

T2/T2S CONSOLIDATION

USER REQUIREMENTS DOCUMENT

FOR

SHARED SERVICES (SHRD)

Version:	0.6
Status:	DRAFT
Date:	05/05/2017

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1 EUROSYSTEM SINGLE MARKET INFRASTRUCTURE GATEWAY (ESMIG)

1.1 OVERVIEW

This section describes the user requirements for the long term solution of ESMIG. ESMIG shall offer a catalogue of services to be used by each of the different Services (T2, T2S, TIPS, ECMS). The list of services will include "mandatory services" (like connectivity and authentication) and "optional services"¹ among which to choose according to the specific business needs. All Services can freely choose from the ESMIG function portfolio according to their needs. 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

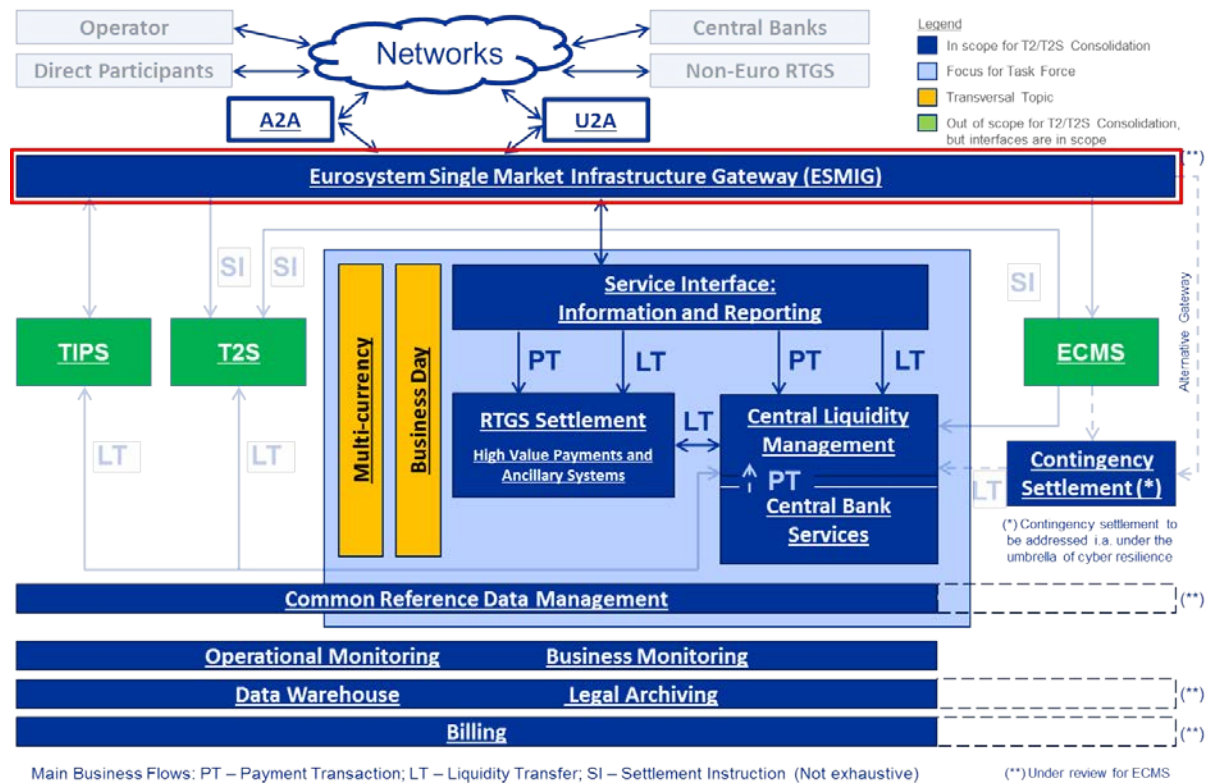


Figure 1: Context diagram for Eurosystem Single Market Infrastructure Gateway

¹ Among the possible ESMIG optional services there are the XML schema validation and the XML sanitisation.

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, where network agnostic means multiple network providers are allowed. All network providers shall fulfil the same communication interface specification towards ESMIG but are free to use their own features internally in terms of network and messaging.

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.000.050
Name	Support for business continuity - no message loss
Description	An acknowledged message will never be lost - except in Regional disaster scenario (see non-functional requirements on disaster recovery for more details).

Id	SHRD.UR.ESMIG.ALL.000.060
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.000.070
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.000.080
Name	Provision of a cost-effective and easy access solution
Description	<p>The ESMIG shall offer a cost-effective access to the services especially for participants with only a low volume of payments.</p> <p>Note: The cost effective solution for low volume customers could also be provided as an additional option.</p>

Id	SHRD.UR.ESMIG.ALL.000.090
Name	Authentication and authorisation
Description	<p>The ESMIG shall offer authentication and a basic authorisation service to access the U2A services.</p> <p>Note: The authorisation should only cover which services (e.g. TIPS, T2S, etc.) a user is allowed to access.</p>

Id	SHRD.UR.ESMIG.ALL.000.100
Name	Generalised interface for the Reference Data Services to feed the Identity Access Management (IAM) for U2A
Description	<p>The ESMIG shall offer a standardised interface for collecting Reference Data information from the different services to enable the authentication and basic authorisation services.</p>

Id	SHRD.UR.ESMIG.ALL.000.110
Name	Supported protocols to access the A2A services
Description	<p>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.</p>

Id	SHRD.UR.ESMIG.ALL.000.120
Name	Supported protocols to access the A2A services: DEP
Description	<p>The ESMIG shall support communication using the Data Exchange Protocol (DEP) to access the A2A services.</p>

Security services

Id	SHRD.UR.ESMIG.ALL.000.130
Name	Compliant with Cyber Security Requirements
Description	<p>The ESMIG shall be compliant with the cyber security requirements.</p> <p>Note: For details see "Market Infrastructure Cyber Resilience requirements" document.</p>

Id	SHRD.UR.ESMIG.ALL.000.140
Name	Support of security services - firewall
Description	<ul style="list-style-type: none"> • The ESMIG shall provide firewall functionalities implementing at least the following minimum set of features: • Network segmentation - Security zones, virtual LANs (VLANs), and virtual routers to deploy security policies to isolate subnets. • High availability (HA) - Active/passive and active/active configurations using dedicated high availability interfaces. • App Firewall - Fine grained application control policies to allow or deny traffic based on dynamic application name or group names. • SSL Proxy (forward and reverse) - Performs SSL encryption and decryption between the client and the server. • Unified threat management (UTM) - UTM capabilities must include IPS, antivirus, antispam, Web and content filtering. Available on-box with preinstalled, expanding and adaptive capabilities.

Id	SHRD.UR.ESMIG.ALL.000.150
Name	Support of security services - Intrusion Prevention System (IPS)
Description	<ul style="list-style-type: none"> • 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: • Signatures – the IPS must have signatures for identifying attacks, anomalies, spyware and application recognition. • Recommended vendor's default policy - vendor's Networks Security Team must identify critical attack signatures to be used as an initial protection baseline. • 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. • 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.000.160
Name	Support of security services – Local Traffic Manager (LTM)
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.

Id	SHRD.UR.ESMIG.ALL.000.170
Name	Support of security services – Application Security Manager (ASM)
Description	<ul style="list-style-type: none"> 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. 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.000.180
Name	Support of security services
Description	The ESMIG shall provide authentication of all inbound traffic (U2A and A2A).

Id	SHRD.UR.ESMIG.ALL.000.190
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.000.200
Name	Support of security services
Description	The ESMIG shall provide non repudiation features for digital signature management for U2A and A2A communication.

Id	SHRD.UR.ESMIG.ALL.000.210
Name	Support of security services
Description	The ESMIG shall provide security monitoring for the Market Infrastructure Service Desk.

Id	SHRD.UR.ESMIG.ALL.000.220
Name	Support of security services
Description	The ESMIG shall provide security monitoring for the Operator.

Id	SHRD.UR.ESMIG.ALL.000.230
Name	Support of security services
Description	The ESMIG shall support Closed User Group.

Id	SHRD.UR.ESMIG.ALL.000.240
Name	Support of security services
Description	The ESMIG shall provide PKI Services.

Operational services

Id	SHRD.UR.ESMIG.ALL.000.250
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.000.260
Name	Response time and throughput of ESMIG
Description	<p>The ESMIG shall be subject to the service level agreements of all dependent services.</p> <p>The dependent services should specify their service levels including the required processing in ESMIG.</p>

Id	SHRD.UR.ESMIG.ALL.000.270
Name	Feature catalogue of ESMIG
Description	<p>The ESMIG shall provide a feature catalogue with the features offered to the dependent services.</p> <p>The dependent services can select the features they require from the ESMIG feature catalogue.</p>

Id	SHRD.UR.ESMIG.ALL.000.280
Name	Scalability
Description	<p>The ESMIG shall offer scalability to cope with the different Eurosystem Market Infrastructure Service throughput.</p>

Id	SHRD.UR.ESMIG.ALL.000.290
Name	Independency of services regarding volumes
Description	<p>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.</p>

Id	SHRD.UR.ESMIG.ALL.000.300
Name	Archiving of inbound and outbound communications and events
Description	<p>The ESMIG shall archive all inbound and outbound communications. The retention period shall be configurable (up to 30 days). After this period the data shall be available via the Legal Archiving Service for a period defined for the legal archive.</p> <p>ESMIG shall offer this feature on optional basis so that each service can opt for it when required; respectively opt out if not applicable.</p> <p>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 configurable period of time by making use of the data archived by ESMIG.</p>

Id	SHRD.UR.ESMIG.ALL.000.310
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.000.320
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.000.330
Name	Provision of A2A and U2A services
Description	The ESMIG shall provide A2A and U2A services.

Id	SHRD.UR.ESMIG.ALL.000.340
Name	Provision of store & forward (S&F) and Real time communication (RT) modes
Description	<p>The ESMIG shall support Store & forward and Real time communication modes, both in push and pull mode.</p> <p>ESMIG shall provide time out and oversize handling for RT messages if requested i.e. 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.</p>

Id	SHRD.UR.ESMIG.ALL.000.350
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.000.360
Name	Provision of message and file channel
Description	The ESMIG shall handle messages and files via all supported modes.

Id	SHRD.UR.ESMIG.ALL.000.370
Name	Provision of message and file routing to the different market infrastructure services
Description	<p>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.</p> <p>Additionally, the ESMIG shall pass ID of the sender (as result of authentication process) and additional parameters to the service.</p>

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

Id	SHRD.UR.ESMIG.ALL.000.380
Name	Provision of message routing to the external party
Description	The ESMIG shall route of messages and files to the external party using the network provider, target address, communication mode and protocol provided by the market infrastructure services (i.e. right external user address).

Id	SHRD.UR.ESMIG.ALL.000.390
Name	Provision of decompression/compression mechanism
Description	The ESMIG shall provide decompression/compression mechanisms for the communications.

Id	SHRD.UR.ESMIG.ALL.000.400
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 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.000.410
Name	Information of Network Service Providers about opening and closure of Service(s) due to queueing and restart of inbound messages
Description	<p>The ESMIG shall inform the Network Service Providers about the closure of each dedicated Service, so that the messages for this Service shall be queued at NSP level.</p> <p>The ESMIG shall inform the Network Service Providers about the opening of each dedicated Service, so that the queued messages for this Service shall be forward to the ESMIG.</p> <p>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.</p>

Id	SHRD.UR.ESMIG.ALL.000.420
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 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.000.430
Name	Validation checks for inbound communication received on the message and file channel
Description	<p>The ESMIG shall perform the following validation checks, at transport level, for inbound communication regardless of the channel via which they are received:</p> <ul style="list-style-type: none"> • The technical sender is allowed to use the addressed service; • Duplicated inbound communication are rejected; and • XML message is well-formed. <p>The ESMIG shall forward only valid messages to the services.</p>

Id	SHRD.UR.ESMIG.ALL.000.440
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.000.450
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.000.460
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. After the logon to ESMIG a landing page will be displayed offering all market infrastructure services according to the access rights of the user.

1.2 EUROSISTEM 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 for real time communication
Description	ESMIG shall have an unplanned Downtime from less than xxxx hours calculated on a quarterly basis, equivalent to an availability of xxxx% for real time based communication (including U2A).

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.

Id	SHRD.UR.ESMIG.NFR.030
Name	Unplanned Downtime for store and forward communication
Description	ESMIG shall have an unplanned Downtime from less than xxxx hours calculated on a quarterly basis, equivalent to an availability of xxxx% for store and forward based communication.

1.2.2 Disaster Recovery

Id	SHRD.UR.ESMIG.NFR.040
Name	Recovery Point Objective
Description	ESMIG shall ensure a recovery point objective (RPO) 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 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.050
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.060
Name	Recovery Time Objective
Description	The ESMIG shall have a recovery time objective (RTO) according to the requirements of the connected services.

The 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.070
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.080
Name	Upward Scalability
Description	ESMIG shall be scalable to handle: <ul style="list-style-type: none"> • a xxxx% higher workload within xxxx minutes; and • 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.090
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.100
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

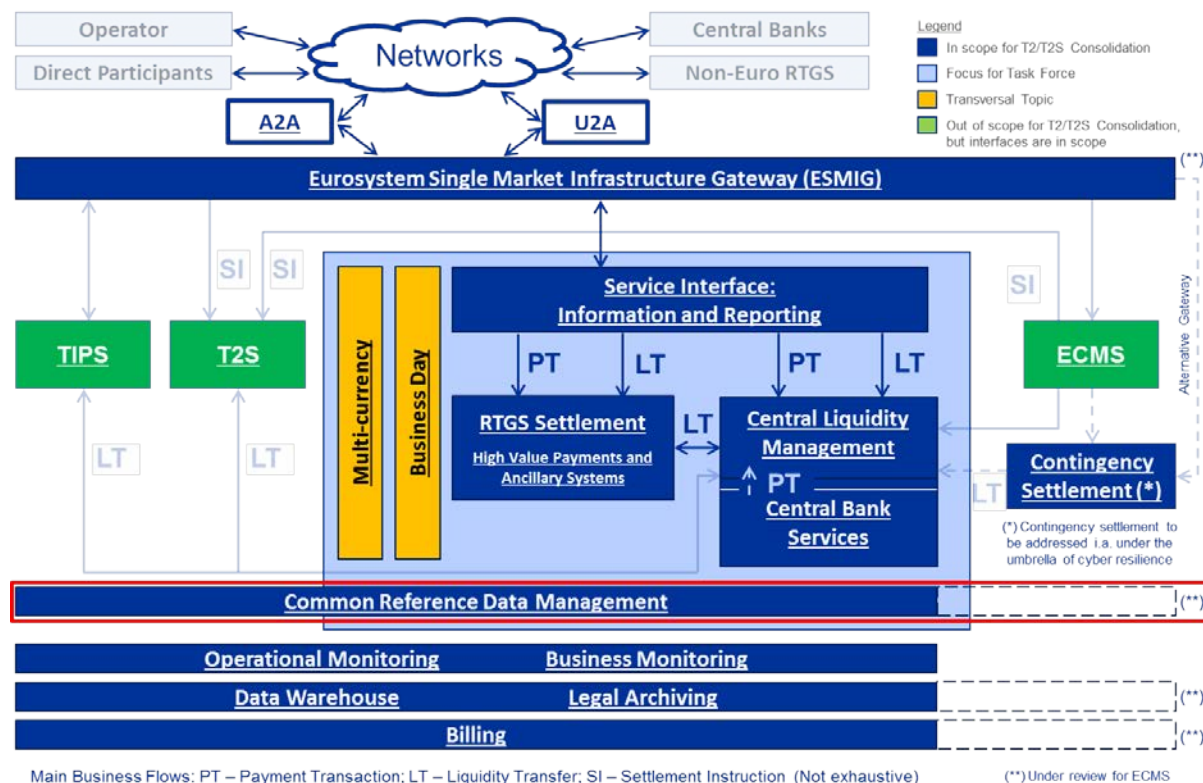


Figure 2: Context Diagram for Common Reference Data Management

This section describes the common processes for the management of Reference Data required for the configuration and operation of 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.

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.

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 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 CRDM

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.

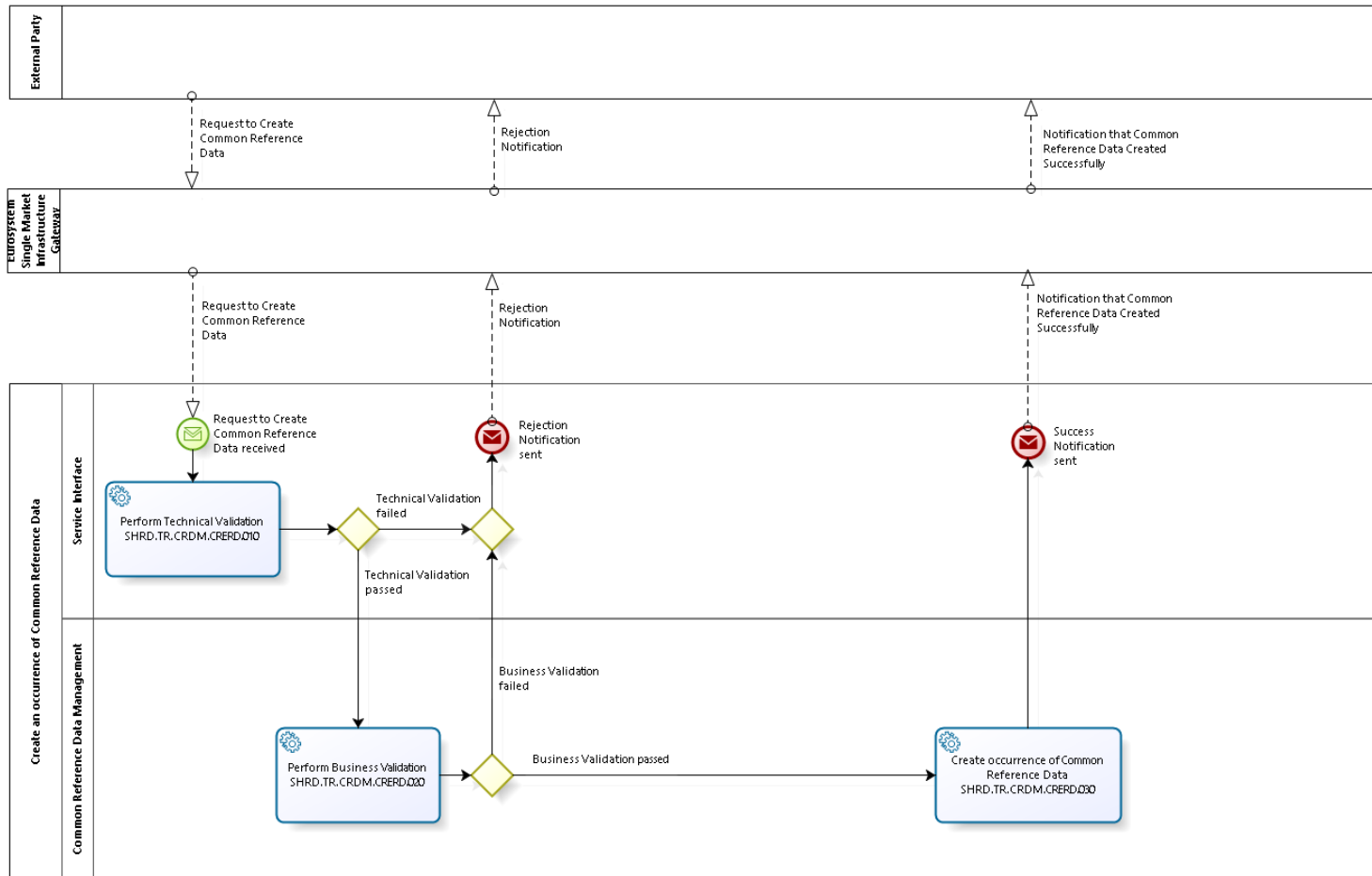
Id	SHRD.UR.CRDM.ALL.000.020
Name	Data history
Description	The CRDM service shall maintain documentation of a chronological record of changes.

