EUROPEAN CENTRAL BANK

EUROSYSTEM

General Information (Origin of Request) ☒ User Requirements (URD) or GUI Business Functionality Document (BFD) ☒ Other User Functional or Technical Documentation (SYS)		
Request raised by: Euroclear & Iberclear	**Institute:** CSD	**Date raised:** 25/10/2018
Request title: New process to maximise settlement of transactions at DVP cut-off		**Request ref. no:** T2S-0689-URD
Request type: Common	**Classification:** Scope enhancement	**Urgency:** Normal
1. Legal/business importance parameter: High		**2. Market implementation efforts parameter:** Low
3. Operational/Technical risk parameter: Low		**4. Financial impact parameter:** Medium
Requestor Category: CSD		**Status:** Implemented

Reason for change and expected benefits/business motivation:

CCPs are facing a situation that comes up repeatedly within T2S settlement algorithm due to settlement taking place in 'real-time mode' up to the last second of the end of the DvP period: As T2S reaches the end of the settlement processing of the DVP cut-off, recycling mechanisms are stopped even if current resources could have allowed further settlement. In the case of CCP transactions, **when a CCP receives securities very close to the end of the DvP cut-off** (e.g. due to the release of a client transaction previously on hold or due to a new incoming client transaction), **this could result in delivery instructions from the CCP to the clearing member/settlement agent not being recycled for settlement, resulting in non-zero securities positions in the CCP accounts**. Based on the statistics provided by 5 CCPs members of the European Association of CCP Clearing Houses (EACH), during the period running from 01/07/18 through 30/09/18 CCPs have received 232 times securities very close to the DVP cut-off time and were not able to re-deliver.

This would cause the following **adverse consequences**:

- In case of corporate actions on such positions, the CCP would receive, on one hand, a dividend from the issuer and, on the other hand, would make a compensation to the affected buyer. This may **not be fiscally neutral** not only for the CCPs but also for the counterparties.
- When the settlement discipline of CSD-R comes into force, the CCP will not have a failed seller but will have an affected buyer. The CCP would therefore **not be able to compensate the buyer**. According to Art 7(11) of CSDR, cash penalties shall not apply to failing participants which are CCPs.
- CCPs would need to **finance a buy**[1] **overnight**. This could limit the usage of T2S auto-collateralisation for non-banking CCPs. The buy could be automatically financed by the T2S auto-collateralisation, but then the CCP (between 16.00 and 18.00) would have to find the cash to repay the credit granted via T2S auto-collateralisation.

Description of requested change:

To address the abovementioned issue, it is requested that the availability to resort to auto-collateralisation and to partial settlement should be guaranteed until the end of DVP real-time settlement, including any existing or new RTS recycling and optimization function. The requested change implies no change to the DVP cut-off time.

[1] The 'buy' that is referred to here is the cash leg for the securities received by the CCP, that it could not on-deliver.

Inclusion of a recycling process during the cut-off processing ensures that all eligible transactions are embarked in the recycling process. It is essential that recycling covers also partial settlement until the end of the recycling activity, meaning that if an instruction settles, this immediately launches the recycling of any instructions that can settle, fully or partially, and this process is triggered again until no additional instruction can settle either partially or fully.

T2S should stop the recycling processes (for relevant pending transactions) at a predefined, configurable time, set at 16:05 originally, in order to ensure that the extended recycling process does not delay subsequent events/activities of T2S participants. In addition, the partial settlement window ending at 16:00 should be extended until 16:05.

Submitted annexes / related documents:

Proposed wording for the Change request:

URD impacts

URD v7.0, section 3.1.2.6, page 58 (as modified by CR-694)

Reference ID	T2S.03.165

T2S shall activate partial settlement procedure
• at 08:00 CET, with deactivation at 08:30 CET
• at 10:00 CET, with deactivation at 10:15 CET
• at 12:00 CET, with deactivation at 12:15 CET
• at 14:00 CET, with deactivation at 14:15 CET
• at 15:30 (30 minutes before the DVP cut-off time), with deactivation at 16:05 or at the closure of the same day T2S DVP settlement, whichever comes first.

