Functional Documentation - Profit and Loss Integrated Costs

1.0 Overview

Profit and Loss
Integrated Costs Menu

Business Context and Application Overview

The Profit & Loss Integrated Costs or Integrated Margins application it's part of the Finance domain using data from SAP systems and non-ERP system information based on data already built for the Profit and Loss report using COPA data (Controlling - Profitability Analysis) a component from SAP CO module.

The goal of the Integrated Costs is to have the full profitability of a product at customer level.

- In standard reports the margin is given by legal entity,
- With the integrated margin report, the aim is to give the margin at Group or GBU level and get rid of legal entities constraints.

Application User Profile

For this Application the access is the same as the Profit and Loss so it's based on the BW menu "PL - Profit and Loss" and it's done via Service one.

Fill the form
https://solvay-dwp.onbmc.com/dwp/app/#/itemprofile/622

In SAP system select the "WBP - BW Business Warehouse"

In WBP - BW Business Warehouse : Select the Business Role select the "PL - Profit and Loss"

Target Users:

GBU controllers, Site controllers and Marketing and Sales.

VERSION	DATE	MODIFIED BY	DESCRIPTION
0.01	01.08.2023	Inês Vilares	Initial draft

Application Type

Data Product Type	☐ Dashboard ☑ Report ☐ Advanced analytics ☐ AI ☐ Others <specify which one>
Technologies	☑ BW ☐ Tableau ☐ Qliksense ☐ Talend ☐ Dataiku ☐ Others <specify which one>
Data Sources *Note: list of all applications and various environment*	☑ SAP PF1 (Production environment) ☑ SAP WP1 ☑ SAP PI1 ☑ SAP CPX/WPX ☐ BW (versions) ☐ iCare CRM ☐ CORE CRM ☑ BFC (ECO/SCO) ☐ Others <specify the name of the source>

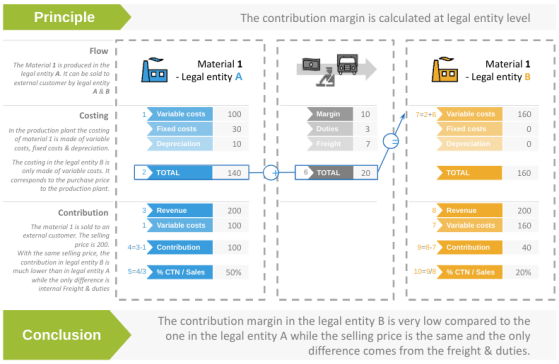
2.0 Business Process

Business Process

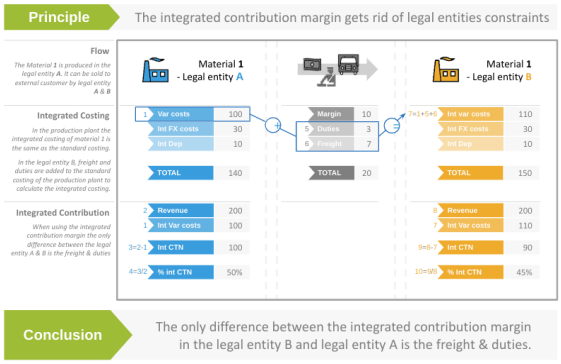
From the business process please see below the logic comparing the contribuiton margin with the integrated margin process for selling a product to a final customer where in this scenario, the product undergoes multiple stages involving several companies from Solvay, in its production. Throughout this process, there are internal margins between the companies which making it challenging to determine the real value of the external margin when the product is sold to the final customer, as these internal margins are already included into the overall flow.

To obtain a clearer view of the external margins, we have this process to not take in consideration the internal margins and only have the influence of the freight and duties. By doing so, we can present more transparent and easily comprehensible values of the contribution margins for each company involved.

Contribution Margin Concept:



Integrated Margin Concept:



3.0 Application Feature Overview

Reports	Definition	Prompts	BW Workbook Query	Query Technical Name
P&L Integrated Margin - Freight & Duties Costs Tables	This workbook is to be used to display freight costs used in the integrated margin calculation. For this we have 2 sheets: • Default Freight Cost - Table maintained manually an estimation of freight cost between 2 plants => these amount are managed manually by controller and loaded by flat file. • Freight (TIERS) & Duties - Calculation done by BW based on TIERS (only when activated) the average (6 months) freight cost between 2 plants and for material per month and the estimation of duties between 2 plants and for material per month. In the Process Detail section we can see in the more detail the information and how to use it in the reports.	Optional: • Departure country; • Destination country; • Company of Destination Plant; • Company of Departure Plant; • 1 - BFC GBU; • 2 - BFC Group of activities; • Tiers Freight table - Month; • Deaulft Table - Rule Valid To.	BW_WBK_PL_0006	Tiers info: BW_QRY_MVCOPA04_0001 Manual Table info: RCS_QRY_ODS_PCP5_001

P&L Integrated Margin - IM Cost Unit Query	This workbook is to be used to display the estimation of the IM cost unit after the calculation of Z_M_INT program (a monthly program executed to calculated the integrated margin).	Mandatory: • Calendar year /month; • Exchange rate type. Optional: • BFC GBU; • BFC Group of Activities; • PRS Company Code; • Plant; • Target Currency; • Qty conv. unit; • Auth scope on Company Code.	BW_WBK_PL_0013	BW_QRY_MVCOPA06_0001
P&L Integrated Margin - Contribution Margin Query	Old workbook. We are evaluating if we can remove this from the scope.	Mandatory: • Conso. View: • Calendar year /month; Optional: • Auth scope on Company Code; • BFC GBU; • BFC Group of Activities; • PRS Comp. Mgt Zone; • PRS Company Code; • Company Code.	BW_WBK_PL_0005	BW_QRY_MVCOPA01_0005

