Common Reference Data Management for TIPS

CR-647

Introduction

➢ The T2-T2S Consolidation project envisions that in the long term a Common Reference Data Management (CRDM) service, built as an enhancement of SDMG, shall provide features to setup, maintain and query all reference data used by the different Eurosystem Market Infrastructure (EMI) services.

➢ CRDM shall allow:

  ➢ users to setup and maintain reference data that are common to multiple services only once and then to propagate them automatically to all the services that need these reference data for their processing activities;

  ➢ reducing the overall running cost related to the software for managing reference data, as the same features will not have to be implemented (i.e. replicated) within each service.

➢ At functional level, CRDM shall cover the scope of common reference data required by the future RTGS, T2S, TIPS, ECMS and any other potential future EMI service.

Main features

➢ The access to CRDM will be possible in U2A mode (for all functions) and in A2A mode (for a subset of functions).

➢ The authentication process and the service authorization process (i.e. the authorization to submit a request to CRDM) will take place at centralized level (in the Eurosystem Single Market Infrastructure Gateway, ESMIG), whereas the function-specific authorization process (to check that the acting user is entitled to trigger a given CRDM function on a given reference data object) shall take place at CRDM level.

➢ CRDM shall be open 22 hours a day during the week (i.e. as today in T2S, with an overnight maintenance window of two hours) and closed during the week-end.

Reference data propagation

➢ In order to ensure a timely and consistent propagation of common reference data to the relevant services, CRDM shall implement a publish-subscribe feature allowing each service receiving all the common reference data (and their changes) they require for their processing.

➢ In a nutshell:

  ➢ CRDM shall publish all changes of common reference data (e.g. creations of new objects, updates of already existing objects) in real-time and notify them to the relevant subscriber services.

  ➢ Other subscriber services will get those changes (in pull mode) and apply them to their Local Reference Data Management component, according to their needs.

Reference data propagation

➢ The following diagram shows a conceptual overview of the CRDM and its interactions with the other EMI services:
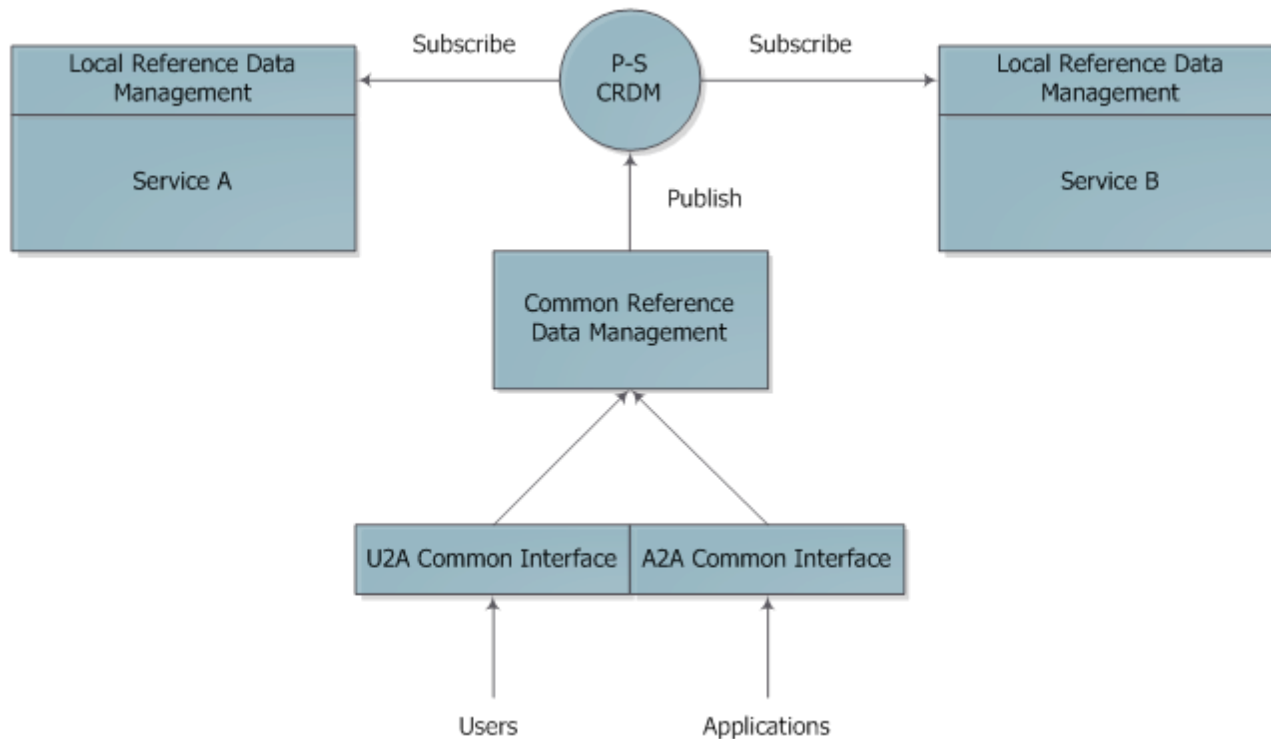
TIPS reference data

