

Realty Bytes

Data centres: Indian real estate and regulatory dimensions

April 2024



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Foreword

In an era where data is considered to be the new global currency, India stands on the precipice of a monumental transformation in data centres. The convergence of technological innovation, burgeoning digitalisation, and the need for robust infrastructure have ignited a remarkable surge in the establishment of data centres across the nation.

India's journey towards becoming a digital powerhouse is inexorably linked with the growth of data centres. These repositories of digital information are not merely data warehouses; they are the nerve centres driving the digital economy, powering businesses, enabling connectivity, and shaping the future landscape of the country.

At the intersection of this data revolution lies the real estate sector, an indispensable partner in facilitating the rapid expansion of data centres. The evolving landscape presents a fascinating perspective for the real estate industry—a burgeoning demand for specialised spaces designed to house and sustain these data behemoths. The introduction of the Digital Personal Data Protection Act, 2023, underscores the importance of data sovereignty and security, necessitating substantial investments in local data centres. This regulatory framework is expected to enhance data privacy and protection, attracting further investment in the sector.

The allure of India as a data centre hub stems from its immense market potential and strategic geographic location, conducive for catering to regional and global data traffic. As the digital footprint expands exponentially, so does the demand for reliable, secure, and efficient data centre facilities. This surge in demand is a clarion call for the real estate sector to innovate, adapt, and collaborate in crafting purpose-built spaces that meet the exacting needs of moving towards a secure, safe and robust data-driven economy.

However, this surge in data centre development poses multifaceted challenges and opportunities. From regulatory frameworks to environmental sustainability, the real estate perspective extends beyond mere infrastructure provision—it encompasses a holistic approach towards creating future-ready, sustainable, and compliant spaces that align with the evolving technological landscape.

India's data centre surge presents an opportune moment for stakeholders in the real estate realm to embrace innovation, redefine infrastructure paradigms, and foster collaborative ecosystems that propel India toward global prominence in the digital sphere.

Understanding the intricate interplay between data centres and real estate becomes pivotal as we navigate this exciting juncture.

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What is a Data Centre

A data centre is a specialised facility designed to house and protect computer systems and associated components such as telecommunications and storage systems. It features backup power supplies, data communications connections, environmental controls, and security measures to ensure uninterrupted service and data availability. Data centres are

designed to ensure that critical applications and data are available to users and businesses around the clock.

Data centres in India are typically categorised based on ownership and operational models into Captive and Outsourced models, reflecting their specific purposes, technologies, and efficiency standards.



Captive

Captive data centres are exclusive to single organisations, focusing on serving their unique needs. The centres are owned and operated by these enterprises and offer control over infrastructure and security. However, these entail higher investment and operational costs. Although their popularity is waning in the private sector due to a shift towards cloud solutions, captive data centres remain prevalent among public sector entities and educational institutions. Captive data centres adopt a landlord-based approach, offering fundamental facilities such as space and power, enabling tenants to tailor their infrastructure according to their unique requirements.



Outsourced

Outsourced data centres, managed by third-party providers, cater to multiple organisations and come in various forms:

01

Colocation Data Centres lease

space and provide infrastructure services to tenants, who manage their servers. This model is popular among cloud service providers, financial institutions, and e-commerce companies in India

02

Hosting Data Centres allow

customers to lease servers and equipment, contributing significantly to local outsourced service providers' revenues. Key players include NTT Global Data Centres and CtrlS and global cloud giants such as AWS and Google.

03

Hybrid Data Centres offer a mix of colocation and hosting services, which is ideal for enterprises integrating cloud services with on-site systems for new and legacy operations.

Investment trends in India's data centre sector vary, with a growing inclination towards colocation due to its scalability and efficiency. The market's dynamics reflect a balance between the need for control and flexibility, with entities choosing models that best fit their risk tolerance and operational needs.

Investment models in data centres vary based on the investor's risk tolerance. Firms preferring a cautious approach may choose the captive model, while those open to more significant risks may opt for colocation or hosting models. Current market trends indicate a growing preference for colocation models in India.

