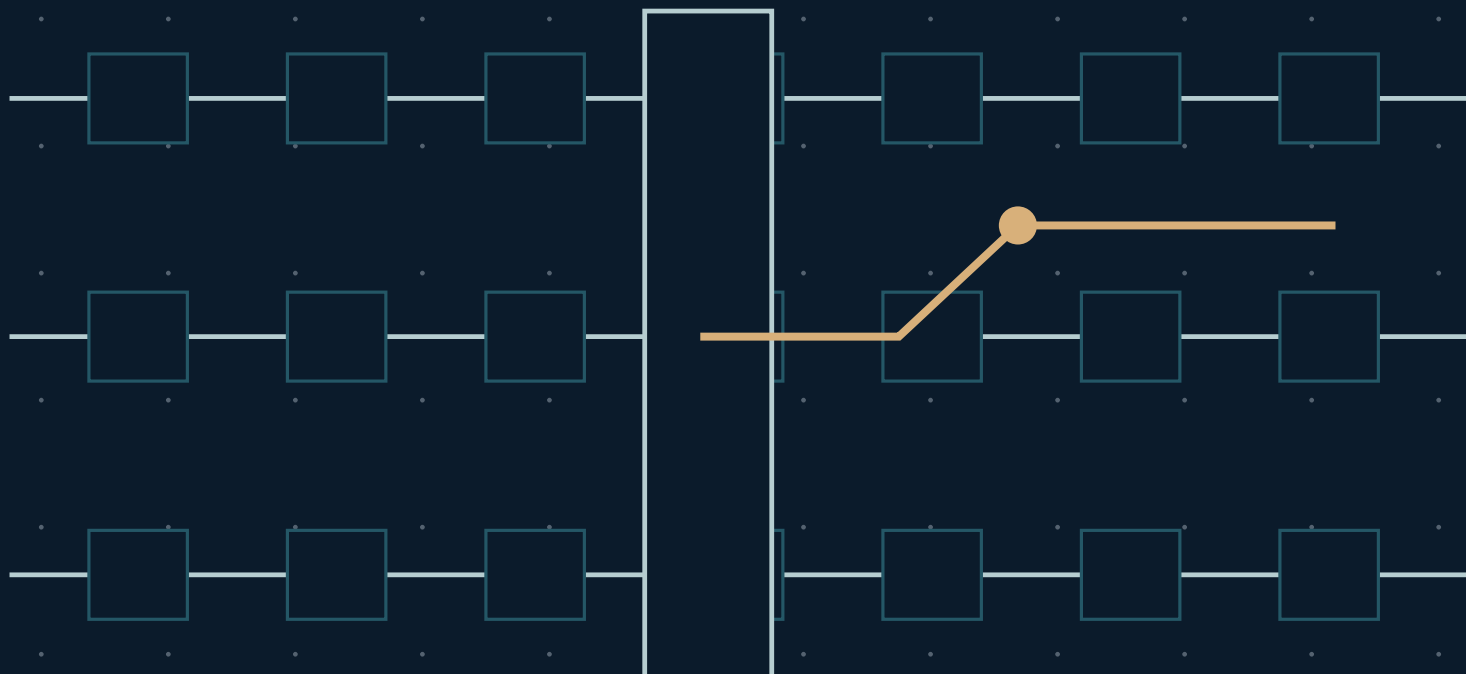


MANUFACTURING & MATERIALS

AI in Gulf manufacturing: close the operating loop

Production, maintenance and quality across ten selected industrial entities.



ORIGINAL MAYDEN GRAPHIC / OPERATING QUESTIONS

01 / THE EXECUTIVE VIEW

Inspection, safety attention and order planning demand different proof at the point of action.

Production, maintenance and quality across ten selected industrial entities.

10

selected entity records

17

recorded claims

17

qualifying claim records

9

candidate research themes

01 / THE OPERATING QUESTION

Inspection, safety attention and order planning demand different proof at the point of action.

02 / THE OPERATING QUESTION

Trace a quality signal to review, rejection, rework or acceptance; safety prioritisation to an action and the risks it may miss; an order recommendation to the schedule a planner accepts. Each pathway needs its own evidence.

03 / THE OPERATING QUESTION

Connect event, data/model version, signal, reviewer, decision and subsequent observation. Preserve accepted and rejected recommendations. The production owner can then decide whether the tool improved the process and whether its boundary should change.

AI-assisted, bounded public-source research. Purposefully selected entity scopes; no company participation, endorsement, independent assurance or population inference implied. Confidential assessment is in development.

