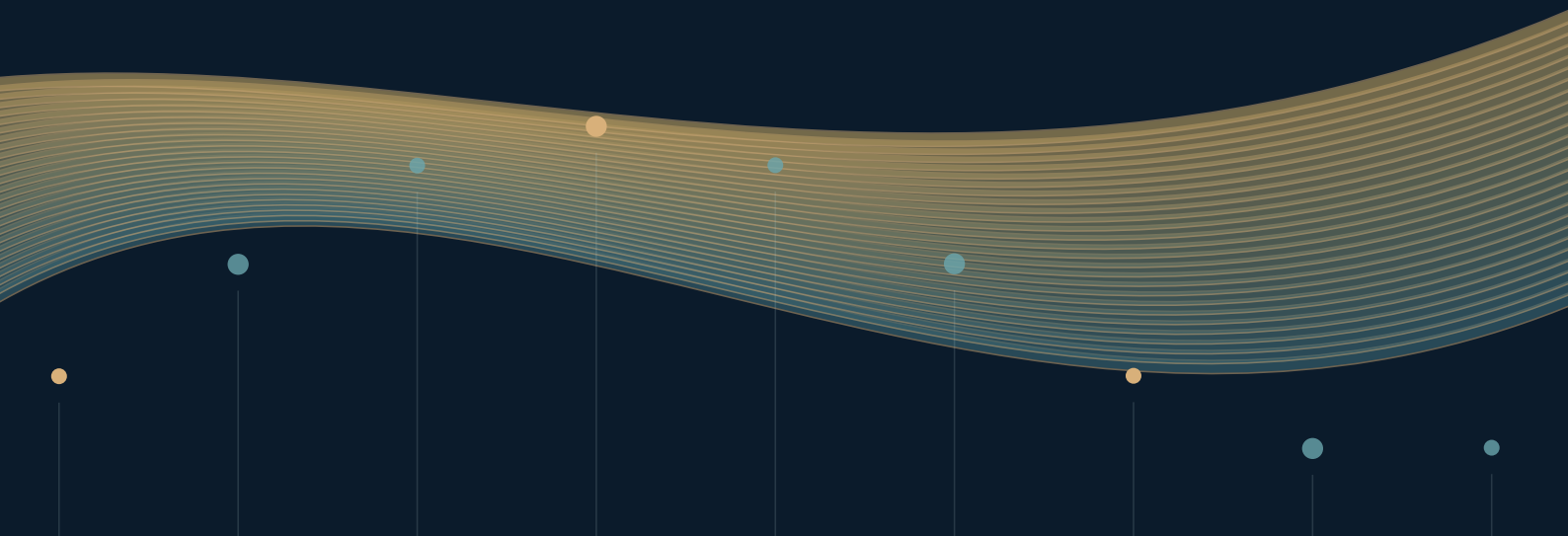




ENERGY & UTILITIES

Intelligence in industrial operations

Production, maintenance and control: evidence across ten selected operating entities.



ORIGINAL MAYDEN GRAPHIC / EVIDENCE IN MOTION

01 / THE EXECUTIVE VIEW

Start with the operating evidence.

Production, maintenance and control: evidence across ten selected operating entities.

10

selected entity records

36

recorded claims

30

eligible claims

2

unranked records

01 / WHAT THE RECORD SHOWS

Distinguish prediction from control. Aramco describes automatic process adjustment at named sites; ADNOC describes equipment monitoring and maintenance prediction. Ask where authority passes from an operator to a system.

Claims: [ARAMCO01](#) / [ARAMCO02](#) / [ADNOC01](#)

02 / WHAT THE RECORD SHOWS

Evaluate the AI as well as its output. DEWA reports agents generating and executing software tests. Request evidence that the agents themselves meet quality and failure-handling criteria.

Claims: [DEWA01](#)

03 / WHAT THE RECORD SHOWS

Confirm routine use after a field test. Bapco's supplier describes an initial upstream model supporting engineers' scenario analysis. Confirm sustained operation and intervention rules before treating that pilot as an established operating capability.

