

LIAMOL HOSPITALITY INTELLIGENCE

Connected Hotels Benchmark Study

An executive framework for measuring connected capability, operational performance and investment priorities.



Measure capability. Compare fairly.
Turn evidence into better hotel performance.

SEPTEMBER 2026 | EXECUTIVE BENCHMARK FRAMEWORK

Includes illustrative peer comparisons. No proprietary hotel survey or verified industry adoption rates are claimed.

01 / DECISIONS THAT MATTER

Executive perspective

A connected hotel is measured by dependable outcomes, not the number of installed systems.

Connected-hotel maturity is the ability to move trusted information between guest journeys, core hotel systems and the physical property, then turn it into reliable action. A sensor, app or cloud platform contributes only when teams can use it, exceptions are resolved and benefits are demonstrated.

This study provides a structured assessment and decision framework. It does not report a sampled hotel population: no primary property dataset was supplied. Its maturity bands, weights and worked comparisons are proposed analytical tools. Public technical frameworks support selected methods and controls; they do not validate the example results.

Executive recommendation	Why it changes the decision
Assess the complete service chain	A digital request is successful only when the guest receives the service and the underlying records reconcile.
Separate adoption from maturity	Installed features, staff usage, integration reliability and realised benefits are different measures.
Establish comparable baselines	Service level, climate, occupancy, building mix and outsourcing can distort apparent peer performance.
Protect the foundation first	Recovery, identity, supported devices and interface monitoring condition safe expansion.
Fund in stages	Release scale funding after a pilot demonstrates service quality, operational ownership and credible economics.

THE EXECUTIVE TEST

Can the hotel show where a guest or asset event starts, which systems it crosses, who owns the outcome, and what happens when any step fails? If this cannot be demonstrated, prioritise the operating chain before adding more features.

02 / HOW TO USE THE STUDY

Scope and reading guide

Designed for owners, operators, asset managers, general managers and technology leaders, this report supports property assessment and portfolio planning. Use it in a joint review involving operations, engineering, finance, commercial, IT and security. Assess the property as the primary unit; retain portfolio context separately.

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Three evidence categories

Reference guidance: attributed public sources [1-5] inform measurement or risk practices. They are not hotel peer datasets.

Proposed framework: the scoring model, thresholds and evidence rules are designed for this resource, not externally validated standards.

Illustrative analysis: all invented hotel scores, performance values and financial scenarios are labelled. They show how to use the method, not what the market achieves.

RUN THE FIRST REVIEW

Agree scope and dates, collect evidence, score each domain, review unresolved risks, then select three priorities with named owners. Repeat quarterly; retain the same metric definitions so change is interpretable.

Any percentages on associated promotional artwork are design examples unless separately supported and identified as research findings. This PDF does not use them as evidence.

03 / AN AUDITABLE ASSESSMENT

Benchmark methodology

Use a common evidence window and a documented assessment protocol. The proposed starting point is 12 complete months for energy and seasonal business measures, plus the latest 90 complete days for workflow and system reliability. Record exact dates, time zones, operating days, exclusions and system changes.

Step	Required output
1. Define scope	Property IDs, room inventory, service model, buildings, included departments, systems and accountable sponsor.
2. Collect evidence	PMS occupancy; workflow timestamps; API logs; utility bills and meters; guest surveys; asset inventory; recovery and access-test records.
3. Validate and reconcile	Match room nights to finance; reconcile meter totals to invoices; test timestamp sequences; deduplicate cases and transactions.
4. Assess capability	Two reviewers score the three criteria in each domain using the anchors on page 6. Resolve differences with evidence, not averaging opinions.
5. Compare responsibly	Apply the cohort rules on page 5. Show coverage, cohort size, time period and distributions alongside performance.
6. Act and repeat	Approve priorities and owners, preserve the baseline, and remeasure after the change has stabilised.

Confidence is reported alongside maturity

High: reconciled system evidence and tested controls cover the agreed period.

Medium: partial logs or documented samples with known gaps.

Low: interview claims or unverified exports. An unsupported claim remains unknown; it does not receive a demonstrated capability score.

This is a proposed assessment protocol. It has not been field-validated. A real study should publish recruitment, participation, missingness, weighting and assessor calibration before presenting conclusions as industry findings.

