EUROPEAN CENTRAL BANK

EUROSYSTEM

**ECB**
DG-MIP
T2/T2S Consolidation Project Team

# T2/T2S Consolidation

## *Settlement Services*

Task Force on Future RTGS Services

1st meeting on 07 December 2016

# Overview

# Objectives

- T2 and T2S services will remain separate services
- T2S services are not the target for future RTGS services

Nevertheless, the context is changing:

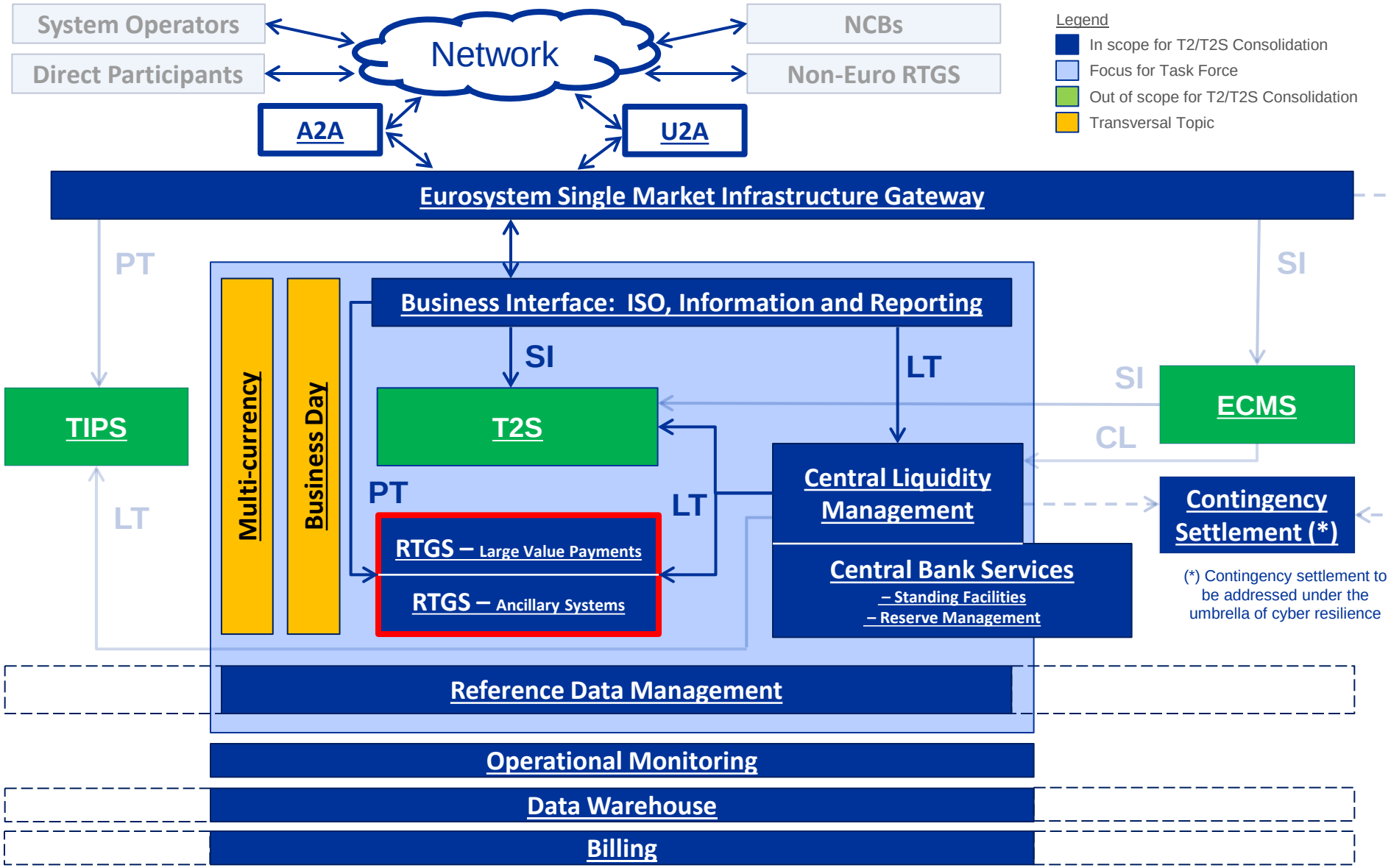
- T2S is now live
- TIPS might attract part of T2 traffic
- T2 was launched 10 years ago with building blocks from RTGS+ conceived in the 90's
- CLM should enhance liquidity management

