CONTROWARE KPI COCKPIT

CONTROLLED DOCUMENT

Standard Operating Procedure

Manufacturing KPI system — how the numbers are measured, closed every month, reviewed, decided and followed up

Juhayna — El Dawlia Plant

Juhayna Food Industries · Plant 1 · El Dawlia, Egypt

DOCUMENT	VERSION	ISSUED
KC-SOP-01	2026.09	2026-09-12

SOFTWARE	CATALOGUE	READINGS
KPI Cockpit v0.2.0	29 KPIs · 8 areas	200 · 2026

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1 Document control

Who approved this procedure, what changed since the last issue, and what it covers.

1.1 Approval

PREPARED BY	REVIEWED BY	APPROVED BY
CONTROWARE KPI Cockpit system generation · 2026-09-12 no signature required	Plant KPI coordinator signature · date	Plant director signature · date

1.2 Revision history

VERSION	DATE	GENERATED BY	BASIS
2026.09	2026-09-12	this issue	Live catalogue and policy at generation; software v0.2.0
2026.08	2026-09-12	System Administrator	superseded

1.3 Purpose and scope

This procedure defines how the plant measures its manufacturing KPIs, how the numbers are taken from their sources, entered, validated and approved every month, how management reviews them and decides, how actions are followed up, and how the supporting software is used. It is the single reference for anyone who touches a KPI number.

Applies to Juhayna — El Dawlia Plant, to every KPI in chapter 7, to all roles in chapter 4, and to every monthly cycle from the issue date.

1.4 References

- Manufacturing KPI Guidebook — the definition cards and KPI codes.
- KPI input template (Monthly_Input) and the month sheet generated by the software.
- Data assessment report by Controware — the findings behind the data-quality rules.
- Site policy in the software (Settings → Site & policy) — every threshold in this document is read from it.

Note This is a generated, controlled document. Regenerate it after any change to the catalogue, the targets, the policy or the software; the previous issue is then superseded.

2 Definitions and abbreviations

Every acronym and key term used in this document and on the screens.

2.1 Abbreviations

5S	Sort · Set in order · Shine · Standardise · Sustain	**ATP**	Adherence To Plan
BBQ	Behaviour-Based Quality (quality near-miss observations)	**BOS**	Behaviour Observation System
CIP	Clean-In-Place	**COPQ**	Cost Of Poor Quality
CPMU	Complaints Per Million Units	**CUSUM**	Cumulative sum control chart
CV	Coefficient of variation	**DPMU**	Defects Per Million Units
DQ	Data quality (confidence) score	**EGP**	Egyptian pound
ERP	Enterprise Resource Planning system	**FMCG**	Fast-Moving Consumer Goods
FTR	First Time Right	**GMP**	Good Manufacturing Practice
HSE	Health, Safety & Environment	**IDF**	International Dairy Federation
IFC	International Finance Corporation (EHS guidelines)	**KPI**	Key Performance Indicator
kWh	kilowatt-hour	**LTI**	Lost Time Injury
LTIFR	Lost Time Injury Frequency Rate (per million hours)	**MAD**	Median absolute deviation
ME	Maintenance Expense	**MES**	Manufacturing Execution System
MTBF	Mean Time Between Failures	**MTTR**	Mean Time To Repair
MUV	Material Usage Variance	**OEE**	Overall Equipment Effectiveness
P(meet)	Probability of meeting the annual target	**RFT**	Right First Time (= FTR)
SOP	Standard Operating Procedure	**UHT**	Ultra-High Temperature
YTD	Year to date	**Σ÷Σ**	Sum of numerators ÷ sum of denominators

2.2 Key terms

Reading	One KPI value for one month, stored with numerator and denominator where they exist, its source and its workflow status.
Target	The value the KPI should reach; a yearly target applies to every month unless a month has its own.
Status	On target within 1 % of target or better · Watch short by up to 5 % · Off target beyond that, or any occurrence against a zero target
Health score	On target = 1, Watch = ½, Off target = 0, averaged over the KPIs with a reading, × 100 — for the plant and for each area.
Data confidence	100 − 25 per high finding − 8 per medium; a definition conflict caps it at 45. Trusted ≥ 80 · Check 50–79 · Unreliable < 50.
Period aggregation	Sums add, averages average, ratios are recomputed as sum of numerators ÷ sum of denominators — never the mean of monthly ratios.
Leading / lagging	Leading KPIs predict (near misses, training, audits); lagging KPIs record results (injuries, recalls, cost).
Action	A task with an owner and a due date, linked to a KPI, raised from an insight, a finding or a review decision; open until done.

3 The KPI system

Three levels, eight areas, one scoring policy — read from the software at generation.

3.1 Three levels

Level 1 Management

Plant director, leadership team

Health score, counts, data confidence, area scores, what needs a decision.

Overview · Explore Level 1

Level 2 Business unit

Area owners

One area: score, KPIs month by month, insights and actions.

Explore Level 2 · area page

Level 3 Function

KPI owners, engineers, analysts

One KPI: verdict in plain words, reasons, trend and forecast, readings, data quality, definition.

Explore Level 3 · KPI page

3.2 Areas and owners

AREA	OWNER	KPIS
Production	Production	Volumes
Safety	HSE team	LTI · Safety Audit Score · Safety Near Misses · Training · BOS
Quality	Quality	Recalls · DPMU · CPMU · GMP · FTR · BBQ · COPQ
Efficiency	Production	OEE · Scrap · Reprocess · Productivity · MTTR · MTBF
Service	Production / Supply Planning	ATP · Closing Orders
Cost	Manufacturing / Finance	Cost / Ton · ME / Ton · MUV · Logistics Cost / Ton
Sustainability	Utilities / Sustainability	Electricity · Water · Natural Gas
Excellence	E2E Excellence	5S Audit

3.3 Scoring policy in force

On-target tolerance	1 %
Watch tolerance	5 %
Zero targets	Any occurrence is Off target (injuries, recalls).

Data-quality weights	high −25 · medium −8 · conflict cap 45
Data-quality bands	Trusted ≥ 80 · Check ≥ 50 · Unreliable < 50
Close calendar	Entry by working day 3 · validation by day 5 · approval by day 7 of the following month

Note If these values change in Settings, regenerate this document.

4 Roles and responsibilities

Who does what in the cycle, and who owns each KPI.

4.1 Roles

VIEWER Viewer

Reads every page and report. Cannot change data.

ANALYST Analyst

Enters and imports readings, validates them, runs data quality, generates reports.

ENGINEER Engineer / area manager

Everything an analyst does, plus approving readings, maintaining the catalogue and targets, and owning actions.

ADMIN Site administrator

Everything, plus the policy, users and permissions, ingest keys and the audit log.

Extra rights (enter, validate, approve, manage catalogue, reports, import) can be delegated per person by the administrator; the audit log records who did what.