04 / COMPARE LIKE WITH LIKE

Peer groups and comparability

Begin with properties that share a relevant operating context. A luxury resort with extensive pools, kitchens and spa facilities is not a fair energy or labour comparator for a limited-service city hotel. A franchise property may also have different technology decision rights from an owner-operated hotel.

Match or disclose	Reason / analytical treatment
Segment and service scope	Match service tier, F&B;, events, spa and opening hours; isolate departments where possible.
Scale and utilisation	Report available rooms, occupied room nights and occupancy. Keep closures and out-of-order rooms explicit.
Location and physical estate	Match climate, heating/cooling demand, floor area, building age and refurbishment state for energy.
Operating and labour model	Disclose outsourcing, wage context and staffing mix. Include agency and outsourced hours where comparable.
Technology and business context	Disclose brand mandates, legacy constraints, connectivity, recent migrations and guest channel mix.

Proposed publication rules

For an empirical cohort, show the property count for every metric; use an equal-property median and 25th/75th percentiles. Separately identify room-night-weighted operational rates. Do not mix those estimands. Retain genuine outliers after checking errors and explain material exclusions.

As a conservative house rule, suppress external cohort statistics when fewer than 10 properties contribute; with 10-19, show the median and range only. At 20 or more, add quartiles. These are disclosure rules, not guarantees of representativeness. Avoid league tables where uncertainty or cohort mismatch is material.

AVOID A FALSE CAUSAL CLAIM

Higher maturity and better performance may coexist without one causing the other. Refurbishment, staffing, occupancy and asset quality can explain differences. Use a matched pilot or controlled time-series design to test an intervention.

05 / CAPABILITY BEFORE COMPARISON

Connected-hotel maturity model

Score three criteria per domain: **A. deployment and ownership**, **B. integration and operational control**, and **C. measurement and improvement**. Domain-specific evidence is defined on pages 8-17. Apply the same anchors to each criterion and award the highest fully evidenced level.

Score	Evidence anchor
0 / Absent	A review confirms no relevant capability or control exists. Distinguish confirmed absence from missing evidence.
1 / Fragmented	Local or manual practice exists; reliance on individuals, limited documentation and inconsistent coverage.
2 / Defined	Documented approach and named owner; partial production deployment, repeatable process and basic evidence.
3 / Managed	In-scope deployment is operational; monitoring, exception ownership and periodic review are demonstrated.
4 / Optimising	Managed capability has sustained measured outcomes and a documented improvement cycle, including failure tests.

Reading the overall score

Convert the weighted domain score to a 0-100 index. Proposed bands are **0-<25 Fragmented**, **25-<50 Developing**, **50-<75 Managed** and **75-100 Optimising**. These labels summarise capability evidence; they are not peer percentiles, certification or a forecast of returns.

A HIGH AVERAGE CANNOT ERASE A CRITICAL GAP

Show a separate “Foundational risk unresolved” flag if privileged access protection, critical-service recovery or safe room-control fallback is untested or demonstrably inadequate. The flag overrides any recommendation to scale dependent services until remediated.

06 / A REPRODUCIBLE INDEX

Scoring and evidence rules

Domain	Weight
Technology adoption	10%
Integration / APIs	15%
IoT / smart rooms	10%
Cloud / platform architecture	10%
Operational efficiency	10%
Energy / sustainability	10%
Guest experience	10%
Data / analytics	10%
Cybersecurity / resilience	10%
Automation / AI	5%

Domain score $D = (A + B + C) / 3$.

Overall index = $\text{sum}(\text{weight} \times D / 4)$. Enter weights as the percentage numbers above; they sum to 100. Calculate at full precision and round only the published index to one decimal. Weights are proposed for this framework; freeze them before a comparison.

Unknown evidence: mark U and report coverage as the assessed share of the total 30 criteria. For each unknown, use 0 and 4 to calculate lower and upper index bounds. Publish no single overall index or maturity band until all criteria are resolved. Do not silently remove domains or redistribute weights.

Not applicable: retain the standard cohort model. A property without a selected guest feature can still demonstrate deliberate selection and control. If a domain truly cannot apply, publish its profile separately rather than ranking it against the standard index.