URD v7.0, section 3.1.4, page 61

Deadline for intraday DVP

Reference ID	T2S.03.250

T2S shall set a deadline (16:00) for receiving DVP instructions for same-day settlement.
T2S shall attempt to settle all DVP instructions, eligible for settlement and arriving before the expiry of the deadline, on a same-day basis. T2S shall move all non-cancelled DVP instructions that arrive after this deadline to the night-time settlement period of the next settlement day. In addition, T2S shall stop the recycling of same-day settlement DVP fails resulting from earlier settlement attempts ~~after this deadline~~ at 16:05 at the latest. After this deadline, T2S shall recycle the remaining non-cancelled DVP fails to the next settlement day.
This fulfils the requirement of allowing ~~one hour~~ sufficient time for treasury management before the 17:00 TARGET2 deadline for customer payments.

GFS Impacts: *(GFS impacts below are described on top of CR609 or CR677 impacts.)*

Section 3.5.5.3 Description of the functions of the module- 7 – Cut-Off Processing

Suspending settlement transactions "Unsettled" or "Partially settled"

Reference Id	***SETT.SPS.COP.4.1***

The function suspends from settlement the "*Unsettled*" or "*Partially Settled*" *Settlement Transactions* of the current settlement day, depending on the cut-off event received:

- At the reception of an *Event (Intraday DVP Cut-off)*, the function first proceeds to the credit propagation process[2] and then suspends the *"Unsettled"* or *"Partially Settled" Settlement Transactions* with a Transaction Type Code set to "DVP"*,* "DWP" or "PFOD". **{T2S.07.100}**;
- At the reception of an *Event (Intraday FOP Cut-off)*, the function suspends the *"Unsettled"* or *"Partially Settled" Settlement Transactions* with a Transaction Type Code set to "FOP" **{T2S.07.110}**;
- At the reception of an *Event (Intraday BATM Cut-off)*, the function suspends the *"Unsettled"* or *"Partially Settled"* BATM *Settlement Transactions* (except if Transaction Type Code is set to "FOP") **{T2S.07.110}**;
- At the reception of an Event (Intraday Cash Settlement Restrictions Cut-off), the function suspends the *Settlement Transactions* for cash restrictions;
- At the reception of an Event (Intraday Securities Settlement Restrictions Cut-off), the function suspends the *Settlement Transactions* for securities restrictions;
- At the reception of an *Event (Intraday CBO Cut-off)*, the function suspends the remaining *"Unsettled"* or *"Partially Settled" Settlement Transactions* with an ISO Transaction Code set to "CNCB"(except if Transaction Type Code is set to "FOP") [3] **{T2S.07.110}**;
- At the reception of an *Event (Inbound Liquidity Transfer Cut-off)*, the function suspends the *Settlement Transactions* for liquidity transfers

The suspension of a Settlement Transaction related to matched Settlement Instructions or to Settlement Restrictions leads to inform *Lifecycle Management and Matching* domain in order to report the "Failing" ISO settlement status.

End of auto-collateralisation availability

Reference Id	***SETT.SPS.COP.5.1***

At the ~~reception~~ closure of any *Event (Intraday DVP Cut-off)* whichever its currency, the function suspends the availability of the auto-collateralisation function for the currency of the Intraday DVP cut-off received.

UDFS Impacts: ***(****UDFS impacts below are described on top of CR609, CR677 and CR694 impacts.)*

1.4.4.4 Real-time settlement (RTS)

This section presents the real-time settlement processes in the T2S settlement day. The real-time settlement period starts after the end of the night-time settlement and is followed by the end of day

[2] The credit propagation process consists in ensuring that all credits stemming from transactions submitted to IDVP cut-off are propagated through recycling until the end of the propagation or until a scheduled time

period.
In case the NTS completes before 3.00 a.m., real-time settlement period begins before the start of the maintenance window at 3.00 a.m.
The real-time settlement period includes:

- The real-time settlement preparation;
- The real-time settlement with the five partial settlement windows to optimise maximum value and volumes of settlement transactions, which are unsettled because of lack of securities:
    - The first partial settlement window between 08:00 a.m. and 08:15 a.m.;
    - The second partial settlement window between 10:00 a.m. and 10:15 a.m.;
    - The third partial settlement window between 12:00 p.m. and 12:15 p.m.;
    - The fourth partial settlement window between 2:00 p.m. and 2:15 p.m.;
    - The fifth partial settlement window is 30 minutes before the beginning of the DVP cut-off time, then between 3:30 p.m. and 4.0~~0~~5 p.m. or the closure of both DVP cut-offs (whichever comes first).