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.

Where the Common Reference Data entity includes a Valid From Date and a Valid From Event or Valid From Time, these shall be used to determine which version of the Common Reference Data entity is valid at the time. 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 or Valid From Time 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, or as at the Valid From Time.

Common Reference Data may also include a Valid To Date and a Valid To Event or Valid To Time, 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'.

When a Common Reference Data entity requires the above described date/time validity attributes (or any subset of them), this is explicitly specified in the definition of the entity in the Business Data Definition section of the relevant User Requirements Document.

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), 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

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 validations (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	<p>The CRDM service may include a Valid From Date in reference data entities.</p> <p>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.</p> <p>Valid From Date must be a valid date that must be on or after the current business date.</p>

Id	SHRD.UR.CRDM.CRERD.020.040
Name	Check Valid To Date
Description	<p>The CRDM service may include a Valid To Date in reference data entities, although it may not be populated.</p> <p>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.</p> <p>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.</p>

Id	SHRD.UR.CRDM.CRERD.020.050
Name	Check Valid From Event
Description	<p>The CRDM service may include a Valid From Event in reference data entities, although it may not be populated.</p> <p>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.</p> <p>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.</p>

Id	SHRD.UR.CRDM.CRERD.020.060
Name	Check Valid To Event
Description	<p>The CRDM service may include a Valid To Event in reference data entities, although it may not be populated.</p> <p>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.</p> <p>If the Valid To Event is populated then the Valid To Date must also be populated.</p> <p>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.</p>

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 not necessarily become valid for use with immediate effect as the change may be post-dated through the use of date/time validity attributes.

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 where available:

- ▶ 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

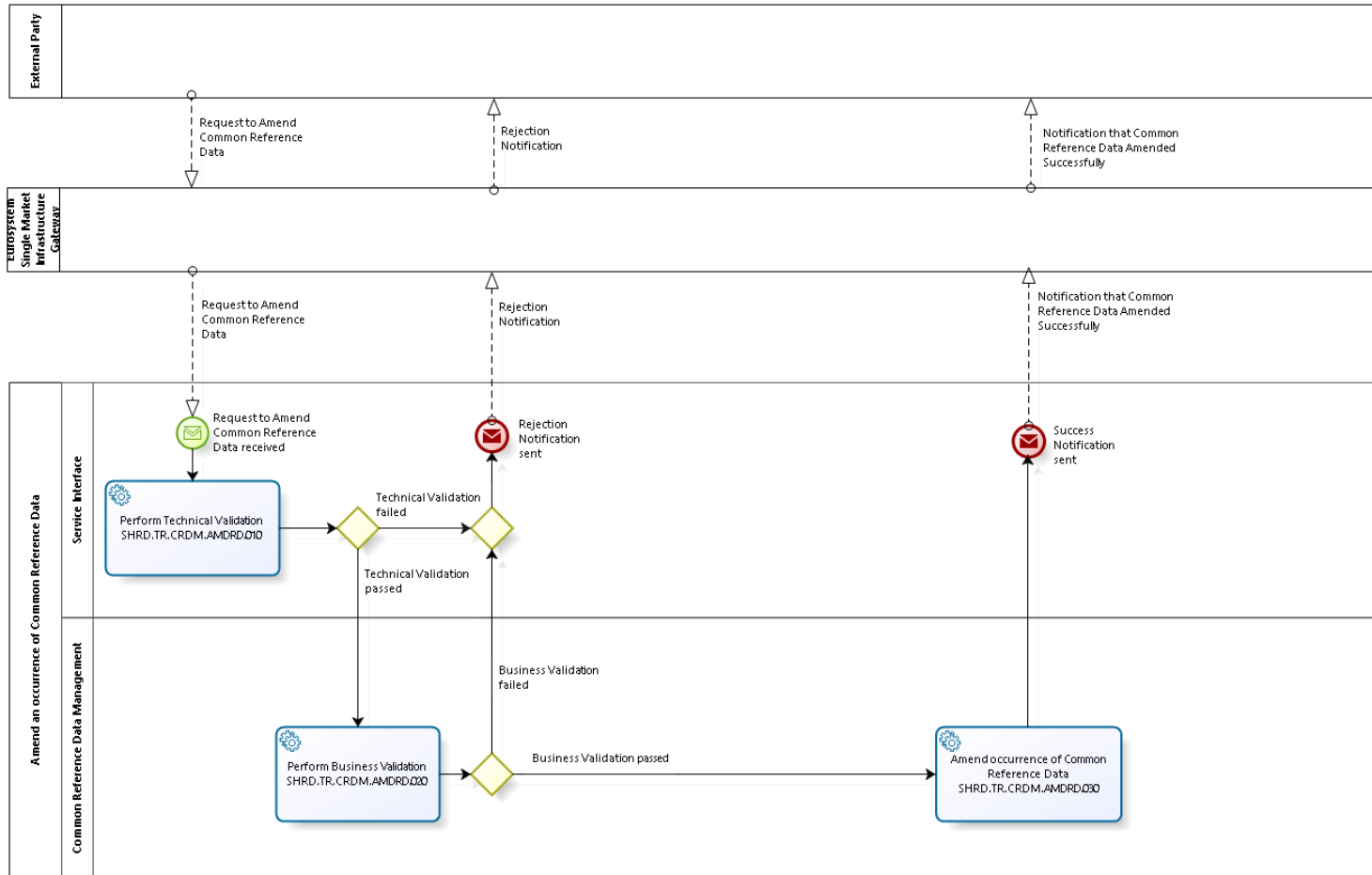
- ▶ If the Valid To Date is populated and the current business date at that time is between the Valid From Date and the Valid To Date (i.e. not on either date) then the Common Reference Data is valid
- ▶ If the current business date at that time is the same as either the Valid From Date or the Valid To Date then the process attempting to use the Common Reference Data must check Valid From Time or Valid To Time, or 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.

Where the Common Reference Data entity does not include date/time validity attributes then the new occurrence of the Common Reference Data shall become valid with immediate effect.

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.

Where the Common Reference Data entity includes a Valid From Date and a Valid From Event or Valid From Time, these shall be used to determine which version of the Common Reference Data entity is valid at the time. 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 or Valid From Time 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, or as at the Valid From Time.

Common Reference Data may also include a Valid To Date and a Valid To Event or Valid To Time, 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, Valid To Time and/or Valid To Event can be amended.

When a Common Reference Data entity requires the above described date/time validity attributes (or any subset of them) for specifying the validity of new attribute values, this is explicitly specified in the definition of the entity in Business Data Definition section of the relevant User Requirements Document.

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) for 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

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 validations (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	<p>The CRDM service may include a Valid From Date in reference data entities.</p> <p>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.</p> <p>Valid From Date must be a valid date that must be on or after the current business date.</p>

Id	SHRD.UR.CRDM.AMDRD.020.050
Name	Check Valid To Date
Description	<p>The CRDM service may include a Valid To Date in reference data entities, although it may not be populated.</p> <p>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.</p> <p>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.</p>

Id	SHRD.UR.CRDM.AMDRD.020.060
Name	Check Valid From Event
Description	<p>The CRDM service may include a Valid From Event in reference data entities, although it may not be populated.</p> <p>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.</p> <p>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.</p>

Id	SHRD.UR.CRDM.AMDRD.020.070
Name	Check Valid To Event
Description	<p>The CRDM service may include a Valid To Event in reference data entities, although it may not be populated.</p> <p>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.</p> <p>If the Valid To Event is populated then the Valid To Date must also be populated.</p> <p>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.</p>

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 not necessarily become valid for use with immediate effect as the change may be post-dated through the use of date/time validity attributes.

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 where available:

- ▶ 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 Valid From Time or Valid To Time, or 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.

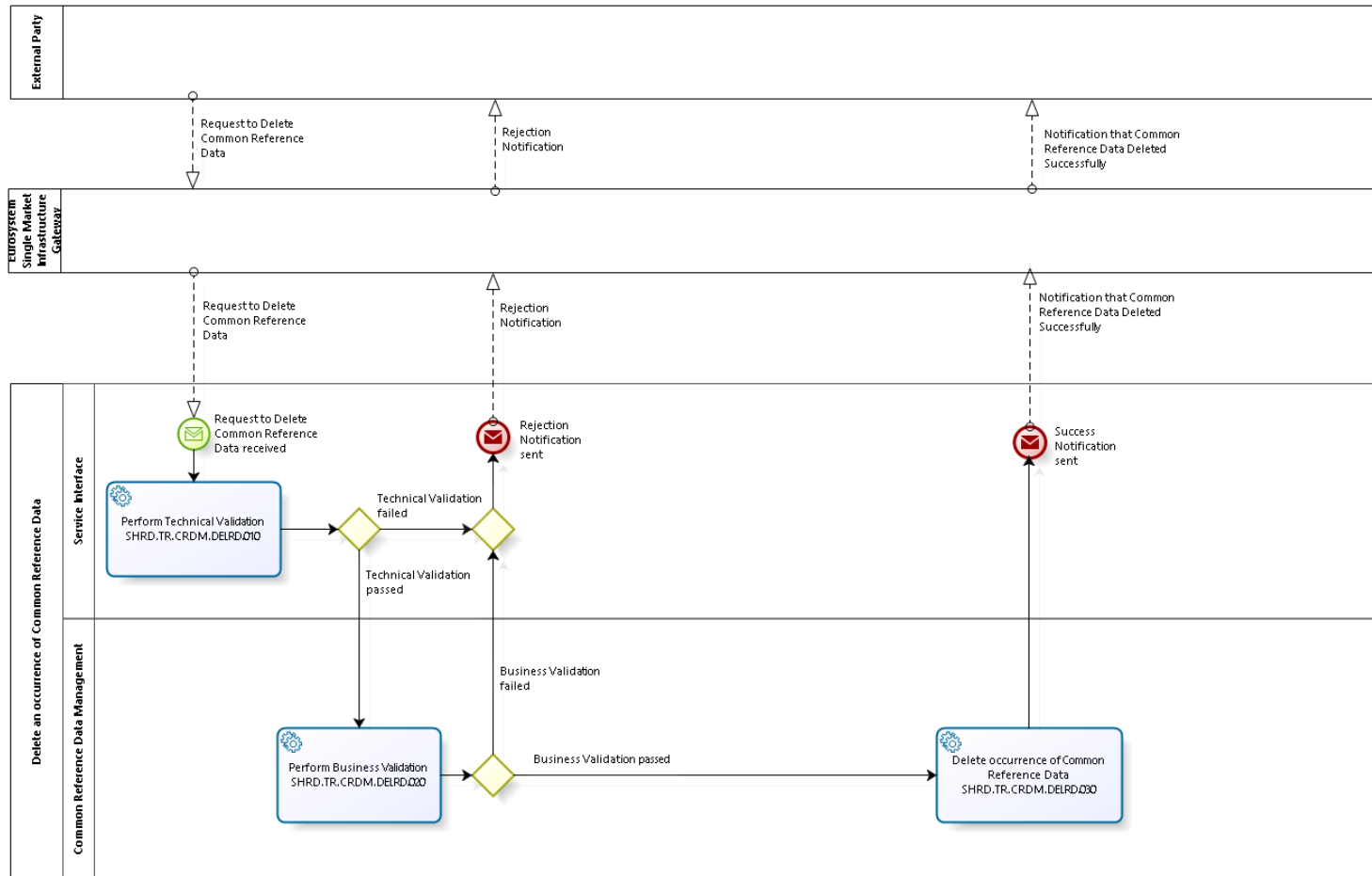
Id	SHRD.UR.CRDM.AMDRD.030.010
Name	Validity of amended reference data
Description	<p>The CRDM service shall amend the attributes of the entity as requested.</p> <p>Where the entity has date/time validity attributes but these are not stated then, by default, the new values become valid as of the start of the next business day.</p> <p>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 or Valid From Time.</p> <p>Where the entity does not have date/time validity attributes then the amendment shall become valid with immediate effect.</p>

Id	SHRD.UR.CRDM.AMDRD.030.020
Name	Previous version of reference data no longer valid
Description	<p>The CRDM service shall amend the Valid To Date, Valid To Time and Valid To Event for the previous version of the reference data that has been amended, using the values of the Valid From Date, Valid From Time and Valid From Event of the new version of the reference data.</p> <p>This will ensure that the end of validity of the previous version and the start of validity of the new version are simultaneous.</p> <p>Where the entity does not have date/time validity attributes then the old values of the amended entity shall become invalid with immediate effect.</p>

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:

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.

Where the Common Reference Data entity includes a Valid From Date and a Valid From Event or Valid From Time, these shall be used to determine which version of the Common Reference Data entity is valid at the time. 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 or Valid From Time 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, or as at the Valid From Time.

When a Common Reference Data entity requires the above described date/time validity attributes (or any subset of them) for specifying when the entity shall become logically deleted, this is explicitly specified in the definition of the entity in Business Data Definition section of the relevant User Requirements Document.

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 mark the occurrence of reference data as being logically deleted 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 the deletion of an existing occurrence of reference data.

Sub-processes:

- ▶ None

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) for 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

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	<p>The CRDM service may include a Valid From Date in reference data entities.</p> <p>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.</p> <p>Valid From Date must be a valid date that must be on or after the current business date.</p>

Id	SHRD.UR.CRDM.DELRD.020.030
Name	Check Valid From Event
Description	<p>The CRDM service may include a Valid From Event in reference data entities, although it may not be populated.</p> <p>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.</p> <p>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.</p>

2.4.3.3 DELETE OCCURRENCE OF COMMON 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 and the Valid From Time has been reached and the Valid From Event has occurred, where the reference data entity includes date/time validity attributes.

Id	SHRD.UR.CRDM.DELRD.030.010
Name	Logical deletion of common reference data
Description	<p>The CRDM service shall mark a reference data entity as logically deleted, instead of a physical deletion.</p> <p>Where the entity has date/time validity attributes but these are not stated then, by default, an entity is considered to be deleted as of the start of the next business day.</p> <p>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 Time or Valid From Event.</p> <p>Where the entity does not have date/time validity attributes then the logical deletion shall become effective immediately.</p>

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 Market Infrastructure Services, including TIPS, ECMS, T2S, RTGS and CLM.

Process context:

- ▶ This is the process through which all changes to Common Reference Data (create, amend or delete) are propagated throughout the Market Infrastructure Services.

Pre-conditions:

- ▶ Changes have been made to Common Reference Data

Time constraints:

- ▶ None

Expected results:

The process propagates 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.

Triggers:

- ▶ The process will be initiated by any successful change made to any occurrence of Common Reference Data

Sub-processes:

- ▶ None

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.

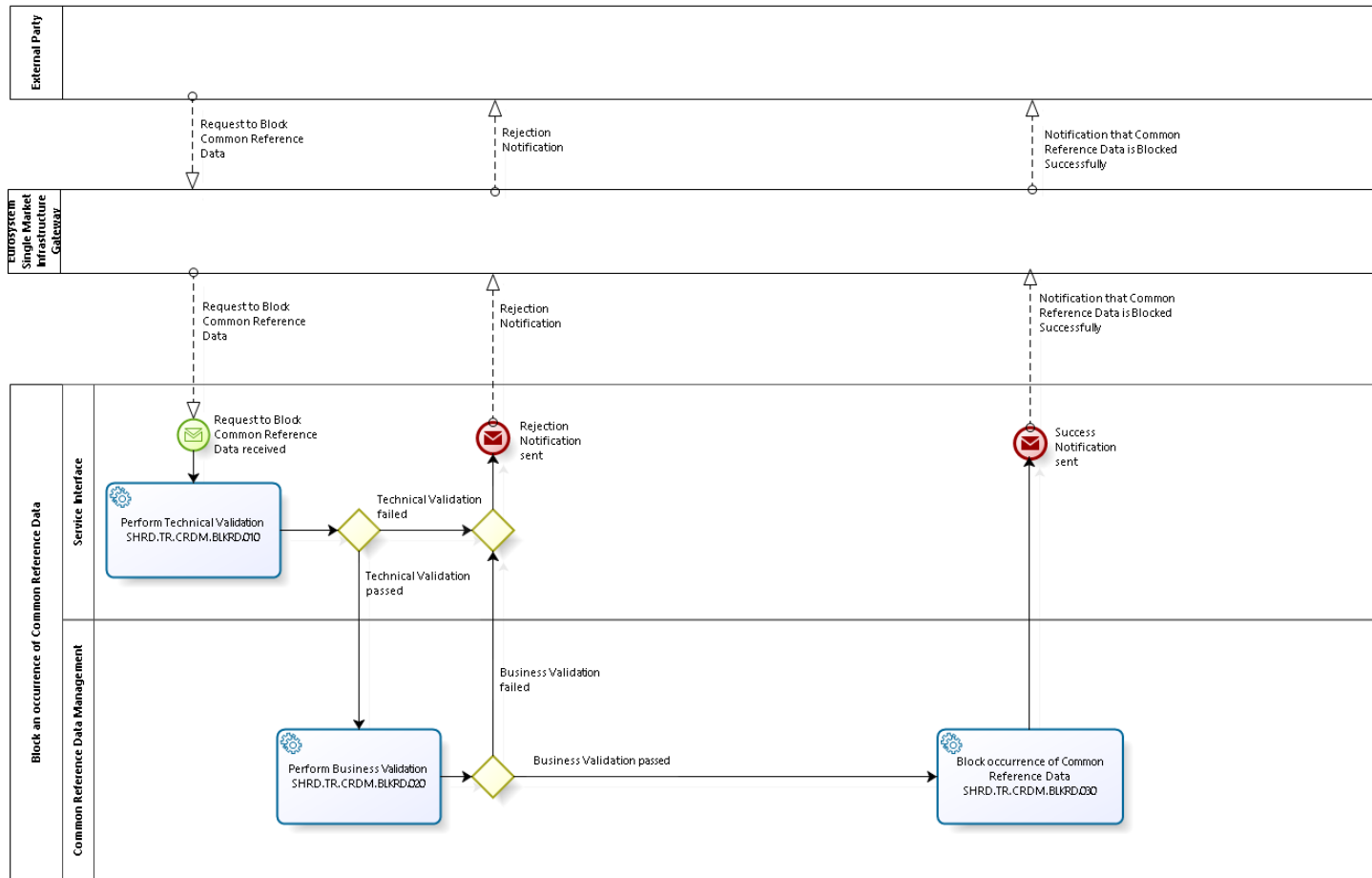
Id	SHRD.UR.CRDM.PROP.000.040
Name	Propagate change to an occurrence of Common Reference Data
Description	The CRDM service shall indicate whether the occurrence was added, amended or deleted, the values of the attributes held before and after the change, the date and time the change was made.

Id	SHRD.UR.CRDM.PROP.000.050
Name	Local Reference Data maintenance
Description	<p>Any changes to reference data made locally in any service shall need to be made also in Common Reference Data.</p> <p>The changes shall be propagated to all interested services impacted by the change, including the service in which the change was made locally.</p>

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:

This business process describes the blocking of Cash Accounts and Parties.

Where the Common Reference Data entity includes a Valid From Date and a Valid From Event or Valid From Time, these shall be used to determine which version of the Common Reference Data entity is valid at the time. 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 or Valid From Time 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, or as at the Valid From Time.

When a Common Reference Data entity requires the above described date/time validity attributes (or any subset of them) for specifying when the entity shall become blocked, this is explicitly specified in the definition of the entity in Business Data Definition section of the relevant User Requirements Document.