Example: integration scores of A=3, B=2, C=1 yield D=2.0 and contribute $15 \times 2/4 = 7.5$ index points. Evidence age, assessor and unresolved risk flags remain visible independently of the number.

07 / INSTALLED IS NOT EMBEDDED

Technology adoption

Measure whether appropriate capabilities are in production and used by the eligible population. A feature licensed across a portfolio but active at one pilot hotel is not portfolio adoption. Track the core hotel stack: property management (PMS), central reservations (CRS), point of sale (POS), distribution, payments, customer management and service operations.

Scoring criterion	Evidence to examine
A. Deployment and ownership	Capability register, property coverage, product and process owners, intended users and documented business need.
B. Integration and control	Production workflows, exception procedures, staff training, support ownership and demonstrable use across shifts.
C. Measurement and improvement	Usage trends, service outcomes, retirement of duplicate tools and improvements linked to observed friction.

Adoption metrics that reveal the gap

Property deployment: properties with the capability live / in-scope properties.

Eligible-user adoption: eligible staff who completed a defined task in the period / eligible staff scheduled in that period.

Transaction penetration: eligible transactions completed through the capability / all eligible transactions. Publish eligibility rules, not only the headline rate.

Segment usage by shift, department and tenure. Low penetration may indicate training problems, workflow design, unsuitable devices or legitimate guest preference. Investigate those causes before treating non-use as resistance.

IMPROVEMENT PRIORITY

Rationalise overlapping tools and fix the two most frequent workarounds. Require vendors to demonstrate complete hotel scenarios, including groups, deposits, room moves, accessibility needs and offline recovery.

08 / FROM DATA TRANSFER TO RELIABLE SERVICE

Integration and API maturity

The key benchmark is whether a business transaction completes correctly, not merely whether an API responds. Use an interface catalogue with owners, data objects, dependencies, service objectives and failure behaviour. OpenAPI provides a standard description format for HTTP APIs [1]; documented syntax alone does not ensure semantic compatibility.

Scoring criterion	Evidence to examine
A. Deployment and ownership	Inventory of critical flows, source-of-truth records, documented API contracts, supported versions and named owners.
B. Integration and control	Authentication, retries, duplicate prevention, queues, reconciliation, alert routing and tested version changes.
C. Measurement and improvement	End-to-end success, latency percentiles, recovery times, incident trends and reduction in manual rekeying.

Define the critical path

For a booking-to-arrival flow, trace reservation, payment status, room assignment and guest communication. Agree the acceptable delay for each event. Test duplicate bookings, cancelled reservations, unavailable downstream systems and replay after an outage.

Business completion rate: unique valid transactions completed correctly within the agreed deadline / unique valid transactions initiated. Count retries once and retain late completions as deadline misses.

Latency: report median and 95th percentile from event creation to confirmed completion, with clocks synchronised.

Rekeying burden: manual correction minutes / 100 eligible transactions.

IMPROVEMENT PRIORITY

Instrument the highest-impact interfaces before adding new connections. Require useful logs, rate-limit behaviour, sandbox access, data export and a tested escalation path in procurement acceptance criteria.

Security testing should also address object-level authorisation, authentication and resource consumption risks described by OWASP [2].

09 / CONNECT THE PHYSICAL PROPERTY

IoT and smart-room capabilities

A smart room should remain usable when a network or cloud service fails. Prioritise dependable room access, understandable controls and maintainable equipment. Occupancy detection, environmental controls, leak sensing and asset alerts must connect to an operational response; sensing without action is incomplete.

Scoring criterion	Evidence to examine
A. Deployment and ownership	Room/device inventory, supported firmware, coverage, asset owner, commissioning and replacement plan.
B. Integration and control	Secure network zones, local fallback, manual override, alert-to-work-order flow and tested device outage scenarios.
C. Measurement and improvement	Device availability, actionable alerts, comfort complaints, maintenance response and verified tuning outcomes.

Measure working coverage

Connected-room coverage: rooms with commissioned in-scope capabilities / eligible rooms. Show each capability separately.

Healthy-device rate: devices reporting within their defined heartbeat interval / expected active devices. A connected gateway does not prove each sensor is healthy.

Actionable-alert rate: validated alerts requiring action / reviewed alerts; disclose unreviewed alerts.

Fault resolution: median and 90th-percentile time from validated fault to verified repair.