Claims: [BAPCOU01](#) / [BAPCOU02](#)

Public-evidence review. Selected entity scopes. No company participation, population inference or independent assurance implied.

Read the argument, inspect the exhibits, then use the leadership questions to identify the next evidence your organisation should produce. All report bodies are in English; Arabic executive summaries are available online.

EXHIBIT 01 / SCOPED CASE COMPARISON

Who acts on the industrial signal?

Different decision arrangements in selected source accounts; no ordering implies that more autonomy is better.

Predict a maintenance need / Equipment at named facilities

Source account. ADNOC describes Neuron5 using sensor readings at NEB and Taweelah to predict maintenance needs. Boundary. Prediction is not autonomous maintenance execution.

Mayden question. Who accepts a prediction and schedules the intervention?

Evidence: ADNOC01

Adjust a process / Oil stabilisation at Abqaiq

Source account. Aramco describes AI/ML automatically adjusting the oil-stabilisation process. Boundary. Named site; group-wide control authority is not established.

Mayden question. What operating envelope, intervention and fallback have been tested?

Evidence: ARAMCO02

Compare operating scenarios / Bapco upstream field test

Source account. The supplier account describes a model through which engineers test scenarios and choose setpoints. Boundary. Pilot coding retained; continuing routine use unresolved.

Mayden question. Which decisions remained with engineers after the field test?

Evidence: BAPCOU02

Source: selected claims in PE-2026.10-v4. Company and supplier reports are attributed accounts. The questions are Mayden editorial interpretations, not measured sector results or independent assurance.

EXHIBIT 02 / PUBLIC EVIDENCE

Inspect the operating profile, not only the total

Highest eligible anchor per theme; U = no qualifying evidence located

	Core	People	Partners	Interface	Lineage	Testing	Authority	Knowledge	Control	Points
Aramco	3	3	3	3	U	2	3	2	U	70
Dubai Electricity and Water Authority	3	3	2	3	U	U	U	3	U	52
ADNOC	3	3	3	U	U	2	U	2	U	48
Kuwait Oil Company	2	3	2	U	U	1	U	U	U	30
QatarEnergy LNG	2	2	U	U	U	U	U	U	U	15
Bapco Upstream	1	U	1	1	U	U	U	U	U	11
Saudi Energy Company (formerly Saudi Electricity Company)	U	1	U	U	U	U	U	U	2	11
KAHRAMAA	1	U	U	U	U	U	U	U	U	4
Bapco Refining	U	U	U	U	U	U	U	U	U	U
Kuwait National Petroleum Company	U	U	U	U	U	U	U	U	U	U

