APREA
Driving the Future of Real Assets

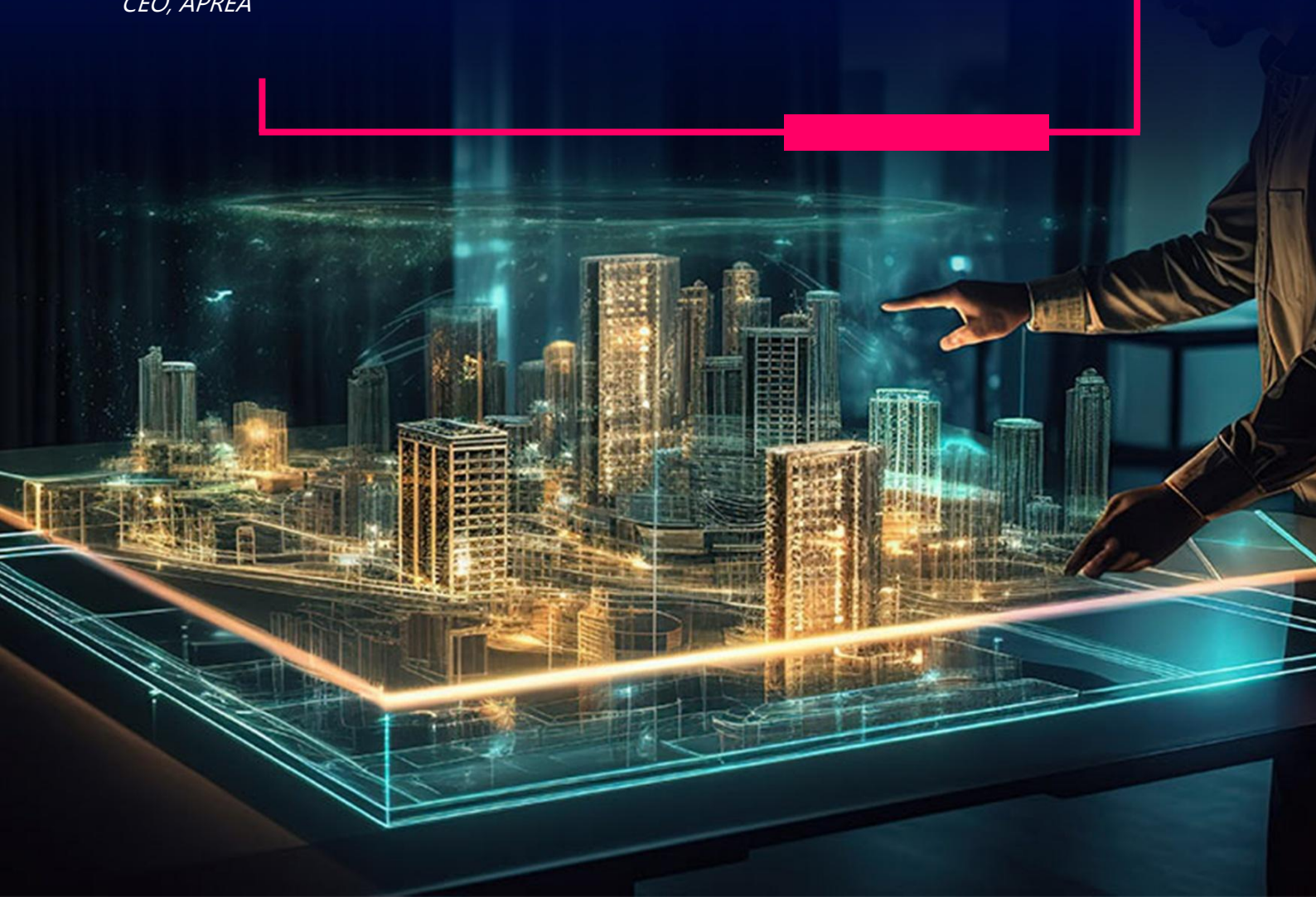
APREA Knowledge Brief | Volume 17

THE AGE OF AI IN REAL ASSETS

TABLE OF CONTENTS

Introduction: The Age of AI in Real Assets

By Sigrid Zialcita
CEO, APREA



As artificial intelligence becomes more embedded in the way we live and work, its influence on real assets is no longer abstract or distant. AI is showing up in investments, building operations, infrastructure planning, and the everyday decisions made by investors, asset owners, developers, operators, and occupiers. For an industry grounded in physical assets and long investment horizons, AI is beginning to change not just how decisions are made, but how value is created and sustained over time.

Our latest volume of APREA Knowledge Brief brings together perspectives from our members across the Asia Pacific to explore how AI is shaping the real assets industry. The contributors come from across the ecosystem, including investors, developers, consultants operators, and technology specialists, each engaging with AI from a different vantage point. What emerges is not a single narrative of disruption, but a more nuanced picture of adoption and learning.

Several articles in this collection examine how AI is influencing investment analysis and capital allocation. With access to larger and more complex data sets, investors are using AI-enabled tools to identify risks earlier and uncover opportunities that might previously have been missed. These tools are helping market participants navigate a more competitive and selective investment environment, particularly in cross-border contexts where information gaps and market complexity can be significant. Importantly, our contributors emphasise that AI enhances, rather than substitutes, local knowledge and sector expertise.

In addition, AI is increasingly shaping how assets are operated and managed. Buildings and infrastructure are becoming more responsive and data-driven, supported by technologies such as predictive maintenance, digital twins, and real-time performance monitoring. Our authors show how these capabilities are improving asset resilience, reducing operating costs, and supporting sustainability objectives, an area of growing importance as climate risks, energy constraints, and regulatory expectations intensify across the Asia Pacific. In many cases, AI is enabling asset owners to move from reactive management toward more anticipatory and informed decision-making.

This volume also reflects on the growing role of digital infrastructure, particularly data centres, which sit at the intersection of real estate, energy, and technology. As AI adoption accelerates, demand for data storage, processing capacity, and network connectivity continues to grow. Several articles examine the implications for investors and policymakers, from power availability and land use to financing structures and long-term risk management.

Equally compelling are the human and spatial dimensions explored in this volume. As AI changes how work is organised and how businesses operate, it is also affecting occupier demand and workplace design. Contributors highlight how talent ecosystems, education, and digital capability are becoming increasingly important drivers of real estate demand, particularly in markets such as India, Singapore, and other parts of Southeast Asia. These shifts have implications for offices, mixed-use developments, and urban planning, reinforcing the need for flexible, future-ready assets.

Taken together, the articles in this volume point to an industry that is adapting rather than being overtaken by technology. AI is being applied thoughtfully and incrementally, shaped by local market conditions and regulatory frameworks. The challenge for investors and operators is not whether to engage with AI, but how to do so in a way that is organised, transparent, and aligned with long-term objectives.

As a global platform, APREA is committed to helping our members make sense of these changes. We aim to provide clarity amid complexity and support informed decision-making as technology continues to reshape the industry. In bringing together this collection of insights, we hope to offer a grounded view of how AI is influencing real assets today and how our members can navigate what comes next with confidence.

SIGRID ZIALCITA
CEO
APREA

Sigrid is the CEO of APREA. Based in Singapore, she is responsible for overseeing the strategic direction, initiatives and operations of the association across Asia Pacific. Under her leadership, APREA repositioned to an industry trade group focusing on real estate and infrastructure.

Prior to APREA, she served as Managing Director of Asia Pacific Research and Advisory Services of Cushman & Wakefield (C&W) from 2010 through 2018, where she was responsible for research, thought leadership, strategy formulation and client management.

A recognized expert in global economic, public policy and real estate issues, Sigrid is a frequent speaker at industry events. Her commentary on commercial and residential real estate markets is also regularly featured in a wide array of global publications, including the Wall Street Journal, Financial Times, Bloomberg, New York Times and Reuters. Additionally, she has made several television appearances on financial networks and radio such as CNBC, Bloomberg, CNN, National Public Radio and Channel News Asia.

The Infrastructure Race Behind the AI Boom

By Matt Madden
Senior Managing Director, Data Center Solutions, Asia Pacific, CBRE

Demand for Artificial Intelligence (AI) in real estate is growing at a rapid pace, with the property technology market projected to expand by 70% to more than $32 billion by 2030.[1]

The technology has graduated from experimental pilots to wider deployment in functions ranging from sales and customer engagement to administrative support and property management.

As the industry makes ever more use of AI's ability to introduce operational efficiencies and lower costs – a move coinciding with rising demand from other sectors – we are now at an inflection point. The constraint is no longer just software or talent but the availability of hard infrastructure.

This includes the data centres required to fuel AI's vast computing power, the physical resources needed to ensure these centres function optimally and, of course, the land, power and water to service them. As a result, a new competitive advantage defined by the ability to secure these inputs at speed and scale is emerging for investors and operators across Asia Pacific.

AI and the new core infrastructure

Data centres are now viewed as strategic and critical infrastructure because a whole range of industries and physical infrastructure, such as transport systems and power grids, have come to rely on them. Their failure can have serious ramifications for global, national or even regional economies.

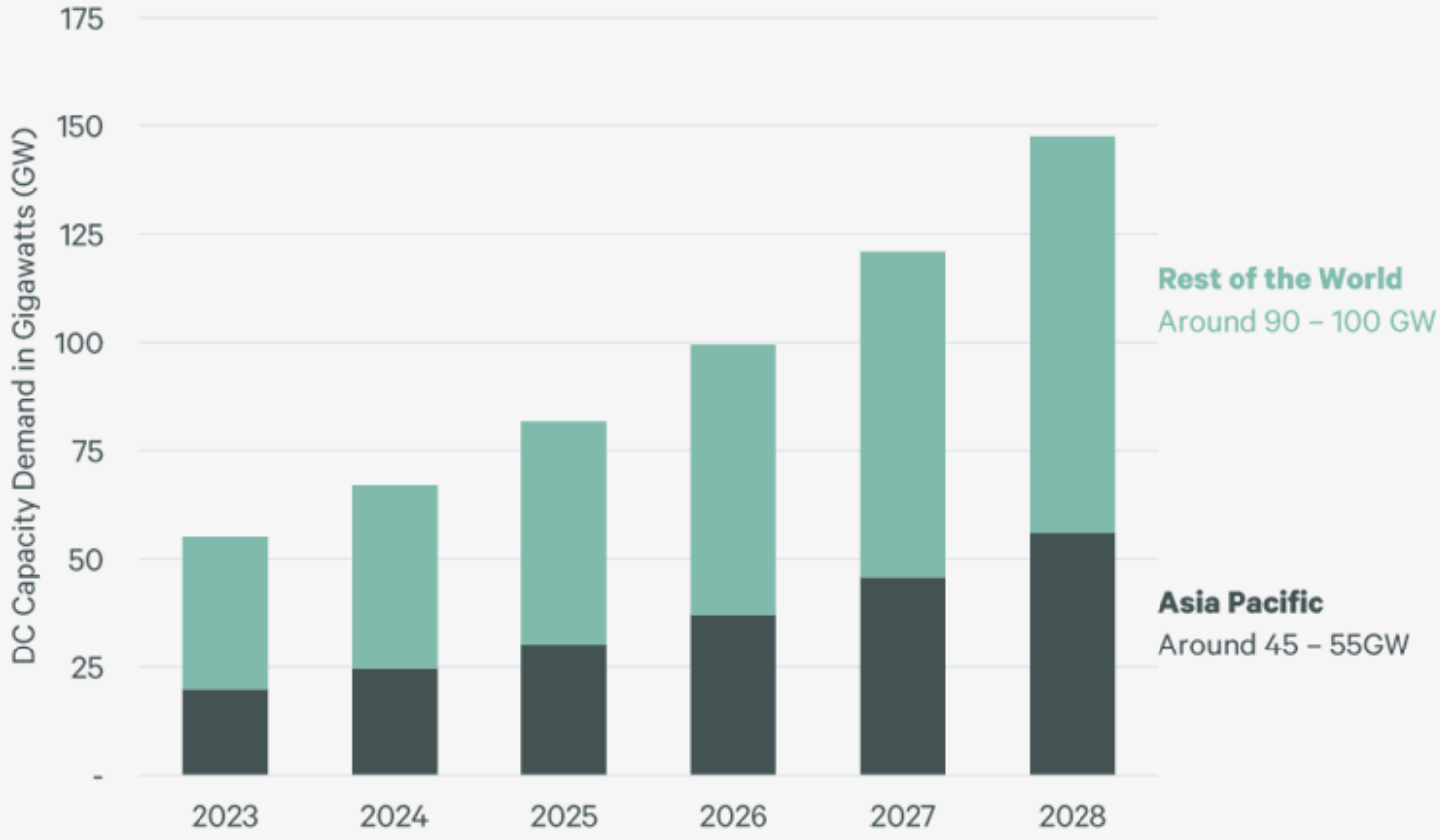
This shift was underscored in 2025, a year that began with market hesitation but quickly pivoted to aggressive expansion. Following a brief yet significant market drop triggered by efficiency breakthroughs like DeepSeek,[2] the industry realised that the sheer scale of AI deployment and the release of more efficient models will require a massive infrastructure backbone.

McKinsey estimates a global capital expenditure of $5.2 trillion by 2030 to build data centres capable of handling AI processing loads.[3] It expects global demand for data centres to grow at a Compound Annual Growth Rate (CAGR) of 19% to 22% from 2023 to 2030, of which 70% of workload will be AI-related.

In Asia Pacific, considering the scale of the region's economy, population and pace of digitalization, CBRE expects the region to account for around 45-55GW of global data centre demand by 2028.[4]

[1]https://www.cbre.com/insights/viewpoints/how-ai-is-advancing-decision-making-in-corporate-real-estate
[2]https://www.reuters.com/technology/chinas-deepseek-sets-off-ai-market-rout-2025-01-27/
[3]https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/the-cost-of-compute-a-7-trillion-dollar-race-to-scale-data-centers
[4]https://www.cbre.com/insights/reports/asia-pacific-data-centre-trends-opportunities

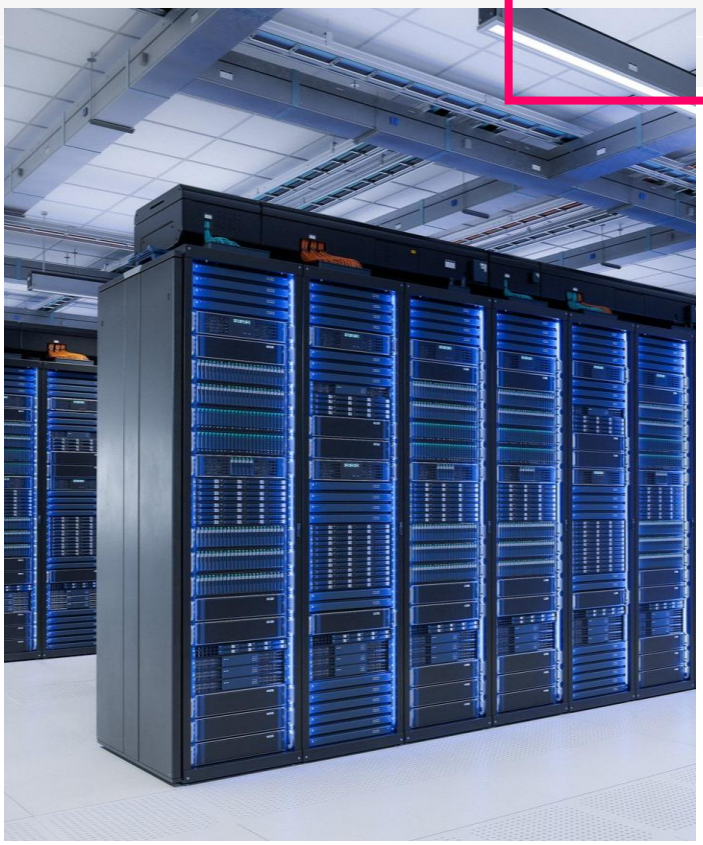
Figure 1: Estimated Global Data Centre Capacity Demand



Source: McKinsey & Co., CBRE Research, May 2025.

From a real estate perspective, this means coming to terms with a rethinking and re-indexing of land value. Proximity to Central Business Districts (CBDs) is no longer the primary driver. Instead, value is now tied to access to energy, water and fibre communication sources.

Importantly, AI demand is bifurcating into distinct segments based on application, market and geographic use. Large-scale model training favours power-rich, land-abundant locations where latency is less critical, while inference workloads increasingly require proximity to end users, driving demand for capacity in or near major population centres. This split will shape how and where capital is deployed across the region.



The energy race: Power Is the new currency

With data centres now viewed as critical infrastructure, their criticality demands reliable energy. In this new landscape, as availability of power and access to it become the determinants of success, the main question for investors has shifted from 'Where is the demand?' to 'Where can we build fast enough to capture it?'.

At the same time, the scarcity of power is driving new underwriting models, especially in mature markets like Japan, where power availability can lag behind project deadlines. Grid-ready sites have sparked fierce competition for bids as tech companies scramble for locations with access to power and water, in turn creating new markets as existing hubs struggle with capacity.