4.2 Current assignments

NAME	ROLE	EXTRA RIGHTS
System Administrator	ADMIN	—

4.3 KPI owners, sources and cadence

KPI	OWNER	SOURCE SYSTEM	CADENCE
Volumes	Production	Production system / ERP	Daily / Monthly
LTI	HSE team	HSE incident reports / Safety Management System	Immediate / Weekly / Monthly
Safety Audit Score	HSE team	Safety audit checklist	Monthly
Safety Near Misses	HSE / Area Management	HSE reports	Immediate / Weekly / Monthly
Training	HSE / HR	Training records	Monthly

KPI	OWNER	SOURCE SYSTEM	CADENCE
Recalls	Quality / Food Safety	Recall / incident management records	Immediate / Monthly
DPMU	Quality	Quality records	Daily / Monthly
CPMU	Quality / Customer Quality	Complaint management system	Monthly
GMP	Quality / Manufacturing	GMP audit checklist / audit system	Weekly / Monthly
FTR	Quality / Production	Quality records / Production system	Daily / Weekly / Monthly
BBQ	Quality framework owner / Operations	Quality observation / audit records	Daily / Weekly / Monthly
OEE	Production	Production logs / Line monitoring	Daily / Shift / Weekly / Monthly
Scrap	Production / Quality / Finance	Production / quality loss records / ERP	Daily / Weekly / Monthly
Reprocess	Production / Quality / Finance	Production / quality loss records / ERP	Daily / Weekly / Monthly
Productivity	Production / HR	Production system / HR headcount	Monthly
ATP	Production / Supply Planning	Production plan / ERP	Daily / Weekly / Monthly
Closing Orders	Production / Controlling	ERP production orders	Daily / Weekly / Monthly
Cost / Ton	Manufacturing / Finance	ERP / Finance actuals / Production volume	Monthly
ME / Ton	Manufacturing / Finance	ERP / Finance actuals / Production volume	Monthly
MUV	Manufacturing / Finance	ERP material consumption / BOM / standard cost	Daily / Monthly
Logistics Cost / Ton	Supply Chain / Finance	ERP / Finance actuals	Monthly
Electricity	Utilities / Sustainability	Utility meters / energy system / Production actuals	Daily / Monthly
Water	Utilities / Sustainability	Water meters / Utility system / Production actuals	Daily / Monthly

KPI	OWNER	SOURCE SYSTEM	CADENCE
Natural Gas	Utilities / Sustainability	Gas meters / Utility system / Production actuals	Daily / Monthly
5S Audit	E2E Excellence / Area Owners	5S audit checklist / excellence system	Weekly / Monthly
BOS	HSE framework owner / Supervisors	HSE reports	Daily / Weekly / Monthly
COPQ	Quality / Manufacturing	Quality loss records / claims / complaint records	Monthly
MTTR	Maintenance	Maintenance work orders / downtime records	Weekly / Monthly
MTBF	Maintenance	Equipment runtime / CMMS	Weekly / Monthly

5 The monthly cycle — procedures

Measure → enter → validate → approve → review and decide → follow up → report. Each procedure states who, when, purpose, steps, records and checks.

5.1 Take the right numbers (measurement)

WHO	WHEN	PURPOSE
KPI owner (4.3)	During the month; consolidated by working day 3 of the next month	A number traceable to its source, measured the same way every month.

1. Read the KPI's card in chapter 7: what to count (numerator), what to divide by (denominator), the unit, the source system, the cadence.
2. Take numerator and denominator from the named source (ERP, MES, laboratory system, HSE register, meters). Do not estimate; do not carry last month forward.
3. Record both parts, not only the ratio — the software recomputes the ratio and every quarter / year-to-date figure from the totals.
4. Use the unit on the card. Percentages: 92 in the app, 0.92 in the Excel sheet.
5. Keep the evidence (export, register page, meter photo) so a validator can trace the number.
6. Not measured this month? Leave it empty — Missing is honest; a repeated number is not.
7. Known event behind an unusual number (breakdown, campaign, audit, holiday)? Write it in the comment.

RECORDS

Source evidence kept by the owner; the reading with numerator, denominator and comment in the software.

CHECKS

- Same boundary as last month (same meters, lines, period).
- Denominator collected for every ratio KPI.
- No percentage above 100; no negative count.

5.2 Enter the readings

WHO	WHEN	PURPOSE
KPI owner or analyst (Enter readings right)	By working day 3	All readings of the month in the software as drafts.

1. Open Data → Enter & approve; check the month in the header.
2. Fill in the app: type numerator and denominator (or the value) in the grid and press Enter. The value is checked live — negative, above 100 %, far from the median, same as the previous two months, more than 50 % from target. A high warning asks for confirmation.
3. Or upload a sheet: Download sheet → fill the yellow cells → Upload the filled sheet → check the preview → Import as drafts.
4. Confirm on the readiness strip that Readings entered equals the measured KPIs; the To-do filter lists the Missing ones.

RECORDS

Draft readings with entered-by and time; import batches with file name and matched rows.

CHECKS

- No entry into an approved month — reopen first (5.4).
- Live warnings resolved or explained in the comment.

5.3 Validate and run data quality

WHO	WHEN	PURPOSE
Analyst (Validate readings right)	By working day 5	Every reading checked against its source and the rules before management sees it.

1. Filter Draft in Data → Enter & approve. For each reading compare with the previous month and the target, open the evidence, then Validate or Reject with a reason.
2. Press Run data quality — the eleven rules of chapter 8 run over the whole year and score every KPI.
3. Open Data → Data quality. Work the High findings first: fix the reading, collect the missing denominator, or raise a data-quality action on the KPI (owner + due date).
4. KPIs rated Unreliable are flagged “Do not report yet” everywhere; tell their owners.
5. Use Validate all drafts only after the individual checks.

RECORDS

Validated readings with validated-by and time; the validation run and its findings; rejection reasons in the audit log.

CHECKS

- Plant data confidence and the unreliable KPIs noted for the review.
- Every High finding has an owner.

5.4 Approve

WHO	WHEN	PURPOSE
Area engineer / manager (Approve readings right)	By working day 7	The month becomes official and locked.

1. Filter Validated; review the area's readings against the evidence and the data-quality findings.
2. Approve reading by reading, or Approve all validated once the area is clean.
3. An approved reading is locked. To change it: Reopen with a reason, correct, then 5.3 and 5.4 again. The audit log keeps both versions' trail.

RECORDS

Approved readings with approved-by and time.

CHECKS

- Readiness strip shows Approved = measured KPIs before the review.

5.5 Review and decide

WHO	WHEN	PURPOSE
Plant director with area owners	Within the week after day 7	Every KPI that needs a decision gets one — with an owner and a date.

