

Understanding India's Digital Infrastructure Revolution: A 2024 Outlook

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Foreword



In 2024, India is surfing upon the sea wave of transformative regulatory initiatives and market upswings witnessed last year. In a volatile global economy stifled by conflict, inflation, and declining demand throughout 2023, India conspicuously remained an insulated outlier and recorded one of the highest growths among the large economies worldwide. Stakeholders, analysts, and investors point towards the persistent macro-economic investments by the government across sectors, and market-value creation in the digital infrastructure space by both public and private players, as the key anchors for this progression. As a promising indicator for investors, the World Bank¹ and IMF² predict India to ride an even sharper growth curve in 2024. We anticipate that digital infrastructure will serve as a cross-sectoral catalyst in India's growth foresight for 2024, accompanied by a flurry of deal activities in the sector. We note several markers of this in this volume.

Global tech-giants, industry leaders, and experts have acclaimed India's thriving digital infrastructure revolution. The ongoing exponential expansion of the existing digital industry footprints, like cloud and data centre services, smart cities, and 5G-will further solidify the industry's foundations. Meanwhile, emerging digital service delivery models, powered by artificial intelligence (AI), satellites, and digital public infrastructure, will likely take the center-stage and provide a powerful headwind to this frontier.

The *Digital India* mission remains the steadfast driver of this momentum. The recent interim Union Budget (February 2024) also emphasized the expansion and formalisation of 'digital public infrastructure' (DPI) – which will enable corporates, startups and developers to tap into the emerging variants of the digital market. We also expect DPI-related efforts to stimulate even greater public-private partnerships this year, especially for large scale projects like 'smart cities'. In the international arena, India took leadership in the recent G20 Summit (held in India in August 2023) in garnering leadership consensus for the need to build a 'global digital public infrastructure' framework.

¹ Source: <https://www.worldbank.org/en/news/press-release/2023/10/03/india-s-growth-to-remain-resilient-despite-global-challenges>

² Source: <https://www.businessday.in/latest/economy/story/imf-raises-indias-growth-forecast-for-fy24-to-67-from-63-says-global-soft-landing-in-sight-415447-2024-01-30>

Another notable focus-point for investors this year must be the government's targeted impetus towards digital manufacturing under the 'Make in India', 'Design Linked Incentives' (DLI) and Performance Linked Incentives (PLI) schemes, especially towards solidifying the semiconductor and other digital manufacturing ecosystem.

Among the regulatory initiatives, the much-anticipated Telecommunication Act 2023 and the Digital Personal Data Protection Act 2023, have set rolling the modernisation of telecom infrastructure and digital data businesses, and the related legal frameworks – both of which have stimulated the investors' attention.

Amidst these developments, consumers remain a center-point of this sector. The Indian populace has shown promising appetite for emerging technologies and services. 5G infrastructure expansion continues to stretch from the urban areas in 2023 to the rural areas this year. The pre-launch anticipation already

being witnessed for 'air fiber' and 'satellite' based internet has also been refreshing. Meanwhile, AI and machine-to-machine (M2M) services have been seamlessly integrating into the daily lives of the Indian consumers at a rapid pace. Since 2023, India has consistently ranked among the top countries in the value of private investments in AI and the number of newly funded AI companies.

The rollout of 5G and fiber-optic advancements combined with easy and affordable access to high-speed internet also means that there is a humongous generation of data and proportionate surge in demand for data centres. The country's unique digital infrastructure and invention has been and is expected to contribute significantly to this demand. As per publicly available information, the average consumer data consumption is c.25GB per month in India. As such, the current numbers and future estimates are promising. All major data centre players are now present in India,

attracted by the growing digital outreach of government and businesses. For example, Singapore based ST Telemedia GDC which has announced investments more than USD 1 billion over the next five years is seeing India's digital growth story as the biggest growth story in the world. The sentiments of investors are hugely driven by world class-digital public infrastructure like Aadhar, CoWIN, UPI etc.

Progressive administrative intent, coupled with the aggressive positioning of the Indian digital infrastructure sphere as a stable innovation hub, business enabler and a global partner, has cemented this sector as an investment hotspot globally.

Overall, we expect India's digital infrastructure sector to continue staging high-value investment opportunities in existing and emerging business verticals, assisted by targeted regulatory efforts.



