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| General Information (Origin of Request) | | |
|---|--|---------------------------------------|
| <input checked="" type="checkbox"/> User Requirements Document (URD) <input checked="" 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: Eurosystem | Institution: ECB | Date raised: 28/04/2024 |
| Request title: Enhanced Linked Transaction model for cross-currency in TIPS | | Request ref. no: TIPS-0065-URD |
| Request type: Change Request | | |
| 1. Legal/business importance parameter: Medium | 2. Market implementation efforts parameter – Stakeholder impact: Medium | |
| 3. Operational impact: High | 4. Financial impact parameter: High | |
| 5. Functional/ Technical impact: High | 6. Interoperability impact: High | |
| Requestor Category: ECB | Status: Allocated to release | |

Reason for change and expected benefits/business motivation:

The current change request focuses on the enhancements of cross-currency feature, i.e. the implementation of the so called “*Enhanced Linked Transaction*” (LKT) settlement model that primarily exploits the currencies hosted in TIPS.

The enhanced LKT model aims at reducing the complexity for the involved Entry/Exit-leg PSPs, that no longer need an “out-of-band” orchestration of the payment, while contemporarily (i) guarantees that the payment is instant end-to-end and (ii) offers certainty of the delivery of the funds to the ultimate beneficiary. Thus the enhanced LKT represents a more sophisticated model for TIPS hosted-currencies compared to the basic cross-currency features introduced within the CR TIPS-0064 (“Adaptation of TIPS for the settlement of cross-currency transactions (based on OCT Inst scheme)”). Furthermore, the usage of the new model can also be extended to an inter-CSM scenario, by relying on a harmonised protocol for the adaptation of the existing Instant Payment Systems (IPS) interfaces while keeping the technical complexity relatively low.

This change request shall rely, to the maximum extent possible, on the ISO20022 message specifications and the application logic being rolled out in the context of the CR TIPS-0064.

Description of requested changes:

The change request shall introduce a new settlement model in TIPS to support a more effective management of end-to-end cross-currency transactions. The envisioned technical solution primarily copes with the scenario of TIPS hosted currencies while contemporarily shall pave the way for future establishment of bilateral and/or multilateral links with external Instant Payment Systems connected to TIPS.

The enhanced LKT settlement model processes a cross-currency payment by means of two transactions (i.e. mono-currency legs), the former between the Originator PSP and an Exit-leg PSP (in the currency of the originator), the latter between an Entry-leg PSP and the Beneficiary PSP (in the currency of the beneficiary). When processing a cross-currency payment, TIPS shall ensure that the two relevant transactions are technically settled in an atomic way, i.e. following the concept of “all transactions are settled or none of them is settled”.

This shall be guaranteed by some internal communication steps between the components of the TIPS platform (e.g. the TIPS euro and non-euro component¹) each one delegated to the linked settlement of the corresponding mono-currency leg.

Regardless of the model used for identifying the exchange rate to be applied for the payment, the selected exchange rate is included in the cross-currency payment message sent for settlement by the Originator PSP and it is checked and validated by the Entry/Exit-leg PSPs during the settlement process. For this reason, TIPS shall not perform any check or validation on the exchange rate.

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Besides the settlement and investigation flows, that are already part of the TIPS-0064, no business cases such as (i) the recall request and (ii) positive/negative recall answers will be taken into consideration in the current CR. If necessary, a new CR will cover any additional business case deemed compulsory for a fully-fledged set of instruments for the management of abnormal scenarios.

It shall be possible for a participant to opt-in/opt out the LKT model based on a configuration parameter.

Moreover, for any pair of TIPS hosted currencies, it shall be possible to decommission² the usage of the TIPS-0064 and rely on a more efficient cross-currency solution after the roll out of the current CR.

From a billing perspective, each sub-transaction falling under the enhanced LKT model shall be charged separately according to the same policy rules in place for the corresponding domestic flow.

TIPS GUI shall be adapted to guarantee that authorised users can easily access the cross-currency transactions information (e.g., such as the mono-currency linked transactions, FX-rate, intermediaries involved, etc.) for operational activities and reconciliation.

Submitted annexes / related documents:

Proposed wording for the Change request:

Please note that, while the wording underlined twice is only proposed for change request TIPS.0065.SYS, the proposed wording underlined once is already foreseen by the change request TIPS.0064.SYS and is reported here just for the sake of completeness. The TIPS SDDs for the R2024.JUN have been taken as reference to have a common baseline version between these two CRs and considering that the TIPS SDDs for R2024.NOV still not contain any detail about cross-currency transactions.

TIPS UDFS R2024.JUN

1) § 1.1 Introduction to the TIPS Service

TARGET Instant Payment Settlement (TIPS) is a harmonised and standardised pan-European service with common functionality across different countries and jurisdictions for settling payments instantly in Central Bank Money, with high capacity and around-the-clock availability.

The primary aim of TIPS is to offer instant settlement services in euro to its participants, extending the services offered by TARGET2. TIPS is, in any case, designed to be currency-agnostic in order to provide settlement in non-euro Central Bank Money, if requested, by connecting to any RTGS System.

In addition, TIPS offers on optional basis an instant settlement service for cross-currency transactions involving both euro and non-euro currencies.

The TIPS service provides:

- Real-time gross settlement in Central Bank Money for ~~both domestic, and cross-border~~ and cross-currency Instant Payment transactions received from TIPS Actors;
- Liquidity management functionalities to support the Instant Payment process;
- Queries and reporting tools to support monitoring and reconciliation.

¹ Similarly, a cross-currency payment can be triggered within the same component (e.g. the non-euro component) between two different currencies (e.g. DKK and SEK).

² Prior to implementation of TIPS-0065 a cross-currency payment between two TIPS hosted currencies, e.g. EUR and SEK, shall be handled following the model proposed with TIPS-0064 (i.e. settlement of the two sub-transactions is managed in sequence, one after the other). As of the implementation of TIPS-0065 shall no longer be possible to use the old model for any combinations of the TIPS hosted currencies, by setting up an ad-hoc configuration.

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In order to reach these objectives, TIPS enables communication and provides authentication services and secure messaging to and from the centralised settlement component. The participants (i.e. Payment Service Providers³ or PSPs) have a settlement interface to send Instant Payment transactions and receive payment confirmations or any other payment related messages based – when possible – on ISO 20022 standards and, in case of euro transactions, in accordance with the SEPA Instant Credit Transfer (SCT^{Inst}) scheme. For cross-currency transactions, a cross-currency scheme based on the One-Leg Out Instant Credit Transfer (OCT^{Inst}) scheme has been designed and implemented in TIPS; for this scheme two settlement models have been defined. A first settlement model, called *regular cross-currency settlement model*, which foresees the orchestration of the two legs of the cross-currency transaction by external actors (Exit and Entry Leg PSPs), and a second one, the “*Enhanced Linked Transaction*” (LKT) settlement model, which does not need an “out-of-band” orchestration of the payment, while contemporarily (i) guarantees that the payment is instant end-to-end and (ii) offers certainty of the delivery of the funds to the ultimate beneficiary. The participants are also provided with the functionalities to either recall settled Instant Payments transactions or initiate investigations on Instant Payments (including cross-currency payments) submitted to TIPS whose status confirmation has not been received yet. Additionally, TIPS Participants or Instructing Parties can initiate Outbound Liquidity Transfers.

2) § 1.5.2 Settlement of Instant Payment transactions

TIPS supports the different process flows foreseen in the SCT^{Inst} scheme, i.e. Instant Payments, recalls and investigations.

Moreover, TIPS supports ~~four~~^{three} additional process flows for Instant Payment processing:

- Non-Euro settlement scheme;
- Single Instructing Party (SIP) settlement model;
- Regular Cross-currency settlement scheme model;
- LKT Cross-currency settlement model.

The cross-currency models include the business case of the settlement of a mono-currency transaction in EUR between a PSP established in and/or licensed to operate in the SEPA Schemes' Geographical Scope and operating in the Euro Leg and a Financial Institution which operates outside the SEPA Schemes' Geographical Scope. The table below contains an overview of the types of instructions TIPS Actors can exchange with TIPS for payment purposes.

[...]

3) § 1.5.2.1 Instant Payment transaction settlement process (with reservation of funds)

[...]

The detailed flow of the process, with the relevant steps, is described (i) in section [2.2.1 – “Instant Payment \(SCT^{Inst} scheme\)”](#) and [Figure 19 – Instant Payment transaction flow](#) for Euro currency, and (ii) in section [2.2.2 – “Instant Payment \(non-Euro currencies scheme\)”](#) and [Figure 60 – Instant Payment](#)

³ The definition of Payment Service Provider used in this document is purely technical and aims at keeping the terminology consistent with the EPC scheme and the TIPS URD.

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transaction flow for non-Euro currencies, and (iii) in section 2.2.4 Instant payment (cross-currency scheme – regular settlement model) and Figure XX – Instant Payment transaction flow for cross-currency for regular cross-currency settlement model and (iv) in section X.X.X Instant payment (cross-currency scheme – LKT settlement model) and Figure XX – Instant Payment transaction flow for LKT cross-currency settlement model.

4) § 2.2.4 Instant Payment (cross-currency scheme – regular settlement model)

This section focuses on the settlement of the euro leg of cross-currency Instant Payment transactions based on the OCT^{Inst} scheme. Furthermore, the cross-currency model has been extended in order to allow cross-currency settlement of non-euro transactions (e.g. for SEK to DKK transactions). Since the entire end-to-end cross-currency Instant Payment transaction flow is composed of two separate and independent Instant Payments which take place respectively in the currencies of the source and destination leg, each scenario and the related steps performed in one leg are analogous to those envisioned in the other leg, at least, for the currencies supported in TIPS.

The orchestration of the two legs of the cross-currency transaction is under the responsibility of external actors (Exit and Entry-Leg PSPs), which should guarantee also the certainty of the delivery of the funds to the ultimate beneficiary.

The introductory part of the section presents the general flow, including all the steps. A sub-section dedicated to the timeout follows, describing the specific case of timeout occurring when a Beneficiary reply is missing.

[...]

5) § X.X.X Instant Payment (cross-currency scheme –LKT settlement model)

This section focuses on the settlement of a cross-currency Instant Payment transaction based on the OCT^{Inst} scheme, extended in order to allow cross-currency settlement of non-euro transactions (e.g. for SEK to DKK transactions). A dedicated message flow composed of two legs automatically orchestrated by the Originator and Beneficiary CSMs, guarantees the atomicity of the entire end-to-end cross-currency transaction.

The introductory part of the section presents the general flow, including all the steps.

All the remaining sub-sections include examples of both the successful and most meaningful failure scenarios. Each example shows the relevant messages and how the key fields are populated.

The LKT cross-currency Instant Payment transaction processing focuses on the scenario where an Originator Participant, Ancillary System or Instructing Party acting on behalf of the Originator Participant or a Reachable Party issues instructions to TIPS in order to instantly transfer funds to the account of a Beneficiary Participant.

The actors involved are the following:

- The Originator Participant, Ancillary System or Instructing Party acting on behalf of the Originator Participant or a Reachable Party, initiating the LKT cross-currency instant payment in the source leg.

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- The Beneficiary Participant, Ancillary System or Instructing Party acting on behalf of the Beneficiary Participant or a Reachable Party, receiving the request and either confirming or rejecting the LKT cross-currency instant payment in the destination leg.

According to the direction of a payment (i.e. incoming or outgoing), the cross-currency PSPs acting as settlement intermediaries are classified in the same way as the regular cross-currency settlement model, namely:

- For an outgoing transaction, the Exit-Leg PSP acts as Beneficiary in the source leg and it is identified by either the 'Instructed Agent' BIC, in case it is a direct CSM participant, or the 'Intermediary Agent 1' BIC.
- For an incoming transaction, the Entry-Leg PSP acts as Originator in the destination leg and it is identified by either the 'Instructing Agent' BIC in case it is a direct CSM participant or the last 'Previous Instructing Agent' BIC, that is the agent immediately prior to the Instructing Agent in the chain.

The messages involved are:

- The [FltoFICustomerCreditTransfer](#) message is sent by the Originator Participant, Ancillary System or Instructing Party acting on behalf of the Participant/Reachable Party for the purpose of (i) issuing the payment, (ii) reserving the corresponding amount, (iii) informing both the Exit and Entry Leg PSPs, (iv) contacting the destination CSM and (v) informing the Ultimate Beneficiary Participant, Ancillary System or Instructing Party acting on behalf of the Participant/Reachable Party about the transaction received;
- The [FIToFIPaymentStatusReport](#) message is sent (i) by the Beneficiary Participant, Ancillary System or Instructing Party acting on behalf of the Participant/Reachable Party to TIPS to either accept or reject the cross-currency Instant Payment, or (ii) by TIPS to inform the actors about the result of the settlement (i.e. settled, rejected, timed out);
- The [ReturnAccount](#) message is sent, on optional basis, by TIPS to the Creditor Account Owner and/or the Debtor Account Owner, including the Exit and Entry Leg PSPs. The message is sent if (i) the owner of the account (or CMB) activates the floor and ceiling notifications and (ii) the configured threshold is breached.

