



India | May 2021

Research

2020 India Data Center Market Update

Year-end review of industry's latest trends and what to expect in 2021

Hello

The year 2020 transformed human interaction across the globe. India has also witnessed increased usage of digital connectivity in all aspects of life. Our growing reliance on digital connectivity for working, learning and playing led to a sharp rise in data usage. As per Nokia Mobile Broadband India Traffic Index, overall data usage increased by 36% in 2020 due to increased usage of smartphones and fixed wireless access. Principally, this digital connectivity was provided seamlessly by India's 447 Megawatt (MW)* of Colo Data center capacity and telecom network.

This report analyses the significant trends witnessed in the DC industry during the eventful year of 2020. Trends of higher data usage and enterprises adopting hybrid models of captive, colocation (colo) or cloud IT infrastructure gathered momentum due to disruption during the year. Simultaneously, the pace of long-term trends like rising cloud adoption, increasing digitalisation and progressive legislation increased. Rising demand led DC operators and developers to pursue ambitious expansion plans, while some adopted the acquisition route to enter Indian markets. The report addresses the impact of these factors on the sector's key markets of Mumbai, Chennai and Pune, along with other upcoming markets in the country.

The Indian DC industry is expected to more than double to 1007 MW by 2023 from its existing capacity of 447 MW. Mumbai and Chennai are expected to drive 73% of the sector's total capacity addition during 2021-23, while other cities like Hyderabad and Delhi NCR will emerge as new hotspots. Technology trends like 5G rollout, IoT-linked devices and AI will result in stronger growth in demand. Demand is likely to be driven by data localisation laws and IT infrastructure upgrade across enterprises and Govt departments.

The growth prospects of India's DC industry has led to ~USD 400 mn M&A deals over and above the organic investments by operators during 2020, as many operators have announced expansion plans over the next few years. This promising asset class is expected to provide a greenfield real estate development opportunity of 6 million sq ft over the next three years.

Rachit Mohan

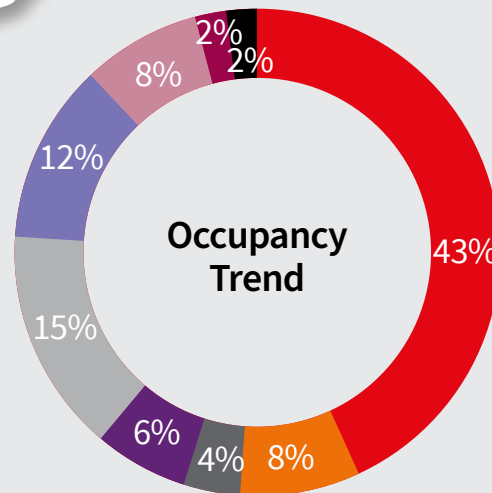
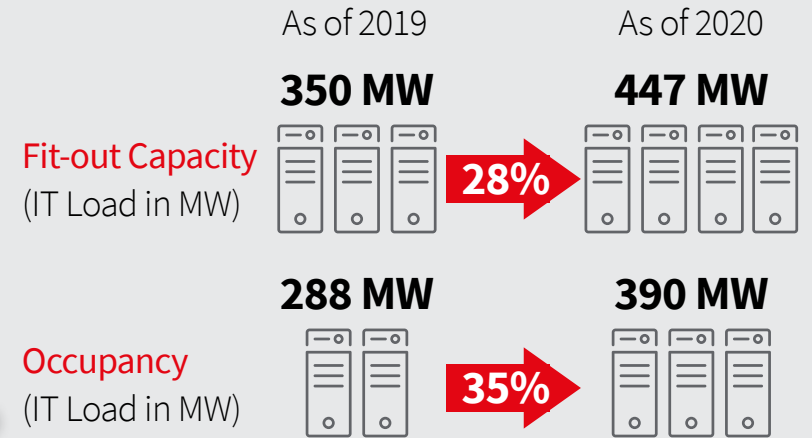
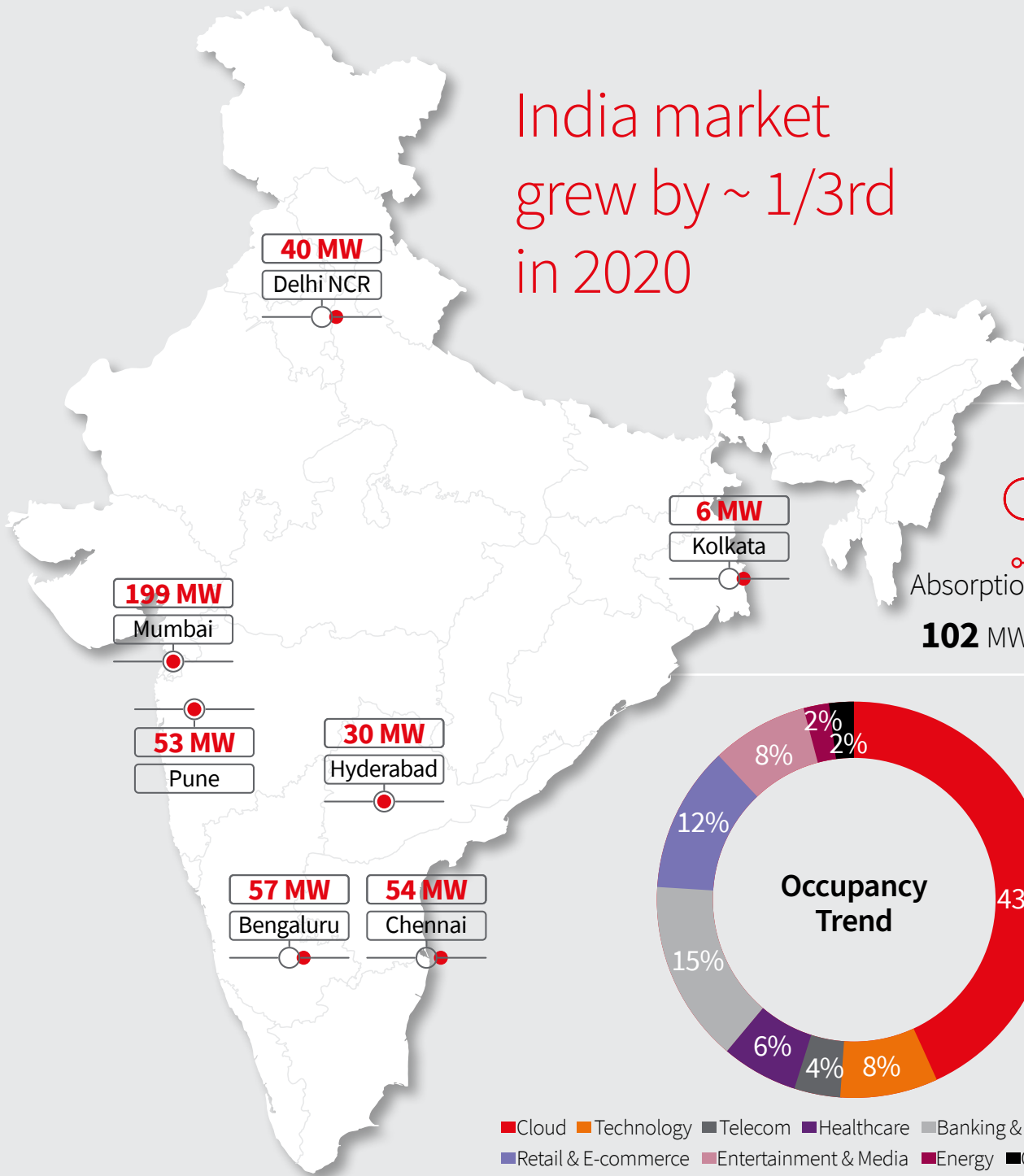
Head, Data Center Advisory - India

