EUROPEAN CENTRAL BANK

EUROSYSTEM

T2S CHANGE REQUEST FORM		
General Information (Origin of Request) ☐ User Requirements (URD) or GUI Business Functionality Document (BFD) ☒ Other User Functional or Technical Documentation (SYS)		
Request raised by: Eurosystem	**Institute:** 4CB	**Date raised:** 08/02/2023
Request title: T2S Billing – BILL enhancements stemming from audit report		**Request No.:** T2S 0816 SYS
Request type: Common	**Classification:** Scope enhancement	**Urgency:** Fast-track[1]
1. Legal/business importance parameter[2]: Medium		**2. Market implementation efforts parameter[3]:** Low
3. Operational/Technical risk parameter[4]: Low		**4. Financial impact parameter[5]:** Medium
Requestor Category: Eurosystem		**Status:** Proposed for a release

Reason for change and expected benefits/business motivation:

Within the scope of the audit mission, part of the 2021 Internal Auditors Committee (IAC) work programme, was to provide reasonable assurance on the adequacy and effectiveness of the risk management, controls and governance related to the T2S with a focus on the reliability of the billing process.

As an outcome of this work, the Internal Auditors Committee (IAC) was of the overall opinion that the controls for the reliability of the T2S billing process were insufficiently effective. Due to the fact that the reconciliation of invoices with source data was not part of the T2S requirements, there is the risk that errors of overcharging/undercharging may not be promptly detected, affecting the quick implementation of the respective corrective actions which can lead to financial and reputational impact.

The IAC recommended the MIB to enhance the controls and correspondingly amend the UDFS in order to allow the 4CB as service providers and the ECB T2S financials team on behalf of Eurosystem to reconcile the invoices generated with source data and ensure that automated invoices were correct and complete.

The MIB invited the 4CB to assess options to address the IAC recommendation considering the introduction of the new billing Common Component in R6.0 in June 2022 with particular reference, among others, to:

- Analysing possible solutions at functional and operational level with all the relevant stakeholders aimed at facilitating the reconciliation processes between source data and invoices, as well as instating advanced technical checks to monitor the completeness of data transfers from the different providing backend modules to STSI and Billing.

In this context, this change request is raised with the purpose to enhance the internal control/reconciliation checks of the billing process to ensure a correct and complete production of the automated invoices and the possibility to reconcile the invoices with the T2S billing source data.

Description of requested change:

In the current design for T2S billing, T2S source modules (e.g. LCMM, SETT, INTF, CRDM, BDM…) export data to STSI, which performs some checks during the data loading process: STSI checks that the received files are not corrupted and performs the load if all files have been received. After the daily computation, aggregated data are sent by STSI to BILL Common Component (from T2S R6.0 on). As a consequence of this approach, both STSI and BILL are not aware about the completeness of the source data: if data sent by the modules contains an error or is not

---

[1] Fast-track justification: A fast-track approach is requested in order to address as soon as possible the IAC finding and to avoid that potential new invoices are sent out without the proper billing information.

[2] Legal/business importance parameter was set to 'Medium' with this change the T2S community will benefit from a moderate improvement being the increase in the consistency of the billing invoicing.

[3] Market implementation effort parameter was set to Low' because with this change will not require a long implementation time and any significant resources on the side of Participating CSDs, CBs and their communities in order for them to be able to take full benefit of the change.

[4] Operational/technical risk parameter was set to 'Low' because with this change it is expected not to threaten the Service Level for Participating CSDs or CBs or to have no or insignificant operational impact on the Participating CSDs, CBs or 4CB.

[5] Low < 100kEUR < Low-Medium < 200 kEUR < Medium < 400kEUR < High < 700kEUR < Very high

complete, the STSI calculation could end up in a wrong calculation for the final invoices.

Mitigate the risk of the whole process results in a high complexity task, so the agreed approach is to split the mitigation measures needed to fulfil the abovementioned requirements about the T2S billing process into 4 Change Requests. **In this CR are considered Billing process step involving BILL Common Component.**

During each billing period BILL receives daily aggregated data from service specific modules (STSI for T2S), at the end of the billing period BILL aggregates daily aggregated data on billing period basis and then process them to obtain invoice data and subsequently invoices. For parties opted for Direct Charging, BILL sends also Direct Debit to CLM to pay invoice amount.
All BILL's actions, starting from aggregation of daily aggregated data onwards, strongly depends on CRDM Billing configuration of parties to be charged for daily consumption, so a check on this configuration should be put in place as mitigation measure on this step of the process in order to avoid any kind of issue coming for a missing or and incomplete configuration

As already mentioned, BILL produces invoices starting from participants' consumption, participants can access their invoices via U2A on BILL GUI and can opt for receiving them via A2A in message format.
Invoice generation and sending is a critical step on the entire billing process: once that invoices are accessible by participant, any possible calculation error will impact also customer internal process, so additional check should be put in place as mitigation measure on this step of the process.

