# T2-T2S CONSOLIDATION

# HIGH-LEVEL SUMMARY

# OF BUSINESS CHANGES

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# 1 INTRODUCTION

A market consultation on the future of Real-time Gross Settlement (RTGS) services was conducted in the first and second quarter of 2016. On the basis of the results and other considerations from the Eurosystem perspective, the Governing Council approved the start of the investigation phase for the T2-T2S Consolidation on 21 September 2016 together with the approval of the investigation phase for TARGET Instant Payment Settlement (TIPS) and for Eurosystem Collateral Management System (ECMS) projects.

The objective of the investigation phase is to support the Eurosystem plans to consolidate and optimise the provision of the T2 and T2S services, with the aim to:

▶ provide the opportunity to consider the development of new services for market participants or to adapt the existing services to the changing needs of the payments business;

▶ allow TARGET2 to benefit from state-of-the-art approaches and technologies offered by T2S through technical consolidation;

▶ achieve a significant decrease of the running costs for the Eurosystem through functional consolidation between TARGET2 and T2S to the possible extent, including the removal of unused or little used functionality;

▶ improve usability.

Following the thorough discussions with market participants and Central Banks, this document describes on a high-level the principles of the future RTGS services. These principles take into account the wide range of requirements of the various users of the future RTGS services, ranging from small independent institutions to large multinational banking groups.

The changes will mainly affect current TARGET2 participants. Apart from the future use of the shared services, such as common reference data management, billing and Data Warehouse, T2S operations will remain unchanged as far as possible.

The T2-T2S Consolidation will be implemented as a phased project. Phase I will provide the necessary parts of the shared services relevant for the support of TIPS: parts of the Common Reference Data Management (CRDM), Eurosystem Single Infrastructure Gateway (ESMIG) and of Billing. These changes are to be implemented in November 2018. Phase II will provide further changes that affect the services for liquidity management, network connectivity and messaging:

▶ The segregation of Central Bank transactions from the payment queue in RTGS;

▶ Concentration of Central Bank transactions together with other Central Bank Services, such as Reserve Management and Standing Facilities, in a new Central Liquidity Management (CLM) service;

▶ The harmonised provisioning of support functionalities, such as Common Reference Data Management (CRDM) and Billing for the future RTGS, T2S and TIPS;

▶ The implementation of ISO 20022 for communication with RTGS services.

Considering the user requirements and their functional and technical impacts, a comprehensive and accurate preparation and coordination of the introduction of a new, consolidated, modern European payment infrastructure is key. Concerning the move from current Y-copy based messaging to V-shape based messaging, the participants already indicated that they would need appropriate time from the provisioning of the specifications and message formats to be ready for the change.

# 2 MODULAR APPROACH

## 2.1 REQUIREMENTS

With the introduction of T2S and the planned future implementation of TIPS, the landscape and requirements concerning Future Eurosystem Payment and Settlement Services have changed significantly, as there will be several settlement services which need an adequate liquidity provisioning.

In order to enable consolidation and to achieve the expected cost savings, functions for which there is a shared need in the various services will be provided once, centrally on a modular basis as far as possible and reasonable. A modular approach will be taken for the new requirements as well.

From a high level point of view, the following business domains were identified within the investigation phase:
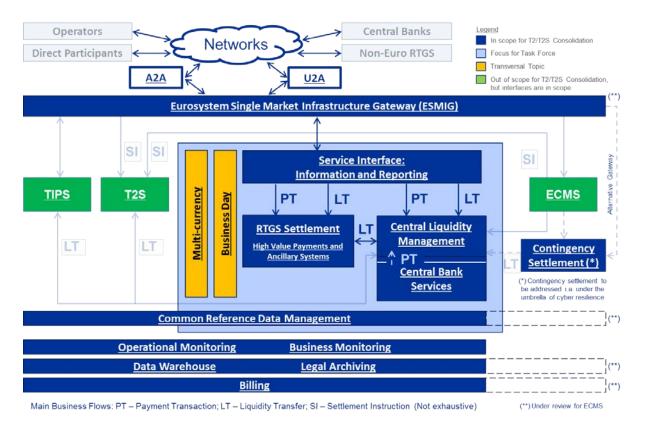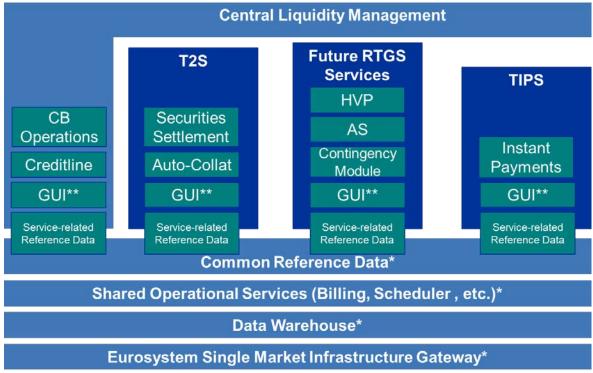


