

Commercial Office

Innovation Report

Where technology has already won, where it has not arrived, and the two workflows the office sector is still solving by hand.

Leasing & Tenant Experience

Operations & Property Mgmt

Asset Management

Capex

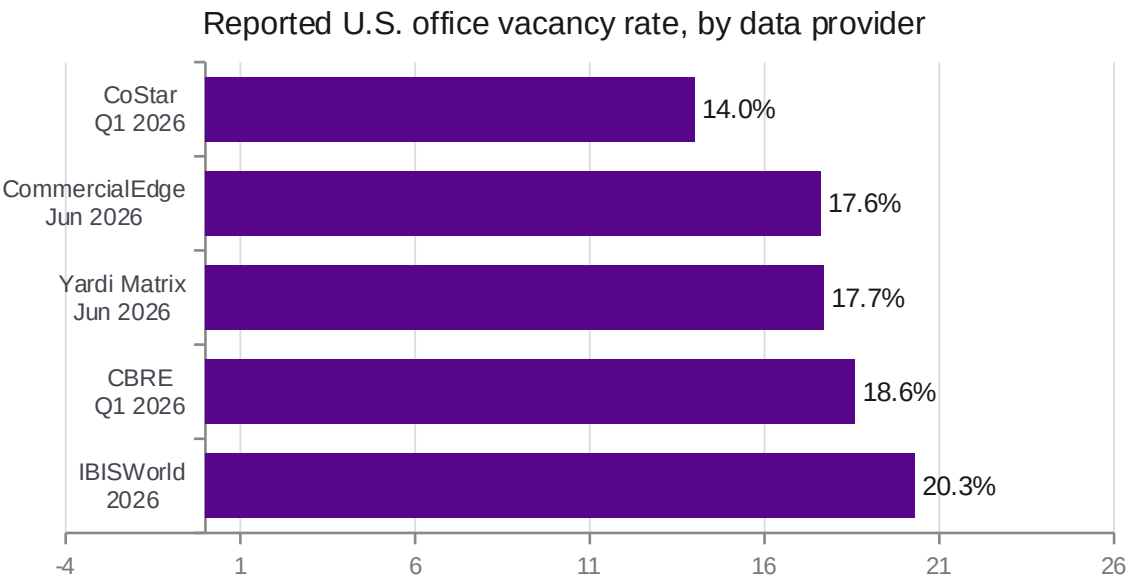
ESG

Group innovation report and presentation · August 5, 2026

Built on the workflow map and inventory mapping submitted at the July 22 interim check-in

The office asset class in mid-2026

Recovering, but unevenly - and the industry still cannot agree on the single most basic number about itself.



Same asset class, same year, a 6.3-point spread. Providers differ on what counts as inventory, how building class is drawn, and how sublease space is treated. That is the data problem this report is about, in miniature.

Sources: [IBISWorld](#) · [CBRE](#) · [Yardi Matrix](#) · [CommercialEdge](#) · [CoStar](#) via [Bisnow](#)

12.7%

Prime vacancy in Q1 2026, down 80 bps, against 18.6% overall. Midtown Manhattan prime is 2.9%. Flight to quality is now a measurable split, not a narrative.

[CBRE Research, Q1 2026](#)

+85%

Year-over-year growth in national AI-company office demand, and +179% across the largest AI hubs — concentrated in a handful of submarkets.

[VTS AI Office Demand Report, Jul 2026](#)

90,300

Apartments in the U.S. office-to-residential conversion pipeline entering 2026, up 28% year over year. Office is 47% of all adaptive reuse.

[RentCafe / Yardi, Smart Cities Dive](#)

~55%

Average in-office attendance on Kastle's barometer. Hybrid is the settled baseline, so utilisation and experience data now drive leasing outcomes.