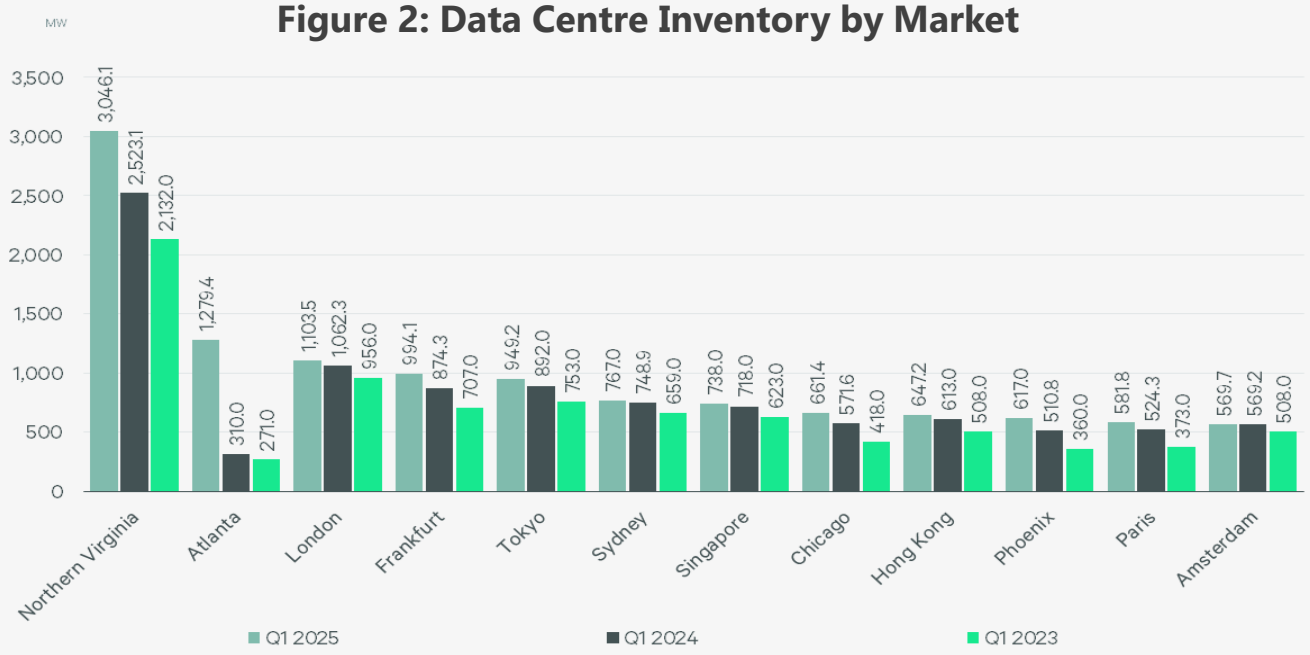
This has led to a speculative strategy where some organisations procure sites and secure approvals years before a shovel hits the ground, purely to lock-in future energy capacity. Crucially, grid access does not make a site AI-ready. High density AI facilities demand materially different electrical and mechanical characteristics than legacy cloud data centres, including higher power densities, more robust redundancy and advanced cooling solutions. These requirements mean that many grid-connected sites fail to meet deployment standards once detailed technical assessments are completed, reinforcing why truly AI-capable locations are scarce and commanding a premium.

This represents a shift from traditional models based on immediate utility to a long-term, power-contingent model. In this way, the fundamental valuation of the asset has recalibrated to prioritise power above other factors. In response, we are seeing some capital moving to secondary markets – such as Tier II cities or even nearby locations in other countries – emphasising how investors are now considering markets they previously would have discounted.

Market dynamics: Where capacity can (and can't) scale fast enough

This demand-supply mismatch has created opportunities and bottlenecks in various key markets around the world, including Asia Pacific, with distinct dynamics playing out in key markets.

Figure 2: Data Centre Inventory by Market



Source: CBRE Research, Q1 2025

Singapore

Singapore remains a central hub and has the world's lowest vacancy rate of 2%, driven by unflagging demand.[5] After the government lifted a 2019 moratorium placed on data centre growth in 2022 to manage resource consumption, the recent release of 200 MW of new capacity signals a cautious reopening. However, this new supply will take time to materialise, likely not fully impacting the market until 2030.

Japan

Japan faces both high demand concentration, limited land supply and grid constraints. Despite strong AI demand, only a limited amount of newly developed facilities can accommodate the higher building specifications needed for large-scale AI-ready data centres.[6]

India

India represents a unique growth story. Unlike other mature markets where demand is largely cloud-driven, India's growth is fuelled more equally by enterprise digitisation and cloud adoption. Mumbai, India's financial capital, is also the country's largest data centre market, with a capacity of about 670 MW and the market is rapidly expanding.[7] With 1.4 billion people set to embrace a digital economy, India offers an enormous runway for greenfield development, distinct from the pure hyperscale growth seen elsewhere.

[5]https://www.cbre.com/insights/reports/global-data-center-trends-2025
[6]https://www.cbre.com/insights/reports/asia-pacific-data-centre-trends-opportunities
[7]https://www.cbre.com/insights/reports/global-data-center-trends-2025

The rise of secondary markets: The solution path

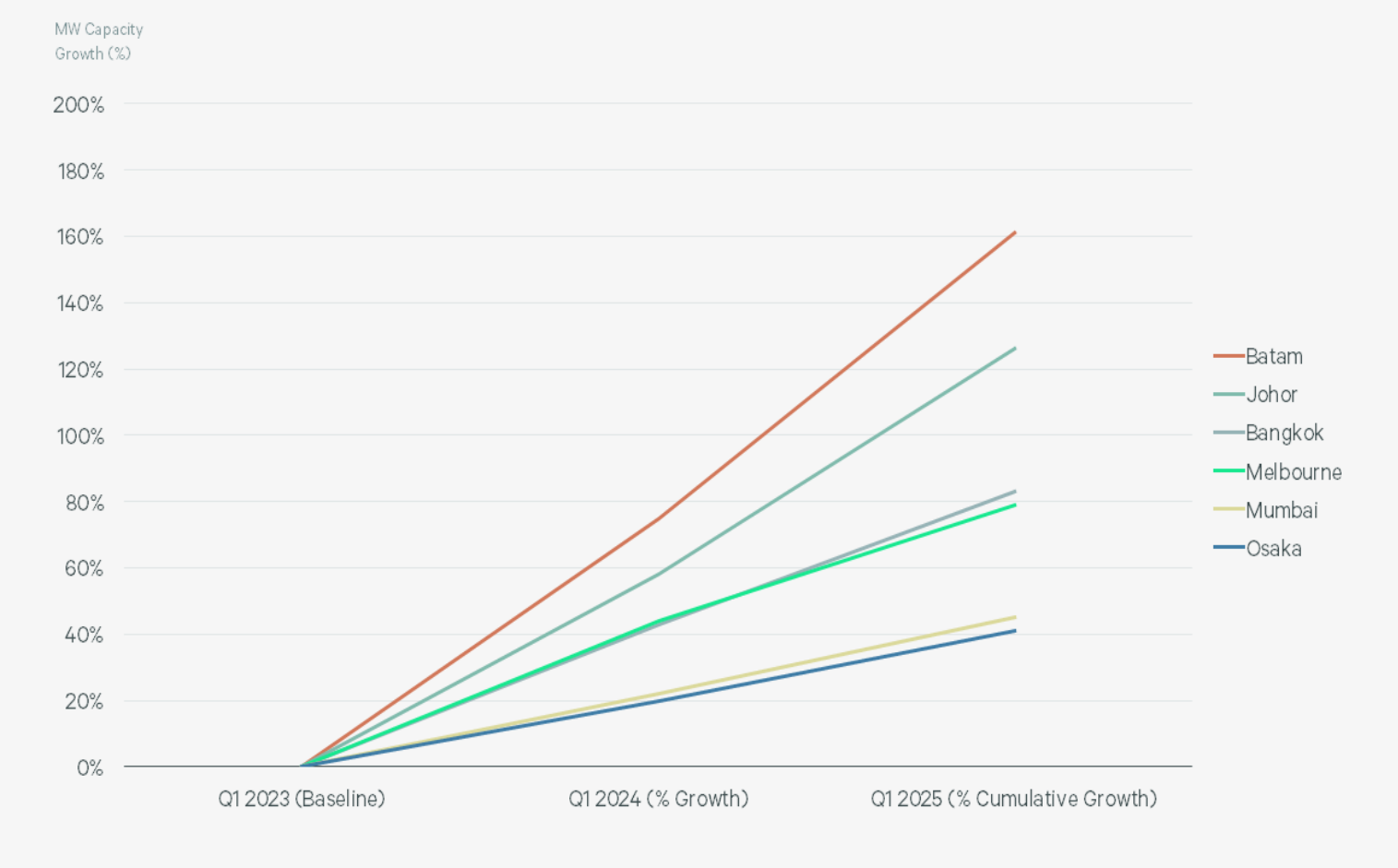
As primary markets like Singapore, Tokyo and Sydney face constraints, a spillover effect is driving the rise of secondary markets.

For instance, when Singapore paused development, neighbouring Johor Bahru (Malaysia) and Batam (Indonesia) emerged as the primary beneficiaries. Initially farmland, Johor has transformed into a key data centre hub over the last four years. Its proximity to Singapore allows it to serve the same demand with similar latency but without the land and power constraints. This shift was legitimised when major multinational hyperscalers committed to the market, triggering a rush of development.

Meanwhile, Thailand is aggressively positioning itself with fast-track programmes for data centre permits and clearer land usage rights, aiming to capture the spillover from regional constraints.

In Japan, as Tokyo has become more land-constrained and expensive, Osaka has emerged as a significant secondary hub. Similar trends are visible in Australia, where Melbourne is now the fastest-growing region, expanding at a CAGR of 87% and poised to overtake Sydney in total capacity by 2027.

Figure 3: Cumulative growth (%) of Asia Pacific secondary markets (MW capacity)



Source: DC Byte

These so-called “AI adjacency markets” share common traits, such as cheaper land, ample power supply and governments willing to cut red tape, and are poised to fuel the next wave of AI-powered machine learning models for predictive analytics, data-based decision-making and content localisation.

Looking ahead to 2026 and beyond, the trajectory is clear. The global stock market’s rapid recovery in mid-2025 demonstrated the resilience of the AI thesis. Despite potential geopolitical and trade policy uncertainty, investment in digital infrastructure is set to accelerate, with capacity coming online in 2026 expected to jump 30% over 2025 levels.

The market is being driven by large multinational companies flush with funds and capable of deploying capital at scale. Their relentless investment, coupled with the strategic expansion of regional and domestic tech giants into other parts of Asia Pacific, ensures that the AI infrastructure race is far from over.

For investors and operators, the years ahead will be defined by the ability to navigate these physical constraints. Success will not just be about owning data centres, but about securing the power, land and connectivity that turn concrete shells into engines of the AI economy.

MATT MADDEN
Senior Managing Director, Data Center Solutions, Asia Pacific, CBRE

Matt leads the Data Center Business in the APAC region with specialist teams who assist operators expand their footprint rapidly in markets with data centre solutions covering operations, whitespace fit out and principal projects. Matt is an industry veteran with over 25 years of digital infrastructure experience in executive leadership, covering data centre, telecommunications and IT infrastructure with a key focus on the customer experience.

Artificial Intelligence And Future Of Real Estate Economy

By Hardeep Sachdeva
Senior Partner,
AZB & Partners

Priyamvada Shenoy
Senior Partner,
AZB & Partners

Sahil Tandon
Partner,
AZB & Partners

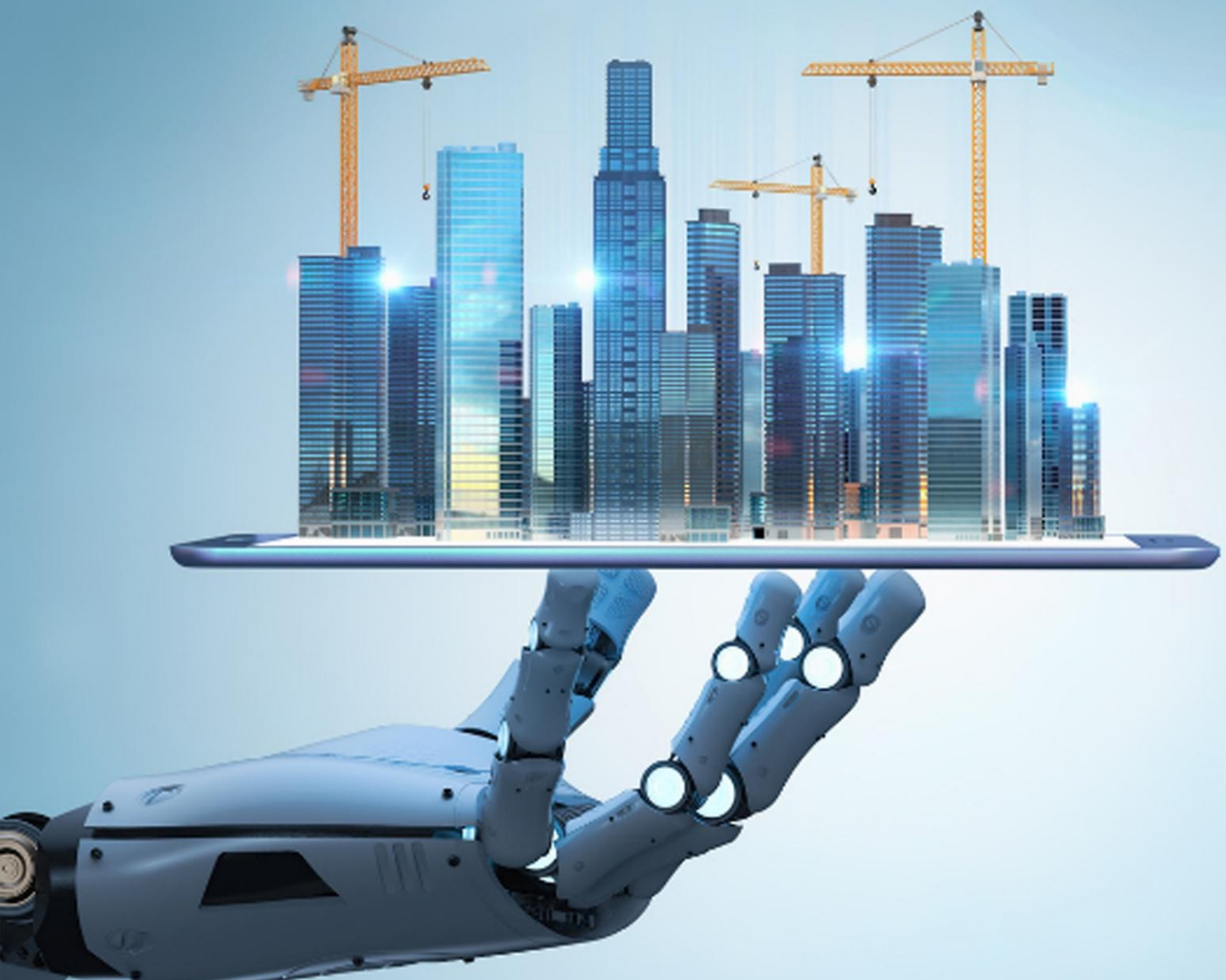
Artificial intelligence ("**AI**") is no longer a peripheral experiment in real estate. Across the region, AI is rapidly moving from pilot projects to portfolio, with wide deployment of AI powered tools. It is reshaping how assets are planned, financed, built, and operated. At the same time, the very growth of AI is creating unprecedented demand for physical infrastructure, data centers, power generation, grid upgrades, cooling systems, networks, and land, placing real assets at the core of the AI value chain. For investors, asset managers, and policymakers, AI is a productivity engine within real assets and a powerful demand driver for new forms of infrastructure.

Hyperscale and colocation data centers are expanding rapidly across markets such as Singapore, Japan, Australia, India, and increasingly Southeast Asia, driven by cloud adoption, generative AI workloads, and data localization requirements.

However, data centers are no longer just "real estate with servers". Power availability, grid resilience, cooling efficiency, and land-use planning have become central investment considerations.

AI workloads are significantly more energy intensive than traditional computing, placing pressure on power infrastructure and accelerating interest in renewable energy integration, on-site generation, and long-term power purchase agreements. For investors, this has broadened the AI infrastructure theme beyond data centers themselves to include power generation, transmission and distribution assets, district cooling, fiber networks, and even water infrastructure. In this sense, AI is creating a new infrastructure super cycle, with real assets positioned as both enablers and beneficiaries.

Set out below are some of the key aspects wherein AI will create growth & efficiencies in the real estate sector:



AI in Asset Management and Investment Decision- Making

Within asset management, AI is transforming how portfolios are analyzed, risks are priced, and capital is allocated. Advanced analytics and machine learning models are increasingly used for portfolio optimization, cashflow forecasting, scenario analysis, and risk management.

AI-driven underwriting tools can process vast datasets, market transactions, satellite imagery, mobility data, climate models, and tenant behavior, to generate more granular valuations and forward-looking insights. This reduces reliance on static assumptions and allows asset managers to respond more dynamically to market shifts. Where markets are heterogeneous and data quality varies widely, AI offers particular value in uncovering patterns that traditional models may miss. For large, multi-country portfolios, AI-enabled analytics can help standardize decision-making while still accounting for local market nuances.

Importantly, this does not replace human judgment; rather, it augments it. The most effective asset managers are those that combine AI-driven insights with deep market experience and governance discipline.

PropTech and Building Operations

At the asset level, AI is fundamentally changing building operations. Predictive maintenance, fault detection and diagnostics, and energy optimization systems are now being deployed across commercial offices, logistics facilities, retail assets, and mixed-use developments.

By continuously learning from sensor data and building management systems, AI can identify equipment failures before they occur, optimize HVAC performance in real time, and reduce energy consumption without compromising occupant comfort. These capabilities are particularly relevant, since energy costs, climate variability, and sustainability regulations are intensifying. Beyond cost savings, AI is also enhancing tenant experience. Intelligent systems can adapt lighting, temperature, and space utilization to actual occupancy patterns, while AI-powered platforms support smarter leasing, tenant engagement, and amenity management. Over time, this shifts buildings from static assets to adaptive, data-driven environments.

Climate, Resilience, and Risk Management

Climate risk is one of the most pressing challenges for real assets, given the region's exposure to extreme weather, rising sea levels, heat stress, and water scarcity. AI is emerging as a critical tool for physical risk assessment and resilience planning. By integrating climate models, geospatial data, and asset-level information, AI can assess exposure to hazards such as flooding, cyclones, heatwaves, and seismic risk with far greater precision. This supports better investment screening, adaptation planning, and insurance engagement. For long-duration assets such as infrastructure, ports, and large-scale real estate developments, AI-enabled climate analytics are becoming essential to preserving asset value and ensuring long-term insurability.

Governance, Regulation, and Responsible AI

As AI adoption accelerates, governance and compliance considerations are coming to the forefront. Issues around data privacy, cybersecurity, model risk, and algorithmic bias are particularly salient for real assets, where AI systems increasingly interact with physical environments and human occupants.