02

India's Data Centre Market



USD
10.09
billion

Market size
by 2027



15.07%

CAGR 2022-27

India stands on the brink of a significant data centre evolution, catalysed in part by the accelerated pace induced by the COVID-19 pandemic. The adoption of digital technologies by Indian businesses and consumers, alongside the incremental strides of the Government's Digital India initiative, has spurred this transformative journey. Initiatives promoting data localisation, embracing cloud services, AI, big data, the imminent rollout of 5G internet services, smart city initiatives, advancements in edtech, ecommerce, online banking, and the introduction of the Digital Rupee have collectively fuelled a surge in data generation. Consequently, this surge has amplified the demand for resilient data centres across the country.

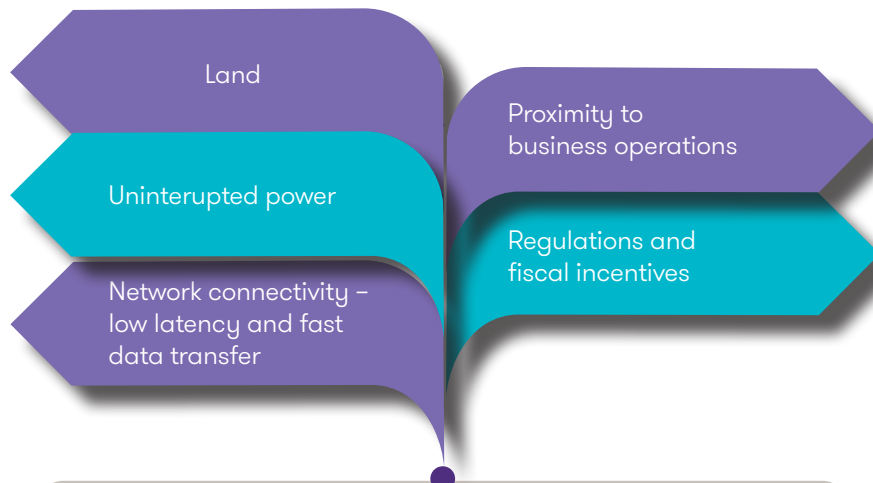
The post-pandemic era, marked by hybrid work models and virtual business interactions, has further amplified the demand for efficient data storage and management. Previously, data processing and management were often outsourced to countries like Singapore, resulting in higher costs and slower speeds. With local data centres, India enjoys faster data processing at reduced costs.

India's Data centre capacity was reported at around 880 MW across 13 Mn sq ft. in tier 1 cities in India, e.g., Mumbai, Chennai, Bengaluru, and Delhi-NCR contributing 87% of the country's total inventory as of June 2023.

Presently, India boasts 138 third party-operated data centres, with plans for an additional 45 such centres slated for construction by 2025. This trajectory anticipates a total of 183 third-party data centres within the specified time frame. The projected expansion in capacity within the next three years, encompassing both physical area and power consumption, is set to double, necessitating an estimated investment of USD 4.6 billion. Intriguingly, these figures do not encompass the unplanned IT capacity of 2,688 MW held by data centre operators—undeveloped but with land secured, contingent upon actual demand.

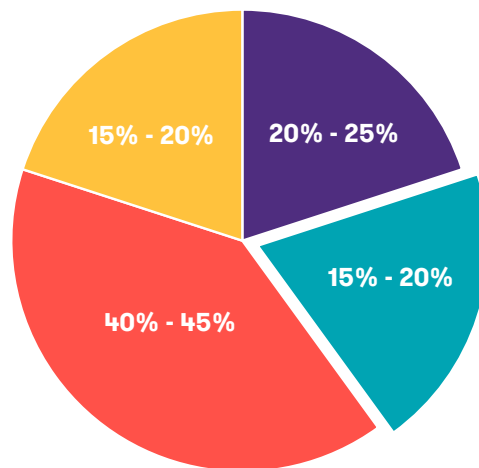
India's data centre market is poised for remarkable growth, buoyed by a surge in internet users exceeding 900 million—twice the number in the US and several times that of the UK. This expanding internet user base, and improved access in small towns, creates a fertile ground for data centre expansion. A significant discrepancy between the number of internet users and the availability of data centres in India indicates vast potential for industry growth. In the next 2-3 years, the burgeoning demand for data storage capacity is expected to drive a rapid increase in the need for domestic data centre space.