Co-Head, Office Leasing Advisory - Mumbai

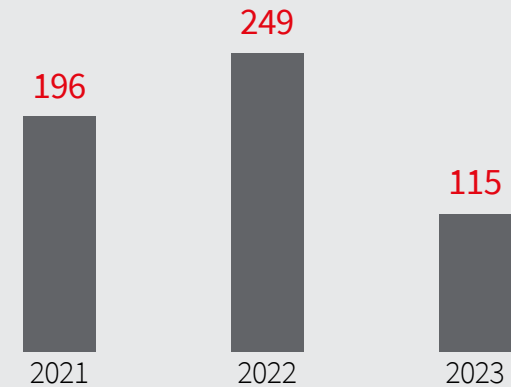
Megawatt (MW)* indicates IT power load



India market
grew by ~ 1/3rd
in 2020



Colocation supply pipeline 2021-23 (560 MW)

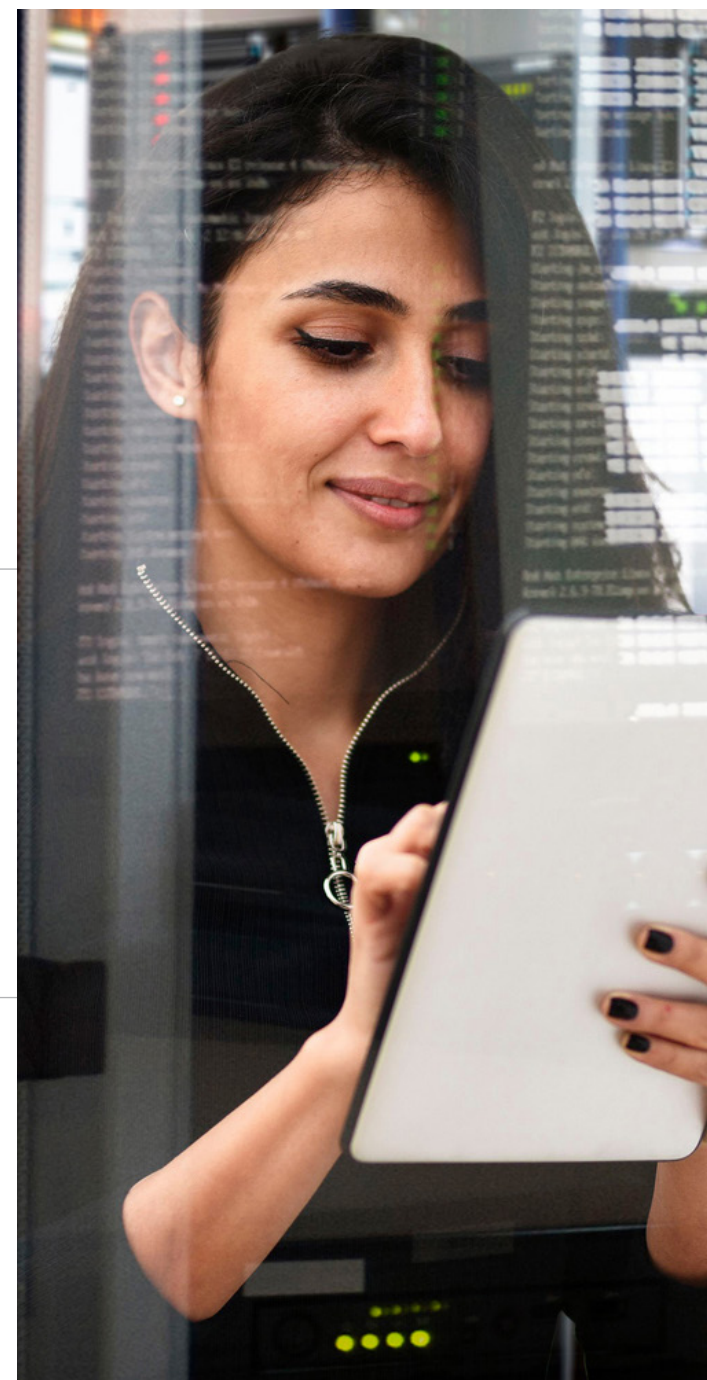
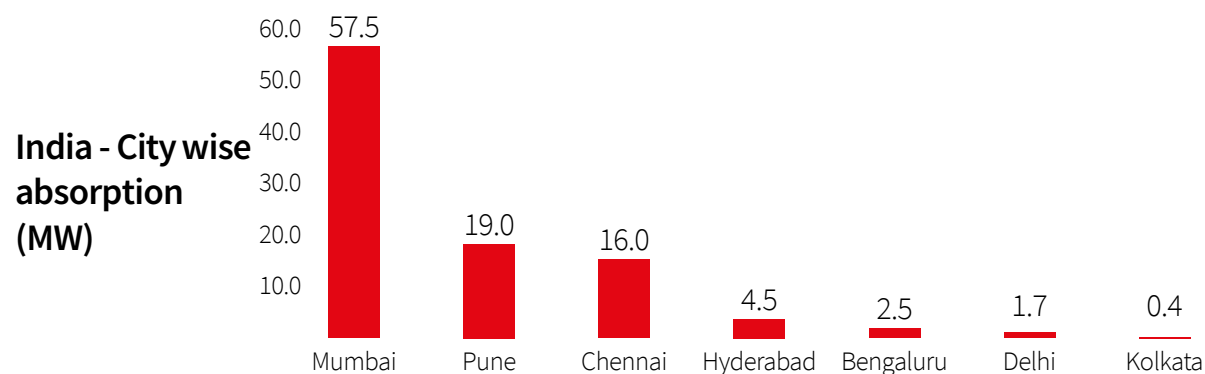
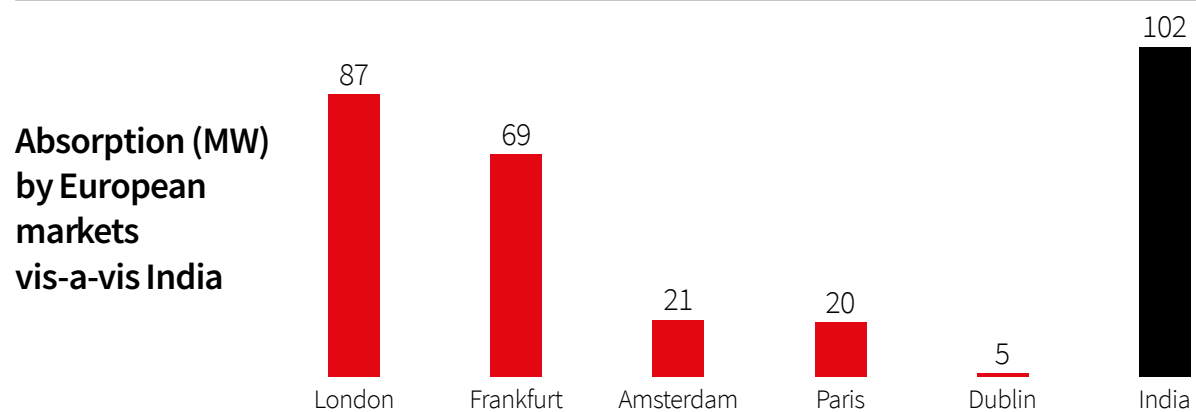
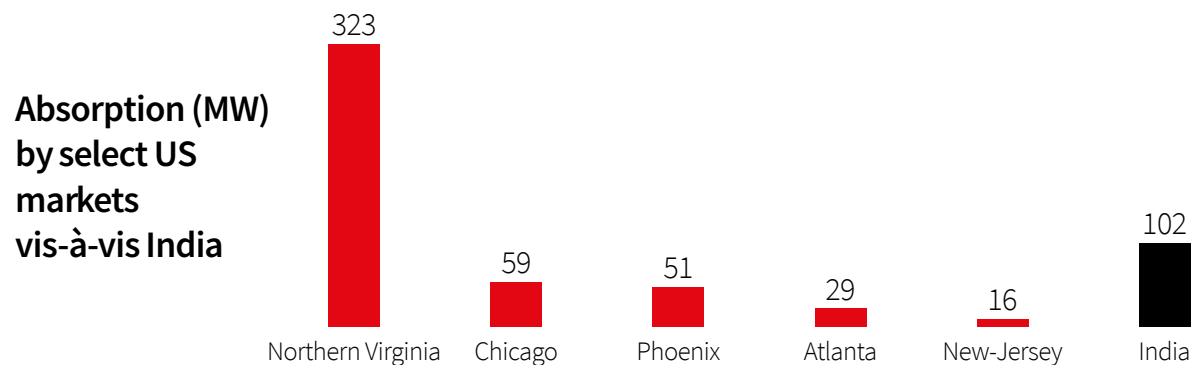


Note: 1. Other cities IT load is 9 MW

2. Absorption is defined as take up of rackspace on lease and operational during the study period.

3. Conversion rate taken as 1USD = INR 74

India notched higher position than most key markets in US and Europe



Key Trends

Strong cloud demand

Cloud adoption increased significantly as the pandemic necessitated migration of critical business applications to enable remote work. Enterprises opted for a hybrid of cloud/ colocation and captive IT infrastructure solutions for ease of integration, reliability and lower costs. Robust expansion by global cloud players in the established markets of Mumbai, Pune and Chennai continues owing to prevailing infrastructure. Hyderabad is emerging as the new hotspot with a large cloud player setting up its facility in the city.

