



AI in Real Estate Sector

Contents



03 | Trends, opportunities and challenges



09 | AI Case Studies



13 | KPMG AI proposition and key differentiators

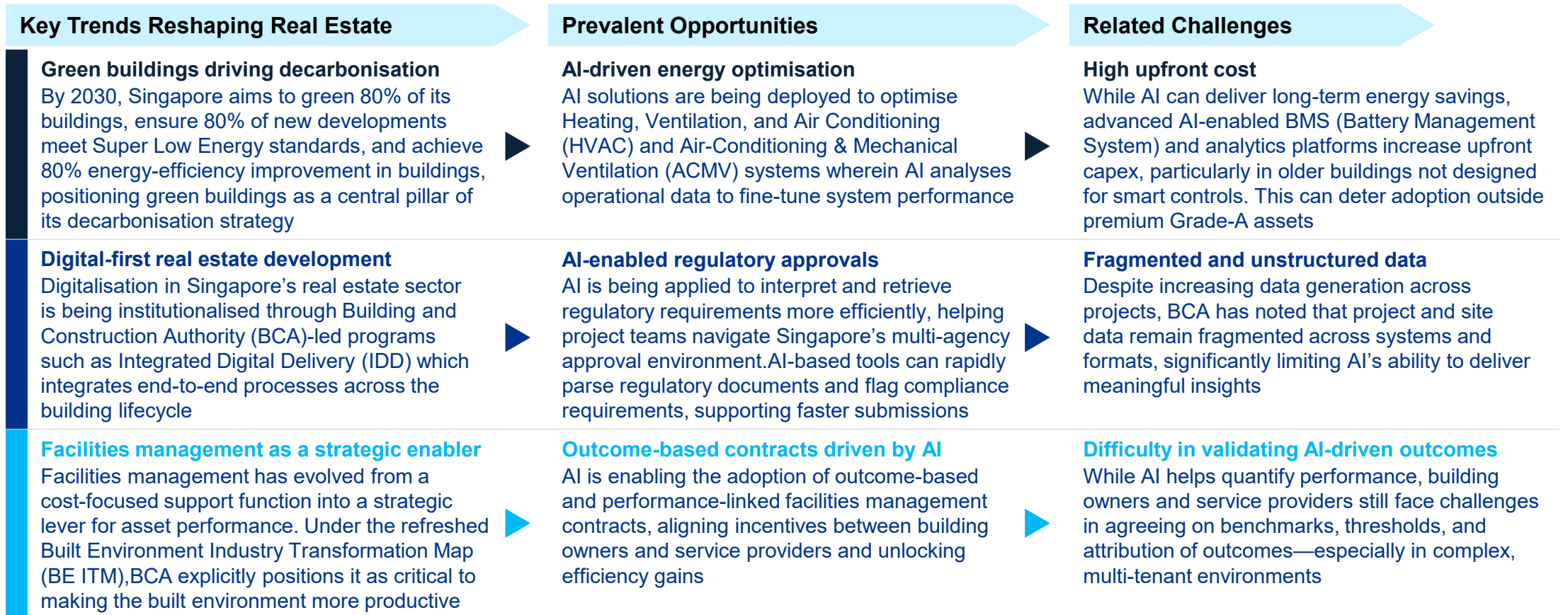


AI in Real Estate

Trends, opportunities and challenges

REAL ESTATE SECTOR – TRENDS, OPPORTUNITIES AND CHALLENGES

AI is transforming Singapore's real estate value chain, however, cost, data, and validation gaps constrain scale



PREVALENT AI THEMES IN REAL ESTATE SECTOR (1/2)

Smart buildings are harnessing AI for greater autonomy and energy efficient planning

Key themes in market



AI for smart buildings & energy efficiency

The sector is using real-time AI analytics to optimize HVAC and lighting, cutting energy use and improving sustainability

- For instance, Singapore's One-North Elementum biomedical hub deploys smart building AI to monitor cooling and air quality in real time, trimming energy waste and costs