Test empty, occupied and housekeeping states, room moves, privacy preferences, failed batteries and loss of upstream services. Avoid inferring that a room is empty from a single unreliable signal. Preserve guest control and engineering safety interlocks.

IMPROVEMENT PRIORITY

Pilot a representative room group, including difficult connectivity locations. Approve scale only after engineering accepts the maintenance workload and operations verifies fallback and service recovery.

10 / RESILIENCE WITH CLEAR OWNERSHIP

Cloud and platform architecture

Architecture maturity reflects fitness for hotel operations, not the share of applications labelled cloud. A hybrid design may be appropriate where local controls must operate independently. Compare a consolidated suite and a modular stack against the same service scenarios, total cost and exit requirements.

EXPERIENCE

Guest channels / staff tools / assisted service

INTEGRATION

API contracts / events / queues / monitoring

CORE AND DATA

PMS / POS / reservations / trusted analytics

PROPERTY EDGE

Room controls / sensors / local fallback

Conceptual architecture. Identity, security and observability apply across layers; data exchanges require explicit authorisation.

A. Deployment: assess application and infrastructure inventory, architecture decisions, lifecycle and service ownership.

B. Control: demonstrate network diversity where needed, access management, backup restoration, offline operation and transaction reconciliation.

C. Improvement: show user-visible availability, tested recovery objectives, incident learning, cost management and a rehearsed export/exit path.

IMPROVEMENT PRIORITY

Agree recovery time (maximum acceptable outage) and recovery point (maximum acceptable data loss) for each critical service. Test restoration against both; a successful backup job is insufficient evidence of recovery.

11 / MEASURE COMPLETED WORK AND SERVICE QUALITY

Operational efficiency

Benchmark service processes before headcount. Technology can release staff capacity without producing cash savings, and faster work can create more rework. Pair productivity with quality and include the time spent on exceptions, supervision and support.

Metric	Definition and comparison guardrail
Room turnaround	Median and 90th percentile from room release to verified ready status; segment by departure/stayover and room type.
Service fulfilment	Share of eligible requests fulfilled within the agreed service deadline; report unresolved and reopened requests.
Labour intensity	Paid operational hours / occupied room nights, including comparable agency and outsourced hours. Segment by department.
Work-order performance	Time from accepted fault to verified resolution; separate safety-critical, urgent and routine work.
Cost per completed task	Relevant labour, software and support cost / completed tasks; keep cost allocation consistent.

A. Deployment: map workflows, owners and standard operating procedures.

B. Control: verify timestamps, shift handovers, escalation and quality checks.

C. Improvement: demonstrate baseline-to-pilot outcomes, capacity redeployment and sustained monitoring of rework and guest impact.

Test improvement fairly

Compare matched periods or pilot and control areas. Account for occupancy, room condition, staffing and task mix. Measure for enough operating cycles to include busy days and different shifts. Report confidence limits where data supports them; avoid interpreting a small sample as a reliable trend.

IMPROVEMENT PRIORITY

Choose one high-volume process with avoidable handoffs. Remove duplicate entry, clarify ownership and measure the complete cycle before introducing more automation.

12 / COMPARABLE BOUNDARIES, CREDIBLE PERFORMANCE

Energy and sustainability

Connected controls can support better energy management, but no saving should be assumed from installation alone. Track absolute consumption alongside intensity, and separate operational efficiency from changes in occupancy, weather, floor area or the electricity emission factor.

Metric	Definition and interpretation
Energy intensity	Total in-boundary energy in kWh / occupied room nights; also report kWh / square metre of conditioned floor area per year.
Carbon intensity	Use a documented boundary and emission-factor year. HCMI provides a hotel methodology for stays and meetings [3].
Water intensity	In-boundary water litres / guest nights; state pools, kitchens, irrigation and outsourced laundry boundaries.
Operational control	Meter completeness, fault closure time, comfort complaints and override frequency accompany consumption outcomes.

A. Deployment: identify meters, equipment, reporting boundaries and engineering ownership.

B. Control: reconcile bills and meters, calibrate sensors and operate approved setpoints and exception routines.

C. Improvement: evaluate adjusted baselines, sustained savings and comfort safeguards; document uncertainty and changes in emission factors.