The previously unsettled Settlement Instructions and Settlement Restrictions from night-time settlement are attempted for settlement in the real-time settlement period with the arrival of new resources (securities for delivery, securities in positions earmarked available for collateral, cash). Additionally T2S performs a settlement attempt for any new intraday Settlement Instructions, Settlement Restrictions and liquidity transfers validated and accepted during real-time settlement period;

- The real-time settlement closure with different cut-offs and events for different Settlement Instructions, Settlement Restrictions and liquidity transfers categories.
- Some of these cut-offs and events may be currency dependent.

For the ease of presentation, the real-time settlement period is shown in two parts:

- The real-time settlement;
- The real-time settlement closure.

1.4.4.4.4 Real-time settlement processes

During the real-time settlement, T2S performs the processes as detailed in the below table.

TABLE 102 - PROCESSES DURING THE REAL-TIME SETTLEMENT

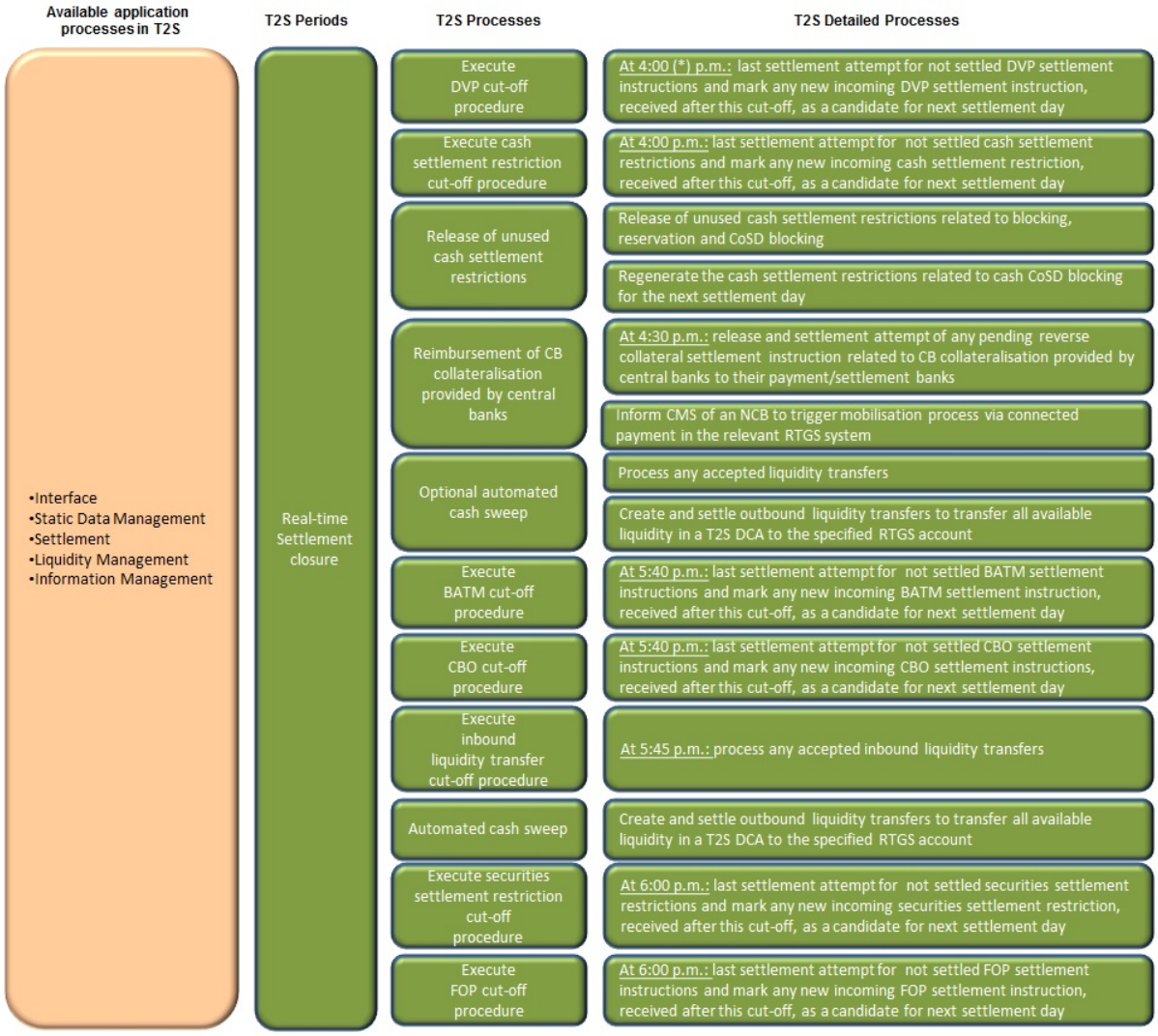
T2S PROCESSES	DESCRIPTION OF THE PROCESSES
..	
Fifth partial settlement window	All the processes available during the real-time settlement period are also available including auto-collateralisation. Additionally: - Partial settlement of new Settlement Instructions arriving into T2S in this period and eligible to partial settlement; - Settlement of previous unsettled or partially settled Settlement Instructions which are eligible to partial settlement. - Recycling of all settlement instructions submitted prior to the DVP cut-off[X]