Submitted annexes / related documents:

Outcome/Decisions:

*CRG on 5 December 2023: the CRG agreed to recommend CR-0816 for authorisation by the T2S Steering Level, following a fast-track approach.
*CRG on 5 December 2023: the CRG agreed to recommend to the PMG the inclusion of CR-0816 in the scope of R2025.JUN.
*PMG on 12 December 2023: the PMG agreed to recommend the inclusion of CR-0816 in the scope of R2025.JUN.
* AMI-SeCo on 21 December 2023: the AMI-SeCo agreed with the CRG recommendation of CR-816 for T2S Steering Level authorisation.
*CSG on 21 December 2023: the CSG agreed to authorise CR-816.
*NECSG on 21 December 2023: the NECSG agreed to authorise CR-816.
*MIB on 21 December 2023: the MIB agreed to authorise CR-816.

Documentation to be updated:

Preliminary assessment:

Not performed

Detailed assessment:

EUROSYSTEM ANALYSIS – GENERAL INFORMATION	

T2S Specific Components		Common Components	
LCMM			
	Instructions validation		
	Status management		
	Instruction matching		
	Instructions maintenance		
	Penalty Mechanism		
Settlement			
	Standardisation and preparation to settlement		
	Night-time Settlement		
	Daytime Recycling and optimisation		
	Daytime Validation, provisioning & booking		
	Auto-collateralisation		
Liquidity Management			
	Outbound Information Management		
	NCB Business Procedures		
	Liquidity Operations		
T2S Interface		**Eurosystem Single Market Infrastructure Gateway** (from R6.0 June 2022)	
	Communication		Communication
	Outbound Processing		Outbound Processing
	Inbound Processing		Inbound Processing
Static Data Management *(until June 2022)*		**Common Reference Data Management** *(from R6.0 June 2022)*	
	Party data management		Party data management
	Securities data management		Securities data management
	Cash account data management		Cash account data management
	Securities account data management		Securities account data management
	Rules and parameters data management	X	Rules and parameters data management
Statistics and archive		**Statistics and archive**	
	Statistical information (until June 2022)		Short term statistical information
	Legal archiving (until June 2022)		Legal archiving (from R6.0)
			Data Warehouse (from R6.0)
Information *(until June 2022 containing reference data)*		**CRDM business interface** *(from R6.0 June 2022)*	
	Report management		Report management
	Query management		Query management
			Communication
			Outbound Processing
			Inbound Processing
Operational Services			
	Data Migration (T2S DMT)		Data Migration (CRDM DMT, from R6.0)
	Scheduling (until June 2022)		Business Day Management (from R6.0)

			Business Day Management business interface (from R6.0)
	Billing (until June 2022)	X	Billing (from R6.0)
		X	Billing business interface (from R6.0)
	Operational Monitoring		Operational and Business Monitoring
	MOP Contingency Templates		

Impact on major documentation

Document	Chapter	Change
Impacted GFS chapter		No impact
Impacted UDFS chapter		Wording proposals to be provided during implementation phase.
Additional deliveries for Message Specification (UDFS, MyStandards, MOP contingency templates)		No impact
UHB	**FIT** CRDM UHB - Annex for Service Operator	Update dedicated section for the screen used by the Operational Team to insert the parametric lists used for STSI checks on order to manage also BILL checks.
	BILL UHB for Operator - Annex for Service Operator	Update of the following sections in order to allow the visibility of the CB invoice in the BILL GUI in an incomplete status to Operator only and in order to allow the visibility of the PDF invoice under analysis in an error status and the triggering of the invoice sending process via the BILL GUI to Operator only: 2.2.2.1 Invoice Data – Search/List Screen 2.2.5.1 PDF Invoice– Search/List screen
Other impacted documentation (FA Sch. 05, FA Sch. 07)		No impact
Impacted GDPR message/ screen fields		No impact

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

In order to fulfil the requirements contained in the CR text for the enhancing of the internal control/reconciliation checks of the billing process for a correct and complete production of the automated invoices and to allow the reconciliation of the invoices with the T2S billing source data, the following mitigation measures on BILL side should be put in place.