**Figure 1: High Level Business Domains**

The primary functional requirements identified during the investigation phase are:

▶ The Central Liquidity Management (CLM) function

▶ The Common Reference Data Management (CRDM)

▶ The Real Time Gross Settlement (RTGS, Settlement of High Value Payments (HVP) and Ancillary Systems (AS))



*) under review for ECMS; **) available to U2A and A2A user

**Figure 2: Shared Functional Modules**

## 2.2 CENTRAL LIQUIDITY MANAGEMENT (CLM)

TARGET2 was initially developed to support the settlement of monetary policy operations, (high-value) urgent payments and to support ancillary system settlement in Central Bank Money only; the embedded liquidity provisioning was mainly for these purposes. With T2S and the planned introduction of TIPS two additional services will complement the initial functions. Future RTGS Services will be one part of the Eurosystem's settlement services family. CLM will ensure the efficient provisioning of liquidity for T2S settlement services, RTGS Services for HVP and AS settlement as well as for TIPS. It will provide a harmonised and standardised management of liquidity and its transfer across the different services in order to optimise the efficient usage of liquidity.

Based on the requirements of the participants, the users of this service

▶ will have a consolidated overall view of their liquidity in each currency;

▶ will be able to dedicate liquidity to each single service and for special purposes within a service;

▶ will be able to reallocate liquidity easily from one service to another, manually based on individual liquidity transfers or automatically using time-triggered or event-based liquidity transfer orders.

However, only T2S will provide the auto-collateralisation function. The participants cannot use the T2S auto-collateralisation mechanism to allocate liquidity from T2S to another service. The usage of

securities as collateral will be performed through the collateral management system. The collateral management system will transmit the credit line information to CLM.

The Main Cash Account (MCA) within CLM will be the central source of liquidity for the different services and will be linked to the credit line of the participant. While a participant may have more than one MCA, the credit line will be linked with only one MCA. The settlement services T2S, TIPS and the future RTGS services will use dedicated cash accounts for settling their specific transactions.

For RTGS services, it will be possible to settle on one or several RTGS Dedicated Cash Accounts (DCA). Participants will have the option to use separate RTGS DCAs for the settlement of AS transactions. Furthermore, credit institutions may open several RTGS DCAs for payment purposes, which shall be identified by different BIC11s.

The high level of automation offered by CLM will ensure fast and reliable liquidity provisioning. This fulfils as far as possible the requirements of those participants who would like to have a fully automatic usage of the payment capacity for interbank and customer payments as well as central bank operations.

Moreover, participants will also be able to parameterise the triggers for actions, such as sending notifications or execution of liquidity transfer. Triggers are

▶ Reaching floor/ceiling amounts;

▶ Business events;

▶ Queued payments;

▶ Time of the day.

The participant will achieve an automated liquidity management without the need to initiate manually liquidity transfers through the configuration of customised triggers on its cash accounts.
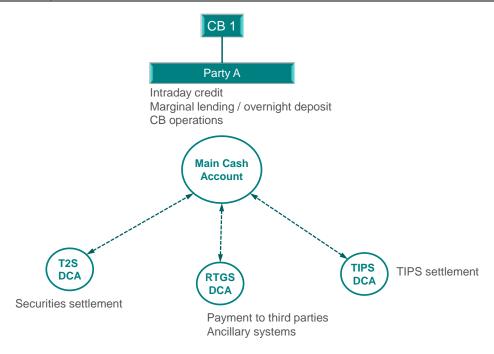
**Figure 3: Basic Model for CLM with Main Cash Account**

The split of functions between CLM and the settlement services can be summarised as follows:

► The credit line is managed centrally from the Main Cash Account and liquidity generated via the credit line can be used by every service connected to CLM. The Main Cash Account receives the information about the sum of the credit line from the related collateral management system.