Process context:

- ▶ The generic process and its descriptions are valid for Cash Accounts and Parties.

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 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.

Triggers:

- ▶ The process will be initiated by an external party (CB or Operator acting on behalf) via sending a request to the platform to block an occurrence of reference data.

Sub-processes:

- ▶ None

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) for 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

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 validations (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	<p>The CRDM service may include a Valid From Date in reference data entities.</p> <p>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.</p> <p>Valid From Date must be a valid date that must be on or after the current business date.</p>

Id	SHRD.UR.CRDM.BLKRD.020.060
Name	Check Valid From Event
Description	<p>The CRDM service may include a Valid From Event in reference data entities, although it may not be populated.</p> <p>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.</p> <p>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.</p>

2.6.3.3 BLOCK OCCURRENCE OF COMMON REFERENCE DATA

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

After processing all validations successfully the occurrence of reference data will be blocked.

Although the blocking will be present in the system immediately after it has passed the validation, it will not necessarily become effective immediately as the change may be post-dated through the use of date/time validity attributes.

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 where available:

- ▶ 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 Valid From Time or Valid To Time, or 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 ensure that the blocking of a participant shall result in the blocking of all accounts belonging to the participant.

Blocking of an Ancillary System:

Id	SHRD.UR.CRDM.BLKRD.030.020
Name	Block AS
Description	The CRDM service shall mark the Ancillary System as blocked.

Blocking of a Cash Account:

Id	SHRD.UR.CRDM.BLKRD.030.030
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.

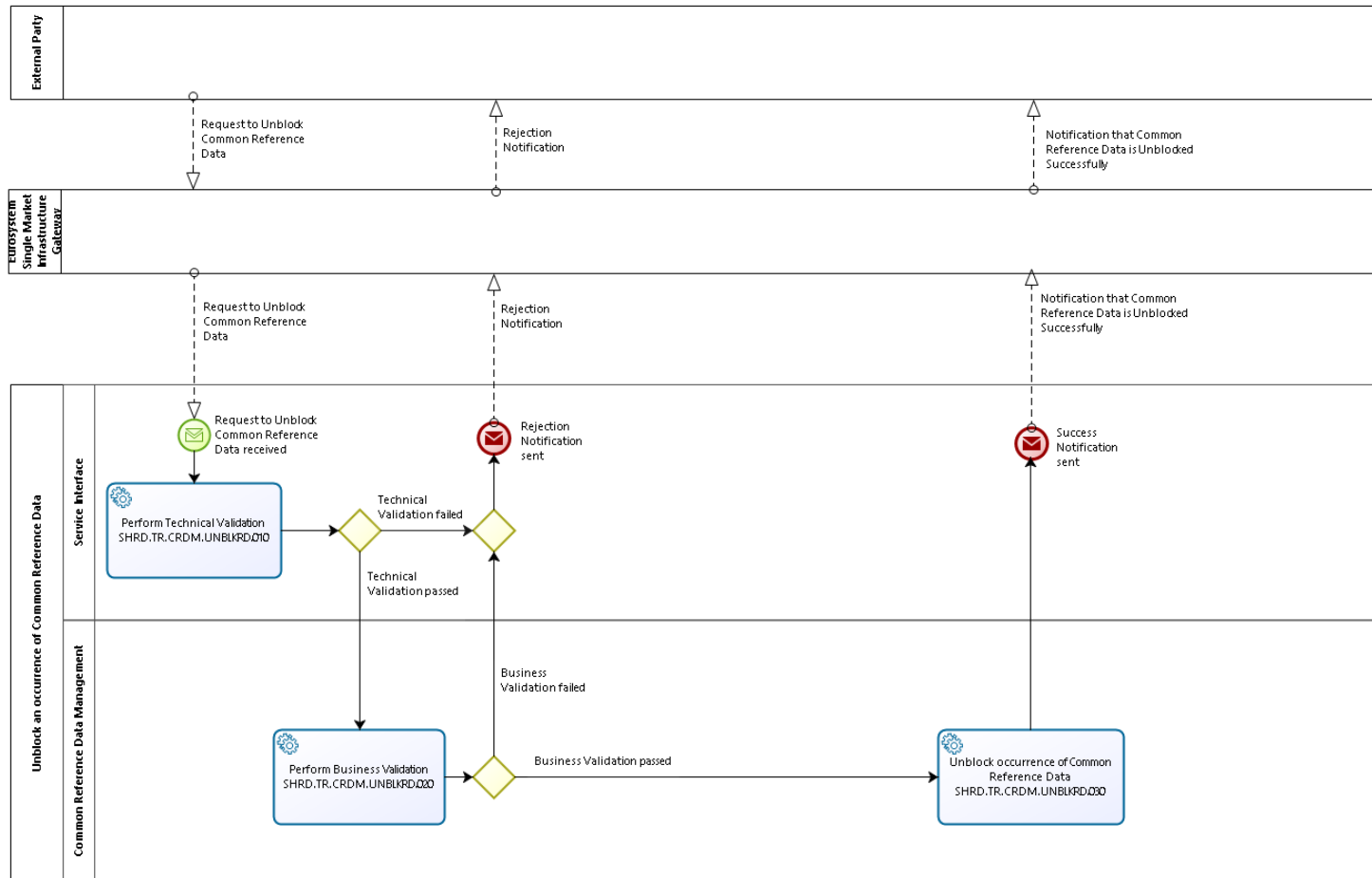
Id	SHRD.UR.CRDM.BLKRD.030.040
Name	Block account only for debit
Description	The CRDM service shall mark the account as blocked for debit. This would then allow credits still to be made into the account.

Id	SHRD.UR.CRDM.BLKRD.030.050
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:

This business process describes the unblocking of Cash Accounts and Parties.

Where the Common Reference Data entity includes a Valid From Date and a Valid From Event or Valid From Time, these shall be used to determine which version of the Common Reference Data entity is valid at the time. 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 or Valid From Time 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, or as at the Valid From Time.

When a Common Reference Data entity requires the above described date/time validity attributes (or any subset of them) for specifying when the entity shall become unblocked, this is explicitly specified in the definition of the entity in Business Data Definition section of the relevant User Requirements Document.

Process context:

- ▶ The generic process and its descriptions are valid for Cash Accounts and Parties.

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 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.

Triggers:

- ▶ The process will be initiated by an external party (CB or Operator acting on behalf) via sending a request to the platform to unblock an occurrence of reference data.

Sub-processes:

- ▶ None

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) for 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

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 validations (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	<p>The CRDM service may include a Valid From Date in reference data entities.</p> <p>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.</p> <p>Valid From Date must be a valid date that must be on or after the current business date.</p>

Id	SHRD.UR.CRDM.UNBLKRD.020.060
Name	Check Valid From Event
Description	<p>The CRDM service may include a Valid From Event in reference data entities, although it may not be populated.</p> <p>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.</p> <p>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.</p>

2.7.3.3 UNBLOCK OCCURRENCE OF COMMON REFERENCE DATA

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

After processing all validations successfully the occurrence of reference data entity will be unblocked.

Although the unblocking will be present in the system immediately after it has passed the validation, it will not necessarily become effective immediately as the change may be post-dated through the use of date/time validity attributes.

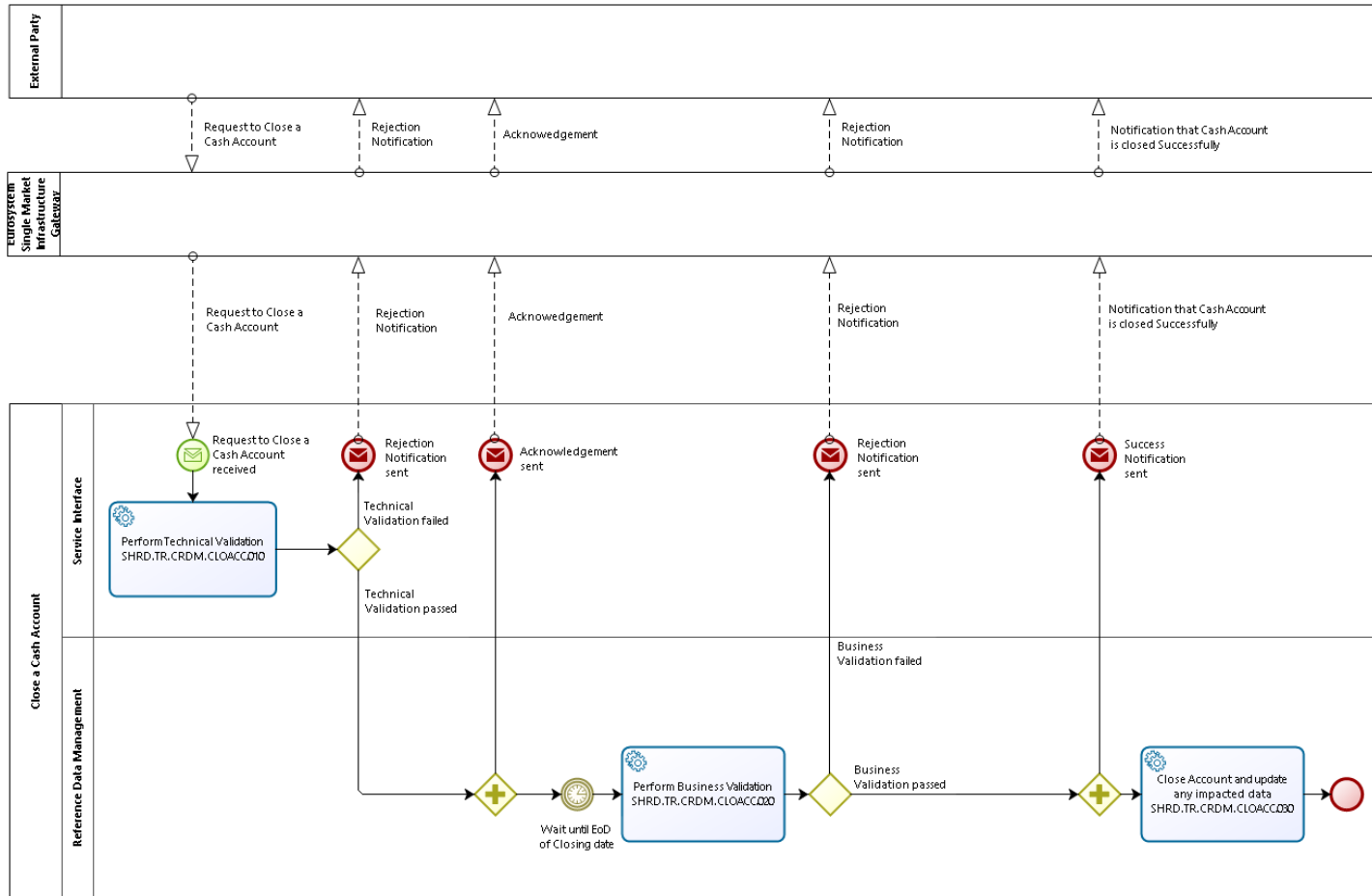
Processes using the Common Reference Data will need to determine at the time whether the occurrence of reference data is unblocked, by checking the Valid From Date where available:

- ▶ 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 Valid From Time and Valid To Time, or 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.

Where the Common Reference Data entity includes a Valid From Date and a Valid From Event or Valid From Time, these shall be used to determine which version of the Common Reference Data entity is valid at the time. 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.

When a Common Reference Data entity requires the above described date/time validity attributes (or any subset of them) for specifying when the entity shall become closed, this is explicitly specified in the definition of the entity in Business Data Definition section of the relevant User Requirements Document.

Process context:

- ▶ This process may be used to close any type of Cash Account

Pre-conditions:

- ▶ The Cash Account must exist and must be active

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 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.

Triggers:

- ▶ The process will be initiated by an external party via a request to the platform to close a cash account.

Sub-processes:

- ▶ None

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) for 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

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 validations (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	Transfer any remaining balance from account to be closed
Description	The CRDM service shall ensure that even after the Cash Account is closed; it shall always be possible for the relevant Central Bank to transfer any remaining balance to another cash account. No other actors shall be allowed to transfer liquidity from/to a closed cash account.

Id	SHRD.UR.CRDM.CLOACC.020.050
Name	Check Valid From Date
Description	<p>The CRDM service may include a Valid From Date in reference data entities.</p> <p>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.</p> <p>Valid From Date must be a valid date that must be on or after the current business date.</p>

2.8.3.3 CLOSE ACCOUNT AND UPDATE ANY IMPACTED DATA

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

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.030.010
Name	Deletion of standing orders
Description	<p>The CRDM service shall ensure that all corresponding standing orders related to the account to be closed are no longer valid after the Cash Account has been closed.</p>

Id	SHRD.UR.CRDM.CLOACC.030.020
Name	Setting credit line to zero
Description	<p>The CRDM service shall allow the relevant Central Bank to set the credit line of the closed Main Cash Account to zero.</p>

Id	SHRD.UR.CRDM.CLOACC.030.030
Name	Retain reference data for closed cash account
Description	<p>The CRDM service shall ensure that no reference data relating to the closed cash account shall be deleted automatically 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.</p>

2.9 DIRECTORY SERVICE

Business Process Ref: SHRD.BP.CRDM.DIR

2.9.1 Process Overview

The process describes the content and delivery of the services' directories. The directories shall provide valuable business information to the actors of the services, e. g. the reachability of parties.

Process context:

- ▶ This process is a background process providing information for external parties.

Pre-conditions:

- ▶ None

Time constraints:

- ▶ None

Expected results:

- ▶ Directories based on CRDM contents are delivered in time and format as requested by the services.

Triggers:

- ▶ Scheduled process

Sub-processes:

- ▶ None

2.9.2 User Requirements

Id	SHRD.UR.CRDM.DIR.000.010
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.000.020
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.000.030
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.000.040
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.000.050																	
Name	Structure of the TIPS directory																	
Description	The CRDM shall provide the TIPS directory according to the following structure:																	
	<table border="1"> <thead> <tr> <th>Field name</th> <th>Note</th> </tr> </thead> <tbody> <tr> <td>BIC</td> <td>Participant's BIC</td> </tr> <tr> <td>TIPS Participation Type</td> <td>TIPS Participant Reachable Party</td> </tr> <tr> <td>Institution Name</td> <td>Participant's company name</td> </tr> <tr> <td>Type of Change</td> <td>A: added M: modified D: deleted U: unchanged</td> </tr> <tr> <td>Valid From</td> <td>Business day from which the entry is valid</td> </tr> <tr> <td>Valid To</td> <td>Business day up to which the entry is valid</td> </tr> <tr> <td>Reserve</td> <td>Space</td> </tr> </tbody> </table>	Field name	Note	BIC	Participant's BIC	TIPS Participation Type	TIPS Participant Reachable Party	Institution Name	Participant's company name	Type of Change	A: added M: modified D: deleted 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	
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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 02:30-00:30 on business days.

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

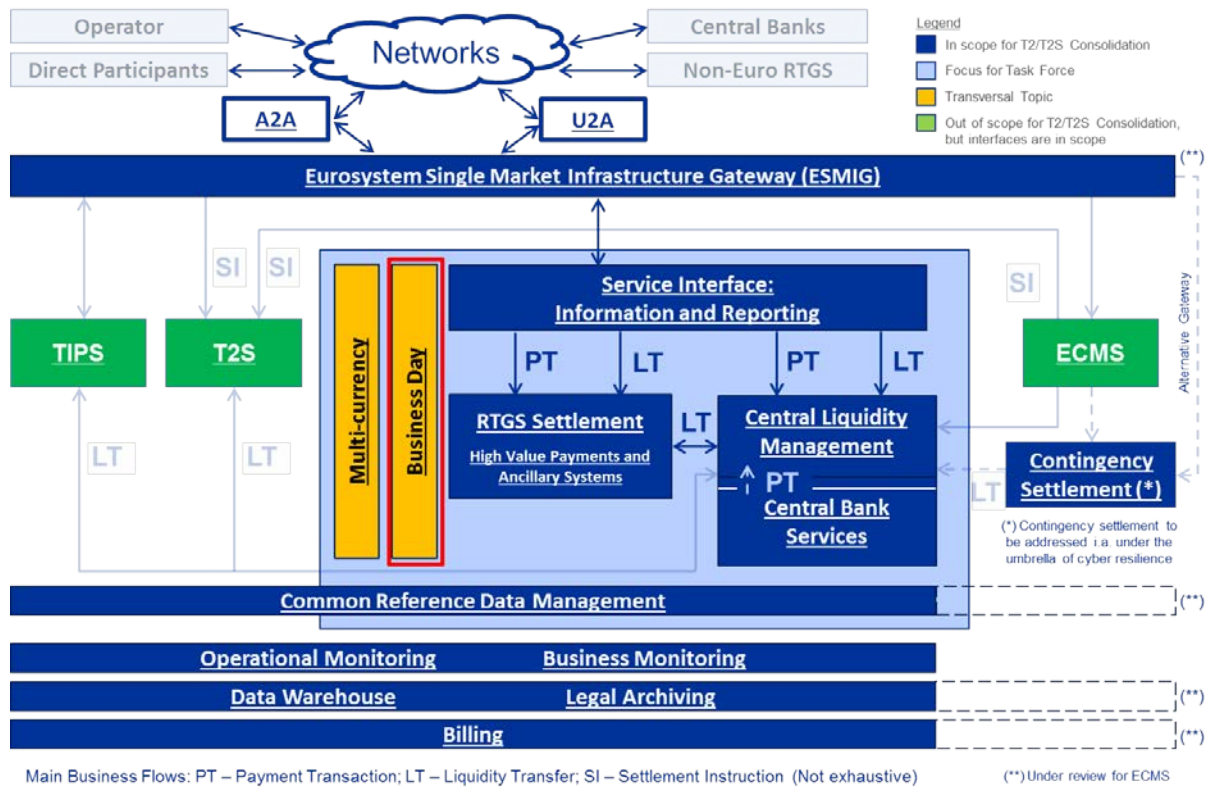


Figure 3: Context diagram for Business Day

3.1.2 Business Processes

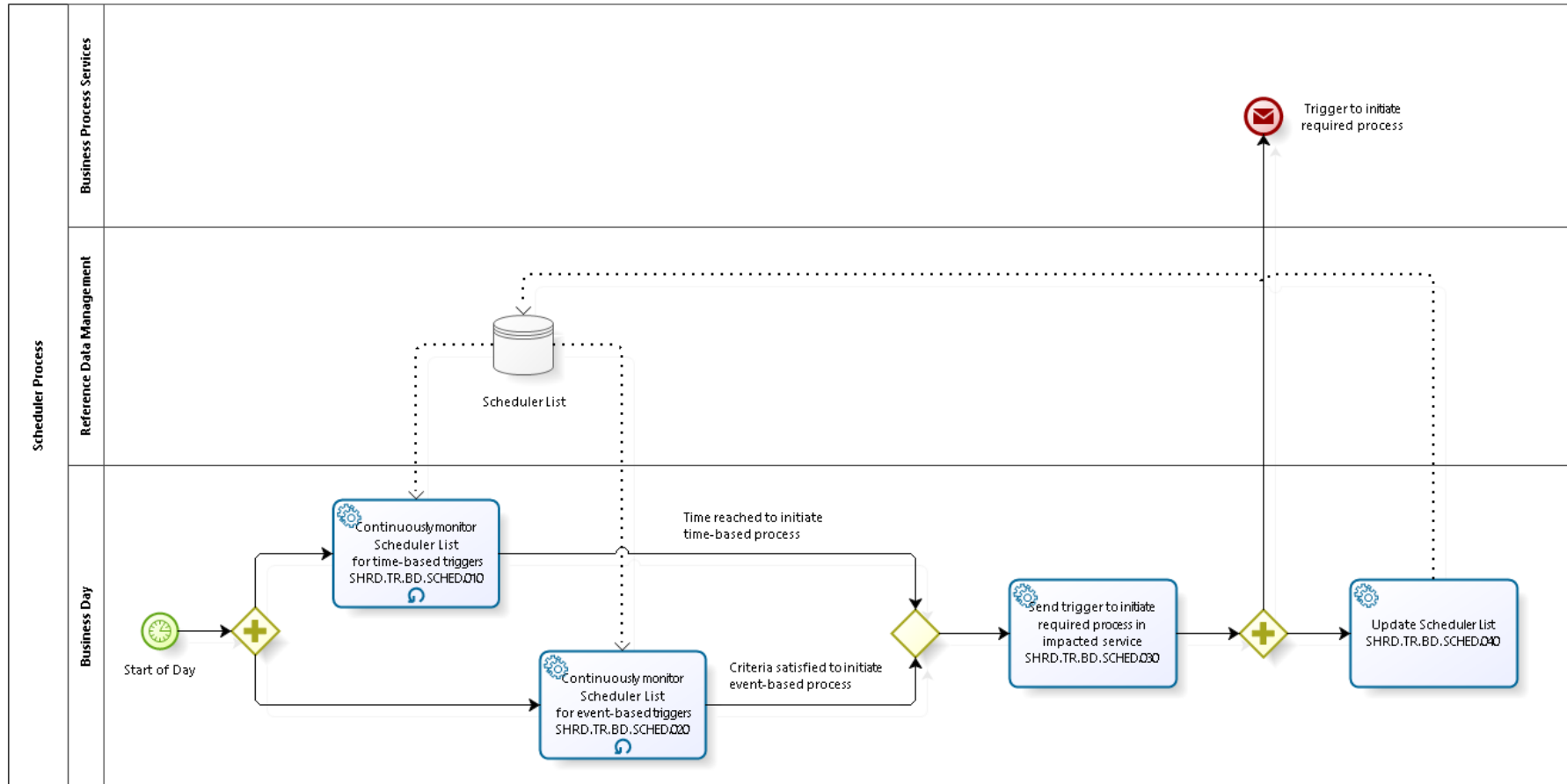
Business Process	BP Reference	Business Process Description
Scheduler Process	SHRD.BP.BD.SCHED	Process to initiate processes within any service that need to be performed either at a scheduled date/time or when specified criteria occur
End of Day/Start of Day Process	SHRD.BP.BD.EODSOD	Processes performed 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 including processes where there needs to be an interaction with other Market Infrastructure Services such as TIPS, T2S or ECMS. 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. Events can be as well currency specific.

