# T2/T2S CONSOLIDATION

# USER REQUIREMENTS DOCUMENT

## FOR

# SHARED SERVICES (SHRD)

| | |
|---|---|
| **Version:** | 0.0.01 |
| **Status:** | INITIAL BASELINE |
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# Contents

# 1 EUROSYSTEM SINGLE MARKET INFRASTRUCTURE GATEWAY (ESMIG)

## 1.1 OVERVIEW

This section describes the user requirements for the long term solution of ESMIG. Therefore, certain features described in some requirements might not be available from the beginning, i.e. for the solution provided for TIPS. The complete set of user requirements are described to provide a comprehensive picture of the future ESMIG, to be taken into account for the entire architecture of the ESMIG.

### 1.1.1 Context Diagram

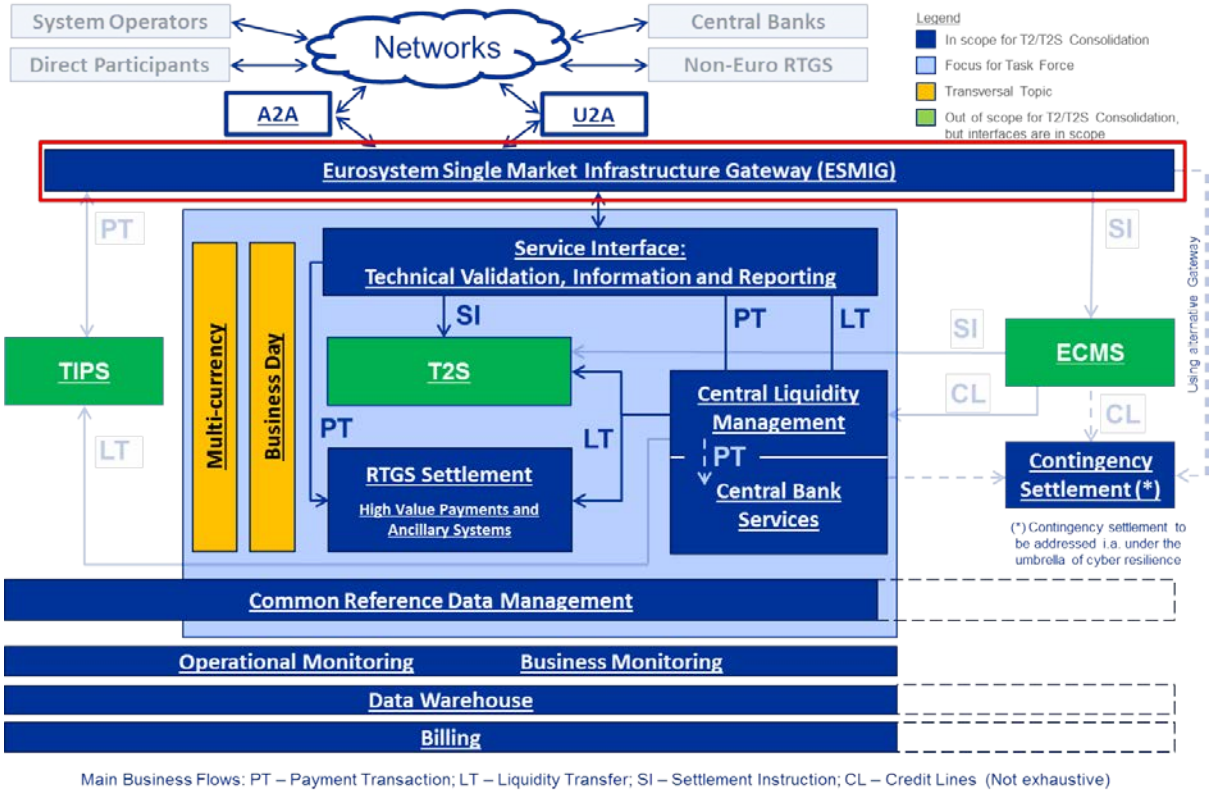



**Figure 1: Context diagram for Eurosystem Single Market Infrastructure Gateway**

### 1.1.2 General User Requirements for ESMIG

The User Requirements for the ESMIG are grouped according to the following topics: network connectivity, security, operational and messaging services.

**Network connectivity**

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.010 |
| **Name** | Connectivity through Multiple Network Services Providers |
| **Description** | The ESMIG shall provide connectivity via Multiple Network Service Providers in parallel. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.020 |
| **Name** | Network agnostic - no proprietary features |
| **Description** | The ESMIG shall ensure a network agnostic communication with the users in the sense that ESMIG will not depend on proprietary features of NSP. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.025 |
| **Name** | Network agnostic - standardised interface towards network |
| **Description** | The ESMIG shall use the same standardised interface for the communication with all NSPs. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.030 |
| **Name** | Single access to all market infrastructure services |
| **Description** | The ESMIG shall provide the single access point for the external communication to all market infrastructure services. It should be designed following a concept allowing an easy adoption of further services to be accessed by the ESMIG. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.040 |
| **Name** | Support for business continuity |
| **Description** | The ESMIG shall provide business continuity measures (e.g. multiple sites, path diversification, etc.) based on the different Eurosystem Market Infrastructure Service requirements. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.045 |
| **Name** | Support for business continuity - no message loss |
| **Description** | An acknowledged message will never be lost. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.050 |
| **Name** | Redundancy against single component failures |
| **Description** | The ESMIG shall provide redundancy against single component failures by supporting redundant components and automated failover. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.060 |
| **Name** | Restart after disaster (RAD) |
| **Description** | The ESMIG shall have defined procedures for handling a set of disaster scenarios. The procedures shall ensure the recovery of any potential data loss encountered. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.070 |
| **Name** | Provision of a cheap and easy access solution |
| **Description** | The ESMIG shall offer a cost-effective access to the services especially for participants with only a low volume of payments.<br><br>**Note:** The cost effective solution for low volume customers could also be provided as an additional option. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.080 |
| **Name** | Authentication and authorisation |
| **Description** | The ESMIG shall offer authentication and a basic authorisation service to access the U2A services.<br><br>**Note:** The authorisation should only cover which services (e.g. TIPS, T2S, etc.) a user is allowed to access. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.090 |
| **Name** | Generalised interface for the Reference Data Services to feed the Identity Access Management (IAM) for U2A |
| **Description** | The ESMIG shall offer a standardised interface for collecting Reference Data information from the different services to enable the authentication and basic authorisation services. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.100 |
| **Name** | Supported protocols to access the A2A services |
| **Description** | The ESMIG shall support communication using multiple protocols as requested by the different services served to access the A2A services for the external communication of the market infrastructures accessed by the ESMIG. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.110 |
| **Name** | Supported protocols to access the A2A services: DEP |
| **Description** | The ESMIG shall support communication using the Data Exchange Protocol (DEP) to access the A2A services. |

**Security services**

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.120 |
| **Name** | Compliant with Cyber Security Requirements |
| **Description** | The ESMIG shall be compliant with the cyber security requirements.<br><br>**Note:** For details see "Market Infrastructure Cyber Resilience requirements" document. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.130 |
| **Name** | Support of security services - firewall |
| **Description** | • The ESMIG shall provide firewall functionalities implementing at least the following minimum set of features:<br>• Network segmentation - Security zones, virtual LANs (VLANs), and virtual routers to deploy security policies to isolate subnets.<br>• High availability (HA) - Active/passive and active/active configurations using dedicated high availability interfaces.<br>• App Firewall - Fine grained application control policies to allow or deny traffic based on dynamic application name or group names.<br>• Application signatures - Open signature library for identifying applications and nested applications with several thousands of application signatures.<br>• SSL Proxy (forward and reverse) - Performs SSL encryption and decryption between the client and the server.<br>• Unified threat management (UTM) - UTM capabilities must include IPS, antivirus, antispam, Web and content filtering. Available on-box with preinstalled, expanding and adaptive capabilities. Antivirus options are available from Sophos, Web filtering from Websense and antispam from Sophos. |

| Id | SHRD.UR.ESMIG.ALL.000.131 |
|---|---|
| Name | Support of security services - Intrusion Prevention System (IPS) |
| Description | • The ESMIG shall provide IPS functionalities to detect known and unknown exploits and anomalies in network traffic streams. The IPS must support at least the following minimum set of features:<br>• Stateful signature inspection – it must be possible to apply signatures to relevant portions of the network traffic determined by protocol context and to use protocol decodes to increase detection and reduce false positives.<br>• Signatures – the IPS must have at least 8000 signatures for identifying attacks, anomalies, spyware and application recognition.<br>• Traffic normalisation – the following functions must be provided to normalize traffic: reassembly, normalisation, and protocol decoding.<br>• Zero-day protection – it must be provided a protocol anomaly detection functionality including same-day coverage for newly found vulnerabilities.<br>• Recommended vendor's default policy - vendor's Networks Security Team must identify critical attack signatures to be used as an initial protection baseline.<br>• Active/active traffic monitoring – ESMIG might have functionalities in active/active mode, thus IPS monitoring must be possible on active/active line chassis clusters. Support for active/active IPS monitoring shall include advanced features such as in-service software upgrade.<br>• Packet capture - In order to conduct analysis of traffic and determine protection strategies IPS must support packet capture logging per rule. |

| Id | SHRD.UR.ESMIG.ALL.000.132 |
|---|---|
| Name | Support of security services - threat intelligence |
| Description | The ESMIG shall provide threat intelligence functionalities - Integration with cloud-based threat intelligence and intrusion detection and prevention system that shares, tracks and collects attack information. It must be possible to have application threat detection technologies including feeds for policy enforcement. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.133 |
| **Name** | Support of security services – Advanced Persistent Threat (APT) |
| **Description** | The ESMIG shall provide APT functionalities: APT delivers advanced anti-malware protection against zero-day and unknown threats by monitoring ingress and egress network traffic looking for malware and other indicators of compromise. It must be possible to integrate the threat intelligence (described in SHRD.UR.ESMIG.ALL.000.132) with the APT solution. APT must use cloud pipeline technologies to deliver progressive verdicts that assess the risk level of each potential attack, providing a higher degree of accuracy in threat prevention. APT analysis must include at least the following four steps: cache lookup, anti-virus scanning, static analysis and dynamic analysis. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.134 |
| **Name** | Support of security services – Local Traffic Manager (LTM) |
| **Description** | The ESMIG shall provide LTM functionalities: LTM must support load balancing; the ESMIG front end should be able to balance traffic across the two different sites in the same region. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.135 |
| **Name** | Support of security services – Application Security Manager (ASM) |
| **Description** | • The ESMIG shall provide ASM functionalities: the ASM must secure web applications with web application firewall functions. In order to consolidate traffic management, regulate application access, cover DDoS protection, include TLS inspection and termination, and ensures DNS security. Application performance is boosted through TLS offload, caching, compression, TCP optimisation.<br>• The ASM must support Extensible Markup Language (XML) sanitisation - an XML document is well-formed when it satisfies a list of syntax rules provided in the specifications. If an XML processor encounters a violation of these rules, it is required to stop processing the file and report an error. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.140 |
| **Name** | Support of security services |
| **Description** | The ESMIG shall provide authentication of all inbound traffic (U2A and A2A). |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.150 |
| **Name** | Support of security services |
| **Description** | The ESMIG shall provide sender (i.e. external party sending communication) authentication and identification. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.160 |
| **Name** | Support of security services |
| **Description** | The ESMIG shall provide non repudiation for U2A and A2A. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.170 |
| **Name** | Support of security services |
| **Description** | The ESMIG shall provide security monitoring for the Market Infrastructure Service Desk. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.180 |
| **Name** | Support of security services |
| **Description** | The ESMIG shall provide encryption/decryption for outbound / inbound communication. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.190 |
| **Name** | Support of security services |
| **Description** | The ESMIG shall support Closed User Group. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.200 |
| **Name** | Support of security services |
| **Description** | The ESMIG shall provide PKI Services. |

**Operational services**

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.210 |
| **Name** | Service time of ESMIG |
| **Description** | The ESMIG shall offer a service time compatible with the availability requirements of the Eurosystem Market Infrastructure Services. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.220 |
| **Name** | Availability of ESMIG |
| **Description** | The ESMIG has to offer high availability of services. Unplanned downtime (e.g. subject to incidents or failures, which may cause a temporary and unforeseen interruption of the service), calculated on a quarterly basis, shall not exceed 2.16 hours, equivalent to an availability of 99.9%. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.230 |
| **Name** | Response time and throughput of ESMIG |
| **Description** | The ESMIG shall be subject to the service level agreements of all dependent services.<br>The dependent services should specify their service levels including the required processing in ESMIG. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.235 |
| **Name** | Feature catalogue of ESMIG |
| **Description** | The ESMIG shall provide a feature catalogue with the features offered to the dependent services.<br>The dependent services can select the features they require from the ESMIG feature catalogue. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.240 |
| **Name** | Scalability |
| **Description** | The ESMIG shall offer scalability to cope with the different Eurosystem Market Infrastructure Service throughput. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.245 |
| **Name** | Independency of services regarding volumes |
| **Description** | The ESMIG shall take care that the traffic of one backend service may not impact the processing time of messages from or to other services. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.250 |
| **Name** | Archiving of inbound and outbound communications and events |
| **Description** | The ESMIG shall archive all inbound and outbound communications. The retention period shall be configurable. The URD for archiving apply.<br><br>**Note:** There is no need to store the inbound and outbound communications in the services but the services will offer functionalities to the users to provide information on the communications for a certain period of time by making use of the data archived by ESMIG. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.270 |
| **Name** | Logging of all inbound and outbound communications and events |
| **Description** | The ESMIG shall log all inbound and outbound communication. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.300 |
| **Name** | Provision of operational/monitoring tools |
| **Description** | The ESMIG shall provide operational/monitoring tools to ensure the monitoring of the system's functioning by the Market Infrastructure Service Desk. |

**Messaging services**

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.310 |
| **Name** | Provision of A2A and U2A services |
| **Description** | The ESMIG shall provide A2A and U2A services. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.320 |
| **Name** | Provision of store & forward (S&F) and Real time communication (RT) modes |
| **Description** | The ESMIG shall support Store & forward and Real time communication modes, both in push and pull mode.<br>ESMIG shall provide time out and oversize handling for RT. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.330 |
| **Name** | Provision of retry mechanism for S&F communication modes |
| **Description** | The ESMIG shall provide a retry mechanism for Store & forward communications. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.340 |
| **Name** | Provision of message and file channel |
| **Description** | The ESMIG shall handle messages and files via all supported modes. |

| Id | SHRD.UR.ESMIG.ALL.000.350 |
|---|---|
| Name | Provision of message and file routing to the different market infrastructure services |
| Description | The ESMIG shall route incoming messages and files to the different market infrastructure services addressed. The ESMIG shall identify and select the appropriated service based on information provided as part of the communication.<br><br>Additionally, the ESMIG shall pass ID of the sender (as result of authentication process) and additional parameters to the service. |

The identification could for instance be based on a DN for the service.

| Id | SHRD.UR.ESMIG.ALL.000.360 |
|---|---|
| Name | Provision of message routing to the external party |
| Description | The ESMIG shall route of messages and files to the external party using the correct network provider, target address, communication mode and protocol (i.e. right external user address). |

| Id | SHRD.UR.ESMIG.ALL.000.370 |
|---|---|
| Name | Provision of decompression/compression mechanism |
| Description | The ESMIG shall provide decompression/compression mechanisms for the communications. |

| Id | SHRD.UR.ESMIG.ALL.000.380 |
|---|---|
| Name | Provision of inbound messages queueing and restart of queued inbound messages |
| Description | The ESMIG shall queue messages (e.g. in case a service is closed or temporarily unavailable). At the point in time the service is up and running again the ESMIG shall forward the queued inbound message to the appropriate service. The ESMIG shall offer this feature on optional basis so that each service can opt for it when required; respectively opt out if not applicable. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.390 |
| **Name** | Provision of outbound message queueing and restart of queued outbound messages |
| **Description** | The ESMIG shall queue messages (e.g. in case the external connectivity layer or a participant is temporarily unavailable). At the point in time the connectivity is up and running again the ESMIG shall forward the queued message to the external connectivity layer. The ESMIG shall offer this feature on optional basis so that each service can opt for it when required respectively opts out if not applicable. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.410 |
| **Name** | Validation checks for inbound communication received on the message and file channel |
| **Description** | The ESMIG shall perform the following validation checks, at transport level, for inbound communication regardless of the channel via which they are received:<br>• The technical sender is allowed to use the addressed service;<br>• Duplicated inbound communication are rejected; and<br>• Xml message is well-formed.<br>The ESMIG shall forward only valid messages to the services. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.430 |
| **Name** | Resending of messages and files |
| **Description** | The ESMIG shall provide a resending functionality for all inbound and outbound messages and files. The ESMIG shall offer this feature on optional basis so that each service can opt for it when required respectively opt out if not applicable. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.440 |
| **Name** | Validation checks regarding access to service |
| **Description** | The ESMIG shall check that the user has general access to the requested service. |

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.ALL.000.450 |
| **Name** | Single sign-on for all market infrastructure services in U2A |
| **Description** | The ESMIG shall be the access portal for U2A users to all underlying business applications, meaning all market infrastructure services. A portal screen will be displayed offering all market infrastructure services according to the access rights of the user. |

## 1.2 EUROSYSTEM SINGLE MARKET INFRASTRUCTURE GATEWAY – NON-FUNCTIONAL REQUIREMENTS

### 1.2.1 Availability

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.NFR.010 |
| **Name** | System Opening Hours |
| **Description** | The ESMIG shall be available according to the requirements of the connected services. |

ESMIG opening hours shall be aligned with the opening hours of the respective market infrastructure services.

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.NFR.020 |
| **Name** | Unplanned Downtime |
| **Description** | ESMIG shall have an unplanned Downtime from less than xxxx hours calculated on a quarterly basis, equivalent to an availability of xxxx%. |

ESMIG may be subject to incidents or failures, which may cause a temporary and unforeseen interruption of the service. Regardless of the total number of such unplanned interruptions, the overall amount of service unavailability time calculated on a quarterly basis shall not exceed xxxx hours.

### 1.2.2 Disaster Recovery

| Id | SHRD.UR.ESMIG.NFR.030 |
|---|---|
| Name | Recovery Point Objective |
| Description | ESMIG shall ensure a recovery point objective value of zero in case of site failures. In case of a loss of a complete region the RPO shall not exceed xxxx minutes. |

The recovery point objective (RPO) is a point of consistency to which a user wants to recover or restart the service. It is measured as the amount of time between the moment when the point of consistency was created and the moment when the failure occurred.

ESMIG ensures synchronous point of consistency creations and, as a consequence, no data loss in case of failures, unless the service can't be restarted in the same region and a failover to the backup-region has to be conducted. In this case a data loss of xxxx minutes will be tolerated.

| Id | SHRD.UR.ESMIG.NFR.040 |
|---|---|
| Name | Rebuilding of Lost Data |
| Description | External parties shall be able to resend transactions, should the addressed service require this. Resending messages shall be able for at least xxxx minutes. |

This requirement covers that in case of a possible data loss due to a regional disaster transactions can be rebuild.

| Id | SHRD.UR.ESMIG.NFR.050 |
|---|---|
| Name | Recovery Time Objective |
| Description | The ESMIG shall have a RTO according to the requirements of the connected services. |

The recovery time objective (RTO) is the maximum amount of time required for recovery or restart of the service to a specified point of consistency. In case of a site failure, ESMIG shall ensure maximum time of unavailability of xxxx minutes for TIPS and xxxx hours for all other services starting from the time when the decision to restart the service is made up to the time the service is restored. In case of a major failure or a regional disaster, ESMIG shall ensure maximum time of unavailability of xxxx minutes for TIPS and xxxx hours for all other services starting from the time when the decision to restart the service is made up to the time the service is restored.

### 1.2.3 Performance Requirements

| Id | SHRD.UR.ESMIG.NFR.060 |
|---|---|
| Name | Response Time Goals |
| Description | The ESMIG shall be subject to the response time requirements of the connected services. The dependent services should specify their service levels including the required processing in ESMIG. |

The ESMIG shall be efficient enough to cope with the service levels of all connected services.

| Id | SHRD.UR.ESMIG.NFR.070 |
|---|---|
| Name | Upward Scalability |
| Description | ESMIG shall be scalable to handle:<br>• a xxxx% higher workload within xxxx minutes; and<br>• a xxxx of the workload within xxxx. |

In the course of the service's lifecycle the number of business transactions to be handled by ESMIG will change. ESMIG must be scalable to handle higher throughputs in order to cope with e.g. short-term market shocks and foreseeable increases.

| Id | SHRD.UR.ESMIG.NFR.080 |
|---|---|
| Name | No degradation of service levels |
| Description | The ESMIG shall scale linear. |

The ESMIG shall scale linear. This means that there shall be no degradation of the response time due to higher workload.

| Id | SHRD.UR.ESMIG.NFR.090 |
|---|---|
| Name | Maximum Size of Files and Messages |
| Description | The ESMIG shall be able to handle a maximum file size of xxxx MB. |

# 2 COMMON REFERENCE DATA MANAGEMENT (CRDM)

## 2.1 OVERVIEW

### 2.1.1 Context Diagram

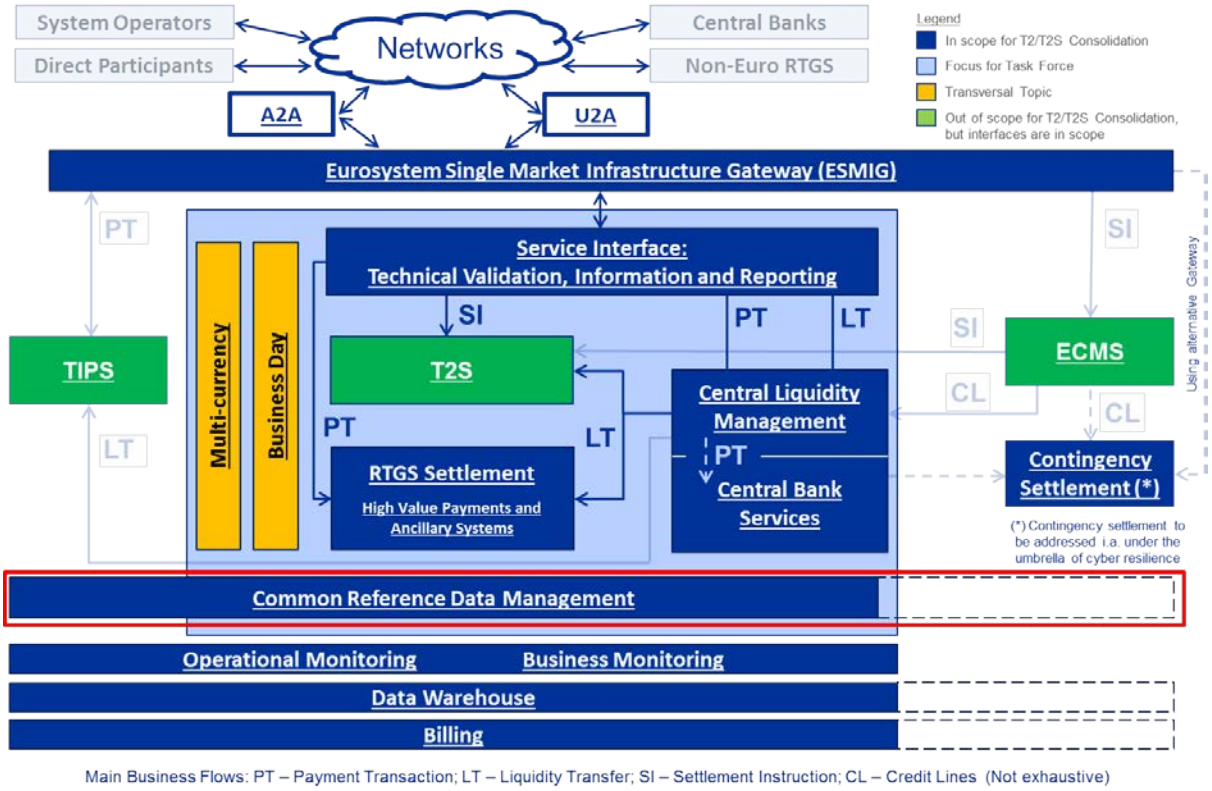



**Figure 2: Context diagram for Common Reference Data Management**

This section describes the common processes for the management of Reference Data required for the configuration and operation of the all services. This includes the *creation*, *amendment* and *deletion* of all common reference data entities as well as the propagation of all changes to all services impacted by the change. It replaces the 'Reference Data Management (RDM)' section.