1. Open Overview. Read the month in plain words; note the health score, its change and data confidence.
2. Go down the Decide-now table (worst first). Read Why and What to do; open the KPI if the reasons need discussion.
3. Decide: press Decide on the row, keep or edit the suggested action, assign an owner and a due date. A KPI with unreliable data gets a data action, not a performance action.
4. Check Analyse → Insights for high-severity findings not yet covered, and Analyse → Forecast for KPIs that will miss the year.
5. For a proposed programme, run a Scenario first (5.9).
6. Close the meeting with Overview → Decisions & actions on screen.

RECORDS

Actions with owner, due date, priority and source — the meeting's decisions are the action list.

CHECKS

- Every Off-target KPI has an open action or a written reason why not.
- Movers since last month (worsened) discussed.

5.6 Follow up the actions

WHO	WHEN	PURPOSE
Action owners; the KPI coordinator monitors	Weekly	Actions done on time; their effect visible in the next month's readings.

1. Open Overview → Decisions & actions weekly; overdue actions show in red.
2. Update the note with progress; mark Done only when the change is in place, with the evidence in the note.
3. Cannot be done? Mark Dropped with the reason and raise the replacement.
4. At the next review, compare the KPI's new reading with the action's intent.

RECORDS

Action status changes in the audit log.

CHECKS

- No action overdue by more than one month without a decision.

5.7 Issue the reports

WHO	WHEN	PURPOSE
Analyst (Generate reports right)	After approval and the review, same week	Management receives the month in the standard formats, in the language it reads.

1. Reports → Monthly performance report (PDF) for the leadership team; Executive summary (PDF) for the board pack; Monthly KPI pack (Excel) for area owners; Validation report (Excel) for data owners.
2. Choose month and language; the archive records who generated what and when.
3. Regenerate this SOP when the catalogue, targets or policy changed during the month.

RECORDS

The report archive.

5.8 Maintain the catalogue and targets

WHO	WHEN	PURPOSE
Engineer / KPI coordinator (Manage catalogue right)	When a definition or target changes; targets before the year starts	One definition per KPI, versioned; readings stay attributable to the definition they were entered under.

1. Data → Definitions & targets. Editing a KPI saves a new version (v+1) with an effective date; the previous version stays in the history.
2. A KPI marked Conflict or Proposed is resolved in the definitions workshop and set to Aligned.
3. Targets: yearly per KPI, monthly override where seasonality requires; entered before the year, changed only with the plant director's approval.
4. A zero target only for occurrence counts (injuries, recalls); rates need a realistic internal target.

RECORDS

Catalogue versions with effective dates; targets by year and month; audit entries.

5.9 Use scenarios for planning

WHO	WHEN	PURPOSE
Area owners, analysts	Before committing to a programme or a budget	Know the expected effect on the health score, the areas and the related KPIs before spending.

1. Analyse → Scenarios: choose the month, add the KPIs, type the value to test, keep the level to December if permanent.
2. Run with Physical relationships first; use All correlations as a second view and treat those effects as hypotheses.
3. Read the effect on health and year-end, the area deltas and What moves and why. Save and compare cases before the review.

RECORDS

Saved scenarios with author and date.

CHECKS

- Shocks are capped at two standard deviations; eight months is a small sample — direction and size, not a promise.

6 Month-close calendar

Working days of month M+1, from the site's close days (3 · 5 · 7).

1–3	3–5	5–7	7–12	≤ 12	weekly
Entered	Validated	Approved	Review	Reports	Follow-up
KPI owners	Analyst	Area managers	Plant director	Analyst	Action owners
Readiness: Readings entered	Data-quality run dated	Readiness: Approved	Decide-now table decided	Archive	No overdue actions

7 KPI procedure cards

One card per KPI, generated from the catalogue: what to count, what to divide by, from where, how often, and how to read the result.

7.1 Production

Volumes

Lagging · v1 · Proposed · Data 92 · Trusted

Production volume — Total finished goods produced in the period, in tons.

```
Volumes = Σ finished goods produced (tons)
```

NUMERATOR — WHAT TO COUNT
Tons of finished goods released

DENOMINATOR — WHAT TO DIVIDE BY
none (a count or a value)

UNIT · DIRECTION
Ton · higher is better

PERIOD AGGREGATION
Sum of months

SCOPE AND RULES
Not yet defined in the KPI Guidebook. Confirm whether volume is counted at filling, at release or at dispatch.

TARGET 2026	OWNER	SOURCE	CADENCE
2500	Production	Production system / ERP	Daily / Monthly

How to read and act · Compare against plan and capacity; drill into line, SKU and downtime when volume falls short.

7.2 Safety

LTI

MFG-SFT-01 | Lagging | v1 | Guidebook | Data 42 · Unreliable

Lost Time Injury — To measure the number of work-related injuries that result in lost working time, and to monitor the effectiveness of safety controls in preventing serious incidents.

```
LTI = Number of injuries resulting in at least one full lost workday · LTIR = (Number of LTIs × 1,000,000) ÷ Total hours worked
```

NUMERATOR — WHAT TO COUNT
Injuries with ≥ 1 lost workday

DENOMINATOR — WHAT TO DIVIDE BY
Hours worked

UNIT · DIRECTION
· lower is better

PERIOD AGGREGATION
Sum of months

SCOPE AND RULES
Apply the organization's approved incident classification and lost-day rules consistently. LTIR requires a validated total-hours-worked denominator for the same reporting period.

TARGET 2026	OWNER	SOURCE	CADENCE
0	HSE team	HSE incident reports / Safety Management System	Immediate / Weekly / Monthly

How to read and act · Any LTI requires investigation, root-cause analysis and corrective action. Use LTIR when exposure-normalized comparison is needed.

Safety Audit Score

Leading | v1 | Proposed | Data 92 · Trusted

— Compliance score of the periodic safety audit of behaviours and workplace conditions.

```
Safety Audit Score (%) = Audit points achieved ÷ Total applicable audit points × 100
```

NUMERATOR — WHAT TO COUNT
Audit points achieved

DENOMINATOR — WHAT TO DIVIDE BY
Applicable audit points

UNIT · DIRECTION
% · higher is better

PERIOD AGGREGATION
Average of months

SCOPE AND RULES
Not yet defined in the KPI Guidebook. Use one controlled checklist and scoring scale across areas.

TARGET 2026	OWNER	SOURCE	CADENCE
85	HSE team	Safety audit checklist	Monthly

How to read and act · Track recurring findings and closure of actions; a high average must not hide a critical finding.

Safety Near Misses

MFG-SFT-03 | Leading | v1 | Guidebook | Data 76 · Check

Near Miss reporting — To capture unplanned events that did not result in injury or damage but had the potential to do so, enabling preventive action before an incident occurs.

```
Near Miss = Number of validated near-miss events reported in the defined period (per employee per month)
```

NUMERATOR — WHAT TO COUNT
Validated near-miss reports

DENOMINATOR — WHAT TO DIVIDE BY
Headcount

UNIT · DIRECTION
/ Emp. / Month · higher is better

PERIOD AGGREGATION
Average of months

SCOPE AND RULES
Use the approved near-miss definition and validation process. Consider tracking closure quality and recurrence in addition to raw count.