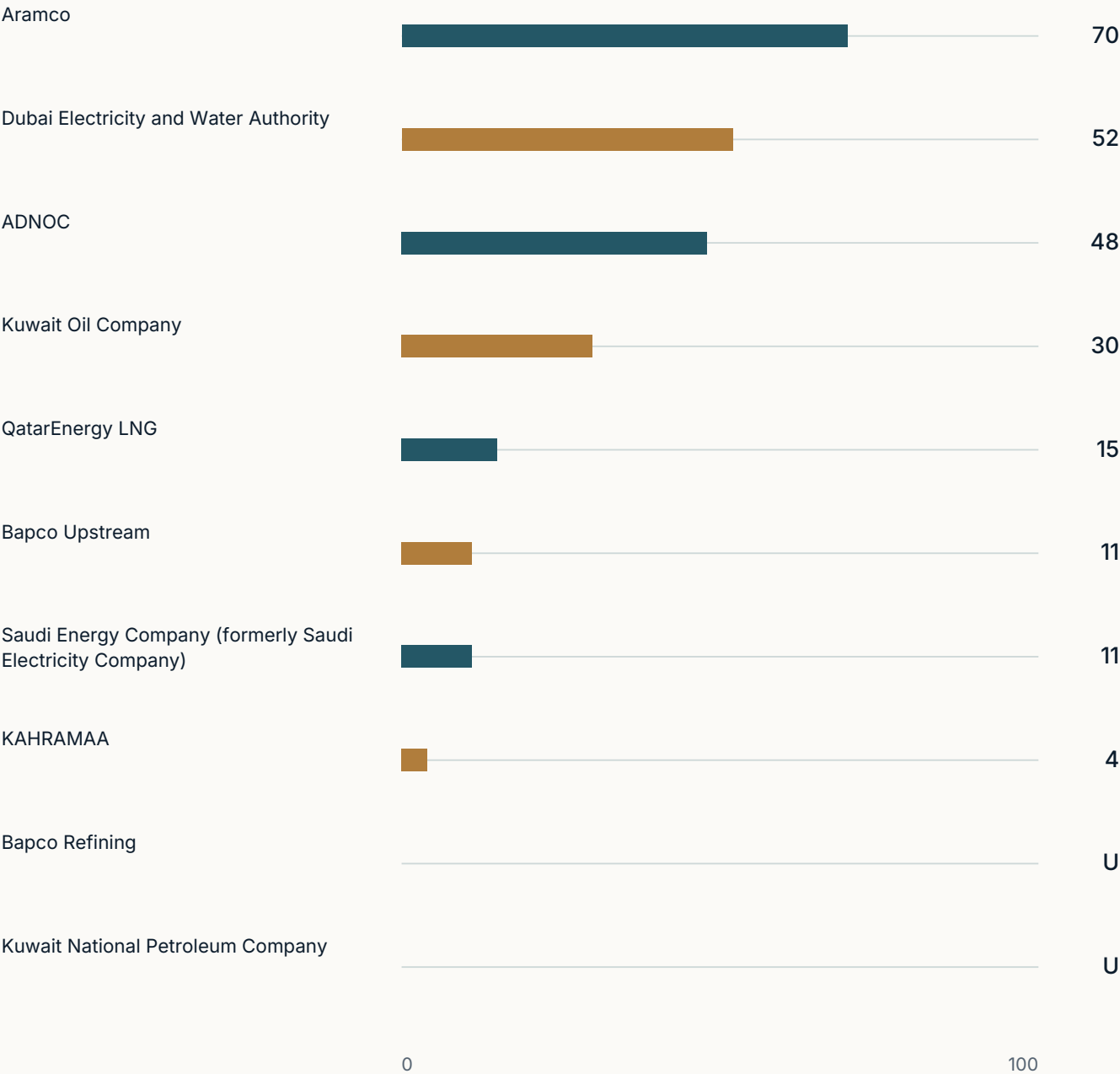
Unknown
Commitment / pilot
Implemented
Operating detail

Source: Mayden PE-2026.10-v4. Each row is a named entity scope. U does not mean absent capability. Anchors are ordinal evidence-specificity judgements; scopes and disclosure access differ.

EXHIBIT 03 / PUBLIC EVIDENCE

Documented evidence points in the selected cohort

Fixed denominator of 27; normalized to 0-100; ties use unrounded totals



Source: frozen release calculation. These are public-evidence points, not a maturity percentage, operational audit or population ranking. No-evidence records stay unranked.

02 / ANALYSIS

Mayden AI Native Index | Energy & Utilities
expansion | Research cutoff: 10 October 2026

Research status: exploratory source review with a separate AI-agent challenge completed. Human and academic validation remain pending. This report does not rank actual company maturity. It covers ten selected entities across Saudi Arabia, the UAE, Qatar, Kuwait and Bahrain; Oman is outside this edition. Eight have proposed qualifying claims in this corpus. Two remain unknown records because current qualifying evidence was not established. Their inclusion makes the disclosure limits visible.

The executive finding

The most useful distinction in industrial AI is the decision being changed. A system may detect a condition, recommend an intervention, or directly adjust a process. Those are different operating arrangements. Announcements often blur them; organizational measurement must keep them separate.

For Mayden, an AI-native energy enterprise should therefore be investigated through observable work: the signal entering a model, the operating decision it changes, the accountable role, the permitted action, and the feedback used to improve it. A portfolio of impressive demonstrations cannot answer those questions by itself. Neither can a large digital-transformation budget.

This review finds evidence ranging from automated process control to maintenance prediction, engineering assistance, employee learning and customer service. It also finds procurement intentions and digital platforms whose AI features are described as future additions. These categories remain distinct in the database. Company and supplier statements are attributed disclosures, not independent assurance.