The analysis of the data requirements completed so far for TIPS, ECMS and the T2/T2S Consolidation indicates that the majority of Reference Data would need to be shared with at least one other service and thus would be considered as Common Reference Data. This section currently reflects the Common Reference Data identified by TIPS and T2/T2S Consolidation, but will be enhanced to include ECMS.

From the perspective of the processes required to manage the reference data, it is envisaged that all reference data, common or specific for one service, shall be maintained by the same set of common processes described. The aim is to achieve consistency and integrity of all reference data and the relationships between them across all services, and to avoid duplication and redundancy.

As the intention is to not change T2S, it is implied without being stated explicitly that all Common Reference Data required for T2S is included within the scope of this section. The intention is to build a common data model shared across all services during the realisation phase of the project.

Within the context of the User Requirements Document, an 'entity' is a person, organisation, place, thing or concept which helps to define or is of interest to the future RTGS services, such as Participant, Central Bank, Cash Account, Liquidity Transfer, Standing Order etc. Each entity is described by a number of 'attributes' which are the individual pieces of information about that entity.

No distinction is made between which processes may be used by which type of External Party. Some processes will be available to any participant whilst others will only be available to Central Banks or System Operators. This will be managed through User Roles and Access. Similarly, it is envisaged that all processes could be provided in both U2A and A2A modes, where a need for A2A is clearly established in addition to U2A.

Although it has not been explicitly stated, all of the business processes include the requirement to record a full audit trail of all changes made to any reference data, including the date and timestamp of the change, which user or system process made the change and the details of the change made.

### 2.1.2 Business Processes

| Business Process | BP Reference | Business Process Description |
|---|---|---|
| Create an occurrence of Common Reference Data | SHRD.BP.CRDM.CRERD | Creation of any common reference data entity |
| Amend an occurrence of Common Reference Data | SHRD.BP.CRDM.AMDRD | Amendment of any common reference data entity |
| Delete an occurrence of Common Reference Data | SHRD.BP.CRDM.DELRD | Deletion of any common reference data entity |
| Propagate Changes | SHRD.BP.CRDM.PROP | Propagate changes to common reference data to all interested services |
| Block an occurrence of Common Reference Data | SHRD.BP.CRDM.BLKRD | Blocking of a cash account, a participant or an Ancillary System |
| Unblock an occurrence of Common Reference Data | SHRD.BP.CRDM.UNBLKRD | Unblocking of a cash account, a participant or an Ancillary System |
| Close a Cash Account | SHRD.BP.CRDM.CLOACC | Closing a cash account |
| Directory Service | SHRD.BP.CRDM.DIR | Provides the services' directories |

**Table 1: Business Processes for Common Reference Data Management**

### 2.1.3 General User Requirements for this Business Process Domain

The generic processes for the creation, amendment and deletion of an occurrence of reference data (referred to generically as maintain data) can be applied to all common reference data entities.

For revisions and audit trail requirements the modified data at attribute level as well as the user and timestamp will be documented. Additionally, a chronological record of changes will be stored to keep a history.

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.ALL.000.010 |
| **Name** | Audit trail |
| **Description** | The CRDM service shall ensure that for each data revision of a reference data entity the modified data at attribute level, the user performing the change and the timestamp of the change are logged. |

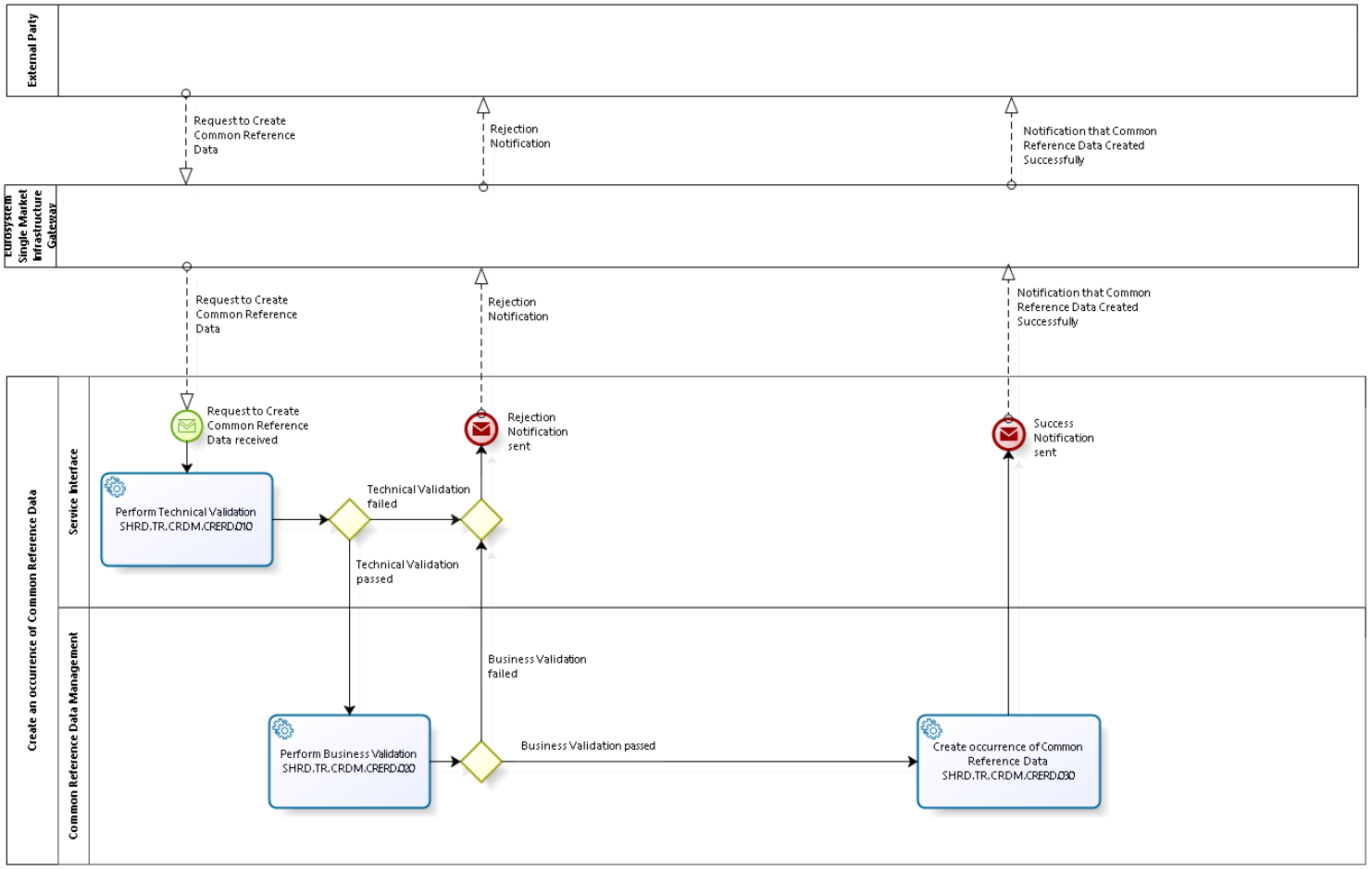
| | |
|---|---|
| **Id** | SHRD.UR.CRDM.ALL.000.020 |
| **Name** | Data history |
| **Description** | The CRDM service shall maintain documentation of a chronological record of changes. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.ALL.000.030 |
| **Name** | Check user access rights |
| **Description** | The CRDM service shall check that the user has appropriate authorisation access and privilege rights to perform the intended function on the intended reference data entity. |

## 2.2 CREATE AN OCCURRENCE OF COMMON REFERENCE DATA

**Business Process Ref: SHRD.BP.CRDM.CRERD**

### 2.2.1 Business Process Model




**Business Process Model 1: Create an occurrence of Common Reference Data**

### 2.2.2 Process Overview

**Process goal:**

This business process describes the creation of an occurrence of reference data.

All Common Reference Data includes a Valid From Date and a Valid From Event. The Valid From Date indicates the business date when it will become valid in the system, which by default will be the next business date. If the Valid From Event is not specified then it will become valid at the start of the business day indicated by the Valid From Date. Otherwise it will become valid in the system when the Valid From Event occurs, such as at the Start of Day, End of Day or the completion of a specified process.

Common Reference Data may also include a Valid To Date and a Valid To Event, indicating the point at which it will no longer be valid in the system and can no longer be used.

The user will select Valid From Event and Valid To Event from a list of possible values, each of which shall be an event recognisable by the system and recorded in the Scheduler. In addition, the Event may be specified as 'Immediate'.

**Process context:**

- The generic process and its descriptions are valid for all reference data entities.

**Pre-conditions:**

- None

**Time constraints:**

- None

**Expected results:**

- The platform will process the request.
- If the request content is either invalid or fails the reference data checks, it will be rejected and a rejection notification with the appropriate reason code will be sent to the initiating external party.
- If the request content is valid and reference data checks have been passed successfully, the platform will create an occurrence of reference data and the platform will send a success notification to the initiating external party.

**Triggers:**

- The process will be initiated by an external party sending a request to the platform to create a new occurrence of reference data.

**Sub-processes:**

- None

### 2.2.3 User Requirements

#### 2.2.3.1 PERFORM TECHNICAL VALIDATION

**Task Ref: SHRD.TR.CRDM.CRERD.010**

Technical validation shall perform checks such as field level validation (fields have correct data type and size) and for duplicate messages, if the request was received via A2A.

If the validation fails, a rejection notification with the appropriate reason code shall be sent to the initiating external party.

**General User Requirements**

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.CRERD.010.010 |
| **Name** | Validation of messages received via A2A |
| **Description** | The CRDM service shall parse the message received via A2A and validate it against the relevant schema to ensure that all attributes are of the correct data type and length |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.CRERD.010.020 |
| **Name** | Check mandatory attributes |
| **Description** | The CRDM service shall ensure that all mandatory attributes are populated |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.CRERD.010.030 |
| **Name** | Check for duplicate message |
| **Description** | The CRDM service shall ensure that a message with the same reference has not already been received within the duplicate check period. |

#### 2.2.3.2 PERFORM BUSINESS VALIDATION

**Task Ref: SHRD.TR.CRDM.CRERD.020**

The business validation comprises checks on the values of the attributes, cross-field consistency checks (where the value of one field is dependent upon, or has a relationship with, the value of another field, either in the same message or in the data already present in the database) and authorisation checks to ensure that the sender of the creation request has suitable permissions. Additionally, the system will ensure that duplicate entities cannot be created.

If the validation fails, a rejection notification with the appropriate reason code shall be sent to the initiating external party.

**General User Requirements**

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.CRERD.020.010 |
| **Name** | Check attribute values |
| **Description** | The CRDM service shall check that the values of all attributes that are populated (mandatory or optional) are valid according to the allowed values or value ranges. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.CRERD.020.020 |
| **Name** | Check data integrity |
| **Description** | The CRDM service shall check that all cross-field consistency requirements (data integrity) are satisfied, either between attributes within the message or between an attribute in the message and one or more items of data held in the system. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.CRERD.020.030 |
| **Name** | Check Valid From Date |
| **Description** | The CRDM service shall include a Valid From Date in all reference data entities.<br><br>The value indicates the business date from which the occurrence of Common Reference Data will be valid. If not stated, the next business date shall be used by default.<br><br>Valid From Date must be a valid date that must be on or after the current business date. |

| Id | SHRD.UR.CRDM.CRERD.020.040 |
|---|---|
| Name | Check Valid To Date |
| Description | The CRDM service shall include a Valid To Date in all reference data entities, although it may not be populated.<br><br>The value indicates the business date from which the occurrence of Common Reference Data will no longer be valid. If not stated, the occurrence of Common Reference Data will remain valid indefinitely.<br><br>Valid To Date is optional. If populated, it must be a valid date that must be on or after the current business date, and also on or after the Valid From Date. |

| Id | SHRD.UR.CRDM.CRERD.020.050 |
|---|---|
| Name | Check Valid From Event |
| Description | The CRDM service shall include a Valid From Event in all reference data entities, although it may not be populated.<br><br>The value indicates the event that, when it occurs, will be the point from which the occurrence of Common Reference Data will be valid, on the Valid From Date. If the Valid From Event is not populated the occurrence of Common Reference Data will be valid from the Start of Day on the business date indicated by the Valid From Date.<br><br>The Valid From Event shall be populated from a list of possible values, each of which shall be an event recognisable by the system and recorded in the Scheduler. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.CRERD.020.060 |
| **Name** | Check Valid To Event |
| **Description** | The CRDM service shall include a Valid To Event in all reference data entities, although it may not be populated.<br><br>The value indicates the event that, when it occurs, will be the point from which the occurrence of Common Reference Data will no longer be valid, on the Valid To Date. If the Valid To Event is not populated the occurrence of Common Reference Data will no longer be valid from the Start of Day on the business date indicated by the Valid To Date.<br><br>If the Valid To Event is populated then the Valid To Date must also be populated.<br><br>The Valid To Event shall be populated from a list of possible values, each of which shall be an event recognisable by the system and recorded in the Scheduler. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.CRERD.020.070 |
| **Name** | Check for duplicate of entity to be created |
| **Description** | The CRDM service shall ensure that an active entity cannot be created a second time. |

#### 2.2.3.3 CREATE OCCURRENCE OF COMMON REFERENCE DATA

**Task Ref: SHRD.TR.CRDM.CRERD.030**

After processing all validations successfully the occurrence of Common Reference Data will be created in the system, using the attributes from the request received.

Although the occurrence of Common Reference Data will be present in the system immediately after it has passed the validation, it will only be valid for use once the business date indicated by the Valid From Date has been reached and the Valid From Event has occurred.

Processes using the Common Reference Data will need to determine at the time whether the data is valid, by checking the Valid From Date and the Valid To Date:

- If the Valid To Date is not populated and the current business date at that time is after the Valid From Date then the Common Reference Data is valid

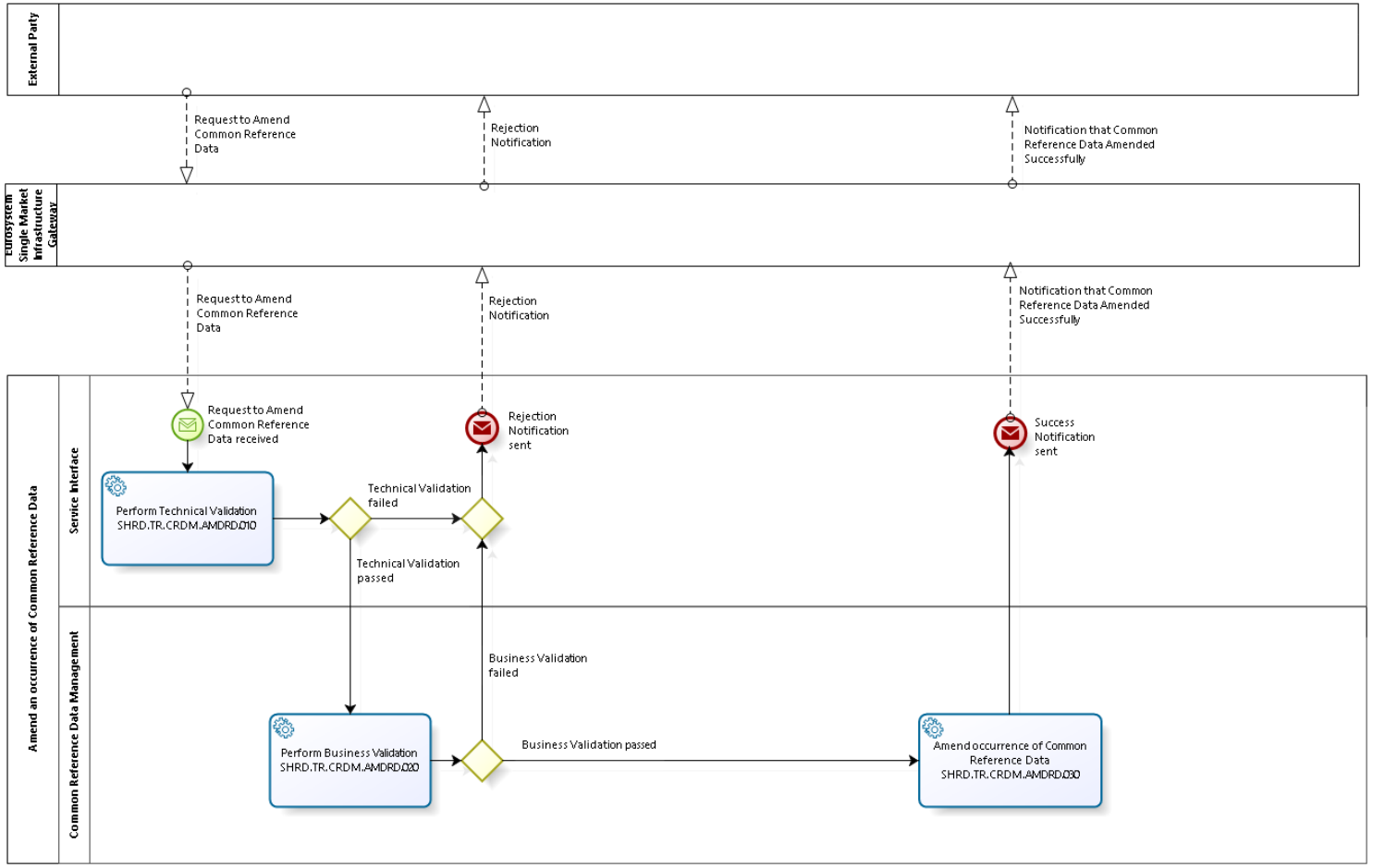
- If the Valid To Date is populated and the current business date at that time is between the Valid From Date and the Valid To Date (i.e. not on either date) then the Common Reference Data is valid

- If the current business date at that time is the same as either the Valid From Date or the Valid To Date then the process attempting to use the Common Reference Data must check the Scheduled processes that have been executed to check whether the Valid From Event or Valid To Event have already occurred or not. If the Valid From Event or Valid To Event are not specified then the Start of Day is taken as the default event.

## 2.3 AMEND AN OCCURRENCE OF COMMON REFERENCE DATA

**Business Process Ref: SHRD.BP.CRDM.AMDRD**

### 2.3.1 Business Process Model




**Business Process Model 2: Amend an occurrence of Common Reference Data**

### 2.3.2 Process Overview

**Process goal:**

This business process describes the amendment of an occurrence of reference data.

The Valid From Date indicates the business date from which the amended version of the reference data will become valid in the system, which by default will be the next business date. If the Valid From Event is not specified then it will become valid at the start of the business day indicated by the Valid From Date. Otherwise it will become valid in the system when the Valid From Event occurs, such as at the Start of Day, End of Day or the completion of a specified process.

Common Reference Data may also include a Valid To Date and a Valid To Event, indicating the point at which it will no longer be valid in the system and can no longer be used. If this has not yet occurred and the occurrence of reference data is currently valid, the Valid To Date and/or Valid To Event can be amended.

**Process context:**

- The generic process and its descriptions are valid for all reference data entities.

**Pre-conditions:**

- The occurrence of the reference data must already exist.

**Time constraints:**

- None

**Expected results:**

- The platform will process the request.
- If the request content is either invalid or fails the reference data checks, it will be rejected and a rejection notification with the appropriate reason code will be sent to the initiating external party.
- If the request content is valid and reference data checks have been passed successfully, the platform will amend the occurrence of reference data and the platform will send a success notification to the initiating external party.

**Triggers:**

- The process will be initiated by an external party sending a request to the platform for an amendment to an existing occurrence of reference data.

**Sub-processes:**

- None

### 2.3.3 User Requirements

#### 2.3.3.1 PERFORM TECHNICAL VALIDATION

**Task Ref: SHRD.TR.CRDM.AMDRD.010**

Technical validation shall perform checks such as field level validation (fields have correct data type and size) and for duplicate messages received via A2A.

If the validation fails, a rejection notification with the appropriate reason code shall be sent to the initiating external party.

**General User Requirements**

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.AMDRD.010.010 |
| **Name** | Validation of messages received via A2A |
| **Description** | The CRDM service shall parse the message received via A2A and validate it against the relevant schema to ensure that all attributes are of the correct data type and length |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.AMDRD.010.020 |
| **Name** | Check mandatory fields |
| **Description** | The CRDM service shall ensure that all mandatory attributes are populated |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.AMDRD.010.030 |
| **Name** | Check for duplicate message |
| **Description** | The CRDM service shall ensure that a message with the same reference has not already been received within the duplicate check period |

#### 2.3.3.2 PERFORM BUSINESS VALIDATION

**Task Ref: SHRD.TR.CRDM.AMDRD.020**

The business validation comprises checks on the values of the attributes, cross-field consistency checks (where the value of one field is dependent upon, or has a relationship with, the value of another field, either in the same message or in the data already present in the database) and authorisation checks to ensure that the sender of the amendment request has suitable permissions.

If the validation fails, a rejection notification with the appropriate reason code shall be sent to the initiating external party.

**General User Requirements**

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.AMDRD.020.010 |
| **Name** | Identify occurrence of Common Reference Data entity to be amended |
| **Description** | The CRDM service shall ensure that the occurrence of reference data to be amended has already been created (regardless of whether it is currently valid or not). |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.AMDRD.020.020 |
| **Name** | Check attribute values |
| **Description** | The CRDM service shall check that the values of all attributes that are populated (mandatory or optional) are valid according to the allowed values or value ranges. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.AMDRD.020.030 |
| **Name** | Check data integrity |
| **Description** | The CRDM service shall check that all cross-field consistency requirements (data integrity) are satisfied, either between attributes within the message or between an attribute in the message and one or more items of data held in the system. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.AMDRD.020.040 |
| **Name** | Check Valid From Date |
| **Description** | The CRDM service shall include a Valid From Date in all reference data entities.<br><br>The value indicates the business date from which the amendment to the occurrence of Common Reference Data will be valid. If not stated, the next business date shall be used by default.<br><br>Valid From Date must be a valid date that must be on or after the current business date. |

| Id | SHRD.UR.CRDM.AMDRD.020.050 |
|---|---|
| Name | Check Valid To Date |
| Description | The CRDM service shall include a Valid To Date in all reference data entities, although it may not be populated.<br><br>The value indicates the business date from which the occurrence of Common Reference Data will no longer be valid. If not stated, the occurrence of Common Reference Data will remain valid indefinitely.<br><br>Valid To Date is optional. If populated, it must be a valid date that must be on or after the current business date, and also on or after the Valid From Date. |

| Id | SHRD.UR.CRDM.AMDRD.020.060 |
|---|---|
| Name | Check Valid From Event |
| Description | The CRDM service shall include a Valid From Event in all reference data entities, although it may not be populated.<br><br>The value indicates the event that, when it occurs, will be the point from which the amendment to the occurrence of Common Reference Data will be valid, on the Valid From Date. If the Valid From Event is not populated the amendment will be valid from the Start of Day on the business date indicated by the Valid From Date.<br><br>The Valid From Event shall be populated from a list of possible values, each of which shall be an event recognisable by the system and recorded in the Scheduler. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.AMDRD.020.060 |
| **Name** | Check Valid To Event |
| **Description** | The CRDM service shall include a Valid To Event in all reference data entities, although it may not be populated.<br><br>The value indicates the event that, when it occurs, will be the point from which the occurrence of Common Reference Data will no longer be valid, on the Valid To Date. If the Valid To Event is not populated the occurrence of Common Reference Data will no longer be valid from the Start of Day on the business date indicated by the Valid To Date.<br><br>If the Valid To Event is populated then the Valid To Date must also be populated.<br><br>The Valid To Event shall be populated from a list of possible values, each of which shall be an event recognisable by the system and recorded in the Scheduler. |

#### 2.3.3.3 AMEND OCCURRENCE OF REFERENCE DATA

**Task Ref: SHRD.TR.CRDM.AMDRD.030**

After processing all validations successfully the attribute(s) of the specified reference data entity shall be amended to the values from the request received.

Although the amended version of the reference data entity will be present in the system immediately after it has passed the validation, it will only be valid for use once the business date indicated by the Valid From Date has been reached and the Valid From Event has occurred.