► CLM will provide a high level of automation to participants. It will be possible for participants to automate the allocation of the payment capacity to the various settlement services during the opening time of CLM. The participant can automate the handling of the payment capacity through participant-defined configurations, thereby eliminating the manual initiation of liquidity transfers between the different accounts. On the basis of a customisation chosen once by the participant, the participant-defined configuration will be initially activated each time at the start-of-day-procedures; it can be activated, deactivated and changed intraday.

► High Value Payments and Ancillary System transactions are performed on one or more RTGS DCAs.

► The participant can reserve liquidity for the processing of AS transactions either on the RTGS DCA that is also used for HVP payment or on dedicated AS DCAs for specific Ancillary Systems

► Interactions with the Central Bank that fall outside of the normal payment business (e.g. marginal lending facility, overnight deposit) would be performed on the Main Cash Account.

The following example shows how the handling of the payment capacity can be performed automatically between a CLM Main Cash Account and a RTGS DCA.

**T2-T2S Consolidation**
**High-Level Summary**
**of Business Changes**

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> ### Example
>
> A credit institution holding a Main Cash Account and one RTGS DCA sends a payment order to be settled in the RTGS services. There is however not enough cash on the RTGS DCA to settle the payment but additional liquidity is available on the Main Cash Account.
>
> If the credit institution has activated the triggers previously described (i.e. floor/ceiling amounts, business events, queued payments, time events) the RTGS service will trigger the automatic transfer of liquidity from the Main Cash Account to the RTGS DCA to allow the processing of the payment.

The advantage of this model is the wide range of flexibility that it offers to cover the different needs of the participants. It allows credit institutions with no direct access to settlement services to manage their minimum reserve obligations with their Central Bank from one Main Cash Account. This is a cost effective solution for these participants as they do not need to hold an RTGS DCA.

Credit institutions with a Main Cash Account and at least one DCA that prefer a high level of automation of the payment capacity usage will have the option to define floor and ceiling amounts as a trigger for initiating liquidity transfers between the Main Cash Account and the DCAs. An account owner can configure a minimum ("floor") or maximum ("ceiling") amount for its DCA(s). In case the balance falls below the defined floor amount, an additional amount of liquidity is pulled from the MCA (floor balance order) to reach a predefined balance. When the balance exceeds the defined ceiling amount, an amount of liquidity is pushed to the defined MCA (ceiling balance order) in order to reach a predefined balance. Moreover, a liquidity pull can be defined by event, e.g. if there are one or more payments in the RTGS queue which cannot settle due to insufficient funds on the account, the system triggers an automatic liquidity transfer of an amount equal to the missing liquidity from the Main Cash Account.

Multinational credit institutions with various branches or entities can open the number of accounts they need and use CLM functions to steer, manage and monitor the liquidity across all services within a single currency.
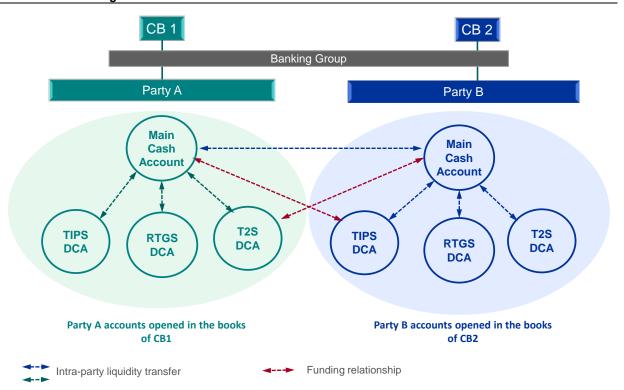
**Figure 4: Example for the usage of CLM for a multinational bank with a branch or entity abroad connected to multiple Main Cash Accounts**

There is no obligation to hold a Main Cash Account or a DCA. If a participant wants to use one of the dedicated services, then the participant needs a corresponding DCA. A DCA needs to be connected with at least one Main Cash Account to receive liquidity and with one Main Cash Account for billing purposes.

Currently, some banks use the so-called co-management functionality. In the future, these entities will have the facility to establish an adequate setup in terms of account structure, access rights and message subscription.

