

Thank you for taking the time to provide feedback.

Privacy Notice and Guidance for Survey Respondents

We would like to thank you for taking part in this consultation, we take every reasonable precaution to ensure the privacy and security of your information. By completing this questionnaire the Bank of England ('we' or the 'Bank') collects personal data about you. This information optionally includes name, contact details and professional information. We are collecting this information to engage with you as part of our consultation work in respect of the RTGS Reporting and Analytics modal, this work is carried out in the public interest and in the exercise of the official authority vested in the Bank.

We may use your information to contact you about future events and consultations related to the RTGS Renewal Programme which may be of interest to you. We will keep your personal data for as long as required to inform the RTGS Renewal Programme. You can request that we cease communications by contacting RTGSengagement@bankofengland.co.uk.

For further information about how we handle personal data in the performance of our functions as the UK's central bank please see our website at <https://www.bankofengland.co.uk/legal/privacy>