[Yardi Matrix via CommercialSearch](#)

WHY THIS FRAMES EVERYTHING THAT FOLLOWS

Office is no longer a single market managed one way. A prime, well-instrumented tower and an obsolete Class B building on the same block now run fundamentally different workflows — one optimising experience and retention, the other running a feasibility clock toward retrofit, conversion or exit. Any useful map has to hold both.

What we mapped, and how

Two connected artefacts: a workflow map of the office operating model, and an inventory of the technology sitting on it.

METHOD		THE FIVE REQUIRED DOMAINS	
Desk research	Broker and analyst market reports (CBRE, CoStar, JLL, Yardi Matrix, Deloitte), vendor product documentation and trade press published January to July 2026.	1	Leasing & tenant experience Demand sensing, negotiation, abstraction, renewal
Vendor scan	Platforms identified from category reviews and primary vendor sources, then placed against the workflow step they actually serve rather than the one they market to.	2	Operations & property management Access and identity, service delivery, building systems, recoveries
Stated limits	Maturity ratings are our judgement, not a published framework. Vendors named without a dedicated citation are flagged in the companion source document.	3	Asset management Data spine, rollover risk, valuation, investor reporting
		4	Capex & repositioning Capital planning, procurement, cost control, lease-up
		5	ESG & compliance Meter capture, benchmarking, retrofit pathway, disclosure

Maturity legend, applied consistently across the inventory

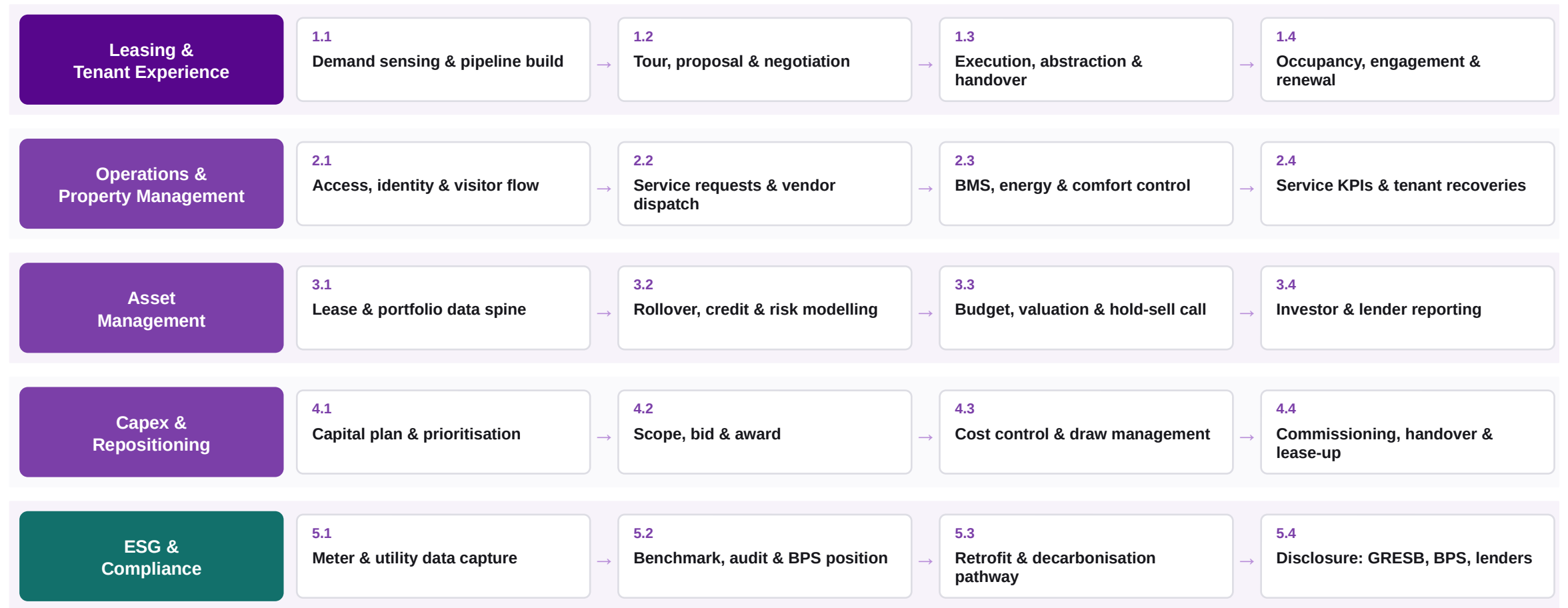
Mature	Established category with multiple credible vendors. Adoption is a budget question, not a technology question.	Scaling	Proven with early adopters and moving into the mainstream. Procurement standards are still forming.	Emerging	Thin vendor set, limited office-specific proof, or the capability is still largely manual.
--------	--	---------	---	----------	--