Regulatory frameworks are evolving unevenly. Some markets are actively promoting AI through incentives, talent development, and ecosystem-building, while also tightening data protection and cybersecurity standards. For cross-border investors, navigating this regulatory diversity is a key challenge. Responsible AI principles, transparency, accountability, human oversight, and ethical use are becoming integral to institutional investment strategies. Asset owners and managers must ensure that AI systems are robust, auditable, and aligned with broader ESG and fiduciary obligations.

To address a few of these concerns, the Indian Government has taken cogent steps to facilitate development of AI ecosystem in India. These initiatives include the India AI Mission, establishment of Centres of Excellence in AI in India, enforcement of the AI Governance Guidelines etc. The Indian Government has also tabled the Draft National Data Centre Policy, 2025 which aims to provide an impetus to growth of data centres in India and support the development of AI ecosystem in India.

Further, with the enforcement of the Digital Personal Data Protection Act, 2023, the legal framework for managing flow of data (which is crucial for development of an AI infrastructure) has also been systematized.

Market Structure, Planning, and Policy Coordination

The physical footprint of AI infrastructure raises important questions around planning, permits, and regional coordination. Data centers, in particular, place significant demands on land, power, and water, often competing with other urban and industrial uses. In land-constrained markets, planning policy is a decisive factor shaping data center supply and investment returns. Elsewhere, inconsistent permitting processes and grid constraints can delay projects and increase costs. Thus, effective policy coordination between national & state governments, utilities, regulators, and local authorities will be critical to unlocking AI-driven infrastructure growth while managing environmental and social impacts. Markets that achieve this balance are likely to emerge as regional AI hubs, attracting both capital and talent.

Way Forward

AI is reshaping real estate and infrastructure in two profound ways: by transforming how assets are operated and invested in, and by driving demand for the physical infrastructure that powers the digital economy. For investors and asset managers, this creates a compelling, but complex, landscape one that rewards strategic clarity, operational sophistication, and policy awareness.

Those who can integrate AI thoughtfully into investment processes, asset operations, and governance frameworks while aligning with evolving regulatory and infrastructure realities will likely be in better position to capture long-term value in the AI-enabled real assets economy.

Disclaimer: The views and opinions expressed in this article are solely those of the authors and do not necessarily reflect the official policy or position of any organization or entity. This article is intended for informational purposes only and should not be construed as legal advice. Readers are encouraged to seek independent legal counsel or expert advice tailored to their specific circumstances before making any decisions or taking any actions based on the content herein.

HARDEEP SACHDEVA
Senior Partner
AZB & Partners

Hardeep Sachdeva is a Senior Partner at AZB & Partners with over 30 years of experience advising Indian and multinational clients. Recognized as one of India's foremost corporate and M&A lawyers, Hardeep has led several landmark M&A and private equity transactions, pioneering transformative deals in the sector.

He is widely regarded as India's most distinguished real estate lawyer, possessing a unique blend of expertise in corporate M&A and in-depth knowledge of real estate domain. His market leadership spans all aspects of real estate matters and transactions, including equity investments by private equity funds, financial institutions & other domestic investors, structured financing, interim finance, loans by banks,

foreign portfolio investors, AIFs, and other institutions. He has also played a pivotal role in real estate monetization under government concessions for airports, railways, and metro projects.

Hardeep's extensive experience covers real estate development arrangements between developers and landowners, tax structuring for real estate investments and joint ventures, and resolving disputes, enforcements, and recoveries in the real estate sector. He is also a leading advisor on REITs in India. In the realm of insolvency and restructuring, Hardeep is a leading lawyer for real estate insolvencies, advising resolution applicants on acquiring real estate companies and projects under the CIRP framework of the Insolvency and Bankruptcy Code (IBC). He also advises banks and financial institutions on the foreclosure of mortgaged properties and real estate projects.

Hardeep frequently advises Central and State governments on the drafting of laws and regulations related to real estate development and other critical policy matters. He is the go-to advisor for large International Property Consultants (IPCs) operating in India, providing lead counsel or second opinions on complex real estate transactions. A thought leader in the legal community, Hardeep has authored numerous publications and has been lead counsel in landmark judgments shaping jurisprudence in real estate and IBC matters in India. Hardeep has also contributed to governmental and industry committees. He is a member of the Bar Council of Delhi and the Delhi High Court Bar Association.

An economics graduate from Shri Ram College of Commerce (SRCC) and a law graduate from the Campus Law Centre, Faculty of Law, Delhi University, he was admitted to the Bar in 1995. He began his career at Ajay Bahl & Co., a predecessor of AZB & Partners, and has been a key member of AZB & Partners since its formation in 2004.

PRIYAMVADA SHENOY
Senior Partner
AZB & Partners

Priyamvada Shenoy is a Senior Partner at AZB & Partners, with over 17 years of experience, her practice primarily focuses on private equity and M&A transactions across sectors such as real estate, manufacturing, financial services, climate, education, healthcare and others. Her practice area also includes impact sector investments where she advises several US and European Foundations for their investments, grants, debt and other programs in India; and for their regulatory registration and compliances. She also focuses on corporate & regulatory advisory, foreign portfolio investments, private credit, IBC restructuring and acquisitions. She advises clients (including private equity funds and strategic investors) on various transactions involving listed & unlisted equity and debt investments and joint ventures. Her experience includes advising on structuring of transactions, entry and exit routes & strategies and also outbound investment regulations amongst others.

Priyamvada has vast experience in advising on commercial documentation involved in M&A transactions including term sheets, investment agreements, joint venture agreements, shareholders agreements, securities subscription agreements, share purchase agreements, business transfer agreements, resolution plans, etc. She has also advised on strategies for clients in commercial disputes, CIRP and liquidation matters. Priyamvada has authored several publications.

SAHIL TANDON
Partner
AZB & Partners

Sahil Tandon is a partner at AZB & Partners. With more than 9 years of experience, his practice primarily focuses on private equity, M&A, real estate investment, foreign investment and debt funding.

Sahil specializes in advising clients on a range of legal issues including in relation to financing and re-financing transactions, issuance of non-convertible securities and enforcement of security interests from both borrower and lender perspectives. Sahil has also advised on various acquisitions, joint ventures, private equity investments by foreign investors in companies in India and investments overseas, across various sectors especially real estate, manufacturing, renewable energy projects, non–banking financial companies, etc. and advised on structuring of these investments.

He also advises private equity firms and multinational clients on their formation, acquisition and investment activities including legal due diligence and advising on issues arising out of legal non-compliances related to corporate, licensing, real estate, employment and foreign investment matters.

Apart from advisory and handling complex transactions, Sahil is adept at negotiating and drafting transaction documentation, including term sheets, joint development/ collaboration agreements, project management agreements, development management agreement, construction agreements, sale deeds, debenture trust deed, investment agreements, joint venture agreements, shareholders agreements, securities subscription agreements, share purchase agreements, business transfer agreements, etc

AI in Asset Management: Portfolio Analytics, Risk Management, Cashflow Forecasting, and Capital Planning

By Ritesh Sachdev
Sr. Vice President & Head Commercial Leasing, Asset Management, Sustainibility & CSR, TATA Realty and Infrastructure Limited

The real estate industry is experiencing a fundamental transformation as artificial intelligence (AI) expands its reach across every facet of asset and portfolio management. Where once decisions rested on manual processes, historical records, and human instinct, AI tools now empower firms to make data-driven strategic choices. They optimize portfolios, improve cashflow forecasts, evaluate investments, and analyze expenditure across a growing range of products and scales. The pace of change is accelerating as data pours in from every corner of the business and, with it, the imperative to manage information and extract insight becomes central to strategy. AI is evolving to address both upstream ingestion —automating repetitive tasks and data extraction—and downstream analytics, turning disparate information into coherent guidance and unlocking unforeseen insights.

AI revamp in Portfolio Analytics, Risk Management & Capital Planning

Modern real estate analytics has moved beyond static quarterly reviews. Automated processes, machine learning, and real-time dashboards now uncover patterns across locations and time periods. Clean, validated data pipelines and reconciliation processes remain essential, while RPA and language models handle repetitive tasks, freeing analysts for interpretation and strategy. External signals—market trends, demographics, climate data, and social sentiment—create a holistic view, with generative algorithms accelerating reporting and scenario planning.

Risk management also has shifted from being reactive to proactive. AI today can scan news, social media, and internal data for early warnings, while anomaly detection and stress-testing simulate shocks before they occur. These tools temper losses and reduce bias, but human judgment remains vital for unprecedented events.

In similar breath, Cashflow forecasting and capital planning integrate varied insights from analytics and risk assessments. On-demand models pull data from property systems, accounting tools, and contracts, enriched by natural language processing and robotic process automations. AI-driven scenario analysis supports decisions on reinvestment, optimization, or divestment. Interactive dashboards and narrative summaries translate complexity into intuitive plans, aligning finance, operations and other technically diverse functions behind a shared common vision.

Overview & Conclusion

We are still discovering the scope of AI's potential across the real estate value chain. AI is reshaping the real estate value chain, but its adoption is neither instant nor effortless. Implementation demands investment in skills, training, and change management. Smaller firms may find advanced systems costly, and overreliance on algorithms without human oversight can lead to missteps. Data quality remains a critical hurdle—cleaning, governance, and infrastructure often precede meaningful analysis.

AI excels at pattern recognition and predictive insights, yet unprecedented shocks—a pandemic, regulatory upheaval, or sudden consumer shifts—can confound models. Human judgment is indispensable for resilience and ethical decision-making. The most successful firms blend AI's speed and scale with expert intuition, turning fragmented data into actionable intelligence.

This partnership unlocks efficiencies that free professionals to focus on relationships, creative deal-making, and navigating unique situations. Companies that embrace AI responsibly will manage portfolios with greater confidence and agility, while preserving the human connection that underpins every transaction. Looking ahead, those who balance intelligent analytics with human insight will redefine what's possible in real estate—unlocking value not just in numbers, but in trust and collaboration.

RITESH SACHDEV
Sr. Vice President & Head Commercial Leasing, Asset Management, Sustainability & CSR
TATA Realty and Infrastructure Limited

Ritesh is a dynamic and high-performing real estate professional with more than two decades of corporate real estate experience with both service providers and development companies.

Ritesh has led teams across India and collaborated across multiple geographies and real estate markets globally.

As a Senior Vice President & Head, Commercial Leasing, Asset Management, Sustainability & CSR, Ritesh is responsible for the P&L of the Commercial business of TATA Realty. Ritesh is also part of the Management Committee for TATA Realty This MC team is responsible for strategic direction for the entity including but not limited to portfolio growth, strategic operations and investment decisions.

Besides maximizing the operating performance of the company's commercial portfolio, Ritesh is responsible for driving leasing innovation, efficiency of operations, marketing and strategic business decisions, integrating sustainability into business mainstream and leading the CSR efforts as determined by the company's strategic objectives.

Ritesh is a 'Man Manager' par excellence a, 'Institutional Builder' and a leader in the Indian real estate market who enjoys deep and strategic relationships with both fortune 500 occupiers and International Property Consulting firms across most markets in India, regionally within APAC and globally.

In previous roles, Ritesh was the Managing Director with Cushman & Wakefield running their Transaction business for India and subsequently, Managing Director, South India, running the P&L for the largest region.

Ritesh is credited with growing and nurturing the transaction business over the years and tripling the top line in five years.

After 14 years with C&W, Ritesh joined Colliers International as a Sr. Executive Director and was running their Integrated Occupier Platform for India with the intent to increase revenue, profitability and market share across the occupier business. Ritesh was also responsible to lead and grow the firms P&L across South India as a Managing Director.

Under Ritesh's leadership, the transaction and occupier business doubled in year, key leadership roles were closed and some of the largest/landmark transactions completed successfully.

Before moving to International property consulting firms, Ritesh's worked with DLF Ltd. as part of their leasing teams, The Australian Trade Commission (Austrade) setting up, IndiaLink, the SPOC of all Indo Australian trade and with Holzmann Videocon Engineers Limited (Indian JV of Philipp Holzmann, a global EPC giant)

The AI Co-Pilot: Revolutionising Global Real Estate Investment with Predictive Analytics

By Shai Greenberg
Head of International Capital, JLL Capital Markets Japan, JLL

JLL's Horizon platform is demonstrating a significant impact on productivity and efficiency in real estate deal origination for its Capital Markets business. By leveraging AI and machine learning to analyze data from hundreds of sources, Horizon has streamlined the process of identifying potential deals and buyers, including new entrants to various global markets. The platform's ability to predict assets likely to sell within a two-year window has given JLL a clear first-mover advantage.

The innovation of Horizon lies in its unique combination of big data analysis, AI-driven predictions, and the crucial integration of human expertise. Quantitative data showcases its effectiveness. In testing against over 1,000 historical deals globally, the AI system was able to capture the final buyer in its auto-generated list in 80-90% of cases. This predictive power overcomes human biases and information asymmetry, creating a far more comprehensive and efficient approach to market analysis.

This synergy between technology and advisor is where the true value emerges, a sentiment echoed by brokers on the ground. As Shai Greenberg, Head of International Capital for JLL Capital Markets Japan, explains, "In a market like Japan, where relationships and nuanced understanding are paramount, Horizon doesn't replace the broker; it empowers us. It acts as a super-intelligent research analyst, running thousands of scenarios in the background. This allows my team and I to focus our energy on what matters most: nurturing client relationships and structuring the most advantageous deals."

This integration has created a steady and reliable source of potential deals, transforming how brokers approach deal origination. Globally, Horizon impacted one in four of JLL's brokered deals in 2024. The platform's ability to systematically generate and track leads allows for efficient follow-ups, enhancing broker productivity and client satisfaction.

For international capital flows, this technology is particularly transformative. "The real power of Horizon is its ability to uncover the 'unobvious' buyer," notes Mr. Greenberg. "It connects capital across borders by identifying investors with a strategic appetite for a specific asset type, even if they haven't been active in that market before. For our clients in Japan, this means we're not just presenting their assets to the usual suspects; we're opening up a global marketplace of potential capital, often leading to better pricing and more resilient deal structures."

Scalability is a key advantage of Horizon. Already implemented across JLL's global Capital Markets business, the platform provides consistent deal origination capabilities across different regions and markets. This scalability extends beyond investment sales, as the underlying technology could potentially benefit other aspects of the real estate sector.

Horizon aligns closely with JLL's broader goals of maintaining market leadership and driving innovation. By providing a competitive edge in deal origination, it supports long-term objectives of growth and market competitiveness. The platform's ability to expand the universe of opportunities allows JLL to offer unparalleled service, reinforcing its position at the forefront of the industry.

As AI continues to evolve, platforms like Horizon are set to become indispensable in real estate investment and advisory. The combination of data-driven insights, expert human oversight, and global scalability positions firms like JLL to meet the challenges of an increasingly complex and fast-paced real estate market, ensuring sustained growth and a distinct competitive advantage.

SHAI GREENBERG
Head of International Capital, JLL Capital Markets Japan
JLL

Shai is the head of JLL's Japan Capital Markets - International Capital where he covers the firm's strategic clients and international institutions investing or looking to invest in Japan. After launching and managing several funds in Japan, Shai now supports investors in formulating their investment thesis for Japan, tie up with local partners and source acquisitions.

Prior to that, Shai was a Senior Vice President at a Japanese Asset and Fund Management Firm where he was also a member of the firm's managing committee.

Shai Started his real estate career at a New York Investment Bank where he was involved in, well over, 12$US Billion in CRE debt and equity transactions.

Upon returning to Japan, Shai joined global advisory firm where he pursued tenant representation, land acquisitions, equity raise, portfolio management and investment sales opportunities.

Shai is a PhD candidate and holds a master's degree in real estate finance & Investment from New York University and a BA in Management & East Asian Studies (graduated Magna Cum Laude) from Tel Aviv University.

Shai is a New York licensed real estate salesperson (inactive)

Data Centres: The New Core of India's Digital Infrastructure

By Aashiesh Agarwaal
Senior Vice President-Research and Investment Advisory, ANAROCK Capital Advisors Private Limited

If you think of the digital economy as a city, then data centres are its power plants — silent, resilient, and essential. Every time we use an app, stream a video, or process a transaction, a data centre somewhere hums to life. In investment terms, they are no longer just technical backrooms; they've evolved into a distinct, high-value asset class at the intersection of real estate, technology, and critical infrastructure.

What Exactly Is a Data Centre?

A data centre is a purpose-built facility that securely houses servers, storage, and networking equipment — engineered to run 24/7 without interruption. Unlike a typical building, it integrates redundant power systems, cooling infrastructure, fire suppression, physical security, and high-capacity fibre links.

From a transaction perspective, a data centre is best viewed as a hybrid asset: part real estate, part mission-critical service, and part regulated IT business. Its valuation depends not on footfalls or rents, but on contracted revenues, uptime commitments, energy costs, and tenant concentration.

Investors track technical KPIs such as IT load (MW), Power Usage Effectiveness (PUE), uptime SLAs (like 99.99%), redundancy (N+1 or 2N), and network connectivity — all of which directly affect revenue resilience and operating margins.

Types of Data Centres

Data centres come in several archetypes, each appealing to a different investor profile:

1 Hyperscale
Multi-megawatt campuses built for global cloud giants like AWS, Microsoft, or Google. They offer scale but are bespoke and long-gestation projects.

2 Colocation / Multi-tenant
Facilities that lease racks or cages to multiple clients. They generate recurring, diversified income and attract institutional investors.

3 **Edge / Micro-DCs**
Smaller installations that support low-latency services such as 5G or gaming. They operate on thinner margins but thrive on replication and density.

4 **Enterprise / Captive**
Owned by corporates like banks or stock exchanges. Sale-leasebacks can release capital while retaining operational control.

5 **Data Centre Parks / Campuses**
Aggregations of multiple DCs with shared substations and renewable sources — increasingly common in India's larger metros.

Ultimately, the investment lens focuses on **scalability, lease tenor, and customer mix**, since these map directly to risk and return.

India's Demand Story: Why Data Centres, Why Now

India's data centre market has transitioned from a niche IT service to one of the fastest-growing infrastructure sectors globally. The country had 1.4 GW of operational IT load by mid-2024, and projected to reach 2.0 GW by 2025 and 2.6GW by 2027 respectively.