P&L Integrated Margin - CM/GM Query	This report represent the values for the P&L financial statement until the Gross Margin KPI. Can be analyzed by one or several companies, GBU's, among other fields to see the KPI's information. It's possible to select one period or more. The conversion will be based on the last period in the selected prompts. In this statement we have in consideration the integrated margin values which are represented in the measures using the "C" in the Heading.	Mandatory: • Conso. View: • Calendar year /month; • Exchange rate type. Optional: • Auth scope on Company Code; • BFC GBU; • BFC Group of Activities; • PRS Comp. Mgt Zone; • PRS Company Code; • Company Code; • Plant; • Target Currency; • Qty. conv. unit.	BW_WBK_PL_0004	BW_QRY_MVCOPA01_0004
P&L Integrated Margin - Monthly CM/GM Query	This report represent the same data from "P&L Integrated Margin - CM/GM Query" but this shows the data for all months of the year selected in the prompts.	Mandatory: • Conso. View: • Calendar year /month; • Exchange rate type. Optional: • Auth scope on Company Code; • BFC GBU; • BFC Group of Activities; • PRS Comp. Mgt Zone; • PRS Company Code; • Company Code; • Plant; • Target Currency; • Currency Conversion Year; • Qty. conv. unit.	BW_WBK_PL_0007	BW_QRY_MVCOPA01_0037

P&L Integrated Margin - Monthly CM/GM Query (Month Selected)	This report represent the same data from "P&L Integrated Margin - Monthly CM/GM Query" but this only shows the data only for the month selected in the prompts.	Mandatory: • Conso. View: • Calendar year /month; • Exchange rate type. Optional: • Auth scope on Company Code; • BFC GBU; • BFC Group of Activities; • PRS Comp. Mgt Zone; • PRS Company Code; • Company Code; • Target Currency; • Currency Conversion Year; • Qty. conv. unit.	BW_WBK_PL_0010	BW_QRY_MVCOPA01_0009

4.0 Functional Specification

4.1 General Data/Calculations

For these reports, it's important to understand some general concepts which are transversal to all the reports which allows the users to work with the reports in the same way as the SAP system and BFC tool.

Consolidation View	The query takes the integration rate of the company and the partner from the company code master data. • If Conso method = 50 (Equity) , 20 (Not Conso.) or 60 (Not Equity), Rate = 0%; • If Conso method = 10 (Fully Conso), Rate = 100%; • If Conso method = 30 (Prop), Rate = Integration percentage The formula to retrieve the consolidated sales is in line with BFC: **Consolidated Sales** = Amount * Max [0, Integration Rate of CY (tingsoc) - Integration Rate of Partner (tingpart)] **Internal Sales** = Amount * Min [Integration Rate of CY (tingsoc), Integration Rate of Partner (tingpart)] The integration rate of the partner is managed on the TRADING PARTNER. For specific cases some external customer must be considered as internal for certain company code (joint venture for example) . For cases the Partner integration rate is taken at the crossing Sold To/Company code. In this way, the user has **4 options**: • Option 0 - Legal view: No intercompany eliminations are taking into account; • Option 1 - Consolidated view (for Solvay group): Takes into account the intercompany eliminations (using company code master data); • Option 2 - same logic as option 1 but the data is the consolidated view for Eco Companies • Option 3 - same logic as option 1 but the data is the consolidated view for Sco Companies
GBU Assignment	The concept for GBU doesn't exist in SAP but it's a requirement to have in BW since in BFC we have this definition. This GBU assignment is different for WP1 and PF1 and it will be explain in detail in the Process Definition section.

Exchange Rate	The exchange rates are explained in the functional documentation "Profit and Loss Report". See below some links usefull for the exchange rates: • Values can be checked In the finance team site. Under Exchange Rate. "Moyen / Average": https://aodocs.altirnao.com/?locale=en_US&aodocs-domain=solvay.com#Menu_listDoc/LibraryId_QLsALxhAuXNKLSz74H/ViewId_QLsANWb3lkRIe5nnjN/Filter_%257B%2522QLsALAy014DXTQRuXH%2522:%25220B0Km5zvG_rngN2p2YTBvSjEtSjQ%2522%257D • Or in the Solia CICC Online, Financial And Credit Tools: http://solia.solvay.com/irj/portal/CICCOnline_FinancialAndCreditTools • Definition for each Exchange Rate: https://wiki.solvay.com/display/ISAPPSUP/Exchange+rates
PRS Concept	The PRS is one dedicated SAP environment (based on PF1) whose aim is to unify some structural information as Master Data information for customers, vendors, company codes, etc. For this, depending on each master data we are referring to, we have specific tables created to maintain the data and have the configuration from source systems to BFC definition and alignment.
Value Fields concept	CO-PA is a hypercube (like a pivot table in excel) where figures are posted to value fields. Value fields are mapped to BFC accounts in the interface tables. This interface between SAP and BFC has several tables which allows to have the data aligned.
Annual Closing	Each end of year, the main BW master data (about the structure) which are not time-dependent need to be frozen = no more loading from ECC or flat file on these main master data. To avoid the impact of the new evolution scheduled for next year on the yearly closing a freeze is applied to block the loading to allow the yearly closing period with the same scope done for the year and not with inputs for next year, for some master data, the loading are freeze in the middle of December until end of January. So when there is a new organization, historical data is restated in BW (not in SAP and BFC).

4.2 Process Detail

4.2.1. Report/Process Definition

Domain	Finance
Application	BW reports under P&L folder
Provider	MVCOPA01, MVCOPA04 and MVCOPA06

The P&L Integrated Margin application is linked with P&L data and providers BW and BO reports with details of the calculation of the integrated costs.

In this section we will approach:

- SAP BW High Level View
- Integrated Margin for PF1
- Integrated Margin for WP1
- Program Z_M_INT
  - CPX Cases
  - LER Cases
  - Cross-System Cases
  - Aero Fields: Solstice Companies (Composite Materials)
- UPIS- Unrealized Profit in Inventories
- ZBW_INT_MARGIN Transaction

SAP BW High Level View

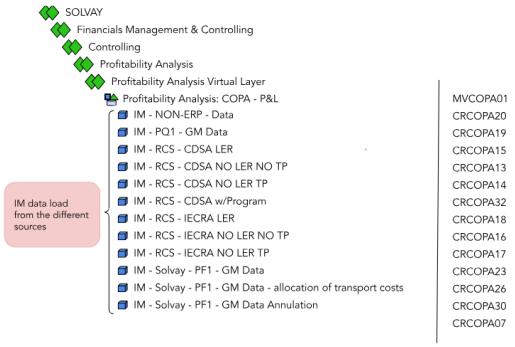
To see the data from the source systems see below how the information is organized in the BW perspective:

Part of MVCOPA01 provider:

Used for WP1 and PF1 Logic.