THE ARGUMENT WE ARRIVED AT

Office technology has solved what is visible and demoable — apps, documents, dashboards — and left the connective tissue between workflow lanes alone. The two largest remaining gaps are not new categories. They are the two questions an owner asks most often and still answers by hand.

How a commercial office asset actually runs

Five domains, four sequential steps each. Slides 5–9 open each lane; slide 10 inventories the technology sitting on it.



Read left to right within a lane, and top to bottom for one asset in one quarter. All five lanes run concurrently and contend for the same budget, the same building systems and the same tenant relationship.

Leasing and tenant experience

The best-funded lane in office PropTech, and the one where the last step is still the least served.

THE WORKFLOW

- 1.1 Demand sensing & pipeline**
Market data, tour activity and forward requirement pipelines feed the leasing plan.
- 1.2 Tour, proposal & negotiation**
Space marketing, test fits, proposal generation and deal tracking.
- 1.3 Execution & abstraction**
Signature, lease abstraction, critical dates, handover to operations.
- 1.4 Occupancy & renewal**
Utilisation, engagement, service delivery and the renewal conversation.

WHERE IT BREAKS TODAY

- Demand data is retrospective. Signed-deal comps describe a market the leasing team already lost or won months ago.
- Tenant demand has become concentrated and fast-moving — AI tenants take larger footprints on shorter terms with expansion and termination rights, which classic pipeline tooling does not model.
- Abstraction is solved as a document problem, so the resulting data lands in a leasing system and rarely reaches the asset-management model that needs it.
- The renewal decision — the single highest-value moment in the lane — is still made from relationship intuition and a spreadsheet.

WHAT IS BEING BUILT AGAINST IT

- Forward-looking pipeline data: VTS Office Demand Index and the AI Office Demand Report price demand before deals are signed.
- AI lease abstraction with expert-in-the-loop verification (VTS Asset Intelligence, Prophia, Dealpath Extract) is now credible enough for production use.
- Tenant-experience platforms have converged on a CRM framing — HqO's REX explicitly ties experience data to renewal forecasting and NOI.
- Flexible space has been absorbed by the majors: CBRE acquired Industrious outright; Convene took NeueHouse; Tishman Speyer, Hines and Nomura run proprietary products.

46%

VTS AI Office Demand Report (Jul 2026)

of active national tech office square footage now traces to AI companies, with the average AI requirement around 37,000 sf — 37% larger than the average tech deal.

OUR READ

Everything up to signature is well served. The renewal step is not — and it is worth more than the three steps before it combined.

Operations and property management

The most instrumented lane in the building, and the one whose data travels the shortest distance.

THE WORKFLOW

- 2.1 Access & visitor flow**
Credentialling, turnstiles, visitor registration, tenant onboarding and offboarding.
- 2.2 Service requests & dispatch**
Work orders, vendor dispatch, SLA tracking and preventive maintenance.
- 2.3 BMS, energy & comfort**
Building systems control, setpoint management, fault detection and comfort response.
- 2.4 KPIs & recoveries**
Service performance reporting, operating expense allocation and tenant recoveries.