Start with the boundary between advice and action

Aramco describes permanent adoption at Fadhili and automatic adjustment at Abqaiq. These are

useful starting points for examining bounded industrial autonomy. The database records each named site separately from the wider group. It does not infer enterprise-wide autonomy from a successful local installation. [Aramco operating examples](#)

The next investigative step is practical: identify the approved operating envelope, the conditions requiring operator intervention and the fallback when model confidence or data quality deteriorates. The public passage is a starting point for that inquiry, not an answer to every control question.

ADNOC's Neuron5 release supports a different description: equipment monitoring and maintenance prediction at named facilities. It should not be recast as autonomous maintenance execution. Its pilot benefit figures describe potential improvements, so the outcome ledger preserves that qualification.

[ADNOC deployment release](#)

Bapco's upstream case illustrates a third boundary. A vendor-issued release describes an initial field-tested model that supports engineers' scenario analysis. Routine post-test operation and wider expansion have not been established. This is evidence of decision support; the source does not establish independent machine authority over production. The release names an upstream executive, which helps prevent its claims being transferred to Bapco Refining. [Geminus-issued release carried by Automation.com](#)

The analytical implication is that autonomy should be assessed through delegated authority, not the sophistication of a model name. For a questionnaire, ask an operations leader to select one live workflow and show exactly where responsibility passes between people and software.

Distinguish AI work from digital work

QatarEnergy LNG's 2024 sustainability report explicitly identifies machine learning in predictive maintenance and Bypass Override Risk Assessment. The same section describes broader automation

initiatives. Mayden records the AI-specific statement without turning the surrounding digital portfolio into an AI count. The report also separates general digital literacy from formal AI certification.

[QatarEnergy LNG report](#), printed pages 74-75

This distinction is important for executive assessments. Ask what technique is actually used, where its output enters the workflow and whether the workflow continues to run in production. A rules-based workflow can be valuable without being machine learning. Calling every automation project AI makes comparisons less meaningful.

The Saudi Electricity Company 2024 report provides a useful edge case. It calls contracting RPA artificial intelligence but gives no corresponding inference or learning mechanism. That item is retained as an ambiguous, ineligible lead. Separately, the report explicitly puts AI integration within the Technical Committee's remit; this supports a narrower governance claim, without establishing model-level controls. [Annual report](#), printed pages 156-157 and 252-253

KNPC's accessible technology magazine is another caution. It describes existing digital maintenance processes while presenting AI predictive maintenance as a future upgrade. Its publication timing is unclear and nearby charts refer to 2018. The record is consequently historical context, not evidence of current AI deployment. The newer annual-report archive was found, but its report contents were not successfully retrieved during this review. [KNPC magazine](#), [annual-report archive](#)

Follow how staff actually use the tools

Employee capability is easier to discuss than to measure. A participant count may show programme coverage; it does not prove proficiency or sustained use. Aramco's training disclosure and ADNOC's annual review provide candidate coverage indicators, but neither justifies a claim that every trained employee can independently operate or evaluate an AI system. [Aramco workforce disclosure](#), [ADNOC 2025 review](#)

Kuwait Oil Company's academy disclosure is more specific about programme design: completed training, a defined duration and practical oil-and-gas applications. Its evidence is still bounded to the reported cohort. Separate SLB disclosures describe a mud-loss workflow and an earlier proof-of-value project; the latter remains a pilot in this dataset. A supplier release is an interested primary account, not independent corroboration. [KOC academy](#), [SLB 2023 year-end results](#), [SLB third-quarter 2023 results](#)

DEWA's reported engineering and service workflows extend the inquiry beyond industrial plants. Their relevance is the integration of AI into routine work. However, AI generating software test artifacts is not evidence that the AI itself is systematically evaluated. Website-grounded answers likewise do not, by themselves, establish accuracy or knowledge freshness. [DEWA engineering deployment](#), [Rammas disclosure](#)

A useful company report should show adoption and proficiency separately: eligible staff, active users, assessed competence, workflow dependence and exception rates. These remain proposed measures for future proprietary research, not statistics collected in this edition.