# Objectives

- For all of these reasons, we should seize the opportunity of the T2/T2S consolidation to assess each and every service, to question complexity and to look for any new idea for a lean RTGS, which settles payments without any delay

- Therefore, the current presentation shall compare T2, T2S and TIPS settlement services, in order to ease the discussion on what the future RTGS settlement services might look like

# Objectives and scope




PT – Payment Transaction; LT – Liquidity Transfer; SI – Settlement Instruction; CL – Credit Lines

# Overview

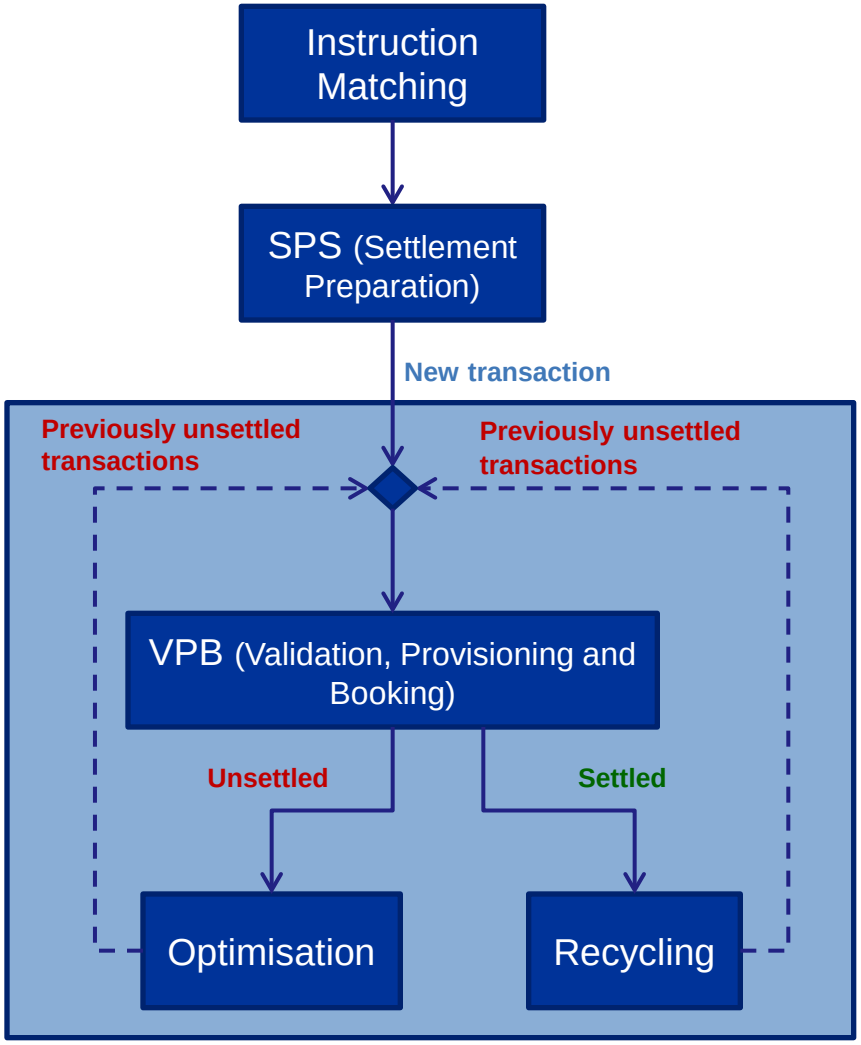
# Real time settlement

- In order to achieve the functional convergence between T2 and T2S, we need to compare the settlement services of both systems