[X] This is to ensure that all credits stemming from transactions submitted to the DVP cut-off are propagated through recycling. The End of the DVP cut-off only occurs once this has been completed or once a scheduled time has been reached (4:05 p.m.).

1.4.4.4.5 Real-time settlement closure schedule

The below diagram shows the different processes occurring during the real-time settlement closure of the real-time settlement period along with the list of available application processes:

DIAGRAM 65 - REAL-TIME SETTLEMENT CLOSURE SCHEDULE



* End of both DVP cut-offs will occur at maximum 4:05 p.m..

1.4.4.4.6 Real-time settlement closure dependencies

During the real-time settlement closure of the real-time settlement period, T2S performs the following detailed processes based on the specified dependencies.

DIAGRAM 66 - REAL-TIME SETTLEMENT CLOSURE DEPENDENCIES

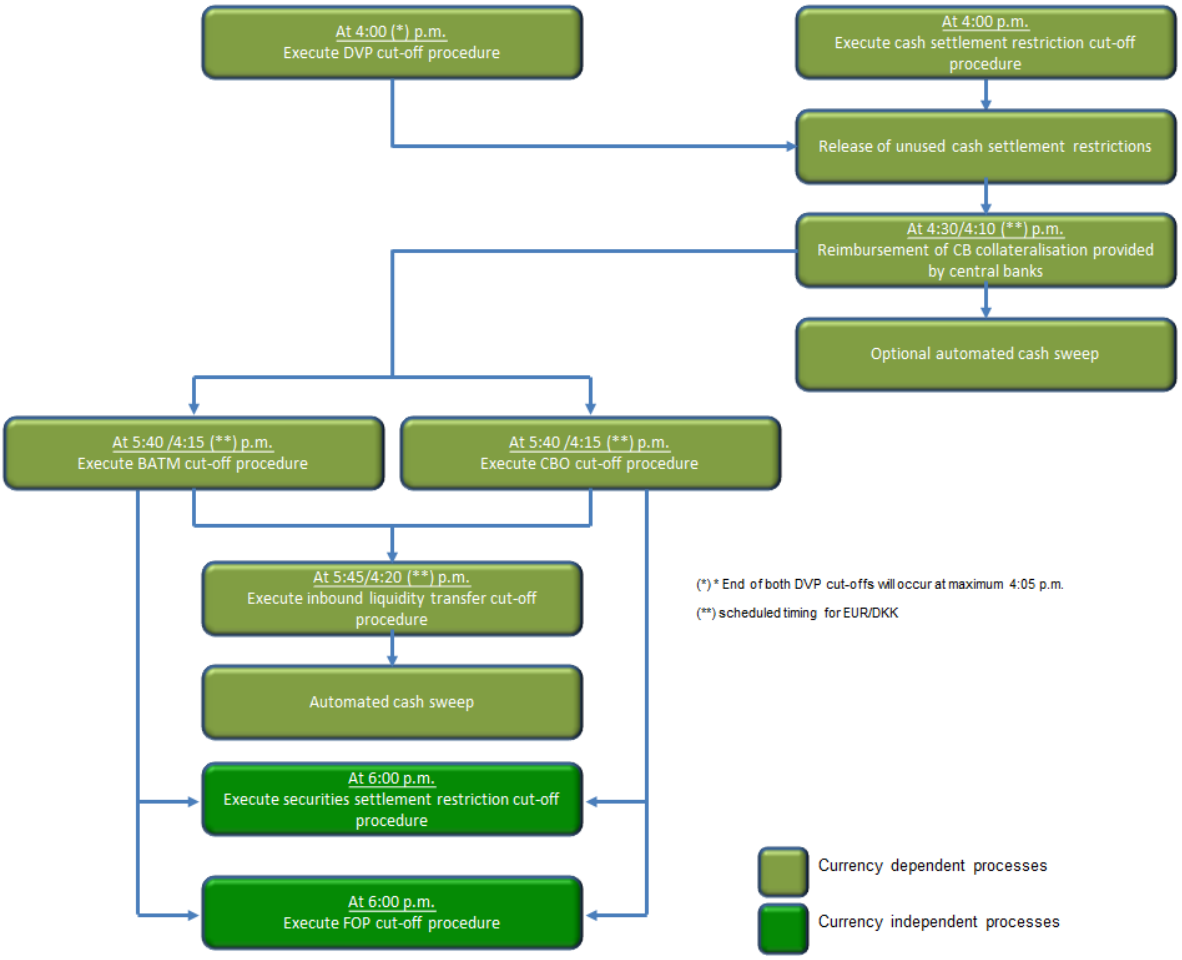


TABLE 103 - DEPENDENCIES DURING THE REAL-TIME SETTLEMENT CLOSURE

T2S DETAILED PROCESSES	DEPENDENCIES	
	TYPE OF DEPENDENCY	DESCRIPTION
Execute DVP cut-off procedure	~~End of fifth partial settlement window and~~ Time: 4:00 p.m.	~~This process starts after the completion of the fifth partial settlement window. In addition this process does not start before~~ This process starts at 4:00 p.m. If it has not already occurred, the end of the process is forced at 4:05 p.m.. In case of emergency situations a change of DVP cut-off is only possible according to a process to be defined in the T2S MOP.
Execute cash Settlement Restriction cut-off procedure	~~Partial settlement window completed and~~ Time: 4:00 p.m.	~~This process starts after the completion of the fifth partial settlement window. In addition this process does not start before~~ This process starts at 4:00 p.m. In case of emergency situations a change of cash Settlement Restriction cut-off is only possible according to a process to be defined in the T2S MOP.
...		

High level description of Impact:

Outcome/Decisions:

*CRG on 28 November 2018: The CRG agreed to launch the preliminary assessment of this Change Request.

*CRG on 20 March 2019: The CRG agreed to recommend this Change Request for authorisation by the T2S Steering Level.

*AMI-SeCo on 29 March 2019: The AMI-SeCo has agreed to the recommendation of the CRG to authorise this Change Request.

* CSG on 3-4 April 2019: The CSG has agreed to authorise this Change Request.

* NECSG on 5 April 2019: The NECSG has agreed to authorise this Change Request.

* MIB on the 8 April 2019: The MIB has agreed to authorise this Change Request.

* PMG on 12 April 2019: The PMG proposed to include the Change Request in R4.0.