Unknowns are research priorities

KAHRAMAA's accessible platform launch identifies a specific initiative, but its operating applications are largely future-tense. A subsequent Google-related lead could not be read in full and is excluded. Bapco Refining's indexed report and procurement leads likewise do not establish qualifying deployed practice. The group annual-report download was incomplete, and the tender page was inaccessible. [KAHRAMAA launch](#)

These cases do not show that the organizations lack AI capability. They show what this retrieval exercise could establish. A responsible explorer should display the unknown state and its reason directly, rather than hide it beneath a zero labelled maturity.

The ten records also do not form ten independent corporate groups. KOC and KNPC share KPC

ownership; Bapco Upstream and Bapco Refining are siblings. KAHRAMAA is a public utility corporation. Country labels describe the selected entity's base and do not constrain the geography of group evidence. A cross-country league table would overstate comparability.

Questions that would turn disclosures into organizational evidence

A company interview should move through one named live workflow before asking about the broader portfolio:

1. What decision or task changed, and on what date did the system enter routine use?
2. Which assets, teams or transactions are eligible, and what share actually uses it?
3. Can the system act directly, or does a named role approve its recommendation?
4. What input, model version, output, approval and override can be reconstructed afterward?
5. What tests and operating thresholds decide whether it is deployed, changed or withdrawn?
6. How are failures, false alerts and near misses captured, including cases where staff bypass it?
7. Who maintains the knowledge or training data, and how are permissions and revisions controlled?
8. What outcome changed against a defined baseline, with what denominator and alternative explanations?
9. Which skills are assessed, rather than inferred from course attendance?
10. What remains reusable when a vendor, model or individual employee changes?

These questions require different respondents and artifacts. Operations can explain decision authority;

engineering can demonstrate evaluation; workforce teams can substantiate learning; risk and assurance functions can show approvals and incidents. A single confident executive cannot substitute for all four perspectives.

What this expansion can support now

The immediate product is a transparent evidence collection and an informed executive discussion. It is not a representative estimate of Gulf adoption, a causal evaluation of business impact, or a validated maturity instrument. A separate agent challenged every proposed level-3 claim and sampled lower levels. Its decisions are recorded beside the source proposals; this is not human or academic validation.

The underlying JSON preserves source proposals, excluded leads, access states, source locators, implementation states, limitations and per-company search logs. The separate review downgraded the three Bapco field-pilot claims and excluded a general DEWA governance-framework statement. Outcomes are stored separately and do not increase evidence points. Missing themes mean no qualifying evidence was located in this bounded corpus.

The next research wave should prioritize current report retrieval for weak-access entities, a systematic Arabic search, direct evidence of decision lineage and AI-specific control operation, and a consistent refresh window. Mayden can then invite organizations to correct factual scope and supply additional artifacts through a documented process, without selling a higher score or implying that payment establishes capability.

Review transparency. Extraction and source challenge in this edition were AI-assisted. Separate AI readers do not constitute human expert sign-off or independent assurance. Company claims, research findings and Mayden interpretations retain their distinct scope.

EXHIBIT 04 / INSPECT THE ASSUMPTION

Separate a commitment from a deployed practice

Eligible claim records, n = 30; one practice may support multiple distinct themes