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

The Scheduler Process will constantly monitor the Scheduler List in order to recognise when the date and 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 Common 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 means that the process was started but 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

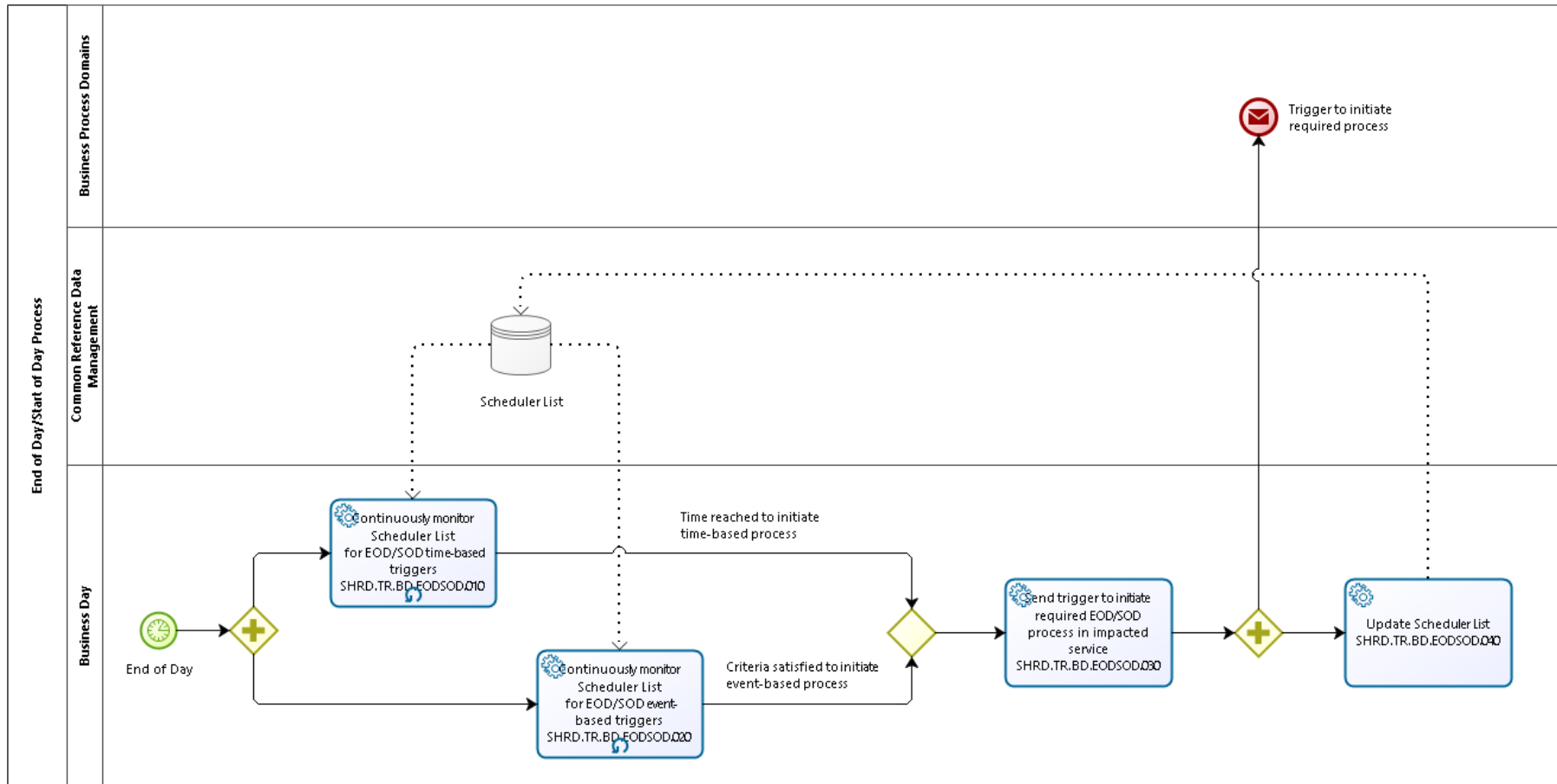
Task Ref: SHRD.TR.BD.SCHED.040

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).²
- ▶ End of Day reporting
 - Triggers are sent by the scheduler to build the reports scheduled for End of Day.
- ▶ Change of business day
 - Close the current business day and open the next business day.

² 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.

- This would be the last task to be performed during End of Day.

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	<p>The Scheduler shall send triggers for several tasks after the closure for liquidity transfers, e.g.</p> <ul style="list-style-type: none">• Requesting End of Day balances from each service to be sent to CBS• Building End of Day reporting

Id	SHRD.UR.BD.EODSOD.000.060
Name	End of Day - Liquidity on accounts
Description	<p>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.</p>

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

Id	SHRD.UR.BD.EODSOD.000.080
Name	End of Day - Change of business day
Description	<p>When all tasks of EoD 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.</p> <p>The scheduler will initiate the change of business day when the defined criteria are satisfied.</p>

Id	SHRD.UR.BD.EODSOD.000.090
Name	End of Day - Information on change of business day
Description	The scheduler shall send a trigger to each service (i.e. RTGS, CLM, T2S, TIPS) when the business day was changed.

Id	SHRD.UR.BD.EODSOD.000.100
Name	End of Day - Same value date for all services
Description	All services shall use the same value date.

Id	SHRD.UR.BD.EODSOD.000.110
Name	Start of Day - Performance of several tasks
Description	During Start of Day several tasks triggered by the scheduler are performed, e.g. <ul style="list-style-type: none"> Receiving of reference data from Reference Data Management Function

Id	SHRD.UR.BD.EODSOD.000.120
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 business day 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

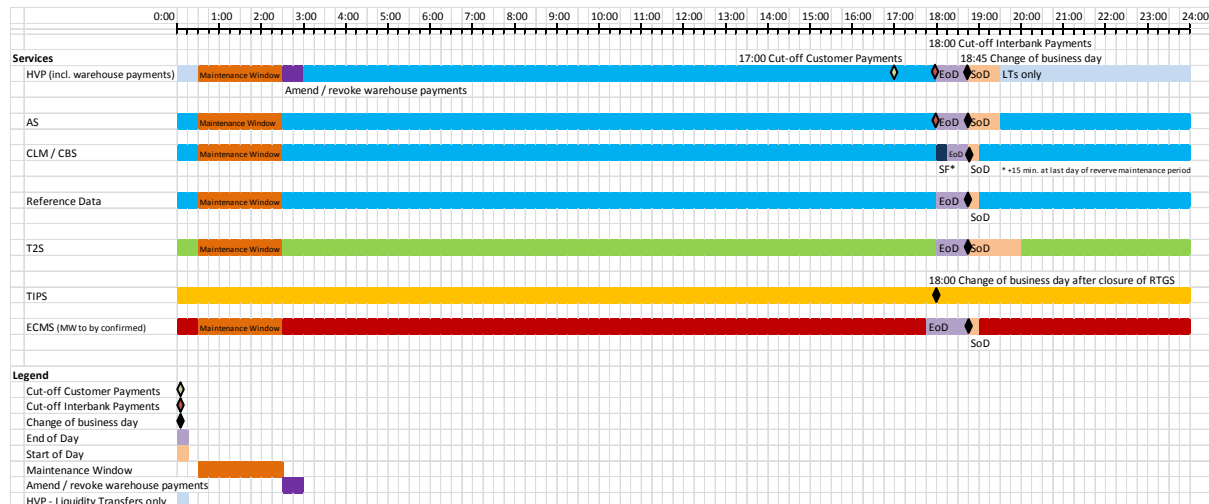


Figure 4: Business day schedule

3.4.2 User Requirements

3.4.2.1 GENERAL USER REQUIREMENTS FOR ALL 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 00:30 and end at 02:30.

Id	SHRD.UR.BD.OPER.000.030
Name	Cut-off
Description	The service shall ensure that after a cut-off at least one settlement attempt has to take place.

3.4.2.2 USER REQUIREMENTS FOR THE DIFFERENT SERVICES

RTGS service (HVP and AS):

Id	SHRD.UR.BD.OPER.000.040
Name	HVP service - Availability
Description	<p>The HVP service shall be operating from 03:00-18:00.</p> <p>It shall be closed for payment orders between 19:30 and 00:30 but liquidity transfer orders can be performed.</p> <p>It will be closed on weekends, i.e. Maintenance window from Saturday starting at 00:30 until Monday 02:30 with business date Monday.</p>

Id	SHRD.UR.BD.OPER.000.050
Name	HVP service - Cut-offs
Description	<p>For the HVP service the following cut-offs shall take place:</p> <ul style="list-style-type: none"> • Cut-off Customer Payments at 17:00. • Cut-off Interbank Payments at 18:00.

Id	SHRD.UR.BD.OPER.000.060
Name	Maintenance of warehoused payments
Description	Warehoused payments can be maintained 30 minutes before the opening of the HVP service i.e. from 02:30-03:00.

Id	SHRD.UR.BD.OPER.000.070
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.000.080
Name	AS service - Availability
Description	<p>The AS service shall be operating from 19:30-18:00 (except during Maintenance Window).</p> <p>It will be closed on weekends, i.e. Maintenance window from Saturday starting at 00:30 until Monday 02:30 with business date Monday.</p>

Id	SHRD.UR.BD.OPER.000.090
Name	AS service - Cut-offs
Description	<p>For the AS service the following cut-off shall take place:</p> <ul style="list-style-type: none"> • Cut-off Interbank Payments at 18:00. <p>It is assumed that most of the ancillary systems have settled before the cut-off for customer payments which takes place at 17:00. Specific types of transactions stemming from AS (e.g. money market, DVP) can be settled until 18:00.</p>

Id	SHRD.UR.BD.OPER.000.100
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.000.110
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.000.120
Name	CLM service - Availability
Description	The CLM service shall be operating from 19:30-18:00 (except during Maintenance Window). It will be closed on weekends, i.e. Maintenance window from Saturday starting at 00:30 until Monday 02:30 with business date Monday.

Id	SHRD.UR.BD.OPER.000.130
Name	CLM service - Cut-offs
Description	For the CLM service the following cut-offs shall take place: <ul style="list-style-type: none"> • 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.000.140
Name	CRDM service - Availability
Description	The CRDM service shall be operating from 19:00-18:00 (except during Maintenance Window). 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 a Market Infrastructure Service via U2A or A2A a User has to be created first. While setting up a User, one or more Roles have to be assigned to the User, from a list of predefined Roles for each Service in which the User will participate. Each Role grants a set of Privileges to the user. Each Privilege relates to one business function, following either the two-eyes or the four-eyes principle. The assigned principle will be applied to each action by the user when performing the business function.

The descriptions of the setup and maintenance of the user and the association of Roles are part of the Common Reference Data Management and will be described in the respective section.

For accessing a Market Infrastructure Service the User has to connect via the Eurosystem Single Market Infrastructure Gateway (ESMIG). One of the functions performed by the ESMIG is the authentication of the User, i.e. the check that the User is registered in the CRDM, and verify whether the User is allowed to access to the requested Service. However, it is up to each Service to check that the User is allowed to perform each business function through its list of Roles and Privileges as well as the accessible data scope. Due to the fact that the ESMIG supports a single sign on capability for all Services, the same User can be allowed access to various Services.

Regarding the data scope, the User shall have access to all of the data of the Party the User is primarily associated with via the Access Rights. Any User can also be granted access to the data scope of another Party through additional Access Rights. When logging in to a Service in U2A mode, a User having multiple Access Rights can choose the Party for which the actions will be performed. The User shall have the option to change the Party during the same session. For the future RTGS services the data scope shall allow access to all data for any Party for which Access Rights have been granted; there shall be no facility to restrict access to any particular type(s) of data (even if this is possible in T2S).

4.1.1 Business Processes

Business Process	BP Reference	Business Process Description
Two-Eyes Approval	SHRD.BP.URA.2EYE	Process to allow create, amend or delete actions to be performed by only one user
Four-Eyes Approval	SHRD.BP.URA.4EYE	Process to ensure that create, amend or delete actions performed by a first user have to be confirmed by a second user

Table 3: Business Processes for User Roles and Access

4.1.2 General User Requirements for URA

Id	SHRD.UR.URA.ALL.000.010
Name	Authorisation Principle
Description	<p>The Service shall provide a list of predefined Roles that can be assigned to a User.</p> <p>Each Role grants a set of Privileges to the User. Each Privilege relates to one business function, following either the two-eyes or the four-eyes principle.</p>

Id	SHRD.UR.URA.ALL.000.020
Name	Validation of Authorisation Principle
Description	<p>The system shall allow for U2A usage Roles which contain Privileges with two-eyes or four-eyes principle.</p> <p>The system shall allow for A2A usage Roles which contain only Privileges with two-eyes principle.</p>

Id	SHRD.UR.URA.ALL.000.020
Name	User access
Description	The same User can be used to access various Market Infrastructure Services via ESMIG.

Id	SHRD.UR.URA.ALL.000.030
Name	Validation of Roles and accessible data scope
Description	Each Service shall check that the User is allowed to perform a business function through its list of Roles and Privileges as well as to access the respective data scope through the associated Access Rights.

Id	SHRD.UR.URA.ALL.000.040
Name	User access to data
Description	The Service shall offer a User access to the data of the Party it is belonging to, through the Access Rights indicating that this is the primary Party associated with the User.

Id	SHRD.UR.URA.ALL.000.050
Name	User access to data scope of another Party
Description	<p>The Service shall offer functionality to grant access to a User for the data scope of another Party, through additional Access Rights set up between the User and other Parties.</p> <p>For the future RTGS services the data scope shall allow access to all data for any Party for which Access Rights have been granted; there shall be no facility to restrict access to any particular type(s) of data (even if this is possible in T2S).</p>

4.2 TWO-EYES APPROVAL

Business Process Ref: SHRD.BP.URA.2EYE

This business process describes the processing of the two-eyes principle. If a User was assigned a Role containing a Privilege following the two-eyes principle and the User creates new data, amends or deletes existing data by using this Privilege there is no need for verification by another User.

For specific functionalities related to payment initiation (such as the current execution of backup payments) a four-eyes verification shall be required even if a User has a Role which contains a Privilege following the two-eyes principle.

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

4.2.1 User Requirements

Id	SHRD.UR.URA.2EYE.000.010
Name	Two-eyes principle
Description	If a User was assigned a Role containing a Privilege following the two-eyes principle and the User creates new data, amends or deletes existing data by using this Privilege there is no need for verification by another User.

Id	SHRD.UR.URA.2EYE.000.020
Name	Two-eyes principle - Exceptional handling
Description	For specific business processes related to payment initiation (such as the current execution of backup payments) a four-eyes verification shall be required even if a User has a Role which contains a Privilege following the two-eyes principle.

4.3 FOUR-EYES APPROVAL

Business Process Ref: SHRD.BP.URA.4EYE

This business process describes the processing of the four-eyes principle. If a User was assigned a Role containing a Privilege following the four-eyes principle and the User creates new data, amends or deletes existing data by using this Privilege there is a need for verification by another User. This second User can have a Privilege following two-eyes 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.

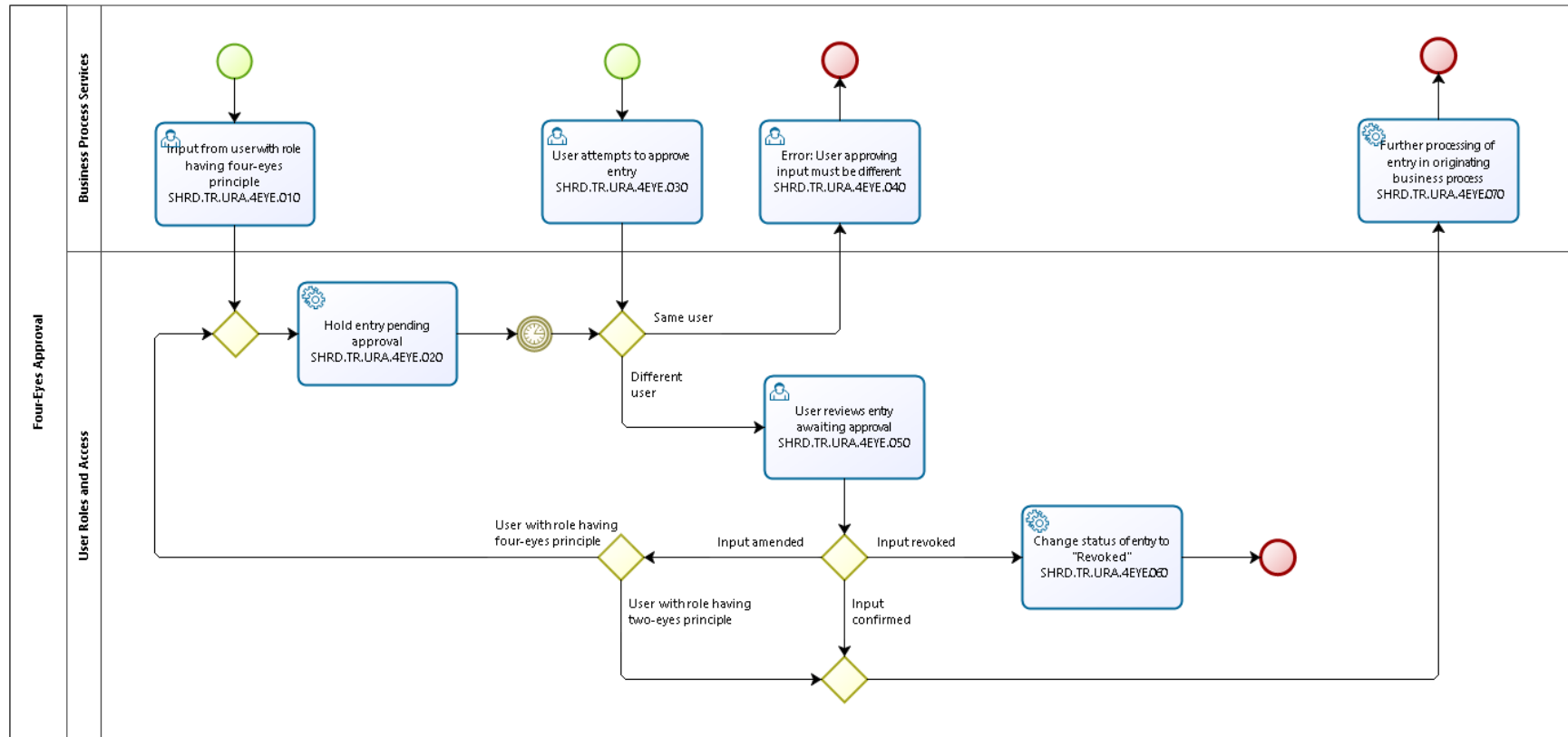
Where a User with a Role which contains a Privilege following the four-eyes principle has created new data, amended or deleted existing data, a second step for this update is required by another User to approve the change.