**Figure 5: CLM for a group of banks**



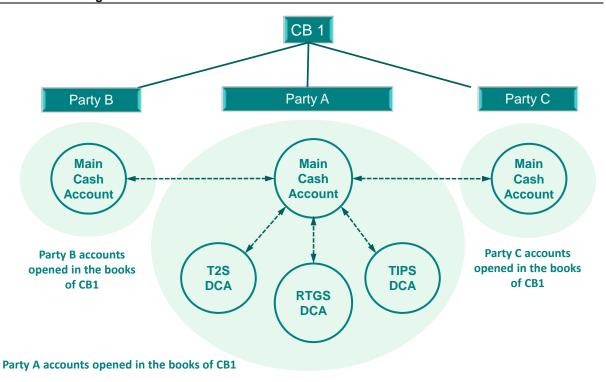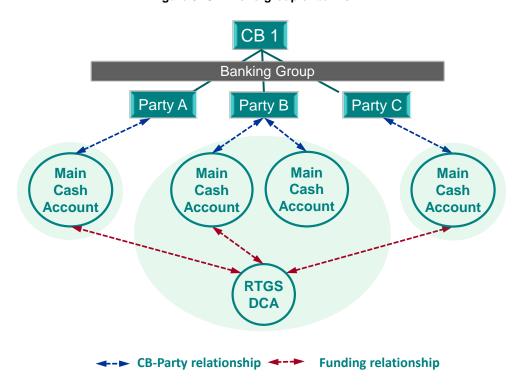**Figure 6: Example for an account structure covering functionality of a virtual group of accounts**

Monitoring functions will support the control of liquidity between CLM and the settlement services via user-to-application (U2A) and application-to-application (A2A) interfaces. In general, CLM functionalities will be accessible through U2A and A2A interfaces. Smaller participants would be able

to access all relevant CLM functions through U2A only and would not need to integrate A2A interfaces into their operational systems. The U2A mode will also offer a dashboard for monitoring purposes

## 2.3      SHARED SERVICES

### 2.3.1      Reference Data

Reference Data will consist of common reference data and service-related reference data. Multiple services will share common reference data. A common repository for these data will avoid duplication of effort in maintaining the same information for the different services (e.g. users) and avoid inconsistencies of the same data between different services (e.g. due to wrong account numbers). Participants and accounts will be set up once for all services.

In general, service-related reference data is specific to one and only one service. Examples for service-related reference data are reservations on RTGS DCA.

Even if the internal handling of common reference data and service-related reference data could be different, they will be maintained by the same interface.

Intraday modifications shall be applied on a real-time basis when necessary, e. g. for the blocking of an account or a participant. Moreover, it shall also be possible to modify reference data with a future value date, i.e. entered with a defined validity start date or end date).

### 2.3.2      Eurosystem Single Market Infrastructure Gateway (ESMIG)

The Eurosystem Single Market Infrastructure Gateway (ESMIG) will be the common entry point for all interaction with the Eurosystem Market Infrastructures. Participants will be able to use communication infrastructures established for different services that they want to use or access. Based on the current plan, the user will have access to RTGS, T2S, TIPS and potential future services through ESMIG.

Based on common technical specifications, ESMIG will be network agnostic, i. e. it will not rely on network specific features. Therefore, it will allow participants to connect through one or multiple service providers for both A2A and U2A interfaces. It is one objective, that ESMIG will offer a cost-effective and secure access to the various services. It will take into account the wide range of party's connectivity needs, e.g. participants with only a low volume of payments.

## 2.4      EXECUTION OF HVP TRANSACTIONS AND AS TRANSACTIONS

The execution of HVP transactions and AS transactions by the future RTGS services will remain almost unchanged or be enhanced compared to today's execution and service levels in TARGET2. Requirements such as priorities and the FIFO-principle complemented by Express-Algorithms will be similar to today's TARGET2 functioning. One significant change within the T2/T2S Consolidation approach is that the provisioning of liquidity for the RTGS DCA(s) will be aligned to the already existing procedures for T2S DCA and the planned one for TIPS. Additional improvements e. g. by

streamlining the AS procedures and aligning the business day models of the different services are also envisaged.

The AS procedures will provide the functionalities that are still required for

► linked settlement with debits first ("Standard Multilateral Settlement", previous procedure 4);

► linked settlement with All-or-nothing ("Simultaneous Multilateral Settlement", previous procedure 5);

► interfaced procedure with dedicated sub-accounts ("Settlement on dedicated liquidity accounts (interfaced)", previous procedure 6-interfaced);

► real-time procedure with AS technical accounts ("Settlement on dedicated liquidity accounts (real-time)", previous procedure 6-real time).

The procedures "Real-Time Settlement" and "Bilateral Settlement" (formerly known as procedures 2 and 3) can be handled with liquidity transfers and individual payments / payment files to/from the AS.