MVCOPA04 & MVCOPA06 providers:

Only used for WP1 Logic



PQ1 - old data not used anymore.

Integrated Margin for PF1

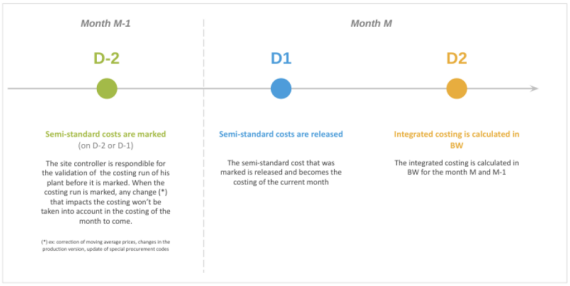
The logic for PF1 is using a specific program ZZCONACT where it's manage in PF1 system and we only load the data into BW.

Integrated Margin for WP1

2 Steps for the Integrated Margins in WP1

In order to include the necessary information in the P&L statement, please refer to the following two steps to acquire this information:

1º Step: Costing Run	In WP1, the costing run is marked on D-2 or D-1 and released on D1. It is used as a reference for the calculation of the integrated costing.



"Costing run" refers to a process in which costs are calculated and assigned to various objects within a business or production process. Typically involves the calculation of costs associated with materials, products, or services.

During a costing run, the system calculates costs based on various factors such as direct materials, labor, overhead, and other expenses.

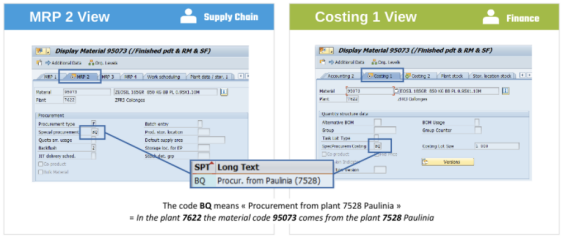
Special Procurement Codes (SPK)

They are used to determine from which plant a material comes from. It can be maintained by the Supply Chain or the finance team. The SPK should reflect the reality of the flow and every time a flow is created or changed, the SPK should be updated.

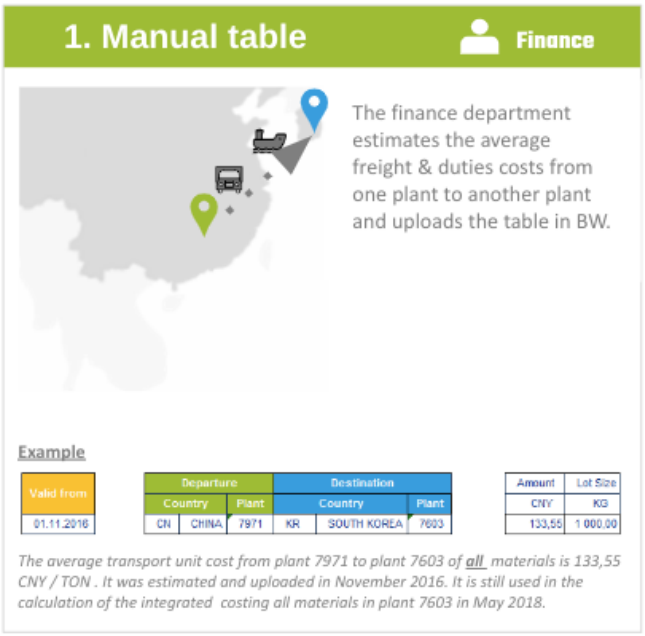
The SPK is maintained in WP1 in the Material Master Data (MM03) and it can be maintained in the view MRP 2 or in the view Costing 1.

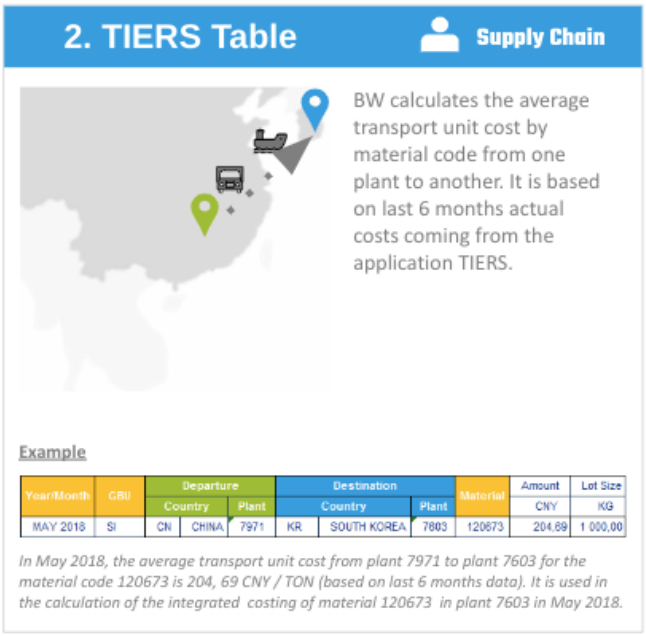
Note: This step it's used in the costing run to execute the program.

When there is a code in each view, the one used in the integrated costing calculation is the one in the Costing 1 view.



2º Step: Freight and Duties	The average freight & duties can be determined: With a table manually maintained and uploaded in BW and using a calculation done in BW with data coming from the application TIERS (Transport Integrated and Enhanced Reporting Solution).





