

Change Request form

General Information (Origin of Request)		
<input checked="" type="checkbox"/> User Requirements Document (URD) <input type="checkbox"/> User Detailed Functional Specification (UDFS) <input type="checkbox"/> User Handbook (UHB) <input checked="" type="checkbox"/> Other User Functional or Technical Documentation (SYS)		
Request raised by: ECB	Institution: ECB	Date raised: 07 August 2023
Request title: TIPS Pricing_Invoicing enhancements		Request ref. no: TIPS-0066-URD
Request type:		
1. Legal/business importance parameter: Medium	2. Market implementation efforts parameter – Stakeholder impact:	
3. Operational impact: High	4. Financial impact parameter: Medium	
5. Functional/ Technical impact: Medium	6. Interoperability impact: Low	
Requestor Category: Central Bank	Status: Allocated to a release	

Reason for change and expected benefits/business motivation:

In view of the introduction of the new TIPS Pricing to be applied as of 1 January 2024, some changes are deemed necessary to address some identified gaps not already covered by the Change Request TIPS-0057-URD “TIPS Pricing requirements” and to further enhance the TIPS billing/invoicing process.

In this regard, three areas of intervention have been identified:

1. Inclusion of Authorised Account Users (AAUs) defined on TIPS Credit Memorandum Balances (CMBs) in the computation of service item *3011 Fixed fee on TIPS DCA - AAU based* and on *3012 the Fixed fee on TIPS ASTA - AAU based*;
2. Enabling the Billing Common Component (BILL) to handle the 5-decimal digits for unit prices;
3. Enabling BILL to automatically compute ACH fee invoice data (for ACH internal traffic) in the System Entity and ACH Participant invoices without the need to rely on the Manual Correction functionality, but as part of the invoice data BILL process.

The main objectives that are intended to be reached are:

- The number of AAUs defined on CMBs shall be automatically calculated and reflected in the invoice for the fixed fees (service item 3011 and service item 3012);
- BILL backend and GUI shall be able to process and display ACH fee band 4 with its unit price set at EUR 0.00015 in the invoice for ACHs. It shall be optionally checked whether it would be possible that the changes do not affect all TARGET Services, but only TIPS.
- Manual effort/corrections necessary to populate the BILL data by the ECB Financials Team / Central Banks shall be removed, with a beneficial effect on the operational risk.

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Description of requested change:

For requested change 1 *“Inclusion of Authorised Account Users (AAUs) defined on TIPS Credit Memorandum Balances (CMBs) in the computation of service item 3011 Fixed fee on TIPS DCA - AAU based and on 3012 the Fixed fee on TIPS ASTA - AAU based”*: The request is that AAUs defined on the TIPS CMBs are taken into consideration for the computation of service item 3011. The maximum number of AAUs able to settle IP on a given TIPS DCA (with or without a CMB) that will be billed is 50 per DCA (counting from the 2nd up to and including the 51st; the 1st AAU and all those from the 52nd and beyond are free of charge). The AAUs to be taken into consideration should be active for at least one business day on the DCA during the month.

For service item *3012 the Fixed fee on TIPS ASTA - AAU based*, the request is that AAUs defined on the TIPS CMBs are taken into consideration for the computation of the service item 3012. The maximum number of AAUs able to settle IPs on a given TIPS ASTA (with or without CMB) that will be billed is 50 per ASTA (counting from the 1st up to and including the 50th; all those from 51st and beyond are free of charges). The AAU to be taken into consideration should be active for at least one business day on the ASTA during the month.

For requested change 2 *“Enabling the Billing Common Component (BILL) to handle the 5-decimal digits for unit prices”*. It is requested that BILL is able to process and display unit prices with 5 decimals, allowing to manage the ACH fee for band 4 with its unit price set at EUR 0.00015. This implies:

- (i) the possibility to capture the unit price in CRDM with a maximum of 5 decimal positions¹
- (ii) the usage of the unit price (at maximum 5 decimal positions) in any relevant BILL automated process, BILL screens, and A2A/U2A invoices/queries. In addition, the BILL requirement SHRD.CB.UR.BILL.GIND.020.070 will be adapted accordingly.