Structural demand comes from several sources:

- Cloud adoption by enterprises,
- Explosive growth in AI and GPU-based computing,
- OTT content, fintech, and e-governance platforms, and
- Rising data localisation requirements under the **Digital Personal Data Protection Act, 2023**.

Equally, **policy and financial tailwinds** have made this a favourable time to build. The Centre and multiple states now treat DCs as **strategic infrastructure**, easing power and land approvals and offering capital subsidies. The grant of "infrastructure status" and availability of **green financing** have lowered the cost of capital.

In short, India stands where Singapore was a decade ago — poised for a sustained decade of capacity creation, albeit on a larger scale.

Key Players in the Indian Data Centre Ecosystem may be broadly subdivided into categories of Hyperscalers, colocation operators / platforms, developers, investors, and ancillary providers.

How Investors Can Participate

Data centres are capital-intensive but versatile in how investors can gain exposure. Here are the primary routes:

1. Listed Equity

- **Play:** Buy shares in listed Indian operators or developers expanding into data centres.
- **Pros:** Liquidity and public-market pricing.
- **Cons:** Few pure-play options; listed entities often mix unrelated IT or telecom businesses.

2. Equity in a Data Centre Operator (Platform Investment)

- **Play:** Acquire growth equity or control in an established.
- **Pros:** Strategic control, scalability, and valuation uplift through platform expansion.
- **Cons:** Requires operational know-how and longer investment horizons.

3. Direct Equity in an Asset or SPV

- **Play:** Invest in a specific build-to-suit or pre-leased facility.
- **Focus Areas for Diligence:** land title, PPA structure, tenant contracts, escalation clauses, and energy source diversity.
- **Pros:** Visibility on cash flows once leased; bankable for yield investors.

4. Credit Participation

- **Construction Finance:** Short-term, higher-risk lending during build and ramp-up (18–36 months).
- **Lease Rental Discounting (LRD):** Longer-term, cashflow-backed lending post-stabilisation.
- **Focus:** Tenant quality, ramp-up risk, and energy cost pass-through.

5. REIT-like Structures

- **Current State:** Dedicated data-centre REITs are still nascent* in India.
- **Outlook:** As portfolios stabilise with diversified tenancy and predictable cash flows, REIT listings could emerge as a logical evolution.

**While a few Indian REITs have begun acquiring or developing data-centre assets as part of their portfolios, there is not yet a listed REIT in India dedicated purely to datacentres. In that sense, the concept of a true 'data-centre REIT' remains nascent in India.*

6. Ancillary & Infrastructure Plays

- **Power Solutions:** Captive renewables, PPAs, or battery energy storage systems are investable sub-assets.
- **Connectivity:** Fibre backbones[1], dark fibre[2], and subsea landing stations[3]. While each of these infrastructure elements involves relatively lower capex compared to full data-centre builds, they are critical enablers of ecosystem growth — improving network resilience, reducing latency, and unlocking new markets for edge and hyperscale expansion

1 - Fibre backbones form the long-distance, high-capacity transport layer connecting data centres, telecom nodes, and internet exchanges across regions.
2 - Dark fibre refers to unused or "unlit" optical cables that operators can lease and activate, offering greater control and scalability for high-volume users.
3 - Subsea landing stations, where international fibre cables connect to domestic networks (notably in Mumbai, Chennai, and Cochin), serve as gateways for global data traffic.

7. Green Bonds & Sustainable Finance

- **Play:** Issuing or investing in green bonds for data centre builds using renewable PPAs or low-PUE designs.
- **Why:** ESG investors value measurable sustainability; green certification can reduce financing spreads.

Risk Checklist for Investors

Before committing capital, investors should evaluate:

1. **Power & PPA risk** – supply reliability, tariffs, and grid curtailment.
2. **Land & regulatory compliance** – title, zoning, and change-of-use permissions.
3. **Customer concentration** – overexposure to a single tenant.
4. **Technology & obsolescence** – cooling evolution and rack-density upgrades.
5. **Environmental impact** – water usage, emissions, and local community impact.
6. **Exit routes** – potential buyers (hyperscalers, REITs, PE funds) and realistic valuation multiples.

Box Item
The New Infra-Realty Hybrid

Unlike a warehouse or an office tower, a data centre earns its keep not from space but from uptime. Each megawatt of IT load can host thousands of virtual workloads — a productivity ratio that dwarfs traditional assets. In India, as AI and digital payments expand, data centres are emerging as the infrastructure of trust — offering power reliability, data security, and long-term contracted revenues. For investors, this hybrid of real estate, technology resilience, digital scalability along with regulatory compliance, may well define the next decade of alternative investments.

AASHIESH AGARWAAL
Senior Vice President – Research and Investment Advisory
ANAROCK Capital Advisors Private Limited

Aashiesh Agarwaal works with Anarock Capital Advisors Private Limited, and advises clients on asset and capital acquisitions and dispositions in the Indian real estate sector. Besides real estate, he brings extensive experience in Indian equities, having served as a portfolio manager and lead analyst with prominent securities firms.

Outside of work, Aashiesh is deeply involved in Pranic Healing, meditation, and spirituality. He is also committed to social impact and actively contributes to *Wellness @ Workplace*, an initiative focused on enhancing employee mental health and well-being.

Aashiesh can be reached on
aashiesh.agarwaal@anarock.com or
www.linkedin.com/in/aashieshagarwaal

Data Centers as a Critical Asset Class: Assessing Power, Cooling, Land-Use, Interconnectivity, and Financing Models

By Aakanksha Joshi
Partner, S&R Associates, Mumbai, India

Dr. Deborshi Barat
Head of Public Policy and Knowledge Management, S&R Associates, New Delhi, India

Driven by global digitalization, rapid adoption of cloud services, and the scaling demands of AI, data centers have transformed into a critical and distinct real estate asset class, representing strategic industrial assets, comparable to regulated utilities or critical infrastructure. This classification is affirmed by an unprecedented flow of institutional capital into the sector, with investors seeking predictable yields and applying infrastructure capital-allocation logic.

Unlike traditional commercial real estate, the value of a data center asset stems less from generic location or square footage and more from technical specifications, including secured contracted power, connectivity density, and operational uptime. Due to the inherent stability provided by multi-year tenant contracts, which resemble utility offtake agreements, this asset class offers stable, long-term returns. Successful development and investment in this sector requires navigating five interdependent structural dimensions: power, cooling, land use, interconnectivity, and specialized financing.

POWER

Power is a key factor shaping modern data center economics and remains the core product that tenants lease. Data centers consume immense amounts of electricity, and the recent rise of generative AI and high-performance computing has escalated power demands to unprecedented levels. Reliable electrical infrastructure and energy supply is therefore essential for monetization.

Developers must secure firm, long-term, high-capacity power, often procured through a blend of grid power purchase agreements (PPAs), captive generation, and bundled renewable energy solutions. The sector is witnessing a marked growth in 'green' data centers that align with ESG investment goals, where investors increasingly view access to clean power as a valuable differentiator. Legally, power contracts are complex instruments that must carefully allocate risks related to availability guarantees, capacity expansion options, curtailment exposure, and interconnection timeline obligations. Furthermore, developers are using 'parcelization' strategies, i.e., phasing large campuses into discrete parcels, to align power build-out timelines with escalating demand and reduce debt exposure.

COOLING

Cooling systems are crucial for maintaining optimal operating temperatures. Failure to manage the heat generated by servers can lead to equipment failure and costly downtime. Cooling technology determines both the initial capital expenditure and ongoing operating costs.

Industry practice is rapidly shifting away from older, water-intensive evaporative systems – which pose a risk in areas facing water scarcity – towards more efficient and sustainable alternatives. Advanced cooling technologies now include hot/cold aisle containment, direct-to-chip liquid cooling (targeting heat at the processor), liquid immersion cooling (submerging servers in specialized non-conductive fluids), and closed-loop or zero-evaporation cooling. This transition is driven by environmental responsibility and heightened regulatory and reputational risk associated with water stress. Consequently, legal documentation must incorporate environmental compliance standards and specific performance and technology warranties for novel cooling systems. In some jurisdictions, the possibility of reusing waste heat for nearby industrial or agricultural processes is also being explored.

LAND USE

The location and use of land for data centers are subject to growing environmental and community scrutiny. Data centers require large, contiguous parcels of land, often located in peri-urban or industrial corridors. While proximity to network access points previously favored urban locations, the need for space and power affordability is driving expansion into rural areas.

This requires navigating complex legal challenges, including obtaining specific zoning, securing land entitlements, managing master plan amendments, and acquiring necessary environmental clearances. The physical expansion of hyperscale facilities can cause habitat fragmentation, deplete water supplies for cooling, and strain local power grids. Local governments must carefully balance the economic benefits provided by data centers, such as tax revenue and jobs, with community concerns over local impact, noise pollution, and high resource consumption. Legal counsel plays a key role in coordinating land title, environmental approvals, and stakeholder engagement. Phased master-planning strategies using parcelization help align stringent timelines with capital deployment schedules.

INTERCONNECTIVITY

Data center interconnect (DCI) is a vital component, providing high-capacity, low-latency connectivity between multiple sites using dedicated private lines and dark fiber. This interconnection is critical for latency-sensitive applications (such as financial operations) and distributed IT architectures.

Interconnected data centers create a network-dense ecosystem where tenants can directly connect to various cloud and internet service providers, and other partners. Such redundancy enables load balancing, data replication, and robust disaster recovery strategies, thereby ensuring high availability even during outages. The density of interconnection significantly influences real estate valuation, commanding higher long-term cash flows and reducing vacancy risk. Therefore, transactional focus must include clearly defining the terms of colocation agreements.

FINANCING MODELS

Given the significant capital expenditure required for specialized infrastructure, data centers employ various financing models to attract institutional investment.

The Real Estate Investment Trust (REIT) structure is a powerful vehicle, enabling investors to finance income-generating portfolios and receive stable dividends backed by long-term tenant leases. For new facilities (greenfield projects), project finance is common, where loans are secured primarily by projected revenues, making long-term contracts with hyperscale tenants essential. The sale-leaseback model allows operators to sell the physical asset to an investor to free up capital while securing a long-term operational lease.

Large platforms may adopt the 'Devco/Yieldco' structure, which segregates higher-risk development-phase assets (DevCo) from stable, income-producing operational assets (YieldCo), thus matching investment tranches to specific investor risk appetites. Further, the industry is increasingly utilizing Sustainability-Linked Loans (SLLs), where the cost of capital is tied to achieving operational metrics, such as improved energy efficiency and water-use reduction, thereby linking finance and ESG compliance. For high-density AI data centers, developers must often secure financing for both the 'shell' (land and building) and the 'core' (equipment, servers, chips), which introduces the risk of technology obsolescence.

Conclusion

Data centers are robust infrastructure assets that offer a blend of stability and growth, and remain increasingly central to the digital economy. Long-term, scalable value creation involves sophisticated structuring that anticipates constraints related to power and cooling, respects land-use sensitivities, and aligns financing frameworks with necessary sustainability outcomes. Further, legal structuring requires bespoke, project-level contract allocation, including clear performance guarantees for cooling systems and environmental covenants, as well as the allocation of lender step-in and assignment rights.

AAKANKSHA JOSHI
Partner
S&R Associates, Mumbai, India

Aakanksha Joshi is a partner at S&R Associates. Her areas of practice include infrastructure and energy, hospitality, mergers and acquisitions and general corporate matters.

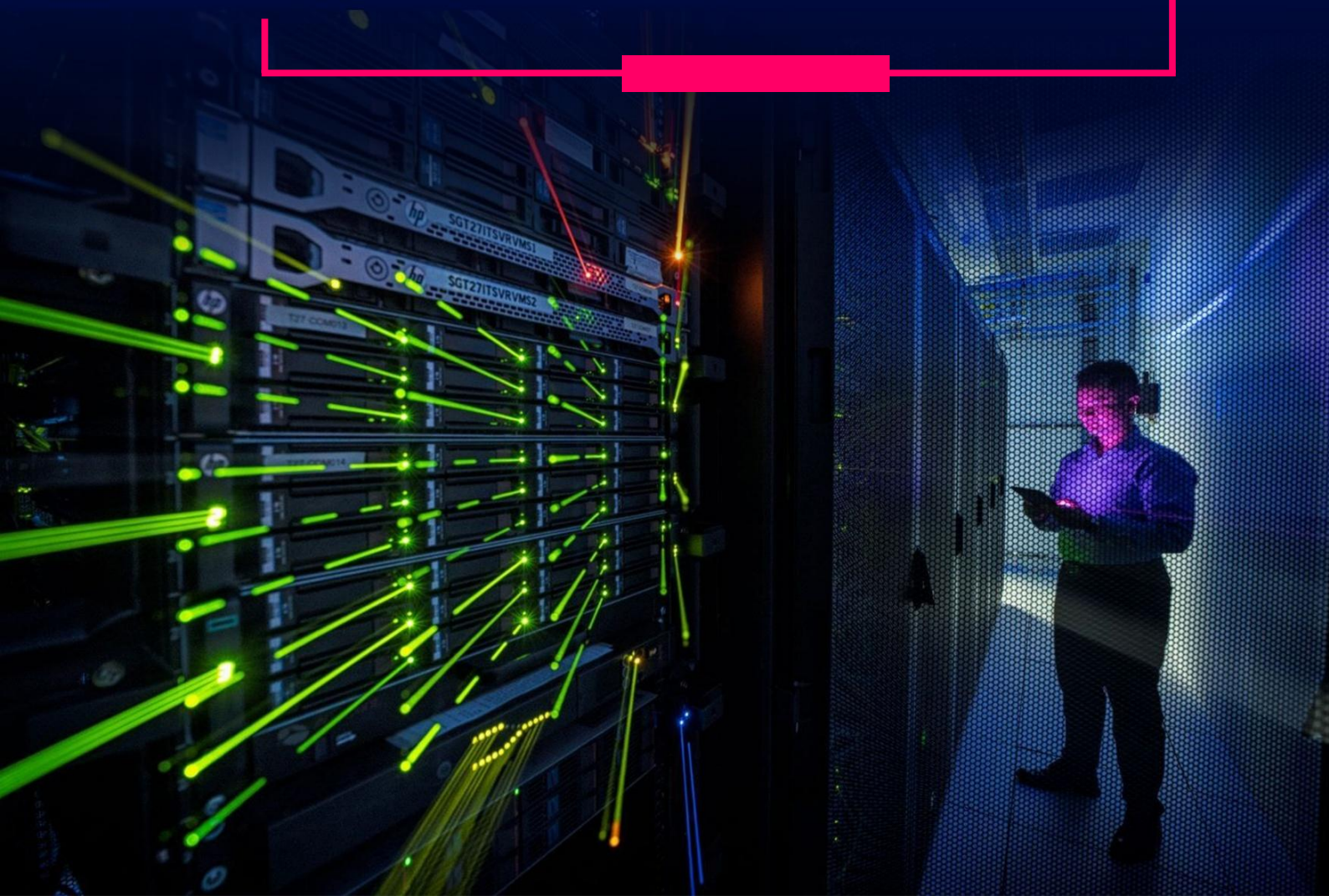
Aakanksha advises clients on the regulatory framework relating to, and investments in, infrastructure projects; bidding process and bid documents; concession agreements; engineering, procurement and construction contracts; supply contracts; consultancy contracts; operation and maintenance contracts; and power purchase and off-take agreements. She has extensive experience of advising on projects relating to a wide-range of infrastructure assets, including energy (conventional and renewable), shipping, ports, roads, airports, railways, warehousing, data centers, e-mobility and waste and water management.

DR. DEBORSHI BARAT
Head of Public Policy and Knowledge Management
S&R Associates, New Delhi, India

Deborshi Barat is the Head of Public Policy and Knowledge Management at S&R Associates. His areas of practice include data protection, AI and emerging technologies, gaming, ESG, and regulatory matters. He is also involved in the firm's knowledge and training initiatives.

Ai's Physical Backbone: How Data Centres are Becoming a Core Real Asset Class

By Ashish Kumar Verma
General Manager – Technical Development, Tabreed India



Artificial Intelligence (AI) may be the most transformative technology of our time, but its foundation is not purely digital, it is physical. Strategically located data centres that form the physical backbone of this digital intelligence depend on massive energy, land and capital footprints. With capacity projected to jump fivefold from ~1.5 GW in 2025 to 8 GW by 2030, attracting an estimated $30 billion in capital, Indian data centres are no longer just server warehouses, they are rapidly emerging as a distinct real estate and infrastructure asset class attracting global capital, specialised developers and long-term investors.

For India, where both digitalisation and decarbonisation are strategic national goals, this transformation is redefining how investors, utilities, city planners and policymakers view power, cooling, land use, interconnectivity and financing — the five pillars that determine the competitiveness and sustainability of the data centre industry.

In the AI era, power is not just a utility; it is the defining constraint of the asset class. Traditional cloud racks consumed 8-10 kW while AI training racks demand beyond 30–50 kW requiring cluster power that scale into the gigawatts. With AI workloads consuming 5-6x more energy, operators cannot sustain margins on conventional power alone, pushing operators to explore hybrid renewable contracts, open-access sourcing and captive generation. We foresee the emergence of captive renewable energy parks where data centre campuses are either co-located or directly linked to gigawatt-scale solar and wind farms through long-terms PPAs.

Power considerations are also reshaping asset valuation as it now hinges heavily on dual-grid connectivity. Facilities in regions with frequent power fluctuations are being discounted, while those with dedicated substations and "Infrastructure Status" access to reliable industrial power like in Navi Mumbai or Noida command premiums.

As power intensity rises, cooling requirements are evolving in parallel. With rack densities climbing beyond 30–50 kW due to GPU-heavy workloads, **conventional air cooling no longer suffices**. The next generation of hyperscale and colocation facilities will adopt liquid cooling (direct to chip cooling using chilled water) and immersion cooling (servers submerged in non-conductive liquid), allowing for denser compute and lower operational carbon footprints. These technologies are not only more thermally efficient but they also reduce water footprint when designed intelligently.