Illustrative denominator effect

A hotel using 1,000,000 kWh over 20,000 occupied room nights records 50 kWh per occupied room night. If occupied room nights rise to 25,000 with unchanged energy use, intensity becomes 40. That is a 20% intensity reduction with **no absolute energy saving**. These figures are invented to demonstrate interpretation.

IMPROVEMENT PRIORITY

Establish 12 months of reconciled baseline data. Evaluate a controls pilot using weather and occupancy adjustments, then verify persistent savings without worsening guest comfort. Report model assumptions and absolute consumption.

13 / DIGITAL CONVENIENCE WITH A DEPENDABLE HANDOFF

Guest experience

A connected guest journey spans discovery, pre-arrival, access, in-stay service, departure and recovery. Benchmark completion and ease across channels. Guests choosing staff assistance should receive a coherent service; digital uptake alone does not measure satisfaction.

Metric	Definition and comparison guardrail
Digital task completion	Successful completions / eligible initiated journeys. Include abandoned and failed attempts; deduplicate retries.
Arrival experience	Median and 90th-percentile wait from joining the queue to service start; separate digital and assisted paths.
Request resolution	Time from guest request to confirmed resolution; include cross-channel transfers and reopened cases.
CSAT	Satisfied responses / valid responses using a fixed scale and threshold; show respondent count and response rate.
NPS	Percentage of 9-10 promoters minus percentage of 0-6 detractors on the 0-10 recommendation question; show response context.

A. Deployment: document priority journeys, channel ownership and eligibility.

B. Control: test accessibility, language, consent, identity and human handoffs.

C. Improvement: combine completion and survey evidence with complaints, abandonment and service recovery outcomes.

Avoid selection bias

App users may differ from guests who do not download an app. Compare like segments and survey timing; disclose the invitation method and response rate. Do not combine different rating scales or treat online review scores as directly interchangeable with a controlled guest survey.

IMPROVEMENT PRIORITY

Find the highest-abandonment guest task and observe it end to end. Repair the handoff and recovery path before adding personalisation or another channel.

14 / TRUSTED MEASURES, OWNED DECISIONS

Data and analytics maturity

Data maturity is the ability to answer a business question consistently and act on the answer. A dashboard count does not measure it. Define common property, room, guest, asset and transaction identifiers, with source systems and authorised uses documented.

Scoring criterion	Evidence to examine
A. Deployment and ownership	Data catalogue, business metric definitions, data owners, lineage and governed access to required datasets.
B. Integration and control	Reconciliation, duplicate handling, freshness checks, access reviews, retention and correction processes.
C. Measurement and improvement	Quality trend reviews, decision logs, forecast validation and resolution of conflicting reports.

A compact data quality dashboard

Completeness: required populated fields / expected required fields; distinguish missing from valid zero.

Validity: records passing agreed business rules / records checked.

Freshness: records arriving within the use-case deadline / expected records.

Reconciliation: count and value differences between operational and financial totals, with ageing of unresolved items.

For forecasting, record the forecast date, horizon and error measure, and compare against a simple baseline. Avoid using information that was unavailable at prediction time. For cross-property analytics, maintain consistent room-night definitions and separate property-level from portfolio-weighted measures.

IMPROVEMENT PRIORITY

Assign an owner to each executive KPI and resolve the largest reconciliation gaps. Only then expand predictive analysis or guest personalisation. A trusted operational dataset has greater decision value than a larger ungoverned dashboard estate.

15 / TRUST IS A PREREQUISITE FOR SCALE

Cybersecurity and resilience

Use the six functions of NIST CSF 2.0 - Govern, Identify, Protect, Detect, Respond and Recover - to organise risk review [4]. This benchmark is not a security certification. Maintain a separate risk register and remediate critical exposures regardless of the overall maturity score.

Scoring criterion	Evidence to examine
A. Deployment and ownership	Asset and supplier inventory, risk accountability, supported lifecycle, data classification and incident roles.
B. Integration and control	Privileged access protection, least privilege, network separation, patching, logging, vendor access and tested backups.
C. Measurement and improvement	Incident exercises, restoration tests, access review findings, remediation ageing and lessons converted into controls.

