

Operational Dashboard Functional Documentation

1.0 Overview

Solvay aims to centralize and automate the measurement of operational performance through a unified dashboard, leveraging core systems such as SAP. This dashboard will serve as a comprehensive source of truth for all operational KPIs, enabling diagnostics, deep dives, and performance dialogues at all levels within the organization. In this dashboard, 13 KPIs from 5 industrial domains are presented.

13 KPIs from 5 industrial domains



2.0 Business Processes

The 13 measures given by Operation Dashboard reports are:

S e c t i o n	Key Figure	Definition	Data Rules
H S E	TRII Reportable Injuries and Illness (RII) rate	Number of work-related Injury or Illness resulting from accidents requiring a treatment greater than a First Aid Injury. It represents the number of reportable injuries per hours of work in the past 12 months.	
H S E	PSI (Process Safety Incident (PSI) rate)	Number of process safety incidents per hour of work in the past 12 months, where a process safety incident is an event involving a chemical or a chemical process, and generating a release of chemicals or energy.	

H SE	GHG Emissions - GHG emissions scope 1 & 2	Amount of kt CO2 equivalent emitted by GBU-Site every month. It includes CO2 resulting from energy (fuels, electricity, steam) and CO2 equivalent emitted by processes (Methane, Nitrous oxide).	Carise: - Scope 1 = CO2 emission in Scope 1 NRJ $([K_SC1EMIS]) + CO2$ emission in Scope 1 Process $([K_SC1EMPR])$ - Scope 2 = CO2 emission in Scope 2 $([K_SC2EMIS])$ Pure: Only two Sites (and 2 components) should be considered: - Site: Green River (532) (Methane - E12600) - Site: Paulinia (1317) (Nitrous oxide - E12104)
C os ts	Fixed Costs	Fixed Costs measures the company's fixed expenses, which remain constant regardless of production volume or sales levels.	Once information was already available on GCP, a copy of the connector was created.
C os ts	Variable Costs	Variable Costs are expenses that fluctuate directly with the level of production or sales. Unlike fixed costs, variable costs increase or decrease depending on the volume of goods or services produced. This cost category is essential for understanding the expenses directly associated with generating revenue and plays a crucial role in pricing, budgeting, and profit margin analysis.	Once information was already available on GCP, a copy of the connector was created.
C os ts	Wave	Overview of all savings initiated by transformation activities within the STAR FACTORY program. Track all the transformation savings of the Group GBU and site level.	Once information was already available on GCP, a copy of the connector was created.
C os ts	Headcount	Full Time Equivalent Headcount working in an establishment with a Group Work contract (temporary staff, employed and paid by a staff agency, are excluded).	Number of active company employees following the rules: a) Employee status: Active, Active Leave b) Employee class: Regular, Impatriate, Semi-retiree Once information was already available on GCP, a copy of the connector was created.
C os ts	Inventory Value	Inventory of raw materials, work in progress, semi-finished and finished goods.	
Q u a l i t y	Customer Complaints Rate	Provides a number with which to compare whether the rate of complaints is increasing or decreasing based on the ratio with the number of deliveries. This rate serves as an indicator of customer satisfaction, product quality, and service performance.	The Customer Complaints that should be considered: - Justified complaints $SLV_Justified_c = 'Y'$ - External complaints $SLV4_1_Internal_Complaint_c = 'N'$ - Record Type: $CASE_RECORD_TYPE = 'Open$ Complaint' or $CASE_RECORD_TYPE = 'Close$ ReadOnly Complaint'
Pr o d uc tiv ity	OEE - Overall Equipment Effectiveness	Overall Equipment Effectiveness measures the perf. of the asset (and not the product!) at the bottleneck. It represents the rate of production by the maximum sustainable production ever achieved.	
S u p p l y C h a in	OTIF	To measure the accuracy and punctuality of order deliveries in terms of both timing and completeness. This KPI reflects how well a company meets customer expectations by assessing if orders are delivered exactly when expected (On-Time) and in the correct quantities (In-Full). On Time (an order is considered to be delivered on time when it is delivered at the right time). On Time (an order is considered to be delivered on time when it is delivered at the right time) In Full (an order is considered in full when it is delivered with the right quantity).	Once information was already available on GCP, a copy of the connector was created.

S u p p l y C h a i n	Forecast Accuracy	Evaluates the ability to get visibility on customers' demand in terms of quantity.	Once information was already available on GCP, a copy of the connector was created.
S u p p l y C h a i n	DOS	This is a major Group KPI as it is linked to Working Capital and cash delivery. It is measured in Days of Supply. It represents the days of sales in inventory.	Once information was already available on GCP, a copy of the connector was created.