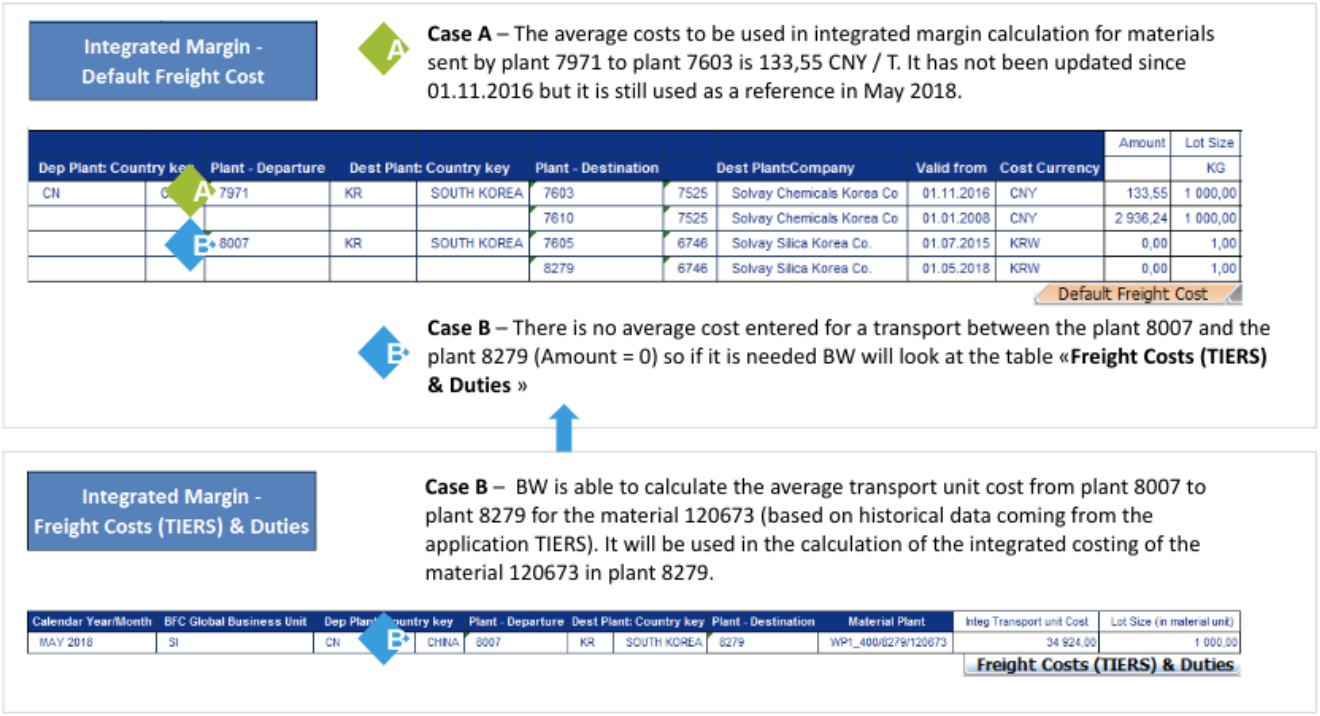
For this part, we have a workbook **BW_WBK_PL_0006 P&L Integrated Margin – Freight & Duties Costs Tab** where we have two tabs:

- Default Freight Cost - Is an estimation of freight cost between 2 plants => these amount are managed manually by controller and loaded by flat file via ZBW_LOAD_ODS_PCP5;
- Freight (TIERS) & Duties - Calculation done by BW based on TIERS (only when activated). The calculation is based on the average of the last 6 months actual costs coming from the application TIERS. (Supply Chain team) andthe estimation of duties between 2 plants and for material per month => coming from P&L from moth M-1.

See the example below to understand how this works:

Example

Default Freight Cost vs Freight Costs (TIERS) & Duties – Case: Freight costs from China to South Korea – May 2018



For this process, we can outline the following information regarding this topic:

	TIERS Table	Manual table
How to check the average transport cost used in the integrated margin ?	Workbook BW_WBK_PL_0006 – Freight & Duties Costs Tables **Freight Costs (TIERS) & Duties**	Workbook BW_WBK_PL_0006 – Freight & Duties Costs Tables Default Freight Cost
How to start using it ?	The table needs to be activated for the GBU. It can be requested by sending a ticket to the IS support.	The table needs to be uploaded in BW by the finance department of the GBU.
Benefits	The calculation is done by BW using historical data. No manual workload.	Better control on costs used in the integrated margin. Avoid impact of one-time events or errors impacting historical data.
Drawbacks	If there has been an error on a transport document for the last six months, it can have an unwanted impact on the average cost.	Manual workload. Table needs to be maintained.
Responsibility	Supply-Chain	Finance

To get the information to calculate the integrated cost in P&L, based on this information gathered in the 2 steps, exist a **program Z_M_INT** which will fill the data into P&L for the respective headings.