02 / THE ARGUMENT

Four questions to carry into the business.

Read each step as a test of the operating claim. This is an analytical framework, not a measured maturity ladder.

- 1** **What signal is detected?**
Define the event, product or schedule, the site and the employee receiving the result. The denominator might be inspected units, eligible operating areas or manufacturing orders.
- 2** **Who receives the result?**
Identify the operator or planner who receives the result and the decision they can make. A detected event needs a responsible intervention owner.
- 3** **What operating action changes?**
Trace the signal to rejection, rework, a changed safety action or an accepted schedule. Retain rejected recommendations and workarounds as well as successful use.
- 4** **How are misses and adverse outcomes measured?**
Evaluate missed events and false alerts alongside workload, delay and adverse consequences. Match each measure to the process and retain its operating denominator.

How to use this report

Follow the source accounts and their limits, use the diagrams to frame an evidence request, then choose one recurring workflow for deeper examination. A company name identifies an attributed account; it does not imply participation, endorsement or an enterprise rating.

03 / THE ANALYSIS

Inspection, safety attention and order planning demand different proof at the point of action.

Factory AI becomes an organisational question when somebody acts on a signal. Inspecting an anode, prioritising safety attention and planning an order are different decisions. A model result alone does not show how the plant changed its work.

Start at the production event

Define the event, product or schedule, the site and the employee receiving the result. The denominator might be inspected units, eligible operating areas or manufacturing orders. Group revenue, model count and announced investment cannot substitute for those operating denominators.

The selected accounts cover different tasks. Read them as examples of what to investigate, not evidence that one manufacturer has a better overall operating model.

Join detection quality to intervention

Trace a quality signal to review, rejection, rework or acceptance; safety prioritisation to an action and the risks it may miss; an order recommendation to the schedule a planner accepts. Each pathway needs its own evidence.

A conceptual evaluation can examine missed events and false alerts alongside delay, workload and adverse consequences. These are proposed inquiry dimensions, not a populated chart of company performance. This review establishes no common numerical threshold.

Attributed operating examples

These separate cases were selected by the operating question, not company standing. The diagram does not imply one connected system.

Inspect quality

EGA reports real-time AI vision checking carbon-anode quality at Al Taweelah. Site-specific inspection; group-wide autonomy not established. The next research question is: What is rejected, reviewed or reworked after the signal?

Source: [EGA designated Industry 4.0 Global Lighthouse](#).

Prioritise safety attention

Alba describes AI using incident patterns and risk drivers to identify higher-risk areas. Identification is reported; causal safety improvement is not verified. The next research question is: What action changes, and how are false alerts and missed risks reviewed?

Source: [Al Bayan Q1 2026](#).

Plan production

Ducab states that AI software is used in order planning within Blade. Facility coverage undisclosed; targets are not achieved outcomes. The next research question is: Which schedule changes are accepted, overridden and measured?

Source: [Ducab launches Blade smart factory project](#).

EXHIBIT 01 / ATTRIBUTED ACCOUNT

The same AI label conceals three operating tasks

Inspection, safety prioritisation and planning change different operating objects.

01	Inspect quality Carbon-anode quality decision	EGA reports real-time AI vision checking carbon-anode quality at Al Taweelah. Boundary: Site-specific inspection; group-wide autonomy not established. Ask: What is rejected, reviewed or reworked after the signal?
02	Prioritise safety attention High-risk operating area	Alba describes AI using incident patterns and risk drivers to identify higher-risk areas. Boundary: Identification is reported; causal safety improvement is not verified. Ask: What action changes, and how are false alerts and missed risks reviewed?
03	Plan production Manufacturing order schedule	Ducab states that AI software is used in order planning within Blade. Boundary: Facility coverage undisclosed; targets are not achieved outcomes. Ask: Which schedule changes are accepted, overridden and measured?

Company and supplier accounts are attributed descriptions, not independent assurance. Each row describes a different operating task; no company comparison or rating is intended.

Unit: Separate source-described operating cases. Research cutoff: 2026-10-10.

Sources: [MAN-EGA01](#) / [MAN-ALBA04](#) / [MAN-DUCAB01](#)

03 / THE ANALYSIS

Include the people absorbing the change

Operators can reveal checking, workarounds and new tasks that leadership does not see. OECD employer and worker surveys illustrate sector-specific questions and multiple perspectives. Their manufacturing and finance samples came from seven non-GCC countries; the reported perceptions are not a local causal effect estimate.