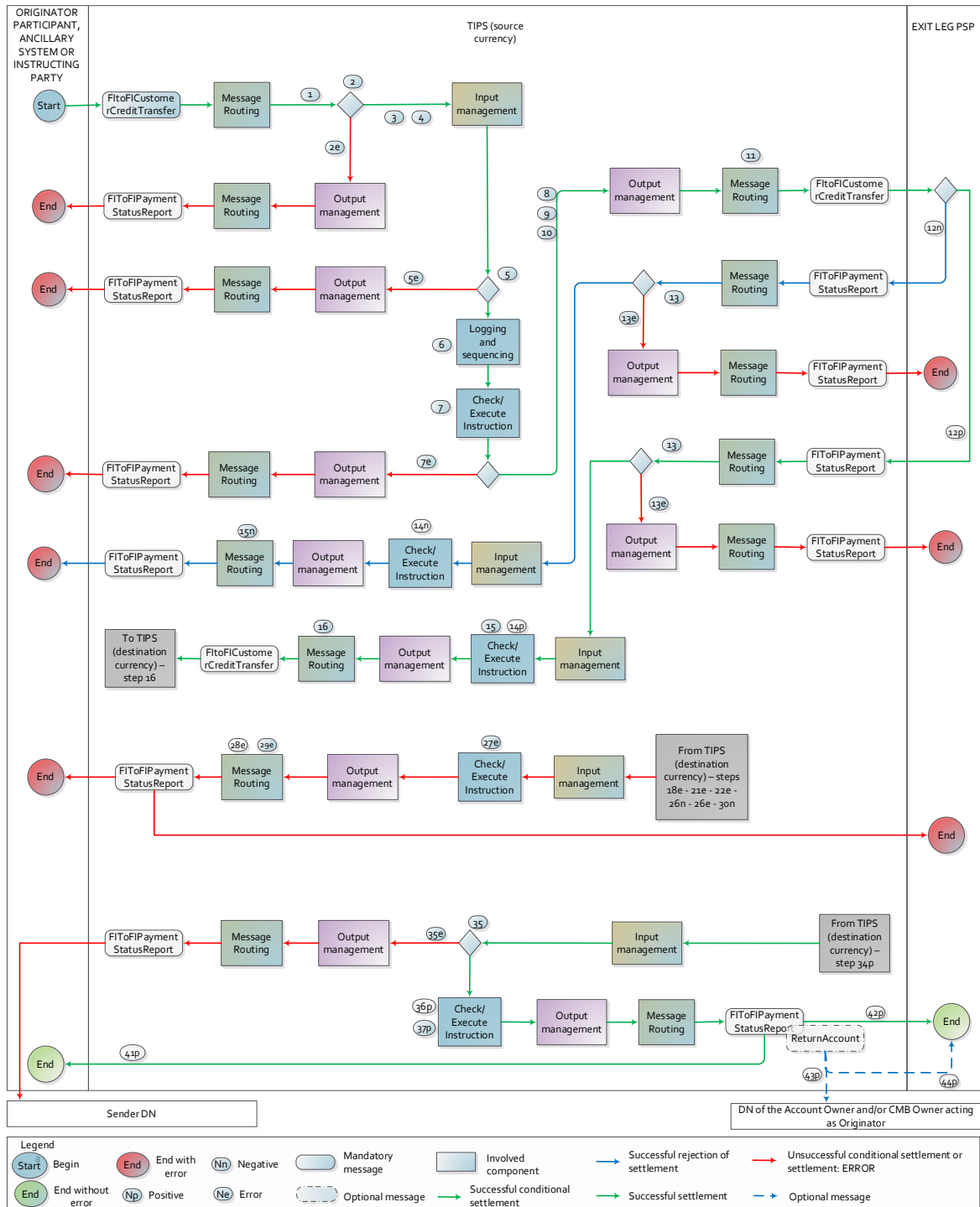
All the described scenarios are triggered under the assumption that technical validations, checking of mandatory fields and user authentication have already been successfully performed by ESMIG.

It is worth noting that when either the Debtor or Creditor BIC contains a BIC8, the message is accepted and the BIC8 is converted into a BIC11 by appending "XXX". Therefore, all the steps are described considering BIC11 only.

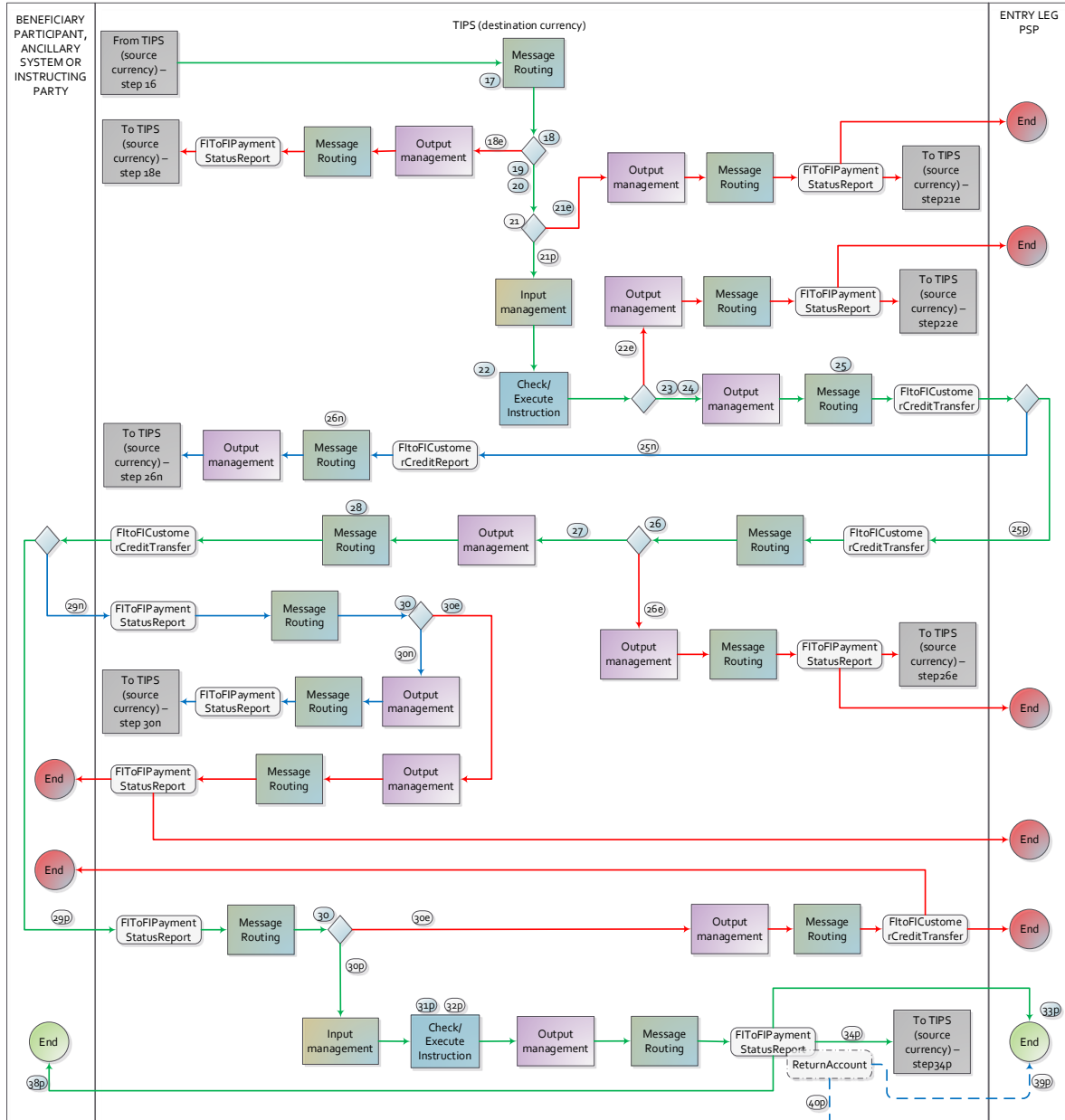
Below is the diagram describing the process and the actors involved. The detail of the steps is described in the following [Figure XXX – Instant Payment transaction flow for cross-currency LKT settlement model](#)

The new figure includes the Instant Payment transaction flow for cross-currency LKT settlement model. The assumption taken in both the following diagram and the table is that the described end-to-end flow happens between two different TIPS components (i.e. source and destination), each one in charge of managing one specific TIPS-hosted currency.

Figure XXX – Instant Payment transaction flow for cross-currency LKT settlement model



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[...]

The same approach described in the table below can be generalised to the scenario where one of the two components is an externally connected Instant Payment System (IPS).

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Table XX – Instant Payment transaction steps for cross-currency – LKT settlement model

| <u>Step</u> | <u>Involved messages</u> | <u>Involved actors</u> | <u>Description</u> |
|-------------|--|--|--|
| <u>1</u> | FItoFICustomerCreditTransfer | <p><u>Originator Participant, Ancillary System or Instructing Party as sender</u></p> <p><u>TIPS (source currency) as receiver</u></p> | <p><u>TIPS receives a cross-currency LKT Instant Payment transaction from the Originator Participant or Instructing Party acting on behalf of the Originator Participant, Ancillary System or a Reachable Party.</u></p> <p><u>Technical validations, checking of mandatory fields and authentication have already been successfully executed. The Instant Payment transaction timeout has not expired.</u></p> <p><u>TIPS logs the source leg as "Received".</u></p> |
| <u>2</u> | | <u>TIPS (source currency)</u> | <p><u>TIPS successfully executes the following checks:</u></p> <ul style="list-style-type: none"> <u>- Access Rights check;</u> <u>- Timeout Check - Originator Side;</u> <u>- Maximum Amount not Exceeded;</u> <u>- Originator Account or CMB existence;</u> <u>- Instructing Party authorised;</u> <u>- Beneficiary correctly configured;</u> <u>- Beneficiary Account or CMB existence;</u> <u>- Creditor authorised for Cross-currency.</u> <p><u>See 4.1 - Business Rules for details.</u></p> |
| <u>2e</u> | FItoFIPaymentStatusReport | <p><u>TIPS (source currency) as sender</u></p> <p><u>Originator Participant, Ancillary System or Instructing Party as receiver</u></p> | <p><u>TIPS returns an error when executing the checks listed in step 2.</u></p> <p><u>If a check fails, the LKT transaction processing stops and a message, containing the proper error code, is sent to the Originator Participant, Ancillary System or Instructing Party acting on behalf of the Originator Participant or a Reachable Party – same DN of the Sender in step 1.</u></p> <p><u>If the failure relates to "Timeout Check - Originator Side", the status of the transaction is set to "Expired"; in all the other cases, the status is set to "Failed".</u></p> |

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| <u>Step</u> | <u>Involved messages</u> | <u>Involved actors</u> | <u>Description</u> |
|-------------|--------------------------|-------------------------------|---|
| 3 | | <u>TIPS (source currency)</u> | <p><u>TIPS infers differently the account to be debited from the configured accounts information of the actors involved in the transaction, which depends on the direction of the cross-currency Instant Payment transaction (i.e. incoming or outgoing) through the consultation of the 'Clearing System Code' field.⁴⁰</u></p> <p><u>Outgoing direction:</u> <u>TIPS verifies that an account:</u></p> <ul style="list-style-type: none"> (i) <u>with either type "TIPS Account" or "TIPS AS Technical Account" exists,</u> (ii) <u>is linked to the Originator Participant (field "Debtor Agent") as authorised user,</u> (iii) <u>and is denominated in the same currency as the one defined in the Interbank Settlement Amount.</u> <p><u>- If the search returns no accounts, TIPS searches for a CMB linked to the Originator Participant (field "Debtor Agent") as authorised user.</u></p> <p><u>- TIPS selects the account linked to the CMB; the account related to the CMB must be denominated in the same currency as the one defined in the Interbank Settlement Amount.</u></p> <p><u>From now on, the selected account is referred to as "Originator Account" and any CMB as "Debiting CMB".</u></p> |
| 4 | | <u>TIPS (source currency)</u> | <p><u>TIPS infers differently the account to be credited from the configured accounts information of the actors involved in the transaction, which depends on the direction of the cross-currency Instant Payment transaction (i.e. incoming or outgoing) through the consultation of the 'Clearing System Code' field.⁴¹</u></p> <p><u>Outgoing direction:</u> <u>In details TIPS verifies that:</u></p> <ul style="list-style-type: none"> (i) <u>an account, with either type "TIPS Account" or "TIPS AS Technical Account" exists,</u> (ii) <u>it is linked to the Exit Leg PSP as authorised user:</u> <ul style="list-style-type: none"> a. <u>if the Exit Leg PSP is a direct TIPS participant, the BIC taken from the "Instructed Agent" field is used;</u> b. <u>otherwise the BIC is taken from the "Intermediary Agent 1" field.</u> (iii) <u>and is denominated in the same currency as the one defined in the Interbank Settlement Amount.</u> <p><u>- If the search returns no accounts, TIPS searches for a CMB linked to the Exit Leg PSP as authorised user:</u></p> <p><u>- TIPS selects the account linked to the CMB; the account related to the CMB must be denominated in the same currency as the one defined in the Interbank Settlement Amount.</u></p> <p><u>In addition, TIPS checks whether the Beneficiary Participant linked to the selected Account or CMB is authorised to accept cross-currency payments.</u></p> <p><u>From now on, the selected account is referred to as "Beneficiary Account" and any CMB as "Crediting CMB".</u></p> |

⁴⁰ In case of an outgoing payment transaction, the Clearing System Code field must be set to 'TGT' while in case of an incoming transaction, it may assume any value other than the one mentioned above.