For requested change 3 *“Enabling BILL to automatically compute ACH fee invoice data (for ACH internal traffic) in the System Entity and ACH Participant invoices without the need to rely on the Manual Correction functionality, but as part of the invoice data BILL process”*: CRDM is requested to allow Central Bank (CB) users to insert the monthly ACH internal volume only for the calendar month preceding current calendar month. This could be done, for example, by amending the Invoice Configuration² for CB Participants (ACH). Any insertions/adaptations of the monthly ACH internal volume older than the calendar month preceding current calendar month are not allowed.

CB user shall be allowed to insert monthly ACH internal volume for all its CB Participants configured as Ancillary Systems in their data scope (ACH).

CB user shall be allowed to see in CRDM all the inserted current and historical ACH internal volumes per month, per Ancillary System participant.

As a consequence, BILL should be adapted to load this volume and compute, during the invoice data computation phase, the full ACH internal settlement fee, with the split per band, based on the digressive fee structure configured in CRDM for this new service item (service item code 3013).

Miming the BILL approach for T2 digressive service items based on bands, a subtotal will also be calculated for the ACH internal settlement fee with the sum of the amounts computed for each band and the sum of the related quantities, without any indication of the unit prices. This subtotal should be reported as the first record in the PDF for the ACH service item and in the camt.077 INVC as the only piece of information related to this service item.

This implies a change in the Excel annex containing the TIPS Service items to add the ACH one.

Miming the T2 approach for digressive service items, BILL should display all relevant information (i.e. split per band, with amount and quantity per band and aggregated values for the ACH internal settlement fee) in both CB and Participant level invoices:

- (i) for the PDF format, invoices will display all details of the ACH fee digressive bands (*unit price for each band, quantity per band, total amount per band*), as well as the aggregated values for the ACH fee in the first row. See example below as well as the relevant annex
- (ii) for camt.077 message (INVC, CUMU and ITEM), only the subtotal ACH fee will be included.

Conversely, camt.077 consumption message for CB (CONS) should not include any consumption related to the ACH internal settlement fee, as it is not part of the traffic generated in TIPS.

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Since the CBs are only aware of the ACH volume at the latest on the third business day of the following month and, therefore, the ACH volume is not available to BILL during the invoice data computation phase, the ACH internal settlement should be taken into consideration by BILL and only included in the invoice for the next billing period, therefore with a shift of one month compared to the month of economic competence (for example, June 2024 ACH internal settlement fee billing information is included in the invoice generated in August 2024 – see below).

Timeline

Example: June ACH internal settlement fee is included in the invoice generated in August

To be noted: July generated invoice will contain any billable items relating to June and ACH volume pertaining to May. Consequently, ACH volume of June will appear in the invoice generated in August as displayed below.



* BD = Business Day. BD means when there is no TARGET closing day

Submitted annexes / related documents:

Proposed wording for the Change request:

No impact on TIPS SDDs (UDFS, UHB).

Impact on CoCo SDDs (UDFS, UHB & URD) will not be described in this section.

¹ The unit price is defined once, as part of the billing configuration and can only be changed upon changes in the pricing policy. The TIPS Operator is in charge of this initial setup. The setup is stored in the service item configuration in CRDM.

² Invoice configuration is a CRDM object created for billing. It consists of GUI and Back-end functions.

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High level description of Impact:

The change request aims at describing needed changes on CRDM and BILL sides in order to comply with the new additional requirements about the implementation of the TIPS pricing policy. Impacts for the three requested changes will be evaluated:

For requested change 1 *“Inclusion of Authorised Account Users (AAUs) defined on TIPS Credit Memorandum Balances (CMBs) in the computation of service item 3011 Fixed fee on TIPS DCA - AAU based and on 3012 the Fixed fee on TIPS ASTA - AAU based”*:

The request impacts the dedicated daily flow of consumption data from CRDM to BILL and the dedicated logic to process data (both put in place with TIPS-0057-URD) in order to consider also AAU on CMBs defined on TIPS accounts (DCA and ASTA).

For requested change 2 *“Enabling the Billing Common Component (BILL) to handle the 5-decimal digits for unit prices”*:

To fulfil this requested change, it must be possible to define Unit Prices with 5 digits in the Service Item configuration, with impact on related CRDM objects (GUI screens, CUD functions and Data Model).