Processes using the Common Reference Data will need to determine at the time whether the data is valid, by checking the Valid From Date and the Valid To Date:

- If the Valid To Date is not populated and the current business date at that time is after the Valid From Date then the Common Reference Data is valid
- If the Valid To Date is populated and the current business date at that time is between the Valid From Date and the Valid To Date (i.e. not on either date) then the Common Reference Data is valid
- If the current business date at that time is the same as either the Valid From Date or the Valid To Date then the process attempting to use the Common Reference Data must check the Scheduled processes that have been executed to check whether the Valid From Event or Valid To Event have already occurred or not. If the Valid From Event or Valid To Event are not specified then the Start of Day is taken as the default event.

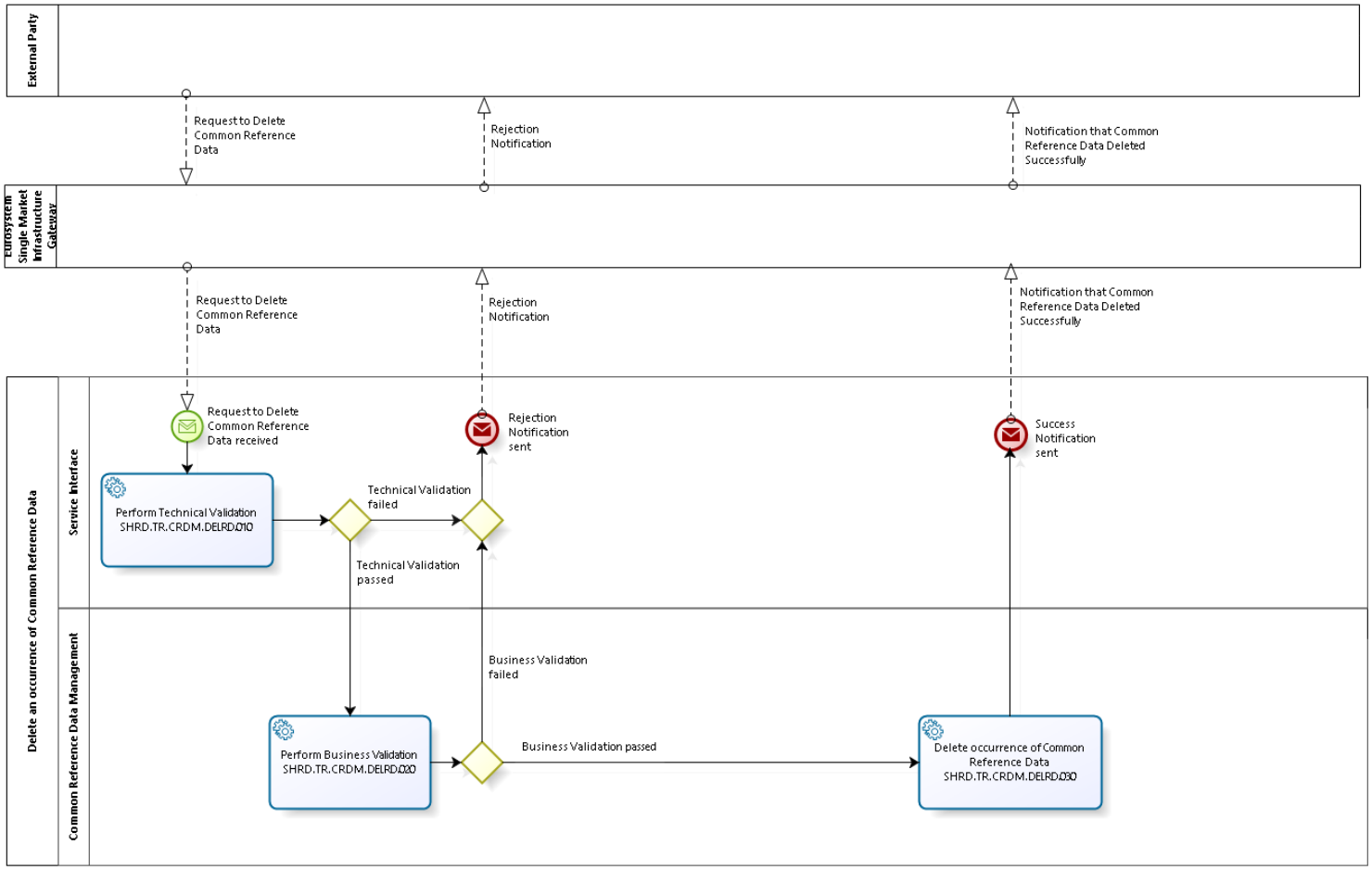
| | |
|---|---|
| **Id** | SHRD.UR.CRDM.AMDRD.030.010 |
| **Name** | Validity of amended reference data |
| **Description** | The CRDM service shall amend the attributes of the entity as requested. By default the new values become valid as of the start of the next business day.<br><br>Alternatively the user may specify a future date and/or event from which the new values become valid by using the Valid From Date and the Valid From Event. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.AMDRD.030.020 |
| **Name** | Previous version of reference data no longer valid |
| **Description** | The CRDM service shall amend the Valid To Date and Valid To Event for the previous version of the reference data that has been amended, using the values of the Valid From Date and Valid from Event of the new version of the reference data.<br><br>This will ensure that the end of validity of the previous version and the start of validity of the new version are simultaneous. |

## 2.4 DELETE AN OCCURRENCE OF COMMON REFERENCE DATA

**Business Process Ref: SHRD.BP.CRDM.DELRD**

### 2.4.1 Business Process Model




**Business Process Model 3: Delete an occurrence of Common Reference Data**

### 2.4.2 Process Overview

**Process goal:**

The generic process and its descriptions are valid for all reference data entities.

This business process describes the logical deletion of an occurrence of reference data, which will be marked as a status update. The subsequent archiving and physical deletion will be handled by a separate process. The process will be initiated by an external party sending a request to the platform for the deletion of an existing occurrence of reference data. The platform will process the request. If the request content is either invalid or fails the reference data checks, it will be rejected and a rejection notification with the appropriate reason code will be sent to the initiating external party. If the request content is valid and reference data checks have been passed successfully, the platform will mark the occurrence of reference data as being logically deleted and the platform will send a success notification to the initiating external party.

The Valid From Date indicates the business date on which the logical deletion of the reference data will occur in the system, which by default will be the next business date. If the Valid From Event is not specified then it will occur at the start of the business day indicated by the Valid From Date. Otherwise it will occur in the system when the Valid From Event occurs, such as at the Start of Day, End of Day or the completion of a specified process.

**Process context:**

- [Describe the context within which the process would be used]

**Pre-conditions:**

- [Describe any pre-conditions]

**Time constraints:**

-

**Expected results:**

-

**Triggers:**

-

**Sub-processes:**

-

### 2.4.3 User Requirements

#### 2.4.3.1 PERFORM TECHNICAL VALIDATION

**Task Ref: SHRD.TR.CRDM.DELRD.010**

Technical validation shall perform checks such as field level validation (fields have correct data type and size) and for duplicate messages received via A2A.

If the validation fails, a rejection notification with the appropriate reason code shall be sent to the initiating external party.

**General User Requirements**

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.DELRD.010.010 |
| **Name** | Validation of messages received via A2A |
| **Description** | The CRDM service shall parse the message received via A2A and validate it against the relevant schema to ensure all attributes are of the correct data type and length |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.DELRD.010.020 |
| **Name** | Check mandatory fields |
| **Description** | The CRDM service shall ensure that all mandatory attributes are populated |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.DELRD.010.030 |
| **Name** | Check for duplicate message |
| **Description** | The CRDM service shall ensure that a message with the same reference has not already been received within the duplicate check period |

#### 2.4.3.2 PERFORM BUSINESS VALIDATION

**Task Ref: SHRD.TR.CRDM.DELRD.020**

The business validation comprises checks on the values of the attributes, cross-field consistency checks (where the value of one field is dependent upon, or has a relationship with, the value of another field, either in the same message or in the data already present in the database) and authorisation checks to ensure that the sender of the deletion request has suitable permissions.

If the validation fails, a rejection notification with the appropriate reason code shall be sent to the initiating external party.

**General User Requirements**

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.DELRD.020.010 |
| **Name** | Identify occurrence of Common Reference Data entity to be deleted |
| **Description** | The CRDM service shall ensure that the occurrence of reference data to be deleted has already been created (regardless of whether it is currently valid or not). |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.DELRD.020.020 |
| **Name** | Check Valid From Date |
| **Description** | The CRDM service shall include a Valid From Date in all reference data entities.<br><br>The value indicates the business date on which the occurrence of Common Reference Data will be logically deleted. If not stated, the next business date shall be used by default.<br><br>Valid From Date must be a valid date that must be on or after the current business date. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.DELRD.020.030 |
| **Name** | Check Valid From Event |
| **Description** | The CRDM service shall include a Valid From Event in all reference data entities, although it may not be populated.<br><br>The value indicates the event that, when it occurs, will be the point at which the occurrence of Common Reference Data will be logically deleted, on the Valid From Date. If the Valid From Event is not populated the amendment will be valid from the Start of Day on the business date indicated by the Valid From Date.<br><br>The Valid From Event shall be populated from a list of possible values, each of which shall be an event recognisable by the system and recorded in the Scheduler. |

### 2.4.3.3 DELETE OCCURRENCE OF REFERENCE DATA

**Task Ref: SHRD.TR.CRDM.DELRD.030**

After processing all validations successfully the reference data entity will be logically deleted.

Although the reference data entity will be marked as logically deleted in the system immediately after it has passed the validation, it can only be regarded as logically deleted once the business date indicated by the Valid From Date has been reached and the Valid From Event has occurred.

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.DELRD.030.010 |
| **Name** | Logical deletion of reference data |
| **Description** | The CRDM service shall mark a reference data entity as logically deleted, instead of a physical deletion. By default an entity is considered to be deleted as of the start of the next business day.<br><br>Alternatively the user may specify a future date and/or event when the reference data entity will be logically deleted by using the Valid From Date and the Valid From Event. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.DELRD.030.020 |
| **Name** | Previous version of reference data no longer valid |
| **Description** | The CRDM service shall amend the Valid To Date and Valid To Event for the previous version of the reference data that has been amended, using the values of the Valid From Date and Valid from Event of the new version of the reference data.<br><br>This will ensure that the end of validity of the previous version and the start of validity of the new version are simultaneous. |

## 2.5 PROPAGATE CHANGES

**Business Process Ref: SHRD.BP.CRDM.PROP**

### 2.5.1 Process Overview

**Process goal:**

This business process describes the propagation of changes made to Common Reference Data.

Common Reference Data is maintained centrally for use by any of the future RTGS services, including TIPS, ECMS, T2S, RTGS and CLM.

The process will be initiated by any successful change made to any occurrence of Common Reference Data, including:

- Creating an occurrence of Common Reference Data
- Amending an occurrence of Common Reference Data
  - Changing the value of an attribute
  - Adding an attribute
  - Deleting an attribute
- Deleting an occurrence of Common Reference Data

Each change is propagated intra-day to each service that is known to be a user of the Common Reference Data entity associated with the change, as soon as the change is made.

**Process context:**

- [Describe the context within which the process would be used]

**Pre-conditions:**

- [Describe any pre-conditions]

**Time constraints:**

-

**Expected results:**

-

**Triggers:**

-

**Sub-processes:**

-

### 2.5.2 User Requirements

**General User Requirements**

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.PROP.000.010 |
| **Name** | Record service subscribing as user of Common Reference Data entity |
| **Description** | For each specific type of reference data entity maintained in the system the CRDM service shall maintain a list of services that shall be informed about any change. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.PROP.000.020 |
| **Name** | Detect change to an occurrence of Common Reference Data |
| **Description** | The CRDM service shall initiate the process of propagating the change to interested services, as soon as the change completed successfully. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.PROP.000.030 |
| **Name** | Determine services impacted by change to an occurrence of Common Reference Data |
| **Description** | The CRDM service shall provide information to the interested services whenever an occurrence of Common Reference Data is created, amended or deleted. |

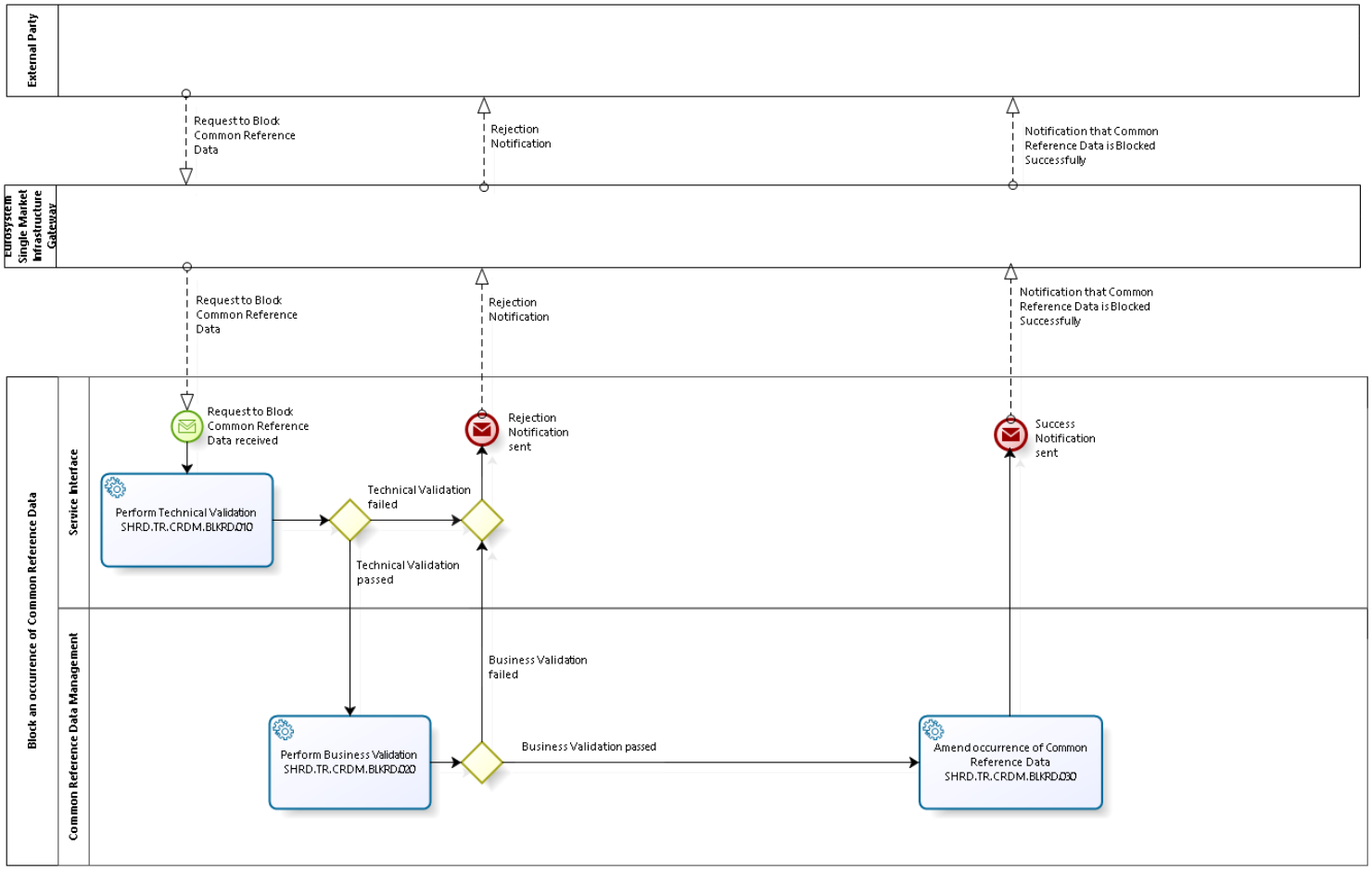
| | |
|---|---|
| **Id** | SHRD.UR.CRDM.PROP.000.040 |
| **Name** | Propagate change to an occurrence of Common Reference Data |
| **Description** | The CRDM service shall indicate whether the occurrence was added, amended or deleted, the values of the attributes held before and after the change, the date and time the change was made, and the originator of the change. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.PROP.000.050 |
| **Name** | Local Reference Data maintenance |
| **Description** | In order to allow essential maintenance of Common Reference Data required by any service during any period where the Common Reference Data Management service is not available, such maintenance shall be made locally.<br><br>Any changes made locally will need to be made also in Common Reference Data as soon as the Common Reference Data Management service is available.<br><br>The change shall be propagated to all interested services impacted by the change, including the service in which the change was made locally, but will not result in any further change here as the change will have already been made there. |

## 2.6 BLOCK AN OCCURRENCE OF COMMON REFERENCE DATA

**Business Process Ref: SHRD.BP.CRDM.BLKRD**

### 2.6.1 Business Process Model




**Business Process Model 4: Block an occurrence of Common Reference Data**

### 2.6.2 Process Overview

**Process goal:**

The generic process and its descriptions are valid for cash accounts participants and Ancillary Systems.

This business process describes the blocking of cash accounts, participants and Ancillary Systems. The process will be initiated by an external party (CB or System operator acting on behalf) via sending a request to the platform to block an occurrence of reference data. The platform will process the request. If the request content is either invalid or fails the reference data checks, it will be rejected and a rejection notification with the appropriate reason code will be sent to the initiating external party. If the request content is valid and the reference data checks have been passed successfully, the platform will block the occurrence of reference data and the platform will send a success notification to the initiating external party.

The Valid From Date indicates the business date from which the occurrence of reference data will become blocked in the system, which by default will be the next business date. If the Valid From Event is not specified then it will become blocked at the start of the business day indicated by the Valid From Date. Otherwise it will become blocked in the system when the Valid From Event occurs, such as at the Start of Day, End of Day or the completion of a specified process.

**Process context:**

- [Describe the context within which the process would be used]

**Pre-conditions:**

- [Describe any pre-conditions]

**Time constraints:**

-

**Expected results:**

-

**Triggers:**

-

**Sub-processes:**

-

### 2.6.3 User Requirements

#### 2.6.3.1 PERFORM TECHNICAL VALIDATION

**Task Ref: SHRD.TR.CRDM.BLKRD.010**

Technical validation will perform checks such as field level validation (fields have correct data type and size) and for duplicate messages received via A2A.

If the validation failed, rejection notifications with appropriate reason code must be sent to the initiating external party.

**General User Requirements**

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.BLKRD.010.010 |
| **Name** | Validation of messages received via A2A |
| **Description** | The CRDM service shall parse the message received via A2A and validate it against the relevant schema to ensure that all attributes are of the correct data type and length |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.BLKRD.010.020 |
| **Name** | Check mandatory fields |
| **Description** | The CRDM service shall ensure that all mandatory attributes are populated |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.BLKRD.010.030 |
| **Name** | Check for duplicate message |
| **Description** | The CRDM service shall ensure that a message with the same reference has not already been received within the duplicate check period |

#### 2.6.3.2 PERFORM BUSINESS VALIDATION

**Task Ref: SHRD.TR.CRDM.BLKRD.020**

The business validation comprises checks on the values of the attributes, cross-field consistency checks (where the value of one field is dependent upon, or has a relationship with, the value of another field, either in the same message or in the data already present in the database) and authorisation checks to ensure that the sender of the amendment request has suitable permissions.

If the validation failed, rejection notifications with appropriate reason code must be sent to the initiating external party.

## General User Requirements

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.BLKRD.020.010 |
| **Name** | Identify occurrence of Common Reference Data entity to be blocked |
| **Description** | The CRDM service shall ensure that the occurrence of reference data to be blocked has already been created (regardless of whether it is currently valid or not). |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.BLKRD.020.020 |
| **Name** | Check attribute values |
| **Description** | The CRDM service shall check that the values of all attributes that are populated (mandatory or optional) are valid according to the allowed values or value ranges. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.BLKRD.020.030 |
| **Name** | Check data integrity |
| **Description** | The CRDM service shall check that all cross-field consistency requirements (data integrity) are satisfied, either between attributes within the message or between an attribute in the message and one or more items of data held in the system |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.BLKRD.020.040 |
| **Name** | Check status of Common Reference Data entity to be blocked |
| **Description** | The CRDM service shall check the status of the occurrence of reference data to be blocked to ensure that it is not already blocked |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.BLKRD.020.050 |
| **Name** | Check Valid From Date |
| **Description** | The CRDM service shall include a Valid From Date in all reference data entities.<br><br>The value indicates the business date from which the occurrence of Common Reference Data will be blocked. If not stated, the next business date shall be used by default.<br><br>Valid From Date must be a valid date that must be on or after the current business date. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.BLKRD.020.060 |
| **Name** | Check Valid From Event |
| **Description** | The CRDM service shall include a Valid From Event in all reference data entities, although it may not be populated.<br><br>The value indicates the event that, when it occurs, will be the point from which the occurrence of Common Reference Data will be blocked, on the Valid From Date. If the Valid From Event is not populated the occurrence of Common Reference Data will be blocked from the Start of Day on the business date indicated by the Valid From Date.<br><br>The Valid From Event shall be populated from a list of possible values, each of which shall be an event recognisable by the system and recorded in the Scheduler. |

#### 2.6.3.3 BLOCK OCCURRENCE OF REFERENCE DATA

**Task Ref: SHRD.TR.CRDM.BLKRD.030**

After processing all validations successfully the occurrence of reference data will be blocked, and all usual processing related to it will be stopped.

Although the blocking will be present in the system immediately after it has passed the validation, it will only be effective once the business date indicated by the Valid From Date has been reached and the Valid From Event has occurred.

Processes using the Common Reference Data will need to determine at the time whether the occurrence of reference data is blocked, by checking the Valid From Date:

- If the current business date at that time is after the Valid From Date then the block is in force

- If the current business date at that time is the same as the Valid From Date then the process attempting to use the Common Reference Data must check the Scheduled processes that have been executed to check whether the Valid From Event has already occurred or not. If the Valid From Event is not specified then the Start of Day is taken as the default event.

**Blocking of a Participant:**

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.BLKRD.030.010 |
| **Name** | Block accounts |
| **Description** | The CRDM service shall mark all accounts belonging to the participant as blocked. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.BLKRD.030.030 |
| **Name** | Blocking of a participant |
| **Description** | The CRDM service shall set the credit line of the blocked participant to zero |

**Blocking of an Ancillary System:**

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.BLKRD.030.035 |
| **Name** | Block AS |
| **Description** | The CRDM service shall mark the Ancillary System as blocked. |

**Blocking of a Cash Account:**

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.BLKRD.030.050 |
| **Name** | Block account |
| **Description** | The CRDM service shall mark the account as blocked for credit and debit. No credits or debits allowed on the account. |

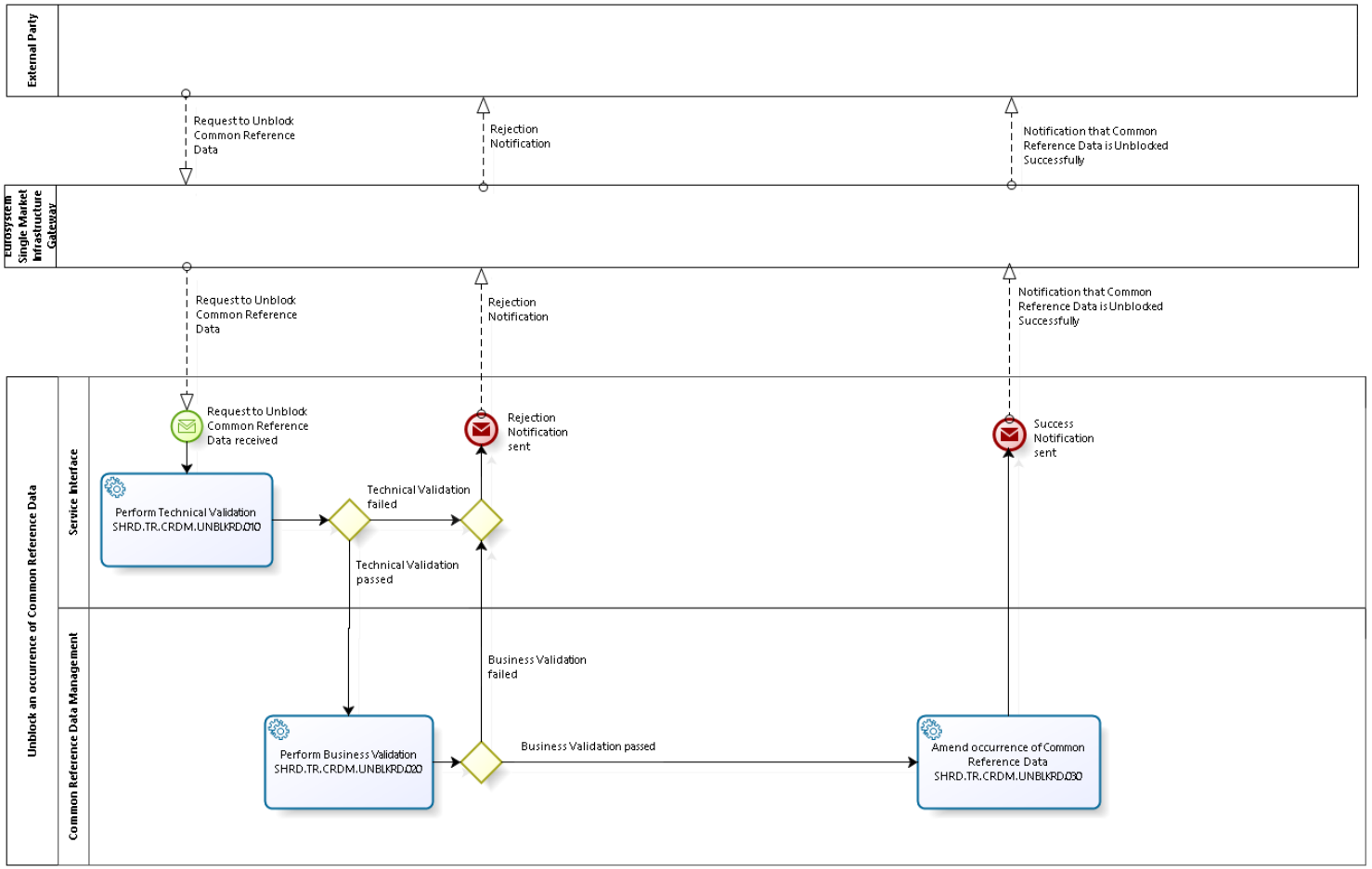
| | |
|---|---|
| **Id** | SHRD.UR.CRDM.BLKRD.030.055 |
| **Name** | Block account only for debit |
| **Description** | The CRDM service shall mark the account as blocked for debit. This would then allow credits still to be made into the account. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.BLKRD.030.057 |
| **Name** | Block account only for credit |
| **Description** | The CRDM service shall mark the account as blocked for credit. This would then allow debits still to be made into the account. |

## 2.7 UNBLOCK AN OCCURRENCE OF COMMON REFERENCE DATA

**Business Process Ref: SHRD.BP.CRDM.UNBLKRD**

### 2.7.1 Business Process Model




**Business Process Model 5: Unblock an occurrence of Common Reference Data**

### 2.7.2 Process Overview

**Process goal:**

The generic process and its descriptions are valid for cash accounts participants and Ancillary Systems.