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| <u>Step</u> | <u>Involved messages</u> | <u>Involved actors</u> | <u>Description</u> |
|-------------|--|---|---|
| <u>5</u> | | <u>TIPS (source currency)</u> | <u>TIPS successfully executes the following check:</u> - Duplicate check <u>See 4.1 - Business Rules for details..</u> |
| <u>5e</u> | FIToFIPaymentStatusReport | <u>TIPS (source currency) as sender</u> <u>Originator Participant, Ancillary System or Instructing Party as receiver</u> | <u>The execution of the check listed in step 5 fails.</u> <u>The LKT transaction processing stops and a message, containing the proper error code, is sent to the Originator Participant, Ancillary System or Instructing Party acting on behalf of the Originator Participant or a Reachable Party – same DN of the Sender.</u> <u>The transaction is set to "Failed" status.</u> |
| <u>6</u> | | <u>TIPS (source currency)</u> | <u>TIPS sends it to the <i>Check and Execute Instruction</i> process. TIPS sets the transaction status to "<i>Validated</i>".</u> |
| <u>7</u> | | <u>TIPS (source currency)</u> | <u>TIPS successfully executes the following checks:</u> - Originator Account/CMB not blocked ; - Beneficiary Account/CMB not blocked ; - Available amount not exceeded . <u>See 4.1 - Business Rules for details.</u> |
| <u>7e</u> | FIToFIPaymentStatusReport | <u>TIPS (source currency) as sender</u> <u>Originator Participant, Ancillary System or Instructing Party as receiver</u> | <u>The execution of one of the checks listed in step 7 fails</u> <u>If a check fails, the LKT transaction processing stops and a message, containing the proper error code, is sent to the Originator Participant, Ancillary System or Instructing Party acting on behalf of the Originator Participant or a Reachable Party – same DN of the Sender in step 1.</u> <u>The transaction is set to "Failed" status.</u> |
| <u>8</u> | | <u>TIPS (source currency)</u> | <u>The DN of the Sender in step 1 is saved as information related to the source leg of the LKT transaction.</u> <u>From now on, this DN is referred to as "<i>Originator DN</i>".</u> |
| <u>9</u> | | <u>TIPS (source currency)</u> | <u>TIPS reserves the full amount in the Originator PSP account and sets the transaction status to "<i>Reserved</i>".</u> <u>If a Debiting CMB is involved, the system also decreases its headroom by the same amount.</u> <u>The reserved amount is not available for any other concurrent payment.</u> |
| <u>10</u> | | <u>TIPS (source currency)</u> | <u>The DN of the Exit Leg PSP is identified in the "<i>Outbound DN-BIC Routing</i>" mapping table. The field to look up is based on the criteria specified in step 4.</u> <u>From now on, this DN is referred to as <i>Exit Leg PSP DN</i>.</u> |
| <u>11</u> | FIToFICustomerCreditTransfer | <u>TIPS (source currency) as sender</u> <u>Exit Leg PSP as receiver</u> | <u>TIPS forwards the received cross-currency LKT Instant Payment transaction to the Exit Leg PSP DN.</u> |
| <u>12p</u> | FIToFIPaymentStatusReport | <u>Exit Leg PSP as sender</u> <u>TIPS (source currency) as receiver</u> | <u>The Exit Leg PSP confirms the validity of the cross-currency LKT transaction by sending a positive payment status report that is successfully delivered to TIPS.</u> <u>Technical validation, checking of mandatory fields and authentication checks have already been successfully executed.</u> |

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| Step | Involved messages | Involved actors | Description |
|------------|---|--|--|
| <u>12n</u> | FIToFIPaymentStatusReport | <p>Exit Leg PSP as sender</p> <p>TIPS (source currency) as receiver</p> | <p>The Exit Leg PSP rejects the cross-currency LKT transaction by sending a negative payment status report that is successfully delivered to TIPS.</p> <p>In this scenario the LKT transaction processing terminates with a rejection.</p> <p>Technical validation, checking of mandatory fields and authentication checks have already been successfully executed.</p> |
| <u>13</u> | | TIPS (source currency) | <p>TIPS successfully executes the following checks:</p> <ul style="list-style-type: none"> - Access Rights check; - Instructing Party authorised – creditor side; - Pending transaction existing; - Timeout Check - Beneficiary Side. <p>See 4.1 - Business Rules for details.</p> |
| <u>13e</u> | FIToFIPaymentStatusReport | <p>TIPS (source currency) as sender</p> <p>Exit Leg PSP as receiver</p> | <p>The execution of one of the checks listed in step 13 fails.</p> <p>If a check fails, the LKT transaction processing stops and a message, containing the proper error code, is sent to the Exit Leg PSP.</p> |
| <u>14n</u> | | TIPS (source currency) | <p>If the pending transaction exists, TIPS retrieves it using the Transaction ID.</p> <p>The corresponding reserved amount in the involved Originator PSP account is released. If a debiting CMB is involved, its headroom is increased by the same amount.</p> <p>It is worth noting that TIPS releases the reserved transactions even if either the involved account or CMB have been blocked after the conditional settlement phase of the given transaction.</p> <p>The transaction is set to "Failed" status.</p> |
| <u>15n</u> | FIToFIPaymentStatusReport | <p>TIPS (source currency) as sender</p> <p>Originator Participant, Ancillary System or Instructing Party as receiver</p> | <p>TIPS forwards the message, containing the rejection reason received at step 12n, to the Originator Participant, Ancillary System or Instructing Party acting on behalf of the Originator Participant or a Reachable Party – same DN of the Sender in step 1.</p> |
| <u>14p</u> | | TIPS (source currency) | <p>TIPS identifies the LKT transaction leg using the Transaction ID.</p> <p>The LKT transaction leg shall exist in TIPS and it shall be still in "Reserved" status.</p> |
| <u>15</u> | | TIPS (source currency) | <p>TIPS retrieves from the <i>CSM Mapping Table</i>⁴ defined in the Local Reference Data the technical address of the DN of the CSM serving the target currency. Additionally, TIPS retrieves from the configuration the following pieces of information:</p> <ul style="list-style-type: none"> • a set of mapping rules to convert the message from the source leg to the destination leg; |

⁴ The CSM Mapping Table is a static configuration captured in the Local Reference Data that allows TIPS to route the payment to the correct counterparty on the basis of the pair of currencies involved in the cross-currency transaction. Additionally, the CSM Mapping table should also maintain the list of predefined/ad-hoc Entry-Leg PSP for each currency, in case the information on the intermediary on the target currency is not pre-filled by the originator PSP. If no entry is found, the message shall be processed according to the One-leg out model.

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| Step | Involved messages | Involved actors | Description |
|------|--|--|--|
| | | | <ul style="list-style-type: none"> the BIC of either the “predefined” or “ad-hoc” Entry Leg PSP to be used as an intermediary in the destination leg. |
| 16 | FltoFICustomerCreditTransfer | <p>TIPS (source currency) as sender</p> <p>TIPS (destination currency) as receiver</p> | <p>TIPS (source currency) component converts the FltoFICustomerCreditTransfer according to the predefined rules for that specific corridor, by applying at least the following changes:</p> <ul style="list-style-type: none"> deriving and applying a new transaction identifier; swapping the values of ‘Interbank Settlement Amount’ and ‘Instructed Amount’; removing the value ‘TGT’ from the ‘Clearing System Code’ field; if not present in the original message, filling the information of the Entry Leg PSP in the destination currency. <p>The message is forwarded to the TIPS (destination currency) component.</p> <p>After this step, the timeout condition is checked only by the TIPS (destination currency) component.</p> |
| 17 | | TIPS (destination currency) | <p>TIPS receives the FltoFICustomerCreditTransfer in the expected destination format after the conversion operated at step 16.</p> <p>Technical validations, checking of mandatory fields and authentication have already been successfully executed. The timeout for the Instant Payment transaction has not expired.</p> <p>TIPS logs the destination leg as “Received”.</p> |
| 18 | | TIPS (destination currency) | <p>The following checks are executed successfully:</p> <ul style="list-style-type: none"> - Timeout Check - Originator Side; - Maximum Amount not Exceeded; - Originator Account or CMB existence; - Beneficiary correctly configured; - Beneficiary Account or CMB existence; - Creditor authorised for Cross-currency; - Cross-currency CSM Access Rights check; - Entry Leg PSP correctly configured. <p>See 4.1 - Business Rules for details.</p> |
| 18e | FIToFIPaymentStatusReport | <p>TIPS (destination currency) as sender</p> <p>TIPS (source currency) as receiver</p> | <p>Should any of the checks at step 18 be failing, the LKT transaction processing stops and a message, containing the proper error code, is sent to the TIPS (source currency) component.</p> <p>This failure will trigger the roll-back of the source transaction leg (see following step 27e)</p> |
| 19 | | TIPS (destination currency) | <p>TIPS infers the account to be debited from the configured accounts information of the actors involved in the transaction, which depends on the direction of the cross-currency Instant Payment transaction (i.e. incoming or outgoing) through the consultation of the ‘Clearing System Code’ field.⁴⁰</p> <p>Incoming Direction: TIPS verifies that an account:</p> |

⁴⁰ In case of an outgoing payment transaction, the Clearing System Code field must be set to ‘TGT’ while in case of an incoming transaction, it may assume any value other than the one aforementioned.

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| Step | Involved messages | Involved actors | Description |
|------|-------------------|------------------------------------|---|
| | | | <p>(i) <u>with either type "TIPS Account" or "TIPS AS Technical Account" exists.</u></p> <p>(ii) <u>is linked to the Entry Leg PSP Participant as authorised user:</u></p> <p>a. <u>if the Entry Leg PSP is a direct TIPS participant, then the BIC taken from the "Instructing Agent" field is used;</u></p> <p>b. <u>otherwise the BIC is taken from the last "Previous Instructing Agent" field.</u></p> <p>(iii) <u>and is denominated in the same currency as the one defined in the Interbank Settlement Amount.⁴¹</u></p> <p><u>- If the search returns no accounts, TIPS searches for a CMB linked to the Entry Leg PSP Participant (the field taken into account is based on the abovementioned assumption ii) as authorised user;</u></p> <p><u>- TIPS selects the account linked to the CMB; the account related to the CMB must be denominated in the same currency as the one defined in the Interbank Settlement Amount.</u></p> <p><u>From now on, the selected account is referred to as "Originator Account" and any CMB as "Debiting CMB".</u></p> |
| 20 | | <u>TIPS (destination currency)</u> | <p><u>TIPS infers the account to be credited from the configured accounts information of the actors involved in the transaction, which depends on the direction of the cross-currency Instant Payment transaction (i.e. incoming or outgoing) through the consultation of the 'Clearing System Code' field.⁴⁰</u></p> <p><u>Incoming Direction:</u></p> <p><u>In details TIPS verifies that an account:</u></p> <p>(i) <u>with either type "TIPS Account" or "TIPS AS Technical Account" exists.</u></p> <p>(ii) <u>is linked to the BIC taken from the "Creditor Agent" field as authorised user;</u></p> <p>(iii) <u>and is denominated in the same currency as the one defined in the Interbank Settlement Amount.⁴¹</u></p> <p><u>- If the search returns no accounts, TIPS searches for a CMB linked to the Beneficiary Participant (field "Creditor Agent") as authorised user;</u></p> <p><u>- TIPS selects the account linked to the CMB; the account related to the CMB must be denominated in the same currency as the one defined in the Interbank Settlement Amount.</u></p> <p><u>In addition, TIPS checks whether the Beneficiary Participant linked to the selected Account or CMB is authorised to accept cross-currency payments.</u></p> <p><u>From now on, the selected account is referred to as "Beneficiary Account" and any CMB as "Crediting CMB".</u></p> |
| 21 | | <u>TIPS (destination currency)</u> | <p><u>TIPS successfully executes the following check:</u></p> <p><u>- Duplicate check</u></p> <p><u>See 4.1 - Business Rules for details.</u></p> |

⁴¹ The 'Interbank Settlement Amount' field refers to the amount exchanged in the currency of the current Leg and the 'Instructed Amount' field refers to the amount exchanged in the currency of the other Leg.

Change Request form

| Step | Involved messages | Involved actors | Description |
|------------|----------------------------------|--|---|
| <u>21e</u> | <u>FiToFiPaymentStatusReport</u> | <u>TIPS (destination currency) as sender</u> <u>Entry Leg PSP (destination currency) as receiver</u> <u>TIPS (source currency) as receiver</u> | <u>TIPS returns an error when executing the check listed in step 21.</u> <u>The LKT transaction processing stops and a message, containing the proper error code, is sent to both (i) the TIPS (source currency) component and (ii) the Entry Leg PSP.</u> <u>This failure will trigger the roll-back of the source transaction leg (see step 27e).</u> <u>The transaction is set to "Failed" status in the destination leg.</u> |
| <u>21p</u> | | <u>TIPS (destination currency)</u> | <u>TIPS sends the LKT transaction to the <i>Check and Execute Instruction</i> process.</u> <u>TIPS sets the transaction status to "Validated" in the destination leg.</u> |
| <u>22</u> | | <u>TIPS (destination currency)</u> | <u>TIPS successfully executes the following checks:</u> - <u>Originator Account/CMB not blocked;</u> - <u>Beneficiary Account/CMB not blocked;</u> - <u>Available amount not exceeded.</u> <u>See 4.1 - Business Rules for details.</u> |
| <u>22e</u> | | <u>TIPS (destination currency)</u> <u>Entry Leg PSP (destination currency) as receiver</u> <u>TIPS (source currency) as receiver</u> | <u>TIPS returns an error when executing the checks listed in step 22.</u> <u>If a check fails, the LKT transaction processing stops and a message, containing the proper error code, is sent to both (i) the TIPS (source currency) component and (ii) the Entry Leg PSP.</u> <u>This failure will trigger the roll-back of the source transaction leg (see step 27e).</u> <u>The transaction is set to "Failed" status in the destination leg.</u> |
| <u>23</u> | = | <u>TIPS (destination currency)</u> | <u>TIPS reserves funds in the Entry Leg PSP account. The full amount is reserved as Reserved Balance in the Cash Balance. TIPS sets the transaction status to "Reserved". If a Debiting CMB is involved, the system decreases its headroom by the same amount.</u> <u>After this moment, the settlement attempt is agreed and can either be confirmed/rejected by the counterpart or fail for a missing answer. The reserved amount in the destination currency cannot be used for other payments.</u> |
| <u>24</u> | | <u>TIPS (destination currency)</u> | <u>The DN of the Entry Leg PSP is identified in the "Inbound DN-BIC Routing", this DN is referred to as <i>Entry Leg PSP DN</i>.</u> |