Predictive maintenance for zero downtime operations

AI systems predict equipment failures (e.g. lifts, HVAC) before they occur, enabling proactive repairs that reduce downtime and extend asset lifespans

- For instance, At Singapore Sports Hub, AI analyzes drone images to identify defects like rust and peeling, enabling targeted maintenance and replacing manual inspections with a predictive approach



Digital twins for smarter urban planning

AI-enabled digital twin models of buildings or districts simulate real-world scenarios (occupancy, climate, traffic) to inform design and planning decisions with precision

- For instance, Virtual Singapore, a city-wide digital, allows planners to model mobility, land use, and flood risks in software before implementation, improving resilience of new developments

Future imperatives for players

- Embrace AI-driven building controls to meet green regulations
- **Invest in training on data-driven energy management** for long-term competitiveness

- **Implement predictive maintenance at scale** across portfolios to maximize lifecycle value
- **Upskill maintenance teams** to interpret AI alerts and integrate them into routine workflows

- **Use integrated digital platforms** for proactive scenario planning
- **Collaborate on data-sharing standards** so AI can reliably guide urban design and climate adaptation

PREVALENT AI THEMES IN REAL ESTATE SECTOR (1/2)

AI is delivering personalized tenant services and portfolio optimization for seamless experiences

Key themes in market



Personalized customer engagement via AI assistants

Conversational AI chatbots and recommendation engines in real estate apps handle routine inquiries and curate property options based on client preferences, enabling 24/7 customer service

- For instance, ERA Singapore's agents use AI-driven Sales+ tools to instantly translate client queries and generate tailored property reports with data-driven insights for each client profile – enhancing responsiveness and personalization



Portfolio optimization & back-office automation via AI

Real estate firms use AI to analyze portfolio data (leases, contracts, occupancy trends) and automate back-office processes – uncovering portfolio risks/opportunities and streamlining tasks like lease management or compliance checks

- For instance, property managers now deploy Gen AI to review lease documents and contracts for exposure insights, instantly pinpointing risk concentrations and anomalies that would be tedious to find manually



AI-enhanced construction for speed & safety

AI tools generate optimal building designs, schedule projects, and deploy computer vision drones for site monitoring, accelerating construction timelines and improving safety compliance

- For instance, DXC enabled Ferrovial to deploy AI agents improving construction safety, real-time risk detection, operational efficiency, and worker protection at scale

Future imperatives for players

- Deploy AI assistants on tenant portals and sales platforms to elevate service levels
- **Integrate AI into portfolio reviews and operations to drive data-backed decision making**
- **Pilot AI in design and project management to capture sizeable efficiency gains**
- **Integrate AI safety checks as standard practice to mitigate on-site risks**

HEADWINDS AND TAILWINDS – AI ADOPTION IN REAL ESTATE SECTOR

Strong policy tailwinds are driving AI adoption in real estate, however, data-privacy risks and high upfront costs continue to slow scale-up

Tailwinds in AI adoption



Decarbonisation as a national priority

Decarbonisation is a core national objective for Singapore's built environment

20%

Contribution of buildings to Singapore's total carbon emissions, making real estate a critical lever for the country's climate transition

Why this drives AI adoption: Meeting and continuously monitoring sustainability targets at scale requires AI-based energy optimisation, predictive analytics, and automated ESG reporting, which manual systems cannot deliver reliably.



Policy-led digitalisation of the Built Environment

BCA has made digitalization a structural priority for real estate, with tools such as CORENET X, which is a digital regulatory approval platform developed by Singapore's BCA

20%

Amount of approval timelines cut by CORENET X, across 50+ projects and 100+ firms

Why this drives AI adoption: AI is embedded into national digital infrastructure, making real estate firms align with AI-enabled workflows across planning, construction, and operations

Headwinds in AI in adoption



Data privacy failures exposing automation and AI-linked risks

In Jan 2025, personal data of people who registered for Real Estate Salesperson or Real Estate Agency examinations) was leaked following a technical issue at the Council for Estate Agencies (CEA), the regulator for property agents in Singapore