As for mitigation measures proposed to the OMG in April 2023, BILL should be changed in order to avoid inconsistency during the invoice data and invoice computation processes: the following checks should be put in place:

> a) *Check on CRDM configuration for Billing – to be put in place for all TARGET Services for CBs*

> Introduction of an alarm/warning that will be raised by BILL daily whenever a CB did not complete the

invoice configuration for a Payment Bank with logged consumption for at least one business day in the month under analysis for billing.

BILL should be updated in order to perform the checks as soon as the daily acquisition of data from STSI is performed (or from DWH for T2 or from STSI^TIPS for TIPS).

In case the alarm/warning is raised, the OT will inform the corresponding CB to proceed with the invoice configuration. If the configuration is still missing before the SOD of the business day when the invoices are created, the specific System Entity invoice will not be produced by BILL. In this case, ECB Financials team will be notified by the Operational Team in order to proceed with the needed credit/debit notes (if any).

Type of checks:

1) absence of Invoice Configuration, check to be performed daily;

2) Invoice Configuration not complete (i.e. for DD in case of Direct Invoicing or Direct Charging, the absence of valid AAU for accounts to be credited and debited) – this check should be performed monthly (when the invoice is going to be created) and in case of negative result only the Direct Debit creation and sending should be blocked.

BILL should be amended in order to perform a new data loading from CRDM, after the end of billing period and before the invoice data generation step.

For T2-RTGS Service, considering that the CB's Invoice Configuration is needed also for the creation of the invoice data, in case of alarm the Operational Team is in charge to delete the interested CB invoice data and to generate it again basing on the updated CRDM configuration, using the already existing BILL functionalities available in the BILL GUI (Invoice data deletion/creation for a specified S.E.). This requires that these CB invoice data should be visible in the BILL GUI in an incomplete status to Operator only, with a changes on the BILL GUI, BILL screen IDFS and BILL UHB for Operator.

b) *Consistency check of the amounts (last-mile check) – to be put in place for all TARGET Services*

BILL should be amended in order to perform two levels of checks:

1) a check on the correspondence of the sum of aggregated subtotals vs grand total per CSD/CB between PDF and camt.077 INVC messages, for each S.E. Check to be performed during the invoice creation process;

2) a check on the total turnover for each CB/CSD based on a monthly percentage variance provided by the ECB Financial team respect to the invoice issued for the last billing period. This check must be considered as reinforcing the ones at STSI level, in order to verify the amounts' computation at BILL level. The parameter for each CB/CSD should be configured by the Operational Team in CRDM in a dedicated list for each TARGET Service, containing all the parameters for the CB/CSD interested in this Service. In case of no parameter set for a dedicated S.E. and TARGET Service the check will not be triggered: an alarm/warning to the Operational Team will be raised.

In case of any deviation stemming from the abovementioned two checks, it will be notified by a BILL alarm to the Operational Team. Deviations will lead to the interruption of the process for the interested CB in the involved TARGET Service and the need to trigger further investigations at technical and/or business level. In addition, the related invoice in PDF should be shown in the BILL GUI in an error status for Operator only.

In the absence of technical issues the process is resumed: the ECB Financials will be notified by the Operational Team and the reason behind the deviations might be investigated, if relevant, at business level by ECB Financials (business deviations will eventually be managed via credit/debit notes). The Operational Team should be able to trigger the sending process for invoice sending via the BILL GUI, i.e. the change of the PDF status and the sharing of its visibility and the sending of the camt.077 INVC.

CRDM should be adapted in order to update the screen, entity in CRDM data model and dedicated CUD procedure managing parametric lists for STSI checks in order to allow the Operational Team to insert also parametric lists mentioned in the point b.2 (check on the total turnover).

Main cost drivers

- Implementation of Consistency Check of the amounts (last-mile check), Daily Check and Alarm on CRDM Invoice Configuration Absence, Monthly Check and Alarm on Missing CRDM Direct Debit Configuration in the BILL Common Component and BILL GUI for the Operator.

| **Impact on other TARGET Services and projects** |
| No impact on ECMS and TIPS.
 T2 is impacted for what BILL is concerned.
 No business impact on ECMS, TIPS and T2 customers but CNs will be drafted on T2 and TIPS sides in order to explain to T2 and TIPS communities the new checks that BILL will perform also for these two TARGET Services. |
| **Summary of project risk** |
| No risk has been identified during detailed assessment. |
| **Security analysis** |
| No adverse effect has been identified during security assessment. |

28 November 2023

Cost assessment on Change Requests

T2S-816-SYS – T2S Billing – BILL enhancements stemming from audit report			
One-off	Assessment costs* - Preliminary - Detailed	not charged 10,000.00	Euro Euro
One-off	Development costs	302,942.91	Euro
Annual	Operational costs - Maintenance costs - Running costs	 22,607.14 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).