TARGET 2026	OWNER	SOURCE	CADENCE
5	HSE / Area Management	HSE reports	Immediate / Weekly / Monthly

How to read and act · A higher reporting count can indicate a stronger reporting culture, not worse safety. Focus on risk severity, recurring themes and action closure.

Training

Leading | v2 | Aligned | Data 51 · Check

Training hours per employee — Safety, quality and skills training delivered per employee.

```
Training = Σ training hours ÷ Headcount
```

NUMERATOR — WHAT TO COUNT
Training hours delivered

DENOMINATOR — WHAT TO DIVIDE BY
Headcount

UNIT · DIRECTION
Hrs. / Emp. · higher is better

PERIOD AGGREGATION
Sum of months

SCOPE AND RULES
Target confirmed as annual by HR on 2026-09-10.

TARGET 2026	OWNER	SOURCE	CADENCE
10	HSE / HR	Training records	Monthly

How to read and act · Plan sessions to close the gap by area and shift; link to audit findings and near-miss themes.

BOS

MFG-SFT-02 | Leading | v1 | Guidebook | Data 100 · Trusted

Behaviour-based Safety Observations — To proactively identify unsafe behaviours and reinforce safe practices through regular observation and feedback.

```
BOS = Number of valid safety behaviour observations completed in the defined period
```

NUMERATOR — WHAT TO COUNT
Valid safety observations

DENOMINATOR — WHAT TO DIVIDE BY
none (a count or a value)

UNIT · DIRECTION
· higher is better

PERIOD AGGREGATION
Sum of months

SCOPE AND RULES
Count only observations meeting the approved BOS process. Keep population, target and period consistent when comparing areas.

TARGET 2026	OWNER	SOURCE	CADENCE
—	HSE framework owner / Supervisors	HSE reports	Daily / Weekly / Monthly

How to read and act · Use both completion and recurring observation themes. Volume alone does not demonstrate a strong safety culture.

7.3 Quality

Recalls

MFG-QLT-06 | Lagging | v1 | Guidebook | Data 45 · Unreliable

Recall Incidents — To monitor product recall events and protect consumers, regulatory compliance and brand integrity.

```
Recall Incidents = Number of confirmed recall events in the reporting period
```

NUMERATOR — WHAT TO COUNT
Confirmed market recall events

DENOMINATOR — WHAT TO DIVIDE BY
none (a count or a value)

UNIT · DIRECTION
· lower is better

PERIOD AGGREGATION
Sum of months

SCOPE AND RULES
Use the organization's approved recall classification and distinguish recall, withdrawal and market action where required.

TARGET 2026	OWNER	SOURCE	CADENCE
0	Quality / Food Safety	Recall / incident management records	Immediate / Monthly

How to read and act · Every confirmed recall requires immediate escalation, containment, traceability, root-cause investigation and corrective action.

DPMU

Lagging | v1 | Proposed | Data 43 · Unreliable

Defects per million units — Internal defect rate normalised to production volume so quality can be compared across periods.

```
DPMU = Number of defective units ÷ Units produced × 1,000,000
```

NUMERATOR — WHAT TO COUNT
Defective units

DENOMINATOR — WHAT TO DIVIDE BY
Units produced (millions)

UNIT · DIRECTION
· lower is better

PERIOD AGGREGATION
Σ numerators ÷ Σ denominators

SCOPE AND RULES
Not yet defined in the KPI Guidebook. Confirm which defect classes are included and whether the denominator is produced or released units.

TARGET 2026	OWNER	SOURCE	CADENCE
130	Quality	Quality records	Daily / Monthly

How to read and act · Segment by defect type, line and SKU; link spikes to RFT and scrap.

CPMU

MFG-QLT-02 | Lagging | v1 | Guidebook | Data 68 · Check

Complaints per million units — Monitor customer complaints relative to sold volume so quality performance can be compared across periods and volumes.

```
CPMU = Number of valid customer complaints ÷ Units sold × 1,000,000
```

NUMERATOR — WHAT TO COUNT
Valid consumer complaints

DENOMINATOR — WHAT TO DIVIDE BY
Units sold (millions)

UNIT · DIRECTION
· lower is better

PERIOD AGGREGATION
Σ numerators ÷ Σ denominators

SCOPE AND RULES
Internal validation required: confirm which complaint classes are included, and whether the denominator is produced, shipped or sold units.

TARGET 2026	OWNER	SOURCE	CADENCE
1.3	Quality / Customer Quality	Complaint management system	Monthly

How to read and act · Identify complaint trends independent of business volume; segment by complaint category, product, SKU and production line.

GMP

MFG-QLT-05 | Leading | v1 | Guidebook | Data 75 · Check

Good Manufacturing Practice score — To measure compliance with Good Manufacturing Practices and identify systemic gaps in hygiene, handling, facility and process discipline.

```
GMP Score (%) = Points achieved ÷ Total applicable audit points × 100
```

NUMERATOR — WHAT TO COUNT
GMP points achieved

DENOMINATOR — WHAT TO DIVIDE BY
Applicable GMP points

UNIT · DIRECTION
% · higher is better

PERIOD AGGREGATION
Average of months

SCOPE AND RULES
Use a controlled audit checklist, scoring scale and treatment of non-applicable items. Critical findings may require separate escalation regardless of total score.

TARGET 2026	OWNER	SOURCE	CADENCE
95	Quality / Manufacturing	GMP audit checklist / audit system	Weekly / Monthly

How to read and act · Use the score with finding severity and closure status; a high average score should not hide a critical non-conformity.

FTR

MFG-QLT-01 | Lagging | v1 | Guidebook | Data 67 · Check

First Time Right (RFT) — To measure the percentage of production that meets defined quality requirements the first time, without rework, reprocessing or correction.

```
RFT (%) = Quantity accepted right first time ÷ Total quantity produced × 100
```

NUMERATOR — WHAT TO COUNT
Tons accepted first time

DENOMINATOR — WHAT TO DIVIDE BY
Tons produced

UNIT · DIRECTION
% · higher is better

PERIOD AGGREGATION
Σ numerators ÷ Σ denominators

SCOPE AND RULES
Define precisely what qualifies as first-time acceptance and how rework/reprocess quantities are treated.

TARGET 2026	OWNER	SOURCE	CADENCE
99	Quality / Production	Quality records / Production system	Daily / Weekly / Monthly

How to read and act · Falling RFT indicates process instability or quality loss. Drill into defect type, line, product and process step.