Setting up Data Centres



Critical aspects for location of data centres

Typical cost components of setup cost

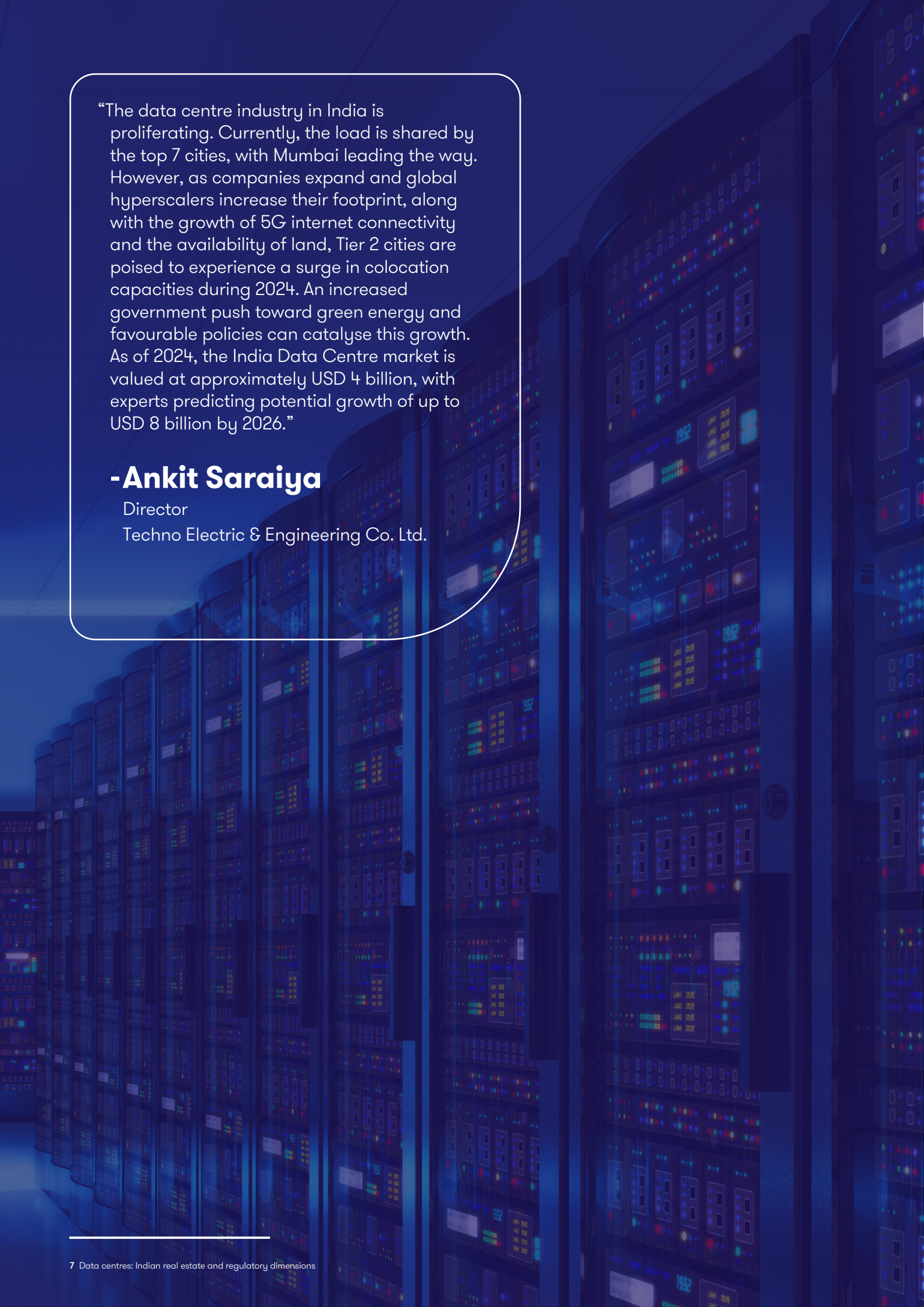


■ Building fit-out ■ Land and Shell ■ Electrical Systems ■ HVAC/Mechanical

Demand transcending in Tier 2 and 3 cities

Setting up data centres requires significant investment, with challenges in finding affordable land in Tier 1 cities and consistent resources in other areas. The ideal location demands reliable power, available land, infrastructure for