Telecom triumph: New pathways in communications infrastructure

Current backdrop

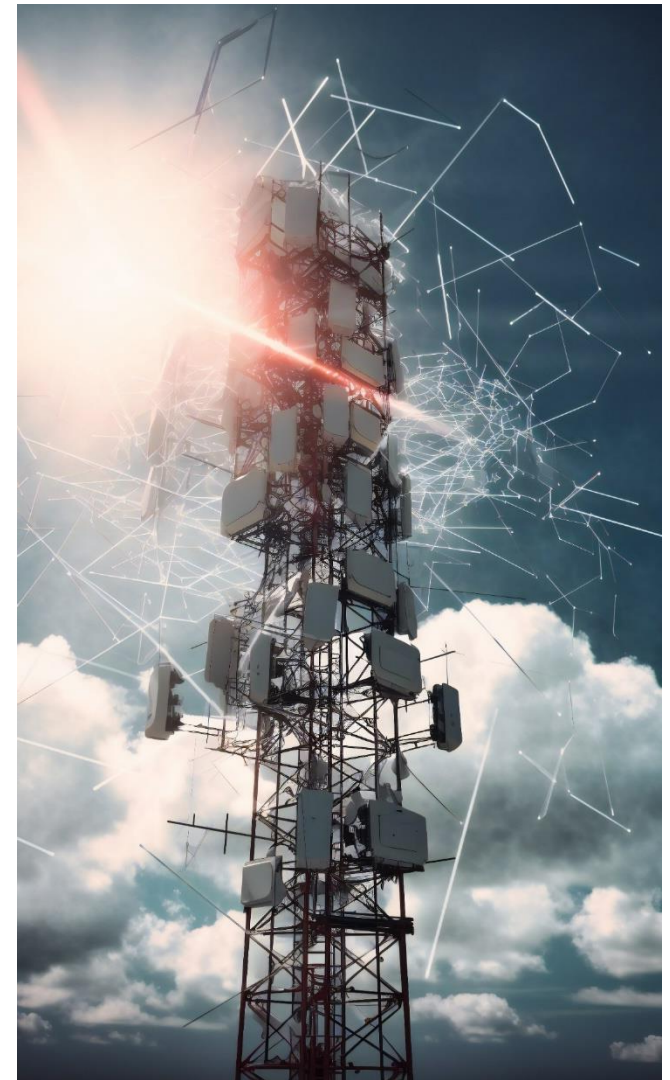
India's digital information and communications technology (ICT) sector is set to reach \$1 trillion in size, by 2025³. Within ICT, over the past year or so, the Indian telecom industry has been gearing up for capacity enhancements, 5G expansion, satellite connectivity, and emerging tools like AI. However, the government had been contemplating an overhaul of the obsolete telecom regulatory and licensing framework. Towards this, the 'Telecom Bill' was introduced earlier in 2022 as an attempt towards modernisation and ease of business. The Bill was finally enacted as the Telecom Act 2023, which has drawn the attention of investors.

5G rollout in India, starting with the metro cities, has already reshaped connectivity paradigms. Moreover, it has occurred at the fastest rate worldwide, even exceeding the target rollouts. Presently, 5G expansion is underway into the rural areas – an equally significant user-base in terms of volume and potential revenues.

Simultaneously, India has been aiming for fiberised connectivity in urban and rural areas, under the *Digital India* mission and the *BharatNet* project. 5G and fiberised networks are also considered essential for India's 'digital public infrastructure' and 'smart city' initiatives – leveraging technology to enhance urban infrastructure and services, fostering economic growth and innovation. This is also echoed in the interim Union Budget (2024).

With the rapidly scaling data requirements, and burgeoning demand from data centres, capacity enhancement for submarine cables is now seen as a must. The Telecom Regulatory Authority of India (TRAI) has made certain recommendations to the Department of Telecommunications (DoT) for regulating the use of submarine cables in India.

These developments underscore a concerted effort to propel India towards a digitally inclusive and technologically empowered future.



³ Source: <https://www.trade.gov/country-commercial-guides/india-information-and-communication-technology>

What's next

The success of India's ICT sector relies heavily on the robustness of the telecom sector, both in terms of market potential and regulatory framework.