As India's climatic conditions make cooling design both a cost driver and an ESG challenge, new operating models are steadily gaining relevance. District cooling and Cooling-as-a-Service (CaaS) models, already tested in commercial real estate, could be applied in the data centre ecosystem. By outsourcing thermal infrastructure to specialised operators, developers can free up capital, improve uptime, focus on digital operations and align with sustainability mandates.

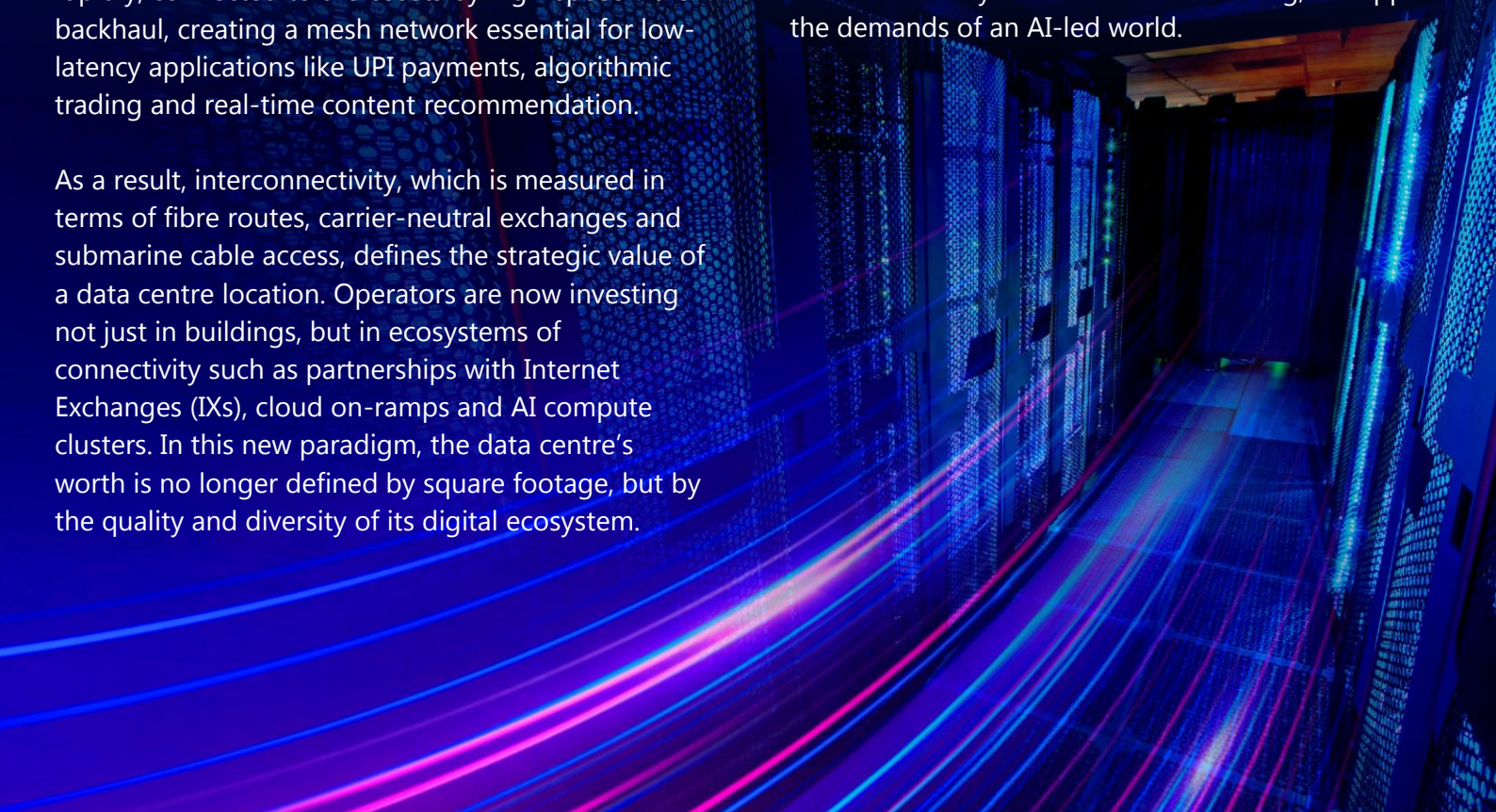
A similar shift is taking place on the land-use front. Traditionally tucked away in industrial corridors, **data centres are now moving closer to urban and edge locations** to minimise latency and to maximise connectivity. Urban authorities in Noida, Navi Mumbai and Pune have begun designating data centre parks with pre-approved power, fibre and environmental clearances, streamlining investment flows. Yet with urban real estate tightening, India needs a zoning policy framework that balances energy-intensive infrastructure with sustainable land use. The next step will involve integrating district-level power distribution, renewable corridors and even waste heat reuse into urban master plans — a sign of data centres maturing as infrastructure, not just IT assets.

This interplay between location and performance becomes even clearer when considering interconnectivity. While power dictates where you build, **connectivity dictates what you can build**. AI data gravity — the need to bring computing close to data — is concentrating investment around high-fibre, low-latency zones. Mumbai and Chennai remain unmatched due to their subsea cable landing stations. However, hubs like Hyderabad, Pune and the National Capital Region (NCR) are expanding rapidly, connected to the coasts by high-speed fibre backhaul, creating a mesh network essential for low-latency applications like UPI payments, algorithmic trading and real-time content recommendation.

As a result, interconnectivity, which is measured in terms of fibre routes, carrier-neutral exchanges and submarine cable access, defines the strategic value of a data centre location. Operators are now investing not just in buildings, but in ecosystems of connectivity such as partnerships with Internet Exchanges (IXs), cloud on-ramps and AI compute clusters. In this new paradigm, the data centre's worth is no longer defined by square footage, but by the quality and diversity of its digital ecosystem.

Amid these design and operational shifts, perhaps the most significant change is financial. Given their future prospects, data centres have moved beyond real estate valuation models to become **infrastructure-grade investments**, attracting global pension funds, sovereign wealth and green finance players. Three trends stand out: (1) Green Financing: investors favour assets backed by renewable PPAs or certified low-carbon operations. (2) CaaS and Joint Ventures: developers are partnering with utility players to de-risk power and cooling infrastructure. (3) REITs and InvITs dedicated to digital infrastructure are emerging as vehicles that can soon unlock liquidity and institutionalise investment in India's digital backbone. With AI workloads poised to grow at double-digit rates annually, financing models that blend real estate stability with infrastructure resilience will shape the next decade.

The rise of AI is redefining the very notion of infrastructure. Data centres are no longer back-end utilities; they are strategic assets shaping digital sovereignty, national competitiveness and investor confidence. In the decade ahead, the leaders in India's digital economy will be those who marry technology strategy with infrastructure foresight, aligning power availability, sustainable cooling, interconnectivity and innovative financing, to support the demands of an AI-led world.



ASHISH KUMAR VERMA
General Manager – Technical Development
Tabreed India

Ashish is currently heading technical development for Tabreed India.

A Mechanical Engineer by qualification, with specialization in HVAC&R, and dual management degree in Operations Management and International Business, Ashish has more than 20 years of diverse experience in design and execution of HVAC projects across Oil & Gas industry, Data Centers, Cross-country Pipelines, Petrochemical Plants, Polysilicon Plants, Pharmaceutical projects, Nuclear Power Plants, Semiconductor complexes, Hospitals, Hotels and Commercial Buildings including Green Buildings.

Ashish has extensively worked at new frontiers of technology such as 3rd Gen Modularization and Carbon Capture, with a hands-on approach, successfully executing several mega projects in countries such as US, Canada, UK, Russia, Kazakhstan, Malaysia and the Middle East.

Leveraging his experience across multi-ethnic work environments with top international consultants and EPC companies such as Fluor, Jacobs, Punj Lloyd and Voltas, Ashish is now looking forward to growing Tabreed's vision of environmentally friendly and sustainable cooling solutions in India.

Office REITs and the Rise of Intelligent Infrastructure

By Quaiser Parvez
Chief Operating Officer, Knowledge Realty Trust (KRT)

India's REIT Evolution: From Stability to Strategic Scale

India's office REIT story has become one of the most credible in global real estate. In less than a decade, REITs have demonstrated that high-quality office assets can deliver both stability and growth by combining long-term leases, strong occupier relationships and transparent governance. This maturity has positioned India as a trusted destination for institutional investors seeking predictable returns and exposure to a rapidly expanding economy.

The foundation for this success lies in the Global Capability Centre movement. Over the past two decades, multinational corporations have established large innovation and technology hubs across India's major and emerging cities. These centres have transformed the country's office market, providing steady demand and turning commercial real estate into a reliable, income-generating asset class.

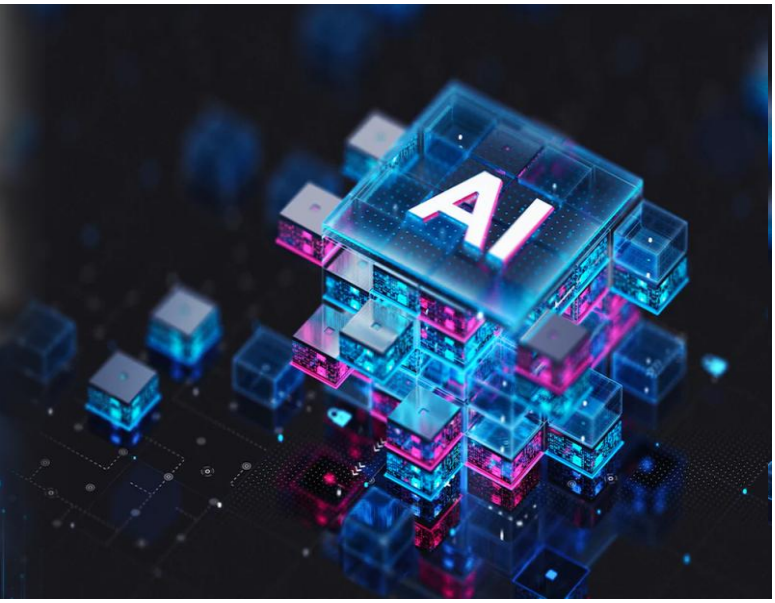
Today, this ecosystem is evolving once again. Artificial intelligence, cloud computing and data engineering are redefining how enterprises operate and what they require from physical infrastructure. For India's office REITs, this is not disruption but the next stage of evolution, a shift from providing space to enabling the infrastructure of intelligence.

AI as the Next Phase of Office Demand

Artificial intelligence is reshaping the very nature of the workplace. Global Capability Centres that once focused on back-office processes now lead global mandates in design, analytics and digital product development. These high-value functions need a different kind of environment that offers resilient power, high-speed connectivity, robust data security and sustainable operations.

India's deep base of English-speaking and technology-skilled professionals is central to this transformation. The country continues to attract global enterprises that view India as a hub for innovation, not just execution. This workforce strength, combined with competitive operating costs and policy support, makes India a preferred destination for companies building their AI capability.

Enterprises are no longer measuring value by the number of desks or square footage. They are seeking campuses that enable collaboration, innovation and long-term scalability. For office REITs, this means evolving toward intelligent, flexible and energy-efficient assets designed for the next generation of digital enterprises.



A Policy Environment That Accelerates Transformation

India's policy framework is moving in step with this transformation. National initiatives such as the Digital India Mission, the National Data Centre Policy and the AI for Viksit Bharat programme have created a clear roadmap for building the country's digital infrastructure. These programmes aim to strengthen power availability, promote responsible data governance and attract private investment in technology-driven assets.

At the state level, governments are introducing complementary measures to simplify approvals and encourage private capital. Incentives such as single-window clearances, power-tariff support and infrastructure status for data assets are helping large-scale projects become commercially viable. These frameworks also promote renewable energy adoption and green construction practices, aligning with the sustainability priorities of global investors.

Together, these policies create a predictable and investment-friendly environment. For REITs, they open new possibilities to expand into adjacent areas such as data parks, AI research clusters and energy-secure campuses within the same transparent governance structure that has defined India's REIT success.

A Nationwide Talent and Ecosystem Advantage

India's most powerful enabler in this new cycle is its talent. The country's large English-speaking workforce with deep technical skills gives it a unique global advantage. More than two million professionals are already employed in Global Capability Centres, and this number is expected to double within the decade.

What sets India apart is the breadth of its ecosystem. Talent and infrastructure are not limited to a few metro areas but are distributed across a growing network of major and Tier 2 cities that are investing heavily in education, digital infrastructure and quality of life. This nationwide spread supports balanced growth and ensures that innovation is both scalable and sustainable.

For REITs, this diversification translates into resilience. It allows portfolios to expand across regions and capture a broader base of tenants while staying close to the deep talent pools that global enterprises depend on. India's human capital remains the cornerstone of its competitiveness in the AI era.

Energy, Connectivity and Infrastructure Readiness

The foundation of AI infrastructure lies in power and connectivity. Reliable energy, renewable capacity and seamless digital networks are now as essential as location or design. India's rapid progress in renewable generation and grid modernization is creating an environment that can sustain the power-intensive demands of AI and data-led industries.

Across both major and emerging cities, improvements in power supply and fibre connectivity are enabling energy-secure, technology-ready business districts. For office REITs, integrating renewable energy, smart systems and high-speed data infrastructure within campuses enhances operational efficiency and long-term asset value.

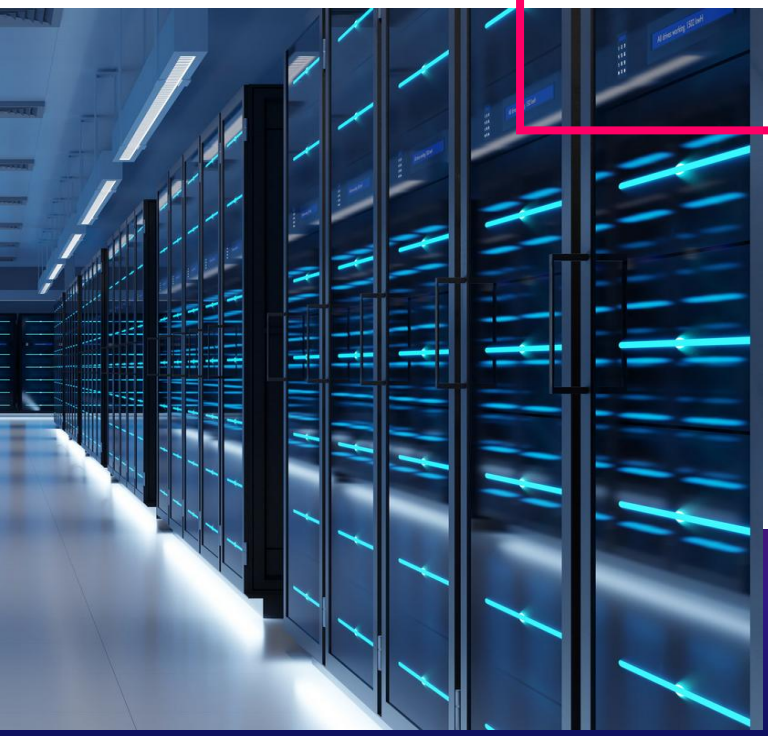
These intelligent, energy-secure campuses are more than buildings. They are strategic enablers of enterprise performance. They strengthen tenant relationships, meet sustainability goals and align with investor expectations for resilient, future-ready assets.

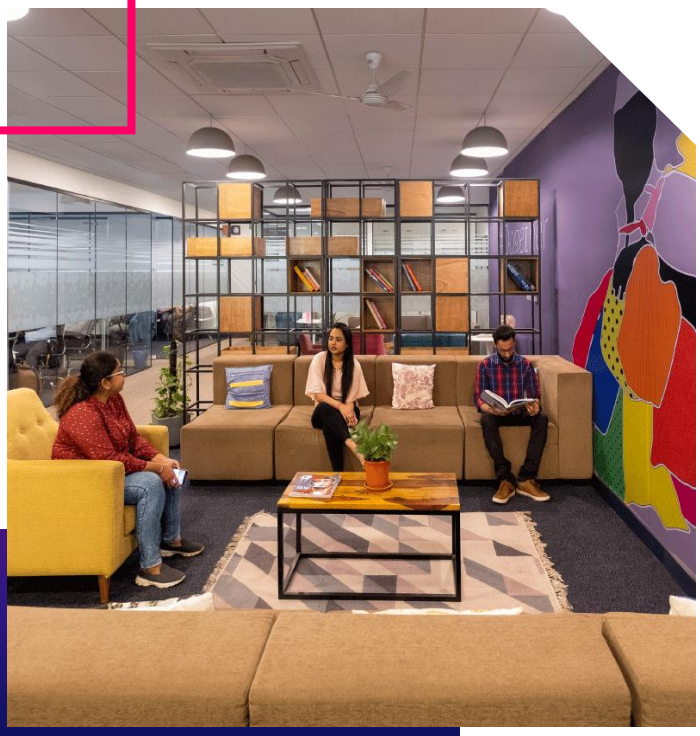
The Strategic Role of Office REITs in India's AI Era

The principles that built India's REIT market—transparency, governance and consistent returns—remain its greatest strengths. What is changing is the opportunity to apply these principles to new dimensions of value creation.

Office REITs are uniquely positioned to bridge real estate with digital infrastructure. By moving from passive ownership to active ecosystem building, they can deliver integrated campuses that combine workspace, data connectivity, renewable energy and smart facilities. Collaboration with technology partners, utilities and policymakers will enable these platforms to remain competitive and relevant over the long term.

This evolution allows REITs to balance steady yields with innovation-driven growth. It positions them at the centre of India's economic transformation, where institutional real estate becomes the foundation for enterprise intelligence and sustainability.





A National Growth Story with Global Relevance

India's rise as a global hub for AI and digital enterprise is being built on real assets. Offices, data networks and power systems are expanding together to create an integrated platform for sustainable growth. The alignment of progressive policy, skilled talent and reliable infrastructure across regions is creating one of the world's most investable ecosystems for technology-led development.

For REITs, this marks the beginning of a new cycle that combines the predictability of traditional real estate with the potential of intelligent infrastructure . The same institutions that brought transparency and stability to India's commercial property market are now helping build the physical framework of its digital future.