connectivity, water supply, a skilled workforce, and low risk from natural disasters, air traffic, and proximity to key transport and residential zones. Finding locations that satisfy these comprehensive criteria is a complex task, highlighting the intricate balance needed for optimal data centre establishment.



“The data centre industry in India is proliferating. Currently, the load is shared by the top 7 cities, with Mumbai leading the way. However, as companies expand and global hyperscalers increase their footprint, along with the growth of 5G internet connectivity and the availability of land, Tier 2 cities are poised to experience a surge in colocation capacities during 2024. An increased government push toward green energy and favourable policies can catalyse this growth. As of 2024, the India Data Centre market is valued at approximately USD 4 billion, with experts predicting potential growth of up to USD 8 billion by 2026.”

-Ankit Saraiya

Director

Techno Electric & Engineering Co. Ltd.

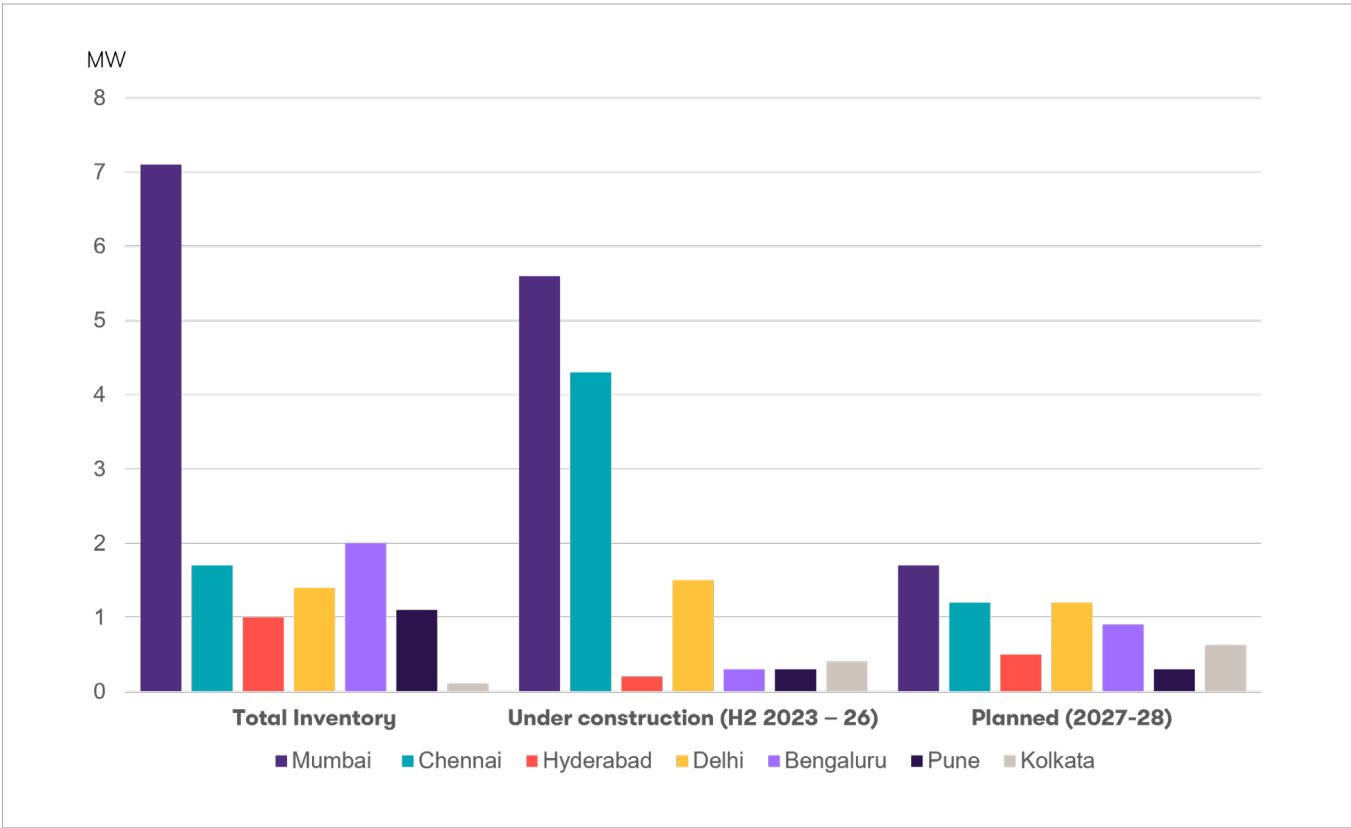
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Land acquisitions for Data centres