WHERE IT BREAKS TODAY

- Access, work-order and building-system data sit in three separate systems that were never designed to reconcile with one another.
- Occupancy sensing tells the operator how the building is used but rarely reaches the leasing team who negotiates on that basis.
- Fault detection produces alerts faster than an engineering team can triage them, so the constraint moves from detection to labour.
- Operating expense and recovery calculations remain a spreadsheet exercise in most portfolios, disconnected from the systems generating the cost.

WHAT IS BEING BUILT AGAINST IT

- Autonomous HVAC control (BrainBox AI) writes setpoints back to equipment on a five-minute cycle rather than reporting to a human.
- Occupancy analytics has gone infrastructure-light: VergeSense now derives person counts from existing conferencing hardware, removing the sensor capex objection.
- Building-operations platforms (JLL Building Engines, Facilio, Enertiv, SiteCompli) have consolidated work orders, inspections and compliance into one operating record.
- Mobile credentialling and standardised access (Brivo, Kastle, SwiftConnect, HID) is now a procurement default rather than an upgrade.

up to 25%

BrainBox AI (vendor claim)

HVAC energy reduction claimed by autonomous control vendors. Vendor-reported and unaudited — the strongest available figure, not an independently verified one.

OUR READ

Instrumentation is no longer the constraint. Integration is — and nobody is paid to own the seam between these systems.

Asset management

Where every other lane's data is supposed to arrive — and where the most consequential analysis is still manual.

THE WORKFLOW

- 3.1

Lease & portfolio data spine
Abstracted lease terms, rent roll, ownership and property attributes in one reconciled record.
- 3.2

Rollover, credit & risk
Which tenants roll, which renew, which default, and what that does to the cash flow.
- 3.3

Budget, valuation & hold-sell
Reforecast, revalue, and decide whether to hold, refinance, reposition or sell.
- 3.4

Investor & lender reporting
Quarterly packs, covenant reporting, lender requests and fund administration.

WHERE IT BREAKS TODAY

- The data spine is assembled rather than maintained. Rent rolls, budgets and valuations arrive in different formats from different systems and are reconciled by hand each cycle.
- Renewal-probability modelling is the largest unautomated analytical workflow we found in the entire stack — despite being the input every other number depends on.
- AI is trusted for document spreading and deal screening, not for investment-committee output. That boundary is a trust problem, not a capability problem.
- Reporting is the most repetitive and most deadline-driven work in the lane, and automating it is a workflow problem rather than a data problem.

WHAT IS BEING BUILT AGAINST IT

- Underwriting and valuation: Argus (Altus), Blooma, Archer and Dealpath cover screening and document extraction well.
- Data platforms (Cherre, Yardi, MRI) increasingly market a unified property record, though office-specific reconciliation is still bespoke.
- Investor reporting is mature — Juniper Square and Yardi Investment Suite have made the quarterly pack a solved problem for institutional owners.
- Deloitte's 2026 outlook explicitly counsels deploying AI only where it demonstrably advances leasing, underwriting and portfolio decisions.

12.34%

[Deloitte, 2026 CRE M&A Outlook](#)

office loan delinquency rate. A current, defensible data position is now a financing input rather than an internal convenience.

OUR READ

The lane that consumes everyone else's data has the weakest pipes into it — and the highest-value question in it is answered by hand.

Capex and repositioning

Project execution is well tooled. The decision that precedes it is not.

THE WORKFLOW

- 4.1 Capital plan & prioritisation**
Ranking tenant improvement, base building, life-safety and decarbonisation spend against a finite budget.
- 4.2 Scope, bid & award**
Design, scope definition, competitive bidding and contractor award.
- 4.3 Cost control & draws**
Budget tracking, change orders, invoice and draw processing, schedule-of-values reconciliation.
- 4.4 Commissioning & lease-up**
Handover, commissioning, marketing of the delivered space and lease-up.