# 3 ENVISAGED BUSINESS CHANGES

## 3.1 IMPROVED MANAGEMENT AND CONTROL OF THE PAYMENT CAPACITY

CLM will provide a central liquidity overview in a single screen/point with an easy access to more detailed information. It will offer a centralised view on all account balances (Main Cash Account and DCAs), the usage of the credit line and auto-collateralisation, and an overview of the sum of credits and debits of pending payments. Alerts will allow participants to control the liquidity available on the Main Cash Account and the DCAs. These features will enable participants to monitor and manage their payment capacity efficiently.

## 3.2 ALLOCATION OF PAYMENT TYPES TO THE ACCOUNTS

In principle, CLM will process the following Central Bank Operations and book them on the Main Cash Account:

▶ Update of the credit line (cash side);

▶ Standing Facilities (i.e. marginal lending and overnight deposits);

▶ Cash withdrawals;

▶ Open market operations;

▶ Any other monetary policy operations;

▶ Debit of billing amounts;

▶ Interest payment orders linked to marginal lending, overnight deposits, minimum reserves and excess of reserve;

▶ Any other activity carried out by Central Banks in their capacity as Central Bank of issue.

## 3.3 STANDING FACILITIES

Standing Facilities are central bank facilities available to counterparties on their own initiative. The Eurosystem offers two overnight standing facilities: the marginal lending facility and the deposit facility. The automatic marginal lending calculation shall be in line with the General Documentation and take into account the balances on the Main Cash Account and the DCAs of the participant.

## 3.4 PROCESSING OF PAYMENTS

### 3.4.1 Reservations

A reservation is used to provide liquidity for payments having a defined priority or business purpose. A participant will be able to allocate a defined amount of liquidity for various types of reservations. A participant can define reservations on the Main Cash Account to allocate liquidity for any of the operations mentioned above in section 3.2. A participant also can define reservations on an RTGS DCA to allocate liquidity for Highly Urgent Payments and for Urgent Payments.

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Where the allocated reservation amount is higher than the non-reserved part of the available liquidity, the reservation remains pending. Whenever liquidity is credited to the account, all incoming cash is reserved automatically until the amount of the reservation is filled. Once the reservation amount is reached, the reservation is considered as successfully executed. Each payment drawing on the reservation will reduce the reservation amount accordingly.

### 3.4.2    Sequence for drawing liquidity

The liquidity provisioning for the settlement of all payment types in the Main Cash Account and in the RTGS DCA shall be processed in a predefined order following the FIFO principle. All Main Cash Account operations and reservations have a higher priority than RTGS DCA operations and reservations. The following table indicates the different sources of liquidity and the order in which the different sources will be tapped (1=first liquidity source, 2=second liquidity source, etc.). The order within the column "Business Purpose" indicates the priority of the payments. The table should be read from left to right, e.g. for a credit line decrease (business purpose), first, the non-reserved part of the Main Cash Account will be debited; second, the reservation for MCA operations; and third, the non-reserved part of the RTGS DCA etc.

| Business Purpose | Main Cash Account (MCA) | | RTGS Dedicated Cash Account (DCA) | | |
|---|---|---|---|---|---|
| | MCA Operations | Non-reserved | Highly Urgent | Urgent (U) | Non-reserved |
| *Main Cash Account* | | | | | |
| **Credit line decrease** | 2 | 1 | 5 | 4 | 3 |
| **Central Bank Operation** | 1 | 2 | 5 | 4 | 3 |
| **Cash Withdrawal** | 1 | 2 | 5 | 4 | 3 |
| **Inter-Service and Intra-Service Liquidity Transfer** | | 1 | n/a | n/a | n/a |
| | | | | | |
| *RTGS Dedicated Cash Account* | | | | | |
| **Inter-Service and Intra-Service Liquidity Transfer** | | | *) | *) | *) |
| **Ancillary System transaction** | | 4** | 1 | 3 | 2 |
| **U Payment** | | 3** | | 1 | 2 |
| **N Payment** | | 2** | | | 1 |

**Table 1: Pre-defined order of liquidity tapping**

* subject to the priority defined by the Party, ** subject to prior configuration by the Party

For Main Cash Account operations and for reservations on the Main Cash Account, CLM shall trigger an automatic liquidity transfer with the missing amount from the RTGS DCA to the Main Cash Account when there is insufficient liquidity on the Main Cash Account. The respective liquidity transfer shall be placed on top of the queue of all pending payments and liquidity transfers on the RTGS DCA. If only a partial settlement of the liquidity transfer is possible, then CLM will execute the liquidity transfer and will create and queue a new liquidity transfer order for the remaining part until the liquidity need on the Main Cash Account is fulfilled completely.