* CRG on the 4 July 2019: The CRG agreed to recommend to the PMG the inclusion of CR-689 in R4.0.

* PMG on the 5 July 2019: The PMG recommended the inclusion of CR-689 in STP for R4.0 for approval by the Steering Level.

* CSG on the 12 July 2019: The CSG approved the inclusion of CR-689 in STP for R4.0.

* NECSG on 12 July 2019: The NECSG approved the inclusion of CR-689 in STP for R4.0.

* MIB on the 15 July 2019: The MIB approved the inclusion of CR-689 in STP for R4.0.

* OMG on the 17 July 2019: the OMG identified a potential operational impact for the CR.

Preliminary assessment:

Impact:

(1a) Very Low
(1b) Low-medium
(2) Very high

Impacted Modules:

(1a) SETT
(1b) SETT
(2) SETT, QUM&REM, INTF

Findings:

Option 1:

- Availability of AC will continue until the end of the DVP cut-off (End of IDVP - for each currency)
- PSW to be extended until either:
  - The end of the last DVP cut-off (EDVP)
  - Or a defined time (16:05 for instance) to be rescheduled if cut-off are delayed

With two possible approaches:

- **1a:** A limited extension of partial settlement and auto-collateralisation to settlement transactions presented for their first settlement attempt before the end of DvP cut-off processing.

- **1b:** Extension of partial settlement and auto-collateralisation to all eligible settlement transactions. Recycling and optimisation are available throughout the duration of the cut-off processing. Ensures the completion of recycling and optimisation for all settlement transactions that have been identified for a recycling or optimisation even after the last settlement transactions has been submitted to a first settlement attempt (until an established deadline prior to RMIC)
  - Need to determine the moment to trigger the suspension of relevant pending settlement transactions, possibly with the addition of different triggers:
    - Wait until the first settlement attempt of the last settlement transaction related to the cut-off
    - Ensuring that no relevant DvP is still under recycling or optimisation

- Possibly utilising a timer or scheduling a time limit per currency (e.g. 16:08 for DKK)
- Suspension of relevant pending settlement transactions at the end of DVP cut-off in SETT (End of IDVP) (for each currency)
- Ensures the completion of recycling and optimisation for all settlement transactions that have been identified for a recycling or optimisation even after the last settlement transactions has been submitted to a first settlement attempt (until an established deadline prior to RMIC DKK)
- Extends Partial settlement and Auto-collateralisation
- PWS (EAPT) to be extended to last DVP-cut-off or a defined time (e.g. 16:05) – to be rescheduled in cases of contingency

Option 2:

Availability of AC will continue until the end of the DVP cut-off (End of IDVP - for each currency)
When the first settlement attempt of the last settlement transaction related to the cut-off has occurred:

- Real-Time Settlement for all currencies will be stopped
- An optimisation batch will be triggered:
  - Selecting all eligible Settlement Transactions
  - Resorting directly to an optimisation algorithm (no series)
  - Providing results in a settable collection to Real-Time SettlementTriggering the suspension of relevant pending settlement transactions at its end
- PSW to be extended until the end of the last DVP cut-off (EDVP)

Because of the nature of the Batch mode, the Option 2 has many drawbacks:

- Some settlement features are stopped while the batch is running:
  - New incoming instructions not processed in the booking engine
  - Amendments on instructions not processed
  - IR not processed
  - Amendments on limits not processed
  - Following events not processed (RMIC, cut-off)
  - The SLA can't be applicable during the period of batch execution.
  - Similar limitations like during NTS: as long as the DVP batch is being processed, all Queries concerning balances and positions would have to be rejected (U2A) or queued (A2A), since they would not return consistent results. Likewise, the generation of time-triggered Reports concerning balances and positions would have to be stopped for the time of batch processing.
  - Complicated management of the different currencies events. An event delayed for currency Y could have an impact for currency X.