Change Request form

| Step | Involved messages | Involved actors | Description |
|------------|--|---|---|
| <u>25</u> | FltoFICustomerCreditTransfer | <p><u>TIPS (destination currency) as sender</u></p> <p><u>Entry Leg PSP (destination currency) as receiver</u></p> | <p><u>TIPS forwards the received LKT transaction to the Entry Leg PSP DN to seek authorisation to proceed with the processing of the destination leg.</u></p> |
| <u>25p</u> | FltoFICustomerCreditTransfer | <p><u>Entry Leg PSP (destination currency) as sender</u></p> <p><u>TIPS (destination currency) as receiver</u></p> | <p><u>The Entry Leg PSP authorises the transaction by sending back a positive FltoFICustomerCreditTransfer. The message is successfully delivered to TIPS.</u></p> <p><u>Technical validation, checking of mandatory fields and authentication checks have already been successfully executed.</u></p> |
| <u>25n</u> | FIToFIPaymentStatusReport | <p><u>Entry Leg PSP (destination currency) as sender</u></p> <p><u>TIPS (destination currency) as receiver</u></p> | <p><u>The Entry Leg PSP rejects the transaction by sending a negative FIToFIPaymentStatusReport. The message is successfully delivered to TIPS.</u></p> <p><u>Technical validation, checking of mandatory fields and authentication checks have already been successfully executed.</u></p> |
| <u>26n</u> | FIToFIPaymentStatusReport | <p><u>TIPS (destination currency)</u></p> <p><u>TIPS (source currency) as receiver</u></p> | <p><u>If the corresponding transaction ID exists, the FIToFIPaymentStatusReport is forwarded to the TIPS (source currency) component.</u></p> <p><u>This failure will trigger the roll-back of the source transaction leg (see following step 27e).</u></p> |
| <u>26</u> | FltoFICustomerCreditTransfer | <u>TIPS (destination currency)</u> | <p><u>The following checks are executed successfully:</u></p> <ul style="list-style-type: none"> - Access Rights check; - Timeout Check - Originator Side; - Instructing Party authorised. <p><u>See 4.1 - Business Rules for details.</u></p> |
| <u>26e</u> | FIToFIPaymentStatusReport | <p><u>TIPS (destination currency) as sender</u></p> <p><u>Entry Leg PSP (destination currency) as receiver</u></p> <p><u>TIPS (source currency) as receiver</u></p> | <p><u>If a check listed in step 26 fails, the LKT transaction processing stops and a message, containing the proper error code, is sent to both (i) the TIPS (source currency) component and (ii) the Entry Leg PSP.</u></p> <p><u>If the failure relates to "Timeout Check - Originator Side", the status of the destination leg of the LKT transaction is set to "Expired"; in all the other cases, the status is set to "Failed".</u></p> |
| <u>27e</u> | | <u>TIPS (source currency)</u> | <p><u>If the pending transaction exists, TIPS retrieves it using the Transaction ID.</u></p> <p><u>The corresponding reserved amount of the source leg is released in the involved Originator Account. If a debiting CMB is involved, its headroom is increased by the same amount.</u></p> <p><u>It is worth noting that TIPS releases the reserved transactions even if either the involved account or CMB have been blocked after the conditional settlement phase of the given transaction.</u></p> |

Change Request form

| <u>Step</u> | <u>Involved messages</u> | <u>Involved actors</u> | <u>Description</u> |
|-------------|---|---|---|
| | | | <u>The transaction is set to "Failed" status.</u> |
| <u>28e</u> | FIToFIPaymentStatusReport | <u>TIPS (source currency) as sender</u> <u>Originator Participant, Ancillary System or Instructing Party as receiver</u> | <u>TIPS forwards the received Payment status report to the Originator DN.</u> |
| <u>29e</u> | FIToFIPaymentStatusReport | <u>TIPS (source currency) as sender</u> <u>Exit Leg PSP as receiver</u> | <u>TIPS generates a Payment status report for the Exit Leg PSP.</u> |
| <u>27</u> | | <u>TIPS (destination currency)</u> | <u>The DN of the beneficiary PSP is identified in the "Outbound DN-BIC Routing" mapping table from the field Creditor Agent. From now on, this DN is referred to as Beneficiary DN.</u> |
| <u>28</u> | FittoFICustomerCreditTransfer | <u>TIPS (destination currency) as sender</u> <u>Beneficiary Participant, Ancillary System or Instructing Party as receiver</u> | <u>TIPS forwards the received cross-currency LKT Instant Payment transaction to the Beneficiary DN.</u> |
| <u>29p</u> | FIToFIPaymentStatusReport | <u>Beneficiary Participant, Ancillary System or Instructing Party as sender</u> <u>TIPS (destination currency) as receiver</u> | <u>The Beneficiary Participant, Ancillary System or Instructing Party acting on behalf of the Beneficiary Participant or a Reachable Party triggers the settlement phase of the transaction by sending a positive payment status report that is successfully delivered to TIPS.</u> <u>Technical validation, checking of mandatory fields and authentication checks have already been successfully executed.</u> |
| <u>29n</u> | FIToFIPaymentStatusReport | <u>Beneficiary Participant, Ancillary System or Instructing Party as sender</u> <u>TIPS (destination currency) as receiver</u> | <u>The Beneficiary Participant, Ancillary System or Instructing Party acting on behalf of the Beneficiary Participant or a Reachable Party rejects the transaction by means of a negative payment status report that is successfully delivered to TIPS.</u> <u>Technical validation, checking of mandatory fields and authentication checks have already been successfully executed.</u> |

Change Request form

| <u>Step</u> | <u>Involved messages</u> | <u>Involved actors</u> | <u>Description</u> |
|-------------|----------------------------------|--|---|
| <u>30</u> | | <u>TIPS (destination currency)</u> | <p><u>TIPS successfully executes the checks:</u></p> <ul style="list-style-type: none"> - <u>Access Rights check;</u> - <u>Instructing Party authorised – creditor side;</u> - <u>Pending transaction existing;</u> - <u>Timeout Check - Beneficiary Side</u> <p>See 4.1 - <u>Business Rules</u> for details.</p> |
| <u>30e</u> | <u>FItoFIPaymentStatusReport</u> | <p><u>TIPS (destination currency) as sender</u></p> <p><u>Beneficiary Participant, Ancillary System or Instructing Party as receiver</u></p> | <p><u>TIPS returns an error when executing the checks listed in step 30.</u></p> <p><u>If a check fails, the LKT transaction processing stops and a message, containing the proper error code, is sent to the Beneficiary Participant, Ancillary System or Instructing Party acting on behalf of the Beneficiary Participant or a Reachable Party (DN of the sender of the message).</u></p> <p><u>The message provided either at step 29p or 29n is therefore discarded but the transaction leg is still kept pending until a new correct message is received from the beneficiary or a timeout condition is hit.</u></p> |
| <u>30n</u> | <u>FItoFIPaymentStatusReport</u> | <p><u>TIPS (destination currency) as sender</u></p> <p><u>TIPS (source currency) as receiver</u></p> | <p><u>If the corresponding transaction ID exists, the <u>FItoFIPaymentStatusReport</u> is forwarded to the TIPS (source currency) component.</u></p> <p><u>This failure will trigger the roll-back of the source transaction leg (see step 27e).</u></p> |
| <u>31p</u> | | <u>TIPS (destination currency)</u> | <u>TIPS identifies the transaction using the Transaction ID. The transaction shall exist in TIPS and it shall be still in "Reserved" status.</u> |
| <u>32p</u> | | <u>TIPS (destination currency)</u> | <p><u>TIPS retrieves and settles the reserved transaction. The destination leg of the transaction is set to "Settled" status. The reserved amount of the Originator Account is decreased by the amount of the corresponding settled transaction.</u></p> <p><u>The same amount is credited to the Beneficiary Account. If a Crediting CMB is involved, TIPS increases its headroom by the same amount.</u></p> <p><u>Upon Beneficiary confirmation, TIPS settles the reserved transactions even though the involved accounts (or CMBs) have been blocked immediately after the conditional phase of the given transaction.</u></p> |
| <u>33p</u> | <u>FItoFIPaymentStatusReport</u> | <p><u>TIPS (destination currency) as sender</u></p> <p><u>Entry Leg PSP (destination currency) as receiver</u></p> | <u>TIPS forwards the received Payment status report to the Entry Leg PSP.</u> |
| <u>34p</u> | <u>FItoFIPaymentStatusReport</u> | <p><u>TIPS (destination currency) as sender</u></p> <p><u>TIPS (source currency) as receiver</u></p> | <p><u>TIPS converts the received Payment status report into the format supported by the TIPS (source currency) component.</u></p> <p><u>Afterwards the converted message is forwarded to the TIPS component in charge of managing the source leg.</u></p> |

Change Request form

| <u>Step</u> | <u>Involved messages</u> | <u>Involved actors</u> | <u>Description</u> |
|-------------|---|---|---|
| 35 | | <u>TIPS (source currency)</u> | <p><u>TIPS successfully executes the following check:</u> <u>- Cross-currency CSM Access Rights check;</u></p> <p><u>See 4.1 - Business Rules for details.</u></p> |
| 35e | FIToFIPaymentStatusReport | <u>TIPS (source currency)</u> <u>TIPS (destination currency) as receiver</u> | <p><u>TIPS returns an error when executing the check listed in step 35.</u></p> <p><u>If a check fails, the LKT transaction processing stops and a message, containing the proper error code, is sent to the sender DN of the message.</u></p> <p><u>The message provided at step 34p is therefore discarded but the transaction leg is still kept pending until a new correct message is received from the TIPS (destination currency) component.</u></p> |
| 36p | | <u>TIPS (source currency)</u> | <p><u>TIPS (source currency) identifies the source leg of the LKT transaction using the Transaction ID.</u></p> <p><u>The transaction shall exist in TIPS and it shall be still in "Reserved" status.</u></p> |
| 37p | | <u>TIPS (source currency)</u> | <p><u>TIPS retrieves and settles the reserved transaction. The transaction is set to "Settled" status.</u> <u>The reserved amount of the Originator Account is decreased by the amount of the corresponding settled transaction.</u> <u>The same amount is credited to the Beneficiary Account. If a Crediting CMB is involved, TIPS increases its headroom by the same amount.</u></p> <p><u>Upon Beneficiary confirmation, TIPS settles the reserved transactions even though the involved accounts (or CMBs) have been blocked immediately after the conditional phase of the given transaction.</u></p> |
| 38p | FIToFIPaymentStatusReport | <u>TIPS (destination currency) as sender</u> <u>Beneficiary Participant, Ancillary System or Instructing Party as receiver</u> | <p><u>TIPS generates a positive Payment status report and sends it to the Beneficiary DN.</u></p> |
| 39p | ReturnAccount | <u>TIPS (destination currency) as sender</u> <u>Entry Leg PSP as receiver</u> | <p><u>TIPS checks the "Floor notification amount" configured for the involved Originator account or Debiting CMB.</u> <u>After settlement confirmation, if the account balance and/or the CMB headroom crosses the threshold configured as "floor notification amount", TIPS sends a ReturnAccount to the account and/or CMB owners involved in the transaction.</u></p> <p><u>The message is sent to the DN of the Entry Leg PSP.</u></p> |

Change Request form

| <u>Step</u> | <u>Involved messages</u> | <u>Involved actors</u> | <u>Description</u> |
|-------------|---|---|--|
| <u>40p</u> | ReturnAccount | <u>TIPS (destination currency) as sender</u> <u>Beneficiary Participant, Ancillary System or Instructing Party as receiver</u> | <u>TIPS checks the "Ceiling notification amount" configured for the involved Beneficiary account or Crediting CMB. After settlement confirmation, if the account balance and/or the CMB headroom crosses the threshold configured as "ceiling notification amount", TIPS sends a ReturnAccount to the account and/or CMB owners involved in the transaction.</u> <u>The message is sent to the DN acting as Beneficiary.</u> |
| <u>41p</u> | FIToFIPaymentStatusReport | <u>TIPS (source currency) as sender</u> <u>Originator Participant, Ancillary System or Instructing Party as receiver</u> | <u>TIPS forwards the received Payment status report to the Originator DN.</u> |
| <u>42p</u> | FIToFIPaymentStatusReport | <u>TIPS (source currency) as sender</u> <u>Exit Leg PSP as receiver</u> | <u>TIPS generates a positive Payment status report and sends it to the Exit Leg PSP.</u> |
| <u>43p</u> | ReturnAccount | <u>TIPS (source currency) as sender</u> <u>Originator Participant, Ancillary System or Instructing Party as receiver</u> | <u>TIPS checks the "Floor notification amount" configured for the involved Originator account or Debiting CMB. After settlement confirmation, if the account balance and/or the CMB headroom crosses the threshold configured as "floor notification amount", TIPS sends a ReturnAccount to the account and/or CMB owners involved in the transaction.</u> <u>The message is sent to the DN of the Account Owner and/or CMB Owner acting as Originator.</u> |
| <u>44p</u> | ReturnAccount | <u>TIPS (source currency) as sender</u> <u>Exit Leg PSP as receiver</u> | <u>TIPS checks the "Ceiling notification amount" configured for the involved Beneficiary account or Crediting CMB. After settlement confirmation, if the account balance and/or the CMB headroom crosses the threshold configured as "ceiling notification amount", TIPS sends a ReturnAccount to the account and/or CMB owners involved in the transaction.</u> <u>The message is sent to the DN of the Exit Leg PSP.</u> |

6) § x.x.x.x. Examples (cross-currency LKT settlement model)

Examples will be drafted during the SDD update.