- Since T2 is already known, we will first take a look at the services provided for real-time settlement by T2S

- We also compare with TIPS considering that this project runs in parallel and that synergies could be found

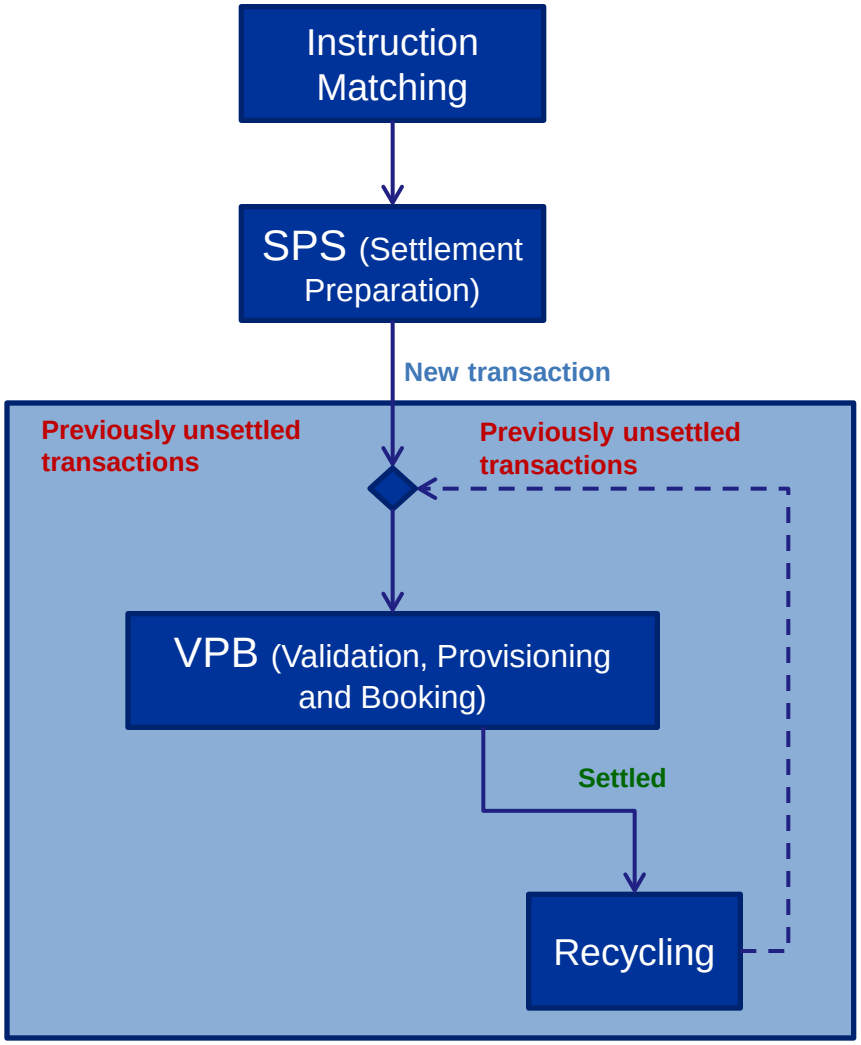
# Real time settlement and optimisation principles




## ➢ PRINCIPLES

- The settlement engine attempts to settle transactions
- SLA commitment is to minimise the delay of first settlement attempt
- Recycling and optimisation procedures run in parallel with settlement to maximise volume of settled transactions and to minimise the number of unsettled transactions in combining them with previously unsettled
- Continuously runs during the Real-time