WHERE IT BREAKS TODAY

- Tenant improvement and leasing commission forecasting stays in spreadsheets, disconnected from the leasing pipeline that actually drives it.
- Prioritising across TI, base building and decarbonisation capital is done by committee judgement, with no shared model of return per dollar.
- Conversion and repositioning feasibility is assessed with bespoke, architect-led studies — one building at a time, at consultant rates.
- That per-building cost is the exact reason owners screen too few buildings, and screen them too late in the cycle.

WHAT IS BEING BUILT AGAINST IT

- Project controls are mature: Northspyre, Procore, Bluebeam and Sage Intacct handle budgets, draws and change orders credibly.
- AI is in production for invoice and draw processing, document routing and schedule-of-values reconciliation.
- Portfolio cost benchmarking is emerging — turning an owner's own historical project data into a pricing baseline for the next one.
- Screening tooling exists but is thin: Yardi's Conversion Feasibility Index scores buildings on age, floor plate, depth, ceiling height, transit and certification.

2 billion sf

[Yardi CFI via CommercialSearch](#)

of U.S. office identified as suitable for residential conversion, of which roughly 4.6% is rated Tier I. Conversions are 47% of all future adaptive reuse.

OUR READ

A record-scale screening problem is being answered with per-building consulting studies. That is a category-sized gap.

ESG and compliance

A mature reporting stack sitting on top of an incomplete data-capture layer — and now a real cash cost.

THE WORKFLOW

- 5.1

Meter & utility capture
Automated collection of electricity, gas, water, district energy and waste data across the portfolio.
- 5.2

Benchmark, audit & BPS
Position against ENERGY STAR, GRESB and local building performance standards.
- 5.3

Retrofit & decarbonisation
Sequencing controls optimisation, equipment replacement and envelope work into a pathway.
- 5.4

Disclosure
GRESB, CSRD, SFDR, local BPS filings and lender sustainability reporting.

WHERE IT BREAKS TODAY

- Tenant-metered consumption in multi-tenant office is the persistent hole. Landlords control the base building; tenants control the load.
- Framework sprawl — GRESB, CSRD, SFDR, ENERGY STAR and local BPS each want a different cut of the same underlying data.
- Penalty exposure is a forecastable annual cash flow, and it is rarely carried into the valuation or the hold-sell model.
- Controls optimisation and capital retrofit planning are procured separately and almost never sequenced together.

WHAT IS BEING BUILT AGAINST IT

- Data capture and reporting are mature: Measurabl, Deepki, SIERA, Yardi ESG and IBM Envizi cover collection, benchmarking and disclosure.
- Measurabl alone reports coverage of over 18 billion sf representing more than \$3 trillion in asset value across 93 countries.
- BPS compliance and penalty modelling is scaling, with specialist advisory filling the gap between the data and the filing.
- Certification premium evidence exists but is contested — which is itself useful, because it shows the market pricing the signal rather than the performance.

\$268

[NYC Accelerator, Local Law 97](#)

per metric ton of CO₂e over cap, charged annually under NYC Local Law 97. First penalty notices were issued from 1 May 2026.

OUR READ

Compliance stopped being a disclosure exercise and became a line item. The tooling has not caught up to that shift.

The technology sitting on each workflow step

Representative vendors by sub-category, with a maturity read and what the category still does not solve for office specifically.