BBQ

MFG-QLT-03 | Leading | v1 | Definition conflict | Data 43 · Unreliable

Behaviour-based Quality observations — To reinforce quality-critical behaviours and routines by observing how standards are applied in day-to-day work and providing immediate feedback.

```
BBQ = Quality-behaviour observations completed per employee per month · Guidebook option: BBQ compliance (%) = Compliant observations ÷ Total valid observations × 100
```

NUMERATOR — WHAT TO COUNT
Quality-behaviour observations

DENOMINATOR — WHAT TO DIVIDE BY
Headcount

UNIT · DIRECTION
/ Emp. / Month · higher is better

PERIOD AGGREGATION
Average of months

SCOPE AND RULES
Internal validation required: confirm Juhayna's BBQ framework, observation checklist, scoring logic, minimum observation frequency and treatment of critical behaviours. The workbook reports a count per employee; the Guidebook describes a % compliance.

TARGET 2026	OWNER	SOURCE	CADENCE
2	Quality framework owner / Operations	Quality observation / audit records	Daily / Weekly / Monthly

How to read and act · Use BBQ as a leading indicator. Repeated behavioural gaps should trigger coaching, standard clarification or process correction before product defects occur.

COPQ

MFG-QLT-04 | Lagging | v1 | Guidebook | Data 100 · Trusted

Cost of Poor Quality — To quantify the financial impact of quality failures, including internal and external failure costs, and prioritise improvement opportunities.

```
COPQ = Agreed internal failure costs + Agreed external failure costs · Optional:
COPQ % = COPQ ÷ relevant sales or manufacturing cost base × 100
```

NUMERATOR — WHAT TO COUNT
Internal + external failure cost (EGP)

DENOMINATOR — WHAT TO DIVIDE BY
none (a count or a value)

UNIT · DIRECTION
EGP · lower is better

PERIOD AGGREGATION
Sum of months

SCOPE AND RULES
Define the approved COPQ cost elements: scrap, rework/reprocess, holds, disposal, returns, claims, recall and other failure costs. Avoid double counting with manufacturing cost KPIs.

TARGET 2026	OWNER	SOURCE	CADENCE
—	Quality / Manufacturing	Quality loss records / claims / complaint records	Monthly

How to read and act · Use COPQ to translate quality loss into financial impact and prioritise the largest loss buckets.

7.4 Efficiency

OEE

MFG-PRF-01 | Lagging | v1 | Guidebook | Data 75 · Check

Overall Equipment Effectiveness — To measure how effectively manufacturing equipment is utilised against planned productive potential through availability, performance and quality.

```
OEE = Availability × Performance × Quality · Availability = Run time ÷ Planned production time · Performance = Actual output ÷ Theoretical output during run time · Quality = Good output ÷ Total output
```

NUMERATOR — WHAT TO COUNT
Good output at rated speed (h)

DENOMINATOR — WHAT TO DIVIDE BY
Planned production time (h)

UNIT · DIRECTION
% · higher is better

PERIOD AGGREGATION
Σ numerators ÷ Σ denominators

SCOPE AND RULES
Document planned-time exclusions, rated speed, good-output definition and aggregation method before cross-line or cross-plant comparison. World-class reference ≥ 85%.

TARGET 2026	OWNER	SOURCE	CADENCE
70	Production	Production logs / Line monitoring	Daily / Shift / Weekly / Monthly

How to read and act · When OEE changes, identify the component responsible, then drill into the relevant loss category.

Scrap

MFG-CST-02 | Leading | v1 | Guidebook | Data 59 · Check

Scrap rate — To quantify material/product losses caused by scrap and drive reduction of avoidable manufacturing waste.

```
Scrap % = Scrap quantity ÷ Relevant input or production quantity × 100
```

NUMERATOR — WHAT TO COUNT
Scrap (t)

DENOMINATOR — WHAT TO DIVIDE BY
Input (t)

UNIT · DIRECTION
% · lower is better

PERIOD AGGREGATION
Σ numerators ÷ Σ denominators

SCOPE AND RULES
Internal validation required: confirm denominator, valuation logic and treatment of recoverable rework versus scrap.

TARGET 2026	OWNER	SOURCE	CADENCE
0.3	Production / Quality / Finance	Production / quality loss records / ERP	Daily / Weekly / Monthly

How to read and act · Trend by product, line and loss reason. Separate physical loss from recoverable reprocess where this changes economic impact.

Reprocess

MFG-CST-02 | Leading | v1 | Guidebook | Data 51 · Check

Reprocess rate — To quantify product returned to process for reblending or refilling and drive reduction of avoidable rework.

```
Reprocess % = Reprocessed quantity ÷ Total production quantity × 100
```

NUMERATOR — WHAT TO COUNT
Reprocessed (t)

DENOMINATOR — WHAT TO DIVIDE BY
Produced (t)

UNIT · DIRECTION
% · lower is better

PERIOD AGGREGATION
Σ numerators ÷ Σ denominators

SCOPE AND RULES
Internal validation required: confirm whether the official KPI combines or separates scrap and reprocess. Target is zero, so any reprocess counts as off target.

TARGET 2026	OWNER	SOURCE	CADENCE
0	Production / Quality / Finance	Production / quality loss records / ERP	Daily / Weekly / Monthly

How to read and act · Trend by product, line and loss reason; separate recoverable reprocess from physical loss.

Productivity

Lagging | v1 | Proposed | Data 76 · Check

Tons per employee — Labour productivity: output produced per employee in the period.

```
Productivity = Tons produced ÷ Headcount
```

NUMERATOR — WHAT TO COUNT
Tons produced

DENOMINATOR — WHAT TO DIVIDE BY
Headcount (FTE)

UNIT · DIRECTION
Ton / Emp. · higher is better

PERIOD AGGREGATION
Σ numerators ÷ Σ denominators

SCOPE AND RULES
Not yet defined in the KPI Guidebook. Confirm the headcount basis (direct labour, total plant, FTE) and the volume basis.

TARGET 2026	OWNER	SOURCE	CADENCE
64	Production / HR	Production system / HR headcount	Monthly

How to read and act · Read together with Volumes and OEE; low productivity with high OEE points to staffing, not equipment.

MTTR

MFG-PRF-04 | Lagging | v1 | Guidebook | Data 100 · Trusted

Mean Time to Repair — To measure the average time required to restore failed equipment to operating condition and indicate maintenance responsiveness.

```
MTTR = Total repair / restoration time for relevant failures ÷ Number of relevant repair events
```

NUMERATOR — WHAT TO COUNT
Total repair time (h)

DENOMINATOR — WHAT TO DIVIDE BY
Repair events

UNIT · DIRECTION
Hours · lower is better

PERIOD AGGREGATION
Σ numerators ÷ Σ denominators

SCOPE AND RULES
Define which failure events and time components are included (diagnosis, waiting, repair, testing). Use consistent start/stop timestamps.

TARGET 2026	OWNER	SOURCE	CADENCE
—	Maintenance	Maintenance work orders / downtime records	Weekly / Monthly

How to read and act · High MTTR can indicate poor troubleshooting, spare-part delays, access constraints or repair complexity. Segment by asset and failure mode.