7) FIToFICustomerCreditTransfer (pacs.008.001.08) (section introduced with CR0064)

The FIToFICustomerCreditTransfer message allows instructing TIPS for a cross-currency transaction of a positive amount of money from the participant account on debtor side to the participant account on creditor side.

Change Request form

Before the forwarding of the pacs.008 to the Beneficiary CSM, TIPS performs the following list of changes:

- removal of the Clearing System Code "TGT" from the field FIToFICstmrCdtTrf/GrpHdr/SttlmInf/ClrSys/Cd;
- swap of the position of amounts in the message. The Interbank Settlement Amount (FIToFICstmrCdtTrf/CdtTrfTxInf/IntrBkSttlmAmt) will be populated with the amount in the destination currency while the Instructed Amount (FIToFICstmrCdtTrf/CdtTrfTxInf/InstdAmt) will be populated should contain the amount in the source currency. The field Total Interbank Settlement Amount (FIToFICstmrCdtTrf/GrpHdr/TtlIntrBkSttlmAmt) will be updated accordingly;
- generation of a new Transaction ID for the beneficiary leg, in order to avoid rejection for duplicate check in the scenario where both sub-transactions are settled within the same technical platform. The E2E reconciliation can still be performed using the End To End Identification or the UETR;
- Insert a default (per currency) Entry-Leg PSP BIC in case not present in the message. In case the Originator opted for the LKT settlement model but the pacs.008 outbound flow direction does not contain the Entry-Leg PSP BIC related to the destination currency, TIPS will fill it in the message using the default Entry-Leg PSP BIC value as direct destination CSM participant defined by the related Central Bank for the interested currency.

[...]

8) **4.1 Business rules**

| Business process | BR Name | Check ID | Input Fields and parameters | Business check | Error codes | Error Description |
|-------------------------------|---|---------------|-----------------------------|---|--|--|
| [...] | [...] | [...] | [...] | [...] | [...] | [...] |
| EPC Report | Data existence check | 080002 | Valid From Valid To | The system checks that the data for the selected period are available for the generation of the report. | S002 | Data not available for the selected period |
| <u>Cross-currency process</u> | <u>Entry Leg PSP correctly configured</u> | <u>090001</u> | <u>Creditor Agent</u> | <u>The system checks that a unique item related to the Entry Leg PSP exists in the entity "Inbound DN-BIC".</u> | <u>If no row or multiple rows are returned: - return error code MS01</u> | <u>Entry Leg PSP DN not found</u> |
| <u>Cross-currency process</u> | <u>Cross-currency CSM Access Rights check</u> | <u>090002</u> | <u>Sender DN</u> | <u>The sender DN is an existing and active CSM DN in TIPS present in the CSM Mapping Table.</u> | <u>If the check is not respected: - error code DNOR</u> | <u>Unknown cross-currency RTGS System DN</u> |

Change Request form

TIPS UHB R2024.JUN

9) § 4.1.4.x New Query Payment transaction –Advanced Cross-currency Search/List screen

Context of Usage

This screen contains the search criteria that can be used to retrieve the relevant information on cross-currency payment transactions. The user can use multiple search criteria jointly in order to restrict the returned data set of payment transactions. The user can browse through the list using the table buttons. In order to reduce the risk of performance issues, in case of too loose search criteria that may lead to the retrieval of a large number of transactions, the inquiry will limit the displayed result to the most recent 100 payment transactions per page (e.g. up to a maximum of 10 pages).

Furthermore, the user can sort the results acting on each column of the table and, additionally, the user can exclude rows from the result set.

TIPS shall allow the Originator Participant, the Instructing Party acting on behalf of the Originator Participant, the Beneficiary Participant and the Instructing Party acting on behalf of the Beneficiary Participant to query the status of payment transactions, which match the selected search criteria.

For cross-currency transactions, the Exit-Leg PSP and Entry-Leg PSP are also authorised to carry out the query.

This function is only available in U2A mode. If the user does not have the right to view the data relating to the transaction consulted, an error code is returned. As a general remark, every cross-currency payment transaction can be retrieved if either the Originator BIC or the Beneficiary BIC (or both) belongs to the requestor data scope.

Screen Access

| Payment transaction >> Advanced Cross-currency Search/List Screen

Privileges

To use this screen, the following Privileges are needed:

- | TIP Query
- | TIP QueryReachable

Screenshot

Screenshot to be created

Field description

| <u>Advanced Cross-currency Payment transaction status query: Search criteria</u> | |
|--|--|
| <u>Object</u> | <u>Required Format</u> |
| <u>Originator BIC or Entry-Leg PSP BIC</u> | <u>Field where to enter the debtor or intermediary agent BIC.</u> <u>Possible values are:</u> <ul style="list-style-type: none"> <u> at least 4 and less than 11x characters followed by a wildcard character (*);</u> <u> BIC11 without wildcard character.</u> <u>This field is mandatory.</u> |
| <u>Beneficiary BIC or Exit-Leg PSP BIC</u> | <u>Field where to enter the creditor or intermediary agent BIC.</u> <u>Possible values are:</u> |

Change Request form

| | |
|----------------------------------|--|
| | <p><u>!</u> at least 4 and less than 11x characters followed by a wildcard character (*);</p> <p><u>!</u> BIC11 without wildcard character.</p> |
| <u>Settlement business date</u> | <p>Field where to enter the business date of the payment transaction as a lookup criterion.</p> <p>Required format is: YYYY-MM-DD</p> |
| <u>Settlement Timestamp From</u> | <p>This field offers the possibility to restrict the list of results to payment transactions whose settlement timestamp is equal to or higher than the value entered in this field.</p> <p>Required format is: YYYY-MM-DD HH:MM:SS</p> |
| <u>Settlement Timestamp To</u> | <p>This field offers the possibility to restrict the list of results to payment transactions whose settlement timestamp is smaller than or equal to the value entered in this field.</p> <p>Required format is: YYYY-MM-DD HH:MM:SS</p> |
| <u>Amount From</u> | <p>This field offers the possibility to restrict the list of results to payment transactions whose amount is equal to or higher than the value entered in this field.</p> <p>The value entered in this field has to be lower than the value entered in the field 'Amount To'.</p> |
| <u>Amount To</u> | <p>This field offers the possibility to restrict the list of results to payment transactions whose amount is smaller than or equal to the value entered in this field.</p> <p>The value entered in this field has to be higher than the value entered in the field 'Amount From'.</p> |
| <u>Destination Amount From</u> | <p>This field offers the possibility to restrict the list of results to cross-currency payment transactions whose amount in the destination currency is equal to or higher than the value entered in this field.</p> <p>The value entered in this field has to be lower than the value entered in the field 'Destination Amount To'.</p> |
| <u>Destination Amount To</u> | <p>This field offers the possibility to restrict the list of results to cross-currency payment transactions whose amount in the destination currency is smaller than or equal to the value entered in this field.</p> <p>The value entered in this field has to be higher than the value entered in the field 'Destination Amount From'.</p> |
| <u>Exchange Rate From</u> | <p>This field offers the possibility to restrict the list of results to cross-currency payment transactions whose exchange rate is equal to or higher than the value entered in this field.</p> <p>The value entered in this field has to be lower than the value entered in the field 'Exchange Rate To'.</p> |
| <u>Exchange Rate To</u> | <p>This field offers the possibility to restrict the list of results to cross-currency payment transactions whose exchange rate is equal to or lower than the value entered in this field.</p> <p>The value entered in this field has to be higher than the value entered in the field 'Exchange Rate From'.</p> |
| <u>Cash Account</u> | <p>Enter the number of the Cash Account.</p> <p>This field is mandatory if the user is neither a NCB user nor the Service Operator.</p> <p>Required format is: max. 34x characters.</p> |

Change Request form

| | |
|----------------------------------|--|
| | <u>The field cannot contain wildcards.</u> |
| <u>Domestic Transaction leg</u> | <p><u>This field offers the possibility to restrict the list of results to payment transactions either debiting or crediting the account (or both).</u></p> <p><u>Possible values:</u></p> <ul style="list-style-type: none"> <u><input type="checkbox"/> Credit or Debit</u> <u><input type="checkbox"/> Credit</u> <u><input type="checkbox"/> Debit</u> <p><u>Default value: 'Credit or Debit'.</u></p> |
| <u>Currency</u> | <p><u>Field where to enter the currency of the payment transaction as a lookup criterion, from the list of settlement currencies active in TIPS.</u></p> <p><u>Default value is EUR.</u></p> <p><u>This field is mandatory.</u></p> |
| <u>Destination Currency</u> | <p><u>This field offers the possibility to restrict the list of results to cross-currency payment transactions with destination currency.</u></p> <p><u>This field is mandatory.</u></p> |
| <u>Acceptance Timestamp From</u> | <p><u>Field where to enter the lower bound for the Acceptance timestamp of the instant payment.</u></p> <p><u>Required format is: YYYY-MM-DD hh:mm:ss</u></p> |
| <u>Acceptance Timestamp To</u> | <p><u>Field where to enter the upper bound for the Acceptance timestamp of the instant payment.</u></p> <p><u>Required format is: YYYY-MM-DD hh:mm:ss</u></p> |
| <u>Status</u> | <p><u>Select the status of the payment transaction from the possible values:</u></p> <ul style="list-style-type: none"> <u><input type="checkbox"/> All</u> <u><input type="checkbox"/> Settled (default value)</u> <u><input type="checkbox"/> Failed</u> <u><input type="checkbox"/> Rejected</u> <u><input type="checkbox"/> Rejected by the Beneficiary</u> <u><input type="checkbox"/> Expired</u> |
| <u>Error Code</u> | <p><u>Select the error code of the payment transaction from the possible values:</u></p> <ul style="list-style-type: none"> <u><input type="checkbox"/> All (default value)</u> <u><input type="checkbox"/> AB05</u> <u><input type="checkbox"/> AB06</u> <u><input type="checkbox"/> AB07</u> <u><input type="checkbox"/> AB08</u> <u><input type="checkbox"/> AB09</u> <u><input type="checkbox"/> AB10</u> <u><input type="checkbox"/> AC01</u> <u><input type="checkbox"/> AC03</u> <u><input type="checkbox"/> AC04</u> <u><input type="checkbox"/> AC06</u> <u><input type="checkbox"/> AG01</u> <u><input type="checkbox"/> AG02</u> |

Change Request form

| | |
|--|--|
| | AG09 AG10 AG11 AM02 AM04 AM05 AM09 AM23 BE04 MD07 MS01 MS02 MS03 TBL1 TBL2 CNOR CUST DNOR NOAS RR01 RR02 RR03 RR04 |
|--|--|

| <u>Advanced Cross-currency Payment transaction status query - List</u> | |
|--|---|
| <u>Cross-currency Payment Transaction reference</u> | <u>Shows the reference of the cross-currency payment transaction</u> |
| <u>Originator BIC</u> | <u>Shows the BIC code of the Originator PSP of the given cross-currency payment transaction.</u> |
| <u>Beneficiary BIC</u> | <u>Shows the BIC code of the Beneficiary PSP of the given cross-currency payment transaction.</u> |
| <u>Exit-Leg PSP BIC</u> | <u>Shows the BIC code of the Exit-Leg PSP of the of the given cross-currency payment transaction.</u> |
| <u>Entry-Leg PSP BIC</u> | <u>Shows the BIC code of the Entry-Leg PSP of the of the given cross-currency payment transaction.</u> |
| <u>Settlement business date</u> | <u>Shows the business date on which the cross-currency payment transaction is settled.</u> <u>Displayed format is: YYYY-MM-DD</u> <u>The field is empty in case the transaction is not settled.</u> |
| <u>Settlement Timestamp</u> | <u>Shows the time the cross-currency payment transaction was settled.</u> <u>Displayed format is: YYYY-MM-DD hh:mm:ss:µsµsµs.</u> <u>The field is empty in case the transaction is not settled.</u> |
| <u>Amount</u> | <u>Shows the amount of the cross-currency payment transaction.</u> |

Change Request form

| | |
|---|---|
| <u>Currency</u> | <u>Shows the currency of the cross-currency payment transaction.</u> |
| <u>Destination Amount</u> | <u>Shows the amount of the cross-currency payment transaction in the destination currency.</u> |
| <u>Destination Currency</u> | <u>Shows the destination currency of the cross-currency payment transaction.</u> |
| <u>Exchange Rate</u> | <u>Shows the exchange rate of the cross-currency payment transaction.</u> |
| <u>Transaction leg</u> | <p><u>This field shows the leg of the transaction from the possible values:</u></p> <ul style="list-style-type: none"> <u>Credit or Debit</u> <u>Credit</u> <u>Debit</u> |
| <u>Acceptance Timestamp</u> | <p><u>Shows the Acceptance timestamp of the cross-currency payment transaction.</u></p> <p><u>Displayed format is: YYYY-MM-DD hh:mm:ss:µsµsµs</u></p> |
| <u>Status</u> | <p><u>Shows the status of the cross-currency payment transaction from the possible values:</u></p> <ul style="list-style-type: none"> <u>Settled</u> <u>Failed</u> <u>Rejected</u> <u>Rejected by the Beneficiary</u> <u>Expired</u> |
| <u>Payment Transaction reference of the destination currency cross-currency leg</u> | <u>For cross-currency transactions managed by TIPS as originator and destination CSM, i.e. both currencies are hosted in TIPS, shows the reference of the destination leg cross-currency payment transaction, to be used to perform a dedicated query. It is empty in all the other cases.</u> |
| <u>Error Code</u> | <p><u>Shows the error code of the payment transaction.</u></p> <p><u>The field is empty in case the payment transaction is settled.</u></p> |

Buttons

| Buttons | |
|----------------|--|
| <u>Search</u> | <u>This function enables the user to retrieve the information on the selected payment transactions.</u> |
| <u>Details</u> | <u>This function enables the user to display the information on the selected payment transaction.</u> |
| <u>Reset</u> | <u>This function enables the user to set the search criteria fields to their default values.</u> |
| <u>Export</u> | <p><u>This function enables the user to export the result of the executed query in a csv-file.</u></p> <p><u>In addition to the results, the following information is exported at the start of the file: name of the exported screen (including menu path), current date, name of the user who triggered the exporting, classification label 'RESTRICTED'.</u></p> |

Change Request form

| | |
|--|--|
| | <u>timestamp of the export, defined search criteria (query parameters, if applicable).</u> |
|--|--|

10) § 4.1.4.x New Advanced Cross-currency Payment transaction query – Display screen

Context of Usage This screen displays detailed information on the relevant payment transaction. This function is available in U2A mode only. In case the user is not entitled to view the data on the searched transaction, an error code is returned. For a recall answer, the Originator and Beneficiary BIC, IBAN, and Name fields displayed on the screen are mapped to the corresponding Creditor/Debtor sections of the underlying pacs.004 message.