3,300

Number of individuals whose personal details were leaked in Singapore

Why this hinders AI adoption: Firms and regulators tend to adopt more conservative approaches to AI-enabled data processing, slowing large-scale deployment



High upfront technology-related costs

- High upfront costs remain a key headwind to AI adoption in Singapore's real estate sector.
- Deploying AI often requires capital-intensive investments in sensors, building-management-system (BMS) upgrades, data integration, cybersecurity, and, in some cases, digital twins

Why this hinders AI adoption: High upfront AI costs hinder adoption because asset owners must commit significant capital before returns materialise, creating payback uncertainty

INSIGHTS FROM KPMG PUBLICATION – REAL ESTATE SECTOR

AI is emerging as a critical lever to decarbonize real estate by optimizing energy use, however, its full impact depends on data readiness and operational adoption

KPMG publication highlighting use of AI in real estate sector, July 2025



Artificial intelligence, real efficiency:

How AI is helping to improve energy efficiency and management in real estate

KPMG Global Decarbonization Hub



Relevant insights



AI can reduce real estate's biggest emissions pool

- Buildings contribute **c.40% of global emissions**, with **27% from operational energy**
- AI directly addresses the sector's biggest decarbonisation pressure point by optimising **energy-intensive building operations** at scale



AI can maximise energy efficiency economics

- Per International Energy Agency, energy efficiency efforts can cut energy bills by one-third and make **50% of GHG reductions by 2030**
- AI enhances energy efficiency economics by enabling smarter, **data-driven optimisation of energy usage** across assets



AI value creation depends on data maturity

- AI value is constrained by data maturity, requiring well-integrated and high-quality data environments to deliver meaningful optimization and outcomes



AI in Real Estate

Case Studies





AI CASE STUDIES BY SECTOR – AI IN REAL ESTATE (1/3)

Global real estate firm boosts AI strategy and risk compliance with a GenAI maturity model

KPMG in Canada used a comprehensive GenAI maturity assessment model to identify potential risks, early opportunities and create a structured roadmap for a desired future state.

Client challenge

KPMG in Canada's client is a global real estate company specializing in property investment, development and management.

After completing a GenAI executive training and impact study, the client sought additional support to evaluate their current GenAI strategy and identify priority actions.

Despite the client's internal efforts, there were persistent concerns regarding data and AI governance, roles and responsibilities were poorly defined, and many processes continued to be conducted manually.



Our approach

To develop an overall view of the client's structure and assess its GenAI maturity model, the member firm introduced a framework to assess critical aspects related to service delivery, architecture, data, culture, governance and functional processes.

Following several workshops and a collaborative analysis of current state documentation, each dimension was graded in a comprehensive maturity assessment report and validated by internal experts.

A holistic maturity report provided an overall view of the client's structure, assessment of its GenAI maturity model and a prioritized roadmap for developing comprehensive bespoke solutions.

Value delivered

- Enhanced AI initiatives that addressed blind spots in the AI building process from strategy to execution
- Adoption of best practices in AI governance and change management
- A maturity assessment report that identified key risks and early-stage opportunities
- A strategic roadmap and priorities for managing significant risks and technical controls to achieve the desired future state

Why KPMG?

- Proven expertise and leadership in implementing Gen-AI solutions
- Client knowledge and successful track record in delivering tailored solutions
- A blend of technology and business understanding for devising strategies

What we have learned

- Importance of establishing a robust ethical and compliance framework to guide AI adoption
- Crucial role of change management in ensuring successful AI adoption
- Need for expertise across architecture, data management and governance in conducting comprehensive AI assessments



AI CASE STUDIES BY SECTOR – AI IN REAL ESTATE (2/3)

AI powered risk management tool helps in assessing portfolio credit risk for real estate clients

An AI-powered risk radar prototype was developed for a real estate client in Singapore to effectively manage portfolio risks within the hospitality sector, specifically focusing on tenants located in Japan.

Client challenge

Real estate client needed to assess portfolio credit risk driven by tenant performance across hospitality assets.