MTBF

MFG-PRF-05 | Lagging | v1 | Guidebook | Data 100 · Trusted

Mean Time Between Failures — To measure average operating time between relevant equipment failures and indicate asset reliability.

```
MTBF = Total operating time ÷ Number of relevant failures
```

NUMERATOR — WHAT TO COUNT
Total operating time (h)

DENOMINATOR — WHAT TO DIVIDE BY
Failures

UNIT · DIRECTION
Hours · higher is better

PERIOD AGGREGATION
Σ numerators ÷ Σ denominators

SCOPE AND RULES
Define failure criteria and operating-time basis consistently. Planned stops should not be counted as failures.

TARGET 2026	OWNER	SOURCE	CADENCE
—	Maintenance	Equipment runtime / CMMS	Weekly / Monthly

How to read and act · Rising MTBF generally indicates improving reliability. Analyse recurring failure modes when MTBF falls.

7.5 Service

ATP

MFG-PRF-02 | Lagging | v1 | Guidebook | Data 75 · Check

Production Plan Adherence — To measure how closely actual production execution follows the approved production plan for the defined period.

```
Plan Adherence (%) = Production orders / planned quantity completed as scheduled ÷ Total planned orders / quantity × 100
```

NUMERATOR — WHAT TO COUNT
Planned quantity produced as scheduled

DENOMINATOR — WHAT TO DIVIDE BY
Total planned quantity

UNIT · DIRECTION
% · higher is better

PERIOD AGGREGATION
Σ numerators ÷ Σ denominators

SCOPE AND RULES
Confirm whether adherence is measured by quantity, orders, SKU sequence, timing window, or a composite rule. Freeze-point and approved plan changes must be defined.

TARGET 2026	OWNER	SOURCE	CADENCE
95	Production / Supply Planning	Production plan / ERP	Daily / Weekly / Monthly

How to read and act · Low adherence can signal breakdowns, material shortages, labour constraints, quality holds or planning instability. Analyse reason codes.

Closing Orders

MFG-PRF-03 | Leading | v1 | Definition conflict | Data 45 · Unreliable

Production order closing time — Measure timely and accurate technical/system closure of completed production orders so inventory, consumption and cost postings remain current.

Workbook: average days from completion to order closure · Guidebook option: Closing Orders (%) = Orders closed within agreed time ÷ Orders due for closure × 100

NUMERATOR — WHAT TO COUNT
Σ days from completion to closure

DENOMINATOR — WHAT TO DIVIDE BY
Orders closed

UNIT · DIRECTION
Days · lower is better

PERIOD AGGREGATION
Σ numerators ÷ Σ denominators

SCOPE AND RULES
Confirm the required closure steps, due-time SLA and exclusions for legitimately open orders. The workbook measures days; the Guidebook describes a % within SLA.

TARGET 2026	OWNER	SOURCE	CADENCE
8	Production / Controlling	ERP production orders	Daily / Weekly / Monthly

How to read and act · Overdue orders can delay inventory accuracy, variance recognition and period closing. Track ageing and root causes.

7.6 Cost

Cost / Ton

MFG-CST-01 | Lagging | v1 | Guidebook | Data 100 · Trusted

Manufacturing cost per ton — Total manufacturing cost per ton produced, to track operating cost performance against budget.

```
Cost / Ton = Total manufacturing cost ÷ Production volume (tons)
```

NUMERATOR — WHAT TO COUNT
Total manufacturing cost (EGP)

DENOMINATOR — WHAT TO DIVIDE BY
Tons produced

UNIT · DIRECTION
EGP · lower is better

PERIOD AGGREGATION
Σ numerators ÷ Σ denominators

SCOPE AND RULES
Confirm the cost account scope and whether depreciation is included; ME / Ton below excludes depreciation per Guidebook MFG-CST-01.

TARGET 2026	OWNER	SOURCE	CADENCE
414	Manufacturing / Finance	ERP / Finance actuals / Production volume	Monthly

How to read and act · Analyse variance versus budget and volume-adjusted expectation by cost bucket. Avoid cost reduction that shifts losses into quality, reliability or service.

ME / Ton

MFG-CST-01 | Lagging | v1 | Guidebook | Data 100 · Trusted

Manufacturing Expenses without depreciation — Monitor controllable manufacturing expense excluding depreciation to understand operating cost performance independent of non-cash asset depreciation.

```
ME excl. Depreciation = (Total Manufacturing Expense − Depreciation) ÷ Production volume
```

NUMERATOR — WHAT TO COUNT
Manufacturing expense excl. depreciation (EGP)

DENOMINATOR — WHAT TO DIVIDE BY
Tons produced

UNIT · DIRECTION
EGP · lower is better

PERIOD AGGREGATION
Σ numerators ÷ Σ denominators

SCOPE AND RULES
Confirm the Manufacturing Expense account scope, treatment of labour/maintenance/utilities/overheads, production-volume basis and whether the official KPI is absolute or specific cost.

TARGET 2026	OWNER	SOURCE	CADENCE
375	Manufacturing / Finance	ERP / Finance actuals / Production volume	Monthly

How to read and act · Analyse variance versus budget and volume-adjusted expectation by cost bucket.

MUV

MFG-CST-03 | Leading | v1 | Definition conflict | Data 25 · Unreliable

Material Usage Variance — To measure the financial impact of using more or less material than the standard quantity allowed for actual production output.

```
MUV = (Actual material quantity used − Standard quantity allowed for actual output)
× Standard material price · Workbook reports it as % of standard
```

NUMERATOR — WHAT TO COUNT
(Actual – standard qty) × std price (EGP)

DENOMINATOR — WHAT TO DIVIDE BY
Standard material cost (EGP)

UNIT · DIRECTION
% · lower is better

PERIOD AGGREGATION
Σ numerators ÷ Σ denominators

SCOPE AND RULES
Confirm sign convention, standard-price source, BOM version, yield treatment and which materials are included. Separate price variance from usage variance.

TARGET 2026	OWNER	SOURCE	CADENCE
0	Manufacturing / Finance	ERP material consumption / BOM / standard cost	Daily / Monthly

How to read and act · Unfavourable MUV may indicate yield loss, giveaway, process instability, inaccurate BOM/standards or posting issues. Analyse by material and product.

Logistics Cost / Ton

Lagging | v1 | Proposed | Data 84 · Trusted

Internal logistics cost per ton — Handling, warehousing and internal transport cost per ton shipped.

```
Logistics Cost / Ton = Internal logistics spend ÷ Tons shipped
```

NUMERATOR — WHAT TO COUNT
Internal logistics spend (EGP)

DENOMINATOR — WHAT TO DIVIDE BY
Tons shipped

UNIT · DIRECTION
EGP · lower is better

PERIOD AGGREGATION
Σ numerators ÷ Σ denominators

SCOPE AND RULES
Not yet defined in the KPI Guidebook. Confirm which cost elements are included and the tonnage basis.