3.0 Application Feature Overview

R e p o r t s	Prompts	Source Data
H S E	Calendar Year/Month Site GBU PO2 flag :ECO/SCO* *For GHG it is important to show the evolution for a couple of years for sites. ECO vs SCO is related to company and not sites. In a couple of cases (Cincinnati, Chicago, Livorno,...) the emissions were reported in a company that is now SCO but they concern activities that are now in ECO. This is why it is important to also extract SCO data to include all GHG related to the site to be able to compare present data with past data.	TRII: Os_data, core_hd_monthly PSI: Ps_data, core_hd_monthly This information was already available on GCP project <i>solva y-ind-conso-prod</i> , schema " <i>ehs_pure</i> " by the name of " <i>Core_HD_Monthly</i> ", " <i>PS_data</i> " and " <i>OS_data</i> " GHG Emissions: - QV_BW_QRY_CPECO202_0001 (Cerise) 2024-06-05 Non CO2 GHG - Google Sheets (Pure)

C o sts	Calendar Year/Month Site GBU PO2 flag: ECO	Fixed and Variable Costs: GCP (BigQuery) Finance Data upload - Google Sheets This information was already available on GCP project <i>prj-data-industrial-dash-dev</i>, by the name of "ODS_BWH_0000_F002_F_M_fixedcosts" and "ODS_BWH_0000_F002_F_M_variablecosts" WAVE This information was already available on GCP project <i>prj-data-industrial-dash-dev</i>, by the name of "ODS_FIL_0000_F001_F_M_wave_project_star", "ODS_FIL_0000_F002_F_M_wave_activity_star", "ODS_FIL_0000_F003_F_M_wave_sustain_impact_star" and "ODS_FIL_0000_F004_F_M_wave_impact_star" Headcount: - DO_BW_QRY_CPHRPAHDM_0005 (People at Solvay) This information was already available on GCP project <i>prj-data-dm-hr</i>, by the name of "V_FACT_HR_Workforce" Inventory Value - BW_QRY_CPIMMM01_0002 (Stock Analysis) - BW_QRY_CPMIM02_0001 (SMOG)
Q u a l i t y	Calendar Year/Month Site GBU PO2 flag: ECO/SCO	Customer Complaint - Case (Salesforce) - BW_QRY_MVSDSO57_0002 (Deliveries - SAP BW)
P r o d u c t i v i t y	Index PO2 flag: ECO	OEE - OEE database for Power BI - DEV - Google Sheets (link) - OEE database for Power BI - PROD - Google Sheets (link)
S u p p l y C h a i n	SLK_KEY PO2 flag: ECO* * OTIF + Forecast Accuracy - PO2 flag: ECO + SCO * DIO - Historical data includes Scope SCO data	OTIF + Forecast Accuracy This information was already available on GCP project <i>prj-dashb-rational-dev</i>, by the name of "V_DM_gsc" DIO: This information was already available on GCP project <i>bi-gcp-sandbox.DataOcean_dt</i>, by the name of "v_Solvay_Monthly_Inventory_Performance-Data_Finance_Snapshot_mv_pbi"

4.0 Functional Specification

4.1 General Data/Calculations

Please find below general dimensions, common to all Operational KPIs:

Dimension
Site
GBU
Date

4.1.2 General Data/Calculations

Please find below specifics dimensions for specific reports:

Section	Dimension	Definition
HSE	Energy_or_process	Data coming from Cerise is filled with "Energy"; while data coming from Pure is filled with "Process"
HSE	Cerise_pure_attribute	This field indicates what measure is presented on "Value". It can assume 3 values: • Scope 1 • Scope 2 • T_CO2_eq
Costs	metric	List of the different metrics in analysis
Costs	mappedline	Sub-category of rubriques
Costs	comparison	Type of comparison analysis
Costs	rubrique	List of considered Rubriques
Quality	Severity	Represents the type/level of Severy each Complaints was classified to.
Supply Chain	Material	Alphanumeric key uniquely identifying the material.
Supply Chain	Distribution Channel	The distribution channel represents the channel through which salable materials or services reach customers. (Can be called Market for financial) - only relevant to WP1.
Supply Chain	Product	Statistical regrouping of commercial articles, made abstraction of their conditioning, quality, brand names, and their centre of production. The last 5 digits of a material group.
Supply Chain	Ship To	Shipment destination.
Supply Chain	Plant	A Plant is a site where the company operates. It can be an internal production site, a site operated by a toller, a storage site, or even a pure administrative site. It is used to locate costs and production lines, and to determine the industrial origin of the material batches.
Supply Chain	Sales Rep	Sales/Replenishment
Supply Chain	Ship to Ka	The Ship-to Key account is by default the Corporate Ship-to Group. However it can be changed for a specific product when the end-user account is different (ex Distributor or Warehouse).
Supply Chain	Product Hierarchy	Categorization of Product
Supply Chain	Type of losses	List of the different type of losses
Supply Chain	Cluster	Additional cathégorization groups
Supply Chain	Unit	Units of measure are the standard values used to describe measurements such as length, area, volume, mass, and time.