Cloud migration is expected to increase in 2021 due to flexibility and security, lower costs and higher performance. The increasing data usage driven by social media activity, online gaming and streaming entertainment is likely to drive the need for more edge data centers in locations beyond the metros.

IT-infrastructure upgradation becomes crucial

The increasing usage of e-commerce, EdTech and digital transactions placed the existing IT infrastructure of enterprises under pressure. Large enterprises have been pushed to significantly upgrade their IT-infrastructure to address increased digital usage. Enterprises have been upgrading their IT infrastructure by adopting hybrid models, given their budget constraints. However, going ahead, competitiveness and digital readiness will drive the upgradation of IT infrastructure.



Industry friendly legislations

Data Centers being the backbone of a digital revolution, the government has framed various policies for the sector's growth. The Government of India's Draft Data Center Policy aims to make India a 'Global Data Center' hub by conferring 'infrastructure status' to the industry. This will provide long-term funds for investments in the sector. Various state governments have also been providing incentives to industry players for setting up data center parks. In addition, the Data Localisation Bill is being reviewed for personal data protection and stakeholder considerations.

Sustainability gaining pace

The rapid growth of the DC industry has meant increasing energy consumption and its impact on environment. Global cloud players setting up bases in India aim to reduce their carbon footprint and are looking at DCs that provide sustainable energy alternatives. DC operators are tying up for renewable energy power contracts and introducing sustainability measures across the DC operations. India's renewable energy capacity at 90 gigawatts accounts for 25% share of the installed power capacity and provides tremendous scope for development of green data centers. The DC industry is thus expected to increase its pace of sustainability in sync with global trends.



Definitions

Inventory of multi-tenant data center is square footage and power that's either leased (absorption) and turnkey/conditioned available today (vacant).

Planned represents remaining square footage and power under roof to be developed in the future into turnkey or conditioned data center space.

Total vacant space represents turnkey/fully conditioned data center space available for lease.

Under construction represents data center space under roof that is actively being developed/constructed as turnkey/conditioned space.

Absorption (Net) represents the amount of new multitenant data center square footage and power leased less the total amount of square footage and power no longer occupied between the current and last measurement periods.

Monthly recurring charges: This includes charges for use of rack space, cooling and associated services such as security, available redundancies, humidity control, monitoring, facility management etc. Power consumed is charged basis actual usage, power usage effectiveness ratio and levies by the power utility company.



Local market insights



Mumbai

Existing colocation capacity:

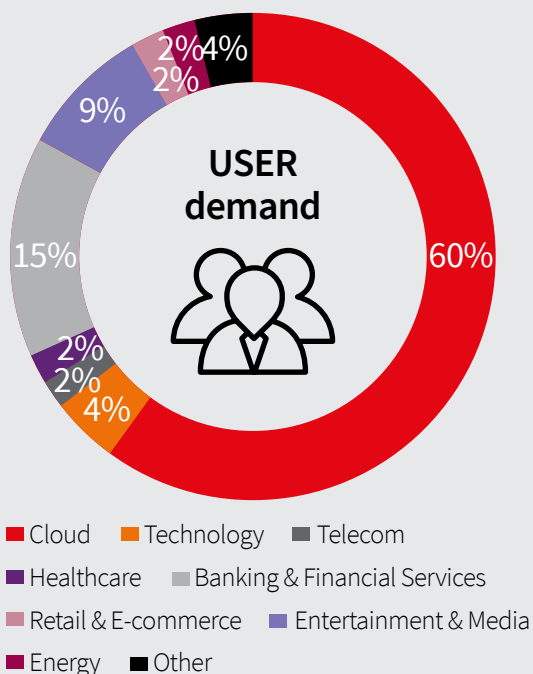
199 MW

Total colocation assets:

24 assets

Cable landing:

9



Market overview

Supply

- At 44%, city drives highest share of total inventory
- Supply addition was backed by pre-commitments from cloud players
- Operators are adopting self-perform land banking, three site and modular design strategy to reduce time to market

Demand

- Most preferred by cloud players due to excellent infrastructure
- BFSI, OTT, gaming and e-commerce driving retail demand

Outlook

- High quality supply to attract cloud and enterprise occupiers
- 330 MW addition expected during 2021-23

Key announcements

- NTT is reported to have announced 38 MW DC 7 facility in September 2020
- Adani & EdgeConnex announced the establishment of a 50:50 JV for setting up DC across India
- IronMountain signs US\$150 million equity deal with Webwerks Ltd.