TARGET 2026	OWNER	SOURCE	CADENCE
50	Supply Chain / Finance	ERP / Finance actuals	Monthly

How to read and act · Trend against volume; review warehouse utilisation and internal transport routes when the cost rises.

7.7 Sustainability

Electricity

5.6.1 | Lagging | v1 | Guidebook | Data 59 · Check

Electricity specific consumption — To measure electricity consumed per unit of production and track energy efficiency independent of production volume.

```
Electricity SC = Electricity consumed (kWh) ÷ Agreed production volume (tons)
```

NUMERATOR — WHAT TO COUNT
Electricity consumed (kWh)

DENOMINATOR — WHAT TO DIVIDE BY
Tons produced

UNIT · DIRECTION
kWh / Ton · lower is better

PERIOD AGGREGATION
Σ numerators ÷ Σ denominators

SCOPE AND RULES
Confirm meter boundary, production denominator, treatment of non-production consumption and conversion factors. Use a consistent product/volume basis.

TARGET 2026	OWNER	SOURCE	CADENCE
58	Utilities / Sustainability	Utility meters / energy system / Production actuals	Daily / Monthly

How to read and act · Analyse against volume, product mix, seasonality and major equipment loads. A change may reflect operating conditions, not only efficiency.

Water

5.6.2 | Lagging | v1 | Guidebook | Data 84 · Trusted

Water specific consumption — To measure water consumed per unit of production and track water-use efficiency.

```
Water SC = Water consumed (m³) ÷ Agreed production volume (tons)
```

NUMERATOR — WHAT TO COUNT
Water consumed (m³)

DENOMINATOR — WHAT TO DIVIDE BY
Tons produced

UNIT · DIRECTION
m³ / Ton · lower is better

PERIOD AGGREGATION
Σ numerators ÷ Σ denominators

SCOPE AND RULES
Confirm meter boundary, source types, reuse/recycle treatment, production denominator and whether sanitation/CIP consumption is included.

TARGET 2026	OWNER	SOURCE	CADENCE
5.6	Utilities / Sustainability	Water meters / Utility system / Production actuals	Daily / Monthly

How to read and act · Trend with production volume, cleaning cycles, leaks and process demand. Efficiency actions must not compromise food safety or cleaning standards.

Natural Gas

5.6.3 | Lagging | v1 | Guidebook | Data 92 · Trusted

Gas specific consumption — To measure gas consumed per unit of production and track thermal-energy efficiency.

```
Gas SC = Gas consumed (m³) ÷ Agreed production volume (tons)
```

NUMERATOR — WHAT TO COUNT
Gas consumed (Nm³)

DENOMINATOR — WHAT TO DIVIDE BY
Tons produced

UNIT · DIRECTION
m³ / Ton · lower is better

PERIOD AGGREGATION
Σ numerators ÷ Σ denominators

SCOPE AND RULES
Confirm gas meter boundary, standard-volume/energy conversion, production denominator and allocation where utilities serve multiple areas.

TARGET 2026	OWNER	SOURCE	CADENCE
4.5	Utilities / Sustainability	Gas meters / Utility system / Production actuals	Daily / Monthly

How to read and act · Analyse boiler/thermal efficiency, production mix, start-up/shutdown patterns and steam demand when the KPI moves.

7.8 Excellence

5S Audit

5.7.1 | Leading | v1 | Guidebook | Data 100 · Trusted

5S average score — To measure workplace organisation and adherence to 5S standards, supporting safety, quality, efficiency and visual management.

```
5S Average Score (%) = Total achieved audit points ÷ Total applicable audit points × 100, or average of approved area 5S scores
```

NUMERATOR — WHAT TO COUNT
5S points achieved

DENOMINATOR — WHAT TO DIVIDE BY
Applicable 5S points

UNIT · DIRECTION
% · higher is better

PERIOD AGGREGATION
Average of months

SCOPE AND RULES
Use one controlled 5S checklist and scoring method. Define weighting, treatment of non-applicable questions, area coverage and minimum audit frequency.

TARGET 2026	OWNER	SOURCE	CADENCE
65	E2E Excellence / Area Owners	5S audit checklist / excellence system	Weekly / Monthly

How to read and act · Use the average score together with recurring findings and action closure. The aim is sustained workplace discipline, not audit preparation.

8 Data-quality rules

Applied to every KPI over the whole year at each run. A high finding costs 25 points, a medium one 8.

RULE	WHAT IT DETECTS	WHAT TO DO
R02	**Target sanity** A zero target for a rate, or a target far from every reading.	Set a realistic internal target with the KPI owner; record it under Definitions & targets.
R03	**Constant series** The same value every month — usually a placeholder, not a measurement.	Confirm the source; if the KPI is not measured yet, leave it Missing rather than repeating a number.
R04	**Copy-forward** The same value three months running.	Re-measure; note the event reason if the value is genuinely stable.
R05	**Outlier** A month far from the year's median (robust z ≥ 1.5 and more than 25 % away).	Confirm the reading at source or record the event (breakdown, campaign, audit) in the comment.
R06	**Physics: energy vs volume** Energy intensity rising with volume, which a fixed base load forbids.	Check the meter boundary and the tons used as denominator.
R07	**Cross-KPI conflict** Quality KPIs that contradict each other (first-time-right gap not explained by scrap, reprocess and defects).	Define one quality funnel in tons and reconcile monthly.
R08	**Aggregation** Year-to-date computed as a mean of monthly ratios instead of sum ÷ sum.	Enter numerators and denominators so the system recomputes the ratio from totals.
R09	**Definition gap or conflict** No Guidebook card, or the workbook and the Guidebook define the KPI differently.	Align the definition in the definitions workshop; publish a new catalogue version.
R10	**Missing denominator** A ratio KPI entered as a value only; it cannot be recomputed.	Enter the denominator (hours worked, headcount, units sold…) with every month.
R11	**Two-level pattern** Readings alternate between two levels, as with two auditors or two lines reporting alternately.	Calibrate on one checklist; report one consolidated figure.

R12	**Low resolution** Only a few distinct values in the year; looks rounded or estimated.	Measure from the source system by order or quantity, not by estimate.

9 Analytical methods — how to read them

What the software computes beyond the status, and its limits.

Forecast

Holt linear exponential smoothing (level and trend, α 0.55, β 0.25) on the readings to date gives a forecast to December with 80 % and 95 % bands from past variability. The full-year figure combines actuals and forecast with the KPI's aggregation; the probability of meeting the annual target is the share of that distribution on the right side of the target. With eight months of data, an indication of direction and size — not a promise.

Insights and priority

Nine kinds of finding (below). Priority = severity × business weight × data-quality factor, so a KPI with unreliable data cannot top the list; confidence grows with the months and the strength of the statistic. Every insight carries a suggestion; Action turns it into a task.