This business process describes the unblocking of cash accounts, participants and Ancillary Systems. The process will be initiated by an external party (CB or System operator acting on behalf) via sending a request to the platform to unblock an occurrence of reference data. The platform will process the request. If the request content is either invalid or fails the reference data checks, it will be rejected and a rejection notification with the appropriate reason code will be sent to the initiating external party. If the request content is valid and the reference data checks have been passed successfully, the platform will unblock the occurrence of reference data and the platform will send a success notification to the initiating external party.

The Valid From Date indicates the business date from which the occurrence of reference data will become unblocked in the system, which by default will be the next business date. If the Valid From Event is not specified then it will become unblocked at the start of the business day indicated by the Valid From Date. Otherwise it will become unblocked in the system when the Valid From Event occurs, such as at the Start of Day, End of Day or the completion of a specified process.

**Process context:**

- [Describe the context within which the process would be used]

**Pre-conditions:**

- [Describe any pre-conditions]

**Time constraints:**

-

**Expected results:**

-

**Triggers:**

-

**Sub-processes:**

-

### 2.7.3 User Requirements

#### 2.7.3.1 PERFORM TECHNICAL VALIDATION

**Task Ref: SHRD.TR.CRDM.UNBLKRD.010**

Technical validation will perform checks such as field level validation (fields have correct data type and size) and for duplicate messages received via A2A.

If the validation failed, a rejection notification with appropriate reason code must be sent to the initiating external party.

**General User Requirements**

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.UNBLKRD.010.010 |
| **Name** | Validation of messages received via A2A |
| **Description** | The CRDM service shall parse the message received via A2A and validate it against the relevant schema to ensure that all attributes are of the correct data type and length |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.UNBLKRD.010.020 |
| **Name** | Check mandatory fields |
| **Description** | The CRDM service shall ensure that all mandatory attributes are populated |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.UNBLKRD.010.030 |
| **Name** | Check for duplicate message |
| **Description** | The CRDM service shall ensure that a message with the same reference has not already been received within the duplicate check period |

#### 2.7.3.2 PERFORM BUSINESS VALIDATION

**Task Ref: SHRD.TR.CRDM.UNBLKRD.020**

The business validation comprises checks on the values of the attributes, cross-field consistency checks (where the value of one field is dependent upon, or has a relationship with, the value of another field, either in the same message or in the data already present in the database) and authorisation checks to ensure that the sender of the amendment request has suitable permissions.

If the validation failed, rejection notifications with appropriate reason code must be sent to the initiating external party.

**General User Requirements**

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.UNBLKRD.020.010 |
| **Name** | Identify occurrence of Common Reference Data entity to be unblocked |
| **Description** | The CRDM service shall ensure that the occurrence of reference data to be unblocked has already been created (regardless of whether it is currently valid or not). |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.UNBLKRD.020.020 |
| **Name** | Check attribute values |
| **Description** | The CRDM service shall check that the values of all attributes that are populated (mandatory or optional) are valid according to the allowed values or value ranges. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.UNBLKRD.020.030 |
| **Name** | Check data integrity |
| **Description** | The CRDM service shall check that all cross-field consistency requirements (data integrity) are satisfied, either between attributes within the message or between an attribute in the message and one or more items of data held in the system |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.UNBLKRD.020.040 |
| **Name** | Check status of Common Reference Data entity to be unblocked |
| **Description** | The CRDM service shall check the status of the occurrence of reference data to be unblocked to ensure that it is currently blocked |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.UNBLKRD.020.050 |
| **Name** | Check Valid From Date |
| **Description** | The CRDM service shall include a Valid From Date in all reference data entities.<br><br>The value indicates the business date from which the occurrence of Common Reference Data will be unblocked. If not stated, the next business date shall be used by default.<br><br>Valid From Date must be a valid date that must be on or after the current business date. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.UNBLKRD.020.060 |
| **Name** | Check Valid From Event |
| **Description** | The CRDM service shall include a Valid From Event in all reference data entities, although it may not be populated.<br><br>The value indicates the event that, when it occurs, will be the point from which the occurrence of Common Reference Data will be unblocked, on the Valid From Date. If the Valid From Event is not populated the occurrence of Common Reference Data will be unblocked from the Start of Day on the business date indicated by the Valid From Date.<br><br>The Valid From Event shall be populated from a list of possible values, each of which shall be an event recognisable by the system and recorded in the Scheduler. |

#### 2.7.3.3 UNBLOCK OCCURRENCE OF REFERENCE DATA

**Task Ref: SHRD.TR.CRDM.UNBLKRD.030**

After processing all validations successfully the occurrence of reference data entity will be unblocked, and all usual processing related to it will be restarted.

Although the unblocking will be present in the system immediately after it has passed the validation, it will only be effective once the business date indicated by the Valid From Date has been reached and the Valid From Event has occurred.

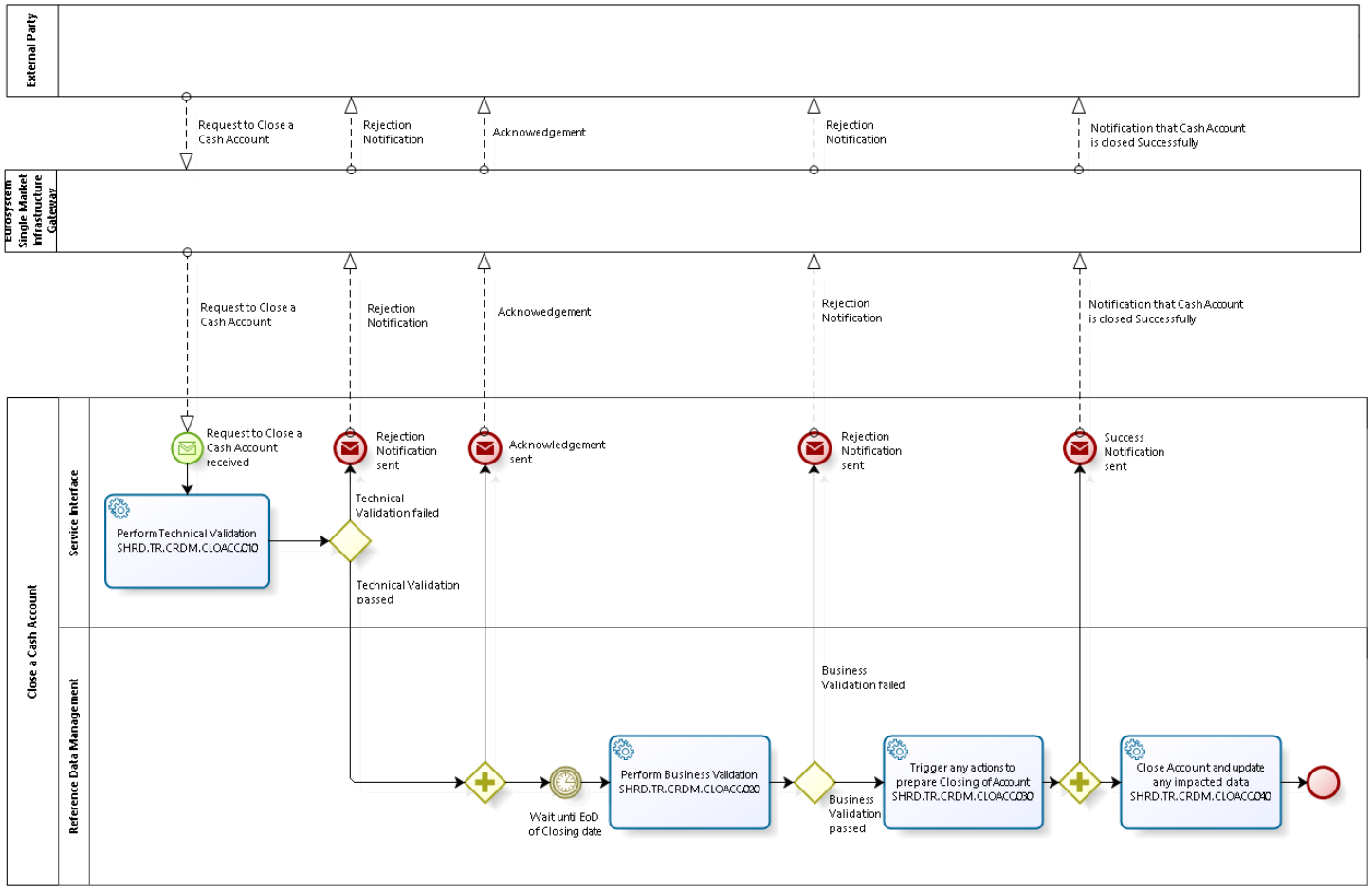
Processes using the Common Reference Data will need to determine at the time whether the occurrence of reference data is unblocked, by checking the Valid From Date:

- If the current business date at that time is after the Valid From Date then the block is no longer in force
- If the current business date at that time is the same as the Valid From Date then the process attempting to use the Common Reference Data must check the Scheduled processes that have been executed to check whether the Valid From Event has already occurred or not. If the Valid From Event is not specified then the Start of Day is taken as the default event.

## 2.8 CLOSE A CASH ACCOUNT

**Business Process Ref: SHRD.BP.CRDM.CLOACC**

### 2.8.1 Business Process Model




**Business Process Model 6: Close a Cash Account**

### 2.8.2 Process Overview

**Process goal:**

This business process describes the closing of a cash account. The process will be initiated by an external party via a request to the platform to close a cash account. The platform will process the request. If the request content is either invalid or fails the reference data checks, it will be rejected and a rejection notification with the appropriate reason code will be sent to the initiating external party. If the request content is valid and the reference data checks have been passed successfully, the platform will close the cash account and the platform will send a success notification to the initiating external party.

The Valid From Date indicates the business date on which the cash account will be closed in the system, which by default will be the current business date. The cash account will be closed at the end of the business day indicated by the Valid From Date.

**Process context:**

- [Describe the context within which the process would be used]

**Pre-conditions:**

- [Describe any pre-conditions]

**Time constraints:**

-

**Expected results:**

-

**Triggers:**

-

**Sub-processes:**

-

## 2.8.3 User Requirements

### 2.8.3.1 PERFORM TECHNICAL VALIDATION

**Task Ref: SHRD.TR.CRDM.CLOACC.010**

Technical validation will perform checks such as field level validation (fields have correct data type and size) and for duplicate messages received via A2A.

After successful technical validation an acknowledgement will be sent to the initiating external party. If the validation failed, a rejection notification with appropriate reason code must be sent to the relevant parties.

**General User Requirements**

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.CLOACC.010.010 |
| **Name** | Validation of messages received via A2A |
| **Description** | The CRDM service shall parse the message received via A2A and validate it against the relevant schema to ensure that all attributes are of the correct data type and length |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.CLOACC.010.020 |
| **Name** | Check mandatory fields |
| **Description** | The CRDM service shall ensure that all mandatory attributes are populated |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.CLOACC.010.030 |
| **Name** | Check for duplicate message |
| **Description** | The CRDM service shall ensure that a message with the same reference has not already been received within the duplicate check period |

### 2.8.3.2 PERFORM BUSINESS VALIDATION

**Task Ref: SHRD.TR.CRDM.CLOACC.020**

The business validation comprises checks on the values of the attributes, cross-field consistency checks (where the value of one field is dependent upon, or has a relationship with, the value of another field, either in the same message or in the data already present in the database) and authorisation checks to ensure that the sender of the request to close the account has suitable permissions.

If the validation failed, rejection notifications with appropriate reason code must be sent to the initiating external party.

Before continuing the closing process there is a waiting period until the End of Day of the closing date is reached. Until this point in time the usual processing on the cash account will continue as usual.

**General User Requirements**

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.CLOACC.020.010 |
| **Name** | Identify cash account to be closed |
| **Description** | The CRDM service shall ensure that the cash account to be closed has already been created (regardless of whether it is currently valid or not). |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.CLOACC.020.020 |
| **Name** | Check attribute values |
| **Description** | The CRDM service shall check that the values of all attributes that are populated (mandatory or optional) are valid according to the allowed values or value ranges. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.CLOACC.020.030 |
| **Name** | Check data integrity |
| **Description** | The CRDM service shall check that all cross-field consistency requirements (data integrity) are satisfied, either between attributes within the message or between an attribute in the message and one or more items of data held in the system |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.CLOACC.020.040 |
| **Name** | Check account to receive transfer of any remaining balance from account to be closed |
| **Description** | The CRDM service shall check that the request to close a cash account includes details of the account to which any remaining balance should be transferred |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.CLOACC.020.050 |
| **Name** | Check status of account to be closed |
| **Description** | The CRDM service shall check the status of the cash account to be closed to ensure that it is currently not closed |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.CLOACC.020.060 |
| **Name** | Check Valid From Date |
| **Description** | The CRDM service shall include a Valid From Date in all reference data entities.<br><br>The value indicates the business date on which the cash account will be closed. If not stated, the next current date shall be used by default.<br><br>Valid From Date must be a valid date that must be on or after the current business date. |

#### 2.8.3.3 TRIGGER ANY ACTIONS TO PREPARE CLOSING OF ACCOUNT

**Task Ref: SHRD.TR.CRDM.CLOACC.030**

After processing all validations successfully the system shall prepare to close the cash account.

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.CLOACC.030.010 |
| **Name** | Check balance of cash account to be closed and transfer any balance |
| **Description** | The CRDM service shall check the balance of the account to be closed. An account can only be closed if its balance is equal to zero. Therefore, any remaining balance on the account shall be transferred to the account identified in the request to close the account. |

### 2.8.3.4 CLOSE ACCOUNT AND UPDATE ANY IMPACTED DATA

**Task Ref: SHRD.TR.CRDM.CLOACC.040**

The account will be closed, so that no processing can be performed on the cash account any longer. Additionally, further actions required due to the closure have to be triggered.

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.CLOACC.040.010 |
| **Name** | Deletion of standing orders |
| **Description** | The CRDM service shall ensure that all corresponding standing orders related to the account to be closed are deleted |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.CLOACC.040.020 |
| **Name** | Setting credit line to zero |
| **Description** | The CRDM service shall set the credit line of the closed Main Cash Account to zero. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.CLOACC.040.030 |
| **Name** | Retain reference data for closed cash account |
| **Description** | The CRDM service shall ensure that no reference data relating to the closed cash account shall be deleted from the system. This will allow the cash account to be reopened if required at a later point in time, using the Amend process on the cash account and the Create process to set up the standing orders again. |

## 2.9 DIRECTORY SERVICE

**Business Process Ref: SHRD.BP.CRDM.DIR**

### 2.9.1 Process Overview

**Process goal:**

[Brief description of the end-to-end business process. Describe the main purpose of the process and what the various outcomes could be.]

**Process context:**

- [Describe the context within which the process would be used]

**Pre-conditions:**

- [Describe any pre-conditions]

**Time constraints:**

-

**Expected results:**

-

**Triggers:**

-

**Sub-processes:**

-

### 2.9.2 User Requirements

| Id | SHRD.UR.CRDM.DIR.010 |
|---|---|
| Name | Service-specific population of directories |
| Description | The CRDM shall build up directories for the services. The content of each directory shall only contain all parties reachable via the service, identified by its BIC11. |

Each service might require its own set of data to be published to the parties. The CRDM's function is to provide the data needed in the services to the parties subscribed to the service. The directories shall be limited to the reachable parties of the service, e.g. TIPS-parties shall not see a list of RTGS-parties in the TIPS-directory.

Every party reachable via the service will be published in the directory, which means, there won't be unpublished BICs.

| Id | SHRD.UR.CRDM.DIR.020 |
|---|---|
| Name | Application of wildcard rules |
| Description | The CRDM shall enrich service-specific data containing wildcard rules with the data of the SWIFT BIC directory for the building of the directories. |

The wildcard rules, as specified for the TARGET2 directory today, shall be kept. This Requirement will be further specified in the later versions and is kept very generic at this point.

| Id | SHRD.UR.CRDM.DIR.030 |
|---|---|
| Name | Service-specific distribution of directories |
| Description | The CRDM shall distribute the directories to the parties of the service. The directories shall be available in both, push and pull mode. Also, it shall be possible to retrieve a full copy of the directories upon request. |

It is up to the chosen delivery method whether the data is distributed in delta mode or full mode. This shall depend on the underlying technique. The directories shall be distributed only to the reachable parties of a service.

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.DIR.040 |
| **Name** | Frequency of directory distribution |
| **Description** | The CRDM shall distribute a directory update whenever there are changes to the directory. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.DIR.050 |
| **Name** | Structure of the TIPS directory |
| **Description** | The CRDM shall provide the TIPS directory according to the following structure: |

| Field name | Note |
|---|---|
| BIC | Participant's BIC |
| Institution Name | Participant's company name |
| Type of Change | A: added<br>M: modified<br>D: deleted<br>U: unchanged |
| Valid From | Business day from which the entry is valid |
| Valid To | Business day up to which the entry is valid |
| Reserve | Space |

| Id | SHRD.UR.CRDM.DIR.060 |
|---|---|
| Name | Structure of the RTGS directory |
| Description | The CRDM shall provide the RTGS directory according to the following structure: |

| Field name | Note |
|---|---|
| BIC | Participant's BIC |
| Institution Name | Participant's company name |
| Type of Change | A: added<br>M: modified<br>D: deleted<br>U: unchanged |
| Valid From | Business day from which the entry is valid |
| Valid To | Business day up to which the entry is valid |
| Participation type | 01 - "Direct"<br>02 - "Indirect"<br>03 - multi addressee - Credit institutions<br>04 - multi addressee - Branch of Direct participant<br>05 - addressable BIC – Correspondent (including CB customer),<br>06 - addressable BIC - Branch of Direct participant<br>07 - addressable BIC - Branch of Indirect participant<br>08 - addressable BIC - Branch of correspondent |
| Reserve | Space |

**Note:** The RTGS-Directory will not be part of the prototype.

## 2.10 COMMON REFERENCE DATA MANAGEMENT – NON-FUNCTIONAL REQUIREMENTS

### 2.10.1 Availability

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.NFR.010 |
| **Name** | System Opening Hours |
| **Description** | The CRDM shall be opened from 02:30 to 00:30 AM on business days. On weekends and TARGET2-closing days the CLM will be opened from 15:00 to 17:00. |

This requirement specifies a general availability of 22/5 for CRDM. Additionally an opening window is foreseen to support CLM and RTGS functions on TARGET closing days. This window should at least be between 15:00 and 17:00.

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.NFR.020 |
| **Name** | Unplanned Downtime |
| **Description** | Unplanned downtime, calculated on a quarterly basis, shall not exceed xxxx hours, equivalent to an availability of xxxx%. |

The CRDM may be subject to incidents or failures, which may cause a temporary and unforeseen interruption of the service. Regardless of the total number of such unplanned interruptions, the overall amount of service unavailability time calculated on a quarterly basis shall not exceed xxxx hours.

### 2.10.2 Disaster Recovery

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.NFR.030 |
| **Name** | Recovery Point Objective |
| **Description** | The CRDM shall ensure a recovery point objective value of zero in case of site failures. In case of a loss of a complete region the RPO shall not exceed xxxx minutes. |

The recovery point objective (RPO) is a point of consistency to which a user wants to recover or restart the service. It is measured as the amount of time between the moment when the point of consistency was created and the moment when the failure occurred.

The CRDM ensures synchronous point of consistency creations and, as a consequence, no data loss in case of failures, unless the service can't be restarted in the same region and a failover to the backup-region has to be conducted. In this case a data loss of xxxx minutes will be tolerated.

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.NFR.040 |
| **Name** | Recovery Time Objective |
| **Description** | The CRDM shall have a RTO according to the requirements of the connected services. |

The recovery time objective (RTO) is the maximum amount of time required for recovery or restart of the service to a specified point of consistency. In case of a site failure, CRDM shall ensure a maximum time of unavailability of xxxx hours starting from the time when the decision to restart the service is made up to the time the service is restored. In case of a major failure or a regional disaster, CRDM shall ensure maximum time of unavailability xxxx hours starting from the time when the decision to restart the service is made up to the time the service is restored.