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".
- ▶ Amend: If the approval User needs to amend the transaction performed by the initial User the further processing is dependent on the Role of the approval User:
 - Approval User has a Role which contains a Privilege following the two-eyes principle:
The amendment of the approval User can be processed immediately.
 - Approval User has a Role which contains a Privilege following the four-eyes principle:
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 will be rejected at End of Day.

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 FOUR-EYES APPROVAL

Id	SHRD.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	SHRD.UR.URA.4EYE.000.020
Name	Four-eyes principle - Check of different Users
Description	<p>For a User who has a Role which contains a Privilege following the four-eyes principle it has to be checked that two different Users having the relevant Privileges perform the creation, amendment or deletion of data and the verification. This check shall ensure that the same User accessing the Service via an alternative network provider is prevented from verifying an action previously performed by himself/herself.</p> <p>Note: The same User can perform for one task the creation, amendment or deletion of data and for another task the verification, providing that it is compliant with their Role.</p>

Id	SHRD.UR.URA.4EYE.000.030
Name	Four-eyes principle - Creation, amendment or deletion
Description	If a User was assigned a Role containing a Privilege following the four-eyes principle and the User creates new data, amends or deletes existing data by using this Privilege there is a need for an additional verification by another User.

Id	SHRD.UR.URA.4EYE.000.040
Name	Four-eyes principle - Verification
Description	<p>An approval User can perform the following actions:</p> <ul style="list-style-type: none">• 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: Where the approval User edits the transaction performed by the first User, the further processing is dependent of the Role of the second User:<ul style="list-style-type: none">- Approval User has a Role which contains a Privilege following the two-eyes principle: The amended update of the second User can immediately be processed.- Approval User has a Role which contains a Privilege following the four-eyes principle: The amended update of the approval User needs verification by another User. Therefore, the edit 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: SHRD.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: SHRD.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: SHRD.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: SHRD.TR.URA.4EYE.040

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: SHRD.TR.URA.4EYE.050

The approver reviews the entry awaiting approval. The system shall verify that the approver has the relevant Privileges.

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 Role which contains a Privilege following the four-eyes principle then the amended entry will be held for further approval.

If the entry is amended by the approver and the approver has a Role which contains a Privilege following the two-eyes principle then the amended entry will be processed within the originating process.

4.3.2.7 CHANGE STATUS OF ENTRY TO "REVOKED"

Task Ref: SHRD.TR.URA.4EYE.060

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: SHRD.TR.URA.4EYE.070

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

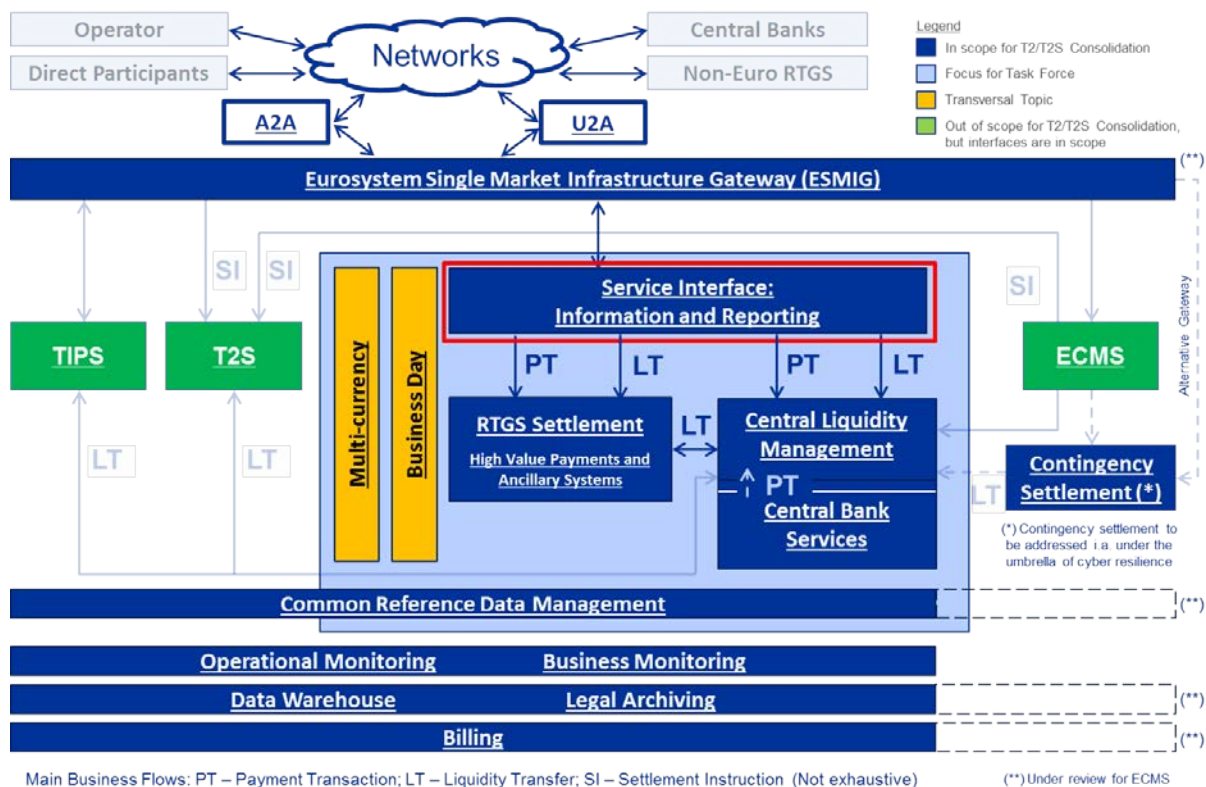


Figure 5: Context diagram for Information and Reporting

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

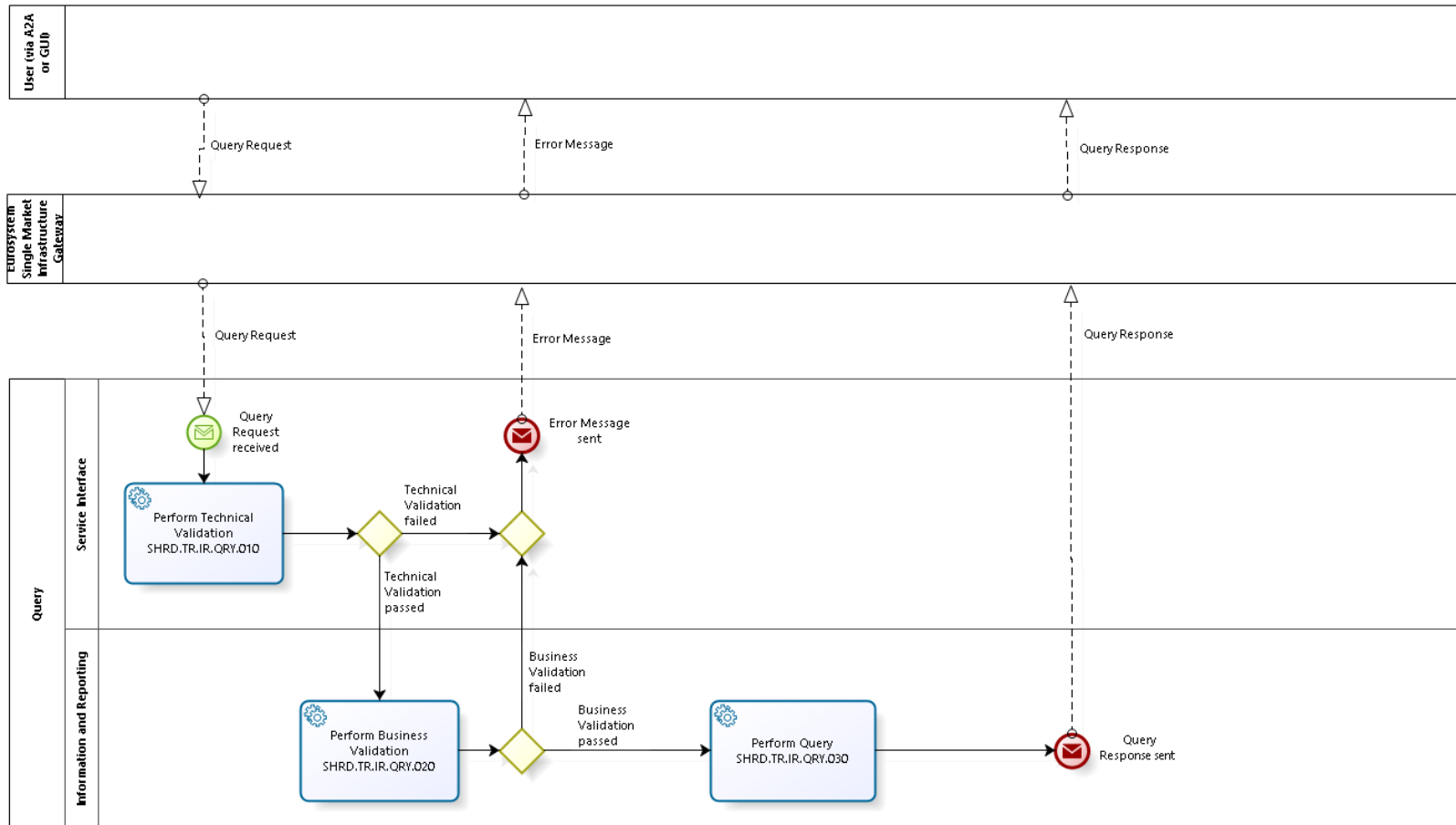
Business Process	BP Reference	Business Process Description
Query	SHRD.BP.IR.QRY	Participant performs interactive query via the GUI or via A2A
Produce and Send Scheduled Report via A2A	SHRD.BP.IR.SCHRPT	Reports produced on a regular basis are created and sent to all registered recipients in A2A mode
Request Report	SHRD.BP.IR.RQSTRPT	Participant requests an ad-hoc report or a copy of a previously produced report in U2A or 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:

The purpose of this process is to perform a query requested by a participant either via A2A or via the GUI (U2A) and to present the corresponding response provided by the service back to the participant via the same mode as the request.

Process context:

- ▶ This process is the mechanism to allow a participant 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 via A2A, 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 received via A2A
Description	The query process shall validate the query input if received via A2A 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 where the query is via the GUI (U2A). If the request was received via A2A a rejection notification with the appropriate reason code shall be sent to the participant performing the query.

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 participant has suitable permissions.

If the validation failed, either an error message shall be displayed via the GUI or a rejection notification with the appropriate reason code shall be sent to the participant performing the query.

Id	SHRD.UR.IR.QRY.020.010
Name	Authorisation check
Description	The query process shall check that only authorised participants are allowed to send a query and that the participant 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 validations (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 where the query is via the GUI (U2A). If the request was received via A2A a rejection notification with the appropriate reason code shall be sent to the participant performing the query.

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.

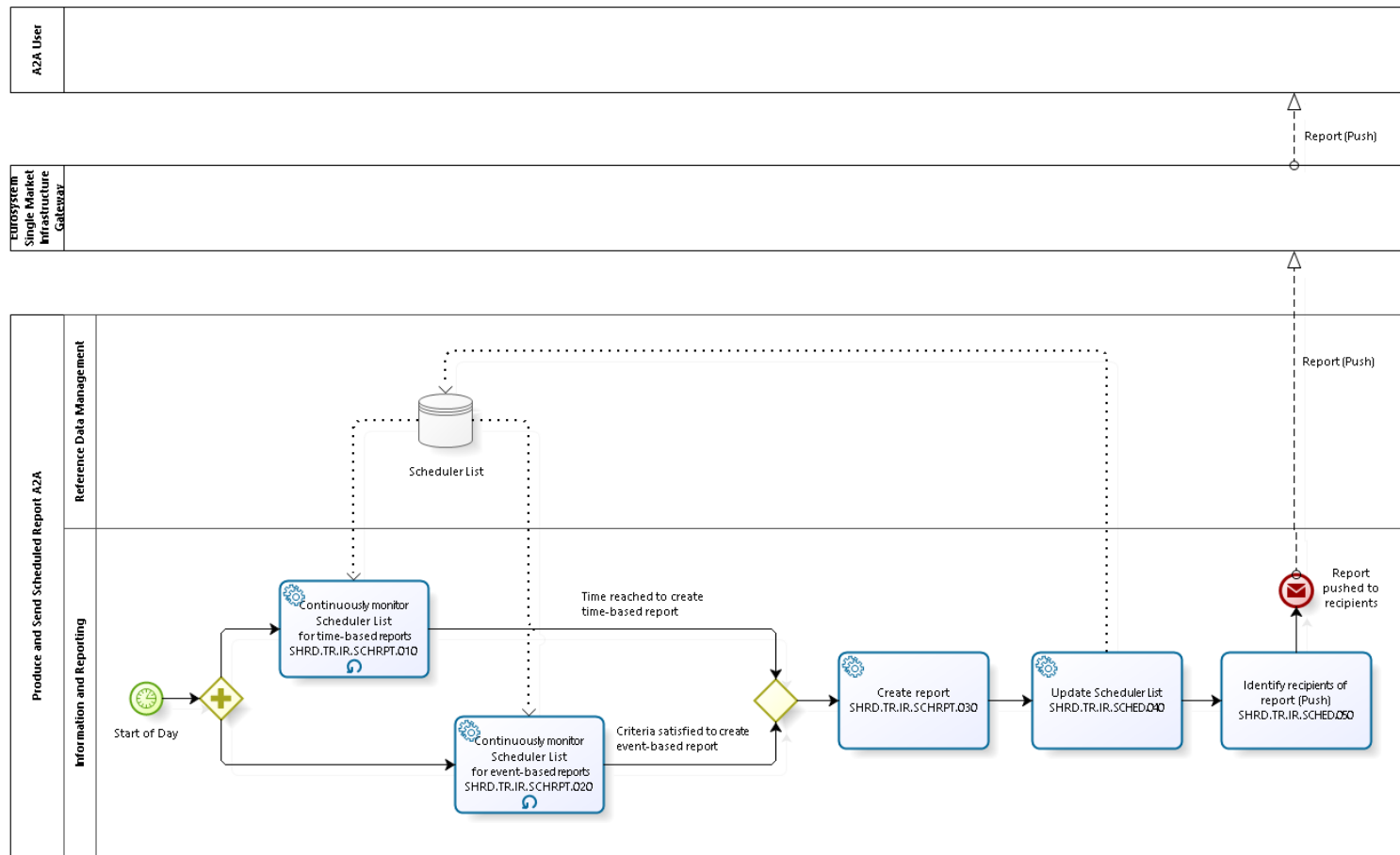
Id	SHRD.UR.IR.QRY.030.020
Name	Feedback in case of successful execution of the query
Description	The result shall be sent in the requested format either to screen or via A2A.

Id	SHRD.UR.IR.QRY.030.030
Name	Export query results from the GUI
Description	Where the query has been executed via the GUI (U2A) and the results have been displayed on the screen, the participant shall be able to export the results in various file formats

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:

The purpose of this process is to create and distribute reports either automatically, based on a time or event trigger, or scheduled by the participant via a specific request entered by the participant.

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	Each report request in the Scheduler List for which the time-based or event-based trigger has occurred shall be created according to the predefined 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**

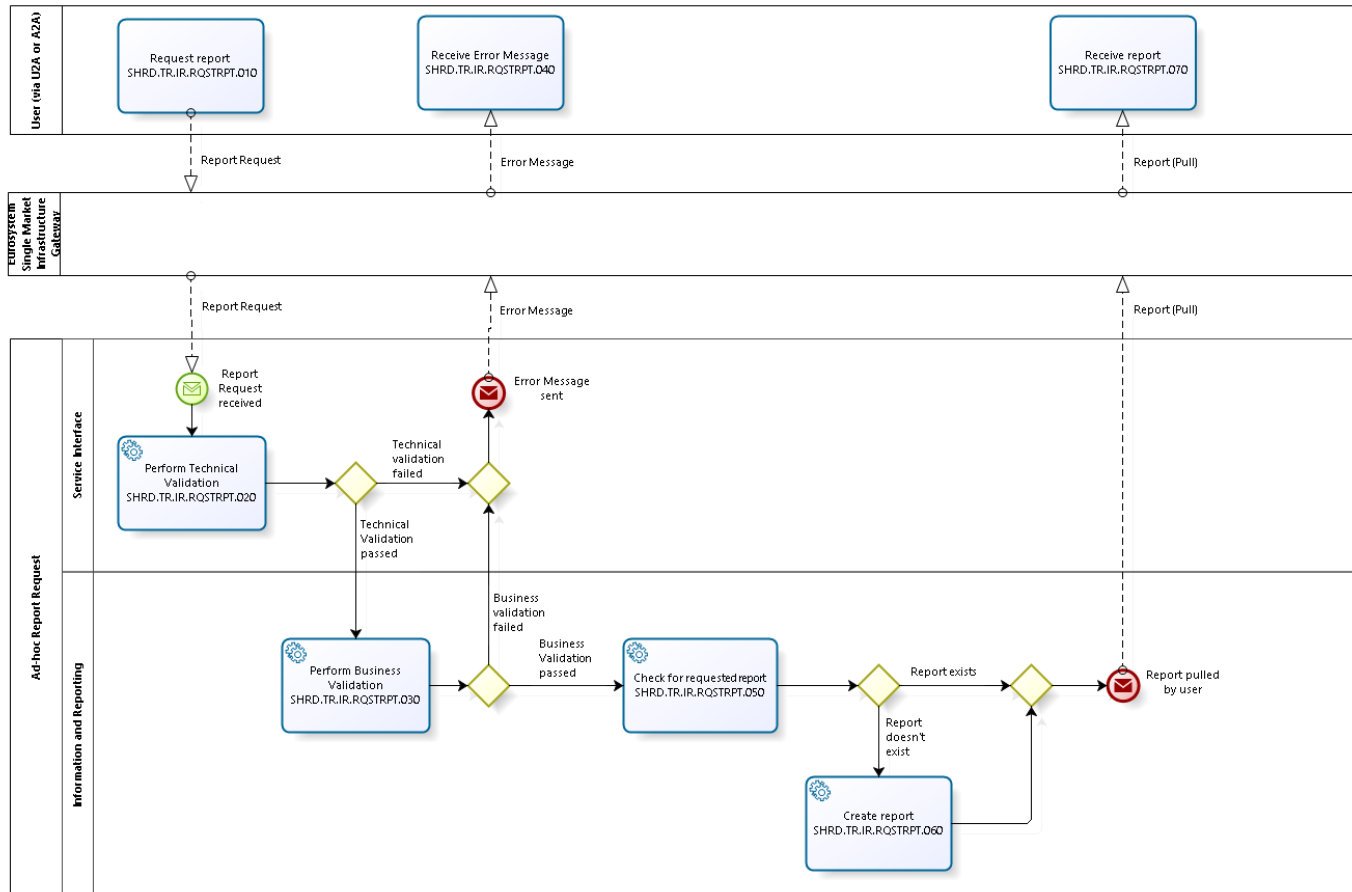
Id	SHRD.UR.IR.SCHRPT.050.010
Name	Authorisation check for recipients
Description	The report production process shall identify the participants for which there is an active Report Subscription for the report and that the participant is authorised to have read access to all values of all attributes.