Screen Access |Payment transaction – Advanced Cross-currency Search/List Screen >> Click on the Details button

Privileges To use this screen, the following Privileges are needed:
| TIP_Query
| TIP_QueryReachable

Screenshot Screenshot to be created

Field description

| <u>Advanced Cross-currency Payment transaction status query: Result</u> | |
|---|---|
| <u>Payment Transaction reference</u> | <u>Shows the reference of the cross-currency payment transaction</u> |
| <u>Originator BIC</u> | <u>Shows the BIC code of the Originator Bank of the given transaction</u> |
| <u>Beneficiary BIC</u> | <u>Shows the BIC code of the Beneficiary Bank of the given transaction</u> |
| <u>Exit-Leg PSP BIC</u> | <u>For cross-currency transactions only. shows the BIC code of the Exit-Leg PSP of the of the given cross-currency payment transaction.</u> |
| <u>Entry-Leg PSP BIC</u> | <u>For cross-currency transactions only. shows the BIC code of the Entry-Leg PSP of the of the given cross-currency payment transaction.</u> |
| <u>Payment Transaction type</u> | <u>Shows the payment transaction type from the possible values:</u> <u> Cross-currency Instant Payment</u> |
| <u>Transaction status</u> | <u>Shows the status of the cross-currency payment transaction from the possible values:</u> <u> Settled</u> <u> Failed</u> <u> Rejected</u> <u> Rejected by the Beneficiary</u> <u> Expired</u> |
| <u>Reason code</u> | <u>Shows the error code of the cross-currency payment transaction. The field is empty in case the cross-currency payment transaction is settled.</u> |

Change Request form

| | |
|---|--|
| <u>Settlement timestamp</u> | <p><u>Shows the time the cross-currency payment transaction was settled.</u></p> <p><u>Displayed format is: YYYY-MM-DD hh:mm:ss:µsµsµsµsµs</u></p> <p><u>The field is empty in case the payment transaction is not settled.</u></p> |
| <u>Settlement business date</u> | <p><u>Shows the business date on which the transaction is settled.</u></p> <p><u>Displayed format is: YYYY-MM-DD</u></p> <p><u>The field is empty in case the payment transaction is not settled.</u></p> |
| <u>Payment transaction amount</u> | <u>Shows the amount of the payment transaction</u> |
| <u>Payment transaction currency</u> | <u>Shows the currency of the payment transaction</u> |
| <u>Destination Amount</u> | <u>Shows the amount of the cross-currency payment transaction in the destination currency.</u> |
| <u>Destination Currency</u> | <u>Shows the destination currency of the cross-currency payment transaction.</u> |
| <u>Exchange Rate</u> | <u>Shows the exchange rate of the cross-currency payment transaction.</u> |
| <u>Payment transaction end-to-end reference</u> | <u>Shows the end-to-end reference of the payment transaction.</u> |
| <u>Acceptance timestamp</u> | <p><u>Shows the Acceptance timestamp of the instant payment.</u></p> <p><u>Displayed format is: YYYY-MM-DD hh:mm:ss</u></p> |
| <u>Original transaction identification</u> | <p><u>Shows, in case of recall response, the transaction identifier of the underlying instant payment.</u></p> <p><u>The field is empty in case of an Instant Payment transaction.</u></p> |
| <u>Payment transaction reception timestamp</u> | <p><u>Shows the timestamp when the payment transaction is received by TIPS from the originator participant.</u></p> <p><u>This timestamp contains the time of last update for payment accepted by TIPS (TIPS network is “stateless” and there is no evidence of the time a message is received).</u></p> <p><u>Displayed format is: YYYY-MM-DD hh:mm:ss:µsµsµsµsµs</u></p> |
| <u>Payment transaction forwarding timestamp</u> | <p><u>Shows the timestamp when the payment transaction is forwarded to the beneficiary participant.</u></p> <p><u>This timestamp contains the time of last update for payment forwarded by TIPS (TIPS network is “stateless” and there is no evidence of the time a message is sent out).</u></p> <p><u>Displayed format is: YYYY-MM-DD hh:mm:ss:µsµsµsµsµs</u></p> |
| <u>Confirmation reception timestamp</u> | <p><u>Shows, if available, the timestamp when the confirmation for a payment transaction is received by TIPS from the beneficiary participant.</u></p> <p><u>This timestamp contains the time of last update for payment confirmed by TIPS (TIPS network is “stateless” and there is no evidence of the time a message is received).</u></p> <p><u>Displayed format is: YYYY-MM-DD hh:mm:ss:µsµsµsµsµs</u></p> |
| <u>Confirmation to the originator timestamp</u> | <p><u>Shows, if available, the timestamp when the confirmation for a payment transaction is forwarded by TIPS to the counterpart.</u></p> <p><u>This timestamp contains the time of last update for payment notified by TIPS (TIPS network is “stateless” and there is no evidence of the time a message is sent out).</u></p> |

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| | |
|---|---|
| | <u>Displayed format is: YYYY-MM-DD hh:mm:ss:µsµsµsµsµs</u> |
| <u>Originator IBAN</u> | <u>Shows the IBAN of the originator of the payment transaction.</u> |
| <u>Originator name</u> | <u>Shows the name of the originator of the payment transaction.</u> |
| <u>Beneficiary IBAN</u> | <u>Shows the IBAN of the beneficiary of the payment transaction.</u> |
| <u>Beneficiary name</u> | <u>Shows the name of the beneficiary of the payment transaction.</u> |
| <u>Payment transaction local instrument code</u> | <u>Shows the local instrument code of the payment transaction.</u> |
| <u>Payment transaction remittance information</u> | <u>Shows the remittance information of the payment transaction.</u> |
| <u>Payment Transaction reference of the destination currency cross-currency leg</u> | <u>For cross-currency transactions managed by TIPS as originator and destination CSM for both currencies hold in TIPS, shows the reference of the other leg cross-currency payment transaction, to be used to perform a dedicated Advanced Payment transaction query. It is empty in all the other cases.</u> |

Buttons

| | |
|------------------------------|---|
| | |
| <u>Download transaction</u> | <u>This function enables the user to download the original cross-currency payment transaction⁵ (i.e. pacs.008) in XML format.</u> |
| <u>Download confirmation</u> | <u>This function enables the user to download the original cross-currency instant payment confirmation (i.e. the pacs.002) in XML format.</u> |
| <u>Cancel</u> | <u>This function enables the user to cancel the process and return to the previous screen.</u> |

High-level description of Impact:

The purpose of this CR is to enhance cross-currency scheme introduced in TIPS via CR TIPS-0064 (“Adaptation of TIPS for the settlement of cross-currency transactions (based on OCT Inst scheme)” with the implementation of the *Enhanced Linked Transaction (LKT)* settlement model. This new settlement model for cross-currency transactions allows the automatic orchestration of the entire end-to-end cycle of the cross-currency transaction without the “out-of-band” orchestration of the payment performed by the Entry/Exit-leg PSPs, representing a more sophisticated model for TIPS hosted-currencies compared to the basic cross-currency features introduced within the CR TIPS-0064.

Impacts on other projects and products:

No impact is foreseen on other TARGET Services:

- T2: no impact
- ECMS: no impact
- T2S: no impact

Outcome/Decisions:

⁵ Either the payload of the underlying pacs.008, in case of instant payment and cross-currency instant payment, or the pacs.004 in case of Recall Response (for domestic traffic only).

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| L3 analysis - General Information | |
|-----------------------------------|---------------------------------|
| Impact on TIPS | |
| Business Interface | |
| X | A2A Interface |
| X | U2A Interface |
| Settlement Engine | |
| X | Payment Transaction |
| | Liquidity Transfer |
| | Recall |
| Queries and Reports | |
| X | Queries |
| | Reports |
| Other functions | |
| | Local Reference Data Management |
| X | Statistics |
| | Complex Queries and Reports |
| | Mobile Proxy Look-up |
| Common Components | |
| X | ESMIG |
| X ⁶ | CRDM |
| | Archiving |
| | Billing |
| | DMT |
| Operational Tools | |
| | SLA Reporting |
| | TMS |

⁶ The impact is limited to the technical views needed for the definition of the CSM mapping table and its propagation to TIPS.

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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 | 1.1 Introduction to the TIPS Service | Update of the description on the Instant Settlement services provided. |
| | 1.5.2 Settlement of Instant Payment transactions | Update to introduce the LKT model. |
| | 1.5.2.1 Instant Payment transaction settlement process (with reservation of funds) | Update of the description on transaction flows to include the flow for LKT settlement model. |
| | 2.2.4 Instant Payment (cross-currency scheme – regular settlement model) | Update in order to distinguish the flow between the two settlement models. |
| | X.X.X Instant Payment (cross-currency scheme – LKT settlement model) | Introduction of a new section for the LKT settlement model of cross-currency transactions scheme with the inclusion of: <ul style="list-style-type: none"> • Instant Payment transaction flow. • Examples. |
| | FIToFICustomerCreditTransfer (pacs.008.001.08) (section | Update for the LKT settlement model of cross-currency transactions. |

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| | | |
|---------------------------------------|---|------------------------------------|
| | introduced with CR0064 for cross-currency transactions) 4.1 Business rules | New business rules defined |
| TIPS UHB | 4.1.4.x Advanced cross-currency Payment transaction status query - Search/List screen 4.1.4.x Advanced cross-currency Payment transaction query – Display screen | New screen. New screen. |
| Training documentation | Training documentation related to the settlement models | Cross-currency scheme to be added. |
| Other documents | CoCo IDFS IDFS_BdI_ALL-EXT_Data Extraction for TIPS | Update for the CSM Mapping table. |
| Impacted GDPR message / screen fields | n/a | n/a |

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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:Assumptions

1. **Message specifications.** The LKT settlement model will be based on the same ISO20022 message specifications as the cross-currency transactions scheme introduced by the CR TIPS-0064, including the same suffix value (.**XCY**) for the MsgType MEPT property to be used. The logic related to the identification of the agents, identification of the direction of the payment (via Clearing System Code) and duplicate check will not be changed. No changes at all at message specification, suitable to manage both cross-currency settlement models.
2. **Reports and queries.** Regarding the customer report camt.053 Statement of Account and queries (payment transaction status query, U2A via GUI and A2A via camt.005/006), the cross-currency transactions via LKT settlement model will be managed as any other euro and non-euro IP transactions, thus with the same set of reported fields, exactly as foreseen by the CR TIPS-0064. Additional fields related to this transaction type will be introduced in the Query Payment transaction - Advanced Search query via TIPS GUI.
3. **Statistical indicator for cross-currency transactions.** In absence of specific requirements, no statistical indicators will be implemented for cross-currency transactions based on the LKT settlement model. Anyway, cross-currency transactions should be clearly marked in order to be excluded from the statistical indicators already foreseen for euro and non-euro currencies. Like the statistical indicators, also the Enhanced Information Database (EIDB) shall not be fed with aggregated data stemming from cross-currency transactions.
4. **Billing.** Considering the absence of new service items in the CR text and in the TARGET Services Pricing Policy for TIPS dedicated to the cross-currency transactions in order to distinguish them respect to the domestic ones, the assumption made is that the current TIPS Pricing Policy for Settled and Unsettled Instant Payment transactions applies. Therefore, it is expected that each cross-currency transaction leg will be treated as a regular domestic instant payment from Billing point of view and a cumulative overview of all the transactions related to a service items will be reported in the invoice, with *no distinction depending on the typology* (e.g. domestic, cross-currency, etc.).

Functional Specifications

The purpose of this CR is to enhance cross-currency scheme introduced in TIPS via CR TIPS-0064 ("Adaptation of TIPS for the settlement of cross-currency transactions (based on OCT Inst scheme)" with the implementation of the "Enhanced Linked Transaction" (LKT) settlement model. This new settlement model for cross-currency transactions allows the automatic orchestration of the entire end-to-end cycle of the cross-currency transaction without the "out-of-band" orchestration of the payment performed by the Entry/Exit-leg PSPs, representing a more sophisticated model for TIPS compared to the basic cross-currency features introduced within the CR TIPS-0064 (called *regular cross-currency settlement model* in the rest of this Detailed Assessment).

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The envisioned technical solution primarily copes with the scenario of TIPS hosted currencies while contemporarily allows the establishment of bilateral and/or multilateral links with external Clearing and settlement mechanisms (CSMs represented by Instant Payment Systems) connected to TIPS.