### 2.10.3 Performance Requirements

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.NFR.050 |
| **Name** | Response Time for CRDM updates |
| **Description** | The CRDM shall have completed updates of Common Reference Data within xxxx minutes for xxxx% of the updates. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.NFR.060 |
| **Name** | Peak workload |
| **Description** | The CRDM shall be able to handle a maximum of xxxx updates per second. The peak workload has to be endured for xxxx hours. |

# 3 BUSINESS DAY (BD)

## 3.1 OVERVIEW

### 3.1.1 Context Diagram

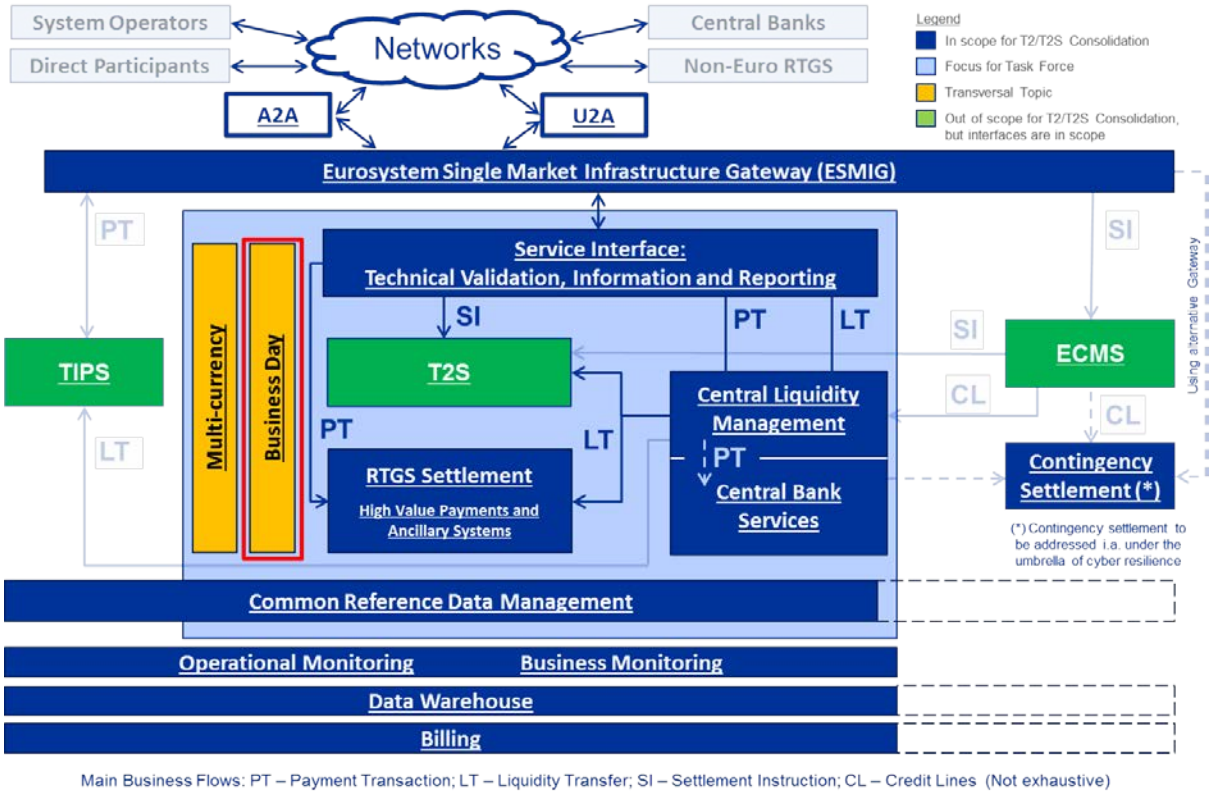



**Figure 3: Context diagram for Business Day**

### 3.1.2 Business Processes

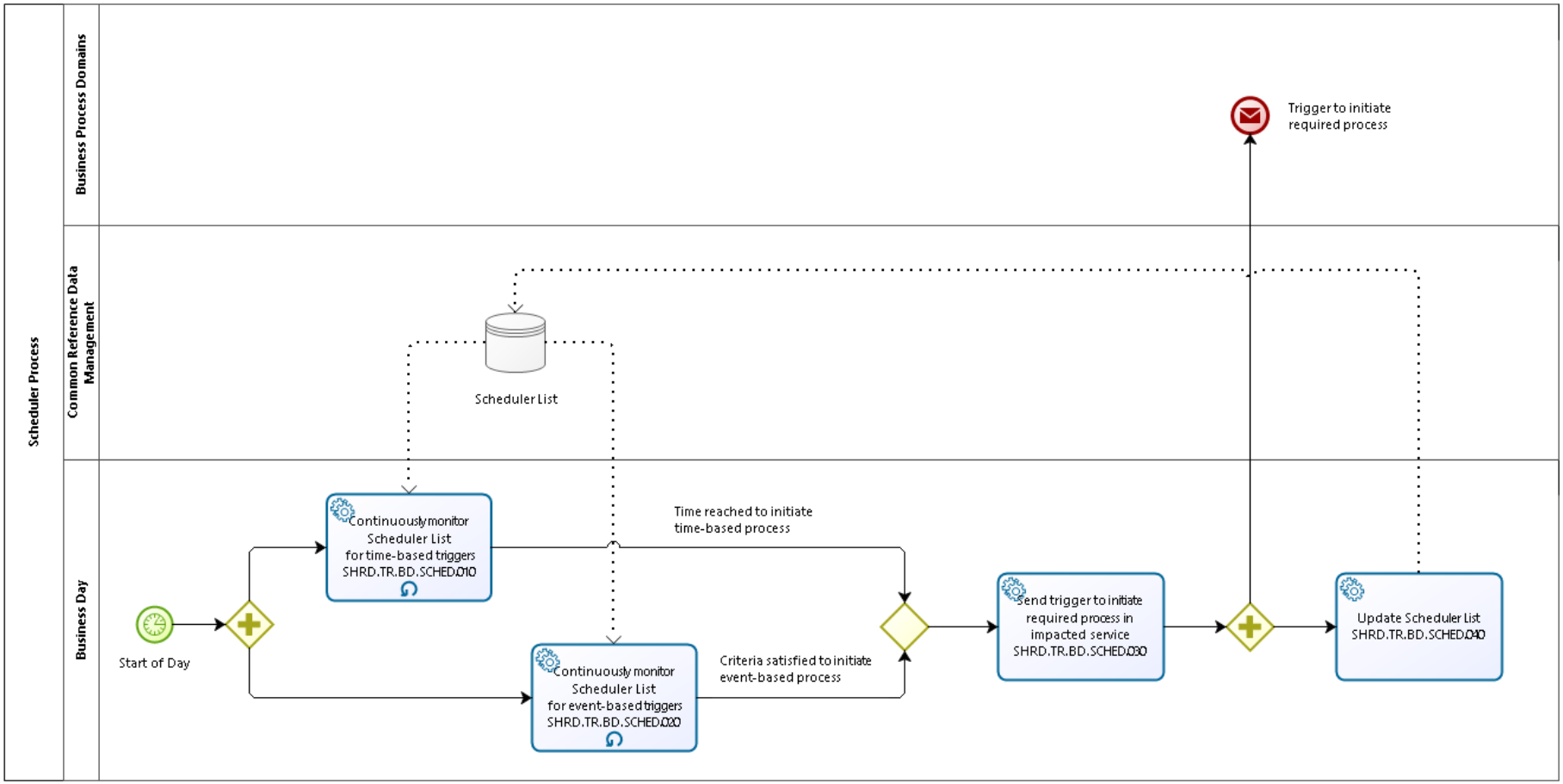
| Business Process | BP Reference | Business Process Description |
|---|---|---|
| Scheduler Process | SHRD.BP.BD.SCHED | Process to initiate processes within any Business Domain that need to be performed either at a scheduled date/time or when specified criteria occur |
| End of Day/Start of Day Process | SHRD.BP.BD.EODSOD | Processes performed at the End of Day and the following Start of Day |

**Table 2: Business Processes for Business Day**

## 3.2 SCHEDULER PROCESS

**Business Process Ref: SHRD.BP.BD.SCHED**

### 3.2.1 Business Process Model




**Business Process Model 7: Scheduler Process**

### 3.2.2 Process Overview

The purpose of the scheduler is to initiate processes in the new RTGS services, CLM or other services. This is achieved by recognising the trigger events associated with the processes and then sending triggers to the services to start these required processes. The trigger events can be either time-based or event-based, such as the receipt of a file or message or the completion of another process. Processes may be triggered on a repeating basis, or as one-off requests.

The details of each process to be initiated, and the criteria that define when this should happen, will be created and maintained using Reference Data Management (RDM) in a Scheduler List.

The Scheduler Process will constantly monitor the Scheduler List in order to recognise when the time has been reached to initiate a defined process or the defined criteria are satisfied. A trigger will then be sent immediately to the appropriate service for the required process to be initiated within that service.

A list of potential processes to be initiated by the scheduler may include:

- Generation of reports
- Generation of Standing Orders based on definitions in Reference Data Management
- Sending information to the participants (e.g. information about change of business day)
- Management of events related to the business day schedule

### 3.2.3 User Requirements

#### 3.2.3.1 General User Requirements for this Business Process

| | |
|---|---|
| **Id** | SHRD.UR.BD.SCHED.000.010 |
| **Name** | Scheduler - Maintain scheduler list |
| **Description** | The Scheduler shall maintain the scheduler list and initiate a defined process based on a pre-defined set of conditions (trigger events) as soon as these are met. |

| | |
|---|---|
| **Id** | SHRD.UR.BD.SCHED.000.020 |
| **Name** | Scheduler - Time-based trigger |
| **Description** | The scheduler shall generate a time-based trigger as soon as a pre-defined set of conditions based on CET time are met to initiate a specific process within RTGS, CLM or other services. |

| | |
|---|---|
| **Id** | SHRD.UR.BD.SCHED.000.030 |
| **Name** | Scheduler - Event-based trigger |
| **Description** | The scheduler shall generate an event-based trigger as soon as a pre-defined set of conditions are met to initiate a specific process within RTGS, CLM or other services. |

| | |
|---|---|
| **Id** | SHRD.UR.BD.SCHED.000.040 |
| **Name** | Scheduler - Update of Scheduler List |
| **Description** | The scheduler shall mark the request in the Scheduler List as having been executed once the trigger to initiate the required process has been sent the process, including the date and time that the trigger was sent. This does not imply that the initiated process has completed. |

| | |
|---|---|
| **Id** | SHRD.UR.BD.SCHED.000.050 |
| **Name** | Scheduler - Change of business day |
| **Description** | The Scheduler shall allow different timing for the change of business day per service but prevent liquidity transfers between services in the period when one service is already on the new business day and for the others the End of Day processing is ongoing (i.e. TIPS shortly after 18:00 after closure of RTGS and the other services at 18:45 when End of Day processing was done). |

#### 3.2.3.2 CONTINUOUSLY MONITOR SCHEDULER LIST FOR TIME-BASED TRIGGERS

**Task Ref: SHRD.TR.BD.SCHED.010**

Throughout the day all unexecuted time-based process requests in the Scheduler List are monitored. As soon as the time indicated in the process request is reached, the process will be initiated.

#### 3.2.3.3 CONTINUOUSLY MONITOR SCHEDULER LIST FOR EVENT-BASED TRIGGERS

**Task Ref: SHRD.TR.BD.SCHED.020**

Throughout the day all unexecuted event-based process requests in the Scheduler List are monitored. As soon as the criteria stated in the process request are satisfied, the process will be initiated.

#### 3.2.3.4 SEND TRIGGER TO INITIATE REQUIRED PROCESS IN IMPACTED SERVICE

**Task Ref: SHRD.TR.BD.SCHED.030**

For each process requests in the Scheduler List a trigger is sent to the impacted service to initiate the required process.

#### 3.2.3.5 UPDATE SCHEDULER LIST

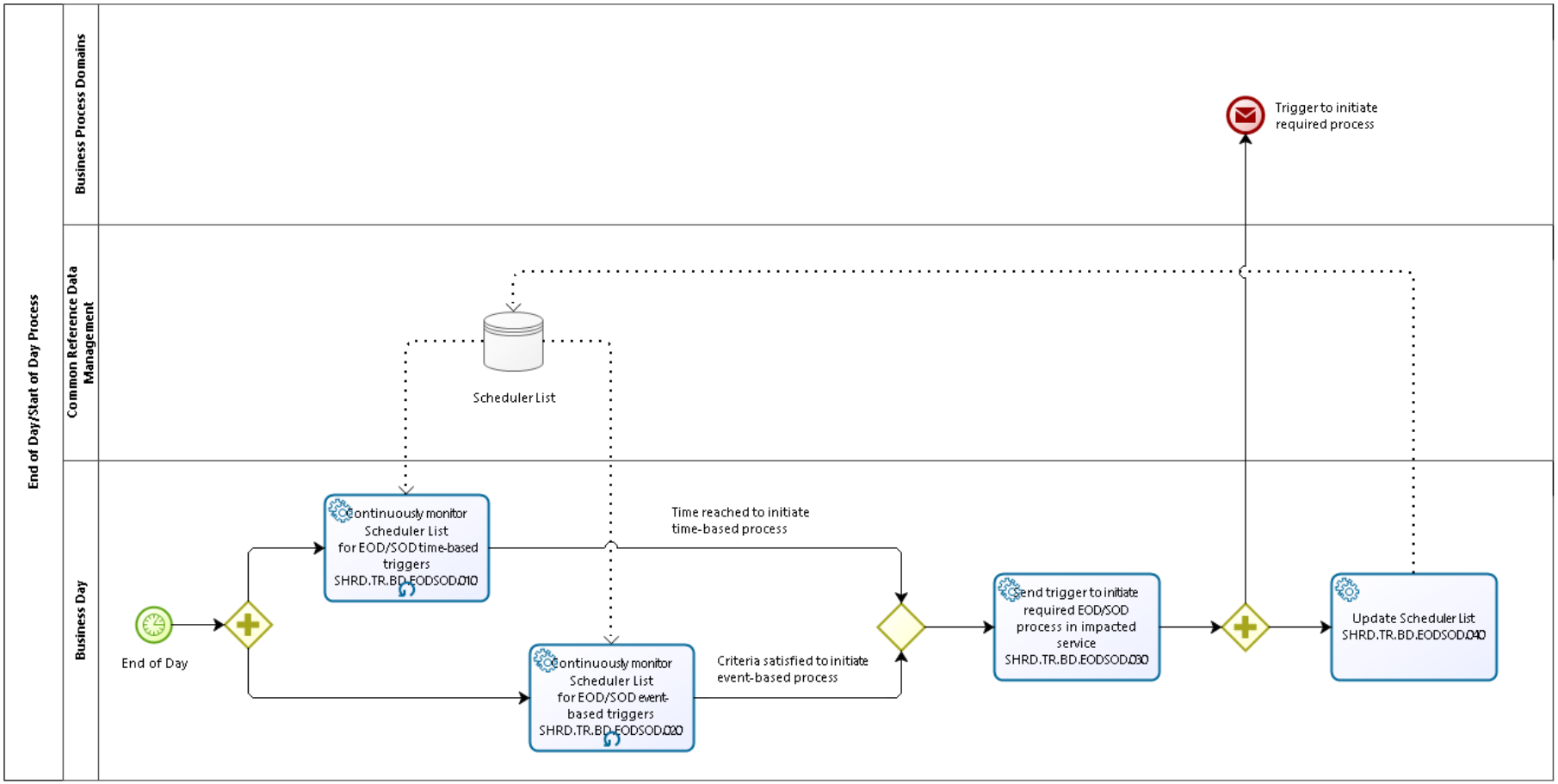
**Task Ref: SHRD.TR.BD.SCHED.040**

Once the trigger to initiate the required process has been sent the process request in the Scheduler List is marked as having been executed, including the date and time that the trigger was sent.

## 3.3 END OF DAY/START OF DAY PROCESS

**Business Process Ref: SHRD.BP.BD.EODSOD**

### 3.3.1 Business Process Model




**Business Process Model 8: End of Day/Start of Day Process**

### 3.3.2 Process Overview

The End of Day/Start of Day process (EoD/SoD) describes the tasks to be performed by the Future RTGS Services during this period of the business day schedule including the change of business day. During End of Day the closure of the current business day is performed while during Start of Day the technical preparation of the new business day takes place.

The End of Day and Start of Day periods are initiated by the scheduler via time or event based triggers.

The tasks to be performed may include sending requests or notifications to one or more other services, such as TIPS or ECMS, for tasks to be performed within those services and/or for information to be provided to the Future RTGS Services.

List of potential tasks during End of Day:

- Closure for liquidity transfers for all services (i.e. RTGS,CLM, T2S, TIPS)
  - No new liquidity transfers will be accepted and therefore new ones will be rejected.
  - This would be the first task to be performed during End of Day.
- Closure of RTGS
  - Inform all services (i.e. RTGS, CLM, T2S, TIPS) about the closure of RTGS.
- Rejection of pending payments
  - Pending payments not executed during the current business day will be rejected.
- Rejection of pending verifications related to payments (four-eyes principle)
  - Pending verifications for creations, amendments or deletions in four-eyes principle related to payments will be rejected.
- Collection of End of Day balances from each service
  - Triggers are sent by the scheduler to all services to send a report of End of Day balances directly to the Central Bank Services (CBS). [1]
- End of Day reporting
  - Triggers are sent by the scheduler to build the reports scheduled for End of Day.
- Change of settlement date
  - Close the current business day and open the next business day.
  - This would be the last task to be performed during End of Day.

[1] The minimum reserve is calculated by a process within CBS when all balances are available. CBS also summarises all bilateral credits and bilateral debits between CBs and then books them on the NCB's ECB account of each CB.

List of potential tasks during Start of Day:

- Receiving of reference data from Reference Data Management Function.

### 3.3.3 User Requirements

#### 3.3.3.1 General User Requirements for this Business Process

| Id | SHRD.UR.BD.EODSOD.000.010 |
|---|---|
| Name | End of Day - Rejection of new liquidity transfers |
| Description | No new liquidity transfers will be accepted during End of Day and therefore they will be rejected with a notification to the sender/account owner with the respective reject reason code. |

| Id | SHRD.UR.BD.EODSOD.000.020 |
|---|---|
| Name | End of Day - Rejection of pending payments |
| Description | Pending payments not executed during the current business day will be rejected with a notification to the sender/account owner with the respective reject reason code. |

| Id | SHRD.UR.BD.EODSOD.000.030 |
|---|---|
| Name | End of Day - Rejection of pending payments verifications related to payments (four-eyes principle) |
| Description | Pending verifications related to payments for creations, amendments or deletions in four-eyes principle will be rejected. |

| Id | SHRD.UR.BD.EODSOD.000.040 |
|---|---|
| Name | End of Day - Information on closure of RTGS |
| Description | The scheduler shall send a trigger to each service (i.e. RTGS, CLM, T2S, TIPS) when the RTGS service is closed (driven by CLM). |

| | |
|---|---|
| **Id** | SHRD.UR.BD.EODSOD.000.050 |
| **Name** | End of Day - Triggers are sent by the scheduler for several tasks |
| **Description** | The Scheduler shall send triggers for several tasks after the closure for liquidity transfers, e.g.<br>• Requesting End of Day balances from each service to be sent to CBS<br>• Building End of Day reporting |

| | |
|---|---|
| **Id** | SHRD.UR.BD.EODSOD.000.060 |
| **Name** | End of Day - Liquidity on accounts |
| **Description** | The liquidity can remain on the accounts of the services also at the end of business day; i.e. a cash sweep only on optional basis. |

| | |
|---|---|
| **Id** | SHRD.UR.BD.EODSOD.000.070 |
| **Name** | End of Day - Collection of End of Day balances from each service |
| **Description** | The End of Day balances shall be taken at one point in time from each service.<br>The scheduler will send a trigger to each service when the RTGS service is closed (driven by CLM). |

| | |
|---|---|
| **Id** | SHRD.UR.BD.EODSOD.000.080 |
| **Name** | End of Day - Change of settlement date |
| **Description** | When all tasks of End of Day are initiated and certain tasks (including the tasks executed by CBS) have been completed, the current business day will be closed and the next business day opened.<br>The scheduler will initiate the change of settlement date when the defined criteria are satisfied. |

| | |
|---|---|
| **Id** | SHRD.UR.BD.EODSOD.000.090 |
| **Name** | End of Day - Same value date for all services |
| **Description** | All services shall use the same value date. |

| | |
|---|---|
| **Id** | SHRD.UR.BD.EODSOD.000.100 |
| **Name** | Start of Day - Performance of several tasks |
| **Description** | During Start of Day several tasks triggered by the scheduler are performed, e.g.<br>• Receiving of reference data from Reference Data Management Function |

| | |
|---|---|
| **Id** | SHRD.UR.BD.EODSOD.000.110 |
| **Name** | Start of Day - Point in time |
| **Description** | The Start of Day may deviate for the different services. |

#### 3.3.3.2 CONTINUOUSLY MONITOR SCHEDULER LIST FOR EOD/SOD TIME-BASED TRIGGERS

**Task Ref: SHRD.TR.BD.EODSOD.010**

As soon as the time for the End of Day is reached the scheduler initiates all time-based processes.

As soon as the time for the Start of Day is reached the scheduler initiates all time-based processes.

#### 3.3.3.3 CONTINUOUSLY MONITOR SCHEDULER LIST FOR EOD/SOD EVENT-BASED TRIGGERS

**Task Ref: SHRD.TR.BD.EODSOD.020**

As soon as the closure of liquidity transfers has been performed and the usage of standing facilities has been done, the scheduler initiates all event-based process e.g. End of Day reporting and requests to send End of Day balances from each service to CBS.

The final task of the End of Day is the change of settlement date which will be initiated by the scheduler when all other tasks of End of Day are initiated and certain tasks (including the tasks executed by CBS) have been completed.

#### 3.3.3.4 SEND TRIGGER TO INITIATE REQUIRED EOD/SOD PROCESS IN IMPACTED SERVICE

**Task Ref: SHRD.TR.BD.EODSOD.030**

For each process request in the Scheduler List a trigger is sent to the impacted service to initiate the required process.

### 3.3.3.5 UPDATE SCHEDULER LIST

**Task Ref: SHRD.TR.BD.EODSOD.040**

Once the trigger to initiate the required process has been sent the process request in the Scheduler List is marked as having been executed, including the date and time that the trigger was sent.

## 3.4 AVAILABILITY OF SERVICES

This section describes the availability of the new RTGS services (i.e. HPV, AS, CLM/CBS, RDM) and the relationship between all services (i.e. HPV, AS, CLM/CBS, RDM, T2S, TIPS, ECMS).

### 3.4.1 Business day schedule

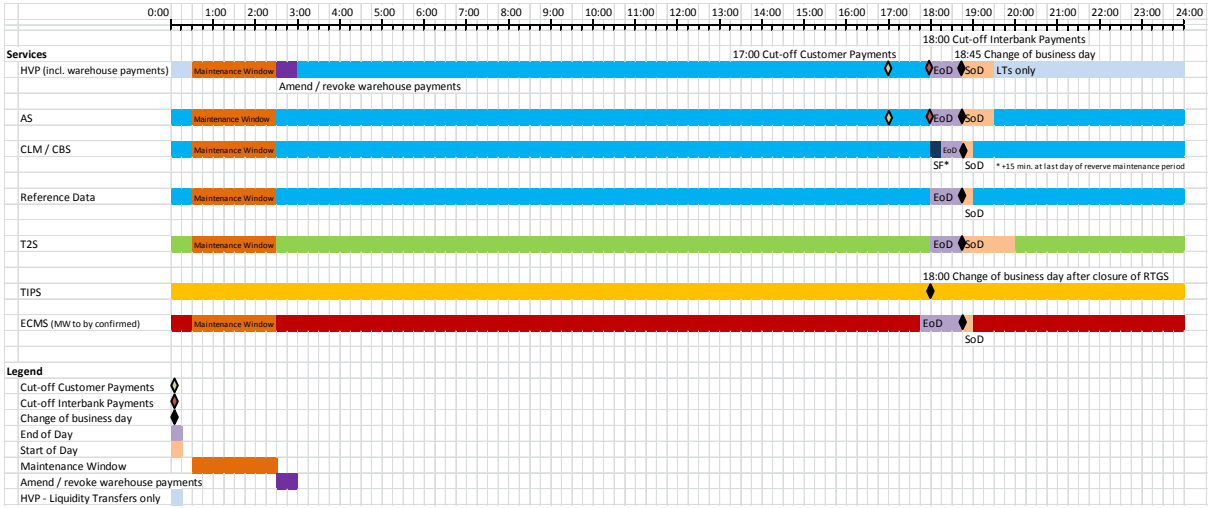



**Figure 4: Business day schedule**

### 3.4.2 User Requirements

#### 3.4.2.1 GENERAL USER REQUIREMENTS FOR THE AVAILABILITY OF THE SERVICES

| Id | SHRD.UR.BD.OPER.000.010 |
|---|---|
| Name | De-coupling of services |
| Description | The different services (i.e. HPV, AS, CLM/CBS, RDM, T2S, TIPS, ECMS) shall be de-coupled in terms of availability. |

| Id | SHRD.UR.BD.OPER.000.020 |
|---|---|
| Name | Maintenance window |
| Description | The point in time of the maintenance window (if used) shall be aligned for all services (i.e. HPV, AS, CLM/CBS, RDM, T2S, TIPS, ECMS). It shall start at 0:30 a.m. and end at 2:30 a.m. |

### 3.4.2.2 USER REQUIREMENTS FOR THE DIFFERENT SERVICES

**RTGS service (HVP and AS):**

| Id | SHRD.UR.BD.OPER.000.030 |
|---|---|
| Name | HVP service - Availability |
| Description | The HVP service shall be operating from 3:00 a.m. till 6:00 p.m.<br><br>It shall be closed for payment orders between 7:30 p.m. and 0:30 a.m. but liquidity transfer orders can be performed.<br><br>It will be closed on weekends, i.e. Maintenance window from Saturday starting at 0:30 a.m. till Monday 2:30 a.m. with business date Monday |

| Id | SHRD.UR.BD.OPER.000.040 |
|---|---|
| Name | HVP service - Cut-offs |
| Description | For the HVP service the following cut-offs shall take place:<br><br>• Cut-off Customer Payments at 5 p.m.<br>• Cut-off Interbank Payments at 6 p.m. |

| Id | SHRD.UR.BD.OPER.000.050 |
|---|---|
| Name | Maintenance of warehoused payments |
| Description | Warehoused payments can be maintained 30 minutes before the opening of the HVP service i.e. from 2:30 a.m. till 3:00 a.m. |

| Id | SHRD.UR.BD.OPER.000.060 |
|---|---|
| Name | Settlement of warehoused payments |
| Description | Warehoused payments shall be queued for settlement at the time of opening of the HPV service, unless the payment instruction includes FROM time. |

| Id | SHRD.UR.BD.OPER.000.070 |
|---|---|
| Name | AS service - Availability |
| Description | The AS service shall be operating from 7:30 p.m. till 6:00 p.m. (except during Maintenance Window).<br><br>It will be closed on weekends, i.e. Maintenance window from Saturday starting at 0:30 a.m. till Monday 2:30 a.m. with business date Monday |

| Id | SHRD.UR.BD.OPER.000.080 |
|---|---|
| Name | AS service - Cut-offs |
| Description | For the AS service the following cut-offs shall take place:<br><br>• Cut-off Customer Payments at 5 p.m.<br>• Cut-off Interbank Payments at 6 p.m. |

| Id | SHRD.UR.BD.OPER.000.090 |
|---|---|
| Name | RTGS service - Usage of accounts |
| Description | There is the possibility to use the same account for HVP and AS; a technical solution shall be put in place to respect the different service hours of the services. |

| Id | SHRD.UR.BD.OPER.000.100 |
|---|---|
| Name | AS service - Settlement procedures |
| Description | For the AS service there will be no differentiation between Day Trade Phase and Night Time Settlement. All offered settlement procedures are available during the operational hours of the service, i.e. as well during the night. |

**CLM/CBS:**

| | |
|---|---|
| **Id** | SHRD.UR.BD.OPER.000.110 |
| **Name** | CLM service - Availability |
| **Description** | The CLM service shall be operating from 7:30 p.m. till 6:00 p.m. (except during Maintenance Window).<br><br>It will be opened on weekends and other closing days (at least for a time slot). |

| | |
|---|---|
| **Id** | SHRD.UR.BD.OPER.000.115 |
| **Name** | CLM service - Cut-offs |
| **Description** | For the CLM service the following cut-offs shall take place:<br><br>• Cut-off Standing Facilities take place 15 minutes after start of End of Day (+15 minutes at last day of reserve maintenance period). |

**CRDM:**

| | |
|---|---|
| **Id** | SHRD.UR.BD.OPER.000.120 |
| **Name** | RDMAS service - Availability |
| **Description** | The RDM service shall be operating from 7:00 p.m. till 6:00 p.m. (except during Maintenance Window).<br><br>It will be closed on weekends following the operational hours of the RTGS service. |

# 4 USER ROLES AND ACCESS (URA)

## 4.1 OVERVIEW

This section describes the processing of the *Two-Eyes* and *Four-Eyes* principal. For accessing the service via U2A or A2A a user has to be created first. While setting up a user, a pre-defined role has to be assigned to it. The descriptions of the available roles with its list of privileges as well as the setup and maintenance of the roles are part of the Reference Data Management and will be described in the respective section. In addition to this definition, roles can be created following either the two- or the four-eyes principle. The assigned principle will be applied to each action by this user which is updating data.