The impact of AI on the workplace: Main findings from the OECD AI surveys of employers and workers.

Record who is trained, who handles uncertainty and what happens during unavailability. An intervention needs an owner even when the model performs well. Keep planned pilots, completed models and sustained production use distinct.

Make the intervention record the management unit

Connect event, data/model version, signal, reviewer, decision and subsequent observation. Preserve accepted and rejected recommendations. The production owner can then decide whether the tool improved the process and whether its boundary should change.

A future benchmark must retain site and product scope, workload shifts and process changes. Otherwise a repeated company questionnaire may

appear to show progress while describing another factory or another task.

Leadership agenda

Plant owner: define the process, event and output denominator.

Operators: identify checking, false alerts, missed events and workarounds.

Evaluation: connect outputs to interventions and observed consequences.

Scope and reading boundaries

The source corpus contains 80 purposefully selected entity records across eight sectors, ten per sector. Headquarters markets are Saudi Arabia, the UAE, Qatar, Kuwait and Bahrain; Oman is outside this edition. Groups, subsidiaries and specific operations have different scopes. This is not a representative sample. Source cutoff: 10 October 2026; publication edition: 11 October 2026.

Source extraction and challenge were AI-assisted, not independent human assurance or verification of current operations. Source visibility is not adoption prevalence. Unreported details are unresolved questions, not absent capabilities. Named examples imply neither participation, endorsement, confidential access nor a Mayden client relationship.

EXHIBIT 02 / CONCEPTUAL TOOL

Detection quality and operational consequence must be evaluated together

Mayden analytical framework / questions to test, not measured maturity stages

01

Detection quality

Examine missed events, false alerts and performance under changing plant conditions.

02

Operating consequence

Examine whether an alert changed action, delay, quality or adverse outcomes.

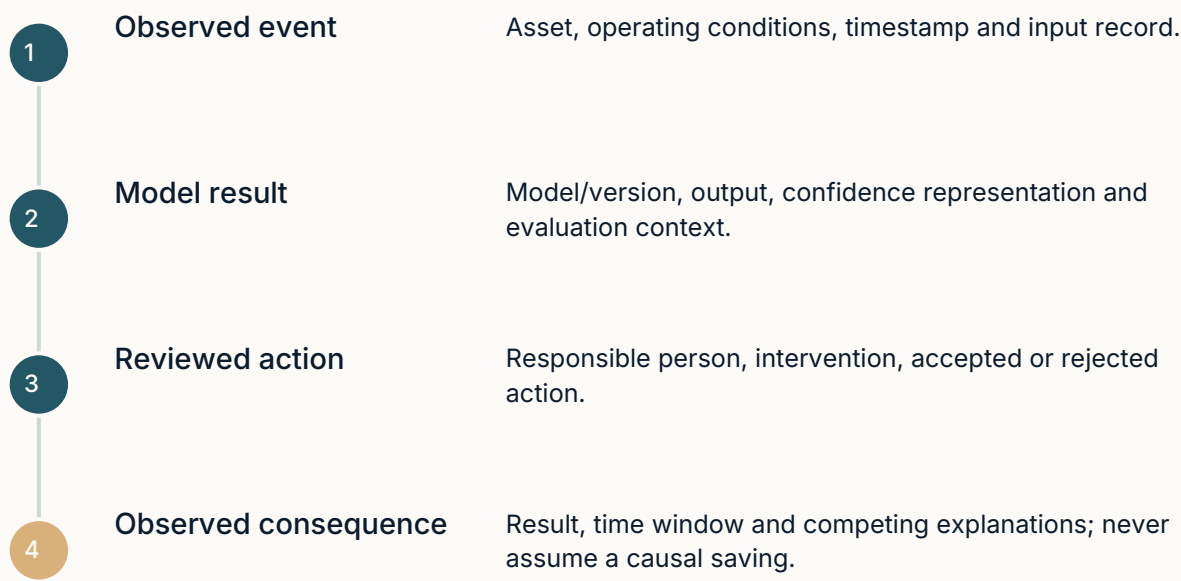
Mayden conceptual framework. These questions specify evidence to request; they do not assert that a named organisation has or lacks the practice. This is not a validated instrument or an observed causal sequence.

Unit: Conceptual decision or evidence request. Research cutoff: 2026-10-10.

EXHIBIT 03 / CONCEPTUAL TOOL

Ask for the intervention record, not only the model result

Mayden analytical framework / questions to test, not measured maturity stages



Mayden conceptual framework. These questions specify evidence to request; they do not assert that a named organisation has or lacks the practice. This is not a validated instrument or an observed causal sequence.