Tenant defaults or financial distress directly impact rental income, asset valuation, and investor returns, thus making assessment of portfolio credit risk for tenants important for real estate companies.

The client lacked a structured, data-driven view of tenant risk, especially in Japan. Existing approaches did not integrate investment conditions, supplier dependencies, and ESG factors, limiting early risk identification and proactive portfolio management.



Our approach

Developed an AI-powered risk radar tool to quantify tenant credit risk holistically across the following risk layers:

- Investment risks (inflation, interest rates, supply chain pressures) impacting tenant business viability
- Supplier/ operational risks (disclosures, dependencies) affecting tenant stability
- ESG risks (negative sentiment, governance issues) influencing long-term performance

Using GenAI and sentiment analytics, the model evaluates both macro (economic) and micro (tenant-specific) signals.

The model assigns a weight (%) to each risk factor to reflect the relative importance of each category.

The weighted scores are then aggregated to arrive at a final tenant risk score.

Value delivered

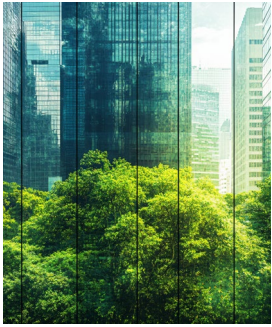
- Improved visibility into tenant and portfolio credit risk
- Enabled data-driven decision-making across investments
- Integrated ESG and supplier risks into core risk assessment
- Enhanced risk monitoring with real-time insights
- Delivered scalable, customizable dashboard for portfolio management

Why KPMG?

- Strong capability in combining AI with risk analytics frameworks
- Experience in developing customisable, client-specific risk dashboards
- Ability to integrate financial, ESG, and supplier risk data into a unified model

What we have learned

- Tenant credit risk requires a holistic view beyond financial metrics
- Integrating macro, operational, and ESG signals improves risk visibility
- AI-enabled models can support standardisation



AI CASE STUDIES BY SECTOR – AI IN REAL ESTATE (3/3)

AI-enabled digital twins are driving step-change improvements in energy efficiency and sustainability in real estate

The case study highlights a digital operator called Jenny, a human-centric AI-based Demand Side Management (DSM) software solution created by KPMG firms' technology alliance partner R8 Technologies in close cooperation with AI scientists of Technical University in Estonia (TalTech).

Client challenge

Large-scale commercial buildings faced fragmented and inefficient HVAC operations, driven by poor system integration, control anomalies, and rigid scheduling—resulting in excessive energy consumption, elevated CO₂ emissions, equipment inefficiencies, and inconsistent indoor climate comfort for occupants



Our approach

Deployed digital operator Jenny, an AI-powered Demand Side Management solution that builds a digital twin of the building and leverages real-time and predictive data (weather, occupancy, energy prices, system dynamics) to autonomously optimize HVAC performance and detect inefficiencies without additional hardware investment

Value delivered

Achieved >60% reduction in heating energy consumption while maintaining target indoor comfort, alongside significant cost savings, improved operational efficiency, proactive fault detection, and meaningful reduction in carbon emissions

Why KPMG?

- Ability to combine strategy and technology
- Strong focus on governance, sustainability, and execution

What we have learned

- AI efficacy is highly dependent on integrated, high-quality data across building systems
- Human-centric AI design (balancing energy efficiency with occupant comfort) is essential for successful adoption in real estate operations

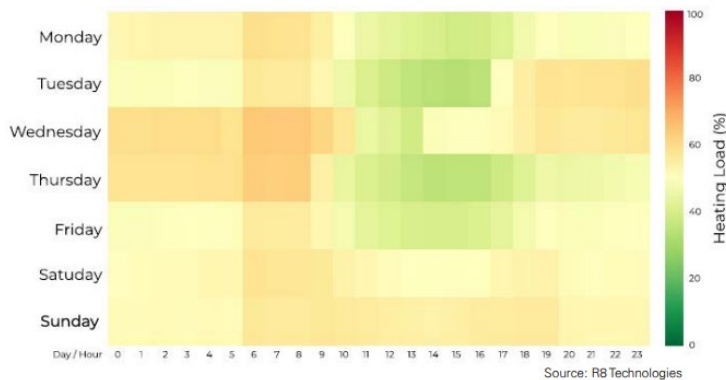


Image 1. Average monthly heating load in the office **before** Digital Operator Jenny.