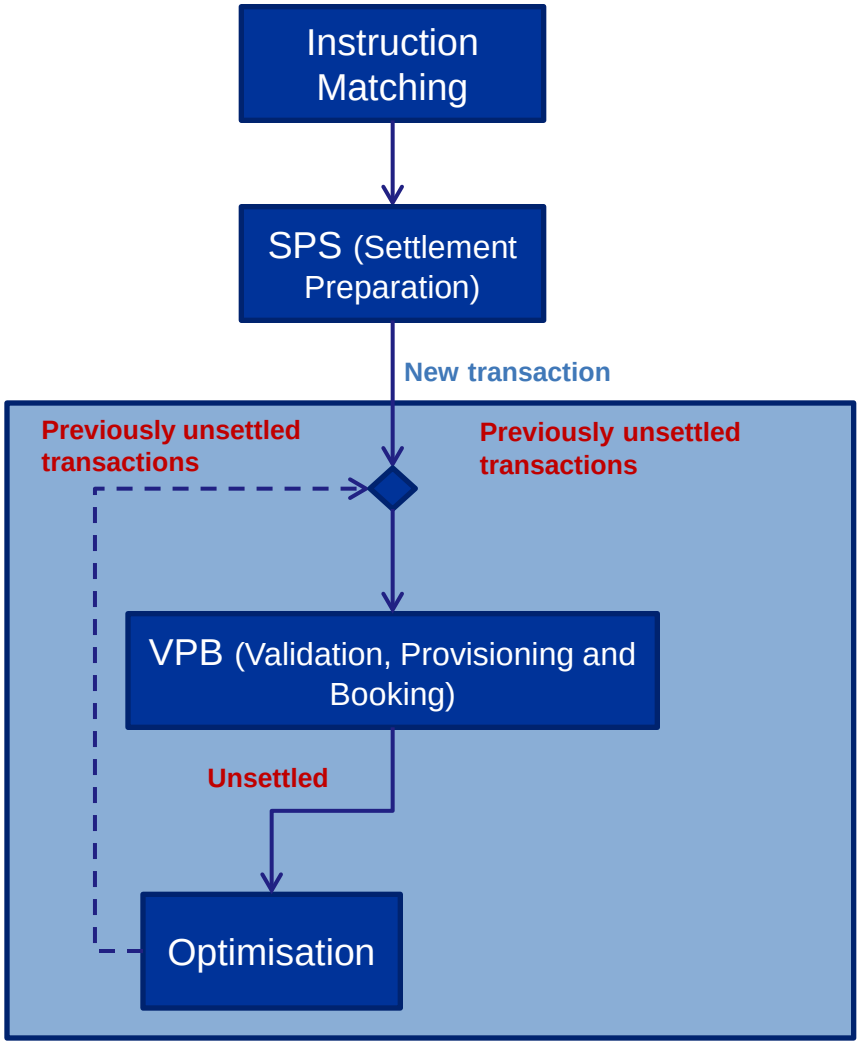
# Real time settlement and optimisation dynamic features




## ➢ DYNAMIC RECYCLING

- <u>Upon settlement event:</u>
  - It identifies new resources on the basis of (1) the securities provisioning net flows, (2) the cash provisioning net flows and (3) the credit memorandum balance (CMB) provisioning net flows and then determines the available quantities and/or amounts
  - It selects all pending settlement transactions consuming those resources and recycles them for a new settlement attempt
- <u>Upon an increase of a limit (NCB or Client):</u>
  - It identifies new resources based on the CMB related to the limit which has been increased and then determines the availability
  - It selects and recycles any pending settlement transactions consuming the resources which may be brought by the new limit headroom