### 4.1.1 Business Processes

| Business Process | BP Reference | Business Process Description |
|---|---|---|
| Two-Eyes Approval | RTGS.BP.URA.2EYE | Update transactions that can be performed by only one user |
| Four-Eyes Approval | RTGS.BP.URA.4EYE | Update transactions that have to be performed by a first user and confirmed by a second user. |

**Table 3: Business Processes for User Roles and Access**

### 4.1.2 General User Requirements for this Business Process Domain

| | |
|---|---|
| **Id** | RTGS.UR.URA.ALL.000.010 |
| **Name** | Validation of user role characteristic |
| **Description** | For U2A user roles the two-eyes or four-eyes principle can be assigned. |

## 4.2 TWO-EYES APPROVAL

**Business Process Ref: RTGS.BP.URA.2EYE**

This business process describes the processing of the two-eyes principle. If the two-eyes principle was assigned to a user role and the user creates new data, amends or deletes existing data there is no need for verification by another user.

For specific functionalities (e.g. the current execution of backup payments) the possibility to override the assigned two-eyes principle with the four-eyes principle should be possible.

For read only transactions only the two eyes principle will be applied.

### 4.2.1 User Requirements

| | |
|---|---|
| **Id** | RTGS.UR.URA.2EYE.000.010 |
| **Name** | Two-eyes principle |
| **Description** | If the two-eyes principle was assigned to a user role and the user creates new data, amends or deletes existing data there is no need for verification by another user. |

| | |
|---|---|
| **Id** | RTGS.UR.URA.2EYE.000.020 |
| **Name** | Two-eyes principle - Possibility of overriding |
| **Description** | If the two-eyes principle was assigned to a user role there should be the possibility to override the assigned two-eyes principle for specific functionalities with the four-eyes principle. |

## 4.3 FOUR-EYES APPROVAL

**Business Process Ref: RTGS.BP.URA.4EYE**

This business process describes the processing of the four-eyes principle. If the four-eyes principle was assigned to a user role and the user creates new data, amends or deletes existing data there is a need for verification by another user. This second user can have a user role with two- or four-eyes principle.

No four-eyes principle is foreseen for A2A. It will be the responsibility of the application sending the update in A2A mode to ensure that all appropriate security and access checks have been made prior to sending the request.

A user with a user role to which the four-eyes principle was assigned has created new data, amended or deleted existing data. Therefore, a second step for this update is required by another user to approve the change.

This user can perform the following actions:

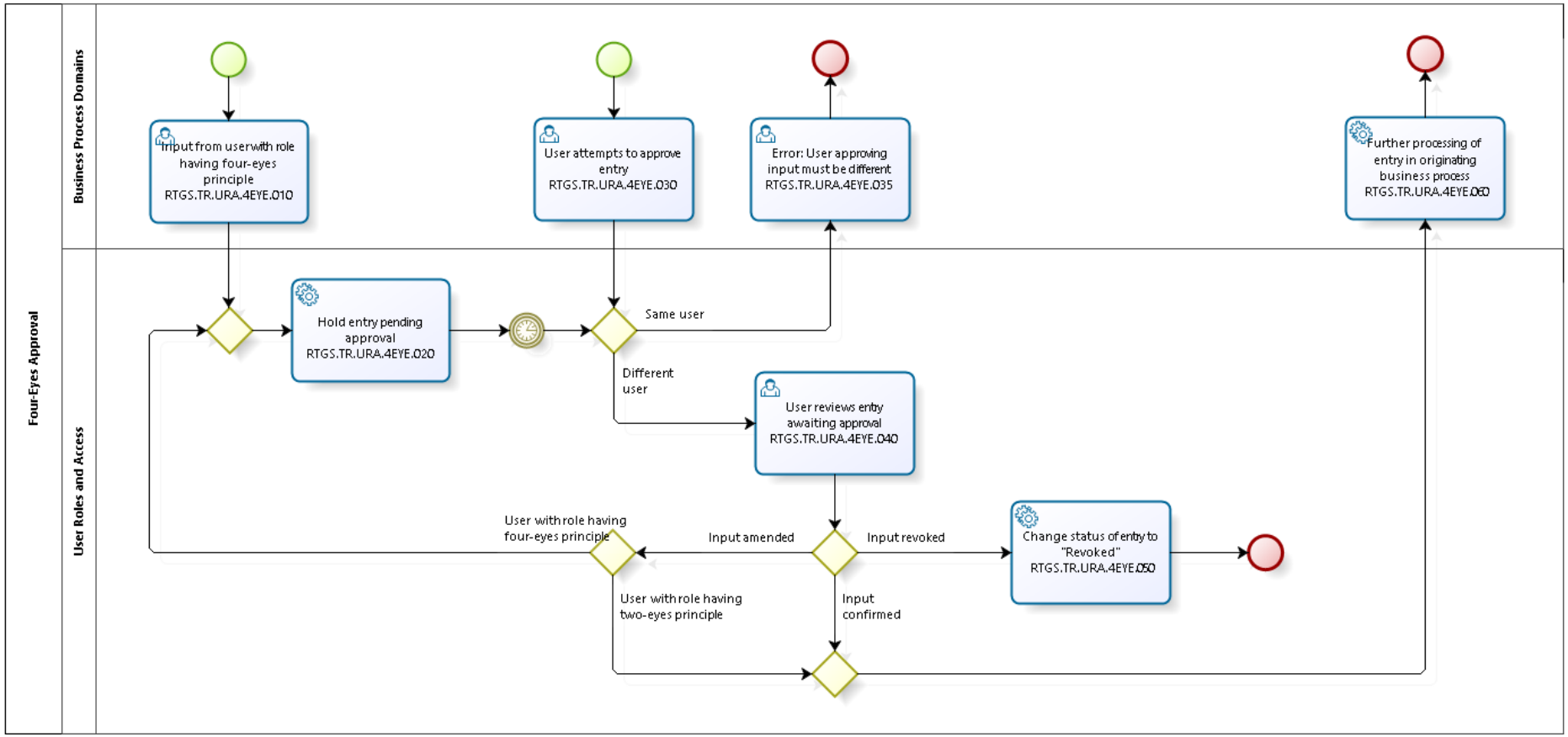
- Confirm: The update is confirmed by the approval user and can therefore be processed.
- Revoke: The update is revoked by the approval user and therefore the status of the pending entry is changed to "Revoked". A revocation can be performed as well by a CB user on behalf of the affected participant independent from the user group profile of the initiator.
- Amend: If the approval user needs to amend the transaction performed by the initial user the further processing is dependent on the user role of the approval user:
  - Approval user has a user role "Two-Eyes":

    The amendment of the approval user can be processed immediately.
  - Approval user has a user role "Four-Eyes":

    The amendment of the approval user needs verification by another user different from the approval user (but could potentially be the initial user). Therefore, the amended entry will be regarded as an initial creation or amendment of data.

Pending verifications for creations, amendments or deletions in four-eyes principle related to payments will be rejected at End of Day. This does not apply to pending verifications related to Reference Data.

### 4.3.1 Business Process Model




**Business Process Model 9: Four-Eyes Approval**

### 4.3.2 User Requirements

#### 4.3.2.1 General User Requirements for this Business Process

| | |
|---|---|
| **Id** | RTGS.UR.URA.4EYE.000.010 |
| **Name** | Information on open tasks for verification |
| **Description** | Information on open tasks for verification by another user has to be available for the initiator of the transaction but also for the CB. |

| | |
|---|---|
| **Id** | RTGS.UR.URA.4EYE.000.020 |
| **Name** | Four-eyes principle - Check of different users |
| **Description** | For a user with a user role to which the four-eyes principle was assigned it has to be checked that two different users perform the creation, amendment or deletion of data and the verification.<br><br>Note: The same user can perform for one task the creation, amendment or deletion of data and for another task the verification if it is compliant to its user role.<br><br>A user wo performed a creation, amendment or deletion of data should be allowed to revoke its own tasks. |

| | |
|---|---|
| **Id** | RTGS.UR.URA.4EYE.000.030 |
| **Name** | Four-eyes principle - Creation, amendment or deletion |
| **Description** | If a user with the user role to which the four-eyes principle was assigned creates new data, amends or deletes existing data there is a need for an additional verification by another user. |

| | |
|---|---|
| **Id** | RTGS.UR.URA.4EYE.000.040 |
| **Name** | Four-eyes principle - Verification |
| **Description** | An approval user can perform the following actions:<br>• Confirm: The update is confirmed by the approval user and can therefore be processed.<br>• Revoke: The update is revoked by the approval user and therefore the status of the pending entry is changed to revoked. A revocation can be performed as well by a CB user on behalf of the affected participant independent from the user group profile of the initiator.<br>• Amend: In case the approval user edits the transaction performed by the first user the further processing is dependent of the user role of the second user:<br>- Approval user has a user role "Two-Eyes": The amended update of the second user can immediately be processed.<br>- Approval user has a user role "Four-Eyes": The amended update of the approval user needs verification by another user. Therefore, its editing can be regarded as an initial creation or amendment of data. |

#### 4.3.2.2 INPUT FROM USER WITH ROLE HAVING FOUR-EYES PRINCIPLE

**Task Ref: RTGS.TR.URA.4EYE.010**

User creates a new transaction or data, amends or deletes an existing transaction or data.

#### 4.3.2.3 HOLD ENTRY PENDING APPROVAL

**Task Ref: RTGS.TR.URA.4EYE.020**

The creation, amendment or deletion is held pending verification from an approval user.

#### 4.3.2.4 USER ATTEMPTS TO APPROVE ENTRY

**Task Ref: RTGS.TR.URA.4EYE.030**

Another user attempts to approve the entry from the appropriate verification screen.

If the same user who made the initial entry attempts to approve the entry, the attempt will be not possible.

#### 4.3.2.5 ERROR: USER APPROVING INPUT MUST BE DIFFERENT

**Task Ref: RTGS.TR.URA.4EYE.035**

An error message is displayed on the user's screen stating that the entry cannot be approved by the same user that made the initial entry.

#### 4.3.2.6 USER REVIEWS ENTRY AWAITING APPROVAL

**Task Ref: RTGS.TR.URA.4EYE.040**

The approver reviews the entry awaiting approval.

If the entry is revoked then creation, amendment or deletion will not take place and the entry will be change status into revoked.

If the entry is confirmed then the entry will be processed within the originating process.

If the entry is amended by the approver, and the approver has only a four-eyes role then the amended entry will be held for further approval.

If the entry is amended by the approver and the approver has a two-eyes role then the amended entry will be processed within the originating process.

#### 4.3.2.7 CHANGE STATUS OF ENTRY TO "REVOKED"

**Task Ref: RTGS.TR.URA.4EYE.050**

The status of creations, amendments or deletions that are revoked by the approval user is changed to "Revoked".

#### 4.3.2.8 FURTHER PROCESSING OF ENTRY IN ORIGINATING BUSINESS PROCESS

**Task Ref: RTGS.TR.URA.4EYE.060**

Creations, amendments or deletions that are confirmed by the approval user are processed in the originating business process.

# 5 INFORMATION AND REPORTING (IR)

## 5.1 OVERVIEW

### 5.1.1 Context Diagram

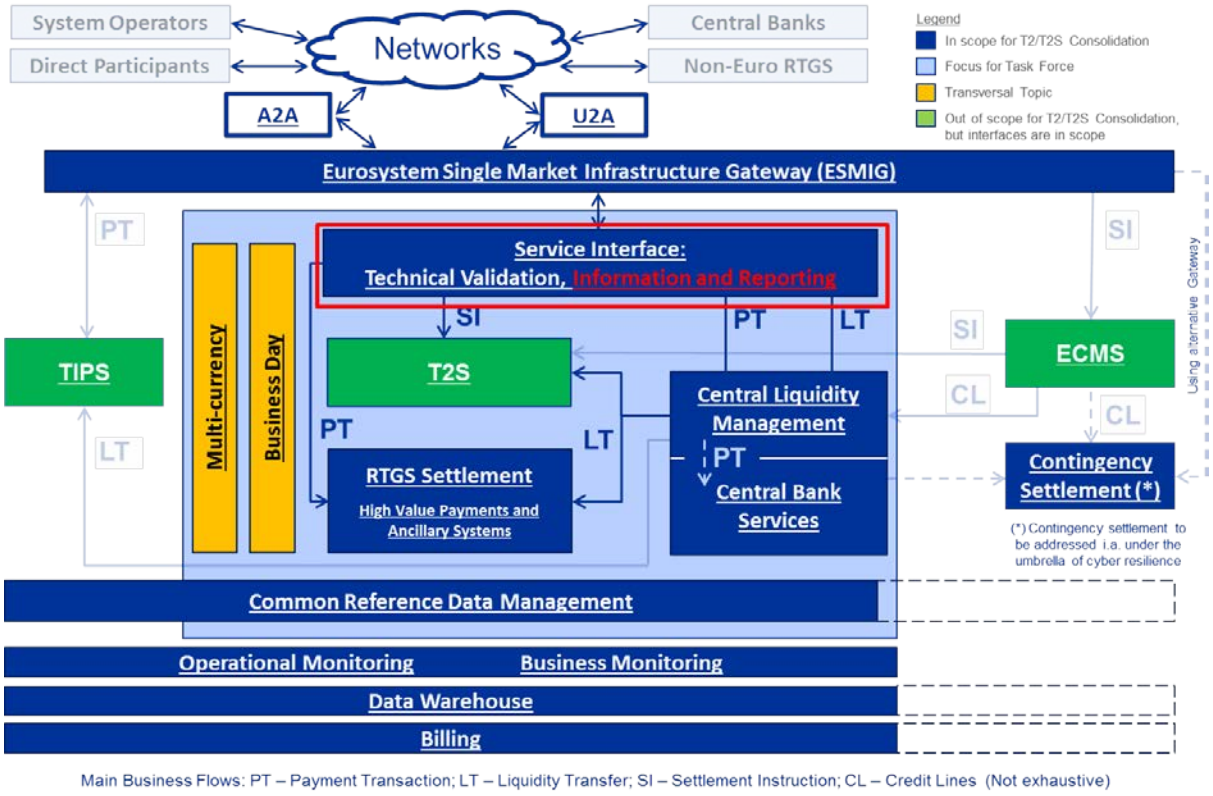



**Figure 5: Context diagram for Information and Reporting**

This section describes Information and Reporting. It includes the requirements for queries as well as reports. However, requirements related to business and operational monitoring as well as information to be stored in the data warehouse are out of scope of the processes described in this section.

### 5.1.2 Business Processes

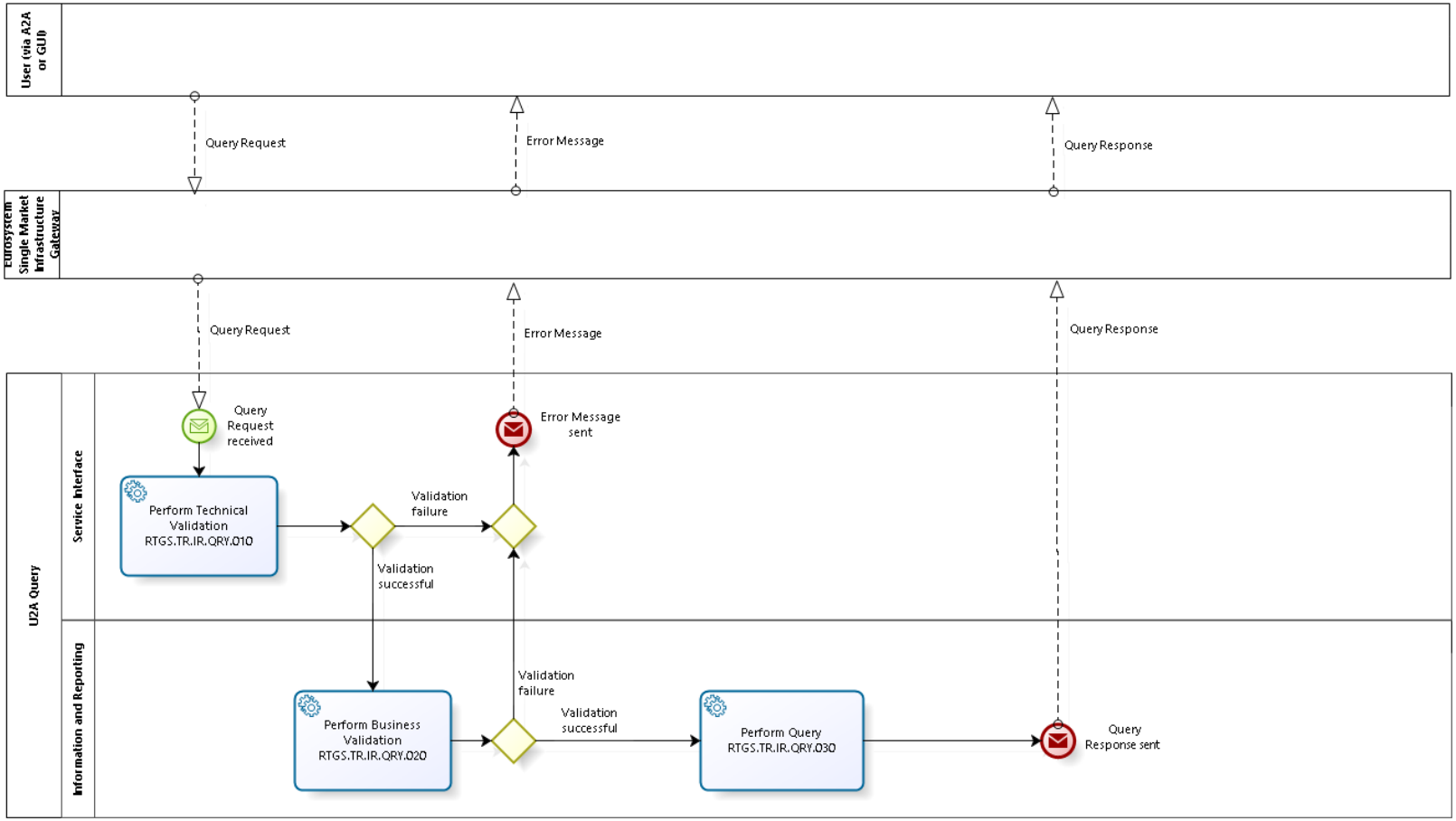
| Business Process | BP Reference | Business Process Description |
|---|---|---|
| Query | SHRD.BP.IR.QRY | User performs interactive query via the GUI |
| Produce Scheduled Report and send it via A2A | SHRD.BP.IR.SCHRPT | Reports produced on a regular basis are created and sent to all registered recipients in A2A mode |

**Table 4: Business Processes for Information and Reporting**

## 5.2 QUERY

**Business Process Ref: SHRD.BP.IR.QRY**

### 5.2.1 Business Process Model




**Business Process Model 10: Query**

### 5.2.2 Process overview

**Process goal:**

This process describes the processing of a query performed either via A2A or by a user via the GUI and the corresponding response provided by the service.

**Process context:**

- This process is the mechanism to allow a user to enquire about information held within the service.

**Pre-conditions:**

- None

**Time constraints:**

- None

**Expected results:**

- If the query content is either invalid or fails the reference data checks, it will be rejected and an error message will either be sent or displayed in the GUI. If the query content is valid and reference data checks have been passed successfully, the platform will perform the query and will send the corresponding response either A2A or to the GUI.

**Triggers:**

- The process will be initiated by A2A or a U2A query.

**Sub-processes:**

- None

## 5.2.3 User Requirements

### 5.2.3.1 PERFORM TECHNICAL VALIDATION

**Task Ref: SHRD.TR.IR.QRY.010**

When a Query is received, the service interface shall complete technical validation performing checks such as field level validation (fields have correct data type and size).

**General User Requirements**

| | |
|---|---|
| **Id** | SHRD.UR.IR.QRY.010.010 |
| **Name** | Validation of query input |
| **Description** | The query process shall validate the query input to ensure that all attributes are of the correct data type and length |

| | |
|---|---|
| **Id** | SHRD.UR.IR.QRY.010.020 |
| **Name** | Check mandatory attributes |
| **Description** | The query process shall ensure that all mandatory attributes are populated |

| | |
|---|---|
| **Id** | SHRD.UR.IR.QRY.010.030 |
| **Name** | Processing in case of passed technical validation |
| **Description** | In case of a positive result of the technical validation, the query shall be sent for further processing. |

| | |
|---|---|
| **Id** | SHRD.UR.IR.QRY.010.040 |
| **Name** | Processing in case of failed technical validation |
| **Description** | In case of a negative result of the technical validation, the rejection notification shall be displayed directly on the screen with the appropriate reason code. |

### 5.2.3.2 PERFORM BUSINESS VALIDATION

**Task Ref: SHRD.TR.IR.QRY.020**

The business validation comprises checks such as cross-field consistency checks (where the value of one field is dependent upon, or has a relationship with, the value of another field, either within the query or in the data already present in the database) and authorisation checks to ensure that the user has suitable permissions.