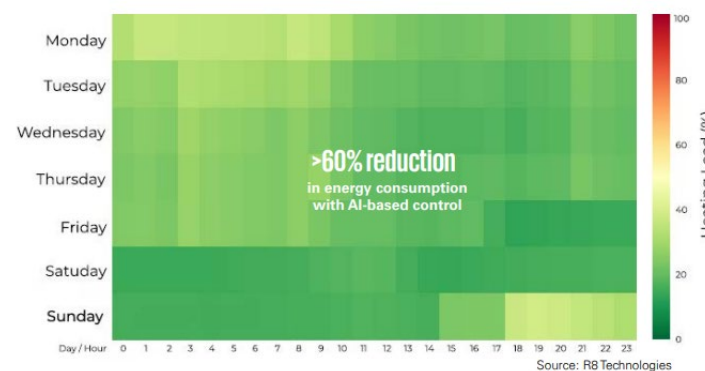
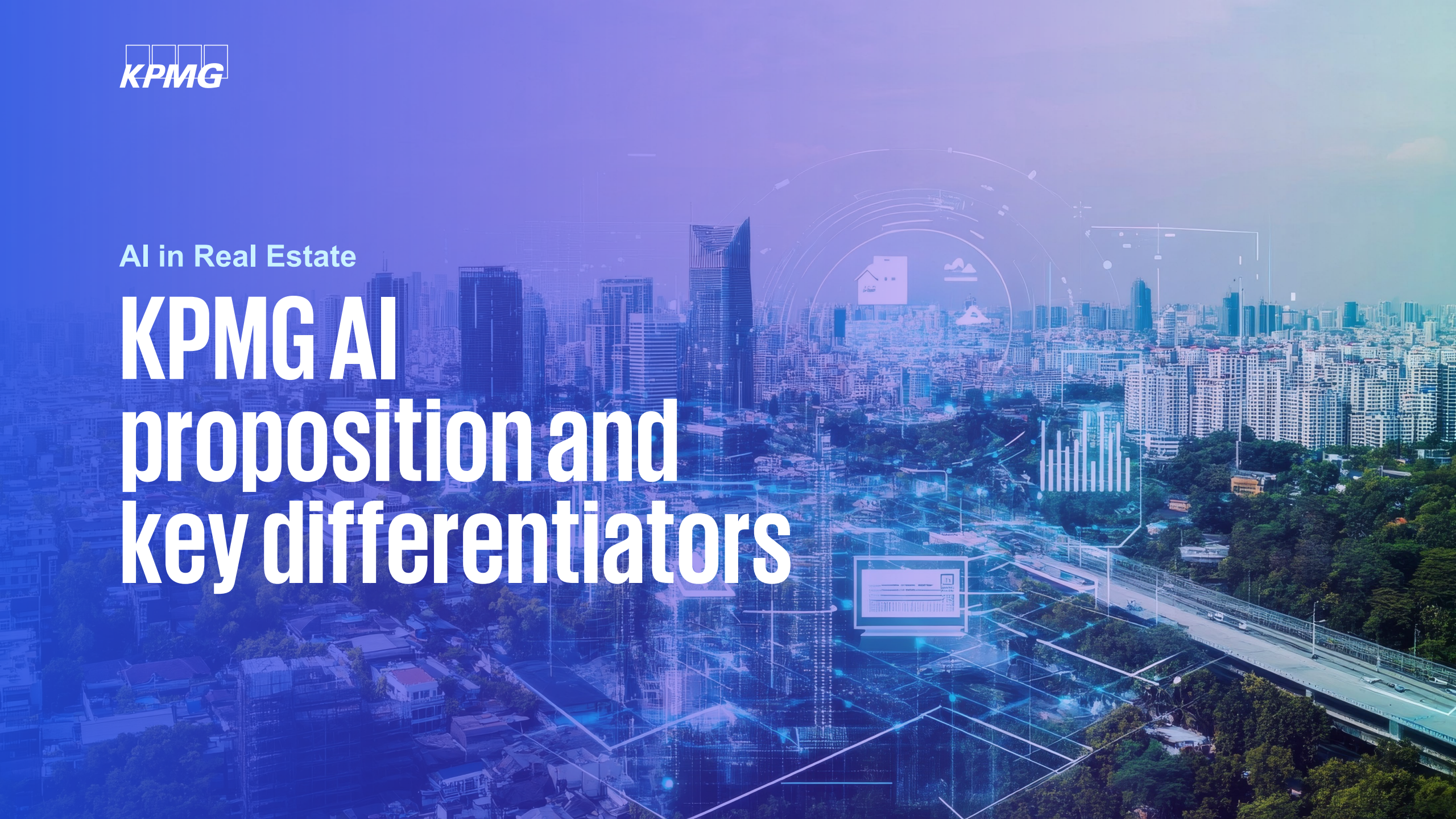