Id	SHRD.UR.IR.SCHRPT.050.020
Name	Report delivery
Description	The report production process will send out the report via A2A push mode.

5.4 AD-HOC REPORT REQUEST

Business Process Ref: SHRD.BP.IR.RQSTRPT

5.4.1 Business Process Model



Business Process Model 12: Ad-hoc Report Request

5.4.2 Process overview

Process goal:

The purpose of this process is to respond to a request received from a participant on an ad-hoc basis either via A2A or via the GUI (U2A) to produce a pre-defined report. This may include requests for a standard report produced and distributed automatically by the service where the participant was not a subscriber to the report.

Process context:

- ▶ This process is the mechanism whereby any pre-defined report will be requested by a participant as and when required.

Pre-conditions:

- ▶ None

Time constraints:

- ▶ None

Expected results:

- ▶ If the requested report has already been produced, such as a standard report which was created automatically or if another participant has already requested the same pre-defined report, and is still available then the participant will receive it in pull mode.
- ▶ If the requested report has not already been produced then the report will be created and the participant will receive it in pull mode.
- ▶ The Ad-hoc Report Request process shall respond to the request via the same mode (U2A or A2A) through which the request was received.
- ▶ 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 participant via A2A or displayed in the GUI (U2A).

Triggers:

- ▶ The process will be initiated by an ad-hoc request received from a participant (either via U2A or A2A) for a pre-defined report.

Sub-processes:

- ▶ None

5.4.3 User Requirements

5.4.3.1 REQUEST REPORT

Task Ref: SHRD.TR.IR.RQSTRPT.010

Id	SHRD.UR.IR.RQSTRPT.010.010
Name	Ad-hoc request for report
Description	A participant makes an ad-hoc request for a report or a copy of a previously produced report either via the GUI or via A2A

5.4.3.2 PERFORM TECHNICAL VALIDATION

Task Ref: SHRD.TR.IR.RQSTRPT.020

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

If the validation fails, a rejection notification with the appropriate reason code shall be sent to the participant making the report request.

Id	SHRD.UR.IR.RQSTRPT.020.010
Name	Validation of request received via A2A
Description	The Ad-hoc Report Request process shall parse the report request message if 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.IR.RQSTRPT.020.020
Name	Check mandatory attributes
Description	The Ad-hoc Report Request process shall ensure that all mandatory attributes in the report request are populated

5.4.3.3 PERFORM BUSINESS VALIDATION

Task Ref: SHRD.TR.IR.RQSTRPT.030

The business validation comprises checks on the values of the attributes, cross-field validation 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.

If the validation fails, a rejection notification with the appropriate reason code shall be sent to the participant making the report request.

Id	SHRD.UR.IR.RQSTRPT.030.010
Name	Check attribute values
Description	The Ad-hoc Report Request process shall check that the values of all attributes that are populated in the report request via U2A or A2A (mandatory or optional) are valid according to the allowed values or value ranges

Id	SHRD.UR.IR.RQSTRPT.030.020
Name	Check data integrity
Description	The Ad-hoc Report Request process shall check that all cross-field validation requirements (data integrity) are satisfied, either between attributes within the report request or between an attribute in the report request and one or more items of data held in the system

5.4.3.4 RECEIVE ERROR MESSAGE

Task Ref: SHRD.TR.IR.RQSTRPT.040

Id	SHRD.UR.IR.RQSTRPT.040.010
Name	Rejection Notification
Description	Where either the technical or the business validations failed, the Ad-hoc Report Request process shall ensure that a rejection notification with the appropriate reason code shall be sent to the participant via A2A or displayed in the GUI (U2A)

5.4.3.5 CHECK FOR REQUESTED REPORT

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

Id	SHRD.UR.IR.RQSTRPT.050.010
Name	Check whether report exists
Description	The Ad-hoc Report Request process shall check whether the report requested by the participant has already been created, using the details entered by the participant in the GUI (U2A) or in the report request message (A2A)

5.4.3.6 CREATE REPORT

Task Ref: **SHRD.TR.IR.RQSTRPT.060**

Id	SHRD.UR.IR.RQSTRPT.060.010
Name	Create report
Description	Where the requested report has not already been produced then the Ad-hoc Report Request process shall create the report based on the selection criteria entered by the participant in the request (U2A) or based on the parameters specified in the report request message (A2A)

5.4.3.7 RECEIVE REPORT

Task Ref: **SHRD.TR.IR.RQSTRPT.070**

Id	SHRD.UR.IR.RQSTRPT.070.010
Name	Send report
Description	The Ad-hoc Report Request process shall ensure that the participant receives the requested report in pull mode via the same mechanism used by the participant when submitting the request (U2A or A2A)

5.5 INFORMATION AND REPORTING – NON-FUNCTIONAL REQUIREMENTS

5.5.1 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.

5.5.2 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.

5.5.3 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

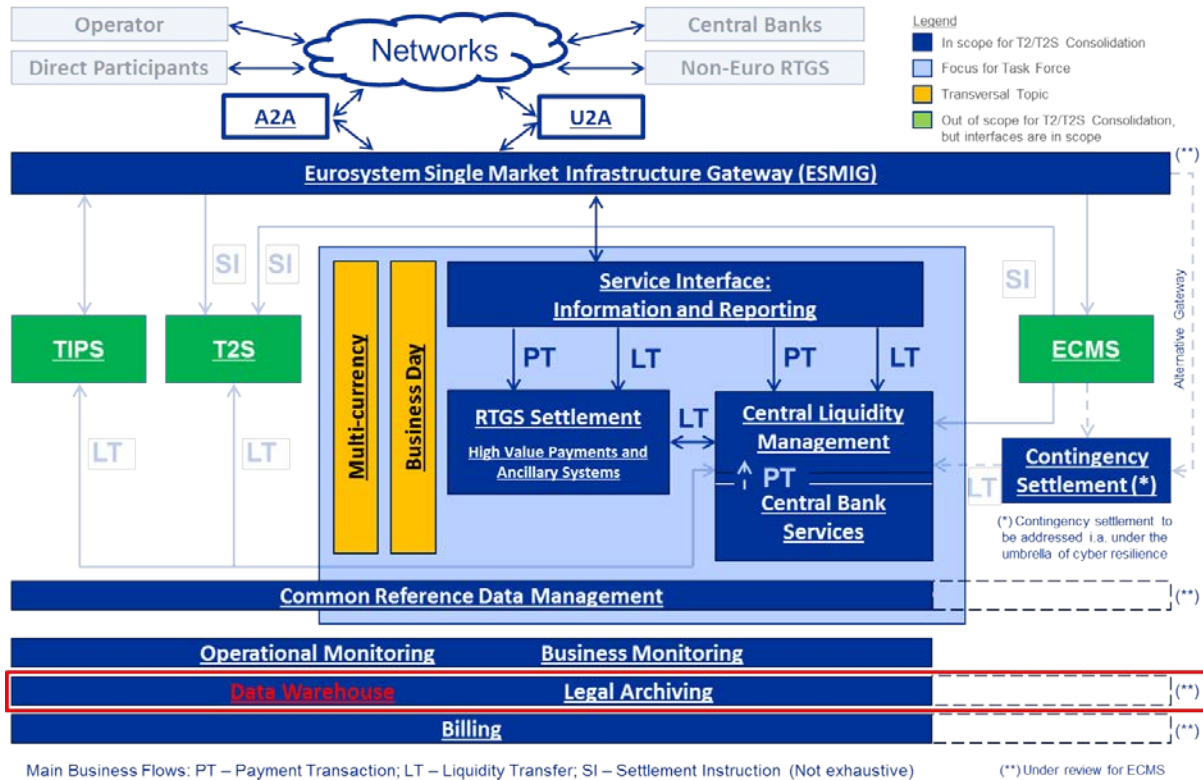


Figure 6: Context diagram for Data Warehouse Service

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

6.1.2 Business Processes

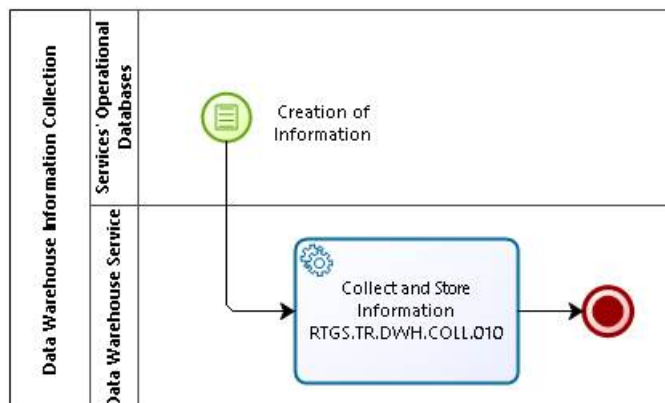
Business Process Name	BP Reference	Business Process Description
Collect Information	SHRD.BP.DWH.COLL	Process to collect data within the various services
Access Information	SHRD.BP.DWH.GATH	Process to access collected information for the various needs

Table 5: Business Processes for Data Warehouse Service

6.2 DATA WAREHOUSE INFORMATION COLLECTION

Business Process Ref: SHRD.BP.DWH.COLL

6.2.1 Business Process Model



Business Process Model 13: Data Warehouse Information Collection

6.2.2 Process Overview

This business process describes the collection of business related data stemming from the different services' operational databases for queries, reports and regulatory reporting. 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.

6.2.3 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 should be possible to mirror all relevant data to the data warehouse (further information can be found in the section User Interaction for each service).

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 section 'User Interaction'.

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. Data shall be available at max 15 minutes after its creation.

For queries, reports and regulatory reporting a provision of the data on D+1 is sufficient. If intra-day operational data is needed as a DWH service, the DWH service is supposed to receive according data shortly (e.g. <15 min) after its generation.

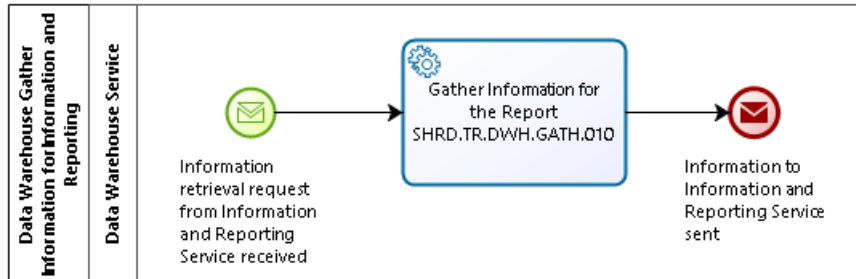
Id	SHRD.UR.DWH.COLL.010.050
Name	Retention period
Description	The collected information shall be kept 10 years. The retention period shall be configurable per data source.

Subject to the needs for queries and reports, it shall be possible to keep data in the DWH for up to 10 years. Not each detailed data occurrence has to be kept for 10 years though. For example aggregated transaction data would be relevant for the whole time span.

6.3 DATA WAREHOUSE GATHER INFORMATION FOR INFORMATION AND REPORTING

Business Process Ref: SHRD.BP.DWH.GATH

6.3.1 Business Process Model



Business Process Model 14: Data Warehouse Gather Information for Information and Reporting

6.3.2 Process Overview

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 sections 'Information and Reporting' and 'User Interaction'.

6.3.3 User Requirements

6.3.3.1 GATHER INFORMATION FOR THE REPORT

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 user 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 'User Interaction'.

Id	SHRD.UR.DWH.GATH.010.030
Name	Information display
Description	The display of information will be depicted in the section 'User Interaction'.

7 GENERAL NON-FUNCTIONAL REQUIREMENTS

The general non-functional requirements cover all requirements which are not service-specific but apply to all services. Within the services' description the availability, disaster recovery and performance requirements are depicted.

7.1 GENERAL FRAMEWORK

Id	SHRD.UR.NFR.ALL.000.010
Name	Language
Description	The services shall use English as unique language.

This includes all documentation as well as all communication.

Id	SHRD.UR.NFR.ALL.000.020
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 evaluate whether usage and resource consumption of functions meets the expectations.

7.2 INFORMATION SECURITY

Id	SHRD.UR.NFR.ALL.000.030
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.000.040
Name	Cyber Resilience
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.000.050
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.000.060
Name	Service Desk Availability
Description	The Service Desk shall be available both during standard support and non-standard support hours with different service levels.

The Service Desk's support hours shall be harmonised across the services. The definition of standard and non-standard support hours and reaction times will be part of the Service Level Agreement.

Id	SHRD.UR.NFR.ALL.000.070
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.

Id	SHRD.UR.NFR.ALL.000.080
Name	Access to Trouble Management System
Description	Parties other than the central banks shall have access to the TMS with the possibility to view information related to broadcast incidents and problems and their own incidents and problems.

Id	SHRD.UR.NFR.ALL.000.090
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.000.100
Name	IT Service Continuity Management process is in place
Description	An IT Service Continuity Management 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.000.110
Name	Independent remote sites
Description	All services shall have independent remote sites to restart the services in case of site failures.

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

Id	SHRD.UR.NFR.ALL.000.120
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.000.130
Name	Access of support staff
Description	Support staff must have access to the systems at all times, including crises.

7.6 SERVICE MANAGEMENT

Id	SHRD.UR.NFR.ALL.000.140
Name	Service Management Processes
Description	IT service management processes following the ITIL v.3 framework shall be in place.

The maintenance of the services shall be subject to efficient IT management processes.

7.7 CLOCK SYNCHRONISATION

Id	SHRD.UR.NFR.ALL.000.150
Name	Clock synchronisation method
Description	The services shall use atomic clock time as a reference.

The services clocks have to be synchronised to an atomic clock time (in UTC).

7.8 TESTING REQUIREMENTS [PLACE HOLDER]

8 USER INTERACTION

The objective of this section is to provide the user requirements related to user interactions covering the usage of user-to-application (U2A) or application-to-application (A2A) mode. A Graphical User Interface (GUI) would be provided, offering functionalities to access information in U2A mode.

These requirements do not imply any particular consideration with regard to design and the implementation of the actual screens.

8.1 GENERAL USER REQUIREMENTS FOR USER INTERACTION

8.1.1 Query

Id	SHRD.UR.ALL.UI.010
Name	Query Audit Trail
Description	All services shall provide the functionality to query the modified data at 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 System time
Description	All services shall provide the functionality to query system time to align the time of a connected application through an A2A interface.

8.1.2 Action

Id	SHRD.UR.ALL.UI.030
Name	Confirm/Reject Task(s)
Description	All services shall provide the functionality to confirm/reject task(s) through the U2A and A2A interfaces.

Id	SHRD.UR.ALL.UI.040
Name	Act on behalf
Description	All services shall provide the functionality to act on behalf through U2A and A2A interfaces for: <ul style="list-style-type: none">• Central Banks, to act on behalf of any party belonging to their banking community; and• The Operator, to act on behalf of any party.

Id	SHRD.UR.ALL.UI.050
Name	Access rights
Description	All services shall ensure that a user can only access functionality and data that is allowed by the access rights granted to the user through the Roles and Privileges associated with the user.

Id	SHRD.UR.ALL.UI.060
Name	Four-eyes (confirm, revoke, amend)
Description	All services shall provide the functionality to use four-eyes approval, allowing the authoriser to confirm, revoke or 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	<p>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.</p> <p><u>Mandatory selection criteria:</u></p> <ul style="list-style-type: none"> • Entry date or range of date (current business day as default) • Entry time or range of time • Inbound or outbound • Message type <p><u>Optional selection criteria:</u></p> <ul style="list-style-type: none"> • Status • Amount • Sender BIC • Receiver BIC <p>The query shall return the message in xml format including the processing status.</p> <p>This query shall only be provided in U2A mode.</p>

8.2.2 Action

Id	SHRD.UR.ESMIG.UI.020
Name	Resend messages and files
Description	<p>The ESMIG service shall provide the functionality to resend the outgoing and ingoing messages and files through U2A and A2A interface.</p>

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	<p>The CRDM service shall provide the functionality to query the common reference data of a Party.</p> <p>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.</p> <p><u>Mandatory selection criteria:</u></p> <ul style="list-style-type: none">• Party BIC <p><u>Optional selection criteria:</u></p> <ul style="list-style-type: none">• Status• Responsible CB• Party Type <p>The query shall return all business attributes of the Party including the status.</p>

Id	SHRD.UR.CRDM.UI.020
Name	Query Participant
Description	<p>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.</p> <p><u>Mandatory selection criteria:</u></p> <ul style="list-style-type: none">• Party BIC <p><u>Optional selection criteria:</u></p> <ul style="list-style-type: none">• Status• Responsible CB• Party Type• Account• Management of Minimum Reserve• Minimum Reserve Sources• Usage of T2S• Usage of TIPS <p>The query shall return all business attributes of the party including the status.</p>

Id	SHRD.UR.CRDM.UI.030
Name	Query Ancillary System
Description	<p>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.</p> <p><u>Mandatory selection criteria:</u></p> <ul style="list-style-type: none">• Party BIC <p><u>Optional selection criteria:</u></p> <ul style="list-style-type: none">• Status• Responsible CB <p>The query shall return all business attributes of the party including the status.</p>

Id	SHRD.UR.CRDM.UI.040
Name	Query Central Banks
Description	<p>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.</p> <p><u>Mandatory selection criteria:</u></p> <ul style="list-style-type: none">• Party BIC <p><u>Optional selection criteria:</u></p> <ul style="list-style-type: none">• Status <p>The query shall return all business attributes of the party including the status.</p>

Id	SHRD.UR.CRDM.UI.050
Name	Query RTGS Directory
Description	<p>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.</p> <p><u>Mandatory selection criteria:</u></p> <ul style="list-style-type: none">• Directory <p><u>Optional selection criteria:</u></p> <ul style="list-style-type: none">• Status• BIC• Name• Responsible CB• Modification Date (from-to) <p>The query shall return all business attributes of the RTGS Directory.</p>

Id	SHRD.UR.CRDM.UI.060
Name	Query Standing Order
Description	<p>The CRDM service shall provide the functionality to query the reference data of a Standing Order. The user shall specify at least one of the following mandatory selection criteria.</p> <p><u>Mandatory selection criteria:</u></p> <ul style="list-style-type: none">• Party BIC• Account number <p>The query shall return all business attributes of the Standing Order.</p>

Id	SHRD.UR.CRDM.UI.070
Name	Query account reference data
Description	<p>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.</p> <p><u>Mandatory selection criteria:</u></p> <ul style="list-style-type: none">• Party BIC• Account number <p>The query shall return all business attributes of the account including the status.</p>

Id	SHRD.UR.CRDM.UI.080
Name	Query Direct Debit Mandate
Description	<p>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.</p> <p><u>Mandatory selection criteria:</u></p> <ul style="list-style-type: none">• Party BIC• Cash Account Number <p><u>Optional selection criteria:</u></p> <ul style="list-style-type: none">• Status• Reference <p>The query shall return all business attributes of the direct debit mandate.</p>

Id	SHRD.UR.CRDM.UI.090
Name	Query Calendar
Description	<p>The CRDM service shall provide the functionality to query a calendar.</p> <p>The user shall specify at least one of the following mandatory selection criteria.</p> <p><u>Mandatory selection criteria:</u></p> <ul style="list-style-type: none">• Year• Month <p>The query shall return all business attributes of the calendar.</p>

Id	SHRD.UR.CRDM.UI.100
Name	Query Operator Entity
Description	<p>The CRDM service shall provide the functionality to query the reference data of the Operator Entity.</p> <p>The user shall specify at least the following mandatory selection criteria.</p> <p><u>Mandatory selection criteria:</u></p> <ul style="list-style-type: none"> • Operator Entity <p>The query shall return all business attributes of the Operator.</p>

Id	SHRD.UR.CRDM.UI.110
Name	Query Error Codes
Description	<p>The CRDM service shall provide the functionality to query the description of the Error Codes.</p> <p>The user shall specify at least one of the following mandatory selection criteria.</p> <p><u>Mandatory selection criteria:</u></p> <ul style="list-style-type: none"> • Error Code • Error Description • Category <p>The query shall return all business attributes of the error code.</p>

8.3.2 Action

Id	SHRD.UR.CRDM.UI.120
Name	Create a Limit
Description	<p>The CRDM service shall provide the functionality to create a Limit through U2A interface and A2A interface.</p>

Id	SHRD.UR.CRDM.UI.130
Name	Amend a Limit
Description	The CRDM service shall provide the functionality to amend a Limit through U2A interface and A2A interface.