#	Transaction	Land acquired	Total Investment (INR Cr)	Indicative RE value	Transaction details
1	Amazon Data Services India	4 acres	NA	562.00	Long-term lease in Powai for 18 years
2	Amazon Data Services India	10.3 acres	NA	1,123.20	Long-term lease in Airoli for 15 years
3	Raiden Infotech India, a Google Inc company	8.75 acres	NA	1,144.00	Lease in Navi Mumbai for 28 years
4	Digital Edge DC to setup datacentre in Navi Mumbai	47 acres	NA	796	Formed by Digital Edge, NIIF and AGP partner
5	BAM Digital Realty -	2.2 acres	2,000.00	-	JV between Digital Realty, Brookfield Infrastructure and Reliance – land in Mumbai
6	Web Werks and Iron Mountain JV -	5 acres	1,400.00	-	Acquired 5 acres of land parcel in Navi Mumbai
7	Web Werks and Iron Mountain JV	4 acres	1,800.00	-	Acquired 4 acres of land parcel in Chennai
8	Lumina CloudInfra - Blackstone owned and managed	6.3 acres	2,500.00	-	Acquired land parcel of 6.3 acres in Navi Mumbai
9	Adani Enterprises	130 acres	14,634.00	-	Integrated Data Centre and Technology and Business Park to be setup at Visakhapatnam
10	Adani Enterprises	60 acres	7,210.00	-	Integrated Data Centre and Technology and Business Park to be setup at Bheemunipatnam, Visakhapatnam
11	Nxta Data Limited land parcel in Bengaluru	-	1200	114.00	
12	NTT-Prestige - 350,000 sq ft datacentre building in Bangalore	-	700	-	Total outlay including land