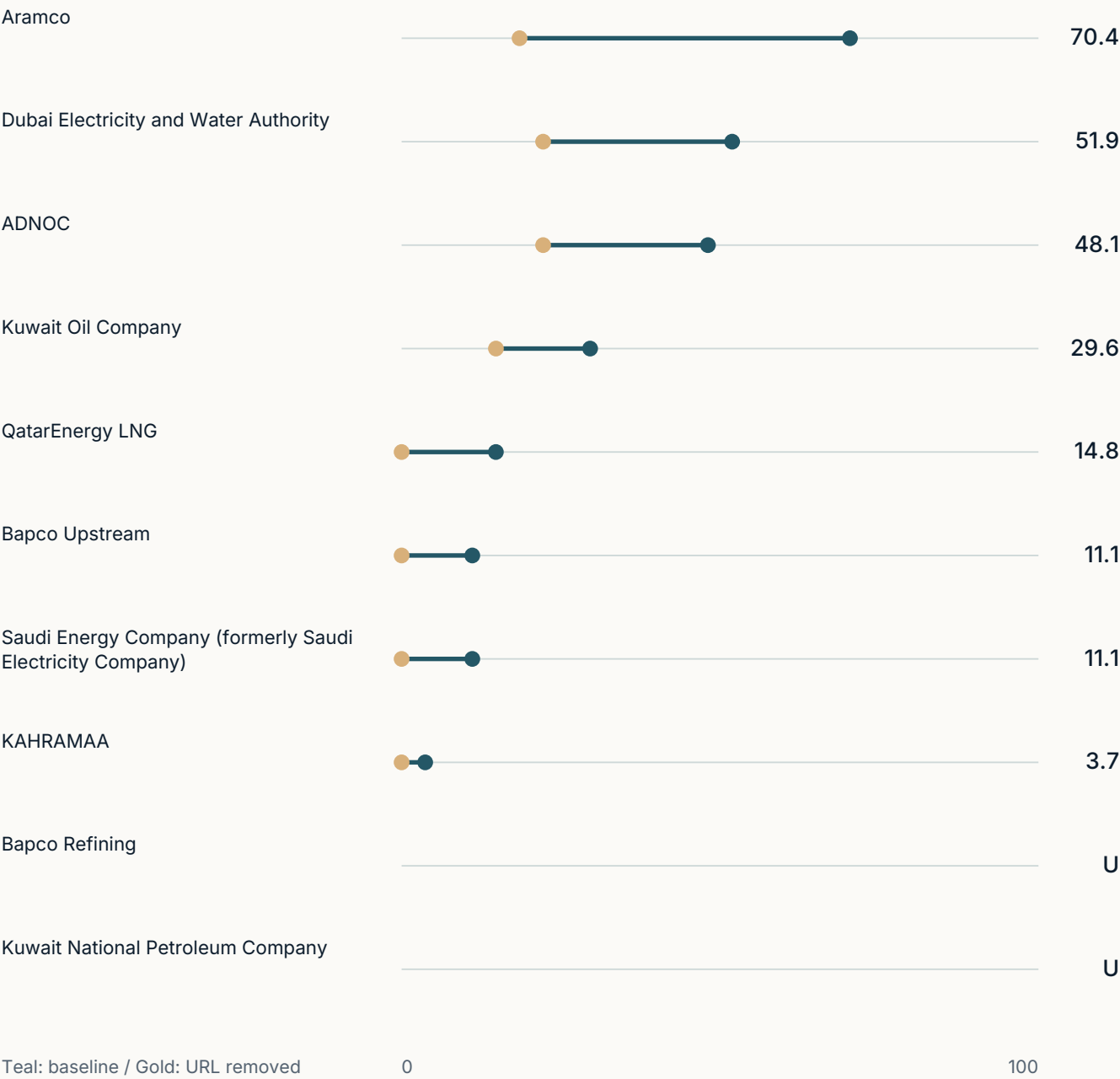


Source: claim ledger. 6 excluded records are outside these bars. Counts are claims, not independent systems, companies or estimates of adoption.

EXHIBIT 05 / INSPECT THE ASSUMPTION

How much of the profile rests on one retained source URL?

Baseline points versus points after removing the most influential primary source URL



Source: deterministic URL-removal check. Remaining URLs can repeat the same disclosure; required corroborating-source dependencies are not removed. This is not a confidence interval or a test of source truth.

03 / A CLOSER LOOK

Aramco

Saudi Aramco group; each claim restricted to named site or function.

ELIGIBLE ANCHOR 3 / ARAMCO01

Fadhili permanently adopted reinforcement-learning control for acid-gas removal after its October 2024 to April 2025 pilot.

Boundary. Claim scope: Saudi Aramco group; each claim restricted to named site or function.. Site-level; rollout elsewhere remained assessment. Undated live page. Application: internal-operating-practice.

Locator. Fadhili Gas Plant

[Inspect the source](#)

ELIGIBLE ANCHOR 3 / ARAMCO02

At Abqaiq, AI/ML automatically adjusts the oil-stabilization process.