AI may exist in algorithms and data clouds, but its growth depends on the assets built on the ground. India's REIT platforms are ready to lead this transformation, creating not just workplaces but the infrastructure of intelligence for a connected and confident nation.

QUAISER PARVEZ
Chief Operating Officer
Knowledge Realty Trust (KRT)

Quaiser Parvez is the chief operating officer at Knowledge Realty Trust. He has completed a senior management program from Indian Institute of Management, Ahmedabad and holds a Bachelor of Arts degree (history) from the Hindu College, University of Delhi. Quaiser has more than 17 years of work experience. He was previously the chief executive officer of Nucleus Office Parks Private Limited, Blackstone Sponsor's platform for fully owned office parks in India. He has previously worked at CBRE South Asia Pvt. Ltd, Jones Lang LaSalle Property Consultants India Pvt. Ltd, Gallagher Offshore Support Services Private Limited and as the vice president—investment at Radius Developers.

The Intelligence Layer: How AI is Transforming Building Operations and Governance

By Yong Kun, Tong
Director, Sustainability Services,
Cushman & Wakefield

Queenie Tang
Head of Southeast Asia,
WiredScore

Artificial Intelligence (AI) is fast becoming the defining layer in how real assets are operated, maintained, and governed. In today's property landscape, where sustainability targets, cost efficiency, and digital resilience converge, AI is augmenting decision-making and redefining operational strategy. Across Asia Pacific, owners and operators are investing in smarter systems that can self-learn, self-diagnose, and continuously optimize building performance, creating a new paradigm for asset value and accountability.

The market has moved past "smart." The critical investment question is now whether an asset has the AI-ready infrastructure necessary to meet rapidly accelerating decarbonization mandates and protect itself from technological obsolescence. AI systems depend on high-quality data, low-latency connectivity, cyber-secure networks, and operational resilience. Without these foundations, AI tools underperform or fail outright. This shifts digital infrastructure from a support function to a core determinant of asset performance and risk. Frameworks such as WiredScore and SmartScore increasingly function as practical proxies for AI deployability at scale.

From Reactive to Predictive Operations

Traditional Building Management Systems (BMS) are fundamentally reactive, designed to monitor services like HVAC and lighting but only responding to setpoints and alarms after deviations occur.

The next generation of building operations is driven by AI algorithms that interpret thousands of real-time data points: temperature, occupancy, outdoor weather—to predict what will happen next. This predictive maintenance (PdM) capability anticipates potential equipment failures before they happen, allowing maintenance teams to plan interventions efficiently and extend asset life.

The economic implications are significant. By shifting from scheduled to condition-based maintenance, facility managers transform operations from a cost center into a source of performance value. Industry studies suggest that AI-enabled PdM can reduce unplanned equipment downtime by 30 to 50 percent and lower maintenance costs by 10 to 40 percent (Johnson Controls, 2025). In large commercial portfolios, these verifiable gains translate directly into higher net operating income and improved asset reliability.

Energy Optimization as Intelligence in Action

In South East Asia, the buildings sector accounts for approximately 23% of the region's total final energy consumption (IEA and ASEAN, 2022). This substantial portion of demand, primarily driven by HVAC systems, makes operational efficiency the primary and most cost-effective lever for decarbonization.

The solution moves beyond static controls to AI-driven building optimization. AI-driven controls deliver verifiable reductions in energy-use intensity in office and mixed-use assets, often achieving 10% to over 20% savings without significant capital upgrades. Through continuous learning, the model evolves, becoming more precise in balancing comfort, efficiency, and cost.

AI systems achieve this by detecting subtle inefficiencies invisible to human operators—such as a small deviation in chiller performance or unbalanced air distribution. These continuous micro-corrections contribute directly to carbon-reduction goals while improving occupant comfort.

Moreover, AI's integration with IoT sensors enables real-time performance visibility across multiple sites. This allows portfolio managers to benchmark energy intensity, identify outliers, and forecast utility costs. This data-driven intelligence directly influences asset valuation by supporting strategic retrofit decisions and sustainability certification. For investors, these efficiency gains reduce operating expenditure volatility and improve the durability of ESG-linked income assumptions.

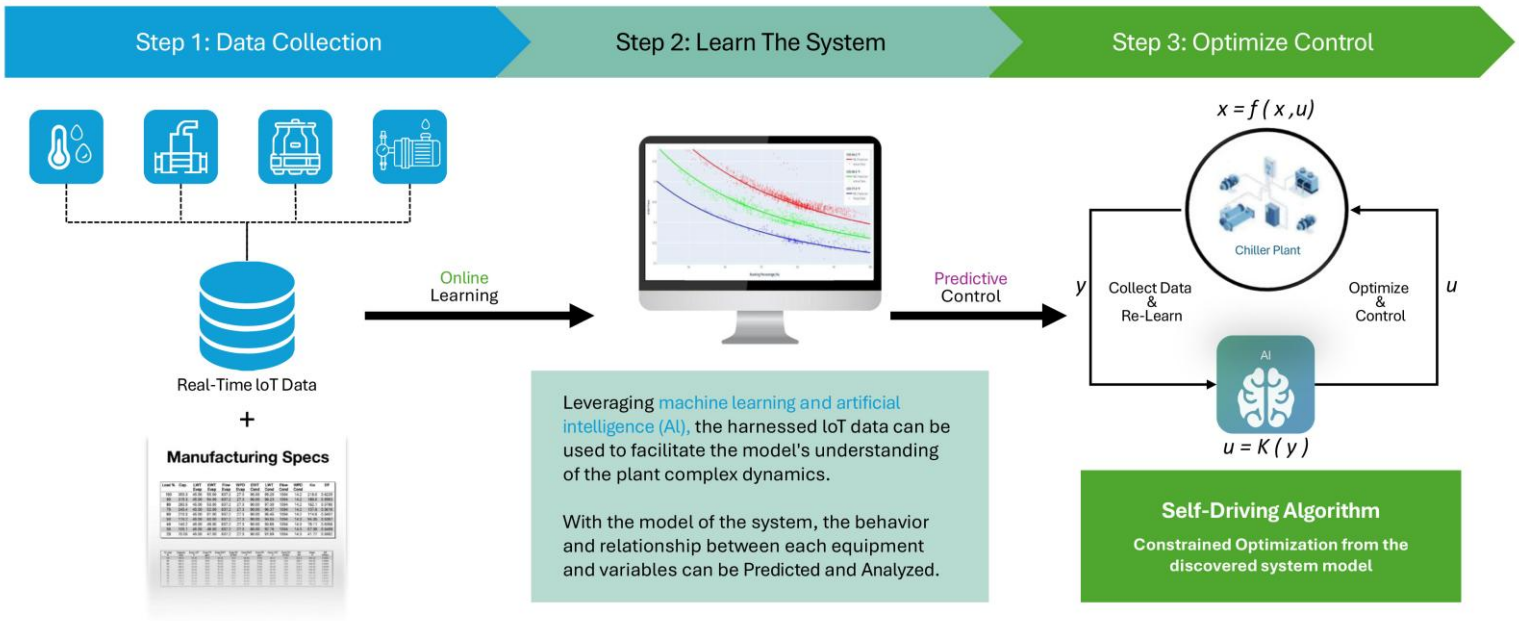


Figure 1 - Example of a self-driving HVAC control system

Governance, Cybersecurity, and Responsible AI

As buildings become more intelligent, the resulting connectivity introduces commensurate risk. Every sensor, controller, or cloud gateway expands the digital attack surface of a property asset, making Cybersecurity and governance inseparable from the AI discussion.

AI-driven systems, particularly those relying on cloud analytics and digital twins, require resilient and redundant connectivity as a prerequisite for operational continuity, as network instability degrades model accuracy.

Responsible AI in building operations demands new governance frameworks that merge cybersecurity, data ethics, and operational accountability. Cyber incidents in building control systems risk compromising not only data integrity but also physical operations, including life safety and critical services. The growing interdependence of IT and OT (Operational Technology) networks compels investors and regulators to scrutinize digital governance as a core determinant of asset resilience.

Digital Readiness and Certification Frameworks

Assets with strong digital infrastructure are inherently better positioned to operationalize AI. Grade A office buildings featuring redundant fiber pathways and secure network architectures can support continuous data ingestion required by AI platforms without interruption. This enables real-time optimization and portfolio-level analytics not feasible in digitally constrained assets.

As AI adoption accelerates, this creates a widening performance gap between digitally resilient assets and those constrained by legacy connectivity and fragmented systems.

Certification schemes such as SmartScore and WiredScore have emerged to address this intersection of performance, security, and user experience.

While these frameworks do not measure AI performance directly, they create the essential governance structure. WiredScore evaluates the underlying infrastructure (redundant connectivity and resilience) that supports continuous data flow. SmartScore evaluates the intelligence layer, ensuring open data protocols, centralized infrastructure, and secure integration—all prerequisites for responsible AI deployment and high-quality data access.

By aligning assets with these certifications, owners and operators signal to investors and occupiers that the property is both technologically capable and digitally trustworthy; a key differentiator in an era where data is as valuable as floor space.

The Human Dimension: AI as an Enabler, Not a Replacement

While AI can automate diagnostics and recommend actions, the human element remains essential. Facilities teams are evolving from system operators to data interpreters and strategic decision-makers. AI provides the insights, but judgment, safety oversight, and ethical responsibility stay with people.

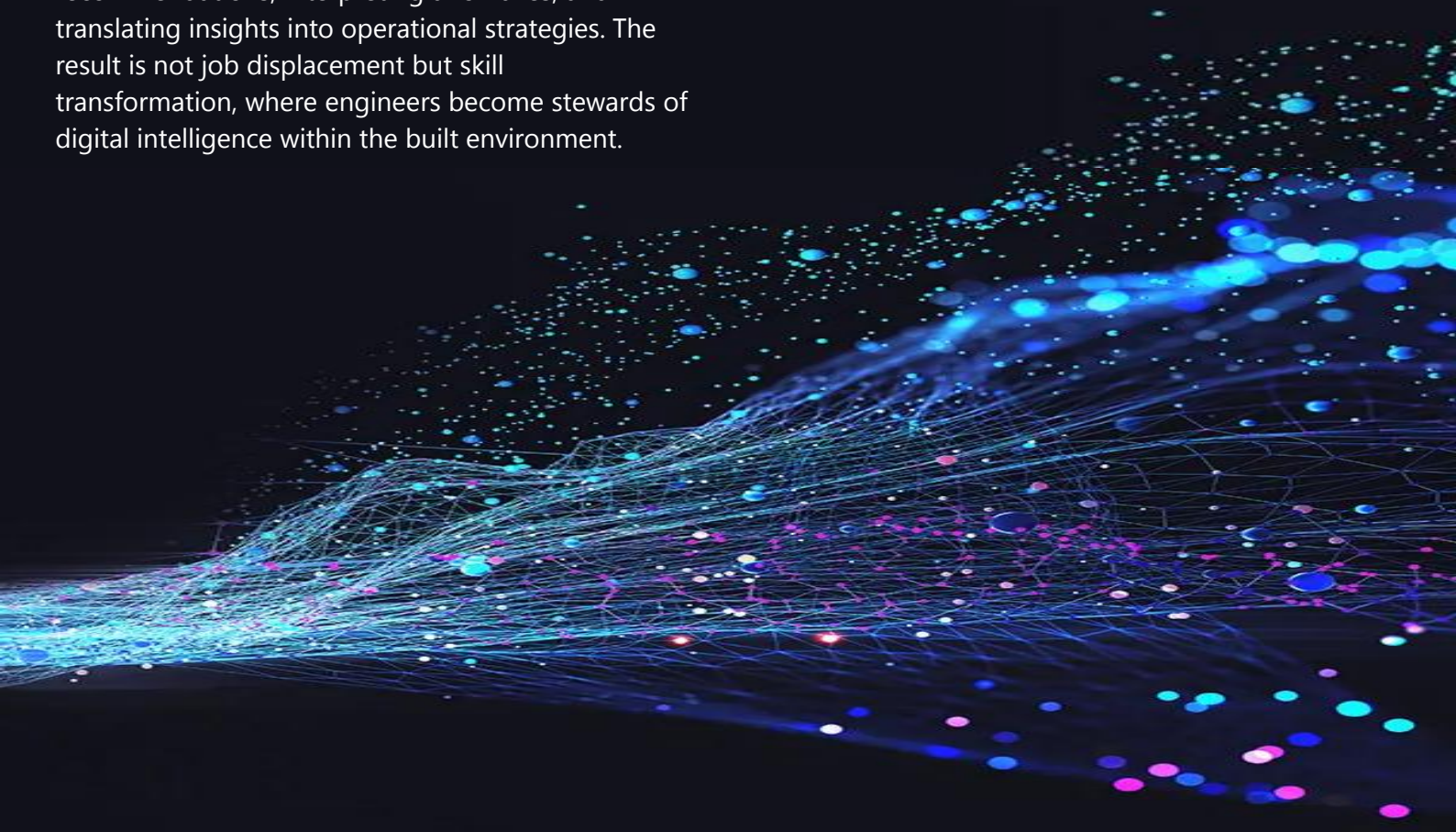
In practice, this means training facility professionals to work alongside AI tools – validating recommendations, interpreting anomalies, and translating insights into operational strategies. The result is not job displacement but skill transformation, where engineers become stewards of digital intelligence within the built environment.

Looking Ahead: Governance as the New Performance Metric

The next phase of AI adoption in real assets will be defined not just by how well systems predict or optimize, but by how accountably they do so. Buildings are now both physical and digital entities, and their management requires the same rigor applied to financial or environmental governance.

For investors, weak digital infrastructure increasingly represents a form of hidden operational risk. AI systems trained on incomplete data, operating on unstable networks, or exposed to cyber vulnerabilities can undermine performance assumptions and ESG commitments.

SmartScore and WiredScore provide a structured baseline for evaluating this readiness, but future standards may go further—algorithmic transparency, data ethics, and the carbon footprint of digital infrastructure itself. The conversation is shifting from "how smart is your building" to "how responsibly intelligent is it."



Conclusion

AI is transforming building operations from reactive maintenance to proactive intelligence, delivering measurable gains in efficiency, sustainability, and asset performance. Yet, this success is entirely dependent on governance; the assurance that data, algorithms, and connectivity are secure, transparent, and interoperable.

For owners and investors across Asia Pacific, embedding the principles of responsible intelligence is key to long-term asset competitiveness. Digital infrastructure quality is therefore not a technical detail but a strategic input that bridges operational performance, digital trust, and enduring asset value, as defined by frameworks like SmartScore and WiredScore.

References

1. IEA and ASEAN (2022), Roadmap for Energy-Efficient Buildings and Construction in the Association of Southeast Asian Nations, IEA, Paris https://www.iea.org/reports/roadmap-for-energy-efficient-buildings-and-construction-in-the-association-of-southeast-asian-nations, Licence: CC BY NC 4.0

2. Johnson Controls (2025), Predictive is more productive – take the guesswork out of maintenance https://www.johnsoncontrols.com/building-insights/2025/feature-story/predictive-is-more-productive

3. Building and Construction Authority (BCA). (n.d.). Technologies Details [AI-Driven System Optimization] (Reference ID 469). Super Low Energy Buildings Smart Hub. Retrieved December 15, 2025, from https://sleb.sg/Technologies/TechnologiesDetails/469

YONG KUN, TONG
Director, Sustainability Services
Cushman & Wakefield

Yong Kun is a sustainability professional in the green building sector, drawing on a strong foundation in engineering and extensive prior experience in the manufacturing sector. He has held regional and plant management roles, where he successfully implemented projects to improve operational efficiency, integrate new technologies, and strengthen environmental performance. These experiences provided him with hands-on expertise in managing complex facilities and balancing business needs with sustainability objectives. Building on this background, he now advises clients across diverse property types, supporting them in achieving green building certifications, conducting ESG assessments, and developing decarbonization strategies.

QUEENIE TANG
Head of Southeast Asia
WiredScore

As Head of Southeast Asia at WiredScore, Queenie is driving the region's transition to smarter, better-connected buildings. She leads efforts to certify spaces with best-in-class digital infrastructure, helping businesses thrive in the evolving real estate landscape. Bilingual in English and Cantonese and a skilled communicator, Queenie bridges global standards with regional insight to future-proof the built environment across SEA.

Transforming Building Operations Through Technology

Intellion Offices by Tata Realty: NCR Delhi, Mumbai & Chennai, India

A case study on Transforming Building Operations to improve efficiencies and costs by implementing relevant technologies in Hygiene & Sanitation, Sustainability, Security & Energy Management.

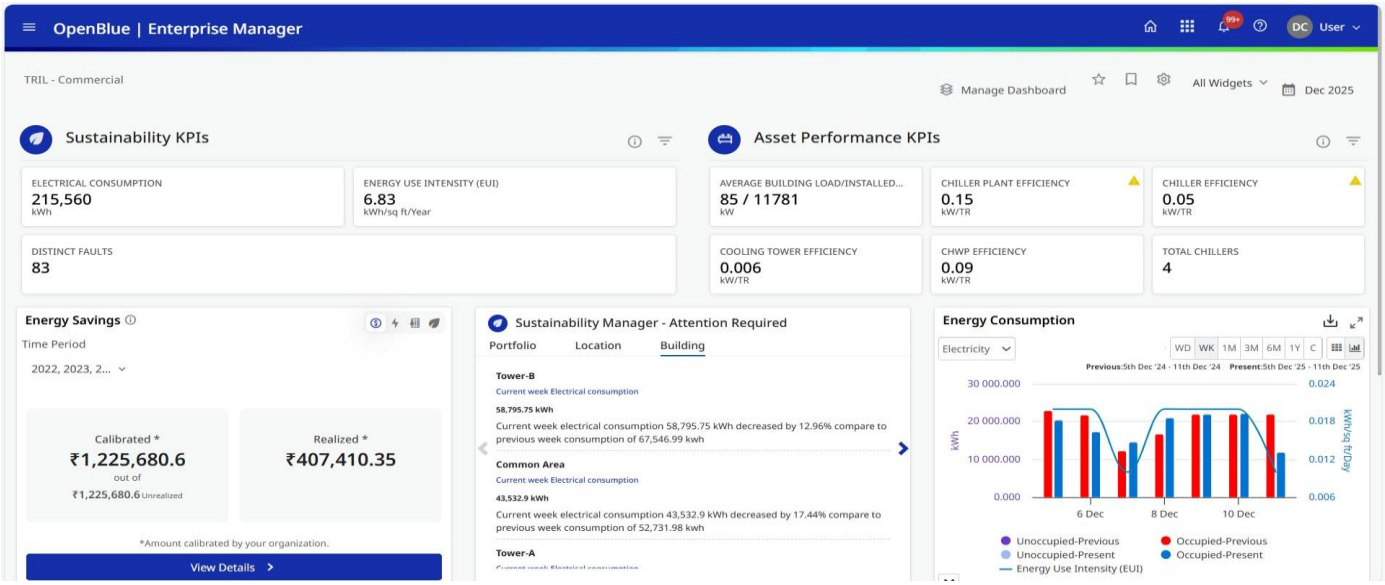
By Vikas Kumar, MRICS
Vice President & Head Asset Management, Intellion Offices by Tata Realty

Introduction

In the past decade, the commercial real estate sector has witnessed a paradigm shift in services delivery and customer experience. With the impact of Covid and hybrid workplaces –industry has consistently and actively moved towards adoption of Property Technology (*Proptech*) solutions. *Intellion Offices by Tata Realty* is a leader in India's commercial real estate sector providing premium office spaces, which exemplifies this transformation by integrating advanced digital tools and automation into their buildings and operations.