Conclusion:

- The **Option 1a** meets most of the needs, RTS continues to work as today
- The **Option 1b** is the preferred solution and completely meets the needs as it ensures the completion of recycling optimisation for all settlement transactions concerned. The estimated duration added to the cut-off process is less than 1 min and RTS continues to work as today.
  Option 1 will also benefits from all the T2S optimization services as requested for Option 2. This includes: technical netting, circle, back to back, pair-off, partial settlement, auto-collateralisation, etc.

- Due to the number of drawbacks and high impact 4CB do **not recommend Option 2.**

- **Option 3** (Zero positions 3) cannot always be assured by the settlement engine as this is highly dependent of resource availability and settlement instruction activity. As such **Option 3 was discarded from the 4CB viewpoint.**

- **Open issues/ questions to be clarified by the originator:**
  - Would it be possible to provide an example?
  - Should we let the partial settlement feature opened in case of a delay in one IDVP (EUR, DKK, etc).

EUROSYSTEM ANALYSIS – GENERAL INFORMATION

	Static data management	Interface

Impact On T2S		Party data management		Communication
		Securities data management		Outbound processing
		T2S Dedicated Cash account data management		Inbound processing
		Securities account data management		
		Rules and parameters data management		
	Settlement		**Liquidity management**	
	X	Standardisation and preparation to settlement		Outbound Information Management
		Night-time Settlement		NCB Business Procedures
	X	Daytime Recycling and optimisation		Liquidity Operations
		Daytime Validation, provisioning & booking	**LCMM**	
	X	Auto-collateralisation		Instructions validation
				Status management
	Operational services			Instruction matching
		Data Migration		Instructions maintenance
		Scheduling	**Statistics, queries reports and archive**	
		Billing		Report management
		Operational monitoring		Query management
				Statistical information
				Legal archiving
		All modules (Infrastructure request)		
		No modules (infrastructure request)		
		Business operational activities		
		Technical operational activities		

Impact on major documentation		
Document	**Chapter**	**Change**
Impacted GFS chapter	Section 3.5.5.3 Description of the functions of the module- 7 – Cut-Off Processing	Add credit propagation process in cut-off processing. Change description of stopping auto-collateralisation
Impacted UDFS chapter	1.4.4.4 Real-time settlement (RTS) 1.4.4.4.4 Real-time settlement processes *- Table 102* *1.4.4.4.5 Real-time settlement closure schedule* *- Diagram 65* *1.4.4.4.6 Real-time settlement closure dependencies* *- Diagram 66* *- Table 103*	Change description of timing of fifth PSW. Diagrams and tables updated to take into account the new end of partial settlement window.

Links with other requests				
Links	Reference		Title	

OVERVIEW OF THE IMPACT OF THE REQUEST ON THE T2S SYSTEM AND ON THE PROJECT

Summary of functional, development, infrastructure and migration impacts

This CR aims at including a recycling process during the IDVP cut-off processing named credit propagation process. It ensures that all credits stemming from transactions submitted to IDVP cut-off are propagated through recycling until the end of the propagation or until a scheduled time. The IDVP cut-off is closed at the end of the credit propagation process.

The Partial Settlement Window is extended until the closure of both IDVP cut-off. The auto-collateralisation in each currency is available until the closure of the related IDVP.

On documentary aspects, this CR is linked to CR-677, CR-694 and CR-609 as the impacts are described on top of those described in CR-677, CR-694 and CR-609.

Main cost drivers:

- Update of DVP cut-off processing regarding the closing of the fifth partial settlement window, the inclusion of auto-collateralisation and the inclusion of a credit propagation process

No impact on other TARGET Services and/or Eurosystem Projects has been identified.

Summary of project risk
None.

Security analysis
No adverse side effect identified.

target | T2S services

01 July 2019

Cost assessment on Change Requests

T2S-689-SYS – New process to maximise settlement of transactions at DVP cut-off			
One-off	Assessment costs* - Preliminary - Detailed	 2,000.00 10,000.00	 Euro Euro
One-off	Development costs	205,812.30	Euro
Annual	Operational costs - Maintenance costs - Running costs	 18,743.45 0.00	 Euro Euro

*The relevant assessment costs will be charged regardless of whether the CR is implemented (Cf. T2S Framework Agreement, Schedule 7, par. 5.2.3).