Id	SHRD.UR.CRDM.UI.140
Name	Delete a Limit
Description	The CRDM service shall provide the functionality to delete a Limit through U2A interface and A2A interface.

Id	SHRD.UR.CRDM.UI.150
Name	Create a Report Subscription
Description	The CRDM service shall provide the functionality to create a Report Subscription through U2A interface.

Id	SHRD.UR.CRDM.UI.160
Name	Amend a Report Subscription
Description	The CRDM service shall provide the functionality to amend a Report Subscription through U2A interface.

Id	SHRD.UR.CRDM.UI.170
Name	Delete a Report Subscription
Description	The CRDM service shall provide the functionality to delete a Report Subscription through U2A interface.

Id	SHRD.UR.CRDM.UI.180
Name	Create a Message Subscription
Description	The CRDM service shall provide the functionality to create a Message Subscription through U2A interface.

Id	SHRD.UR.CRDM.UI.190
Name	Amend a Message Subscription
Description	The CRDM service shall provide the functionality to amend a Message Subscription through U2A interface.

Id	SHRD.UR.CRDM.UI.200
Name	Delete a Message Subscription
Description	The CRDM service shall provide the functionality to delete a Message Subscription through U2A interface.

Id	SHRD.UR.CRDM.UI.210
Name	Create a Standing Order
Description	The CRDM service shall provide the functionality to create a Standing Order through U2A interface and A2A interface.

Id	SHRD.UR.CRDM.UI.220
Name	Amend a Standing Order
Description	The CRDM service shall provide the functionality to amend a Standing Order through U2A interface and A2A interface.

Id	SHRD.UR.CRDM.UI.230
Name	Delete a Standing Order
Description	The CRDM service shall provide the functionality to delete a Standing Order through U2A interface and A2A interface.

Id	SHRD.UR.CRDM.UI.240
Name	Create a Standing Order for Reservation
Description	The CRDM service shall provide the functionality to create a Standing Order for Reservation through U2A interface and A2A interface.

Id	SHRD.UR.CRDM.UI.250
Name	Amend a Standing Order for Reservation
Description	The CRDM service shall provide the functionality to amend a Standing Order for Reservation through U2A interface and A2A interface.

Id	SHRD.UR.CRDM.UI.260
Name	Delete a Standing Order for Reservation
Description	The CRDM service shall provide the functionality to delete a Standing Order for Reservation through U2A interface and A2A interface.

Id	SHRD.UR.CRDM.UI.270
Name	Create a Reservation
Description	The CRDM service shall provide the functionality to create a Reservation through U2A interface and A2A interface.

Id	SHRD.UR.CRDM.UI.280
Name	Amend a Reservation
Description	The CRDM service shall provide the functionality to amend a Reservation through U2A interface and A2A interface.

Id	SHRD.UR.CRDM.UI.290
Name	Delete a Reservation
Description	The CRDM service shall provide the functionality to delete a Reservation through U2A interface and A2A interface.

Id	SHRD.UR.CRDM.UI.300
Name	Create a White List
Description	The CRDM service shall provide the functionality to create a White List through U2A interface and A2A interface.

Id	SHRD.UR.CRDM.UI.310
Name	Amend a White List
Description	The CRDM service shall provide the functionality to amend a White List through U2A interface and A2A interface.

Id	SHRD.UR.CRDM.UI.320
Name	Delete a White List
Description	The CRDM service shall provide the functionality to delete a White List through U2A interface and A2A interface.

Id	SHRD.UR.CRDM.UI.330
Name	Create a Liquidity Transfer
Description	The CRDM service shall provide the functionality to create a Liquidity Transfer through U2A interface and A2A interface.

Id	SHRD.UR.CRDM.UI.340
Name	Amend a Liquidity Transfer
Description	The CRDM service shall provide the functionality to amend a Liquidity Transfer through U2A interface and A2A interface.

Id	SHRD.UR.CRDM.UI.350
Name	Delete a Liquidity Transfer
Description	The CRDM service shall provide the functionality to delete a Liquidity Transfer through U2A interface and A2A interface.

Id	SHRD.UR.CRDM.UI.360
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.

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

This section describes the business data entities and attributes referred to within the business process descriptions either within this document, the User Requirements Document for Shared Services, or those that are common to the business processes described in more than one of the User Requirements Documents of the Eurosystem Market Infrastructure Services (RTGS, CLM, TIPS, T2S).

Business data entities and attributes that are referred to uniquely within only one of the User Requirements Documents are described within the Business Data Definitions section of that particular User Requirements Document, such as the T2S User Requirements Document or the TIPS User Requirements Document.

The business data entities and attributes described include both Common Reference Data and also data that are dynamic or transactional in nature.

The definitions of the entities are based purely on a logical view of the data requirements expressed by and confirmed with the Task Force on Future RTGS Services or implied by the understanding of the requirements for the business processes. These logical definitions do not in any way imply or predicate any design considerations or suggestions.

9.1 ENTITY RELATIONSHIP DIAGRAMS

9.1.1 Party

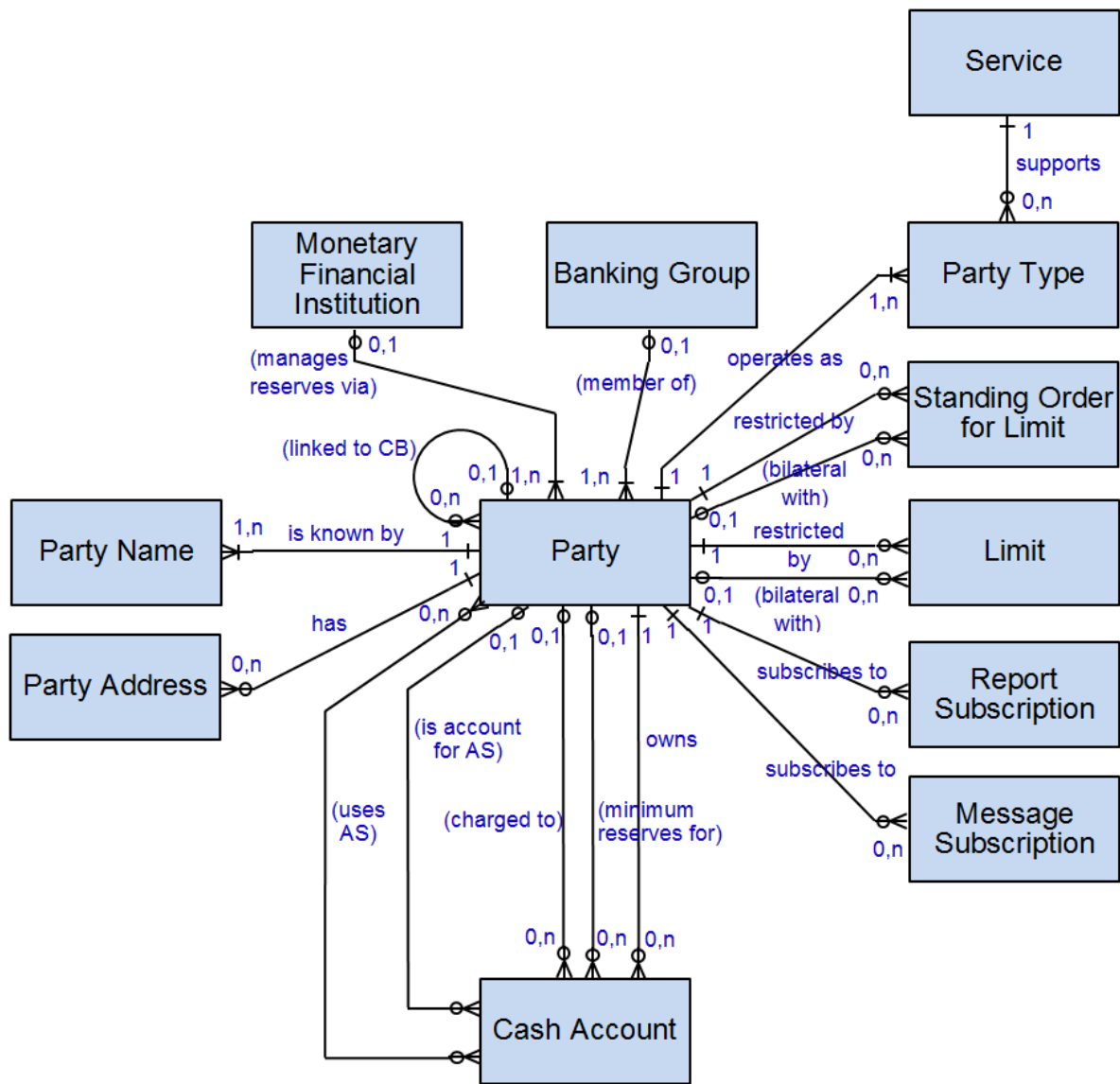


Figure 7: Entity Relationship Diagram for Party

9.1.2 Cash Account

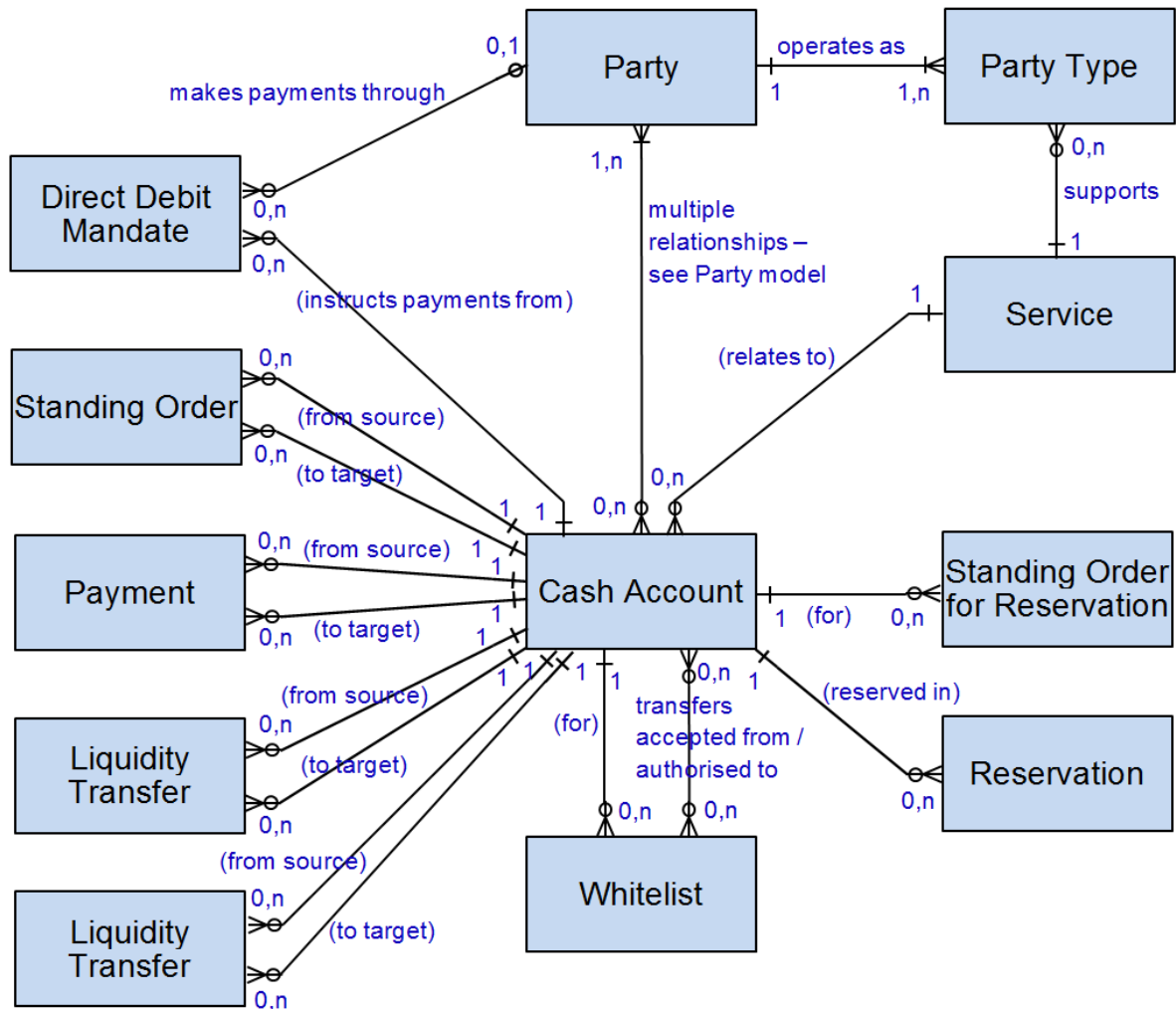


Figure 8: Entity Relationship Diagram for Cash Account

9.2 ENTITIES AND ATTRIBUTES

Id	SHRD.UR.BDD.000
Name	Audit Trail
Description	<p>The following Attributes are implied to be included within each of the Entities described in this section, without being stated explicitly in every case.</p> <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none">• User Id: The unique technical identifier of the user (individual or application) who updated the occurrence of the entity• Timestamp: The timestamp is a snapshot of the operating system date and time when a change is committed• Approval Status: Indicates whether the change requires approval and if so whether the change has been approved or not <p><u>Optional attributes:</u></p> <ul style="list-style-type: none">• n/a

Id	SHRD.UR.BDD.010
Name	Party
Description	<p>This entity shall denote any legal or organisational entity required in the Market Infrastructure Services</p> <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none"> • Party Identifier (KEY): The unique technical identifier of a party • Party BIC Code • LEI: The unique identifier of the legal entity in accordance with the ISO 17442 standard • Institutional Sector Code: Identifies the financial corporations sector classification to which the Party belongs with respect to the nature of its business • Party Status: The business status of a Party for processing in the system • Intraday Credit Indicator (i.e. allowed/not allowed) • Intraday Credit Limitation: Maximum intraday credit authorised to a Party • Standing Facility Indicator (i.e. allowed/not allowed) • Minimum Reserve Obligation (i.e. the party is subject to / exempted from minimum reserve requirement) • Opening Date: The date on which the contractual relationship with the party was legally established <p><u>Optional attributes:</u></p> <ul style="list-style-type: none"> • Parent BIC Code • Banking Group Identifier (e.g. blank if it does not belong to a Banking Group) • Global End-of-day Balance: Balance composed of the individual end-of-day balances within each settlement service for the participant • Monetary Financial Institution (MFI): This attribute shall identify the Monetary Financial Institution (MFI) with which the participant is associated for the calculation of minimum reserves via a pool • MFI Leader BIC: BIC of the Party designated as the MFI Leader where minimum reserves are managed in a pool • Account for Minimum Reserve: Account used by the MFI Leader for minimum reserve • Marginal Lending Account: Account Number of the Marginal Lending Account managed within CLM and maintained by a central bank to settle all marginal lending transactions submitted by the CBS and processed by the CLM • Overnight Deposit Account: Account Number of the Overnight Deposit Account managed within CLM and maintained by a central bank to settle all overnight deposit transactions submitted by the CBS and processed by the CLM • Closing Date: The date that the contractual relationship with the party has legally ended • Currency Code: The national currency associated a Central Bank • Country Code • Capital Key Percentage: The percentage contribution of a Central Bank to the ECB's capital. Mandatory where Party Type is Central Bank (CB)

Id	SHRD.UR.BDD.020
Name	Party Type
Description	<p>This entity shall denote the type of participation or business role of a Party within a Service.</p> <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none"> • Party Identifier (KEY): The unique technical identifier of a Party. It shall link the Party Type to the Party • Service Identifier (KEY): The unique technical identifier of the Service with which the Party is associated within the capacity of this Party Type. It shall link the Party Type to the Service • Party Type Description: Describes the nature of the business role performed by the Party within the Service. This will include (but is not restricted to): <ul style="list-style-type: none"> - Service Operator - Central Bank (CB) - Payment Bank - Ancillary System (AS) - Central Securities Depository (CSD) - CSD Participant - External CSD • Valid From Date <p><u>Optional attributes:</u></p> <ul style="list-style-type: none"> • Valid To Date

Id	SHRD.UR.BDD.030
Name	Party Name
Description	<p>This entity shall denote a Party Name.</p> <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none"> • Party Identifier: The unique technical identifier of a party. It shall link the name back to the Party • 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 • Party Long Name: The full name of the party • Party Short Name: The short name of the party <p><u>Optional attributes:</u></p> <ul style="list-style-type: none"> • Valid To Date

Id	SHRD.UR.BDD.040
Name	Party Address
Description	<p>This entity shall denote the address of a Party.</p> <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none"> • Address Identifier (KEY): The unique technical identifier of a Party Address • Party Identifier: The unique technical identifier of a party in T2S. It shall link the address to the party • Valid From Date: The date from which the party address is valid <p><u>Optional attributes:</u></p> <ul style="list-style-type: none"> • 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 • Street: The name of the street for the address • House Number: The house number for the address • City: The name of the city for the address • Postal Code: The postal code for the address • State or Province: The state or province for the address. Its use shall depend on the country code of the address • Country Code: The country code of the address. The two-character ISO country code (ISO3166-1) shall identify the country • Valid To Date

Id	SHRD.UR.BDD.050
Name	Banking Group
Description	<p>This entity shall denote a Banking Group, allowing a number of Parties acting as Payment Banks to be viewed collectively for certain business processes such as the central management of liquidity. Payment Banks within a Banking Group may be associated with more than one Central Bank.</p> <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none"> • Banking Group Identifier (KEY): The unique technical identifier of a Banking Group. <p><u>Optional attributes:</u></p> <ul style="list-style-type: none"> • n/a

Id	SHRD.UR.BDD.060
Name	Monetary Financial Institution (MFI)
Description	<p>This entity shall denote a pool for management of minimum reserves</p> <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none"> • MFI Code: The unique identifier of the Monetary Financial Institution • Current Maintenance Period From: Date range of the current maintenance period • Current Maintenance Period To: Date range of the current maintenance period • Minimum Reserve (EUR): Minimum reserve requirement of the MFI • Running Average (EUR): Value of running average for the MFI calculated at the end of the previous day • Adjustment Balance (EUR): Value of adjustment balance for the MFI <p><u>Optional attributes:</u></p> <ul style="list-style-type: none"> • n/a