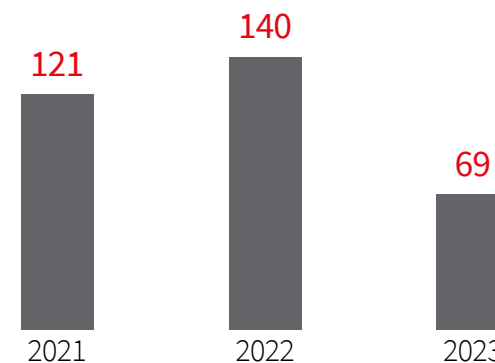
Supply	mn.s.f	MW
Total inventory	3.87	199
Total Vacant	0.20	10
Under construction (2021)	1.25	121
Planned (2022 & 2023)	2.52	209
Land bank	48 acres	

Demand	MW
Net absorption in 2020	57.5

Monthly recurring charges	Low	High
Sub 250 Kw	\$120	\$150
250 Kw-1 MW	\$90	\$125
1-5 MW	\$80	\$105
5 MW plus	\$75	\$100

Note: The above mentioned numbers are based on USD/KW/Month basis available market data on likely achievable rates. The above pricing assumes standard racks between 5kVA - 6.5kVA without any customization. Source: JLL Research

Colocation supply pipeline (MW)



Note: Conversion rate taken as 1USD = INR 74

Chennai

Existing colocation capacity:

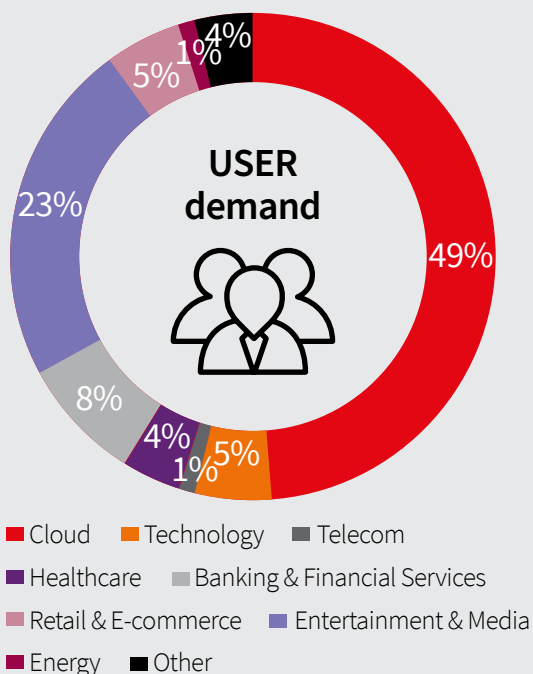
54 MW

Total colocation assets:

8 assets

Cable landing:

4



Market overview

Supply

- City accounts for 12% share of total inventory
- Standalone precommitted supply was delivered by DC operators during the year
- Competitive cost, infrastructure & strategic location drive supply

Demand

- Hyperscale demand expected on account of multiple upcoming cable landings in Chennai
- High occupancy levels of 83% due to space take up by large cloud players

Outlook

- 79 MW addition expected during 2021-23 with

Key announcements

- NTT is reported to have signed MoU with state government for setting up DCs
- STT group is likely to invest USD 200 million for new DCs
- Yotta Infrastructure inks pact to invest of ~US\$ 75 million for setting up DCs in the city

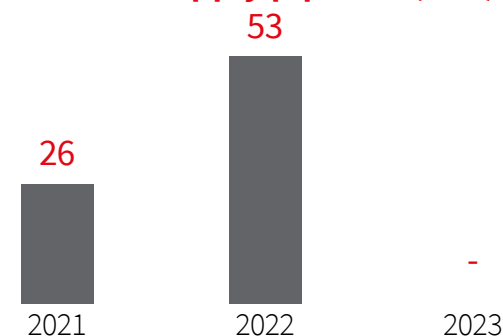
Supply	mn.s.f	MW
Total inventory	1.16	54
Total Vacant	0.07	9
Under construction (2021)	0.20	26
Planned (2022 & 2023)	0.65	53
Land bank	37 acres	

Demand	MW
Net absorption in 2020	16

Monthly recurring charges	Low	High
Sub 250 Kw	\$145	\$150
250 Kw-1 MW	\$110	\$103
1-5 MW	\$95	\$100
5 MW plus	\$80	\$85

Note: The above mentioned numbers are based on USD/KW/Month basis available market data on likely achievable rates. The above pricing assumes standard racks between 5kVA - 6.5kVA without any customization. Source: JLL Research

Colocation supply pipeline (MW)



Note: Conversion rate taken as 1USD = INR 74

Pune

Existing colocation capacity:

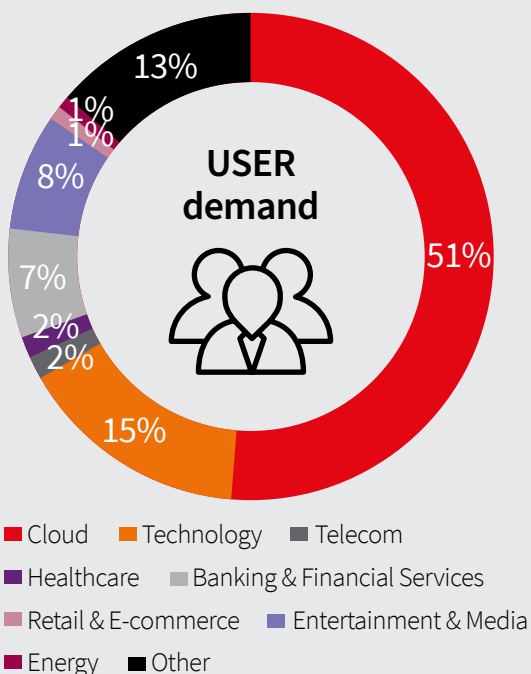
53 MW

Total colocation assets:

6 assets

Cable landing:

Nil



Market overview

Supply

- Accounts for 12% share of total inventory
- Preferred due to proximity to Mumbai as disaster recovery location

Demand

- IT/ITeS, BFSI, auto and logistics sectors provide enterprise demand
- High occupancy levels due to presence of large cloud player

Outlook

- High quality supply to attract cloud and enterprise occupiers
- 24 MW addition expected during 2021-23

Key announcements

- State Government is planning a Data Center Park along the IT corridor
- Nxtra Ltd. is reported to be planning tier- IV Data Center spread across 17 acres setting up DCs in the city