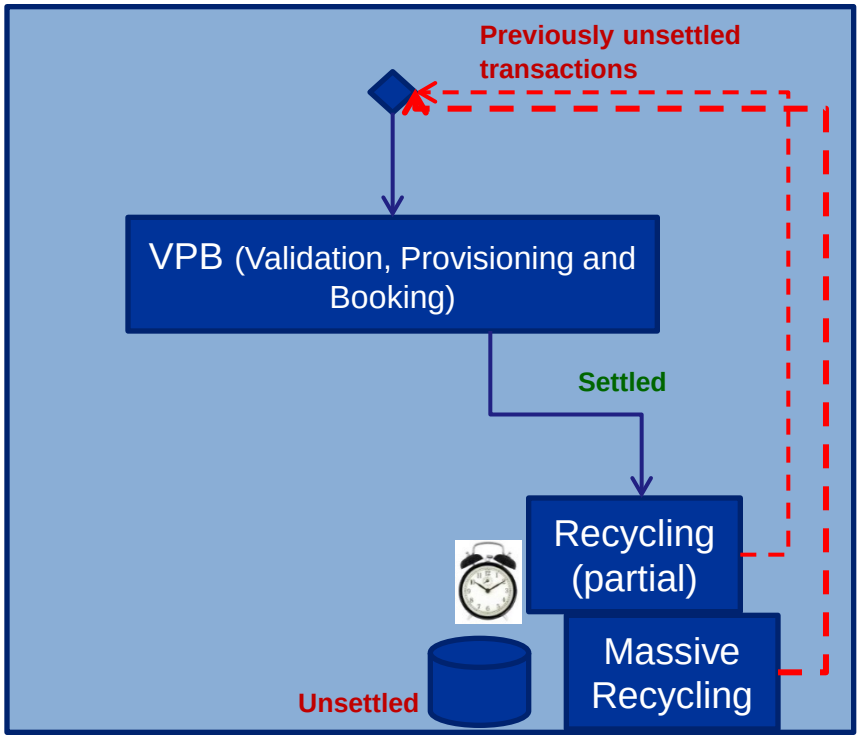
# Real time settlement and optimisation dynamic features




## ➢ DYNAMIC OPTIMISATION

- Triggered by a settlement failure
- Combines this new fail with previous ones in order to build a new settlable collection
- The function launches a succession of optimisation algorithm series on the collection received (Build-up, simple circle, back to back, Generic)
- During the daytime, the optimisation relies on “build up” based algorithms. Such algorithms identify settlable collections by looking for chains of transactions such as simple circles, back-to-back or more complex chains