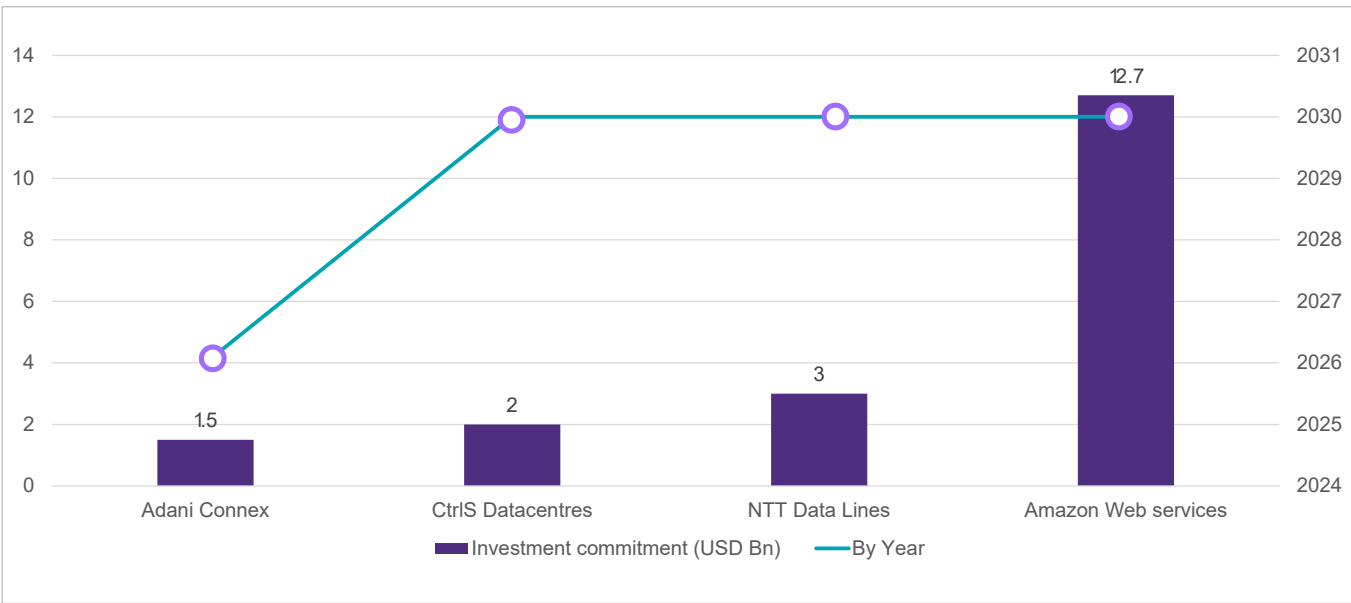


Inventory of Datacentres across key tier 1 cities



Source: JLL Report

Investment commitment of major players



Regulatory aspects

100% foreign direct investment (FDI) is permitted under the automatic route for development of data centre. Furthermore, investments by an entity of a country, which shares land border with India, (each such country, a “Restricted Country”)

or where the beneficial owner of an investment into India is situated in or is a citizen of any such Restricted Country will require prior Government approval.



Infrastructure status

Recently, both data centres and energy storage systems (ESS) have been recognised as infrastructure entities and included in the ‘harmonised list of infrastructure sub-sectors.’ They are categorised as ‘communication’ and ‘energy,’ respectively, which grants them the official status of ‘infrastructure.’ Consequently, data centres developers now qualify for secure funding with extended tenure, increased limits, and competitive interest rates through various domestic and international channels.

Moreover, with infrastructure status data centres also become eligible for benefits to specific investors involved in companies, Infrastructure Investment Trusts, or alternative investment funds engaged in the development and/or operation of data centres. These investors may be eligible for tax exemptions, provided they adhere to the specified conditions.



State Government policies

In recent years, central and state governments in India have been actively developing policies and incentives to encourage data centre investments. Although a central policy has yet to be finalised, numerous states have already implemented measures to attract such investments. These measures range from financial incentives like subsidies and exemptions on electricity and transmission charges to practical support, including access to renewable energy, reliable water supply, high-speed internet, and favourable building regulations. Some states offer additional benefits including stamp duty concessions, land cost subsidies, reimbursement of State GST, and interest subsidies, all designed to create a conducive environment for data centre projects.





List of major state-level incentives policies


S.no.	State	Stamp duty and land incentives	Electricity and energy incentives	Employment and other subsidies
1	Haryana Haryana State Data Centre Policy 2022	100% SDV reimbursement; Employment generation subsidy of INR 48,000/employee/year for 10 years for bona fide residents.	100% electricity duty exemption for 20 years; power bill reimbursement up to 25% of Net SGST for electricity from Haryana DISCOMs for 3 years; 50%-75% Net SGST reimbursement for 10 years.	-
2	Karnataka Data Centre Policy 2022	10% subsidy on land up to 10 acres outside Bengaluru Urban district; One-time 7% capital subsidy up to INR 10 crores on fixed assets.	Electricity duty exemption; subsidy on renewable energy and land conversion fees	Customised incentives for investments above INR 4,000 crores.
3	Maharashtra IT/ITES Policy 2015	100% exemption on stamp duty.	100% electricity duty exemption; Power tariff subsidy of INR 1/unit for 5 years; Assist to establish captive power farms.	Additional FSI; Financial assistance for transmission lines.
4	Tamil Nadu Data Centre Policy 2021	50%-100% SDV exemption in different districts for land purchase/lease.	Subsidy on renewable energy.	Training subsidy; Assistance for large investments.
5	Odisha State Data Centre Policy 2022	Capital subsidy of 20% of fixed assets (excluding land), up to INR 25 crore; 100% SDV on first transaction.	100% exemption on electricity duty; Power bill subsidy of 30% for 5 years, up to INR 2 crore.	SGST, land conversion, energy audit, green initiatives, employment, interest, infrastructure development subsidies; Internet bandwidth reimbursement.
6	Uttar Pradesh Data Centre Policy 2021	Up to 7% capital subsidy, max of INR 20 crore; 25%-50% subsidy on land purchase/lease from state agencies.	100% exemption on electricity duty; Reimbursement of transmission & wheeling charges.	-
7	West Bengal Data Centre Policy 2021	100% exemption from stamp duty and registration fees.	Electricity duty waiver for five years.	-
8	Gujarat IT/ITES Policy 2022-27	-	One-time CAPEX support up to 25% of the CAPEX cost, max of INR 150 crores; Power tariff subsidy of INR 1/unit for 5 years.	-