This case study explores the comprehensive deployment of *Proptech* at the Intellion Offices portfolio, focusing on operations and services being delivered to enhance security, hygiene and sanitation, amenities, access and visitor management systems and engineering operations. *Intellion Offices by Tata Realty* has positioned itself at the forefront of the real estate industry, leveraging technology to create intelligent, sustainable, and secure workspaces focused on enhancing the customer experience.

Open Blue Enterprise Management for Engineering Operations



The deployment of the Open Blue enterprise management (OBEM) at Intellion in partnership with *Johnson Controls*, marks a significant milestone for the Intellion offices. It provides an integrated building performance management system for operating smart, secure, healthy, and sustainable buildings by streamlining the management of multiple building systems encompassing HVAC, lighting, and energy management.

At Intellion Edge, Gurugram OBEM enables real-time monitoring and control of critical building functions via a unified dashboard. Facility managers can access live data on energy consumption, equipment operations and efficiency, enabling proactive maintenance and rapid response to faults and anomalies, thus enabling predictive maintenance, reducing downtime and operational costs.

The adoption of OBEM has resulted in significant improvements in energy efficiency, with optimised scheduling and automation of air-conditioning systems. These outcomes not only support *Intellion Offices by* Tata Realty's sustainability goals but also contribute to a superior tenant experience by ensuring consistent and efficient cooling and comfort as well as improved air quality.

Robotics for Cleaning & Sanitation

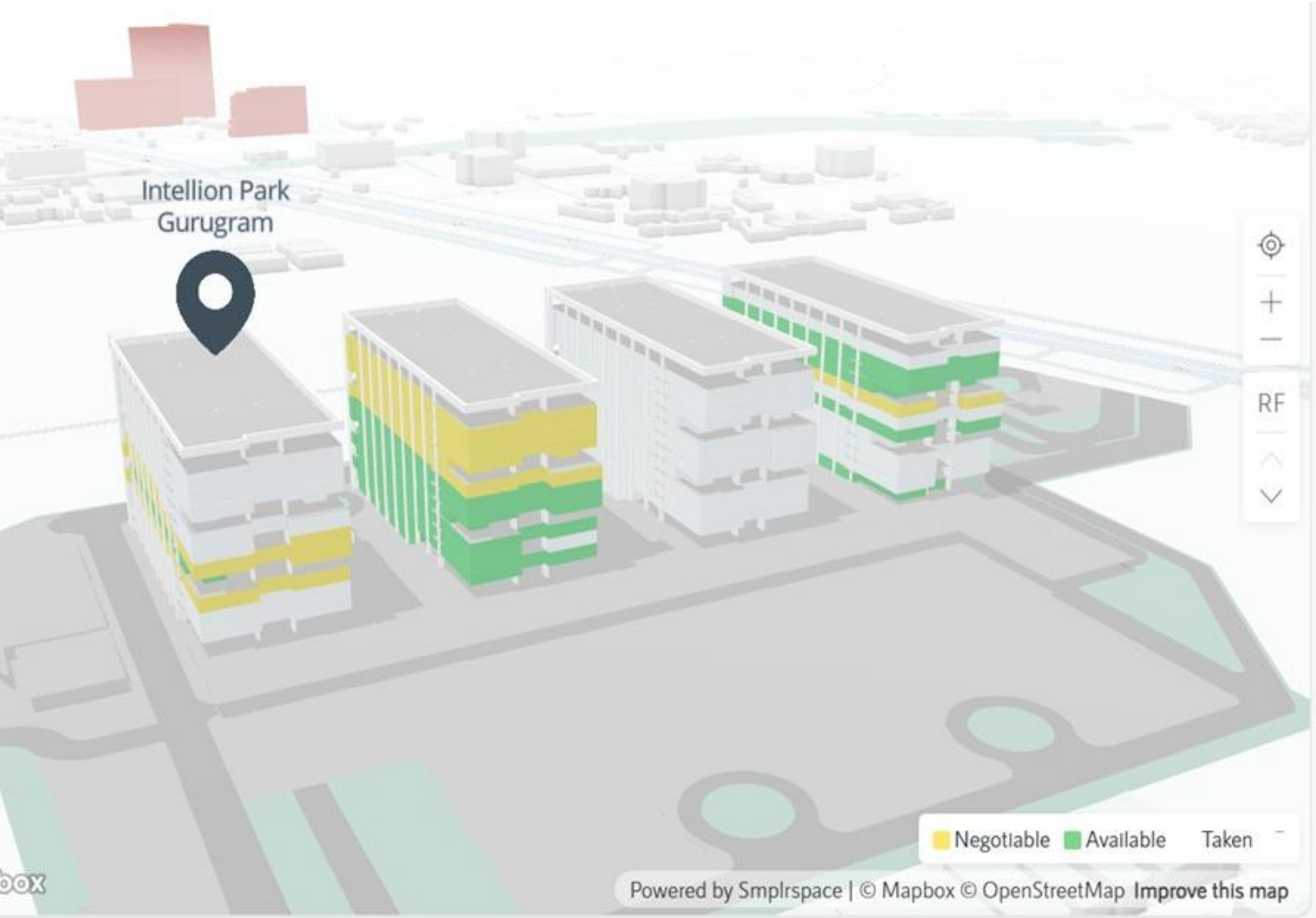
Another first at *Intellion Offices by* Tata Realty is the implementation of robots in maintaining the highest standards of hygiene and sanitation. Autonomous robotic cleaners work round the clock utilising advanced navigation, mapping, and obstacle avoidance technologies to deliver high-quality, consistent cleaning across the Intellion Park, Gurugram.

These robotic cleaning machines operate on pre-scheduled routines ensuring that common areas, corridors, and lobbies are maintained with minimal human intervention. Real-time monitoring and reporting enable facility teams to track cleaning cycles, address missed spots and maintain hygiene standards efficiently. The integration of robotics allows for human resources to be leveraged for more value-added tasks, while also reducing operational costs. It has also elevated the standard of cleanliness, supporting health and safety protocols—especially relevant in the post-pandemic era. The tangible benefits of this partnership with *Peppermint Robotics* include consistent cleaning quality and improved resource allocation.

Digital Twins at Intellion

Intellion Offices by Tata Realty has deployed a Digital Twin platform across its entire Intellion Offices portfolio which enables a comprehensive, interactive digital representation of all commercial assets. Digitized 3D floor plans and spatial data models of each asset are available to the operations teams, enriched with embedded virtual tours, 360° site photographs, and comprehensive geospatial mapping of both indoor and outdoor areas.

The digital twins serve as a powerful tool to virtually showcase the portfolio to prospective tenants. Interactive tours and detailed spatial data allow clients to explore spaces remotely, understand local geography and connectivity, assess fit-outs, and visualize potential modifications. This enhances transparency and client engagement, makes it easier to communicate the unique value proposition of each asset. The 3D digital twins aggregate and centralize critical data including services, amenities and equipment inventories. Facility managers can embed and access real-time operational data, track maintenance activities, and generate customized reports for decision-making. Integration with other Proptech solutions—such as IoT sensors, building management systems, and analytics platforms—is planned for future phases, further enhancing the value of the digital twin ecosystem.



Intellion+ App: Streamlining Operations Across Intellion Offices

The *Intellion+* app serves as a digital backbone for operations across all **Intellion** Offices. This mobile application allows tenants to place service requests, and supports information sharing between tenants, service teams, and building operations teams.

Key features of the *Intellion+* app include real-time incident reporting, booking of amenities, visitor management, and access to community updates. The app's intuitive interface ensures quick adoption among users, fostering a collaborative and responsive operational environment. For facility managers, the platform provides actionable insights into service trends, response times, and tenant satisfaction metrics.

This digitization initiative provides real-time connections with the occupiers' community and contributes to a more engaging tenant experience. The app exemplifies how Proptech can bridge the gap between digital innovation and day-to-day building management.

Accaccia: Digitizing Sustainability Reporting

Accaccia provides for comprehensive sustainability reporting, providing real-time tracking of environmental performance indicators such as energy use, water consumption, waste management, and greenhouse gas emissions.

At **Intellion**, the Accaccia tool aggregates data from multiple sources, generating insights and reports aligned with global sustainability frameworks. Facility managers can monitor progress towards green building certifications, identify areas for improvement, and communicate achievements to stakeholders. The platform's analytics support targeted interventions, such as optimising energy usage during peak hours or implementing water-saving measures.

Intellion Offices by Tata Realty is a responsible real-estate developer, and through this *Proptech* deployment regulatory compliance and transparency in environmental reporting are further enhanced.

AI Analytics in Campus Security

Intellion Offices by Tata Realty has leveraged *VAST Vision's AI analytics* to fortify surveillance at the **Intellion** offices. This advanced system employs AI-driven video analytics to monitor CCTV feeds in real time, immediately detecting unusual activities, unauthorised access, and safety violations.

This AI driven technology provides features like facial recognition, intrusion detection, and behaviour analysis, enabling quick incident response and intelligent alerts ensuring that potential threats are addressed promptly. The system's ability to learn and adapt to evolving security challenges represents the potential of AI in building operations.

Conclusion:

Future Outlook for Proptech in Commercial Real Estate

Tata Realty's **Intellion** Offices have demonstrated how Proptech in building operations can have a transformative effect on operations and customer experience. *Intellion Offices by Tata Realty* is a leading real estate developer in India creating a benchmark for intelligent, sustainable, and secure office environments in India enabled by digital platforms, automation and AI in operations. This successful use of technology highlights the value of integrated Proptech strategies in achieving operational excellence.

Intellion Offices by Tata Realty will continue its journey to drive further innovation, with emerging technologies such as digital twins, advanced IoT sensors, and blockchain-enabled transactions set to redefine commercial real estate. For industry stakeholders, the *Intellion Offices by Tata Realty* experience offers inspirational benchmarks in leveraging technology to create future-ready, resilient, and people-centric buildings and workplaces.

VIKAS KUMAR, MRICS
Vice President & Head Asset Management
Intellion Offices by Tata Realty

Vikas Kumar, currently heads Asset Management for Intellion Offices by Tata Realty, leading operations for ~9 mn sq. ft. of mixed-use portfolio spread across multiple cities in India. He is an Armed Forces veteran, having served for 12+ years in the Corps of Signals before he joined the CRE industry. He is a solutions-oriented expert focused on delivering effective outcomes through building a strong team culture and developing high-performance teams. He has worked in various organizations like Time Inc. India, Vestian Global, 91Springboard, CBRE India leading pan-India teams and delivering operations and large projects across pan-India portfolios.

APREA

Proptech and Building Operations: Predictive Maintenance, Fault Detection and Diagnostics, Energy Optimization

By Vimal Nadar
National Director and Head, Research, Colliers India

PropTech in Building Operations

Today, real estate and construction account for nearly 40% of the global carbon emissions. Buildings are no longer passive structures of brick-and-mortar—they have evolved into dynamic ecosystems that demand continuous monitoring and optimization. In India too, built environment is undergoing a major transformation, with technology integration, sustainability and wellness emerging as key growth pillars across asset classes. The growing focus on green buildings underscores this transformation—increasing number of buildings are getting LEED, GRIHA and WELL certified, particularly offices, Grade A warehouses and large residential projects. These standards advocate improvements in energy efficiency, indoor air quality, and operational performance, creating a strong case for technology integration. In fact, PropTech (Property Technology) is one of the most promising enablers, bringing together Internet of Things (IoT) sensors, Artificial Intelligence & machine learning (AI/ML) platforms, and cloud-based systems to optimize energy use, reduce carbon footprints, and improve occupant well-being. Leveraging data analysis algorithms, PropTech enables predictive analytics, remote monitoring, and immersive inspections through tools like Virtual Reality (VR)/Augmented Reality (AR), making building operations more adaptive and proactive.

Modern building operations integrate Heating, Ventilation, and Air Conditioning (HVAC) systems, lighting control, Energy Management Systems (EMS), and security into unified systems that enhance occupant experience. While these systems once operated in isolation, technological advancement has brought them together under Building Management Systems (BMS), enabling centralized control and automation of diverse functions. This integration reduces risks and costs while enabling predictive maintenance, real-time fault detection, and energy optimization through data-driven insights. Together, these innovations are creating smart, sustainable, and future-ready buildings.

Predictive Maintenance - A swift approach to minimize disruption & maximize efficiency

A building equipped to detect anomalies and alert facility management before a major fault or breakdown occurs represents a significant advancement in operations. Predictive maintenance leverages PropTech tools such as IoT sensors, AI algorithms and advanced analytics to continuously monitor equipment health and forecast potential issues, enabling facility managers to proactively act on the problem before escalation. This is particularly useful for critical systems such as HVAC units, elevators and chillers. Integrated sensors and IoT devices can capture real-time data on temperature, vibration and energy consumption from multiple systems which can then be analyzed using AI/ML models to predict likely malfunctions. Alerts are generated accordingly allowing swift maintenance, minimizing disruption due to rigid service schedules. This also maximizes operational efficiency and extends the operational lifespan of critical building systems.

This approach represents a strategic enhancement to both new and aging buildings. For older assets, retrofitting with IoT sensors and advanced analytics can make them competitive, while for new developments, integrating predictive capabilities ensures system resilience, compliance with the Energy Conservation Building Code, and alignment with global ESG standards.

Fault Detection & Diagnostics (FDD) – Automated reliability for superior building performance

Fault detection and diagnostics (FDD) is another critical layer of optimizing building intelligence that identifies operational issues in real time. FDD is different from predictive maintenance as it checks whether the current operations are running at peak efficiency by diagnosing faults as they occur, while predictive maintenance anticipates breakdowns allowing proactive repair. In FDD, sensors & BMS collect data from HVAC, lighting, and water systems which are then analyzed for abnormal energy use, temperature fluctuations, water leaks, pressure inconsistencies and irregular air flow patterns. When a fault is detected, the system flags the location, equipment, component, and probable cause, enabling quick resolution without manual troubleshooting. Automated alerts reduce response time and prevent wastage, which reduces operational costs by up to 30%. Overall, FDD also aids in achieving sustainability goals by optimizing energy performance and reducing downtime.

Energy Optimization - Efficiency at the core of sustainability

Energy optimization is central to achieving long-term ESG goals, as it reduces energy usage and enhances occupant comfort. Buildings consume significant amount of energy for HVAC, lighting, and operations, making intelligent EMS essential. PropTech tools like smart meters, analytics, and automation help in monitoring usage, identifying inefficiencies, optimizing loads, and reducing peak-hour costs. For older buildings, reducing operational emissions is especially critical because they account for the majority of the building's carbon footprint. Also, embodied emissions generated during construction are already locked in and can only be offset, through energy optimization during the operational phase. Interestingly, emerging technologies such as digital twins and AI-powered EMS are increasingly enabling real-time simulations and autonomous adjustments, creating intelligent environments that lower emissions, improve tenant experience, and boost operating as well as profitability margins.

PropTech future proofing Indian real estate

With ambitious targets of achieving 500 GW renewable energy capacity by 2030 and net-zero emissions by 2070, Indian real estate has a unique opportunity to integrate PropTech and sustainability in built structures. Developers are increasingly using on-site renewable energy systems such as solar (PV & Thermal), biomass boilers etc. In commercial real estate, retrofitting older office stock (>10 years old), with energy-efficient systems, solar panels, and smart automation is picking pace. At present, the stock of relatively older office buildings, estimated to be over 350 million sq ft, holds an investment opportunity to the tune of INR 425 billion. Moreover, relatively newer buildings (≤10 years), estimated to be 80-110 million sq ft stock, hold environmental-upgradation potential with minimal capex. E-upgrades of existing buildings typically result in 3-4X net cashflow benefit for developers over the remaining asset life.

Integrating PropTech into building operations is more than a technological upgrade, it is a strategic necessity for real estate stakeholders. Occupiers are increasingly seeking smart, tech-enabled spaces that not only deliver efficiency but focus on overall wellbeing. Consequently, developers are creating intelligent buildings that usually command higher rental premiums and attract long-term occupiers/end-users. Investors too can gain competitive edge with better regulatory compliance and superior returns by future proofing assets with PropTech and sustainability. Additionally, facility managers can benefit from lower operating costs, improved reliability, and enhanced occupier experience. Overall, PropTech solutions like smart systems, predictive maintenance, FDD, and energy optimization technologies will not only reduce emissions but also extend asset life and improve market competitiveness. The future lies in autonomous, self-healing buildings which are likely to set new benchmarks for operational intelligence and sustainability.