This requested change has also multiple impacts on BILL side: i) the fee computation must consider 5 digits in its processing, ii) the unit price visualization must be adjusted to show 5 digits (applicable to all features and deliverables where unit price is present, as PDF, GUI, A2A messages).

For requested change 3 *“Enabling BILL to automatically compute ACH fee invoice data (for ACH internal traffic) in the System Entity and ACH Participant invoices without the need to rely on the Manual Correction functionality, but as part of the invoice data BILL process”*:

This requested change has multiple impacts on BILL side: i) information regarding ACH fee will be stored in the new External Aggregated Consumption Data entity, so related objects must be created (GUI screens, CUD functions, Data Model and processing).

Configuration Guide for TIPS is impacted for the new service item modelling the ACH internal traffic fee.

CRDM is impacted for the management of privileges needed for new functions.

Impacts on other projects and products:

No functional changes are foreseen for other TARGET services.

The “Requested change 2” requires the change of the CSLD URD (the decimal units foreseen by SHRD.CB.UR.BILL.GIND.020.070 have to be enlarged to 5 decimal units).

The “Requested change 2” requires the change of the decimal units foreseen for Unit Prices and a change on the camt.077 for the noncompliance of this requirement respect to the standard ISO 4217. Considering that the Unit Price management performed by BILL, a no-regression test campaign is recommended to ensure backward compatibility of features involving Unit Price: unit prices will be always reported with 5 decimals for all TARGET Services in all BILL screens, PDF and A2A messages.

- T2: no-regression campaign is recommended
- ECMS: no-regression campaign to check unit price is recommended
- T2S: no-regression campaign to check unit price is recommended

Outcome/Decisions:

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L3 analysis - General Information	
Impact on TIPS	
Business Interface	
	A2A Interface
	U2A Interface
Settlement Engine	
	Payment Transaction
	Liquidity Transfer
	Recall
Queries and Reports	
	Queries
	Reports
Other functions	
	Local Reference Data Management
	Statistics
	Complex Queries and Reports
	Mobile Proxy Look-up
Common Components	
	ESMIG
X	CRDM
	Archiving
X	Billing
	DMT
Operational Tools	
	SLA Reporting
	TMS

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	Technical Monitoring	
	Change Management	
	Capacity Management	
Infrastructure request		
	Application components impacted	
	Application components not impacted	
Operational activities		
	Business activities impacted	
	Technical activities impacted	
New functionalities		
	Enhanced Information Database (EIDB)	
Impact on documentation		
Document	Chapter	Change
TIPS UDFS		
TIPS UHB		
Training documentation		
Other documents	TIPS Configuration Guide	Update configuration with new service item "3013 - ACH Internal Settlement"
	BILL UDFS	
	Chapter 1.5.5 Invoice data	Change the precision used during computation from 4th to 5th decimal place
	New section External Aggregated Consumption Data in 1.4 DYNAMIC DATA chapter	Description of new entity External Aggregated Consumption Data.

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	New section External Aggregated Consumption Data in 1.5 BILL FEATURES	Description of processing related to External Aggregated Consumption Data.
	BILL UHB	
	Chapter 2.2.3.3 Manual Correction – New/Edit Screen	Unit Price field must be amended to accept 5 digits.
	New Chapter External Consumption Data – New Screen	Description of the screen
	New Chapter External Consumption Data – Details Screen	Description of the screen
	New Chapter External Consumption Data – Search Screen	Description of the screen
	BILL IDFS	
	Data Model	Creation of new entity External Aggregated Consumption Data
	Technical Annex	<p>Update of the processing of Service Items 3011 and 3012</p> <p>Add processing and management section for new class of consumption modelled as External Aggregated Consumption Data.</p> <p>Update for the management of decimals in unit prices.</p>
	Screen Doc BILL Manual Correction	New/Edit Screen Unit Price field must be amended to accept 5 digits
	Screen Doc BILL External Consumption Data	<p>Create new IDFS for screens:</p> <ul style="list-style-type: none"> - New - Details - Search - Revisions List (Operator only)

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		- Revisions Details (Operator only)
	BILL UHB Operator	
	New Chapter External Consumption Data – Revisions List Screen	Description of the screen
	New Chapter External Consumption Data – Revisions Details Screen	Description of the screen
	CRDM IDFS	
	Data Model	Update for the management of 5 decimal digits, where needed.
	IDFS_BdI_CRDM-ALL-ARM-Annex	Add new privileges managing new BILL features.
	MyStandards camt.077	cam.077 UGs for BILL: editorial changes for Unit Price in order to avoid compliance issues with standard ISO 4217.