➤ As any other EMI service, TIPS will rely on CRDM for the setup and maintenance of its reference data.

➤ Only in well defined contingency scenarios, e.g. to handle reference data changes that must be performed urgently and outside the CRDM availability window (e.g. during the week-end), TIPS users shall have the possibility to perform these reference data changes directly on the TIPS local reference data, by means of a dedicated 24x7 interface.

➤ Owing to the tight timeline of the TIPS project and in order to avoid developing an ad hoc, throw-away reference data management component only for the interim period between the go-live of TIPS and the availability of the fully-fledged CRDM, the idea is to develop a $CRDM^{TIPS}$ component, covering only the functional scope of the TIPS reference data.

Timeline

➢ TIPS does not need the fully-fledged CRDM to be implemented by November 2018, but only the set of functions required to setup and maintain its reference data.
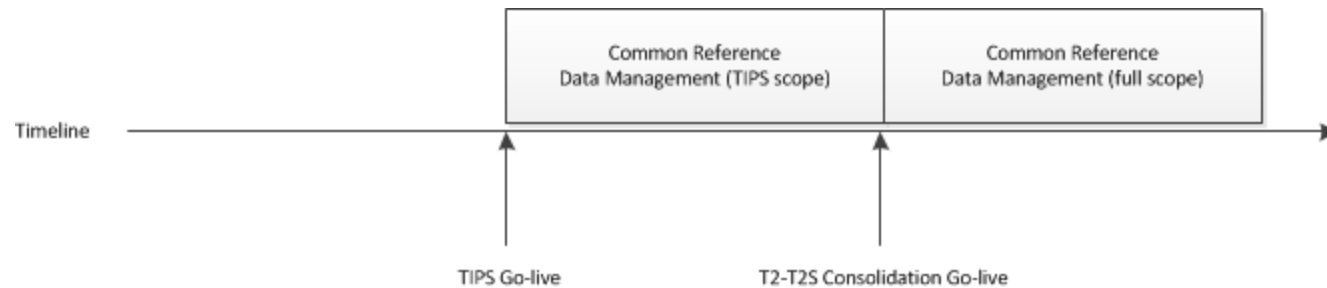
CRDM^{TIPS} functional scope

Area	Object	Responsible TIPS Actor
Party	Party	Operator, Central Bank
	Party Service Link (*new*)	Operator, Central Bank
T2S Dedicated Cash Account	TIPS Account	Central Bank
	Credit Memorandum Balance	Participant
	Limit	Participant
	Authorised Account User (*new*)	Participant
Access Rights Management	User	Central Bank, Participant
	Role	Operator
	Privilege	Operator
	Certificate DN	Central Bank, Participant
	User Certificate DN Link	Central Bank, Participant
Message Subscription Configuration	Message Subscription Rule	Central Bank, Participant
	Message Subscription Rule Set	Central Bank, Participant
Network Configuration	Network Service	Operator
	Technical Address Network Service Link	Operator, Central Bank
	DN BIC Routing (*new*)	Operator, Central Bank
Report Configuration	Report Type	Operator
	Report Configuration	Central Bank, Participant
Restriction Type Management	Restriction Type	Operator
Configuration Parameter	Country	Operator
	Currency	Operator
	System Entity	Operator
	TIPS BIC Directory	Operator
	Service (*new*)	Operator
	Currency Service Link (*new*)	Operator

8

CRDM^{TIPS} functional scope

➢ As to the propagation of reference data, TIPS will only need a daily propagation of all data that will be valid on the relevant business day (of the RTGS system).

➢ Such daily propagation shall take place early enough to be completed before the business day change (currently, it is foreseen at 5:00 pm).