If the validation failed, an error message must be displayed the GUI.

| | |
|---|---|
| **Id** | SHRD.UR.IR.QRY.020.010 |
| **Name** | Authorisation check |
| **Description** | The query process shall check that only authorised users are allowed to send a query and that the user is allowed to have read access to all values of all attributes that are populated (mandatory or optional). |

| | |
|---|---|
| **Id** | SHRD.UR.IR.QRY.020.020 |
| **Name** | Business validations of the mandatory and optional attributes |
| **Description** | The query process shall check that the values of all attributes that are populated (mandatory or optional) are valid according to the allowed values or value ranges. |

| | |
|---|---|
| **Id** | SHRD.UR.IR.QRY.020.030 |
| **Name** | Check data integrity |
| **Description** | The query process shall check that all cross-field consistency requirements (data integrity) are satisfied, either between attributes within the query input or between an attribute in the query and one or more items of data held in the system. |

| | |
|---|---|
| **Id** | SHRD.UR.IR.QRY.020.040 |
| **Name** | Processing in case of failed business validation |
| **Description** | In case of a negative result of the business validation, the rejection notification shall be displayed directly on the screen. |

### 5.2.3.3 PERFORM QUERY

**Task Ref: SHRD.TR.IR.QRY.030**

After processing all validations successfully the query is performed and an adequate response is generated. The query response is either sent A2A or displayed in the GUI.

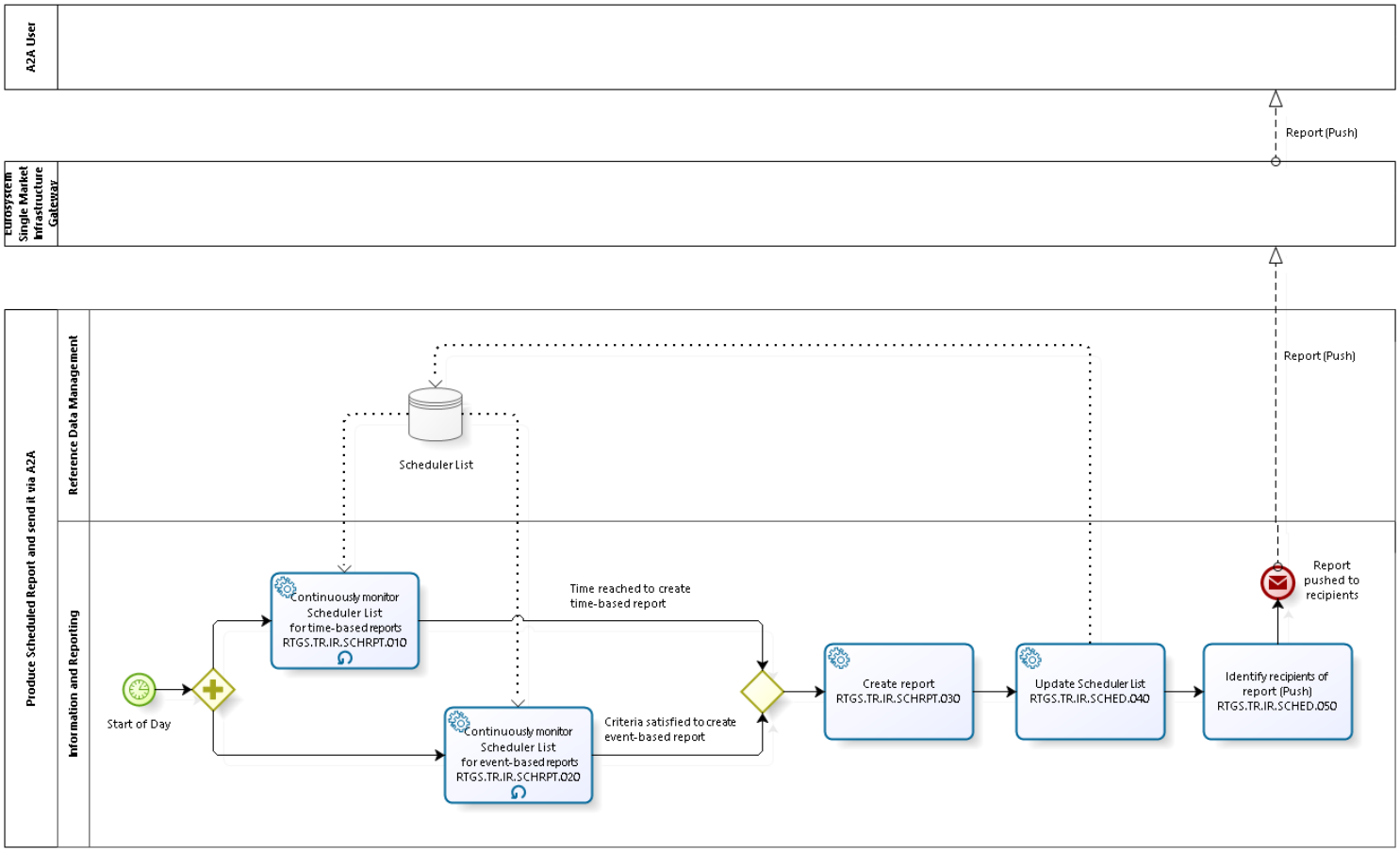
| | |
|---|---|
| **Id** | SHRD.UR.IR.QRY.030.010 |
| **Name** | Execution |
| **Description** | The query is executed. It shall take into account all criteria given by the attributes. All corresponding data are retrieved and collected from the concerning data sources. |

| | |
|---|---|
| **Id** | SHRD.UR.IR.QRY.030.020 |
| **Name** | Feedback in case of successful execution of the query |
| **Description** | The result shall be sent in the requested format either to screen or via A2A. |

## 5.3 PRODUCE AND SEND SCHEDULED REPORT A2A

**Business Process Ref: SHRD.BP.IR.SCHRPT**

### 5.3.1 Business Process Model




**Business Process Model 11: Produce and Send Scheduled Report A2A**

### 5.3.2 Process overview

**Process goal:**

This process describes the creation of reports either on a regular basis or scheduled via user a specific request entered by the user.

**Process context:**

- This process is the mechanism whereby all regular standard reports will be produced and distributed.

**Pre-conditions:**

- None

**Time constraints:**

- None

**Expected results:**

- The report will be created and sent to all registered recipients in A2A mode.

**Triggers:**

- The process will be initiated by the scheduler.

**Sub-processes:**

- None

### 5.3.3 User Requirements

#### 5.3.3.1 CONTINUOUSLY MONITOR SCHEDULER LIST FOR TIME-BASED REPORTS

**Task Ref: SHRD.TR.IR.SCHRPT.010**

| | |
|---|---|
| **Id** | SHRD.UR.IR.SCHRPT.010.010 |
| **Name** | Continuously monitor Scheduler for Time-Based Reports |
| **Description** | Throughout the day all unexecuted time-based report requests in the Scheduler List are monitored. As soon as the time indicated in the report request is reached, the creation of the time-based report will be initiated. |

#### 5.3.3.2 CONTINUOUSLY MONITOR SCHEDULER LIST FOR EVENT-BASED REPORTS

**Task Ref: SHRD.TR.IR.SCHRPT.020**

| | |
|---|---|
| **Id** | SHRD.UR.IR.SCHRPT.020.010 |
| **Name** | Continuously monitor Scheduler for Event-Based Reports |
| **Description** | Throughout the day all unexecuted event-based report requests in the Scheduler List are monitored. As soon as the criteria stated in the report request are satisfied, the creation of the event-based report will be initiated. |

#### 5.3.3.3 CREATE REPORT

**Task Ref: SHRD.TR.IR.SCHRPT.030**

| | |
|---|---|
| **Id** | SHRD.UR.IR.SCHRPT.030.010 |
| **Name** | Report creation |
| **Description** | For each report request in the Scheduler List the concerning reports are created according to the pre-defined criteria. |

#### 5.3.3.4 UPDATE SCHEDULER LIST

**Task Ref: SHRD.TR.IR.SCHRPT.040**

| | |
|---|---|
| **Id** | SHRD.UR.IR.SCHRPT.040.010 |
| **Name** | Update Scheduler list |
| **Description** | Once the report has been created, the request in the Scheduler List is marked as having been executed, including the date and time that the report was produced. |

### 5.3.3.5 IDENTIFY RECIPIENTS OF REPORT (PUSH)

**Task Ref: SHRD.TR.IR.SCHRPT.050**

| | |
|---|---|
| **Id** | SHRD.UR.IR.SCHRPT.050.010 |
| **Name** | Authorisation check for recipients |
| **Description** | The Report production process shall check that only still authorised users are to receive the reports and that the user is allowed to have read access to all values of all attributes. |

| | |
|---|---|
| **Id** | SHRD.UR.IR.SCHRPT.050.020 |
| **Name** | Report delivery |
| **Description** | The report production process will send out the report via A2A push mode or upon retrieval request to all authorised recipients via A2A. |

## 5.4 INFORMATION AND REPORTING – NON-FUNCTIONAL REQUIREMENTS

### 5.4.1 Availability

| | |
|---|---|
| **Id** | SHRD.UR.IR.NFR.010 |
| **Name** | System Opening Hours |
| **Description** | The Information and Reporting facilities shall be as available as their underlying service. |

| | |
|---|---|
| **Id** | SHRD.UR.IR.NFR.020 |
| **Name** | Unplanned Downtime |
| **Description** | The Information and Reporting facilities shall be as available as their underlying service. |

### 5.4.2 Disaster Recovery

| | |
|---|---|
| **Id** | SHRD.UR.IR.NFR.030 |
| **Name** | Recovery Time Objective |
| **Description** | The Information and Reporting shall ensure a recovery time objective value of xxxx hour in case of site failures. In case of a loss of a complete region the RTO shall not exceed xxxx hours. |

The recovery time objective (RTO) is the maximum amount of time required for recovery or restart of the service to a specified point of consistency. In case of a site failure Information and Reporting Services shall ensure maximum time of unavailability of xxxx hours starting from the time when the decision to restart the service is made up to the time the service is restored. In case of a major failure or a regional disaster the maximum time of unavailability is xxxx hours starting from the time when the decision to restart the service is made up to the time the service is restored.

### 5.4.3 Performance Requirements

| | |
|---|---|
| **Id** | SHRD.UR.IR.NFR.040 |
| **Name** | Peak Workload per second |
| **Description** | The Information and Reporting shall be able to handle an estimated peak workload of xxxx interactions per second. This peak workload has to be endured for at least xxxx hours. |

| | |
|---|---|
| **Id** | SHRD.UR.IR.NFR.050 |
| **Name** | Query Response Time |
| **Description** | The Information and Reporting shall handle simple queries with in an elapsed time of xxxx seconds for xxxx% of the interactions. For complex queries the response time shall be xxxx minutes for xxxx% of the interactions. A possibility to abort long-running queries shall be given. |

A basic query is a query to retrieve a single object (e.g. status of a transaction or for slender operational data). User interactions to retrieve complex data or large amounts of data shall be handled with the possibility of an extended response time.

# 6 DATA WAREHOUSE SERVICE (DWH)

## 6.1 OVERVIEW

### 6.1.1 Context Diagram

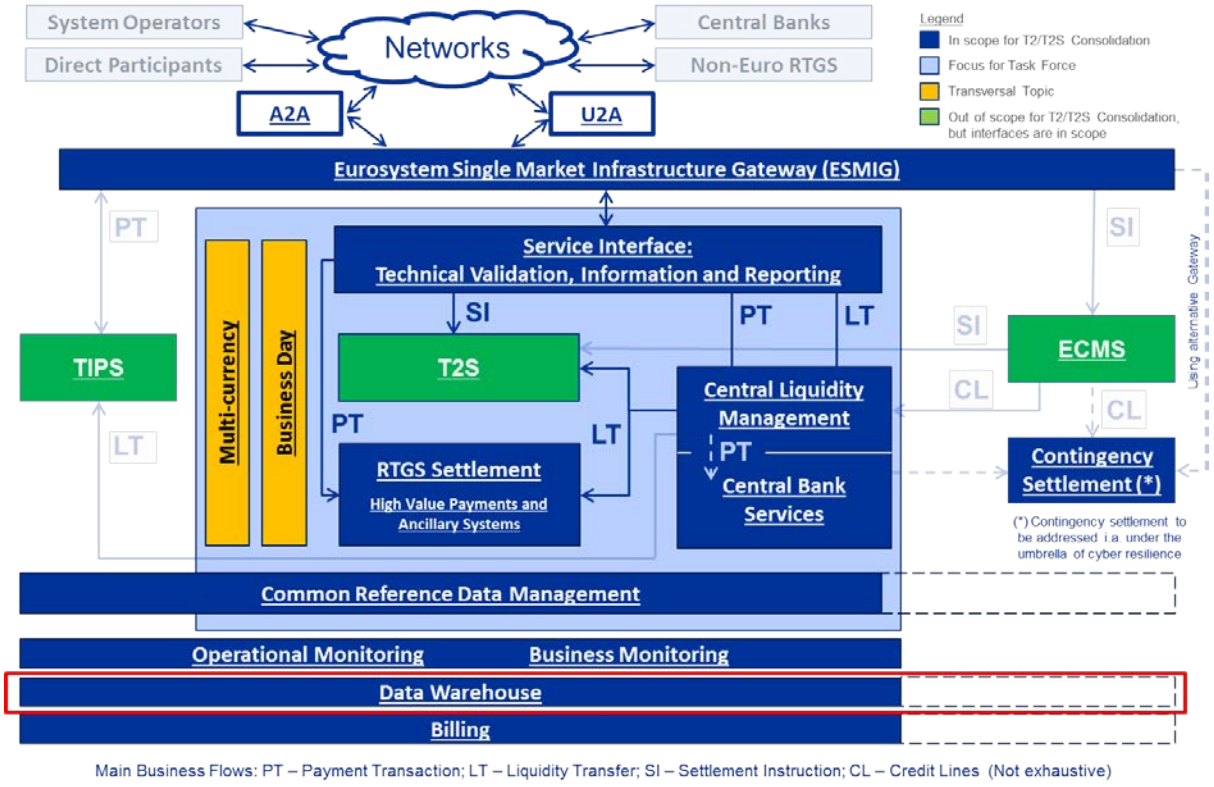



**Figure 6: Context diagram for Data Warehouse Service**

The Data Warehouse Service provides data for statistical, and regulatory reporting.

### 6.1.2 Business Processes

| Business Process Name | BP Reference | Business Process Description |
|---|---|---|
| Collect Information | SHRD.BP.DWH.COLL | Process to collect data within the various services |
| Access Information | SHRD.BP.DWH.GATH | Process to access collected information for the various needs |

**Table 5: Business Processes for Data Warehouse Service**

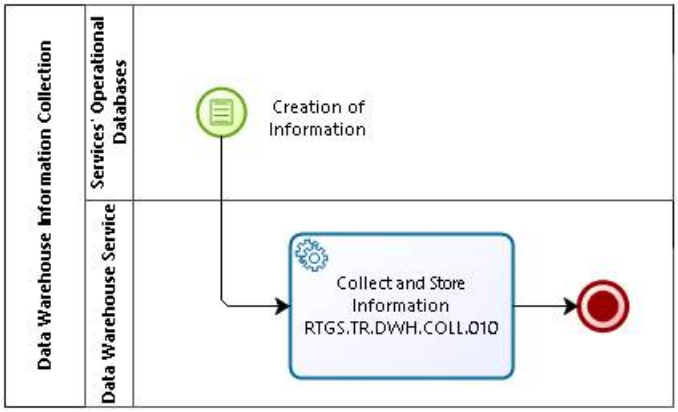
## 6.2 INFORMATION COLLECTION

**Business Process Ref: SHRD.BP.DWH.COLL**

This business process describes the collection of business related data stemming from the different services' operational databases. In general, all available business relevant information shall be reflected in the data warehouse for further analysis.

**Disclaimer:** The process flow description is not intended to pre-determine any solution, e.g. that data need to be sent to the DWH on the one hand, or sending of data to the DWH might not be needed on the other hand. That will ultimately depend on the technology chosen.

### 6.2.1 Business Process Model




**Business Process Model 12: Extract Data to DWH**

### 6.2.2 Process Overview

**Process goal:**

[Brief description of the end-to-end business process. Describe the main purpose of the process and what the various outcomes could be.]

**Process context:**

- [Describe the context within which the process would be used]

**Pre-conditions:**

- [Describe any pre-conditions]

**Time constraints:**

-

**Expected results:**

►

**Triggers:**

►

**Sub-processes:**

►

### 6.2.3 User Requirements

#### 6.2.3.1 COLLECT AND STORE INFORMATION

**Task Ref: SHRD.TR.DWH.COLL.010**

| | |
|---|---|
| **Id** | SHRD.UR.DWH.COLL.010.010 |
| **Name** | Information Collection |
| **Description** | Upon the creation of data entries the services shall provide data for the data warehouse service. |

It will be ensured on a technical level that near time information which is not yet in a final state will be mirrored in the DWHS.

| | |
|---|---|
| **Id** | SHRD.UR.DWH.COLL.010.020 |
| **Name** | Scope of collected information |
| **Description** | The scope of the information to be kept in the DWH services shall be derived from the requirements in the section of 'Information and Reporting'. |

| | |
|---|---|
| **Id** | SHRD.UR.DWH.COLL.010.030 |
| **Name** | No service degradation of data source |
| **Description** | The provision of data shall not influence the operational behaviour of the underlying data sources. |

| | |
|---|---|
| **Id** | SHRD.UR.DWH.COLL.010.040 |
| **Name** | Information age |
| **Description** | The services shall provide the data to the data warehouse in time to meet the access needs. |

This means, that if e.g. intra-day operational data is needed the DWH service is supposed to receive according data shortly (e.g. <15 min) after its generation.

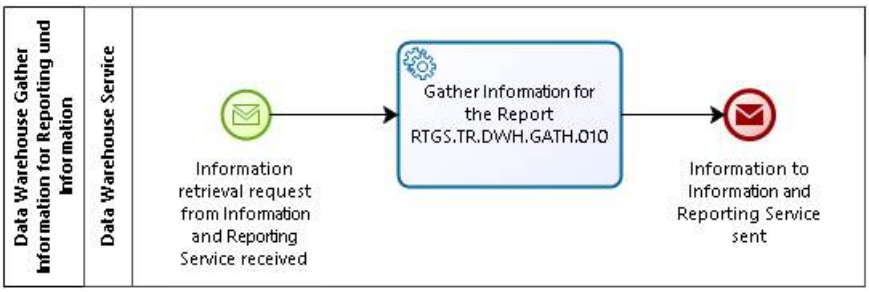
| | |
|---|---|
| **Id** | SHRD.UR.DWH.COLL.010.050 |
| **Name** | Retention period |
| **Description** | The collected information shall be kept 10 years. |

## 6.3 INFORMATION GATHERING

**Business Process Ref: SHRD.BP.DWH.GATH**

This business process describes the access to warehoused information. The data warehouse service only describes the data gathering process. Other issues as e.g. report generation, data preparation or available views will be covered in the section 'Information and Reporting'.

### 6.3.1 Business Process Model




**Business Process Model 13: Information Gathering**

### 6.3.2 Process Overview

**Process goal:**

[Brief description of the end-to-end business process. Describe the main purpose of the process and what the various outcomes could be.]

**Process context:**

- [Describe the context within which the process would be used]

**Pre-conditions:**

- [Describe any pre-conditions]

**Time constraints:**

-

**Expected results:**

-

**Triggers:**

-

**Sub-processes:**

-

### 6.3.3 User Requirements

#### 6.3.3.1 GATHER INFORMATION

**Task Ref: SHRD.TR.DWH.GATH.010**

| | |
|---|---|
| **Id** | SHRD.UR.DWH.GATH.010.010 |
| **Name** | Information Access |
| **Description** | Upon request access to the collected information shall be available to authorised users and processes. The user requirements on roles and access apply. |

| | |
|---|---|
| **Id** | SHRD.UR.DWH.GATH.010.020 |
| **Name** | Information preparation |
| **Description** | Aggregated or otherwise prepared data to accelerate result generation will be subject to the information needs in the section 'Information and Reporting'. |

| | |
|---|---|
| **Id** | SHRD.UR.DWH.GATH.010.030 |
| **Name** | Information display |
| **Description** | The display of information will be depicted in the section 'Information and Reporting'. |

# 7 GENERAL NON-FUNCTIONAL REQUIREMENTS

## 7.1 GENERAL FRAMEWORK

| | |
|---|---|
| **Id** | SHRD.UR.NFR.ALL.010 |
| **Name** | Language |
| **Description** | The services shall use English as unique language. |

| | |
|---|---|
| **Id** | SHRD.UR.NFR.ALL.020 |
| **Name** | Service Usage Statistic |
| **Description** | The services shall count the usage of their functions. |

This requirement aims to be able to identify build-in functionalities with little or no use. Also it should enable developers to check whether usage and resource consumption of functions meets the expectations.

## 7.2 INFORMATION SECURITY

| | |
|---|---|
| **Id** | SHRD.UR.NFR.ALL.030 |
| **Name** | Information Security |
| **Description** | The services shall be compliant with the Information Security Requirements and Controls provided in the annex. |

## 7.3 CYBER RESILIENCE

| | |
|---|---|
| **Id** | SHRD.UR.NFR.ALL.040 |
| **Name** | Information Security |
| **Description** | The services shall be compliant with the Cyber Resilience Requirements and Controls provided in the annex. |

## 7.4 SERVICE DESK

| Id | SHRD.UR.NFR.ALL.050 |
|---|---|
| Name | Service Desk |
| Description | A Service Desk shall be available at the service provider to respond to any operational and technical issue concerning the services. |

| Id | SHRD.UR.NFR.ALL.060 |
|---|---|
| Name | Service Desk Availability |
| Description | The Service Desk shall be available both on-site during standard service hours and on-call during non-standard service hours with different service levels. |

The Service Desk's service hours shall be harmonised across the services. It is foreseen to have standard service hours with on-site reachability from 6:30 to 19:30 on TARGET opening days. The non-standard service hours cover the time period between 19:30 and 6:30, weekends and TARGET closing days.

| Id | SHRD.UR.NFR.ALL.070 |
|---|---|
| Name | Trouble Management System |
| Description | The Service Desk shall be supported by a Trouble Management System (TMS). |

The Service Desk shall be supported by a Trouble Management System (TMS). All activities connected to outages shall be supported by the TMS, which covers the workflow and serves as information base providing, e.g. the status of an incident/problem, the actors involved and details about reasons and solutions.

| Id | SHRD.UR.NFR.ALL.080 |
|---|---|
| Name | Access to Trouble Management System |
| Description | External parties shall be allowed reading access to the TMS. |

External parties shall have online access to the TMS, with the possibility to view information related to broadcast incidents and problems, and their own incidents and problems. (Open question: Shall there also be an external ticketing system?)

| | |
|---|---|
| **Id** | SHRD.UR.NFR.ALL.090 |
| **Name** | Contacting the Service Desk |
| **Description** | The Service Desk shall be reachable via phone, fax and email. |

## 7.5 General Business Continuity Requirements

| | |
|---|---|
| **Id** | SHRD.UR.NFR.ALL.100 |
| **Name** | ITSCM process is in place. |
| **Description** | An ITSCM process shall be in place to ensure that services can be recovered within the required and agreed time-scales. |

The goal for ITSCM is to support the overall Business Continuity Management process by ensuring that the required IT technical and services facilities (including computer systems, networks, applications, telecommunications, technical support and Service Desk) can be recovered within required, and agreed, business time-scales.

| | |
|---|---|
| **Id** | SHRD.UR.NFR.ALL.110 |
| **Name** | Independent remote site. |
| **Description** | All services shall have an independent remote site to restart the services in case of site failures. |

The services shall be both, technically and organisational, independent to be able to cope with incidents and crises which might affect the primary sites.

| Id | SHRD.UR.NFR.ALL.120 |
|---|---|
| Name | Crisis management |
| Description | Crisis management procedures and crisis management structures shall be defined and agreed. |

The service provider shall have a structure and procedures in place to manage incidents and events that exceed a pre-agreed severity threshold. This covers e.g.:

- Coordination of crises;
- Communication of crises;
- Decision making procedures;
- Escalation procedures; and
- Resilient communication tools.

The goal is to provide clear information to the external parties, coordinate the causing incidents' resolution and enable business continuity during and after the crisis.

| Id | SHRD.UR.NFR.ALL.130 |
|---|---|
| Name | Access of skilled staff |
| Description | Skilled staff must have access to the systems at all times, including crises. |

## 7.6 SERVICE MANAGEMENT

| Id | SHRD.UR.NFR.ALL.140 |
|---|---|
| Name | Service Management Processes |
| Description | IT service management processes following the ITIL framework shall be in place. |

The maintenance of the services shall be subject to efficient IT management processes. This comprises e.g.:

- Release Management;
- Change Management;
- Incident Management;
- Problem Management;
- Configuration Management;
- Service Level Management;
- Capacity Management;
- Availability Management; and
- The aforementioned business continuity management.