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Overview of the impact of the request on TIPS (L2 view)

Summary of functional, development, infrastructure, operational and security impacts

Summary of functional impact:

For requested change 1 *“Inclusion of Authorised Account Users (AAUs) defined on TIPS Credit Memorandum Balances (CMBs) in the computation of service item 3011 Fixed fee on TIPS DCA - AAU based and on 3012 the Fixed fee on TIPS ASTA - AAU based”:*

The request is that AAUs on the TIPS CMBs defined on the TIPS DCA are taken into consideration for the computation of service item 3011. The maximum number of AAUs able to settle IP on a given TIPS DCA (with or without a CMB) that will be billed is 50 per DCA (counting from the 2nd up to and including the 51st; the 1st AAU and all those from the 52nd and beyond are free of charge). The AAUs to be taken into consideration should be active for at least one business day on the DCA during the month.

For service item 3012 the Fixed fee on TIPS ASTA - AAU based, the request is that AAUs on the TIPS CMBs defined on the TIPS ASTA are taken into consideration for the computation of the service item 3012. The maximum number of AAUs able to settle IPs on a given TIPS ASTA (with or without CMB) that will be billed is 50 per ASTA (counting from the 1st up to and including the 50th; all those from 51st and beyond are free of charges). The AAU to be taken into consideration should be active for at least one business day on the ASTA during the month.

The computation of 3011 and 3012 is currently in charge of:

- (i) Dedicated flow of raw data from CRDM to BILL
- (ii) Logic to extract/process the dedicated dataflow.

The original implementation of (i) and (ii) put in place with TIPS-0057-URD must be amended in order to consider also AAUs on CMBs.

The behaviour of the ACMS Service Items computation does not change compared to what described in the TIPS CR0057. Due to the fact that the duration of the Billing period is one month, as described in the CR text and in the Annexes and since the ACMS Service Items were defined on a monthly basis in the CR Annexes, the ACMS Service Items will only be computed and made available at the end of the last business day of the month, even if Billing Periods shorter than one month are defined in CRDM and applied by BILL. For example, if in a test environment three billing periods are defined in a month (e.g. 1st -10th, 11th-20th, 21st -30th), the ACMS Service Items will only be computed on the last business day of the month (e.g. the 30th), so only the invoice related to the last billing period of the month (21st-30th) will include all the ACMS Service Items for the entire month (1st – 30th).

For requested change 2 *“Enabling the Billing Common Component (BILL) to handle the 5-decimal digits for unit prices”.*

It is requested that BILL is able to process and display unit prices with 5 decimals, allowing to manage the ACH fee for band 4 with its unit price set at EUR 0.00015. This request impacts CRDM and BILL CoCos:

- (i) CRDM must accept unit price with 5 decimal positions, with an impact on a minor entity of the Service Item entity and its related management (i.e. GUI, CUD procedures and Data Model) that must be amended in order to store up to 5 digits;
- (ii) BILL must accept and manage unit price with maximum 5 decimal position in any relevant features:
 - a. All data used during each step of the computation must be based on the precision to the 5th decimal place, even if all the amounts different from the unit prices should continue to be reported externally with two decimal digits (e.g. in PDF, camt.077 and BILL screens);
 - b. BILL Manual Correction Screens (New/Edit and Details) must be adapted to allow insert/edit and visualization of 5 digits in Unit Price field;
 - c. Wherever Unit Price information is shown in the features and deliverable of the billing process, it must be properly visualized with 5 digits. This means that must updated are needed on BILL GUI Screens, BILL A2A Queries, PDF Invoice and camt.077 INVC.