Image 2. Average monthly heating load in the office **with** Digital Operator Jenny.



AI in Real Estate

KPMG AI proposition and key differentiators



The KPMG Trusted AI Centre of Excellence

AI that deliver results, not just pilots.

Most organisations can launch AI pilots.
Very few manage to scale them.
The KPMG Trusted AI CoE exists to fix that.

What we do

We help organisations design, build, and scale AI that:

- Solves real business problems
- Is trusted by leaders, employees, and regulators
- Can be adopted and scaled across the organisation
- Enables intelligent governance, decision-making and operations

The result

AI that people trust, use, and rely on,
that leaders can see, measure, and defend.

[Register for a 45 mins demo](#)

Contact us



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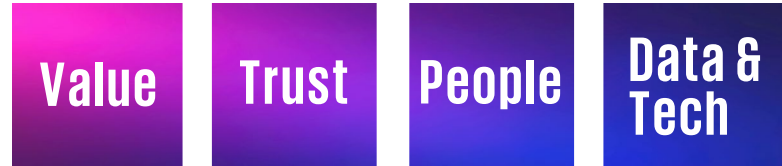


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What makes our AI CoE different

KPMG Four-Door Framework

A structured way to scale AI across the enterprise



VALUE

Turn AI activity into real business impact and ROI.

TRUST

Build AI that's trusted by everyone, from the start.

PEOPLE

Design AI around how people work, so adoption sticks.

DATA & TECH

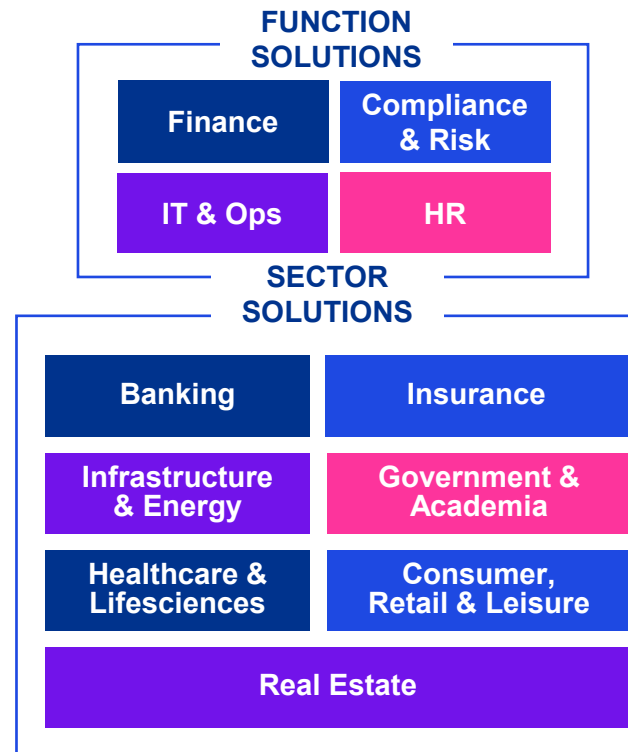
Enable AI to scale with the right technology foundation

Trusted ecosystem

KPMG brings together a powerful ecosystem of partners (leading technology companies, academia, industry organisations, and government agencies) to help turn AI ideas into tangible innovative solutions.