➢ A functionality for the Operator shall also be available, in order to trigger the daily propagation of reference data upon request, in case of contingency.

CRDM design and implementation approach

➤ The design and implementation of CRDM follows the steps listed hereunder:

  ➤ high-level functional gap analysis
  ➤ technical implementation analysis
  ➤ backlog setup
  ➤ specifications, development and test

CRDM high-level functional gap analysis

➢ For each reference data object/function required by TIPS, the following high-level functional gap analysis was performed:

  ➢ Identification of the candidate *as-is* object/function in T2S SDMG.

  ➢ Definition of corresponding *to-be* object/function (based on TIPS requirements).

  ➢ Assessment of the functional gap between the *as-is* and the *to-be* object/function (in terms of attributes, relationships, business rules, etc.).

CRDM technical implementation analysis

➢ For each reference data object/function undergone through the high-level functional gap analysis, a technical implementation analysis classifies the object/function into one of the following implementation approaches:

  ➢ Reuse: the *as-is* object/function can be fully reused to get to the *to-be* object/function (no software change is needed).

  ➢ Integration: the *as-is* object/function has to be enhanced to get to the *to-be* object/function. Furthermore, the analysis also ascertains whether the to-be object/function has to be implemented by means of a **direct change** of a T2S SDMG software item or by **modifying a clone** of the same item.

  ➢ New development: the to-be object/function has to be developed from scratch.

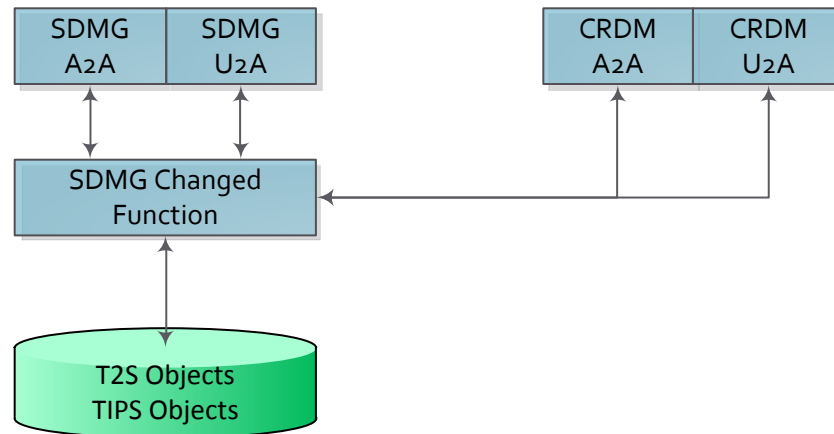# Technical implementation approaches (1/5)

➢ <u>Reuse</u>: the *as-is* object/function can be fully reused to get to the *to-be* object/function (no software change is needed). This means the original T2S SDMG software does not need to be changed and only the relevant part of CRDM Business Interface has to be developed.