Measure assurance coverage

Report privileged accounts protected by multi-factor authentication / in-scope privileged accounts; critical services with successful recovery tests / critical services; and overdue critical remediation items / critical items due. Document test scope and age. A low incident count can reflect weak detection rather than strong protection.

For connected rooms, isolate device networks, control supplier access and maintain safe fallback. For guest data, minimise collection and define access, retention and deletion responsibilities. For APIs, test authorisation at the record level as well as login controls; OWASP offers a dedicated API risk reference [2].

IMPROVEMENT PRIORITY

Rehearse a realistic interruption affecting arrival, payments or room access. Verify who declares the incident, how the hotel continues operating and how transactions are reconciled after recovery. Resolve failed foundational tests before expanding dependency.

16 / EVALUATE THE COMPLETE WORKFLOW

Automation and AI

Distinguish rules-based automation, predictive models and generative AI. A rule can route a request; a model can forecast demand; a language model can draft a reply. Their error patterns, authority and operating costs differ. NIST AI RMF provides Govern, Map, Measure and Manage functions for risk assessment [5].

Scoring criterion	Evidence to examine
A. Deployment and ownership	Approved use-case register, business owner, data permissions, intended users and a comparison baseline.
B. Integration and control	Bounded permissions, human escalation, evaluation cases, action logs, rollback and failure handling.
C. Measurement and improvement	Quality and cost per resolved task, error/reopen rates, drift review and demonstrated net benefit.

Use-case progression

Start with staff knowledge retrieval or draft responses using approved sources. Test language coverage, inaccurate policy statements, guest-data exposure and malicious instructions in retrieved content. Require approval before commitments, compensation or financial actions. Introduce autonomous actions only within explicit limits and with a working stop mechanism.

Automation completion: eligible tasks completed correctly without human intervention / eligible tasks initiated.

Net handling time: include review, correction and escalation, not only machine time.

Quality: evaluate a representative labelled sample; disclose sample size, criteria and critical errors.

Cost: include licences, model usage, integration, review and support per resolved task.

IMPROVEMENT PRIORITY

Select a bounded, frequent workflow. Set a quality floor, escalation rule and cost ceiling before the pilot. Scale only when the complete service meets these conditions; a persuasive demonstration is insufficient.

17 / WORKED EXAMPLE - NO SURVEYED HOTELS

Illustrative maturity comparison

The profiles below are invented teaching cases, not observed properties, a market sample or statistical peer medians. Each domain value is the mean of three equal criterion scores in this simplified example (for a domain value of 2, A=B=C=2). Evidence coverage is assumed complete solely to demonstrate the calculation.

Domain / weight	Hotel A	Profile B	Profile C
Technology / 10%	2	3	3
Integration / 15%	1	2	3
IoT / 10%	2	2	3
Architecture / 10%	2	3	4
Operations / 10%	2	3	3
Energy / 10%	1	2	3
Guest / 10%	3	3	3
Data / 10%	1	2	3
Cybersecurity / 10%	2	3	4
AI / 5%	1	2	3
Weighted index / 100	42.5	62.5	80.0
Proposed maturity band	Developing	Managed	Optimising

Hotel A illustrates why a stronger guest front end does not establish overall connected maturity: integration and data remain at 1/4. Its priority is to stabilise the information and service chain. Profiles B and C illustrate higher capability states; they are not targets appropriate for every asset.

Illustrative calculation: Hotel A contributes $5 + 3.75 + 5 + 5 + 5 + 2.5 + 7.5 + 2.5 + 5 + 1.25 = 42.5$. Unknown evidence and foundational risk flags must be handled separately using pages 6-7.

18 / INTERPRET THE OUTCOME, NOT JUST THE GAP

Illustrative performance comparison

All figures below are invented. Assume Hotel A and comparator B are similar full-service city hotels over the same measurement period. They illustrate decision questions, not industry norms. A real comparison also needs the cohort and evidence disclosures on pages 4-5.

Metric	Hotel A	Comparator B	Decision question
On-time integration completion	96%	99%	Are late events creating arrival or payment exceptions?
Request resolution, median	24 min	16 min	Do request mix and reopened cases explain the gap?
Operational hours / occupied room night	1.8	1.5	Are outsourced work and service scope comparable?
Energy / occupied room night	48 kWh	40 kWh	Do climate, amenities and occupancy account for this?
Digital task completion	72%	85%	Where do eligible guests abandon the journey?
CSAT, fixed satisfied threshold	84%	88%	Are survey timing, response rates and segments aligned?