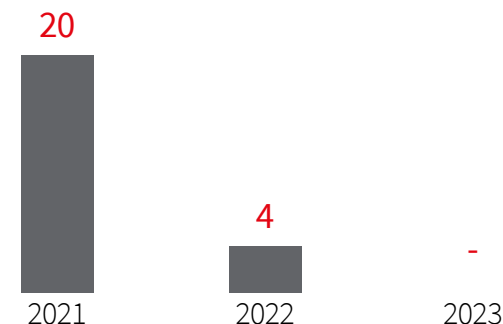
Supply	mn.s.f	MW
Total inventory	1.07	53
Total Vacant	0.01	0.5
Under construction (2021)	0.25	20
Planned (2022 & 2023)	0.05	4
Land bank	25 acres	

Demand	MW
Net absorption in 2020	19

Monthly recurring charges	Low	High
Sub 250 Kw	\$140	\$150
250 Kw-1 MW	\$110	\$125
1-5 MW	\$90	\$95
5 MW plus	\$75	\$80

Note: The above mentioned numbers are based on USD/KW/Month basis available market data on likely achievable rates. The above pricing assumes standard racks between 5kVA - 6.5kVA without any customization. Source: JLL Research

Colocation supply pipeline (MW)



Note: Conversion rate taken as 1USD = INR 74

Hyderabad

Existing colocation capacity:

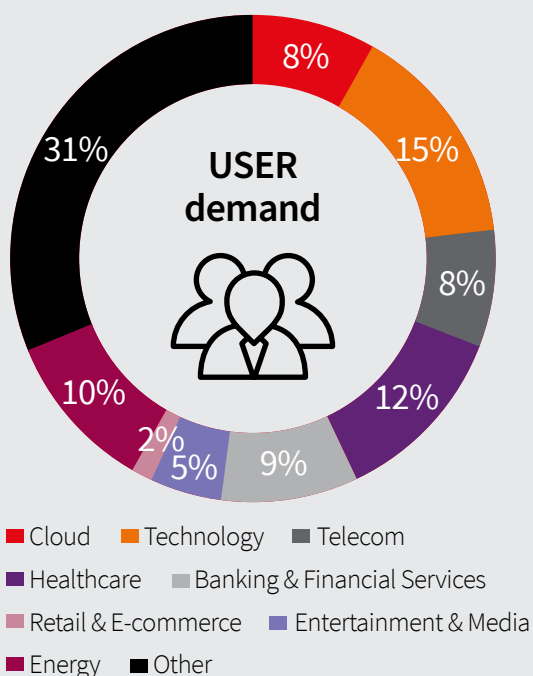
30 MW

Total colocation assets:

5 assets

Cable landing:

Nil



Market overview

Supply

- Accounted for 7% share of total inventory at 30 MW
- Policy incentives, reliable power supply & economical set up costs is making the city an emerging hotspot

Demand

- Presence of IT/ITeS, pharma and cloud players drive major demand
- Improved occupancy due to its emergence as a new hotspot for cloud players

Outlook

- 66 MW addition expected during 2021-23
- Inventory to grow by three times by 2023

Key announcements

- Amazon Web Services is reported to be investing USD 2.77 billion for its core facility
- NPCI plans to set up own tier-IV, DC at an investment of ~ US\$ 70 million

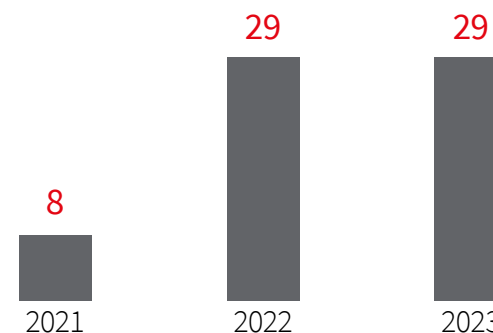
Supply	mn.s.f	MW
Total inventory	0.72	30
Total Vacant	0.03	1.2
Under construction (2021)	0.05	8
Planned (2022 & 2023)	0.41	58
Land bank	99 acres	

Demand	MW
Net absorption in 2020	4.5

Monthly recurring charges	Low	High
Sub 250 Kw	\$120	\$150
250 Kw-1 MW	\$90	\$125
1-5 MW	\$80	\$105
5 MW plus	\$75	\$100

Note: The above mentioned numbers are based on USD/KW/Month basis available market data on likely achievable rates. The above pricing assumes standard racks between 5kVA - 6.5kVA without any customization. Source: JLL Research

Colocation supply pipeline (MW)



Note: Conversion rate taken as 1USD = INR 74

Delhi NCR

Existing colocation capacity:

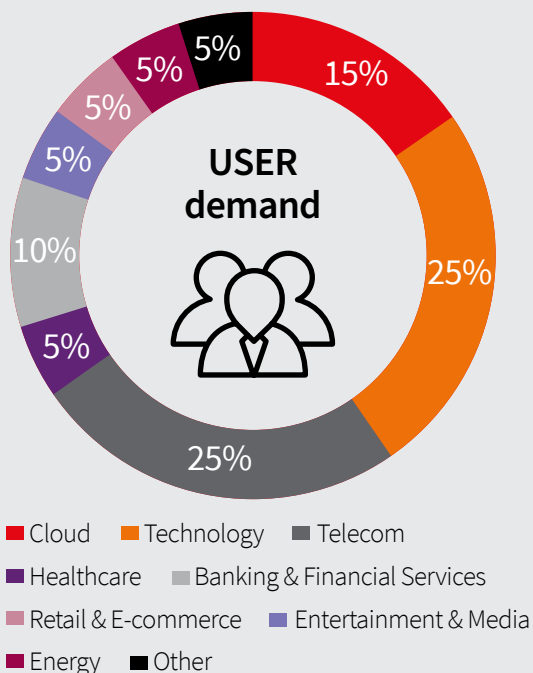
40 MW

Total colocation assets:

14 assets

Cable landing:

Nil



Market overview

Supply

- City accounts for 9% share of total inventory
- Emerging location for government demand and edge data centers

Demand

- Primary demand from BFSI, government and ITes sectors

Outlook

- Government led digital initiatives and ITes industry will be key drivers
- 49 MW addition expected during 2021-23

Key announcements

- Yotta Infrastructure's 20 MW DC facility is reported to be under construction in Greater Noida West
- Adani Group & EdgeConnex JV is reported to be allotted 9-acre plot in Noida
- According to Greater Noida Authority, NTT Ltd. has been allotted ~10 acres in Greater Noida West

Supply

	mn.s.f	MW
Total inventory	1.00	40
Total Vacant	0.25	10
Under construction (2021)	0.06	9
Planned (2022 & 2023)	0.42	40
Land bank	70 acres	

Demand

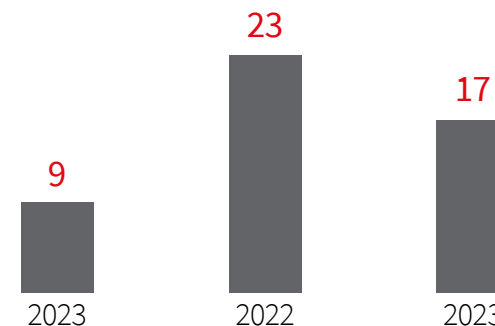
	MW
Net absorption in 2020	1.7

Monthly recurring charges

	Low	High
Sub 250 Kw	\$140	\$150
250 Kw-1 MW	\$110	\$125
1-5 MW	\$90	\$95
5 MW plus	\$70	\$80

Note: The above mentioned numbers are based on USD/KW/Month basis available market data on likely achievable rates. The above pricing assumes standard racks between 5kVA - 6.5kVA without any customization. Source: JLL Research

Colocation supply pipeline (MW)



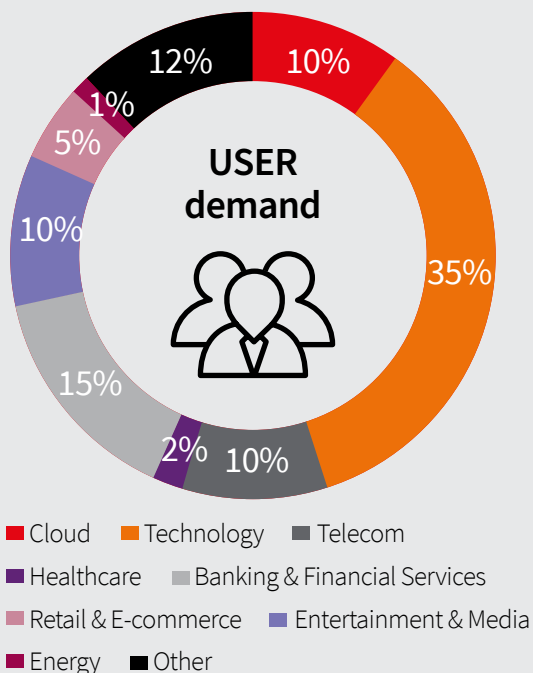
Note: Conversion rate taken as 1USD = INR 74

Bengaluru

Existing colocation capacity:
57 MW

Total colocation assets:
12 assets

Cable landing:
Nil



Market overview

Supply

- City accounts for 13% share of total inventory
- Supply added during 2020 driven by pre-commitments

Demand

- Enterprise demand mainly from start-ups and IT industry
- Preference for captive DCs by IT players leading to slower shift to colocation DCs

Outlook

- 12 MW supply addition is expected during 2021-23

Key announcements

- STT is reported to commence operations at Whitefield micro-market during the year

Supply

	mn.s.f	MW
Total inventory	1.90	57
Total Vacant	0.69	19
Under construction (2021)	0.14	12
Planned (2022 & 2023)	-	-
Land bank	nil	

Demand

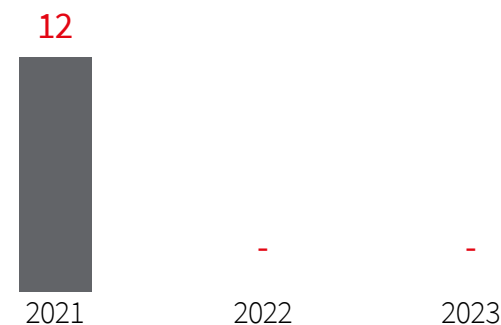
	MW
Net absorption in 2020	2.5

Monthly recurring charges

	Low	High
Sub 250 Kw	\$120	\$150
250 Kw-1 MW	\$90	\$125
1-5 MW	\$80	\$105
5 MW plus	\$75	\$100

Note: The above mentioned numbers are based on USD/KW/Month basis available market data on likely achievable rates. The above pricing assumes standard racks between 5kVA - 6.5kVA without any customization. Source: JLL Research

Colocation supply pipeline (MW)



Note: Conversion rate taken as 1USD = INR 74

Kolkata

Existing colocation capacity:

6 MW

Total colocation assets:

3 assets

Cable landing:

Nil

Market overview

Supply



- 1% share of total inventory
- Upcoming location as new cable landing station is being laid

Demand



- Demand from telecom and enterprises dominant

Outlook



- Preference for Edge data center and new cable landing station to make it an upcoming location in medium term