STEP	SUB-CATEGORY	REPRESENTATIVE VENDORS	MATURITY	WHAT THE CATEGORY STILL DOES NOT SOLVE FOR OFFICE
1.1-1.2	Demand data & leasing pipeline	VTS Lease/Market, CoStar, CompStak, Crexi	Mature	Demand data is retrospective; forward pipeline data belongs to whoever owns the leasing workflow.
1.3	Lease abstraction & document AI	VTS Asset Intelligence, Prophia, Dealpath Extract	Scaling	Extraction is solved. Landing the output in the asset model without re-keying is not.
1.4	Tenant experience & engagement	HqO, VTS Activate, Equiem, Lane	Mature	Engagement data rarely reaches the renewal decision it is meant to inform.
1.4	Renewal-risk modelling	Marketed by HqO; otherwise asset-manager judgement	Emerging	Largest unautomated analytical workflow we found. Inputs sit in three separate lanes.
2.1-2.2	Access, visitors & work orders	Brivo, Kastle, SwiftConnect, Building Engines, Facilio	Mature	Three systems, three records of the same building day, no reconciliation between them.
2.3	BMS, energy & autonomous control	BrainBox AI, 75F, Verdigris, Enertiv	Scaling	Savings claims are vendor-reported; no independent office benchmark exists.
2.3	Occupancy & utilisation analytics	VergeSense, Density, XY Sense, Butlr	Mature	Measured for the operator, not shared with the leasing negotiation.
3.1-3.3	Data spine, underwriting & valuation	Argus (Altus), Cherre, Blooma, Archer, Yardi, MRI	Mixed	AI is trusted for screening and spreading, not for investment-committee output.
3.4	Investor & lender reporting	Juniper Square, Yardi Investment Suite, Dealpath	Mature	Most repetitive work in the lane; automating it is a workflow problem, not a data one.
4.1-4.3	Capital planning & project controls	Northspyre, Procore, Bluebeam, Sage Intacct	Mature	TI and commission forecasting stays in spreadsheets, cut off from the pipeline driving it.
4.4	Conversion & repositioning feasibility	Yardi Conversion Feasibility Index; else architect-led studies	Emerging	Physical screening only. Cost, incentives and achievable rent stay bespoke per building.
5.1-5.3	ESG capture, reporting & BPS	Measurabl, Deepki, SIERA, Yardi ESG, IBM Envizi	Mature	Tenant-metered load is the persistent hole; penalty exposure rarely reaches the valuation.

READ Tooling clusters around discrete, demoable events — a deal, a work order, a project, a report. The two Emerging rows are the continuous questions: what will roll, and should this building stay an office. Both are unserved for the same reason — their inputs are owned by three different lanes and no vendor owns all three.

Where the market is over- and under-addressed

Team assessment across the workflow map, applying the maturity read from the inventory on the previous slide.

	Vendor density	Owner adoption	AI depth today	Remaining white space
Leasing & pipeline	High	High	High	Low
Tenant experience	High	High	Medium	Medium
Operations & property mgmt	High	High	Medium	Medium
Asset management	Medium	Medium	Medium	High
Capex & project controls	Medium	Medium	Low	Medium
Repositioning & conversion	Low	Low	Low	Very high
Data & integration spine	Medium	Low	Medium	Very high

OVER-ADDRESSED

Leasing document processing and tenant-engagement apps. Both are visible, demoable and easy to procure — which is why they attracted capital first.

UNDER-ADDRESSED

Renewal-risk modelling, conversion feasibility, and the integration spine that would make either of them possible.

Where the return actually comes from

Four levers an office owner can underwrite — and an honest statement of how good the evidence behind them is.

01

Revenue & retention

Rent, occupancy and renewal outcomes

- Prime vacancy 12.7% against 18.6% overall: quality now commands a measurable rent and occupancy split. [1]
- Certification evidence is contested — a 31% raw LEED premium falls to roughly 4% once location, age and renovation are controlled. [28]
- WiredScore reports 3.8% lower vacancy in certified office — a certification body scoring itself. [29]

02

Operating cost

Energy, labour and vendor spend

- Autonomous HVAC control claims up to 25% energy reduction. Vendor-reported and unaudited. [15][16]
- Occupancy analytics running on existing conferencing hardware removes the sensor capex objection. [14]
- Consolidated operations platforms cut duplicated vendor and reporting spend, not headcount.