Illustrative interpretation

The integration difference is **3 percentage points**; the relative increase from 96% to 99% is 3.125%. Keep those concepts distinct. A reduction from 24 to 16 minutes is 33.3%, but may reflect easier requests rather than better execution. No causal conclusion follows from this table.

For Hotel A, start with a request-to-fulfilment pilot supported by interface monitoring. Track the entire distribution, unresolved requests and guest satisfaction. Hold service scope stable and compare matched shifts or a suitable control group. Do not set a savings commitment from the raw peer gap.

WHAT AN EMPIRICAL RELEASE MUST ADD

Actual property counts, eligibility, dates, source systems, missingness, uncertainty and adjustment methods. Without those, use examples for planning discussions only.

19 / TURN THE SCORE INTO AN INVESTMENT CHOICE

Improvement priorities and value

Treat safety, critical security and continuity remediation as mandatory prerequisites. Rank discretionary initiatives by guest/operating value, evidence confidence, readiness and total cost. A low domain score signals investigation; it is not an automatic instruction to buy technology.

Priority for illustrative Hotel A	Accountable owner / proof
1. Critical interface observability	IT + operations: reconcile bookings and requests; prove failure detection and recovery.
2. Trusted service and energy data	Finance + engineering: agree definitions, repair data gaps and establish usable baselines.
3. Request workflow redesign	Operations: reduce avoidable handoffs while holding quality and reopened cases within agreed limits.
4. Targeted room-controls pilot	Engineering: demonstrate maintainability, comfort and adjusted consumption improvement.
5. Bounded staff AI assistance	Operations + IT: validate answers and total handling cost after trusted data and controls are in place.

Illustrative economics - capacity is not cash

Assume 40,000 annual requests, 3 minutes saved per request and a fully loaded labour rate of £20/hour. Gross capacity value is $40,000 \times 3/60 \times £20 = \text{£40,000}$. If only half becomes avoidable cost, realised annual savings are **£20,000**. Deduct £12,000 recurring cost to obtain £8,000 net annual benefit.

With £24,000 one-off implementation cost, simple payback is **3 years** after steady-state benefits begin. At 25% cash conversion, net benefit becomes negative £2,000/year. These invented assumptions exclude ramp-up, tax, financing and discounting; validate them before investment approval.

Track released capacity separately when it improves service instead of reducing cost. Count each benefit once and include integration, training, support and device replacement costs.

20 / SEQUENCE FOUNDATIONS, PROOF AND SCALE

A staged improvement roadmap

Use the roadmap as a proposed 12-month sequence, adapting timing to seasonality, refurbishment windows and property-team capacity. Each stage has an evidence gate; elapsed time alone does not justify proceeding.

Horizon	Delivery focus	Release gate / owner
Days 1-30 Establish	Confirm scope, inventory, KPI definitions, baseline quality and foundational risks.	Sponsor accepts assessment; owners assigned to critical remediation.
Days 31-90 Stabilise	Instrument critical integrations; reconcile data; test restoration and fallback; agree one operational pilot.	IT/operations demonstrate recovery and reliable pilot measurement.
Months 4-6 Prove	Pilot workflow and selected room controls; train all relevant shifts; evaluate quality and economics.	Finance validates benefits; operations and engineering accept service and maintenance impact.
Months 7-9 Expand	Roll out by property readiness; standardise configurations and support; retire duplicate work.	Each wave passes readiness, cutover and rollback checks.
Months 10-12 Optimise	Reassess maturity, audit sustained benefits and evaluate additional automation.	Executive committee reviews outcomes and approves the next investment cycle.

Dependencies to make explicit

Trusted identifiers and interface behaviour precede reliable cross-system automation. Meter quality precedes energy-savings claims. Staff adoption and exception ownership precede scale. Local fallback and recovery precede greater dependence on connected services.

STOP OR RESET WHEN EVIDENCE FAILS

Pause a wave if recovery tests fail, service quality deteriorates or the cost model no longer holds. Resolve the cause, re-test and obtain the accountable owner's acceptance before resuming.