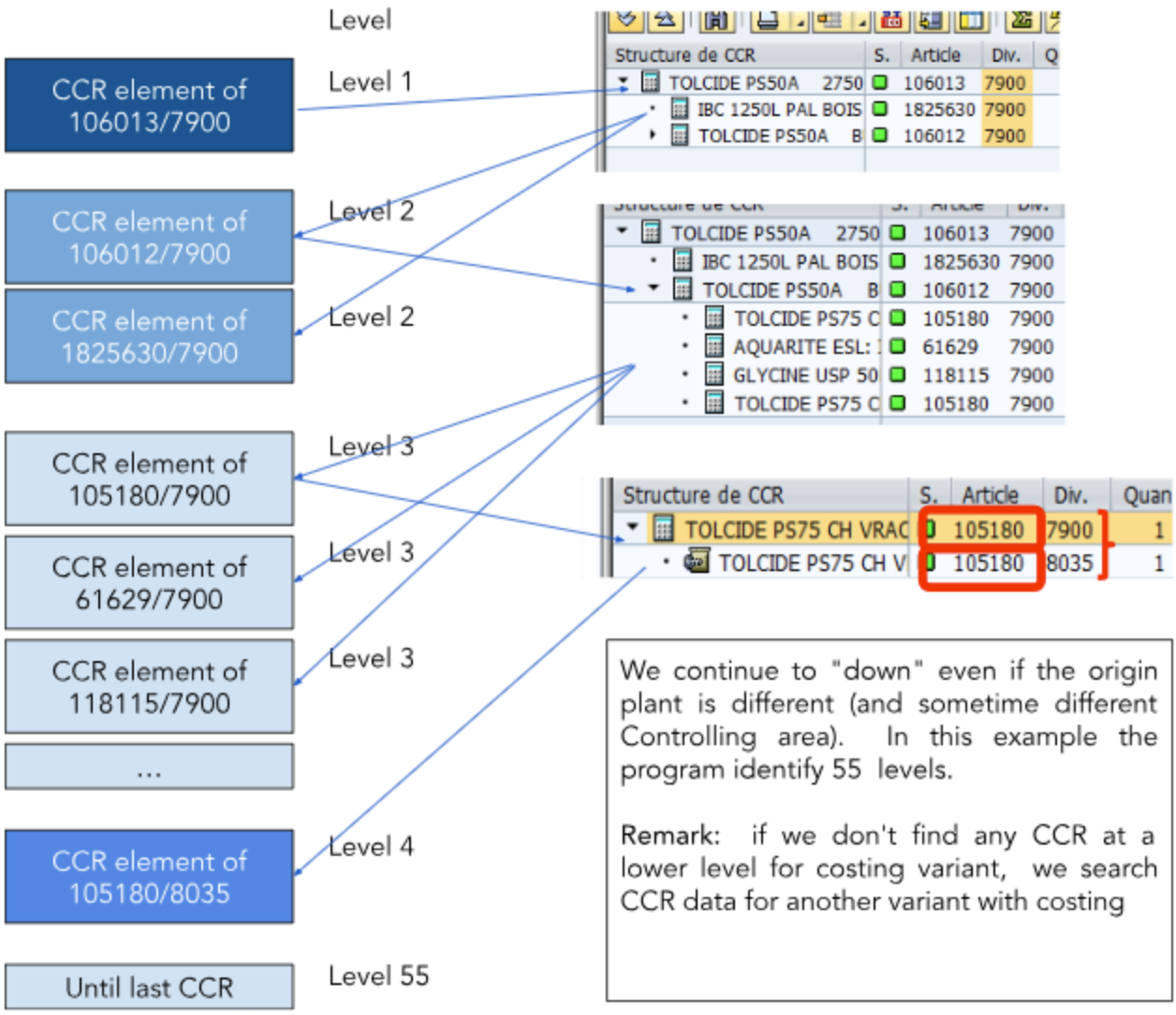
Program Z_M_INT

The Z_M_INT program it's very complex and huge to calculate the integrated margins for P&L.

On a high level view this is the process for the Z_M_INT:

Steps	Definition
Step 1	Identification of ALL CCR (Costing Run) Items to address: Process TOP/DOWN
Step 2	Removing duplicate CCR (we keep the lowest CCR) and classification CP / CNP / AMO of the CCR lines
Step 3	Calculation of CP/CNP/AMO: DOWN/TOP process

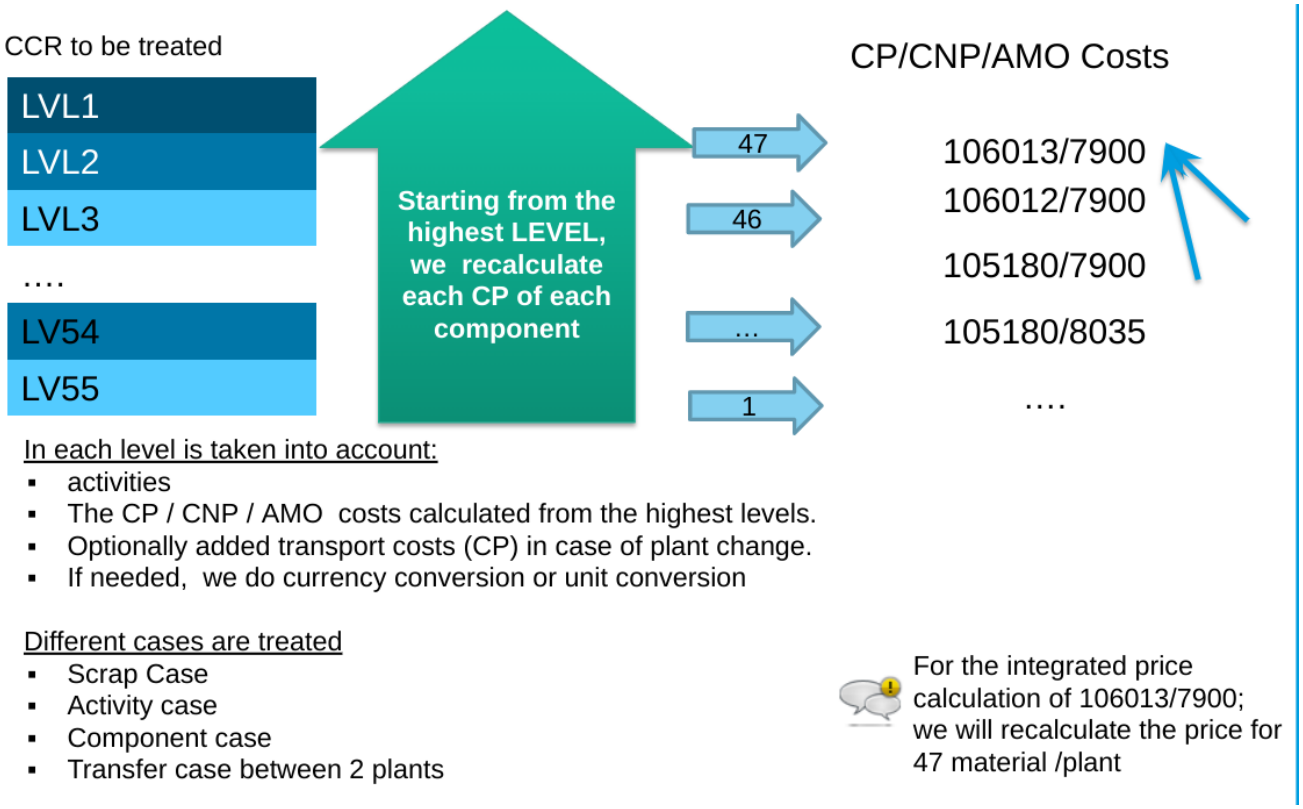
Step 1



Step 2

In all Costing Run found and "treated", program removes duplicate Costing Runs , keeping only the Costing Run from the first component at the most detailed level of the BOM. Each component is calculated one time in the global process.