SDMG A2A	SDMG U2A		CRDM A2A	CRDM U2A

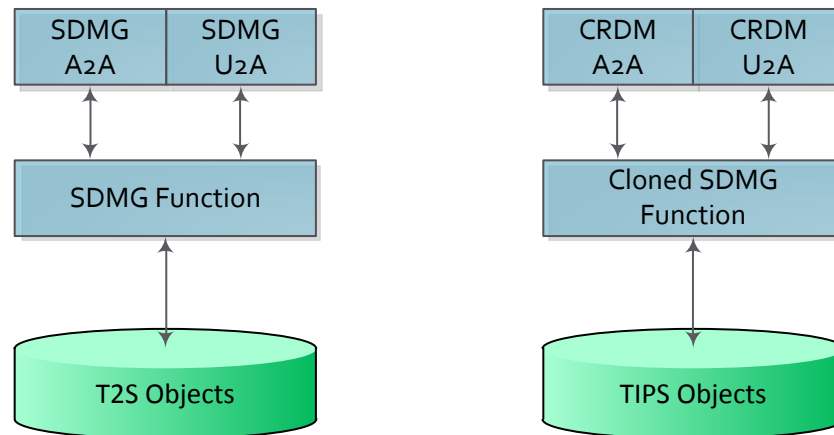SDMG Function

T2S/TIPS Objects
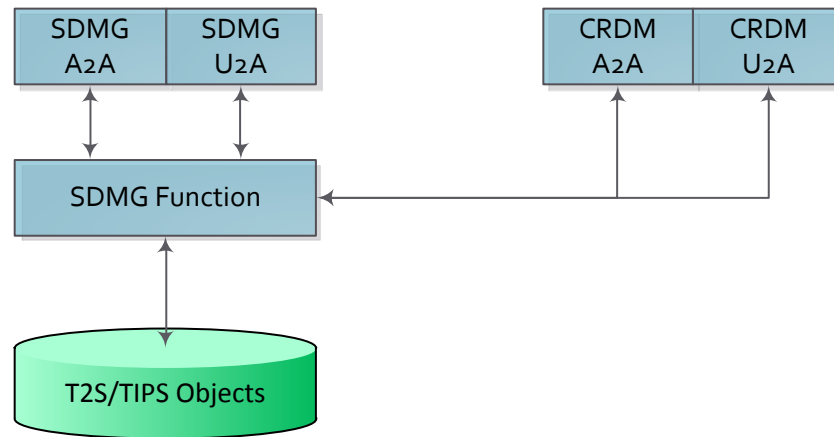
Reuse

➢ <u>Integration with direct change</u>: the *as-is* object/function has to be enhanced to get to the *to-be* object/function, by means of a direct change of a T2S SDMG software item. This means the original T2S SDMG software needs to be changed, plus the relevant part of CRDM Business Interface has to be developed.

Integration (Direct Change)

14

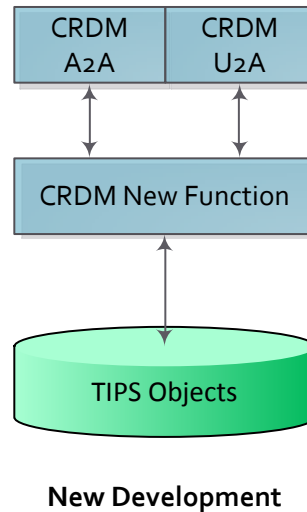# Technical implementation approaches (3/5)

➤ <u>Integration with cloning</u>: the *as-is* object/function has to be enhanced to get to the *to-be* object/function, by modifying a clone of a T2S SDMG software item. This means the original T2S SDMG software is not impacted while its clone needs to be modified, plus the relevant part of CRDM Business Interface has to be developed.

Integration (Clone)

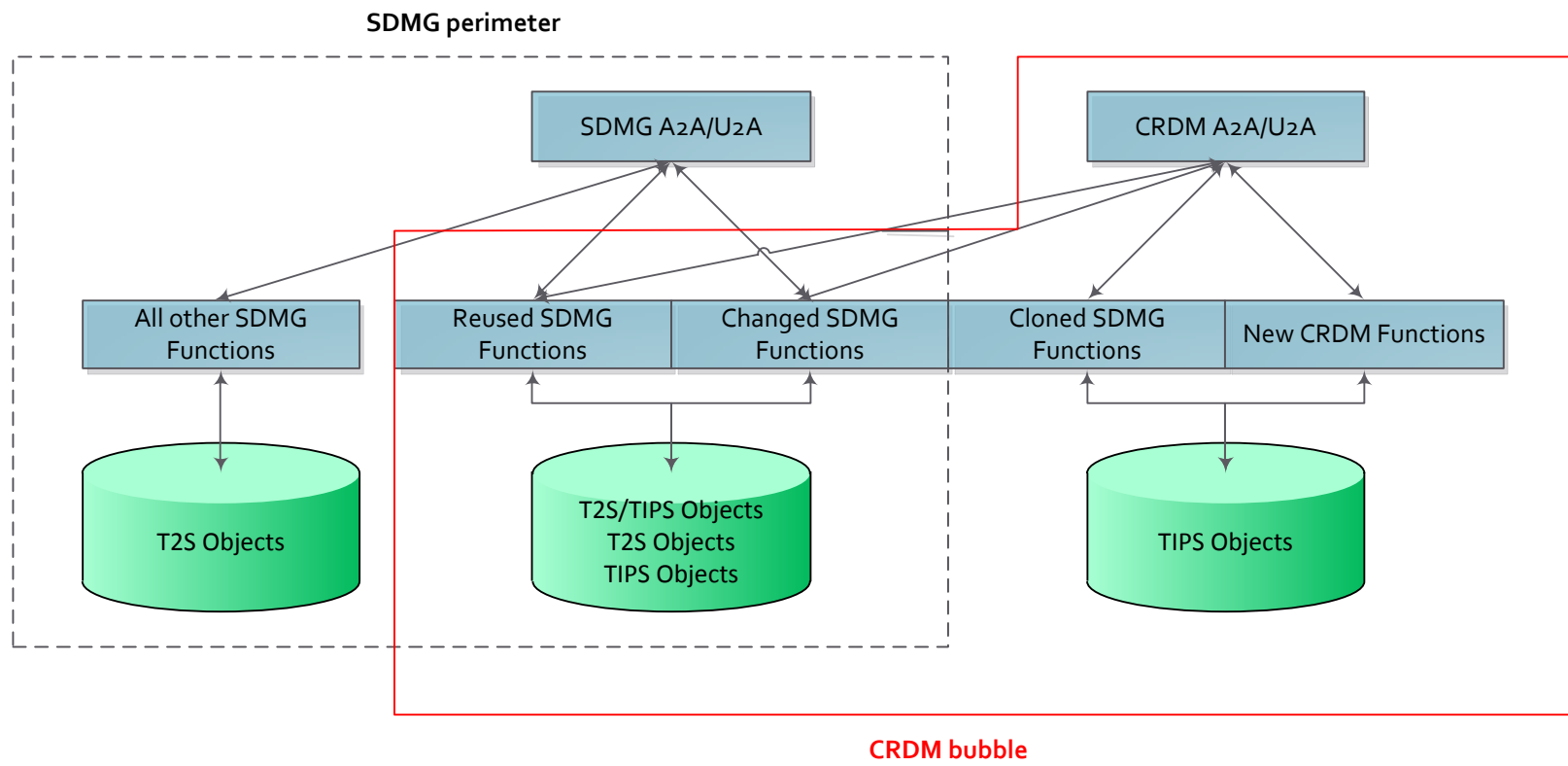# Technical implementation approaches (4/5)