# Real time settlement and optimisation time-triggered features



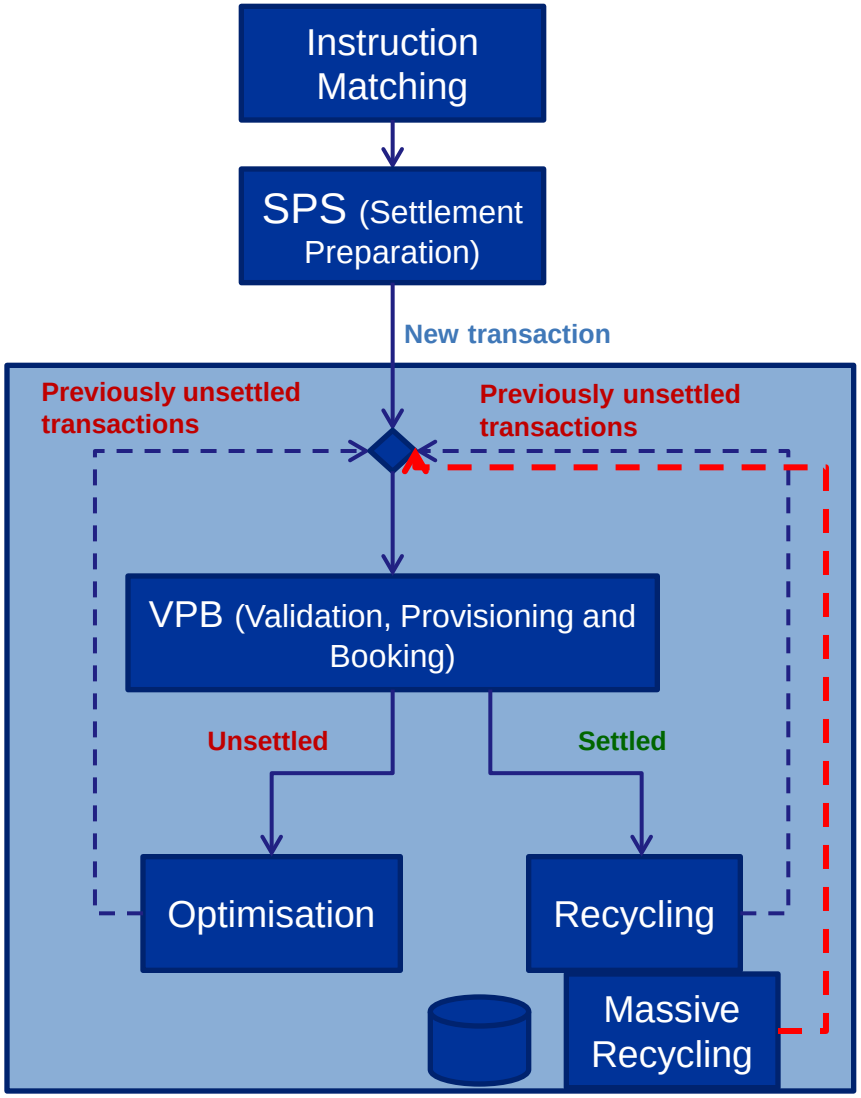

## ➢ MASSIVE RECYCLING

- Triggered by scheduler
- All pending settlement transactions are recycled at once, provided they are eligible for settlement
- Timing: the massive recycling is performed at predefined time 06:55, 08:55, 09:55, 10:55, 11:55, 13:55, 14:55, 15:55

## ➢ PARTIAL SETTLEMENT ATTEMPT

- Triggered by event
- At each start of a partial settlement window, all pending settlement transactions allowed to be partially settled and that have never been sent for a settlement attempt during a partial settlement windows are recycled
- Timing: partial settlement within four windows within RTS at 10:00, 12:00, 13:00, 15:45

# Real time settlement and optimisation combined features



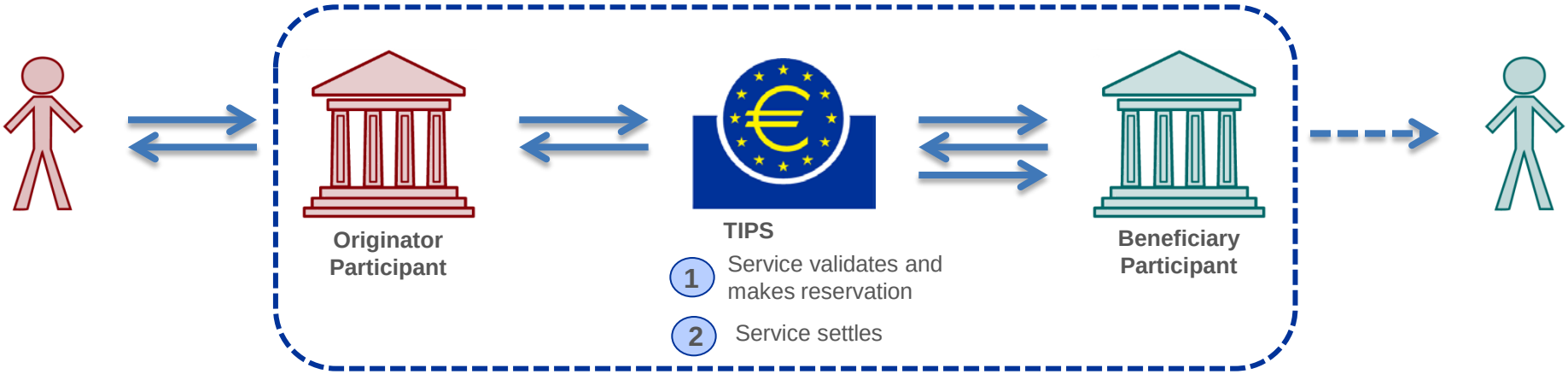

➢ OUT OF TRIGGERED TIME

- The real-time settlement attempt triggers dynamic optimisation or dynamic recycling

➢ AT TRIGGERED TIME

- The real-time settlement attempt triggers dynamic optimisation or dynamic recycling
- The time triggered massive recycling or the time triggered recycling of pending instructions able to settle partially

# TIPS is a business service for the instant settlement of payments in CeBM, with 24x7 availability and pan-European reach.