In case of insufficient liquidity on the Main Cash Account for any pending operation, it is intended to draw liquidity automatically only from the RTGS DCA.

In all other cases, the liquidity transfers are subject to and based on liquidity transfer orders that the participant sets up based on triggers defined either on the Main Cash Account or on the DCA. The automatic transfers of liquidity triggered from the DCA to the Main Cash Account due to queued operations on the Main Cash Account shall be initiated automatically and do not require any action or prior configuration from the users. These automatic transfers cannot be suppressed.

### 3.4.3 Liquidity saving mechanisms

Participants will configure any automated transfer of liquidity from the Main Cash Account to any of the DCAs based on specific triggering events (e.g. floor/ceiling breached, payment queued on the RTGS DCA, specific time reached). It is foreseen to retain the current liquidity saving mechanisms on the RTGS DCA:

▶ Entry disposition with offsetting features;

▶ Comprehensive queue management;

▶ Settlement of queued payments with highly efficient optimisation algorithm.

### 3.5 MINIMUM RESERVE CALCULATION

The minimum reserve calculation of the respective participant will automatically include the balance of the TIPS DCA through a snapshot. The 24/7 availability of TIPS will not allow a cash sweep from the TIPS DCA towards the Main Cash Account as TIPS requires this cash for the settlement of instant payments. The same approach will be used for the other types of DCAs. The minimum reserve end-of-day calculation process shall take a snapshot of the relevant RTGS and T2S DCA balances so that an end-of-day cash sweep would no longer be mandatory.

Nevertheless, the different services will foresee options that will allow participants to configure a transfer of the remaining liquidity at the end of the day. This will enable the usage of the full payment capacity even during the downtime of one service.

It is important to note that the participant's accounts that shall be considered for the minimum reserve calculation must belong to the same Central Bank.
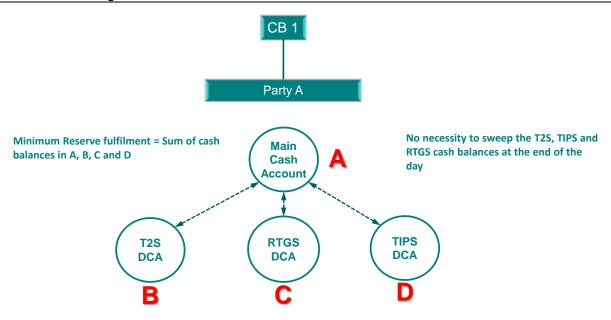
**Figure 7: Minimum reserve fulfilment calculation**

## 3.6  MESSAGING

The technical and functional consolidation of the TARGET2 and T2S platforms will establish common message standards. T2S already uses the ISO 20022 message standards. The ISO 20022 message processing in T2S would be leveraged for the introduction of ISO 20022 message standards for RTGS services.

The implementation of ISO 20022 message standards for payments will adhere to the principles:

▶  Message portfolio

The TARGET2 payment and cash flow messages will be converted to existing ISO 20022 messages. Where necessary, further ISO 20022-compliant messages will be defined for the future RTGS services.

▶  Fully-fledged approach

During the market consultation on the future RTGS services, the majority of the respondents answered that they would like to use the additional fields that ISO 20022 payment messages support and would not like to follow a "like-for-like" approach. Therefore, the Eurosystem has decided on a fully implementing ISO 20022 message standards for RTGS services.

▶  Interoperability

There will be no coexistence of ISO 20022 and MT in the future RTGS services. Nevertheless, it is acknowledged that within the context of cross-border business that the banks would still need to retain interoperability between the standards. The Eurosystem will consider this requirement when detailing the future RTGS messages.

▶ Network vendor agnostic

An essential requirement of the ISO 20022 implementation for the future RTGS services is the ability to be network service provider agnostic. Specifically, this means that the future RTGS service can no longer rely on the SWIFT Y-copy service. Therefore, the system will switch from the Y-copy mode to the V-shape mode.

▶ Big bang

The switch from Y-copy to V-shape mode will require a big bang implementation of the ISO 20022 message standard, i.e. all affected messages must be replaced at the same time. No phased implementation would be possible.

▶ Message versioning

Currently, TARGET2 supports several message versions concurrently. In future, all RTGS settlement services and CLM only will support one message version in order to avoid the additional effort of supporting several message versions in parallel and for coordinating different maintenance versions. Additionally, the version management of all services and CLM will use the same ISO 20022 maintenance version.