03

Speed & capital efficiency

Time to decision and time to cash

- AI document spreading and draw processing compress diligence — the clearest production AI use in the stack. [8]
- Project controls are sold on forecast accuracy and draw-cycle speed, not headcount reduction.
- Faster diligence matters more with office investment volume forecast up 20% in 2026. [1]

04

Risk & compliance

Penalty and refinancing exposure

- LL97 penalties accrue at \$268 per metric ton over cap, every year, until the building complies. [25]
- Under 10% of NYC's covered buildings breached the first-period cap; roughly 57% are projected to breach the 2030 limits. [26]
- Office loan delinquencies at 12.34% make a defensible data position a financing input. [18]

A NECESSARY CAVEAT ON THESE NUMBERS

Most performance figures in PropTech are vendor-reported and are not independently audited. The certification premium studies are the strongest evidence available in this space and they still cannot cleanly separate the effect of the certificate from the effect of the building quality that earned it. We treat every percentage on this slide as directional, attribute it to its source, and state the counterfactual — because the honest question is not what a vendor claims, but what the owner would have achieved anyway.

Bracketed numbers refer to the numbered source list on the final slide

Two white spaces, one structural cause

Both are continuous questions rather than discrete events, and both draw their inputs from three different workflow lanes.

WHITE SPACE 01

Renewal-risk modelling

The largest unautomated analytical workflow we found anywhere in the office technology stack.

- Every downstream number depends on it: the budget, the valuation, the hold-sell call and the lender pack all rest on an assumption about who renews.
- It is produced today by asset-manager judgement in a spreadsheet, informed by relationship intuition.
- Its inputs are split across three lanes — lease terms in leasing, utilisation and service history in operations, comparables outside the building.
- AI-tenant lease structures, shorter with expansion and termination rights, make the question arrive more often and carry more optionality.

Counterexample to acknowledge: HqO markets AI renewal forecasting and VTS holds much of the underlying data. Neither pulls operations data and market comparables into one model, and neither has published accuracy at portfolio scale.

[VTS AI Office Demand Report](#) · [HqO REX via Facilities Dive](#)

WHITE SPACE 02

Conversion feasibility screening

A record-scale screening problem still answered with bespoke, per-building consulting studies.

- Roughly 2 billion sf of U.S. office is identified as suitable for residential conversion; about 4.6% of it rates Tier I.
- 90,300 units are already in the pipeline entering 2026, up 28% year over year, and office is 47% of all future adaptive reuse.
- The standard screening method remains an architect-led feasibility study, one building at a time, at consultant rates.
- That per-building cost is why owners screen too few buildings, and screen them too late to act on the answer.

Counterexample to acknowledge: Yardi's Conversion Feasibility Index scores buildings on physical attributes — age, floor plate, depth, ceiling height, transit, certification. It does not carry cost, incentives or achievable residential rent, which is what decides whether a conversion pencils.

[Yardi CFI via CommercialSearch](#) · [RentCafe](#) / [Yardi via Smart Cities Dive](#)

The common cause: office technology funded what could be demonstrated in a sales meeting. Both of these questions are continuous, cross-lane and unglamorous — which is exactly why they are still open.

What we would tell an office owner

Three findings, three implications, and an honest statement of what this analysis cannot tell you.

1

Investment followed visibility, not value.

Capital concentrated in leasing documents, tenant apps and dashboards — the workflows with a demo. Ten of the twelve sub-categories we inventoried are Mature, Scaling or Mixed.

2

The gaps are cross-lane, not category-shaped.

Renewal risk and conversion feasibility are unserved because their inputs sit in three separate lanes. That is a structural cause, not an oversight, and it is why the gap has persisted.

3

Compliance became the only underwritable ROI.

Local Law 97's \$268 per ton is set by statute, not by a vendor. It is the one figure in this report that an owner can put into a model without a caveat.