Key announcements



- Jio Infocomm has announced plans to invest ~US\$ 137 million in cable landing station at Digha port and setting up DCs
- Yotta infrastructure has announced plans to infuse a US\$ 1.4 billion in the city for setting up DCs

Supply	mn.s.f	MW
Total inventory	0.08	6
Total Vacant	0.02	1.4
Under construction (2021)*	-	-
Planned (2022 & 2023)*	-	-
Land bank	63 acres	

Demand	MW
Net absorption in 2020	0.4

Monthly recurring charges	Low	High
Sub 250 Kw	\$145	\$150
250 Kw-1 MW	\$110	\$130
1-5 MW	\$95	\$100
5 MW plus	\$80	\$85

Note: The above mentioned numbers are based on USD/KW/Month basis available market data on likely achievable rates. The above pricing assumes standard racks between 5kVA - 6.5kVA without any customization. Source: JLL Research

Note: Conversion rate taken as 1USD = INR 74

*The city is likely to see capacity expansion on completion of cable landing station

Conclusion

The first half of 2020 witnessed India's DC sector fine-tuning to the challenges posed by the pandemic. Business continuity and employee health gained centre-stage. Data usage increased as online platforms replaced in-person interaction - with surplus time spent on digital devices. The limitations of captive IT infrastructure became evident and the need for a shift to colocation DCs became imperative. However, this was partly constrained by logistical and resource issues faced by businesses. Unexpected outages faced by the BFSI industry made it imperative for the sector to upgrade its IT infrastructure.

Demand for hybrid models of cloud adoption or colocation increased during the year with 102 MW capacity absorption. Mumbai, Pune and Chennai witnessed maximum absorption. State government incentives acted as catalysts for the emergence of Hyderabad and Delhi NCR as new hotspots for cloud occupiers. Demand is likely to ramp up further due to the imminent rollout of 5G, increasing usage of IoT-enabled devices, data localisation and cloud adoption.

This strong rise in demand is backed by the expansion plans of DC operators. India's colo space added 97 MW capacity during the year, with Mumbai being the most preferred choice. While companies evaluating their India entry are building a footprint through acquisitions and local partnerships, hyperscalers are focusing on expansion with self-perform strategies like land banking and scalable modular designs. DC operators have acquired over 340 acres of land until now with plans to further scale up considering the long-term growth prospects of the industry.

India's DC industry expected to add 560 MW during 2021-23 leading to a real estate requirement of 6.0 mn sq ft. This growth would be complimented by densification of racks and servers, sustainable energy sourcing and use of indigenous resources. The 'Draft Data Center Policy' formulated by the Government aims to turn India into a 'Global Data Hub' by providing necessary measures to achieve this goal.

The synergy of technology, legislation, demand and investments is expected to usher in an era of high growth for India's DC industry in the years to come.

About JLL

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About JLL India

JLL is India's premier and largest professional services firm specialising in real estate. With an audited revenue in excess of 4000 crores for FY 2018-19, the Firm is growing from strength to strength in India for the past two decades. JLL India has an extensive presence across 10 major cities (Mumbai, Delhi NCR, Bengaluru, Pune, Chennai, Hyderabad, Kolkata, Ahmedabad, Kochi and Coimbatore) and over 130 tier II & III markets with a cumulative strength of close to 12,000 professionals.

The Firm provides investors, developers, local corporates and multinational companies with a comprehensive range of services. This includes leasing, capital markets, research & advisory, transaction management, project development, facility management and property & asset management. These services cover various asset classes such as commercial, industrial, warehouse and logistics, data centers, residential, retail, hospitality, healthcare, senior living, and education. For further information, please visit jll.co.in

About JLL Research

JLL Research provides data analytics and insights through Real Estate Intelligence Services (REIS), thought leadership and bespoke research. REIS is a subscription based research service designed to provide cutting edge insights into diverse and challenging real estate markets through collation, analysis and forecasts of property market indicators across asset classes such as office, retail and residential. Thought leadership focuses on providing independent insights, analysis and forecasts on key industry trends and significant regulatory & economic developments impacting the real estate industry. Bespoke research aims to provide tailor-made solutions to different stakeholders in the real estate sector and ancillary industries. Our capabilities include market assessment studies, demand-supply analysis, catchment area analysis, and price benchmarking across asset classes.

Data Center Advisory Practice

As India's largest data center real estate practice, JLL provides the strategies, insights and end-to-end services needed to optimise your data center solution from inception through disposition. With a, ten-member team spread across the country and a deep understanding of the subject matter, JLL's Data Center Advisory Practice has the market power and expertise to make your data center project a success, regardless of size, scope or location. JLL's current focus is on three large areas of transaction expertise, to service the Colocation Data Center Industry:

- **Greenfield / brownfield advisory:** Advising large colocation data center operators and hyperscalers with their build strategy via land, build-to-suit or ready built retro-fit building acquisitions.
 - **Investor services:** Advise operators, investors and developers on, among other services, partial interest recapitalization and joint venture transactions.
 - **Colocation advisory:** Assist vast pool of JLL's enterprise customers and large cloud compute and storage customers with acquiring resilient rack space in colocation data centers.
-

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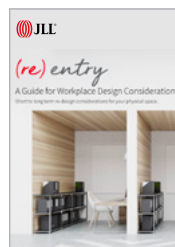
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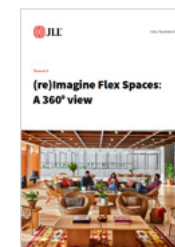
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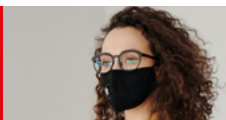


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