The model supports both incoming and outgoing cross-currency transaction legs from the perspective of a Payee and a Payer respectively, for which at least one of the interested PSPs at Debtor and Creditor sides own an account (DCA or ASTA) in TIPS. An end-to-end cross-currency transaction is indeed composed by two legs: two Instant Payments which take place respectively in the currencies of the source and of the destination. The execution of a cross-currency transaction involves in general the services of an Entry-Leg PSP for Incoming cross-currency transactions, acting on behalf of debtor for the destination leg and of an Exit-Leg PSP for Outgoing cross-currency transactions, acting on behalf of creditor for the originator leg of the cross-currency transaction. In addition, the Originator/Beneficiary starts/receives and confirms the source/destination leg. This means that the same actors, with the same roles and allocated exactly in the same message fields of pacs.008, pacs.002 and pacs.028 XCY of the regular cross-currency settlement model will be present also in the LKT settlement model.

Respect to the regular cross-currency flow, the LKT settlement model in TIPS should ensure that the two interlinked transactions are technically settled in an atomic way, i.e. following the concept of “all transactions are settled or none of them is settled”, by means of some internal communication steps between the components of the TIPS platform (e.g. the TIPS euro and non-euro component) each one delegated to the linked settlement of the corresponding mono-currency leg.

Message flow

Respect to the regular cross-currency settlement model flow for the Outbound direction, the LKT settlement model foresees that, after the Exit-Leg PSP confirms via a pacs.002 the acceptance of the cross-currency transaction (i.e. the same steps present also in the flow related to a domestic payment), the cross-currency pacs.008 is then forwarded by the Originator CSM to the Beneficiary CSM (Step 4). Before the forwarding, the following changes to the message should be applied by the Originator CSM:

- 1) removal of the Clearing System Code “TGT” from the field FIToFICstmrCdtTrf/GrpHdr/SttlmInf/ClrSys/Cd;
- 2) swap of the position of amounts in the message. Due to the fact that the Interbank Settlement Amount is considered as the amount to be transferred between the instructing agent and the instructed agent, then this amount represents the amount related to the cross-currency transaction leg under interest. This means that for the beneficiary leg of the cross-currency transaction, the Interbank Settlement Amount (FIToFICstmrCdtTrf/CdtTrfTxInf/IntrBkSttlmAmt) should contain the amount in the destination currency while the Instructed Amount (FIToFICstmrCdtTrf/CdtTrfTxInf/InstAmt) should contain the amount in the source currency. The field Total Interbank Settlement Amount (FIToFICstmrCdtTrf/GrpHdr/TtlIntrBkSttlmAmt) should be updated accordingly;
- 3) generation of a new Transaction ID for the beneficiary leg, in order to avoid rejection for duplicate check in the scenario where both sub-transactions are settled within the same technical platform. The E2E reconciliation can still be performed using the End To End Identification or the UETR;
- 4) Insert a default (per currency) Entry-Leg PSP BIC in case not present in the message. The reasons behind this activity will be explained in the section “Routing between CSMs and missing data at message level” of this Detailed Assessment.

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These changes should be in charge of the CSM which manages the originator leg of the transaction, to be executed automatically replacing the out-of-band actions performed by the Originator Exit-Leg PSP in the regular cross-currency settlement model.

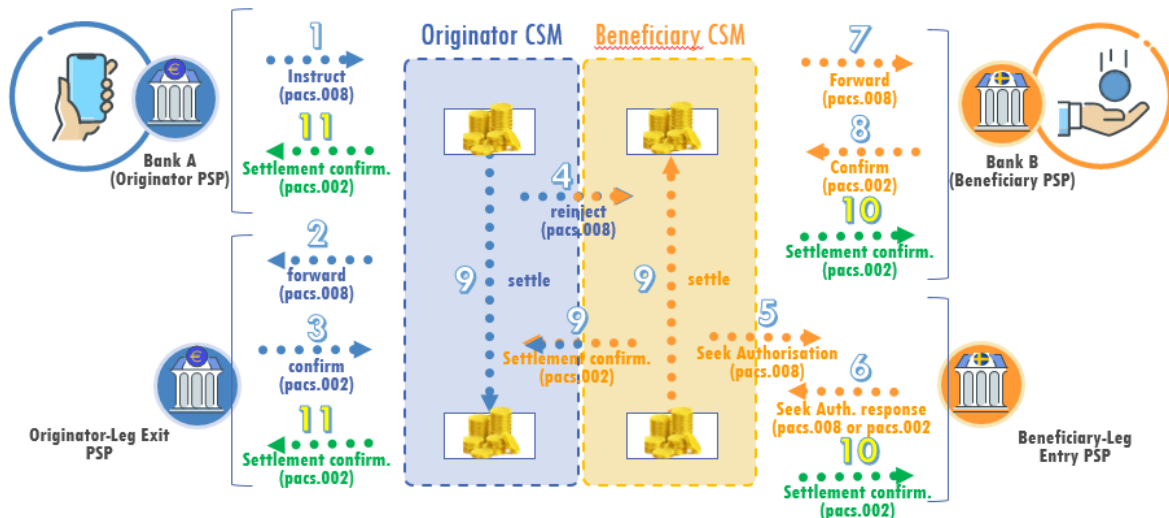
Once the incoming LKT cross-currency message is received, the Beneficiary CSM shall check the timeout condition, reserve the funds and send the pacs.008 to the Entry Leg PSP for a technical authorisation (Step5). In the positive case a pacs.008 will be used while in the negative cases a pacs.002 shall be used (Step6) to either accept or roll-back the transaction end-to-end. These steps (5 and 6) deviate from normal domestic payment flow processing and should be put in place by the Beneficiary CSM.

The pacs.008 is then forwarded to the Beneficiary PSP (Step7) which accept/reject the payment sending a pacs.002 as an answer (Step8).

Due to the confirmation of the Beneficiary PSP, the destination leg is settled on the Beneficiary CSM and a technical confirmation is sent to the Originator CSM (via pacs.002). This allows also the settlement of the originator leg of the cross currency transaction. All these steps are performed in an atomic way (all or nothing) and then they can be considered as a single step, i.e. the Step9.

After the settlement, confirmation messages are sent by the Beneficiary CSM to the Beneficiary PSP and Entry PSP (Step10) and by the Originator CSM to the Originator PSP and Exit PSP (Step11), concluding the whole process.

The following diagram shows all the steps of the LKT settlement model for two generic CSMs.

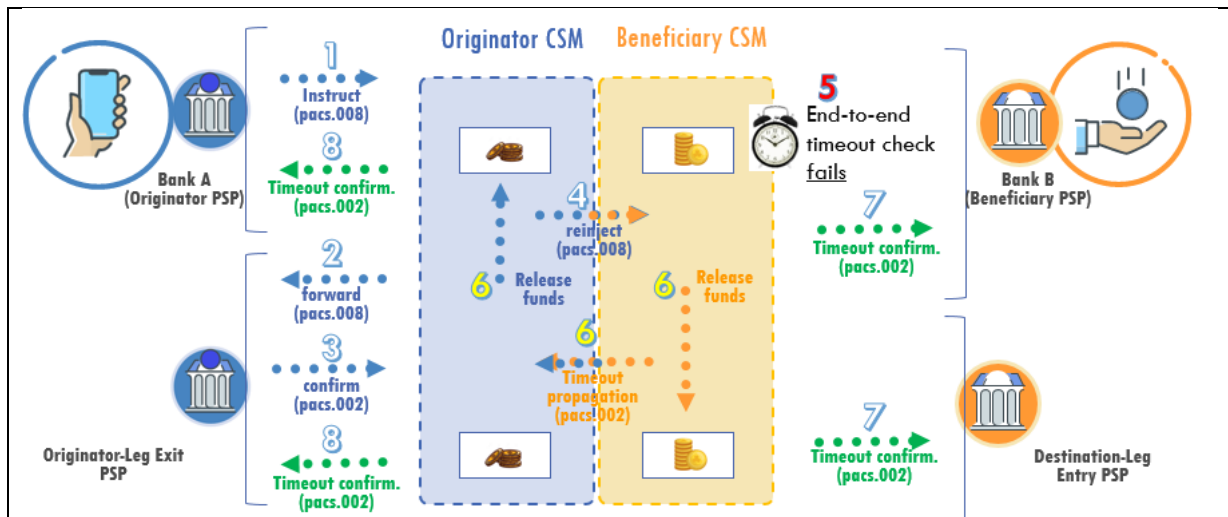


The steps 4 and 5 can be considered as a replacement for the bilateral “out-of-band” interaction between Exit and Entry PSPs, and therefore not regulated by the OCT Inst scheme.

For this reason, the *LKT settlement model compatible* with inter-CSM scenario is still fully compliant with the OCT Inst scheme.

The settlement (positive / negative) will take place within a unified timeout management condition aiming at an end-to-end consistency.

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The end-to-end management of the timeout should take into consideration the time needed for the technical interaction between the Originator and the Destination CSMs. Indeed, it is paused once the Originator CSM receive the confirmation from the Exit PSP (Step3) and restarted once the pacs.008 is received by the Beneficiary CSM in the destination leg (Step4).

In case of timeout triggered (Step5) the funds are released in an atomic way on both CSMs (Step6). Timeout confirmation is sent on both Beneficiary (Step7) and Originator (Step8) sides.

From a pure technical viewpoint, the proposed flow does not preclude the use of SIP settlement model in the non-euro currencies supporting it.

TIPS can play the role of the Originator CSM (in case of Outbound flow direction) and/or Beneficiary CSM, depending on the currencies involved in the cross-currency transaction and supported by TIPS for the settlement.

Routing between CSMs and missing data at message level

In order to allow TIPS to implement a direct communication with other CSMs for the settlement of the destination leg of a cross-currency transaction managing one currency not hosted by TIPS (and thus to settle in an atomic way the entire end-to-end cross currency transaction), TIPS should store in a technical table (i.e. a CSM Mapping Table), for each currency and BIC at Authorised Account user level, containing the information needed to route the payment to the desired CSM.

With the purpose of avoiding the increase of the cost of the CR and the impact on TIPS and Common Components, and considering also the estimation of the low turnover on that values, this configuration should be put in place via an Operational Procedure to be requested, by each CB, to the TIPS Service Desk. Using a dedicated Excel template to be defined at technical level, it would be possible to provide to development colleagues all the needed information in order to perform the loading of the configuration.

It is important to stress also the fact that, in a cross-currency transaction, the Originator could not be in the position to know what is the BIC of the Entry-Leg PSP on Beneficiary side. Considering also that the message fields in the pacs.008 XCY suitable to store the Entry-Leg PSP are optional in the TIPS UGs in MyStandards (following the EPC OCT Inst Implementation Guideline). Then the Originator PSP has the right not to populate these fields in the pacs.008 XCY of the Outbound flow. While for the regular cross-currency settlement model this is not an issue as Originator Exit-Leg PSP is in charge to provide this piece of information according with bilateral agreement with

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the Beneficiary Entry-Leg PSP for the interested currency, in the LKT settlement model the absence of information relating to the Beneficiary Entry-Leg PSP could cause the failure of the settlement of the destination leg and thus the failure of the entire end-to-end cross-currency transaction. Indeed:

- for the TIPS hosted currency, TIPS will not be able to infer what is the account to be debited in the destination currency;
- for the currency not managed, TIPS will not be able to look up the desired beneficiary CSM routing address in the abovementioned configuration for the destination currency.

For these reason, TIPS should store in a technical table, namely a CSM Mapping Table, for each currency, either a default Entry-Leg PSP BIC or an ad-hoc BIC to be used in case the corresponding information is missing in the pacs.008 XCY of the Outbound flow direction. This information will be used by TIPS to overcome the lack of information at message level and therefore to fill the correct message field in the pacs.008 (Instruction Agent FIToFICstmrCdtTrf/GrpHdr/instgAgt), always considering the Entry-Leg PSP BIC as direct CSM participant, before sending the pacs.008 message to the Beneficiary CSM.

In the case of an inbound flow coming from a Beneficiary CSM other than TIPS, a similar logic is required by the Beneficiary CSM in order to avoid the missing of the Entry-Leg PSP BIC and thus the rejection of the message by TIPS as a consequence of the technical validations already introduced by the CR TIPS-0064 (see changes described in the chapter 3 of the TIPS UDFS of cross-currency pacs.008).

As for the abovementioned technical table related to the BIC-CSM routing information, also the one related to the default Entry-Leg PSP for each currency should be put in place via an operational procedure to be requested, by each CB, to the TIPS Service Desk. Using a dedicated Excel technical template, it would be possible to provide to development colleagues all the needed information in order to perform the loading of the configuration.

On the other hand, for all the TIPS hosted currencies, a dedicated TIPS technical configuration should allow to disable the usage of the regular cross-currency settlement model for cross-currency transactions containing any combination of the hosted currencies. In other words:

- 1) if both currencies (CCY1/CCY2) present in the cross-currency transaction are hosted in TIPS, then:
 - a. if the pair is configured in the mapping table, the payment will follow the flow of the LKT cross-currency model;
 - b. otherwise, it will follow the flow of the regular cross-currency model (i.e. based on CR TIPS-0064).
- 2) Otherwise, if at least one of the currencies is hosted in TIPS, it will follow the flow of the regular cross-currency model (i.e. based on CR TIPS-0064);
- 3) If none of the currencies present in the cross-currency transaction is hosted in TIPS, the transaction shall be rejected.

Regardless of the settlement model used to identify the exchange rate applicable for the payment (i.e. with or without making use of the Central Exchange Hub), the selected exchange rate is included in the cross-currency payment message sent for settlement by the Originator PSP and it is checked and validated by the Exit/Entry Leg PSPs during the settlement process. For this reason, TIPS does not carry out any checks or validation of the exchange rate.