WHAT THIS ANALYSIS CANNOT TELL YOU

Our evidence base is broker research, vendor documentation and trade press — not primary owner interviews. Maturity ratings are our judgement. A number of vendors are placed from category knowledge rather than a dedicated citation, and those are flagged in the companion source document. Nothing here establishes that either white space is commercially viable; it establishes only that it is open.

WHAT AN OWNER SHOULD DO WITH THIS

1

Buy the integration, not another dashboard.

Marginal value in leasing and tenant apps is low. The unmet need is a reconciled record across leasing, operations and the asset model.

2

Price 2030 BPS exposure into today's hold-sell call.

Current compliance says little about 2030 position; the forecast gap is a cash flow that is not in most valuations.

3

Screen the portfolio for conversion before the cycle forces it.

Physical screening tools exist and are cheap. The expensive part — cost and achievable rent — is where an owner's own data has an edge.

4

Demand the counterfactual from every vendor.

Ask what the owner would have achieved anyway. Almost no PropTech performance figure survives that question intact.

THE ONE-SENTENCE VERSION

Office technology has solved what is visible and demoable and left the connective tissue between workflows alone — so the two questions an owner asks most often, whether a tenant will renew and whether a building should stay an office, are still the two answered by hand.

REFERENCE

Sources

All links verified 31 July 2026. Full annotations, evidence-strength ratings and known weaknesses are in the companion source document.

[1] CBRE Research Q1 2026 U.S. Office Market Report	[11] JLL The Flexible Office Space Imperative	[21] Bisnow NYC Conversions To More Than Double In 2026
[2] CommercialSearch (Yardi Matrix national office report) Office Discounts Create Conversion Opportunities (Jul 2026)	[12] HqO Real Estate Experience Platform (REX)	[22] City of Boston Office to Residential Conversion Program Extended
[3] CommercialCafe / CommercialEdge (Yardi) U.S. Office Market Report, June 2026	[13] Facilities Dive HqO Links Building Operations to Financial Outcomes	[23] Measurabl Real Estate ESG Platform
[4] Bisnow Office Vacancy Rate Expected To Stand Still (Apr 2026)	[14] VergeSense Occupancy Insights from VergeSense + Logitech (Jun 2026)	[24] ESG Today Measurabl Launches New Sustainability Reporting Platform
[5] CoStar Group CoStar Projects Stable U.S. Office Vacancy Through 2026	[15] BrainBox AI AI Control (autonomous HVAC optimisation)	[25] NYC Accelerator (City of New York) Local Law 97
[6] IBISWorld Business Environment Profile: Office rental vacancy	[16] Facilities Dive BrainBox AI Unveils Generative Building Management Assistant	[26] EnergyCX Local Law 97 and 87: A Building Owner's Guide
[7] VTS (via Business Wire / Yahoo Finance) VTS AI Office Demand Report (Jul 2026)	[17] Deloitte Insights 2026 Commercial Real Estate Outlook	[27] Vert Energy Group U.S. Building Performance Standards: 2026 Owner's Guide
[8] VTS VTS Announces Launch of Asset Intelligence (Apr 2026)	[18] Deloitte 2026 Commercial Real Estate M&A Outlook	[28] CBRE Green Is Good: LEED Rent Premium in U.S. Office
[9] Business Wire / VTS VTS Closes 2025 With Record Growth (Jan 2026)	[19] Smart Cities Dive (citing RentCafe / Yardi) Office-to-Housing Conversions Grew 28% Last Year (Mar 2026)	[29] WiredScore Reporting Guide (certification performance claims)
[10] The Real Deal AI Tenants Rewrite the Culture of Office Leasing (Jun 2026)	[20] The Real Deal (citing RentCafe / Yardi) U.S. Office-to-Apartment Conversions Hit New High (Mar 2026)	[30] CommercialEdge (Yardi) Assessing Office-to-Residential Conversion Feasibility