Central Government policies

Formulating a Central Data Centre Policy is critical for sector to expand and align strategically with the country's digital ambitions. By concentrating on pivotal elements such as data security, environmental sustainability, and financial investment, this policy is set to enhance the robustness, safety, and operational efficiency of India's data centre infrastructure. The recent enactment of the Data Protection Act, 2023, and the Telecommunications Act, 2023, highlights the critical need for such a policy to support data security and

localisation, ensuring India's compliance with these laws. This unified approach would bolster India's position in the global digital economy and ensure the fair distribution and long-term sustainability of digital transformation benefits. A Central Data Centre Policy, in harmony with these new legislations, is essential for fostering sustainable growth, securing India's data sovereignty, and positioning the country as a global digital leader, thereby benefiting the broad spectrum of Indian society.



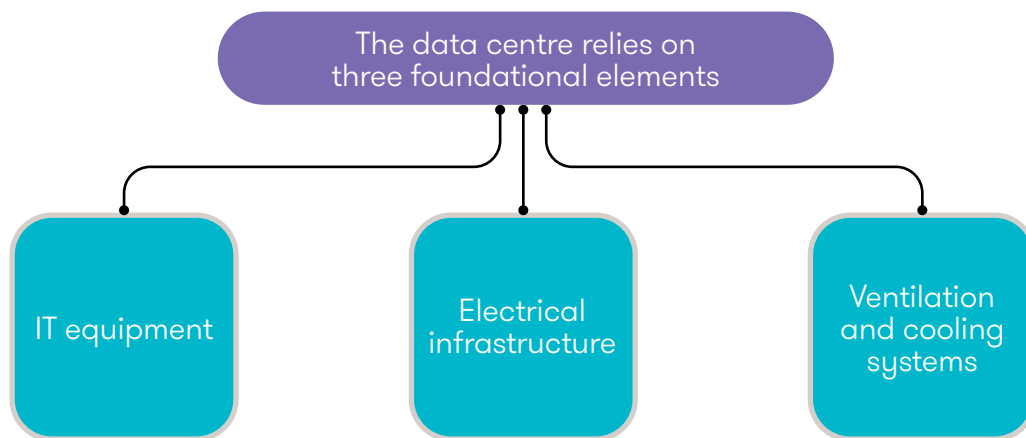
“Presently, establishing a data centre necessitates multiple approvals from diverse authorities, spanning from its inception to its operational phase. The 2020 draft data centre policy had, among other things, suggested streamlining this approval process via a single-window clearance system. Instituting such a single-window clearance mechanism holds significant importance, and there’s an anticipation of implementing an institutionalised process for granting this unified clearance.

There is a strong need to collocate and protect data within the country to make India an Atma Nirbhar state. Towards this goal, while the central government came out with a comprehensive National Digital Communications Policy in 2018, there is an urgent need to follow this up with clear operational guidelines governing all kinds of Data Centre operations (both by state and private players). While the Department of Telecommunications/ Telecom Regulatory Authority of India has come out with recommendations in 2022, it is high time that TRAI should come out with a comprehensive regulatory framework for Data Centres including all aspects of its operations.”