Co-creation of solutions

with you, for you in your function and sector



Support from EDB

With grants for

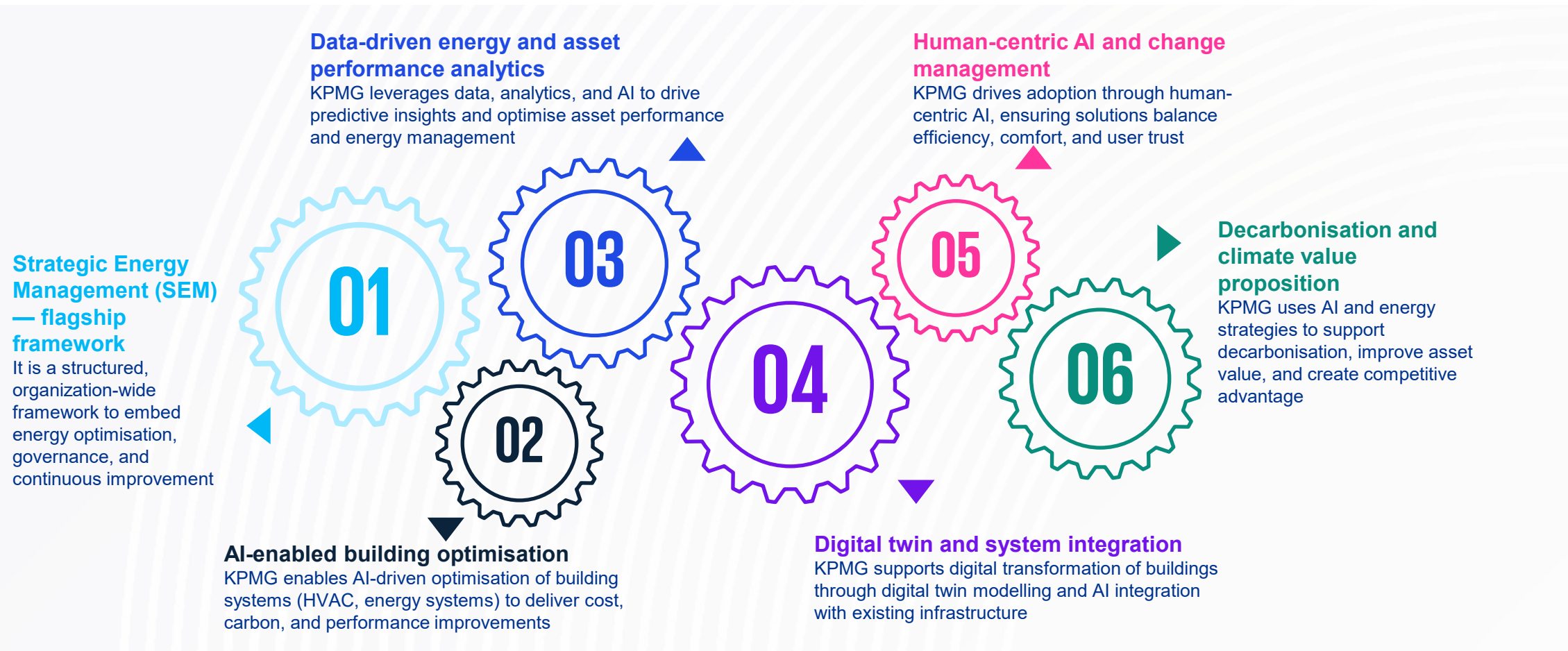
- Solution Design & Rapid Prototyping
- PoC/Pilot Build