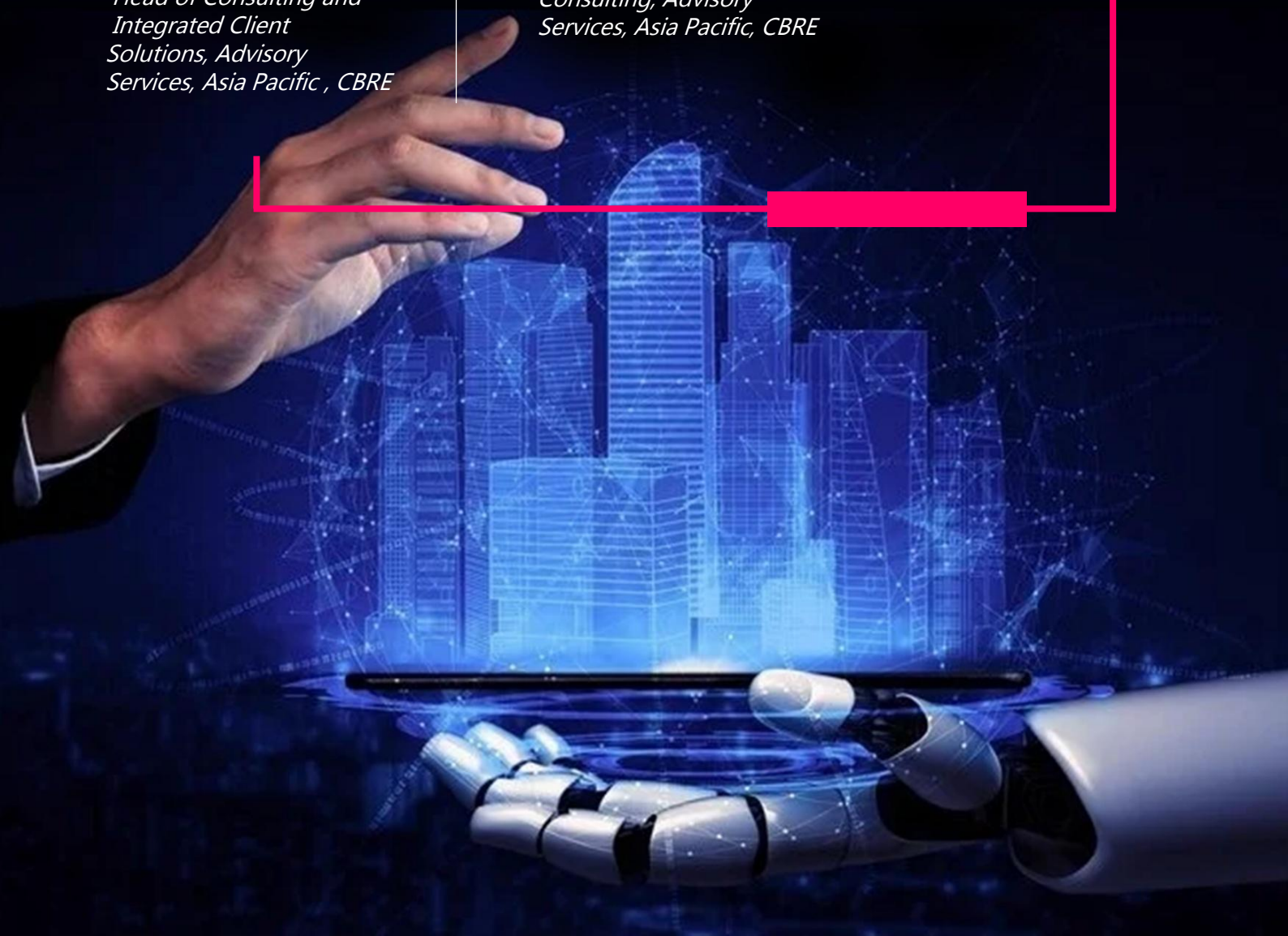
VIMAL NADAR
National Director & Head, Research
Colliers India

Vimal has a cumulative of about 18 years of experience and is currently working with Colliers as the Head of Research. He is responsible for leading and managing India Research operations. He focuses on thought leadership through timely and insightful content to support business growth while elevating the brand value of the company. Prior to this, he led research and thought leadership for various leading international property consulting firms. His areas of expertise include undertaking research & consulting in the areas of business assessment, demand-supply analysis, market entry strategy, strategic road mapping, etc. in sectors such as Real estate, Cement, BFSI and other sub-sectors within the infrastructure domain.

Real Assets, New Skills: The AI Talent Quest Reshaping APAC Real Estate

By Rohini Saluja
Managing Director, Head of Consulting and Integrated Client Solutions, Advisory Services, Asia Pacific , CBRE

Udit Sabharwal
Associate Director, Head of Consulting, Advisory Services, Asia Pacific, CBRE



Artificial intelligence (AI) is no longer just a tool for digital efficiency. It is a structural driver reshaping the global workforce with implications for entire industries, including real estate.

While North America continues to attract the bulk of the AI-focused venture capital (VC) funding from around the world - a record-high US$129 billion across 5,900 deals globally in 2024 alone[1] - the scale of the expanding talent pool in the Asia Pacific region is reshaping the global map.

APAC and its tech hubs are quickly establishing themselves as global engines of digital innovation, led by the convergence of specialised talent, which has become a crucial frontier for value creation.

The AI talent and skills landscape

Influenced by a range of factors, including labour market conditions, quality of life, demographics, educational attainment, capital funding and the availability and cost of real estate, the largest tech talent markets are now firmly rooted in APAC.

With Beijing, Bengaluru and Shanghai each boasting over a million tech workers,[2] the sheer volume of talent offered by these cities is a crucial advantage as demand for specialised tech skills outstrips supply. Meanwhile, Singapore, which is among the region's foremost financial and technology hubs, ranks highly in terms of talent quality.

Figure 1: Tech talent workforce by market (2023)

Market	Country	Region
Over 500,000		
Beijing	Mainland China	Asia-Pacific
Bengaluru	India	Asia-Pacific
Shanghai	Mainland China	Asia-Pacific
Tokyo	Japan	Asia-Pacific
Delhi-Gurugram	India	Asia-Pacific
Hyderabad	India	Asia-Pacific
Mumbai	India	Asia-Pacific
Shenzhen	Mainland China	Asia-Pacific
300,000-500,000		
Guangzhou	Mainland China	Asia-Pacific
London	U.K.	Europe
New York Metro	U.S.	North America
Paris	France	Europe
S.F. Bay Area	U.S.	North America
Toronto	Canada	North Americs
200,000-300,000		
Singapore	Singapore	Asia-Pacific
Dallas-Ft. Worth	U.S.	North America
Los Angeles-Orange County	U.S.	North America
Madrid	Spain	Europe
Manila	Philippines	Asia-Pacific
Mexico City	Mexico	Latin America
Sao Paulo	Brazil	Latin America
Sydney	Australia	Asia-Pacific
Washington, D.C.	U.S.	North America

Market	Country	Region
150,000-200,000		
Boston	U.S.	North America
Seattle	U.S.	North America
Chicago	U.S.	North America
Melbourne	Australia	Asia-Pacific
Montreal	Canada	North America
Santiago	Chile	Latin America
Seoul	South Korea	Asia-Pacific
New Taipei City	Taiwan	Asia-Pacific
100,000-150,000		
Amsterdam	Netherlands	Europe
Atlanta	U.S.	North America
Barcelona	Spain	Europe
Berlin	Germany	Europe
Bogota	Colombia	Latin America
Bucharest	Romania	Europe
Buenos Aires	Argentina	Latin America
Denver	U.S.	North America
Dublin	Ireland	Europe
Hong Kong SAR	Hong Kong SAR	Asia-Pacific
Milan	Italy	Europe
Munich	Germany	Europe
Philadelphia	U.S.	North America
Phoenix	U.S.	North America
Stockholm	Sweden	Europe
Vancouver	Canada	North America
Warsaw	Poland	Europe

Note: Powerhouse markets are in bold.
Source: CBRE Consulting, December 2024.

[1]Global Tech Talent Guidebook 2025, CBRE, April 2025
[2]Global Tech Talent Guidebook 2025, CBRE, April 2025

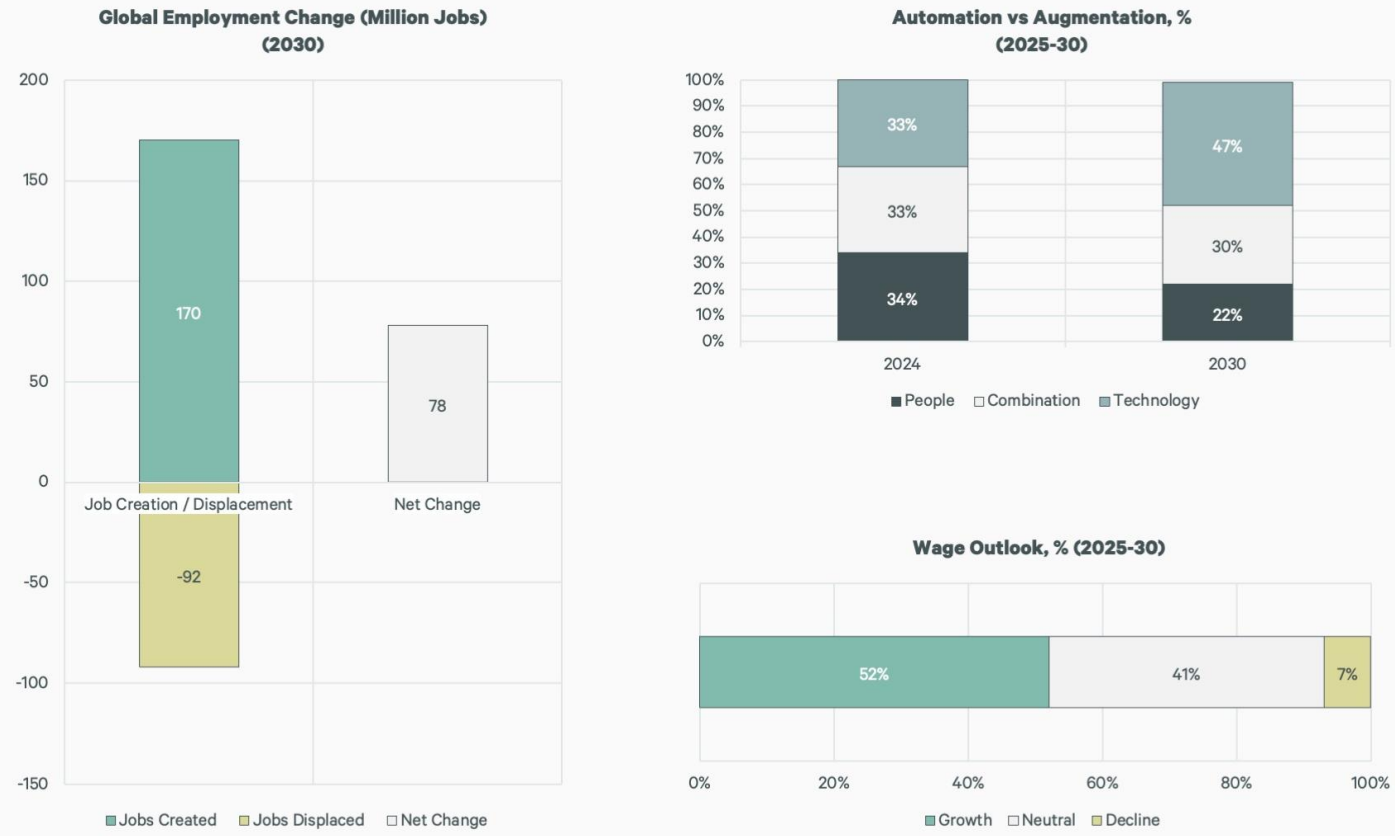
And with companies around the world looking farther afield to niche markets to meet their needs for tech talent, the availability of a highly educated, specialised workforce in markets like Singapore is a significant draw with major implications for the city-state's office space segment.

The Human-machine collaboration

As AI permeates the workforce, it's impacting the availability and cost of real estate. The operating model for commercial real estate and the broader economy is adapting from serving a pure human component to catering to a collaborative human-machine interface.

This trend is gaining further momentum as the fear of widespread job displacement is giving way to a nuanced reality of AI-enabled augmentation: AI is projected to be a net job creator, contrary to the narrative of job destruction. By 2030, while 92 million jobs may be displaced, 170 million new jobs are expected to be created, resulting in a net gain of 78 million roles.[3]

Figure 2: Impact of AI on global job market by 2030



Source: CBRE Labor Analytics, World Economic Forum (2024)

[3]World Economic Forum

Furthermore, as Big Tech increasingly manages to balance workforce growth while increasing revenue per employee, smaller companies are choosing to invest in AI-powered automation rather than replacing their employees.

As a result, work is expected to evolve into three distinct categories: human-led tasks, human-machine collaboration and machine-only operations. In turn, the global job market will reflect the medium-term impact of this adoption, with a significant portion of roles transitioning to a "combination" model.

Redefining real assets: The Singapore context

This shift matters for real estate demand and is fundamentally altering the so-called the “live-work-play” environment.

AI acts as a productivity equaliser, particularly for entry-level workers who can see productivity gains of 21-40% when aided by AI tools.[4] As employees become more productive and new operational roles are created, the physical footprint of companies will need to adapt to support a workforce that is more efficient, more technical and more reliant on collaborative spaces than ever before.

This impact of AI on real estate trends is nowhere more visible than in Singapore, which is home to many of the world’s top tech firms, and where the financial services sector has ceded ground to the IT sector when it comes to absorbing premium office space.[5]

Just as AI development has become a major driver of office space demand in tech-centred American cities like San Francisco,[6] we can expect a similar growth in Asian cities that have embraced AI, like Singapore, where the office market has demonstrated significant resilience with consistent rental growth and tightening vacancy rates.[7]

As real estate costs continue to climb like they have in Singapore, which ranks among the most expensive globally for office rents alongside London and Paris, the value proposition must extend beyond square footage.

Just as AI development has become a major driver of office space demand in tech-centred American cities like San Francisco,[6] we can expect a similar growth in Asian cities that have embraced AI, like Singapore, where the office market has demonstrated significant resilience with consistent rental growth and tightening vacancy rates.[7]

[4]CBRE Labor Analytics
[5]https://www.businesstimes.com.sg/property/property-2023-feb-issue/tech-ing-reality-check-whats-it-office-market
[6]https://www.cbre.com/insights/briefs/artificial-intelligence-the-next-catalyst-for-office-space-demand
[7]https://www.cbre.com.sg/press-releases/singapore-office-market-seeing-the-beginning-of-a-bull-run

As real estate costs continue to climb like they have in Singapore, which ranks among the most expensive globally for office rents alongside London and Paris, the value proposition must extend beyond square footage.

With even the most stylish standalone offices no longer sufficient to attract the calibre of talent required for the AI era, companies and investors are looking to integrate the office environment with mixed-use assets that can serve as 'third places' (separate from either the home or the workplace), including residential, retail and logistics. The idea is to create a well-rounded, comprehensive offering that will attract much sought after AI talent from all over the world.

The "live-work-play" ecosystem is becoming a critical operational asset, as high-quality tech talent demand proximity to amenities, high-end retail and seamless logistics for e-commerce. For investors, this means asset performance is increasingly tied to precinct-level integration. A standalone office tower is less valuable than one connected to the "hard infrastructure" of AI (reliable power and data connectivity) and the "soft infrastructure" of lifestyle amenities.

Singapore's status as a "powerhouse" market relies on this integration, ensuring that despite high costs, the ecosystem supports the high-value innovation work that AI necessitates.

Future-proofing location strategies

The maturation of AI is forcing a rethink of location strategies for multinational corporations. Historically, companies relied on collective wisdom to cluster in established hubs like San Francisco or London, later offshoring back-office functions to low-cost markets.

However, AI is challenging this binary. As AI automates routine tasks, the traditional labour arbitrage model of offshoring for cost savings is eroding. Instead, companies are prioritising "futureproofing" their footprints by analysing workforce size, location and function against risk thresholds.

The rise of remote and hybrid work following the COVID-19 pandemic further accelerated the shift towards distributed labour strategies and increased talent mobility. As a result, talent diversification is emerging as a key strategy to mitigate concentration risk, with firms looking to distribute capabilities regionally across Asia Pacific and EMEA rather than relying on a single low-cost hub.

For real estate investors, this signals a trend towards reshoring or retaining higher-value functions in established, transparent markets. Roles focused on deep learning and algorithms, which drive revenue rather than just saving costs, are likely to remain in headquarters or regional hubs with mature tech ecosystems.

Consequently, demand for prime office space in transparent, stable and tech-friendly markets like Singapore will remain resilient, driven by the need to find, hire and retain the high-value human talent that will direct the AI revolution.

ROHINI SALUJA
Managing Director, Head of Consulting and Integrated Client Solutions, Advisory Services, Asia Pacific
CBRE

Rohini is responsible for driving business growth, product innovation and leading meaningful discussions with clients on complex real estate strategies. With more than 20 years of strategic consulting and transaction experience working from bases in India, Hong Kong and Singapore, Rohini has championed several product, technology and organizational design initiatives that are established as global best practice standards.

She has also led strategy and transformation programs for large occupiers across the region including evaluation of labor, economic incentives, retail strategies, location and demographic studies driving significant cost and space savings for our clients.

UDIT SABHARWAL
Associate Director, Head of Consulting, Advisory Services, Asia Pacific
CBRE

Udit is the lead for Location and Labor Analytics in the APAC region and is a part of the Leasing Services business. He oversees client engagements across APAC focusing on six core areas: Global location strategies; Country and city selection/expansion strategies; Near-shoring/offshoring decisions; Headquarter/Regional portfolio selection and optimization; Talent Benchmarking & Assessments; Economic Incentives.

Overseeing a team of regional labor experts, GIS Specialists, Data Scientists and consultants, Udit has been an advisor on hundreds of projects for a wide variety of clients ranging from start-ups to global investment funds and Fortune 500 companies.

APREA
Driving the Future of Real Assets

FOLLOW US ON

- LinkedIn
- WeChat
- X
- Facebook
- Instagram
- Spotify
- Youtube

WWW.APREA.ASIA

Asia Pacific Real Assets Association
18 Robinson Road #15-01
Singapore 048547
enquiries@aprea.asia