4.2 Process Detail

4.2.1.1 Report/Process Definition

Domain	Health, Safety, and Environment (HSE)
Existing Documentation	InDocs HSE Home - SOLVAY

4.2.1.2 KPI's/Calculations/Indicators

Indicators available for HSE report :

Regarding TRII and PSI KPIs, no transformations were applied on GCP. However, here is the conditions and rules that should be considered for calculation:

TRII

Only work-related incidents classified as "RII" should be considered:

- *Workflow_state* != { 'Deleted' }
- *Work_related* = { 'Work related' }
- *Classif* = { 'RII' }
 - Table: *V_os_data (Pure)*

Regarding the total hours worked:

- *Indicator*='WKHR_EMPL','WKHR_CONTR'
 - Table: *V_core_hd_monthly (Pure)*

Calculation formula:

$$\frac{\text{Number of RIIs} \times 200000}{\text{Number of hours worked}}$$

PSI

Only process safety incidents with severities classified as 'Medium','High','Critical' should be considered:

- *Global_Severity* IN ('Medium','High','Critical')
 - Table: *V_ps_data (Pure)*

Regarding the total hours worked:

- *Indicator*='WKHR_EMPL','WKHR_CONTR'
 - Table: *V_core_hd_monthly (Pure)*

Calculation formula:

$$\frac{\text{Number of PSI} \times 200000}{\text{Number of hours worked}}$$

Regarding GHG Emissions:

Indicators/KPI's	Definition	Calculation /Extraction of data
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Value	Represents the amount of kt CO2 equivalent emitted by GBU-Site every month. It includes CO2 resulting from energy (Scope 1 and Scope 2) and CO2 equivalent emitted by processes (T_CO2_eq).	If Cerise_pure_attribute = • Scope 1 = [K_SC1EMIS] + [K_SC1EMPR] • Scope 2 = [K_SC2EMIS] If Cerise_pure_attribute = • T_CO2_eq = [T_CO2-eq]
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4.2.2. Report/Process Definition

Domain	Costs
Existing Documentation	Finance reporting guide S02.02-AS-04-I.5 SMOG - SBS IS - Customer Support - Solvay - Wiki knowledge base

4.2.3. KPI's/Calculations/Indicators

Indicators available for Costs report :

Indicators /KPI's	Definition	Calculation /Extraction of data
FTE	Full Time Equivalent Headcount working in an establishment with a Group Work contract (temporary staff, employed and paid by a staff agency, are excluded).	SUM ([Active_Internal_Workforce_FTE])
Quantity (PUQ) VKG	Total Stock Quantity (Unit selected in Prompt)	
Value Standard (SMOG)	Blocked + Obsolete + Slow moving (LC)	
Value (Healthy)	Total Stock Value - SMOG Value	
Quantity (Healthy)	Total Stock Quantity - SMOG Quantity	
Blocked Value (SMOG)	Blocked Stock Value	
Slow Moving Value (SMOG)	Slow moving Stock Value	
Obsolete Value (SMOG)	Obsolete Stock Value	
Blocked Qty. (SMOG)	Blocked Stock Quantity	
Obsolete Qty. (SMOG)	Obsolete Stock Quantity Slow Moving Stock Quantity	

4.2.2. Report/Process Definition

Domain	Quality
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Application	BW_QRY_MVSDSO57_0002 Query Case query
Provider	SAP BW Salesforce

4.2.3. KPI's/Calculations/Indicators

Indicators available for Quality report :

Indicators/KPI's	Definition	Calculation/Extraction of data
ACT_CC	Current Month Number of Customer Complaints	COUNT(DISTINCT Id) WHERE - SLV4_1_Internal_Complaint__c = false - SLV_Justified__c = 'Yes' - RecordTypeId IN ('012240000006UNXAA2','012240000006UNSAA2')
ACT_NB_DELIVERIES	Current Month Number of Deliveries	DISTINCT(COUNT delivery_number)
ACT_R12_CC	Rolling Date 12 months Number of Customer Complaints	
ACT_R12_NB_DELIVERIES	Rolling Date 12 months Number of Deliveries	

4.2.2. Report/Process Definition

Domain	Productivity
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4.2.3. KPI's/Calculations/Indicators

Indicators available for Productivity report :

Indicators/KPI's	Definition
production__t_m__	Production (t/m)
sustainable_mdc__t_d__	Sustainable MDC (t/d)
volume_mdc_total__t_m__	Volume MDC total (t/m)
oee	OEE
oee_calculated	OEE calculated
diff_oee	diff OEE
performance_index__net_oee__	Performance index (Net OEE)
check_total_oee__losses	Check Total OEE + Losses
volume_value	Volume value
percentage_value	Percentage Value

4.2.2. Report/Process Definition

Domain	Supply Chain
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Existing Documentation	Functional Documentation - Forecast Accuracy Customer > OTIF new model - SBS Decision & Piloting Solutions - Solvay - Wiki knowledge base
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4.2.3. KPI's/Calculations/Indicators

Indicators available for Supply Chain report:

Indicators /KPI's	Definition
Gross History	Customer Demand
Final Forecast	Total on quantity forecast to be shipped.
Forecast Accuracy	This figure measures the gap between the Gross History and the forecasted quantities.
Forecast Bias	It measures the tendency for a forecast to be consistently higher or lower than the actual value.
OTIF-Customer (Delivered)	It measures our capacity to deliver our customers at destination at the right time, with the right quantity. It evaluates Customer satisfaction.
OTIF-Departure Plant	It measures our capacity to make the products available at departure location at the right time, with the right quantity. It evaluates our ability to deliver according to customer requirements.