21 / THE BOARD AND OPERATING AGENDA

Executive recommendations

Approve a connected-hotel programme around a small number of measurable service and asset outcomes. Make the maturity index a discussion aid, with evidence confidence and critical risks visible beside it. Avoid using a composite score as a substitute for operational judgement.

Decision	Executive instruction
Set ambition by asset	Choose a target capability profile that fits the hotel segment, guest promise, lifecycle and operating model.
Own the complete service	Assign joint business and technical owners to critical flows; include suppliers in incident and improvement reviews.
Require measurement integrity	Approve metric definitions, peer rules and evidence windows before results are published or incentives attached.
Stage investment	Fund foundations and pilots first; release scale capital against demonstrated service, resilience and economic criteria.
Protect guest choice and trust	Keep assisted service, clear controls and human escalation; review data use and vendor dependencies.
Reassess quarterly	Review domain scores, unknowns, incidents, adoption, outcome trends and benefits; adjust the roadmap with evidence.

Monthly executive dashboard

Limit the dashboard to the index and domain profile; unresolved foundational risks; three priority outcome measures; evidence coverage; milestone/gate status; and realised versus planned benefit. Every exception needs an owner, action and due date. Preserve the underlying evidence for challenge and audit.

THE FIRST APPROVAL

Name the sponsor and assessment owner, authorise the baseline exercise, and select one service chain for detailed review. Make the next funding decision after that chain's failure points and business consequences are understood.

22 / REUSABLE OPERATING TEMPLATE

Assessment record and KPI contract

Create one controlled record per property and assessment period. Store personal data only where necessary and authorised; retain evidence references rather than embedding guest-level records in the published benchmark.

Record field	Required entry
Property and scope	Property ID, rooms, service model, systems/departments, exclusions and assessment dates.
Review ownership	Executive sponsor, business/technical assessors, independent challenge and approval date.
Domain assessment	A/B/C scores or U; evidence reference/date; confidence; reviewer rationale; unresolved risk flag.
Metric contract	Name, business purpose, numerator, denominator, unit, inclusion rules, direction of improvement and owner.
Data provenance	Source system, extraction window, time zone, transformations, reconciliation and missing-data treatment.
Comparison basis	Cohort criteria/count, equal-property or volume weighting, adjustment method and limitations.
Action and benefit	Gap, chosen intervention, dependency, cost, expected outcome, baseline, gate and review date.

Minimum publication checks

Verify that each numerical statement has a source or an illustrative label. Recalculate index totals, rates and percentage-point changes. Check all denominators and dates. Confirm that absent evidence is not treated as observed failure or excluded silently. Present risk flags and limitations where decision makers will see them.

VERSION CONTROL

Freeze the rubric, weights and KPI definitions for each benchmark cycle. Record changes explicitly; restate the prior period where possible or mark a break in the series. Keep the original evidence and approvals available for review.

23 / REFERENCE REGISTER

Sources and methodological notes

Public sources reviewed 8 September 2026. Links support the specific reference guidance below; none supplies the hotel scores or performance examples in this report.

1. OpenAPI Initiative - Specification

Reference for describing HTTP APIs (page 9). Does not establish hotel interoperability, operating reliability or adoption.

[Open source reference](#)

2. OWASP - API Security Top 10, 2023

API risk reference for authorisation, authentication and resource-consumption testing (pages 9 and 16).

[Open source reference](#)

3. World Sustainable Hospitality Alliance - HCMI

Hotel Carbon Measurement Initiative: hotel carbon measurement for stays and meetings (page 13). Apply the methodology and its boundaries to actual data.

[Open source reference](#)

4. NIST - Cybersecurity Framework 2.0

Six-function structure used to organise cyber risk review (page 16). Framework use does not itself establish certification or security.

[Open source reference](#)

5. NIST - AI Risk Management Framework 1.0

Voluntary AI risk-management framework used to inform the automation assessment (page 17). Not evidence of hotel AI performance.

[Open source reference](#)

Research status and limitations

This edition is a substantive executive benchmarking framework with illustrative analysis, not a completed empirical survey. No recruitment, sample, fieldwork or statistical validation is claimed. Maturity anchors, domain weights, publication thresholds and roadmap gates are proposed methods for practical use. They require calibration before use in an empirical study or investment-linked ranking.

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