Id	SHRD.UR.BDD.070
Name	Limit
Description	<p>This entity shall denote a limit on party level which will restrict the settlement of normal payments by the party, either towards a specified party (bilateral) or in general (multilateral).</p> <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none"> • Limit Identifier (KEY): The unique technical identifier of a limit • Limit type: Type of the limit e.g.: <ul style="list-style-type: none"> - Bilateral - Multilateral • Free Limit Position • Limit Currency • From Party: Party whose normal payments are restricted by the Limit • Valid From Date <p><u>Optional attributes:</u></p> <ul style="list-style-type: none"> • To Party: Party with whom the Bilateral Limit exists (mandatory for Bilateral Limits). Cannot be a EURO-Central Bank, i.e. normal payments towards a EURO Central Bank cannot be restricted. • Valid To Date

Id	SHRD.UR.BDD.080
Name	Standing Order for Limit
Description	<p>A template for Limits initiated automatically based on a time or event based trigger.</p> <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none">• Limit type: Type of the limit e.g.:<ul style="list-style-type: none">- Bilateral- Multilateral• Defined Limit• Limit Currency• Trigger: either a time-based or event-based trigger that will initiate the Standing Order for Limit• From Party: Party whose normal payments are restricted by the Limit• Valid From Date <p><u>Optional attributes:</u></p> <ul style="list-style-type: none">• To Party: Party with whom the Bilateral Limit exists (mandatory for Bilateral Limits). Cannot be a EURO-Central Bank, i.e. normal payments towards a EURO Central Bank cannot be restricted.• Valid To Date

Id	SHRD.UR.BDD.090
Name	Cash Account
Description	<p>This entity shall denote any cash account required by the Market Infrastructure Services</p> <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none"> • Service Identifier. Possible values are: <ul style="list-style-type: none"> - RTGS - CLM - TIPS - T2S • Cash Account Number (KEY) • Cash Account type <ul style="list-style-type: none"> - For RTGS services: <ul style="list-style-type: none"> RTGS DCA, Guarantee account, Sub Account for AS settlement, CB account, Transit account, Technical account - For Ancillary Systems: <ul style="list-style-type: none"> Guarantee account, Technical account - For CLM service: <ul style="list-style-type: none"> Main Cash Account (MCA), Overnight Deposit (OD) account, CB account, NCB ECB account, ECB mirror account, Transit account, Marginal Lending Account - For TIPS service: <ul style="list-style-type: none"> TIPS DCA, Transit account - For T2S service: <ul style="list-style-type: none"> T2S DCA, CB account, Transit account • Currency Code: The account's currency, which is an eligible settlement currency • Account Owner: The Party who owns the account • Status: Current blocking status of the account; unblocked, blocked for

debiting, blocked for crediting or blocked for both

- Opening date: The date as of which an account is legally opened

Optional attributes:

- Cash Balance: Current cash balance
- Credit Line: Current maximum collateralised overdraft position of the Cash Balance (CLM MCA)
- 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 accounts is running low
- Ceiling: An upper threshold 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
- Invoiced Party: The Party to be invoiced
- Minimum Reserve Party: Party for which this account is included for minimum reserve calculation (applicable for RTGS DCA and sub account for AS settlement)
- Default Flag: Indicating whether the account is the default choice of the Party (RTGS, CLM)
- 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.100
Name	Payment
Description	<p>Within RTGS services, High-Value payments and Ancillary System Transactions are possible.</p> <p>For CLM, only payments linked to Central Bank Operations are possible.</p> <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none"> • Service Identifier. Possible values are: <ul style="list-style-type: none"> - RTGS - CLM • Payment category. Mandatory for RTGS, not used for CLM. Possible values are: <ul style="list-style-type: none"> - High-Value Payment - Ancillary System Transaction • Payment Type. Possible values are: <ul style="list-style-type: none"> - Mandated Payment - Credit - Direct Debit • Priority. Possible values are: <ul style="list-style-type: none"> - Highly Urgent - Urgent - Normal • Reference of Instruction: Reference given by the original instructor of the Payment • Internal Reference: Reference assigned by RTGS or CLM for the Payment • Transfer Amount: Amount to be credited or debited with the Payment • Currency • Source Account • Target Account • Entry Timestamp • Settlement Timestamp: Timestamp specifying the date and the time the settlement was attempted • Actual Amount: Amount actually settled with the Payment • Settlement Status: Possible values are: <ul style="list-style-type: none"> - Not executed - Unsettled - Settled <p><u>Optional attributes:</u></p> <ul style="list-style-type: none"> • n/a

Id	SHRD.UR.BDD.110
Name	Liquidity transfer
Description	<p>For RTGS, an instruction to transfer central bank money from:</p> <ul style="list-style-type: none"> • An RTGS Dedicated Cash Account to another settlement service's Main/Dedicated Cash Account and vice versa; and • An RTGS DCA to another RTGS DCA. <p>For CLM, an instruction to transfer central bank money from:</p> <ul style="list-style-type: none"> • A Main Cash Account to a settlement service Dedicated Cash Account and vice versa; and • A Main Cash Account and another Main Cash Account. <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none"> • Service Identifier. Possible values are: <ul style="list-style-type: none"> - RTGS - CLM • Transfer Type. Possible values are: <ul style="list-style-type: none"> - Inbound Liquidity Transfer - Outbound Liquidity Transfer - Internal Liquidity Transfer • Underlying Transfer Type: identifies the underlying transfer type of the Inbound/Outbound or Internal Liquidity Transfer. Possible values are: <ul style="list-style-type: none"> - Immediate Liquidity Transfer - Pre-defined Liquidity Transfer (RTGS only) - Standing Order Liquidity Transfer • Reference of Instruction: Reference given by the original instructor of the Liquidity Transfer • Transfer Amount: Amount to be credited or debited with the Liquidity Transfer • Currency • Source Account • Target Account • Entry Timestamp • Settlement Timestamp: Timestamp specifying the date and the time the settlement was attempted • Actual Amount: Amount actually settled with the Liquidity Transfer • Settlement Status: Possible values are: <ul style="list-style-type: none"> - Not executed - Partially settled - Settled • Settlement Service Status: Possible value are: <ul style="list-style-type: none"> - Not applicable - Not executed - Rejected - Confirmed

Optional attributes:

- CLM Reference: Reference assigned by CLM for the Outbound Liquidity Transfer
- Settlement Service Reference: Reference assigned by the settlement service for the Inbound Liquidity Transfer
- RTGS Reference: Reference assigned by the RTGS service for the Inbound and internal Liquidity Transfer
- Partial Execution: Flag if partial execution is possible or not

Id	SHRD.UR.BDD.120
Name	Standing Order
Description	<p>For RTGS, an instruction template to transfer central bank money from:</p> <ul style="list-style-type: none">• An RTGS Dedicated Cash Account to another settlement service's Main/Dedicated Cash Account and vice versa; or• An RTGS DCA to another RTGS DCA. <p>For CLM, an instruction template to transfer central bank money from:</p> <ul style="list-style-type: none">• A Main Cash Account to a settlement service Dedicated Cash Account and vice versa; or• A Main Cash Account and another Main Cash Account. <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none">• Transfer Type. Possible values are:<ul style="list-style-type: none">- Inbound Liquidity Transfer- Outbound Liquidity Transfer- Internal Liquidity Transfer• Reference of Instruction: Reference given by the original instructor of the Liquidity Transfer• Transfer Amount: Amount to be credited or debited with the Liquidity Transfer• Currency• Source Account• Target Account• Trigger: either a time-based or event-based trigger that will initiate the Standing Order• Valid From Date• Valid From Time <p><u>Optional attributes:</u></p> <ul style="list-style-type: none">• Partial Execution: Flag if partial execution is possible or not• Valid To Date• Valid To Time

Id	SHRD.UR.BDD.130
Name	Pre-Defined Liquidity Transfer Order
Description	<p>A pre-defined one-off instruction created manually on demand, to transfer central bank money from:</p> <ul style="list-style-type: none">• A Main Cash Account to a settlement service Dedicated Cash Account and vice versa; or• A Main Cash Account and another Main Cash Account. <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none">• Transfer Type. Possible values are:<ul style="list-style-type: none">- Inbound Liquidity Transfer- Outbound Liquidity Transfer- Internal Liquidity Transfer• Reference of Instruction: Reference given by the original instructor of the Liquidity Transfer• Transfer Amount: Amount to be credited or debited with the Liquidity Transfer• Currency• Source Account• Target Account• Transfer Required Date• Transfer Required Time <p><u>Optional attributes:</u></p> <ul style="list-style-type: none">• Partial Execution: Flag if partial execution is possible or not

Id	SHRD.UR.BDD.140
Name	Direct Debit Mandate
Description	<p>Details of an instruction mandate received from a payee Party to allow them to submit payment requests for payment by direct debit from an account of a payer Party. The payer Party is the owner of the specified Account to be debited.</p> <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none">• From Account: Account to be debited• Payee Party Identifier: The Party from whom the Payment mandate will be received and to whom the corresponding Payments will be made• Payee Reference: The reference provided by the Payee Party to be included in the payment details for recognition of the Payment• Payer Party Identifier: The Party from whose account the Payments will be made• Valid From Date: The date from which the Direct Debit Instruction is valid• Valid From Time <p><u>Optional attributes:</u></p> <ul style="list-style-type: none">• Maximum Amount: Maximum Amount allowed to be debited by the payee Party• Valid To Date• Valid To Time

Id	SHRD.UR.BDD.150
Name	Reservation
Description	<p>Within the RTGS reservation facility, liquidity can be reserved by RTGS Dedicated Cash Account holders for the execution of special transactions with a certain priority class.</p> <p>Within the CLM reservation facility, liquidity can be reserved by CLM Main Cash Account holders for the execution of special transactions with a certain priority class.</p> <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none"> • Service Identifier. Possible values are: <ul style="list-style-type: none"> - RTGS - CLM • Priority Type: Type of the Priority e.g.: <ul style="list-style-type: none"> - Highly Urgent (HU) - Urgent (U) • Reservation Type: Type of the Reservation e.g.: <ul style="list-style-type: none"> - Regular Reservation from Standing Order - One-Time Reservation • Reservation Amount • Reservation Currency • Pending Value • Defined Value • Source Account • Internal Reference: Reference assigned by RTGS or CLM for the Reservation • Entry Timestamp • Settlement Timestamp: Timestamp specifying the date and the time the settlement was attempted • Settlement Status: Possible values are: <ul style="list-style-type: none"> - Not executed - Partially settled - Settled • Settlement Service Status: Possible value are: <ul style="list-style-type: none"> - Not applicable - Not executed - Rejected - Confirmed <p><u>Optional attributes:</u></p> <ul style="list-style-type: none"> • Partial Execution: Flag if partial execution is possible or not

Id	SHRD.UR.BDD.160
Name	Standing Order for Reservation
Description	<p>A template for Reservations initiated automatically based on a time or event based trigger.</p> <p>Within the RTGS reservation facility, liquidity can be reserved by RTGS Dedicated Cash Account holders for the execution of special transactions with a certain priority class.</p> <p>Within the CLM reservation facility, liquidity can be reserved by CLM Main Cash Account holders for the execution of special transactions with a certain priority class.</p> <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none">• Service Identifier. Possible values are:<ul style="list-style-type: none">- RTGS- CLM• Priority Type: Type of the Priority e.g.:<ul style="list-style-type: none">- Highly Urgent (HU)- Urgent (U)• Reservation Amount• Reservation Currency• Source Account• Trigger: either a time-based or event-based trigger that will initiate the Standing Order• Valid From Date• Valid From Time <p><u>Optional attributes:</u></p> <ul style="list-style-type: none">• Partial Execution: Flag if partial execution is possible or not• Valid To Date• Valid To Time

Id	SHRD.UR.BDD.170
Name	Whitelist
Description	<p>Either:</p> <p>A list of accounts from which a certain payment category, i.e. High-Value Payments, Ancillary System Transactions or Liquidity Transfers, are accepted;</p> <p>or</p> <p>A list of accounts to which a certain payment category, i.e. High-Value Payments, Ancillary System Transactions or Liquidity Transfers, are authorised</p> <p>By default, the whitelist includes all accounts in all Services, i.e. all payment categories are accepted from all accounts within the same Banking Group.</p> <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none"> • Account Number: Account to which the Whitelist relates • Accepted From / Authorised To • Payment category: Possible values are: <ul style="list-style-type: none"> - Liquidity Transfer - High-Value Payment - Ancillary System Transaction • Valid From Date <p><u>Optional attributes:</u></p> <ul style="list-style-type: none"> • Target Accounts (multiple occurrences allowed): Accounts from which transactions are accepted, or to which transactions are authorised • Valid To Date

Id	SHRD.UR.BDD.180
Name	Report Subscription
Description	<p>This entity shall denote which party has subscribed to receive which reports.</p> <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none"> • Report Subscription Identifier (KEY): The unique technical identifier of a report subscription • Report: The report subscribed to by the participant • Recipient: The party identifier of the receiver subscribing to the report • Mode: Specifies whether the participant receives the relevant report in full mode and/or in delta mode, and whether in push or pull mode • Scheduled Time: The scheduled time when the report is provided • Scheduled Event: The event that shall trigger the report to be produced • Subscription Valid From: The date from which the subscription is valid <p><u>Optional attributes:</u></p> <ul style="list-style-type: none"> • Subscription Valid To: The date until which the subscription is valid

Id	SHRD.UR.BDD.190
Name	Message Subscription
Description	<p>This entity shall denote which Party has subscribed to receive which Messages. This shall also include the possibility for a Party to elect another Party to receive the Message either instead or in addition. This would be subject to prior agreement having been reached with the other Party by, for example, granting a Power of Attorney.</p> <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none">• Message Subscription Identifier (KEY): The unique technical identifier of a message subscription• Message Id: The identifier of the message subscribed to by the participant• Recipient: The Party Identifier of the receiver subscribing to the message• Subscription Valid From: The date from which the subscription is valid <p><u>Optional attributes:</u></p> <ul style="list-style-type: none">• Alternative Recipient Id: The Party Identifier of the Party nominated to receive the message either instead of or in addition to the Recipient• Additional Copy: A flag to indicate that the Recipient will still receive the message in addition to the nominated Alternative Recipient• Subscription Valid To: The date until which the subscription is valid

Id	SHRD.UR.BDD.200
Name	Scheduled Event
Description	<p>This entity shall denote a Scheduled Event that will automatically trigger a specified process within the Future RTGS Services, or will initiate a process in another Market Infrastructure Service such as TIPS or T2S that is required by the Future RTGS Services.</p> <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none">• Scheduled Event Identifier: The unique technical identifier of a Scheduled Event• Process Identifier: The unique technical identifier of a Business Process• Service Identifier. Possible values are:<ul style="list-style-type: none">- RTGS- CLM- TIPS- T2S• Scheduled Event Status: Indicates whether the Scheduled Event has occurred and the Business Process has been initiated• Event Triggered Timestamp: The system date and time at which the Scheduled Event occurred and the Business Process was triggered• Repeat Flag: Indicates whether another instance of the Scheduled Event should be created when this instance has occurred <p><u>Optional attributes:</u></p> <ul style="list-style-type: none">• Trigger Date: Either the Trigger Date and Trigger Time or the Trigger Event Identifier must be populated• Trigger Time• Trigger Event Identifier: The unique technical identifier of another Scheduled Event that shall trigger this Scheduled Event when it occurs• Repeat Frequency: Where the Scheduled Event is time-based and the Repeat Flag is set, this will indicate the date and time at which the next instance of the Scheduled Event is required

Id	SHRD.UR.BDD.210
Name	Currency
Description	<p>This entity shall denote any valid currency and information whether the currency is settled in the Market Infrastructure Services.</p> <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none"> • Currency Code (KEY): The three-character ISO currency shall identify the currency • Currency Name • Number of decimals • RTGS Settlement currency: Specification of the currency is an RTGS settlement currency (y/n) • T2S Settlement currency: Specification of the currency is a T2S settlement currency (y/n) <p><u>Optional attributes:</u></p> <ul style="list-style-type: none"> • n/a

Id	SHRD.UR.BDD.220
Name	SWIFT BIC Directory
Description	<p>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.</p> <p>The attributes shall be derived from the structure of the BIC directory</p>

Id	SHRD.UR.BDD.230
Name	Service
Description	<p>This entity shall denote any Market Infrastructure Service which is accessible via the ESMIG.</p> <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none"> • Service Identifier (KEY): The unique technical identifier of a Service • Service Short Name: i.e. RTGS, HVP, AS, CLM, CRDM, T2S, TIPS, Contingency • Service Long Name • Service Availability: Timeframe when service is available <ul style="list-style-type: none"> - Start Time: Start time of service - End Time: End time of service <p><u>Optional attributes:</u></p> <ul style="list-style-type: none"> • Cut-off (multiple occurrences allowed): Definition of cut-off of the service

Id	SHRD.UR.BDD.240
Name	User
Description	<p>A user is an individual or application that interacts with one or more of the available Market Infrastructure Services.</p> <p>This entity shall denote any information required by ESMIG to direct inbound and outbound communications.</p> <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none"> • User Id (KEY): The unique technical identifier of a User • ID of Sender: The ID shall result out of authentication process • External Party Address: Information required that the correct network provider, target address, communication mode and protocol (i.e. right external user address) are used • Accessible service (multiple occurrences allowed): Enumeration of Market Infrastructure Services the user is allowed to access <p><u>Optional attributes:</u></p> <ul style="list-style-type: none"> • n/a

Id	SHRD.UR.BDD.250
Name	Distinguished Name
Description	<p>This entity shall denote the Distinguished Name assigned (via a digital certificate) to a User to allow access to a Service.</p> <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none"> • Distinguished Name (KEY) • User Id: The unique technical identifier of a User • Service Identifier: Unique identifier of a Market Infrastructure Service the user is allowed to access <p><u>Optional attributes:</u></p> <ul style="list-style-type: none"> • n/a

Id	SHRD.UR.BDD.260
Name	Role
Description	<p>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.</p> <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none"> • Role Identifier (KEY): The unique technical identifier of a Role • Role Name • Service Identifier: The unique technical identifier of the Service with which the Role is associated <p><u>Optional attributes:</u></p> <ul style="list-style-type: none"> • n/a

Id	SHRD.UR.BDD.270
Name	Privilege
Description	<p>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 for specific Roles.</p> <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none"> • Privilege Identifier (KEY): The unique technical identifier of a Privilege • Role Identifier: the Role with which the Privilege is associated • Privilege Description • Function Identifier: Identifier of the functionality to which the privilege applies (e.g. Amend Party Address) • Authorisation Principle: Two-eyes or Four-eyes Principle • Access Mode: U2A or A2A • Allowed/Denied Indicator <p><u>Optional attributes:</u></p> <ul style="list-style-type: none"> • n/a

Id	SHRD.UR.BDD.280
Name	Access Rights
Description	<p>Access Rights define the ability for a User to view and maintain any information relating to a Party, subject to the functionality granted to the User through the associated Roles and Privileges. The definition of Access Rights is the means of granting and restricting access to data for specific roles.</p> <p><u>Mandatory attributes:</u></p> <ul style="list-style-type: none"> • Access Rights Identifier (KEY): The unique technical identifier of an Access Rights • User Id: the User with which the Access Rights is associated • Party Id: the Party with which the Access Rights is associated • Access Rights Description: The nature of the Access Rights to the data of the Party that have been granted to the User. In particular, this will identify the primary Party with which the User is associated • Allowed/Denied Indicator <p><u>Optional attributes:</u></p> <ul style="list-style-type: none"> • n/a

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