Step 3



In each level is taken into account:

- activities
- The CP / CNP / AMO costs calculated from the highest levels.
- Optionally added transport costs (CP) in case of plant change.
- If needed, we do currency conversion or unit conversion

Different cases are treated

- Scrap Case
- Activity case
- Component case
- Transfer case between 2 plants

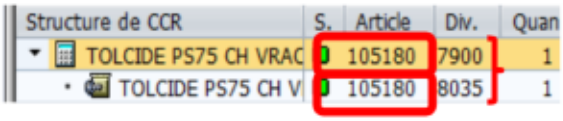
For the integrated price calculation of 106013/7900; we will recalculate the price for 47 material /plant

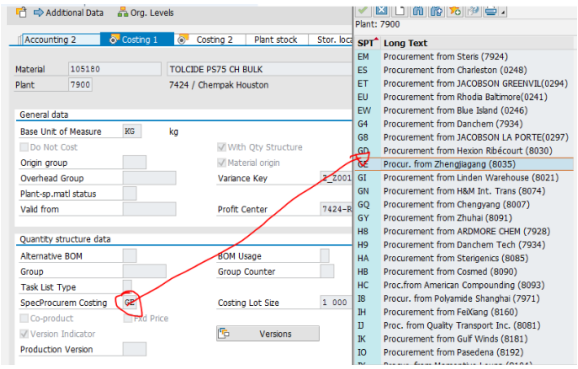
When we have 2 plants:

Business Rule

- We search CP / CNP / AMO components of the origin plant calculated for the current month in the previous steps and add it to CP / CNP / AMO of the treated material.
  - Case of currency change or unit change are taken into account
    - For the currency conversion TCURR table is used type CAR1. The exchange rate is the one on the 1st day of the month of the Costing Run.
- We add Freight costs from **Tiers freight table** at the Plant of origin / Destination Plant /material level & Duties Costs
- If nothing is found in the Tiers Tables we use the **def ault Table** at Plant of origin / Destination Plant level
  - if the route does not exist it is creates an entry in the default Freight Table in BW with a Freight cost = 0
  - no currency change for freight cost. Freight costs must in Departure plant currency
- The lot size changes are taken into account in the calculations.

The program uses the issuing plant (8035) of the Costing Run . This plant in the Costing Run is coming from the Special Procurement Code of the material (105180 of the plant 7900)





After these calculations the program will provide the final values to be in the P&L headings specific for this scope. Normally they are identified with a "C".

The transaction **Z_INT_COST - Integrated costs Details** after the program execution we have the values for CP/CNP/AMO/Freight calculated and this transaction is "dynamic" in "live" computation with the elements currently in BW.

For this process we have some specific cases:

- CPX Cases;
- LER Cases;
- Cross-System Cases.

Please find below a brief definition for each case.

CPX Cases

CPX is a mini BW system of SOLSTICE and for the integrated margins they have a special process to have the values into the Z_M_INT program.

1 - Transfer source data from WBP regarding the WP1 costing runs and the average freight costs to CPX.

2 - Calculation of IM in CPX side with data from WBP and WPX.

3 - Transfer the result of IM in CPX (with no details of the components) to WBP and take it into account in the calculation of IM in WBP.

Legal Entity Reduction (LER) Cases

Just a note: The flow exists but since 2022 the logic is the same for the business rules.

Cross-System Cases

Sales in PF1 / production in WP1

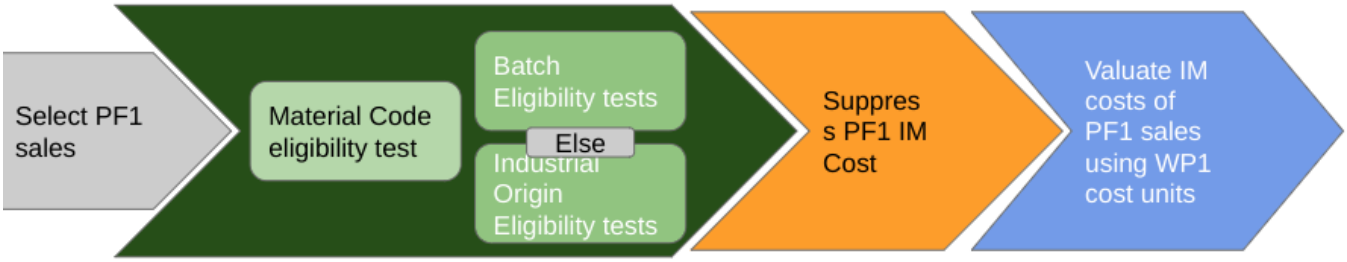
In a few specific flows , Sales for GBU Novecare are done in the PF1 system and production is done in WP1 system. Integrated Margin calculation done in PF1 for those sales are not reflecting IM costing in WP1.

Due to these situations it was created an enhancement where:

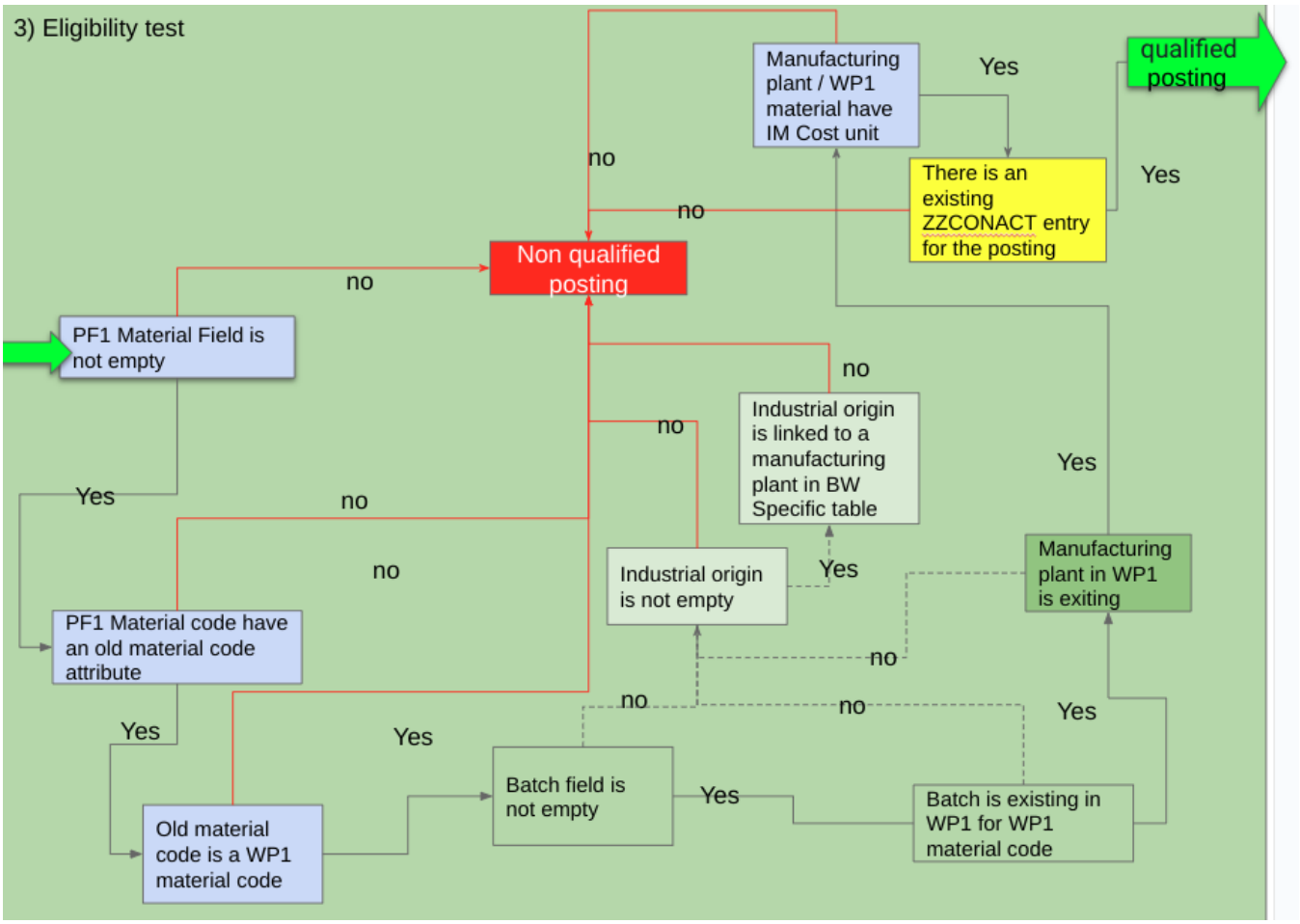
1) Identify these flows
2) Check eligibility of each posting for WP1 valuation
3) Exclude PF1 IM calculations to avoid duplicated count in report
4) Valuate PF1 sales with WP1 IM costing.

In this way, we can have the correct integrated margins for PF1.

For this process it's required to convert PF1 Material code in WP1 material code.



Eligibility Test:



After this, if we have a qualified posting then we need to delete the IM PF1 data founded and calculate the new lines for PF1 data.

See below the example:

InfoProvider	Material		Plant		P&L Element	Struct.	Actual
IM - Solvay PF1 - GM Data	PF1_020/198726	RHODIAROME BTR C25 P300	PF1_020/1037	SLVQ-AR /OSME LOGISTIC EZEIZA	PF1_020/ZMATC	COGS raw materials	-9,636.52 EUR
IM - Solvay PF1 - GM Data Annulation	PF1_020/198726	RHODIAROME BTR C25 P300	PF1_020/1037	SLVQ-AR /OSME LOGISTIC EZEIZA	PF1_020/VPD0C	IM - CP - Packagings	-95.12 EUR
					PF1_020/VUD0C	IM - CP - Utilities-VC	-530.70 EUR
					PF1_020/VVD0C	IM - CP - Raw materials	-4,679.50 EUR
					PF1_020/WMATC	COGS raw materials	9,636.52 EUR

1- In the first line PF1 - GM Data we have the value for the respective material identified for this case. **- 9,636.52 EUR**

2- The lines related with the PF1 - GM Data Annulation showing us the process to exclude the initial value and have the correct calculations for the integrated margins in PF1.

- Annulation of initial value: P&L Element (WMATC) **9,636.52 EUR**
- The new values for PF1 integrated margins: P&L Elements (VPD0C, VUD0C and VVD0C) **-95.12 + (-530.70) + (-4,679.50) = -5,305.32 EUR** (final value)

Aero Fields: Solstice Companies (Composite Materials)

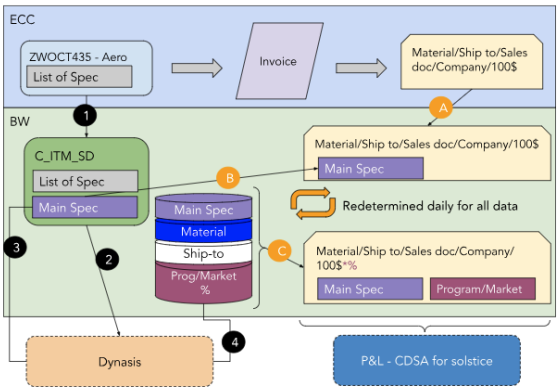
When the Cytec companies were acquired by Solvay they had to integrate the companies under the project Solstice.

Before the acquisition the data from these companies were reported into Cognos (from BAAN and PE1 system). The project was to migrate the data into WP1 in different steps were they started 1st with the BAAN companies to be in WP1 system and after the PE1 companies.

Within the migrations several processes were adjusted to integrate these companies and for the integrated margins this was adjusted to have the correct information also with there way to report under the guidelines for their scope.