Speed to market

- Faster time to market, going from idea to POC to scaled deployment
- Access to proven, reusable AI solutions and accelerators

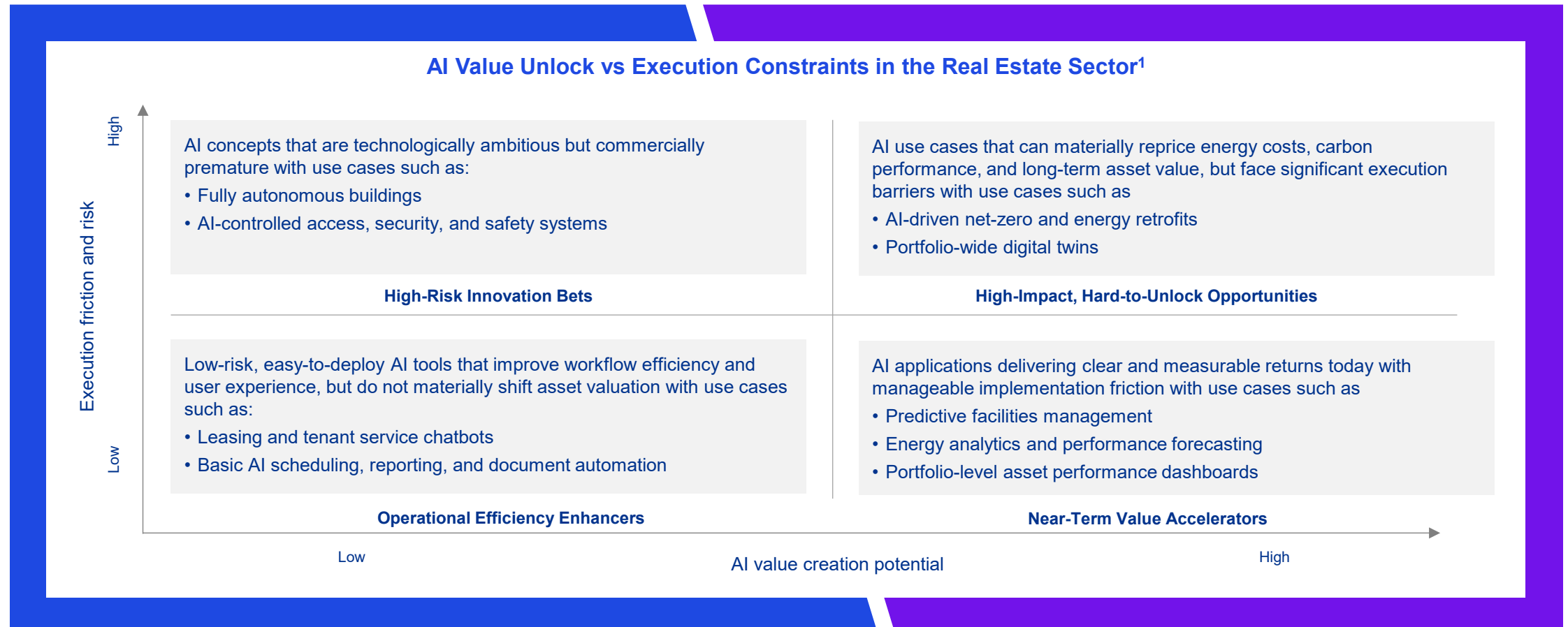
AI PROPOSITION AND KEY DIFFERENTIATORS (2/2)

KPMG combines AI, data, and strategic energy management to drive measurable cost, carbon, and performance gains across real estate portfolios



AI VALUE CREATION VS. EXECUTION RISKS IN REAL ESTATE SECTOR

AI in real estate ranges from quick operational wins to transformative asset-value plays—constrained mainly by implementation complexity



Notes: (1) The matrix is prepared by KPMG and involves subjective judgement



[kpmg.ai/Singapore](https://www.kpmg.ai/Singapore)

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