TIPS settles a payment with a 2-step approach

1. On reception of the payment from the originator participant, TIPS validates and reserves the payment (conditional settlement)
2. On reception of the positive confirmation from the beneficiary participant, TIPS settles the payment

# Overview

# Mapping T2, T2S and TIPS services

| T2 features | T2S features | TIPS features |
|---|---|---|
| Priorities (HU/U/N)<br>in order to prevent the settlement of a payment with a lower priority when there is a payment with a higher priority | Priorities (R/T/N/L)<br>in order to favour the optimisation of higher priority instructions | - |
| Offsetting<br>Within the entry disposition | Technical netting<br>Within the optimisation algorithm | - |
| Entry disposition<br>For each incoming payment, with offsetting and priority management before the settlement attempt | First real-time attempt with high parallelism | Instant real-time attempt |

# Mapping T2, T2S and TIPS services

| T2 features | T2S features | TIPS features |
|---|---|---|
| Queue management<br>FIFO for HU/U, FIFO-BYPASS for N | Recycling & Optimisation<br>First Available First Out favouring priority/age | - |
| Interventions on queued transactions<br>Change priority for U/N<br>Re-ordering<br>Change execution time<br>Revocation | Interventions on unsettled transactions<br>Update priority<br>N/A<br>*CR under assessment*<br>Cancel<br>Hold/Release | Failed transactions are rejected |

# Mapping T2, T2S and TIPS services

| T2 features | T2S features | TIPS features |
|---|---|---|
| Optimisation algorithm running every 3 minutes | Optimisation algorithm event-triggered running in parallel to booking | - |
| Reservation<br>Cash segregated according to priority for highly urgent and urgent payments | Reservation<br>Cash segregated for specific instructions, including pre-emption | - |
| | Links<br>With<br>After/Before | - |
| Limits<br>Bilateral/multilateral limits set by a debtor against creditor | Credit memorandum balance<br>Limit for client-collateralisation<br>ACO, external guarantee and unsecured limits | Credit memorandum balance |

# Overview

# Opportunities

- T2S settlement engine uses high parallelism and event-triggered optimisation and recycling that allows to
  - Favour a higher settlement rate in volume
  - Reduce the need for liquidity
- T2 settlement engine ensures the order according to the priority

How could both strengths be combined? In which order should we organise settlement attempt, technical netting, optimisation and priority management?

# Priority management

There are several ways to favour high priority payments:

- Be able to dedicate liquidity according to the various levels of priority:
  - Reservation can be done on an individual basis (through the use of a reservation number), and can be or cannot be complemented with available liquidity
  - Reservation can be done just according to the level of priority
- Automatically put on hold normal and/or urgent payments
- Blocking settlement of lower priority levels

In which direction should we go?

# Limit management

- Is there a need for T2 ‘bilateral limit’ functionality that enables to determine the payment amount (priority = normal) a participant is willing to pay to another participant without having received payments first?
- What about T2 ‘multilateral limit’ functionality taking into account that you can segregate liquidity for specific settlement activity?

# Links management

Is there any need for links management (With, After, Before)?
Not only for Ancillary Systems…

# Partial settlement

Is there any need for partial settlement? For specific transactions? According to which rules?

# Night time settlement

Is there any need for night time specific features?

# 1 Annex – TARGET2 Entry disposition

# TARGET2 entry disposition