➤ <u>New development</u>: the *to-be* object/function has to be developed from scratch. This means the original T2S SDMG software is not impacted, while a new CRDM function plus the relevant part of CRDM Business Interface have to be developed.

CRDM A2A	CRDM U2A

CRDM New Function

TIPS Objects

New Development

Technical implementation approaches (5/5)

➤ <u>Overall scenario</u>: CRDM^{TIPS} is built as a "bubble" in T2S, partially overlapping with the current SDMG application perimeter, while ensuring full transparency to other T2S modules and T2S users.

SDMG perimeter

| SDMG A2A/U2A | CRDM A2A/U2A |

| All other SDMG Functions | Reused SDMG Functions | Changed SDMG Functions | Cloned SDMG Functions | New CRDM Functions |

T2S Objects

T2S/TIPS Objects
T2S Objects
TIPS Objects

TIPS Objects

CRDM bubble

Outcome of the technical implementation analysis

Area	Object	Type of Impact
Party	Party Party Service Link (*new*)	Integration (Direct Change) New
T2S Dedicated Cash Account	T2S Dedicated Cash Account Limit Authorised Account User (*new*)	Integration (Direct Change) Integration (Direct Change) New
Access Rights Management	User Role Privilege Certificate DN User Certificate DN Link	Reuse Reuse Integration (Direct Change) Reuse Integration (Direct Change)
Message Subscription Configuration	Message Subscription Rule Message Subscription Rule Set	Integration (Direct Change) Reuse
Network Configuration	Network Service Technical Address Network Service Link DN BIC Routing (*new*)	Direct change Integration (Direct Change) New
Report Configuration	Report Type Report Configuration	Reuse Integration (Direct Change)
Restriction Type Management	Restriction Type	Direct change
Configuration Parameter	Country Currency System Entity TIPS BIC Directory Service (*new*) Currency Service Link (*new*)	Reuse Reuse Reuse Reuse New New

CRDM backlog setup

➤ The set of objects/functions to be integrated or newly developed identified out of the high-level functional gap analysis and technical implementation analysis are ranked according to their priority into a backlog.

➤ The priority of each element in the backlog is based on the importance/criticality of the object/function for TIPS. It may change throughout the project lifecycle, if need be.

➤ Each element of the backlog is assigned a weight, related to the effort required to develop and test it.

CRDM specifications, development and test

- ➢ The element of the backlog are specified, developed and tested, according to their priorities.
- ➢ The target T2S release for deploying changes related to CRDM^{TIPS} would be R.2.0 (to be confirmed after the detailed assessment of the CR).