Boundary. Claim scope: Saudi Aramco group; each claim restricted to named site or function.. No override, fail-safe or decision-log details. Application: internal-operating-practice.

Locator. Abqaiq Plants

[Inspect the source](#)

The question for leadership

Name the asset and the decision.

Company/group scope follows each cited claim. Headquarters is not the geography of all operations. Public disclosures and search completeness differ; no national or population inference.

03 / A CLOSER LOOK

Dubai Electricity and Water Authority

DEWA utility operations and internal digital functions; external product sales excluded.

ELIGIBLE ANCHOR 3 / DEWA01

Testing Centre AI agents generate test artifacts from specifications, execute tests and report results in the engineering pipeline.

Boundary. Claim scope: DEWA utility operations and internal digital functions; external product sales excluded.. This tests digital services; it does not establish evaluation of AI models. Application: internal-operating-practice.

Locator. Boosting digital testing efficiency

[Inspect the source](#)

ELIGIBLE ANCHOR 3 / DEWA02

AI agents help design and engineering staff generate components and detect deviations from approved standards.

Boundary. Claim scope: DEWA utility operations and internal digital functions; external product sales excluded.. No staff adoption denominator or controlled productivity study. Application: internal-operating-practice.

Locator. Enhancing customer experience

[Inspect the source](#)

The question for leadership

Name the asset and the decision.

Company/group scope follows each cited claim. Headquarters is not the geography of all operations. Public disclosures and search completeness differ; no national or population inference.

03 / A CLOSER LOOK

Bapco Refining

Refining subsidiary of Bapco Energies; not upstream sibling or whole group.

EXCLUDED OR UNRESOLVED / BAPCOR01

Indexed annual-report passage describes intended AI optimization of the Bapco Modernization Project.

Boundary. Claim scope: Refining subsidiary of Bapco Energies; not upstream sibling or whole group.. Public report download truncated; only indexed passage read. Future language is not deployment. Application: internal-operating-practice. Exclusion: Explicit extraction-stage exclusion retained. No qualifying AI-specific operating anchor retained. Complete readable source support not established; indexed-only evidence cannot score.

Locator. Printed28-29 indexed lead

[Inspect the source](#)

EXCLUDED OR UNRESOLVED / BAPCOR02

Indexed tender requests engineering services covering APC, RTO and AI applications.

Boundary. Claim scope: Refining subsidiary of Bapco Energies; not upstream sibling or whole group.. Tender is not award or deployment; fetched page inaccessible. Application: internal-operating-practice. Exclusion: Explicit extraction-stage exclusion retained. No qualifying AI-specific operating anchor retained. Complete readable source support not established; indexed-only evidence cannot score.

Locator. Indexed tender description

[Inspect the source](#)

The question for leadership

Name the asset and the decision.

Company/group scope follows each cited claim. Headquarters is not the geography of all operations. Public disclosures and search completeness differ; no national or population inference.

04 / THE LEADERSHIP AGENDA

Ask for evidence that changes the decision.

01 / Name the asset and the decision.

Evidence to request: Plant/site boundary, control-system connection and accountable operator.

02 / Show how the model fails safely.

Evidence to request: Alarm handling, interventions, downtime and process-safety controls.

03 / Trace the move from pilot to routine use.

Evidence to request: Commissioning evidence, recurring usage and maintained operating responsibility.

Method and boundaries

This is an AI-assisted, bounded public-source review using a purposeful corpus. Nine themes retain their highest eligible anchor: 1 for a specific commitment or pilot, 2 for an implemented practice, 3 for implemented practice with operating detail. U means unknown. Points equal 100 times the sum of anchors divided by 27. Ordinal steps and equal weights are design assumptions, not validated importance estimates.

Reported outcomes, actual company capability and disclosure depth are different objects. Source-linked corporate or vendor statements are not independently assured operations. Deterministic sensitivity tests are not confidence intervals. Sector scopes, reporting periods and access differ; no national rankings, population prevalence or causal inference are made. The confidential company instrument remains a separate development track.