To see more information please check the following links:

In this way, exist a special workflow for this please see on a functional perspective the flow:



Flows

Flow 1: The list of Spec is sent to the Sales Order line (C_ITM_SD) as a master data place;

Flow 2: sent this data to the Dynasis scope.

Then the P&L side receives the information from the invoices **(flow A)**;

After on Dynasis side the data sent to the C_ITM_SD is the Main Spec information **(flow 3)** and that information will add content to the P&L side **(flow B)**.

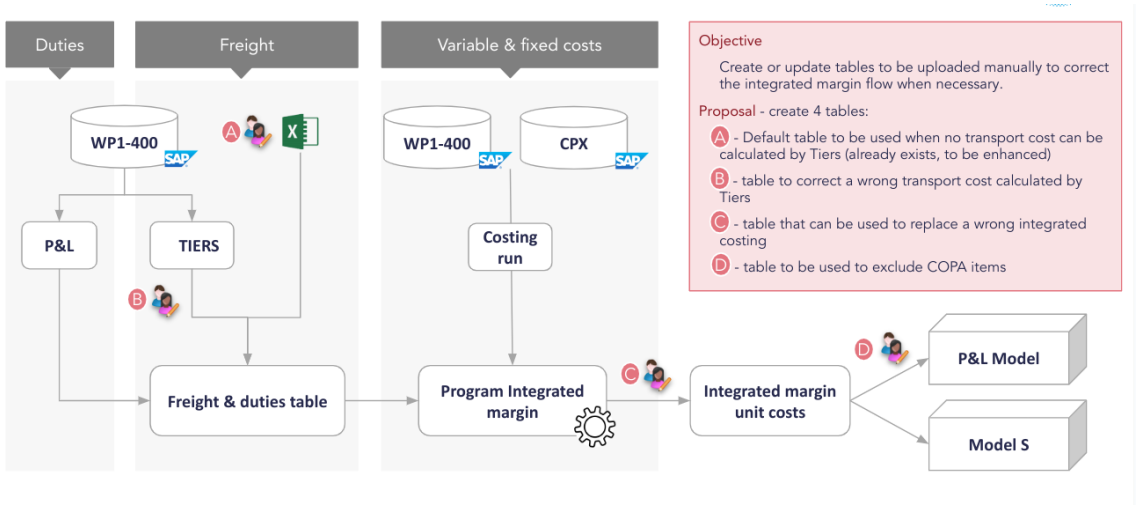
Also on Dynasis side they work the information and split the data with a different structure and values with the Program, Market and Program Percentage **(flow 4)** which will be sent to the P&L to complete the information for reporting purpose **(f low C)**. This part runs on a daily basis to update in P&L side the fields Program, Market and the Program Percentage to be align on the way the users analyze the data for these companies.

UPIS- Unrealized Profit in Inventories

This information was to provide data for logistic side to be available for the Integrated Margin concept. It's coming from a upload of a file in ZPL_UPIS Transaction. (for the moment not used)

ZBW_INT_MARGIN Transaction

This transaction as the main goal with a BW enhancement of the current IM process allowing manual corrections in some steps of this automatic process.



The idea is to let key users loading flat files in order to manage needed corrections in 4 distinct steps of the current BW IM process

- A) Manage default values in Freight & Duties tables
- B) Manage correction entries in Freight & Duties tables normally populated thanks to a Tiers query (at Material / Plant level)
- C) Manage correction entries in IM Cost unit table
- D) Manage exclusion entries in COPA line items table, so they can be excluded from the P&L IM calculation

A – Manual update of IM Transport Costs & Duties at plant level:

When to use it ?
When the system (Tiers) can not calculate a unit transport cost for a material/plant when for instance when there is no historical data. It can also be used when duties are missing.

How to use it ?
Load an excel file with an estimation of the transport & duty cost between 2 plants.

Template: A. Manual update of IM Transport Costs & Duties at plant level.xlsx - Google Sheets

B – Manual update of IM Transport Costs & Duties:

When to use it ?
When the system (TIERS) calculates a unit transport cost that is wrong. It can happen for instance when there has been an exceptional transport that distorts the calculation. The table can be used to replace the calculation done by TIERS.

How to use it ?
Load an excel file with the average transport cost to be used in the IM calculation (by material/plant). It will replaced the one calculated by Tiers.

In order to ensure the traceability of the changes, the date and the user who loaded the changes are stored and it will be possible to add some explanations about the change (ticket etc.)

Template: B. Manage corrections to Freight & Duties tables.xlsx - Google Sheets

C – Manual update of IM Cost Unit:

When to use it ?
When the unit integrated costing calculated by the system is wrong. For instance when the standard costing is wrong in WP1 and it is too late to rerun it.

How to use it ?
Load an excel file with the unit integrated margin cost to be used. It will replaced the one calculated by the IM program.

In order to ensure the traceability of the changes, the date and the user who loaded the changes are stored and it will be possible to add some explanations about the change (ticket etc.).

Template: C. Manual Update of IM Cost UNIT.xlsx - Google Sheets

D – Exclusion of COPA postings:

When to use it ?
Some COPA postings are taken in the calculation of the integrated margin while it should not be as some amounts are duplicated. It can happen with manual COPA posting with wrong quantities. The aim is to exclude these postings.

How to use it ?
Load an excel file with the list of COPA postings to be excluded

In order to ensure the traceability of the changes, the date and the user who loaded the changes are stored and it will be possible to add some explanations about the change (ticket etc.).

Template: D. Exclusion of COPA Posting.xlsx - Google Sheets

For more information we have the following documents to support this:

Functional Specification Document

User Guide for ZBW_INT_MARGIN.pptx - Google Slides

5.0 Non-functional Descriptions

5.1 Usability

as per standard.

5.2 Regulatory Compliance

as per standard.

5.3 Security

as per standard.

5.4 Performance

as per standard.

5.5 Reliability

as per standard.

5.6 Scalability

as per standard.

5.7 Compatibility

as per standard.

5.8 Availability

as per standard.

5.9 Refresh of the Data

This process to have the integrated margins is done once per month in the closing time.