Unit: Conceptual decision or evidence request. Research cutoff: 2026-10-10.

04 / SOURCE ACCOUNT

Inspect quality

Operating object: Carbon-anode quality decision

MAN-EGA01 / ATTRIBUTED ACCOUNT

EGA reports implemented AI vision checking carbon-anode quality in real time.

Scope. EGA group, with retained operating claims confined to AI Taweelah or explicitly described EGA processes.

Source date. 2025-01-15. Publication date does not confirm continuing operation.

Locator. Body paragraph describing real-time carbon-anode quality assessment

EGA designated Industry 4.0 Global Lighthouse

Boundary and next question

Site-specific inspection; group-wide autonomy not established.

What is rejected, reviewed or reworked after the signal?

04 / SOURCE ACCOUNT

Prioritise safety attention

Operating object: High-risk operating area

MAN-ALBA04 / ATTRIBUTED ACCOUNT

Alba describes deployed AI using incident patterns and risk drivers to identify high-risk operating areas.

Scope. Aluminium Bahrain B.S.C.; retained evidence concerns Bahrain smelter and named central functions, not all newly acquired operations. Maaden shareholding creates overlap.

Source date. 2026. Publication date does not confirm continuing operation.

Locator. Physical 24, printed 46-47, AI safety article

AI Bayan Q1 2026

Boundary and next question

Identification is reported; causal safety improvement is not verified.

What action changes, and how are false alerts and missed risks reviewed?

04 / SOURCE ACCOUNT

Plan production

Operating object: Manufacturing order schedule

MAN-DUCAB01 / ATTRIBUTED ACCOUNT

Ducab states that AI software is used in manufacturing order planning within Blade.

Scope. Ducab Group; Blade manufacturing planning, not every facility or joint venture.

Source date. 2023-06-13. Publication date does not confirm continuing operation.

Locator. Body paragraph on AI software and planning orders

Ducab launches Blade smart factory project

Boundary and next question

Facility coverage undisclosed; targets are not achieved outcomes.

Which schedule changes are accepted, overridden and measured?

05 / THE LEADERSHIP AGENDA

Ask for evidence that changes the decision.

01 / Plant owner

Evidence to request: define the process, event and output denominator.

02 / Operators

Evidence to request: identify checking, false alerts, missed events and workarounds.

03 / Evaluation

Evidence to request: connect outputs to interventions and observed consequences.

Method and boundaries

This is an AI-assisted, bounded public-source review of a purposefully selected corpus. It publishes sector research and attributed operating examples, without current individual-company scores, ranks or coded profiles. Source accounts establish what a publisher reports; they do not independently assure operations. The working definition and nine candidate themes require empirical validation.

Recorded source dates run from 2023-06-13 to 2026-09-23. 2 of 17 qualifying claim records have no recorded publication date. This is not a common observation window or confirmation of continuing use.

The confidential opt-in diagnostic remains in development. Independent human review, instrument testing, participant data collection and comparable benchmark norms are future gates. Prior named public-evidence comparisons remain explicitly historical; changes in publication format do not establish changes inside companies.

[Inspect the method](#) / [Explore sector research](#)

06 / SOURCES & PROVENANCE

Follow the argument back to its source.

The following sources support the cited analysis or attributed examples. Inclusion is not independent verification, company endorsement or assurance. Research cutoff: 10 October 2026. Publication revision: 11 October 2026.

S01 / EGA designated Industry 4.0 Global Lighthouse

EGA / 2025-01-15 / corporate-operating-announcement

Locator: Body paragraph describing real-time carbon-anode quality assessment

[Open source](#)

S02 / AI Bayan Q1 2026

Alba / 2026 / company-magazine

Locator: Physical 24, printed 46-47, AI safety article

[Open source](#)

S03 / Ducab launches Blade smart factory project

Ducab / 2023-06-13 / corporate-operating-announcement

Locator: Body paragraph on AI software and planning orders

[Open source](#)

S04 / The impact of AI on the workplace: Main findings from the OECD AI surveys of employers and workers

OECD Social, Employment and Migration Working Papers / 2023-03-22 / official-original-survey

Locator: Separate employer telephone and worker online-panel surveys

[Open source](#)

About Mayden

Mayden connects senior judgement, research and engineering to help organisations turn strategic choices into working capabilities. The AI Native Index is a research programme on recurring work, decisions and accountability.

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