Correlations and leading drivers

Pearson r between monthly series; |r| ≥ 0.7 is strong. Drivers test the leading KPI shifted one month against the lagging one. Correlation is not cause: pairs with a known physical reason are explained (energy with volume, cost per ton with volume, scrap with first-time-right, OEE with productivity); a measured relationship against the expected sign is flagged as a measurement problem.

What-if scenarios

A simulated value is applied to a copy of the year. Related KPIs move by their regression slope (r × their spread ÷ the changed KPI's spread), capped at a two-standard-deviation shock and bounded; leading drivers move the lagging KPI one month later. The month is re-scored and the year-end forecast recomputed with the case in place.

Industry benchmarks

Indicative dairy-processing ranges from IFC environmental guidelines, IDF energy bulletins and FMCG practice — orientation only; confirm the measurement boundary before comparing.

9.2 Kinds of insight

KIND	WHAT IT MEANS
Forecast risk	The trend forecast says the annual target is unlikely (probability < 35 %).
Trend	A sustained direction over the months (linear fit with r^2), not one month.
Streak	Consecutive months on the wrong side of the target.

KIND	WHAT IT MEANS
Anomaly	A month far from the median (robust z ≥ 3).
Level shift	A step change in the level, detected by CUSUM.
Correlation	Two KPIs moving together (|r| ≥ 0.7), with a physical explanation where one is known.
Leading driver	A leading KPI that moves one month before a lagging one.
Benchmark	Position against indicative dairy-industry ranges.
Data confidence	The data behind the KPI should not be trusted yet.

10 Software guide

Five places, one question each, plus Settings and Help. Generated from the software's parts registry — it grows with the product.

10.1 Overview

The management page: what needs a decision this month.

WHAT YOU SEE

The month in plain words, the health score, on-target / watch / off-target counts, data confidence, the year-end forecast, the Decide-now table (number, trend, why, what to do, owner), the eight area scores, month-close readiness and open actions.

HOW TO USE IT

Read the paragraph, scan the Decide-now table top-down (worst first), press Decide on a row to raise an action pre-filled with the suggestion, then open the KPI if you need the detail.

10.2 Explore (Levels 1 · 2 · 3)

Drill from the plant to an area to a KPI, with the raw data one click away.

WHAT YOU SEE

A level switcher (Level 1 Management · Plant, Level 2 Business unit · Areas, Level 3 Function · KPIs), a tree on the left with score rings and status dots, the selected level on the right, and a Data table toggle on every level.

HOW TO USE IT

Pick the level that matches your role; click an area or a KPI in the tree; switch to Data table to see or export the monthly readings (CSV) of whatever is selected.

10.3 KPI page (Level 3)

Everything about one KPI for its owner.

WHAT YOU SEE

In plain words (the verdict), Why it is (not) on target (gap, streak, trend, forecast, data, related KPIs), stat cards for the period, last month, YTD, full-year forecast and industry range, then tabs: Trend & forecast (trend, forecast, gap, cumulative), Readings & workflow, Data quality, Definition (with version history), Actions.

HOW TO USE IT

Start from the plain-words card and the reasons; each reason opens the tab that proves it. Enter or correct readings on the Readings tab; raise an action from the header.

10.4 Analyse

What is behind the numbers.

WHAT YOU SEE

Insights & suggestions (ranked findings with a suggestion each), Forecast & drivers (Holt forecasts with bands, year-end outlook, Pareto of lost points, leading drivers, correlation map, benchmarks), Scenarios · what-if (simulated values and their cascade).

HOW TO USE IT

Use the insights before the monthly review; raise actions from the cards. Use scenarios to size a programme before committing to it.

10.5 Data

How the numbers get made.

WHAT YOU SEE

Enter & approve (fill in the app or upload the pre-filled month sheet; the grid with live checks; validate / approve / reject / reopen; bulk actions; run data quality), Data quality (plant confidence, findings by rule and severity, score by KPI, run history), Import (workbook upload with preview), Definitions & targets (the catalogue, versioning, targets by month).

HOW TO USE IT

Follow the month-close procedure in this SOP. Never overwrite an approved reading; reopen it with a reason.

10.6 Reports

What goes out to management.

WHAT YOU SEE

Monthly performance report (PDF), executive summary (PDF), monthly KPI pack and management workbook (Excel), validation report, catalogue, and this SOP — each in English or Arabic, archived with who generated it and when.

HOW TO USE IT

Generate after approval, not before. The archive is the record of what was issued.

10.7 Settings

The rules of the system.

WHAT YOU SEE

Site & policy (status tolerances, data-quality weights and bands, close calendar days), Team & permissions (roles and delegated rights), Ingest keys (system-to-system upload), Audit log, My account.

HOW TO USE IT

Only a site Admin changes the policy; every change is audited and this SOP should be regenerated afterwards.

10.8 Help: explain mode, glossary, tour

So that a non-specialist can use the product.

WHAT YOU SEE

The ? button: explain mode (a caption under every section), the glossary (every term and abbreviation in plain words), the tour, the KPI Guidebook. Every acronym on screen is underlined; hovering it explains it. Every (i) opens the full explanation with the live numbers.

HOW TO USE IT

New users keep explain mode on for the first month.

Note Sign in with your site account. EN / AR switches the whole product including the reports; the period control (Month · Quarter · YTD · Custom) applies to every number on every page; ⌘K or the search button finds any KPI, area or page.

A Appendices

The month sheet, the system-to-system upload, the catalogue change log and the generation record.

A.1 Month sheet (Excel) columns

COLUMN	FILL?	MEANING
KPI Code	no	Guidebook code or KPI key; the software matches on it (or on the KPI name).
KPI · Area · Month · Unit	no	Pre-filled for reference.
Numerator	yes	What to count (see the KPI card).
Denominator	yes	What to divide by.
Value	if no numerator/denominator	The KPI value; percentages as fractions (0.92 = 92 %).
Target	no	Current target, for reference.
Comment Reason Code	optional	The event behind an unusual number.
Previous month value	no	For comparison while filling.

A.2 System-to-system upload (ingest API)

An ERP, MES or a script can post readings without a user session using an ingest key created by the administrator (Settings → Ingest keys; the secret is shown once). Readings arrive as drafts and follow 5.3 and 5.4.

```
POST /api/ingest/readings X-Ingest-Key: kc_… { "year": 2026, "month": M, "readings": [ { "kpi": "Electricity", "numerator": 118500, "denominator": 2130 } ] }
```

A.3 Catalogue change log

No KPI definition has been revised since the first version.

A.4 Generation record

Generated	2026-09-12 20:01 UTC
Software version	0.2.0
Site	Juhayna — El Dawlia Plant (#1)
KPIs	29 · 3 in conflict · 6 without a Guidebook card
Data-quality run	plant score 69 · 55 findings