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Regarding the camt.077, the Usage Guidelines in MyStandards already foresees the possibility to insert 5 decimal digits in the unit prices fields. Unfortunately, the ISO registered datatype *ActiveCurrencyAndAmount* contains a dedicated algorithm for the check of the compliance with the standard ISO 4217. The standard ISO 4217 defines the number of decimal positions allowed for each currency: 5 decimals are allowed for some currencies but not allowed for EUR.

This means that editorial changes on the datatype for Unit Price fields have to be performed in order to remove this algorithm and the dependency to ISO 4217 and a new annotation should be inserted. This is due to the fact that requirement to have 5 decimal digits for Unit Prices contained in this CR the is in contrast with this standard.

Due to the fact that BILL is a Common Component that has been designed to offer exactly the same functionalities to all TARGET Services, as requested by BILL URD, then the BILL components which manage the Unit Price are common between Services and there is no possibility to restrict the changes to TIPS Service only. Thus, the change 2 creates impacts of the same magnitude to TIPS users and also to customers belonging to all the other TARGET Services.

For requested change 3 *“Enabling BILL to automatically compute ACH fee invoice data (for ACH internal traffic) in the System Entity and ACH Participant invoices without the need to rely on the Manual Correction functionality, but as part of the invoice data BILL process”:*

The new fee for ACH internal volumes actually represents a consumption performed outside the TARGET Services. With the aim of cover all this kind of consumption and to update BILL functional scope in a harmonized way for all Services, the ACH internal volumes fee should be managed in a generalized scenario of *External Aggregated Consumption Data*.

External Aggregated Consumption Data for a given billing period *BPa* are available only after *BPa* ending due its nature of external data not recorded inside TARGET Billing Process, so it is possible to consider it only in the billing process of the next billing period *BPa+1*.

This means that during the current billing period *BPx* it is possible to insert External Aggregated Consumption Data (for TIPS representing the ACH internal volume) for the last billing period *BPx-1* and that invoice containing them are generated to the *BPx+1*. For example, June 2024 ACH internal settlement fee billing information is captured by the responsible CB during July 2024 and included in the invoice generated in August 2024 (referring to July billing period).

Considering that External Aggregated Consumption Data can represent only existing service items (not custom as in Manual Correction), for ACMS and SETT service items it must be defined also an account to use for the aggregation on the Billing Period.

External Aggregated Data of a service item inserted for a billing period *BPj* represent the aggregated quantity of this service item for the whole *BPj*. It is not possible to have a daily aggregation nor to have more than one active External Aggregated Data for the same service, service item and party inserted for a billing period *BPj*.

Due to the nature of the data that the External Aggregated Data represents and in order to simplify the design of the whole invoicing process, the design solution consists on the configuration and management of the External Aggregated Data directly in BILL, instead of a hypothetical configuration in CRDM mentioned in the CR text. This would avoid a new data flow from CRDM to BILL and the resulting complexity.

Regarding the actors involved in the process:

- CB users should be allowed to insert the ACH internal volume only for the billing period preceding current one. Any insertions/adaptations of the ACH internal volume older than the billing period preceding the current billing period are not allowed. CB user should be allowed to insert the ACH internal volume for all its CB Participants configured as Ancillary Systems in their data scope (ACH).
CB user should be allowed to see all the inserted current and historical ACH internal volumes per billing period, per Ancillary System participant.

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- ECB users should be allowed to see all the all the inserted current and historical ACH internal volumes per billing period

For implementation of External Aggregated Data new features are required in BILL BE (Data Model, Processing) and BILL GUI (Screens and Privileges). Also some CRDM check/updates are needed.

BILL BE

A new entity External Aggregated Consumption Data must be added in Billing Data Model.

This entity shall contain information about Validity Period, Service Item and optionally related Account, Quantity and Charged Party. CRD (Create, Read, Delete) operations for the new Entity must be implemented, no Update operation is foreseen (update managed via deletion of an existing record and the creation of a new one)

During the current billing period *BPx* it should be possible to insert External Aggregated Consumption Data for the last billing period *BPx-1* and that invoice containing them will be related to *BPx+1*.

It should be possible to insert only External Aggregated Consumption Data for existing service items, inserting only the quantity for the given service item: the correspondent amount will be derived by BILL during the standard invoice data computation process applying the CRDM configuration of the service item itself. In case of ACMS/SETT Service items, the processing will use the Cash/Securities Account inserted by the user for grouping features.