Dated sources run from 2023-03-08 to 2026-07-06. 8 of 30 eligible claim records have undated sources. Publication dates do not confirm continuing operation or a common observation period; undated does not mean stale.

[Inspect the full method](#) / [Reproduce the evidence](#)

05 / SOURCES & PROVENANCE

Follow the argument back to its source.

Sources below include eligible and excluded research leads. Inclusion in this list does not make a source eligible or independently verified. Exact claim decisions, source locators and limitations are retained in the online evidence ledger. Research cutoff: 10 October 2026.

S01 / AI and Big Data

Aramco / Undated / corporate-operating-page

Locator: Fadhili Gas Plant

[Open source](#)

S02 / How AI helps Aramco turn old data into new opportunity

Aramco / 2025-03-12 / corporate-article

Locator: Final substantive paragraph

[Open source](#)

S03 / DEWA deploys agentic AI across its digital platforms

DEWA / 2026-07-06 / corporate-release

Locator: Boosting digital testing efficiency

[Open source](#)

S04 / DEWA's virtual employee Rammas handled over 1.6 million inquiries in 2025

DEWA / 2026-01-24 / corporate-release

Locator: Openingparagraph

[Open source](#)

S05 / ADNOC Deploys Pioneering AI-Enabled Process Optimization Technology

ADNOC / 2024-08-27 / corporate-release

Locator: Release paragraphs1-5

[Open source](#)

S06 / 2025: A Year in Review

ADNOC / Undated / annual-review

Locator: Printedslide9

[Open source](#)

S07 / First batch of Certified Technicians Graduate from AI Academy in the UK

Kuwait Oil Company / 2025-11-03 / corporate-release

Locator: Bodyparagraphs1,4,6

[Open source](#)

S08 / AI Innovation Center inauguration

Kuwait Oil Company / 2025-08-07 / corporate-release

Locator: Bodyparagraphs1,4

[Open source](#)

S09 / SLB Announces Fourth-Quarter and Full-Year 2023 Results

SLB / 2024-01-19 / partner-results-release

Locator: Quarterly Highlights KOC paragraph

[Open source](#)

S10 / SLB Announces Third-Quarter 2023 Results

SLB / 2023-10-20 / partner-results-release

Locator: Digital Operations KOC paragraph

[Open source](#)

S11 / Sustainability Report 2024

QatarEnergy LNG / 2025-11-12 / sustainability-report

Locator: PDF38; printed74-75; Adoption of AI

[Open source](#)

S12 / Geminus AI, Bapco Energies and SLB to Deploy Physics-Native AI to Optimize Bahrain's Energy Infrastructure

Geminus AI release carried by Automation.com / 2026-04-14 / company-issued-syndication

Locator: Initialusecase and field-test paragraphs

[Open source](#)

S13 / Annual Report 2024

Saudi Electricity Company / 2025 / annual-report

Locator: PDF62; printed122-123

[Open source](#)

S14 / KAHRAMAA Launches AI Platform, in Collaboration with Microsoft and KPMG

KAHRAMAA / 2023-03-08 / corporate-release

Locator: Body paragraphs1 and final technical paragraph

[Open source](#)

S15 / KAHRAMAA Google Cloud initiatives

KAHRAMAA / 2025-12-11 / corporate-release

Locator: Indexed lead only

[Open source](#)

S16 / Bapco Energies Annual Report 2024

Bapco Energies / 2025 / annual-report

Locator: Printed28-29 indexed lead

[Open source](#)

S17 / Tender745/2025/BTB T88046(61): APC RTO and AI engineering

Bahrain Tender Board / 2025-12-08 / official-tender

Locator: Indexed tender description

[Open source](#)

S18 / KNPC Technology Magazine, issue1

KNPC / Undated / company-magazine

Locator: PDF8; lines324-329

[Open source](#)

S19 / annual-report archive

Primary source as linked / See original / Research or official publication

Locator: Linked publication; see cited passage in report

[Open source](#)

About Mayden

Mayden connects senior judgement, research and engineering to help organisations move from strategic choices to working capabilities. This research programme examines how AI changes recurring work, decisions and accountability.

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