## 7.7 CLOCK SYNCHRONISATION

| Id | SHRD.UR.NFR.ALL.150 |
|---|---|
| Name | Clock synchronisation method |
| Description | The services shall use atomic clock time as a reference. |

The services shall use the same time reference. Since also with atomic clock time there might be minor time differences, the services (including TIPS, T2S and ECMS) shall agree on acceptable time deviations (e.g. 0.0001s).

## 7.8 TESTING REQUIREMENTS [PLACE HOLDER]

# 8 USER INTERACTION

## 8.1 GENERAL USER REQUIREMENTS FOR USER INTERACTION

### 8.1.1 Query

| | |
|---|---|
| **Id** | SHRD.UR.ALL.UI.010 |
| **Name** | Query Audit Trail |
| **Description** | All User Interaction relevant services shall provide the functionality to query the modified data the attribute level, the user performing the change and the timestamp of the change through U2A and A2A interface. |

| | |
|---|---|
| **Id** | SHRD.UR.ALL.UI.020 |
| **Name** | Query Broadcast |
| **Description** | All User Interaction relevant services shall provide the functionality to query detailed information on broadcasts through U2A and A2A interface. It should be distinguished between normal information provided in pull mode and alert broadcasts information provided in push mode. |

| | |
|---|---|
| **Id** | SHRD.UR.ALL.UI.030 |
| **Name** | Query System time |
| **Description** | All User Interaction relevant services shall provide the functionality to query information on system time to align the time of a connected application through an application-to-application interface (A2A). |

### 8.1.2 Action

| | |
|---|---|
| **Id** | SHRD.UR.ALL.UI.040 |
| **Name** | Confirm/Reject Task(s) |
| **Description** | All User Interaction relevant services shall provide the functionality to confirm/reject task(s) through the U2A and A2A interfaces. |

| Id | SHRD.UR.ALL.UI.050 |
|---|---|
| Name | Act on behalf |
| Description | All User Interaction relevant services shall provide the functionality to act on behalf through U2A and A2A interfaces:<br>• Central banks to act on behalf of any party belonging to their banking community<br>• The System operator to act on behalf of any party |

| Id | SHRD.UR.ALL.UI.060 |
|---|---|
| Name | Access rights |
| Description | All User Interaction relevant services shall ensure that a user can only access functionality that is in line with the access rights to the user and the corresponding scope. |

| Id | SHRD.UR.ALL.UI.070 |
|---|---|
| Name | Four-eyes (confirm, revoke amend) |
| Description | All User Interaction relevant services shall provide the functionality to use four-eyes approval covering the actions confirm, revoke and amend. |

## 8.2 USER INTERACTION FOR EUROSYSTEM SINGLE MARKET INFRASTRUCTURE GATEWAY

### 8.2.1 Query

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.UI.010 |
| **Name** | Query message |
| **Description** | The ESMIG service shall provide the functionality to query the outgoing and incoming messages. The user shall specify all of the following mandatory selection criteria. In addition the query shall allow the user to specify any combination of mandatory or optional selection criteria.<br><br>Mandatory selection criteria:<br>• Entry date or range of date (current business day as default)<br>• Entry time or range of time<br>• Inbound or outbound<br>• Message type<br><br>Optional selection criteria:<br>• Status<br>• Amount<br>• Sender BIC<br>• Receiver BIC<br>The query shall return the message in xml format including the processing status.<br><br>This query shall only be provided in U2A mode. |

### 8.2.2 Action

| | |
|---|---|
| **Id** | SHRD.UR.ESMIG.UI.020 |
| **Name** | Resend messages and files |
| **Description** | The ESMIG service shall provide the functionality to resend the outgoing and ingoing messages and files through U2A and A2A interface. |

## 8.3 USER INTERACTION FOR COMMON REFERENCE DATA MANAGEMENT

### 8.3.1 Query

All described queries in this section shall be provided in U2A and A2A mode unless otherwise stated.

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.UI.010 |
| **Name** | Query Party |
| **Description** | The CRDM service shall provide the functionality to query the common reference data of a Party.<br><br>The user shall specify at least one of the following mandatory selection criteria. In addition the query shall allow the user to specify any combination of mandatory or optional selection criteria.<br><br>Mandatory selection criteria:<br>• Party BIC<br><br>Optional selection criteria:<br>• Status<br>• Responsible CB<br>• Party Type<br><br>The query shall return all business attributes of the Party including the status. |

| Id | SHRD.UR.CRDM.UI.020 |
|---|---|
| Name | Query Participant |
| Description | The CRDM service shall provide the functionality to query the common reference data of a Participant. The user shall specify at least one of the following mandatory selection criteria. In addition the query shall allow the user to specify any combination of mandatory or optional selection criteria.<br><br>Mandatory selection criteria:<br>• Party BIC<br><br>Optional selection criteria:<br>• Status<br>• Responsible CB<br>• Party Type<br>• Account<br>• Management of Minimum Reserve<br>• Minimum Reserve Sources<br>• Usage of T2S<br>• Usage of TIPS<br><br>The query shall return all business attributes of the party including the status. |

| Id | SHRD.UR.CRDM.UI.030 |
|---|---|
| Name | Query Ancillary System |
| Description | The CRDM service shall provide the functionality to query the common reference data of an Ancillary System. The user shall specify at least one of the following mandatory selection criteria. In addition the query shall allow the user to specify any combination of mandatory or optional selection criteria.<br><br>Mandatory selection criteria:<br>• Party BIC<br><br>Optional selection criteria:<br>• Status<br>• Responsible CB<br><br>The query shall return all business attributes of the party including the status. |

| Id | SHRD.UR.CRDM.UI.040 |
|---|---|
| Name | Query Central Banks |
| Description | The CRDM service shall provide the functionality to query the common reference data of a Central Bank. The user shall specify at least one of the following mandatory selection criteria. In addition the query shall allow the user to specify any combination of mandatory or optional selection criteria.<br><br>Mandatory selection criteria:<br>• Party BIC<br><br>Optional selection criteria:<br>• Status<br><br>The query shall return all business attributes of the party including the status. |

| Id | SHRD.UR.CRDM.UI.050 |
|---|---|
| Name | Query RTGS Directory |
| Description | The CRDM service shall provide the functionality to query the list of reachable banks for payments. The user shall specify at least one of the following mandatory selection criteria. In addition the query shall allow the user to specify any combination of mandatory or optional selection criteria.<br><br>Mandatory selection criteria:<br>• Directory<br><br>Optional selection criteria:<br>• Status<br>• BIC<br>• Name<br>• Responsible CB<br>• Modification Date ( from-to)<br><br>The query shall return all business attributes of the RTGS Directory. |

| Id | SHRD.UR.CRDM.UI.060 |
|---|---|
| Name | Query automatic liquidity transfer setup |
| Description | The CRDM service shall provide the functionality to query the information about the automatic liquidity transfer set-up between and within the account of the same service or across services. The user shall specify at least one of the following mandatory selection criteria.<br><br>Mandatory selection criteria:<br>• Party BIC<br><br>The query shall return all business attributes of the payments including the processing status. |

| Id | SHRD.UR.CRDM.UI.070 |
|---|---|
| Name | Query account reference data |
| Description | The CRDM service shall provide the functionality to query reference data of accounts. The user shall specify at least one of the following mandatory selection criteria.<br><br>Mandatory selection criteria:<br>• Party BIC<br>• Account number<br><br>The query shall return all business attributes of the account including the status. |

| Id | SHRD.UR.CRDM.UI.080 |
|---|---|
| Name | Query Direct Debit |
| Description | The CRDM service shall provide the functionality to query the values for direct debit mandates. The user shall specify at least one of the following mandatory selection criteria. In addition the query shall allow the user to specify any combination of mandatory or optional selection criteria.<br><br>Mandatory selection criteria:<br>• Party BIC<br>• Cash Account Number<br><br>Optional selection criteria:<br>• Status<br>• Reference<br><br>The query shall return all business attributes of the direct debit mandate. |

| Id | SHRD.UR.CRDM.UI.090 |
|---|---|
| Name | Query Calendar |
| Description | The CRDM service shall provide a functionality to query a calendar.<br><br>The user shall specify at least one of the following mandatory selection criteria.<br><br>Mandatory selection criteria:<br>• Year<br>• Month<br><br>The query shall return all business attributes of the calendar. |

| Id | SHRD.UR.CRDM.UI.100 |
|---|---|
| Name | Query Floor and ceiling amounts |
| Description | The CRDM service shall provide the functionality to query the setup of floor and ceiling amounts for all accounts. The user shall specify at least one of the following mandatory selection criteria.<br><br>Mandatory selection criteria:<br>• Party BIC<br>• Cash Account number<br><br>The query shall return all business attributes of the account including the status. |

| Id | SHRD.UR.CRDM.UI.110 |
|---|---|
| Name | Query System Operator Entity |
| Description | The CRDM service shall provide a functionality to query the reference data of the System Operator Entity.<br><br>The user shall specify at least the following mandatory selection criteria.<br><br>Mandatory selection criteria:<br>• System Operator Entity<br><br>The query shall return all business attributes of the System Operator. |

| Id | SHRD.UR.CRDM.UI.120 |
|---|---|
| Name | Query Error Codes |
| Description | The CRDM service shall provide a functionality to query the description of the Error Codes.<br><br>The user shall specify at least the following mandatory selection criteria.<br><br>Mandatory selection criteria:<br>• Error Code<br>• Error Description<br>• Category<br><br>The query shall return all business attributes of the error code. |

### 8.3.2 Action

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.UI.130 |
| **Name** | Create a Party |
| **Description** | The CRDM service shall provide the functionality to create a Party through U2A interface and A2A interface. |

**Note:** Similar actions will be introduced for all other Reference Data Entities.

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.UI.140 |
| **Name** | Amend a Party |
| **Description** | The CRDM service shall provide the functionality to modify a Party through U2A interface and A2A interface.<br><br>**Note:** Actions to create amend and delete attributes of an entity (including e.g. floor and ceiling amounts of the Cash Account) will be covered by the functionality to amend an entity. |

**Note:** Similar actions will be introduced for all other Reference Data Entities.

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.UI.150 |
| **Name** | Delete a Party |
| **Description** | The CRDM service shall provide the functionality to delete a Party through U2A interface and A2A interface. |

**Note:** Similar actions will be introduced for all other Reference Data Entities.

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.UI.160 |
| **Name** | Block/unblock of Party |
| **Description** | The CRDM service shall provide the functionality to block and unblock a participant in case for insolvency (or similar event) in order to exclude it from all services through U2A and A2A interface. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.UI.170 |
| **Name** | Block/unblock of a cash account |
| **Description** | The CRDM service shall provide the functionality to block and unblock a a account through U2A and A2A interface. It has to be differentiated between debits and credits |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.UI.180 |
| **Name** | Block/unblock of an Ancillary System |
| **Description** | The CRDM service shall provide the functionality to block and unblock a an AS through U2A and A2A interface. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.UI.190 |
| **Name** | Close a cash account |
| **Description** | The CRDM service shall provide the functionality to close a cash account through U2A interface. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.UI.200 |
| **Name** | Grand Access rights to individual users |
| **Description** | The CRDM service shall provide the functionality to grand access rights to individual users through U2A interface. |

| | |
|---|---|
| **Id** | SHRD.UR.CRDM.UI.210 |
| **Name** | Create a Broadcast |
| **Description** | The CRDM service shall provide the functionality to create a broadcast message for all or selected groups of participants through U2A and A2A interface. |

## 8.4 USER INTERACTION FOR BUSINESS DAY

### 8.4.1 Query

| | |
|---|---|
| **Id** | SHRD.UR.BD.UI.010 |
| **Name** | Query list of events |
| **Description** | The BD service shall provide the functionality to query the list of events scheduled for the current day including the actual time when these events took place |

# 9 BUSINESS DATA DEFINITIONS

| Id | SHRD.UR.BDD.010 |
|---|---|
| Name | Party |
| Description | This entity shall denote any legal or organisational entity required in the Market Infrastructure Services (i.e. RTGS, CLM, CRDM, T2S, TIPS, ECMS).<br><br>Mandatory attributes:<br><br>• Party Identifier (KEY): The unique technical identifier of a party<br>• LEI<br>• Party type: Type of institution e.g.:<br>- Service Operator<br>- Central Bank (CB)<br>- Payment Bank<br>- Ancillary System (AS)<br>- Central Securities Depository (CSD)<br>- CSD Participant<br>- External CSD<br>• Party Status: The business status of a Party for processing in the system (This attribute shall not specify a blocking status)<br>• Party business role (multiple occurrences allowed)<br>• Intraday Credit indicator (i.e. allowed/not allowed)<br>• Intraday Credit limitation: Maximum intraday credit authorised to a Party<br>• Standing facility indicator (i.e. allowed/not allowed)<br>• Minimum reserve entitlement (i.e. the party is subject to / exempted from minimum reserve requirement<br>• Marginal Lending entitlement (i.e. the party is authorised / not authorised for marginal lending facilities)<br>• Overnight deposit entitlement (i.e. the party is authorised / not authorised for overnight deposit facilities)<br>• Opening Date: The date on which the contractual relationship with the party was legally established<br><br>Optional attributes:<br><br>• Banking Group Identifier (e.g. blank if it does not belong to a Banking Group)<br>• Account for minimum reserve: Account used for minimum reserve<br>• Bilateral Limits (multiple occurrences allowed): Party with whom a Bilateral Limit exists<br>• Multilateral Limits (multiple occurrences allowed): Parties which whom a Multilateral Limit exist<br>• Closing Date: The date that the contractual relationship with the party has legally ended<br>• List of Participants: A list of BICs of parties which are allowed to use the Ancillary System for their Ancillary System Transaction |

| | |
|---|---|
| | • Guarantee Funds Account (multiple occurrences allowed): Accounts used for the Guarantee funds mechanism |

| | |
|---|---|
| **Id** | SHRD.UR.BDD.020 |
| **Name** | Party Name |
| **Description** | This entity shall denote a Party Name.<br><br>Mandatory attributes:<br>• Party Identifier (KEY): The unique technical identifier of a party. It shall link the name back to the Party<br>• Valid From: The date from which the party name is valid. Since the Party Name may change over time, it is necessary to define period in which a name is valid<br>• Party Long Name: The full name of the party<br>• Party Short Name: The short name of the party<br>• Distinguished Name<br><br>Optional attributes:<br>• n/a |

| | |
|---|---|
| **Id** | SHRD.UR.BDD.030 |
| **Name** | Party Address |
| **Description** | This entity shall denote the address of a Party.<br><br>Mandatory attributes:<br>• Address Identifier (KEY): The unique technical identifier of a Party Address<br>• Party Identifier: The unique technical identifier of a party in T2S. It shall link the address to the party<br>• Valid From Date: The date from which the party address is valid<br>• Jurisdiction: The country of jurisdiction for the party. This attribute shall be mandatory for a legal address. It shall be the same country as in the legal address, except for supranational institutions<br>• Street: The name of the street for the address<br>• House Number: The house number for the address<br>• City: The name of the city for the address<br>• Postal Code: The postal code for the address<br>• State or Province: The state or province for the address. Its use shall depend on the country code of the address<br>• Country Code: The country code of the address. The two-character ISO country code (ISO3166-1) shall identify the country<br><br>Optional attributes:<br>• n/a |

| | |
|---|---|
| **Id** | SHRD.UR.BDD.040 |
| **Name** | Party Code |
| **Description** | This entity shall denote a Party Code.<br><br>Mandatory attributes:<br>• Party Identifier (KEY): The unique technical identifier of a party. It shall link the party code to the party<br>• System Entity Identifier: The system entity code of another party (e.g. CSD) with which the party has a contractual relationship. This attribute shall qualify the code type in order to ensure uniqueness for cases where a financial institution has a relationship with more than one CSD<br>• Valid From Date: The date from which the party code is valid<br>• Code Type: The code type assigned to the unique internal party identifier. In particular this will include, amongst other possible values: 'BIC' or 'Parent BIC'<br>• Party Mnemonic: The unique market code of a party based on the code type. In particular, where the Code Type is 'BIC' this will be the BIC Code of the Party associated with this Party Code<br><br>Optional attributes:<br>• n/a |

| | |
|---|---|
| **Id** | SHRD.UR.BDD.060 |
| **Name** | Cash Account |
| **Description** | This entity shall denote any cash account required by the Market Infrastructure Services (i.e. RTGS, CLM, CRDM, T2S, TIPS, ECMS).<br><br>Mandatory attributes:<br>• Service. Possible values are:<br>- RTGS<br>- CLM<br>- TIPS<br>- T2S<br>• Cash Account Number (KEY)<br>• Cash Account type<br>- For RTGS services:<br>RTGS DCA,<br>guarantee account,<br>sub account for AS settlement,<br>CB account,<br>transit account,<br>technical account<br>- For CLM service:<br>MCA,<br>ML account,<br>OD account,<br>CB account,<br>NCB ECB account,<br>ECB mirror account,<br>transit account<br>- For TIPS service:<br>TIPS DCA,<br>transit account<br>- For T2S service:<br>T2S DCA,<br>CB account,<br>transit account<br>• Currency: The account's currency, which is an eligible settlement currency<br>• Owner: The Party who owns the account<br>• Status: Current blocking status of the account; unblocked, blocked for debiting, blocked for crediting or blocked for both<br>• Opening date: The date as of which an account is legally opened |

Optional attributes:

- Cash Balance: Current cash balance (CLM MCA)
- Credit Line: Current maximum collateralised overdraft position of the Cash Balance (CLM MCA)
- Floor: A lower threshold per service which triggers the sending of a notification message if it is breached from above (absolute numbers). Used for receiving warnings if the accounts is running low
- Ceiling: An upper threshold per service which triggers the sending of a notification message if it is breached from below (absolute numbers). Used for receiving warnings if the account traps too much liquidity
- Minimum Reserve Party: Party for which this account is included for minimum reserve calculation (applicable for RTGS DCA and sub account for AS settlement)
- Linked Account Number: The identifier of an account linked to the account (e.g. the RTGS account linked to the T2S dedicated cash account or MCA and any DCA)
- List of Users: A list of BICs of parties which are allowed to use the account for instant payments (on the originator and beneficiary side)
- Default Flag: Indicating whether the account for instant payments is the default choice of a given user BIC
- Closing date: The date as of which an account is legally closed

**Note:** A negative balance is only allowed for the EURO-CB accounts ; for all other accounts the liquidity is restricted to the balance plus credit line if available

| Id | SHRD.UR.BDD.070 |
|---|---|
| Name | Credit Memorandum Balance (CMB) |
| Description | This entity shall denote any CMB for TIPS. A CMB which is link to a TIPS account shall define a limit for the settlement of Instant Payments.<br><br>Mandatory attributes:<br>• CMB identifier (KEY): ISO compliant;<br>• Linked Account: The account to which the CMB is linked to;<br>• List of Users: A list of BICs of entities which are allowed to use that CMB for Instant Payments (on the originator and beneficiary side);<br>• Status: Current blocking status of the CMB; unblocked, blocked for decreases, blocked for increases or blocked for both;<br>• Floor: A lower threshold which triggers the sending of a notification message if it is breached from above (absolute numbers). Used for receiving warnings if the CMB is running low;<br>• Ceiling: An upper threshold which triggers the sending of a notification message if it is breached from below (absolute numbers); and<br>• Opening date: the date as of which a CMB is legally opened<br><br>Optional attributes:<br>• Closing date: The date as of which a CMB is legally closed |

| Id | SHRD.UR.BDD.150 |
|---|---|
| Name | Report Subscription |
| Description | This entity shall denote which party has subscribed to receive which reports.<br><br>Mandatory attributes:<br>• Report Subscription Identifier (KEY): The unique technical identifier of a report subscription<br>• Report: The report subscribed to by the participant<br>• Recipient: The party identifier of the receiver subscribing to the report<br>• Mode: Specifies whether the participant receives the relevant report in full mode and/or in delta mode, and whether in push or pull mode<br>• Scheduled Time: The scheduled time when the report is provided<br>• Scheduled Event: The event that shall trigger the report to be produced<br>• Subscription Valid From: The date from which the subscription is valid<br>• Subscription Valid To: The date until which the subscription is valid<br><br>Optional attributes:<br>• n/a |

| Id | SHRD.UR.BDD.160 |
|---|---|
| Name | Message Subscription |
| Description | This entity shall denote which party has subscribed to receive which messages.<br><br>Mandatory attributes:<br>• Message Subscription Identifier (KEY): The unique technical identifier of a message subscription<br>• Message Id: The identifier of the message subscribed to by the participant<br>• Recipient: The party identifier of the receiver subscribing to the message<br>• Mode: Specifies whether the participant receives the relevant report in full mode and/or in delta mode, and whether in push or pull mode<br>• Subscription Valid From: The date from which the subscription is valid<br>• Subscription Valid To: The date until which the subscription is valid<br><br>Optional attributes:<br>• n/a |

| Id | SHRD.UR.BDD.180 |
|---|---|
| Name | Currency |
| Description | This entity shall denote any valid currency and information whether the currency is settled in the Market Infrastructure Services.<br><br>Mandatory attributes:<br>• Currency code (KEY): The three-character ISO currency shall identify the currency<br>• Currency Name<br>• Number of decimals<br>• RTGS Settlement currency: Specification of the currency is a T2S settlement currency (y/n)<br>• T2S Settlement currency: Specification of the currency is a T2S settlement currency (y/n)<br><br>Optional attributes:<br>• n/a |

| Id | SHRD.UR.BDD.190 |
|---|---|
| Name | SWIFT BIC Directory |
| Description | SWIFT, as the global authority for registering BIC codes, provides the BIC directory. The directory, as provided by SWIFT, shall be part of the CRDM. The directory shall be updated as soon as updates of the directory are available.<br><br>The attributes shall be derived from the structure of the BIC directory |

| Id | SHRD.UR.BDD.200 |
|---|---|
| Name | Service |
| Description | This entity shall denote any Market Infrastructure Service which is accessible via the ESMIG.<br><br>Mandatory attributes:<br>• Service Identifier (KEY)<br>• Service Short Name: i.e. RTGS, HVP, AS, CLM, CRDM, T2S, TIPS, ECMS<br>• Service Long Name<br>• Service Availability: Timeframe when service is available<br>- Start Time: Start time of service<br>- End Time: End time of service<br><br>Optional attributes:<br>• Cut-off (multiple occurrences allowed): Definition of cut-off of the service |

| Id | SHRD.UR.BDD.210 |
|---|---|
| Name | User |
| Description | This entity shall denote any information required by ESMIG to direct inbound and outbound communications.<br><br>Mandatory attributes:<br>• Distinguished Name (KEY)<br>• ID of Sender: The ID shall result out of authentication process<br>• External Party Address: Information required that the correct network provider, target address, communication mode and protocol (i.e. right external user address) are used<br>• Accessible service (multiple occurrences allowed): Enumeration of Market Infrastructure Services the user is allowed to access<br><br>Optional attributes:<br>• n/a |

| Id | SHRD.UR.BDD.220 |
|---|---|
| Name | Role |
| Description | A role is a set of defined privileges that allows or denies the user access to specific functionality within the service or to view specific data. A role consists of one or more privileges.<br><br>Mandatory attributes:<br>• Role Identifier (KEY)<br>• Role Name<br><br>Optional attributes:<br>• n/a |

| | |
|---|---|
| **Id** | SHRD.UR.BDD.230 |
| **Name** | Privilege |
| **Description** | A privilege defines a specific functional capability within a process or application in any of the Market Infrastructure Services. For example, within common reference data, possible privileges are: create new Cash Account, delete Party Address, or amend Limit. The definition of privileges is the means of granting and restricting access to functionality and data for specific roles.<br><br>Mandatory attributes:<br>• Privilege Identifier (KEY)<br>• Role Identifier: the Role with which the Privilege is associated<br>• Privilege Description<br>• Privilege Class<br>  - System Privilege: privilege is system-wide<br>  - Object Privilege: privilege applies only to a specific reference data object or group of reference data objects (e.g. a specific Party)<br>• Object Identifier: Identifier of the reference data object or group of reference data objects to which the privilege applies (e.g. Account Number)<br>• Function Identifier: Identifier of the functionality to which the privilege applies (e.g. Amend Party Address)<br>• Allowed/Denied Indicator<br><br>Optional attributes:<br>• n/a |

# List of Business Process Models



# List of Figures



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