BILL should be adapted in order to consider the External Aggregated Consumption Data instances configured and related to the billing period *BPx-1* in the consumption data aggregation related to the billing period *BPx*. Except from this new step, no changes are foreseen in the invoicing process, allowing BILL to compute the full ACH internal settlement fee, with the split per band, based on the digressive fee structure of the service item configured in CRDM, exactly as if the consumption had been generated by the service and not externally.

This means that, miming the BILL approach for T2 digressive service items based on bands, a subtotal should also be calculated for the ACH internal settlement fee with the sum of the amounts computed for each band and the sum of the related quantities, without any indication of the unit prices. This subtotal should be reported as the first record in the PDF for the ACH service item 3013 and in the camt.077 INVC.

Following the same T2 approach for digressive service items, BILL should display all relevant information (i.e. split per band, with amount and quantity per band and aggregated values for the ACH internal settlement fee) in both CB and Participant level invoices:

(i) for the PDF format, invoices should display all details of the ACH fee digressive bands (unit price for each band, quantity per band, total amount per band), as well as the aggregated values for the ACH fee in the first row;

(ii) for camt.077 message (INVC, CUMU and ITEM), only the subtotal ACH fee will be included.

Conversely for camt.077 message (CONS) only the quantity and party/account information will be included.

BILL GUI

The new entity External Aggregated Consumption Data must be managed on BILL GUI by means of a dedicated menu item and a set of dedicated screens. Dedicated Screens shall allow to users CRD operations (for all actors) and Audit Trail feature (only for Operator). Moreover, screen behaviour must depend by user type (CB User, ECB granted with privilege BILL_Monitor, Operator).

- External Consumption Data New Screen (CB user and Operator user)
- External Consumption Data Details Screen
- External Consumption Data Search Screen
- External Consumption Data Revisions List Screen (Operator user)
- External Consumption Data Revision Details Screen (Operator user)

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CRDM Configuration

The CRDM Configuration Guide for TIPS must be updated to add the new service item “3013 – ACH Internal Settlement” to model ACH internal settlement fees.

For the usage of External Consumption Data Screens, a new set of privileges is needed; these privileges must then be granted to NCB parties and to their users or added to their roles accordingly to roles policy. In order to do this, they must be configured via CRDM GUI.

CRDM BE

Currently in CRDM it is possible to update and delete past billing period. To preserve data integrity with External Aggregated Consumption Data, it must be assured that deleted/updated billing periods are not propagated from CRDM to BILL or, if propagated, they are ignored.

CRDM GUI

For the usage of External Consumption Data Screens, a new set of privileges is needed; these privileges must be managed in CRDM GUI.

Assumptions

Considering that CRDM data are propagated to BILL on daily basis, for the creation of a new External Aggregated Consumption Data on current business date *BDy* in BILL are available only the accounts valid in CRDM on the previous business date *BDy-1*. It is customer responsibility to choose correct accounts: in case of incorrect values, there will be issues in billing process.

As regards planning aspects, the timeline of the relevant TIPS release will apply. The current assumption is R2024.NOV.

Summary of application development impact:

For requested change 1

[Inclusion of Authorised Account Users (AAUs) defined on TIPS Credit Memorandum Balances (CMBs) in the computation of service item 3011 Fixed fee on TIPS DCA - AAU based and on 3012 the Fixed fee on TIPS ASTA - AAU based]

- Impacts on CRDM BE, BILL BE

For requested change 2

[Enabling the Billing Common Component (BILL) to handle the 5-decimal digits for unit prices]

- Impacts on BILL BE, BILL GUI, BILL A2A

For requested change 3

[Enabling BILL to automatically compute ACH fee invoice data (for ACH internal traffic) in the System Entity and ACH Participant invoices without the need to rely on the Manual Correction functionality, but as part of the invoice data BILL process]

- Impacts on CRDM BE, BILL BE, BILL GUI, BILL A2A

Summary of infrastructure impact:

No impact.

Summary of operational impact:

No impact.

Summary of security impact:

See Change Request Analysis.