Queries and reports

Regarding the Investigation Request, the same logic applies as foreseen in the regular cross-currency settlement model: nothing new from this point of view.

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For the customer report camt.053 Statement of Account and queries (payment transaction status query, U2A via GUI and A2A via camt.005/006), the cross-currency transactions will be managed like any other euro and non-euro IP transactions, thus with the same set of reported fields, as for the regular cross-currency settlement model.

To ensure that authorised users can easily access information on cross-currency transactions (e.g., the mono-currency linked transactions, exchange rate, intermediaries involved, etc.) for operational activities and reconciliation, new TIPS GUI screens will need to be developed:

- *Advanced Cross-currency Payment transaction query - Search/List* screen
- *Advanced Cross-currency Payment transaction query – Display* screen

New screens are required in order to search for and to report additional values typical of cross-currency transactions without interfering with the existing advanced search criteria:

- Originator Exit-Leg PSP BIC;
- Beneficiary Entry-Leg PSP BIC;
- Amount in the destination currency;
- Exchange rate;
- Transaction ID of the other leg (only if managed by TIPS for the hosted currencies).

The usage of a new Advanced query, instead of the *Query Payment transaction*, as well as facilitating implementation and therefore reducing costs given the underlying technical architectures, allows to not impact the camt.006 A2A message, that is used for the *Query Payment transaction* both in A2A but also in U2A mode (the screen, indeed, communicates with the message router via A2A messages), thus limiting the impact and overall cost of the solution aimed at satisfying the purely U2A requirement.

Statistical indicators

As for *Assumption n.3*, cross-currency transactions should not be counted in the existing statistical indicators for euro and non-euro currencies. For this reason, no changes are envisaged compared to the provision of CR TIPS-0064 (i.e. the cross-currency transaction, regardless of the settlement method applied, should be marked as a cross-currency operation and therefore excluded from the already existing statistical indicators).

CRDM

The LKT settlement model does not introduce functional changes to the Common Reference Data Management (CRDM) respect to what is foreseen by the CR TIPS-0064. Indeed, in order to not increase the costs of the CR and to not lengthen the release plan, no additional flag/parameters will be included in the Authorised Account User CRDM functionality in order to allow customers to opt-in/out to the LKT model. The cross-currency flag introduced with the CR TIPS-0064 already allows the customers to declare their readiness to accept cross-currency transactions, while the *CSM Mapping Table*, introduced with this CR, will allow to disable the usage of the regular cross-currency settlement model for cross-currency transactions containing any combination of the TIPS hosted currencies, as described above in this Detailed Assessment.

BILL

Considering the absence of new service items in the CR text and in the TARGET Services Pricing Policy for TIPS dedicated to the cross-currency transactions in order to distinguish them respect to the domestic ones, the assumption made is that the current TIPS Pricing Policy for Settled and Unsettled Instant Payment transactions

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applies. Therefore, it is expected that each cross-currency transaction leg will be treated as a regular domestic instant payment from Billing point of view and a *cumulative overview* of all the transactions related to a service items will be reported in the invoice, with *no distinction depending on the typology* (e.g. domestic, cross-currency, etc.).

This means that each cross-currency leg managed through the LKT settlement model by TIPS shall be subject to the following service items:

- 3001 Settled Instant Payment transaction – Debtor
- 3005 Settled Instant Payment transaction – Creditor
- 3002 Unsettled Instant Payment transaction – Debtor
- 3006 Unsettled Instant Payment transaction – Creditor

using exactly the same selection criteria of the Euro and non-Euro ones, so the ownership of the debited and credited account (the party to be charged is the owner of the TIPS DCA/ACH Technical Account to be debited for the service items 3001 and the 3002, while the party to be charged is the owner of the TIPS DCA/ACH Technical Account to be credited for the service items 3002 and the 3006). Following this approach, no functional impact on BILL is expected.

In case a distinction should be made in the invoices on the basis of the transaction type (e.g. domestic vs cross currency) for the service items, quantity and amounts, a new CR should be raised specifying the new service items, following exactly the approach of the CR TIPS-0057-URD.

SLA

The transactions settled through the LKT model shall be excluded from the existing SLA calculation. Therefore, from a functional side no impact is envisioned on this component.

TIPS Training material

The training material should be updated in order to reflect the LKT settlement model.

Summary of application development impact:

Message Router:

The following new processing flows will be added to the Message Router component:

- Source CSM Role - Processing of incoming pacs.008 from Originator PSP
- Source CSM Role - Processing of incoming pacs.002 from Leg Exit PSP (aka transaction Beneficiary)
- Source CSM Role - Processing of incoming pacs.002 from Destination CSM
- Source CSM Role - Forward pacs.008 message to Leg Exit PSP (aka transaction Beneficiary)
- Source CSM Role - Modify and forward pacs.008 message to Destination CSM
- Source CSM Role - Forward final pacs.002 message to Leg Exit PSP (aka transaction Beneficiary) and Originator PSP
- Destination CSM Role - Processing of incoming pacs.008 (Seek Auth Response ok) from Leg Entry PSP
- Destination CSM Role - Processing of incoming pacs.002 (Seek Auth Response ko) from Leg Entry PSP
- Destination CSM Role - Processing of incoming pacs.008 from Originator CSM
- Destination CSM Role - Processing of incoming pacs.002 from Beneficiary PSP
- Destination CSM Role - Forward pacs.008 to Leg Entry PSP (aka Originator)
- Destination CSM Role - Forward pacs.008 to Beneficiary PSP

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- Destination CSM Role - Forward pacs.002 to Beneficiary PSP, Leg Entry PSP (aka Originator) and Source CSM
- Source CSM Role - Sweeper for reporting long running linked cross payments

The business logic provided by those new flows is the one described in the UDFS section.

To support those new flows the following elements have to be considered as well:

- 1) Linked cross-currency transactions will be marked, inside the database, by a new internal ACTION code, to distinguish them from the standard transactions.
- 2) A new intermediate state will be added (AWAITING_CSM_RESPONSE) to mark inside the database linked cross-currency transactions that have reserved in the Source CSM. Those transactions have been forwarded to the Destination CSM and are awaiting a reply from it.
- 3) A couple of new MQ queues will be added, to be used as inter-CSM communication channel. Connections to an "external" CSMs will be modelled in TIPS as new Network Adapter providers with their own communication queues.
At least initially, TIPS will not be connected to any external CSM, but it will act both as a Source CSM and as a Destination CSM for all the currency hosted by it (i.e. EUR, SEK, DKK, ...).

TIPS GUI:

A new GUI screen for "Advanced Cross-currency Payment transaction query" will be added.

The new screen will allow users to get a list of cross-currency payments matching the filtering criteria.

In order to allow a given user to access both legs of a linked cross-currency transaction, when feeding transaction data into CockroachDB for both legs of a linked transaction additional reconciliation data have to be stored, containing the "business debtor" BIC and the "business creditor" BIC of the transaction.

More specifically:

- 1) For incoming transaction legs (i.e. the ones running on the Destination CSM side) the "Originator PSP BIC" (from the outgoing leg) has to be stored as the "business debtor BIC" (This is actually done by the TIPS backend on Aerospike when handling the incoming transaction)
- 2) For outgoing transaction legs (i.e. the ones running on the Source CSM side) the "Beneficiary PSP BIC" (from the incoming leg) has to be stored as the "business creditor" BIC.

Both fields can be extracted from the pacs.008 messages.

When searching for "originator BIC" the GUI must search transaction legs having that BIC specified either in the PAYMENT."ORIGINATOR BIC" or in the PAYMENT."BUSINESS DEBTOR BIC" field.

When searching for "beneficiary BIC" the GUI must search transaction legs having that BIC specified either in the PAYMENT."BENEFICIARY BIC" or in the PAYMENT."BUSINESS CREDITOR BIC" field.

In this way we guarantee that a GUI operator can see both legs of a linked transaction regardless of the leg where "its BIC" is actually used.

Those additional data have then to be leveraged also to show the "Entry-Leg PSP" BIC and "Exit-Leg PSP" BIC fields in the Transaction Details Screen.

More specifically:

- 1) For incoming transaction legs the "Originator BIC" field must report the "Business debtor" BIC and the "Entry-Leg PSP" BIC field must report the "Originator PSP" BIC of the transaction.

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2) For outgoing transaction legs the "Beneficiary PSP BIC" field must report the "Business Creditor" BIC and the "Exit-Leg PSP BIC" field must report the "Beneficiary PSP" BIC of the transaction.

The list of allowed filtering criteria is the one pointed out in the UDFS section.

When the results are displayed the user can export the returned data in CSV format.

When the results are displayed, the user can select one of the entries in the list to trigger a second screen that shows detailed data on the single transaction.

When the results are displayed the user can sort them and manipulate the rows by excluding (a subset of) them from the returned data.

Search criteria can be restored to their default values through a "Reset" button.

The new screens will make use of the new fields added to the CockroachDB PAYMENT table.

TIPS Reference Data:

A new CRDM entity (VIPSCSM) will be acquired by the Message Router, representing the CSM mapping table information.

The CRDM Importer module will be extended so to include the new table to the ones to acquire. The new entity will be kept in memory by the Message Router as already done with the other CRDM related data.

Additional Services and Databases:

The Aerospike PAYMENT table has to be amended by adding a new varchar column containing a field to be used for reconciliation purposes. The elements to be encoded in such field are the following:

- PAYMENT REFERENCE
- ORIGINATOR PSP BIC
- LEG ENTRY PSP BIC

A secondary index on such new column has to be added as well.

That new field will be leveraged in Step #8 (i.e. pacs.002 from Beneficiary PSP) to retrieve the incoming leg of the transaction.

The Oracle PAYMENT table has to be amended by adding a new varchar column reflecting the field added to the Aerospike table.

The TIPS CockroachDB PAYMENT table has to be amended by adding the following new fields needed by the Advanced Search screens for cross-currency transactions:

- Business Debtor BIC
- Business Creditor BIC
- Destination Amount Currency
- Destination Amount
- Exit-Leg PSP BIC
- Entry-Leg PSP BIC
- Exchange Rate

The set of indexes defined on the PAYMENT table, needed to speed-up the queries triggered by the GUI, have to be amended as well accordingly to take into account the new fields.

The following tasks, running inside the Additional Services module, have to be updated:

- Update the aggregation process for statistical indicators to filter out Linked XCY transactions (*StatisticsTaskWorkerComponent task*) from the AGR_TAGRDAGR_DAILY_AGGREGATE table

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- Update the continuous feeding process to CockroachDB from Aerospike (*InfoDbAlignerWorkerComponent* task) by extracting from the message the fields needed by the new screens (Destination Amount Currency, Destination Amount, Exit-Leg PSP BIC, Entry-Leg PSP BIC, Exchange Rate, Business Debtor BIC, Business Creditor BIC)
- Update the aggregation process from the Oracle PAYMENT table to the Oracle FACT table to filter out Linked XCY transactions (*DWHWorkerComponent* task)
- Update the feeding process from Aerospike to Oracle (PAYMENT table) to feed the new added field (*CheckTaskWorkerComponent* task)

Testing tool and Contingency Message Application:

The following two new flows will be enabled inside the Testing Tool and CMA:

- OCT Inst payment -- "Beneficiary CSM" response flow (pacs.002) - input to TIPS as Source CSM
- OCT Inst payment -- "Originator CSM" request flow (pacs.008) - input to TIPS as Destination CSM

The main difference between those two new flows and the ones already available that allow to send XML messages to TIPS via TestTool/CMA is represented by the destination queues that have to be used to deliver the messages. Based on the role TIPS is impersonating (Source or Destination CSM), a different specific set of queues has to be used. TestTool/CMA has to allow to address TIPS either as a Source CSM or as a Destination CSM.

Impacts on CoCos:

- BILL BE -> NO IMPACTS
- BILL GUI -> NO IMPACTS
- BILL A2A -> NO IMPACTS
- BILL/STSI

Procedures to be modified:

- PIPSG511_TIPSGBIL

The above procedure has to be updated by modifying all the embedded queries that access the PAYMENT view. A new condition against the ACTION field to exclude linked cross-currency payments has to be added.

- SLA REPORTING

Procedures to be modified:

- PIPSK901_TIPSKPIV_S01_RQ01_2_3
- PIPSK901_TIPSKPIV_S04_RQ06
- PIPSK901_TIPSKPIV_S04_RQ07
- PIPSK901_TIPSKPIV_S07_RQ14
- PIPSK901_TIPSKPIV_S08_RQ15

All the above procedures have to be updated by modifying all the embedded queries that access the PAYMENT view. A new condition against the ACTION field to exclude linked cross-currency payments has to be added.

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- CRDM U2A -> NO IMPACTS
- CRDM A2A -> NO IMPACTS
- CRDM BE
 - CRDM Data Model → New IST.TIPSCSM_CUR_MAPPING entity
 - Data Propagation to TIPS → New Data Model view VIPSCSM
 - Data Propagation to TIPS → Export view VIPSCSM

Data Propagation to TIPS → Update the propagation process to include the VIPSCSM view to the set of views to be sent to TIPS.

Summary of infrastructure impact:

The implementation of the functionality involves the creation/configuration of dedicated queues in the interface between TIPS and NSPs, and therefore the automation playbooks, log tracking systems and monitoring system need to be updated. Non-regression testing and verification of the new configurations are therefore required.

The new business use case means an increase in possible incidents and consequently the operational effort to manage them by TT and TA personnel.

Summary of operational impact:

With the implementation of the CR there will be new requests for support to the Operational Team, both for test and production. New actors, that might join the platform, are usually more demanding in terms of support.

Summary of security impact:

See Change Request Analysis.