-Sridhar R

Tax Partner

High requirement of power in operations



A resilient electrical infrastructure is imperative for seamless data centre operations. Typically, data centres draw their primary power supply from the electricity grid through local substations and transformers.

In 2022, global data centres consumed approximately 240 to 340 TWh, constituting nearly 1-1.3% of total electricity consumption, as reported by the IEA in 2023. Projections indicate by 2030 this share is anticipated to escalate to 4% of the total electricity consumption.

The prevalent metric for determining the energy efficiency of a data centre is "Power Usage Effectiveness" (PUE). PUE is the ratio of the total power consumed by the data centre to the power consumed specifically by IT equipment. Lower PUE values signify higher efficiency. An exemplary case is Google's data centres, which have recorded PUE values below 1.1 in multiple facilities, considered quite commendable with a PUE of <1.2 generally regarded as good. The global average PUE for data centres was approximately 1.58 in 2024, while that for Indian data centres was around 1.7 in 2023.

India has the potential to attain global benchmark Power Usage Effectiveness (PUE) by implementing several strategies, including:



Investing in innovative and sustainable cooling technologies such as Low Voltage Direct Current (LVDC) technology and liquid cooling;



Adopting energy-efficient hardware, such as high-temperature servers;



Strategically selecting cooler locations for the establishment of greenfield data centres and



Integrating renewable energy sources to diminish the carbon footprint associated with data centre operations.

Commitment to sustainability

Data centres, utilise around 90% of their consumed power inefficiently, adding to global carbon emissions. With India's heavy reliance on coal for electricity, generating 49% of its carbon emissions, the sustainability of its burgeoning data centre sector is under scrutiny. Policies to encourage efficient energy use and renewable energy adoption are crucial to harmonise growth with environmental goals. The 2020 draft data centre policy underscores this, aiming for sustainable operations amid rising demand.

Globally, countries such as Ireland and Singapore have paused new data centre projects to manage energy consumption, opting for facilities powered by renewable sources. India's policies must reflect a similar commitment to sustainability, ensuring that data centres contribute to its net-zero emission targets.

Currently, only 22% of India's buildings are Leadership in Energy and Environmental Design (LEED) certified, highlighting a gap in sustainable practices. Upcoming developments should prioritise energy-efficient designs, temperature regulation, space optimisation, and renewable energy sources, like hydrogen-ready fuel cells, to reduce environmental impact in future. This approach is vital for India to balance data centre growth with ecological responsibilities.

Several Indian firms are adopting eco-friendly practices in their data centre investments by utilising solar-powered grids and innovative cooling methods to enhance energy efficiency. Similarly, emerging startups are leveraging Internet of things (IoT) technologies to monitor and manage waste in urban areas, contributing to the green initiatives in the data centre sector.



“The data centre is the heart of any organisation, and its energy consumption is both a challenge and an opportunity. As we strive for efficiency, let us remember that every watt saved contributes not only to cost reduction but also to a more sustainable future.”

-E Nandgopal

Director, Energy and Renewables Industry

The interdependence between India's expanding data centre industry and its real estate sector is undeniable. Propelled by growing needs for IoT, internet usage, and data analytics, this industry is poised for significant growth, with an anticipated need for USD 4.4 billion in infrastructure and construction investment by 2026. Despite India's vast internet user base of 658 million making up 13% of global internet users, it hosts only 2% of the world's data centres, underscoring its potential to emerge as a key player in the global data centre arena. This potential can be unlocked through strategic policy development that fosters a supportive ecosystem.

The future of India's data centre market is intricately linked to its capacity for innovative and sustainable data management solutions that drive societal and economic progress.

Collaboration among government entities, developers, and industry leaders, focusing on expanding scalable and eco-friendly data centre operations is essential for this vision. Such concerted efforts are vital for catering to increasing demands via colocation and hyperscale data centres while adhering to regulatory and environmental standards.

For the real estate sector, engaging with the expansion of data centres present an opportunity to prioritise sustainable development. This alignment with sustainability enhances India's digital infrastructure and promises environmental and economic benefits, positioning the nation's digital growth journey as beneficial for all stakeholders involved.

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