One framework for all

The Telecom Act 2023 replaces several decades-old laws governing this sector (dating as far back as 1885). The Act now provides for a single authorisation relating to various telecom activities, under this overarching legislation. The legislation seemingly covers a diverse set of entities, from core telecom operators to passive telecom infrastructure providers. It also seeks to apply to possession of telecom equipment and may even cover devices required for M2M.

The rules regarding various aspects are awaited, including on the corresponding powers of the government. One such area of rulemaking relates to the terms, conditions, fees and charges for any merger, demerger, acquisition, or other forms of restructuring in the telecom sector. Though we expect these rules to largely enable ease of business, this will remain a key watchout area for investors till the rules are notified.

However, the Act does indicate a simplified 'right of way' regime, providing clarity on the incidence and applicability of 'property tax', and restricting the powers of the local public entities to take arbitrary or coercive actions, such as sealing or prohibiting access to telecom cell sites. These steps will lead to a more reliable and optimised establishment of telecom infrastructure.

Separate framework for DCIPs

Another regulatory development to note regarding telecom infrastructure is TRAI's earlier recommendations for '*digital connectivity infrastructure providers*' (**DCIPs**).

TRAI seeks the establishment of an enabling framework for entities dealing with sharing non-core 'active' telecom infrastructure (i.e., which do not form a part of the core layers of the telecom network) with other telecom operators. TRAI recommends a light-touch licensing approach with minimal regulatory compliances and a one-time entry fee instead of a recurring license fee regime, for such non-core active infrastructure providers. Such entities may also deal in passive telecom infrastructure sharing with telecom operators.

Currently, entities registered with the DoT as Infrastructure Providers, Category I (**IP-I**) can own and provide only passive elements to telecom operators, on a multi-operator sharing basis. IP-I entities currently establish and provide mobile telecom towers, dark fibers and in-building solutions to telecom operators.

However, TRAI recognises the need for such neutral entities to also be able to own, establish and provide certain 'active' elements (that are not part of the core telecom network) to telecom operators on a sharing basis. This will also enable faster and more efficient rollout of 5G across the country. If this recommendation is accepted, then the scope and role of IP-I entities will be greatly enhanced, leading to newer business opportunities in this sector.

IP-I entities have already been the prime target for lucrative consolidations, mergers and investment activities in India in the past couple of years, with many US and Canada based funds securing ownership in certain IP-I entities through purchase of majority stakes.

More roads to 5G

According to TRAI, Indian telecom operators surpassed the three-year 5G network rollout target given to them, within the first 6 months. More than 300,000 5G cell sites were set up as of August 2023 – mostly in the urban areas. TRAI also states that the majority of the towns in India will be covered by the end of 2024, while rural expansion continues across the country steadily.

Even where 5G rollouts have already occurred, network capacity enhancements will continue to be required driven by increased consumer demand for data consumption and connected services reliant on 5G. Thus, 5G will continue to offer foreign manufacturers the opportunity to supply optical fiber cables, 5G radio equipment and antenna sub-systems, 5G cells, wireline and radio access network solutions, and other transmission equipment.

Moreover, with 5G-enabled seamless data consumption, coupled with India's digital revolution and affordable data tariffs in India, accelerated smartphone penetration, rise of digital payments ecosystem and OTT consumption, the 'Average Revenue Per User'

(ARPU) in India has seen a steep rise, which is aiding in making the telecom sector more lucrative for investors.

As a testament to this, although many market gurus had predicted the demise of Vodafone Idea (VI) in India, in a stimulating show of resilience, Vi announced the launch of its 5G services in India.

BharatNet and USOF

Telecom coverage in rural areas is also administered under the Universal Service Obligation Fund (USOF) of the government under the BharatNet project, which has triggered initiatives that are expected to take a stronger hold in 2024.

The shift in data usage patterns due to Covid-19 has led to an increase in data usage in rural areas. Consequently, state-owned BSNL has recently rolled out an approximately \$7.5 billion tender across 16 states and union territories, for pushing internet leased line bandwidth, middle-mile connectivity, and last mile connectivity. This can be a tremendous boost to the telecom infrastructure provider businesses in India.

Smart cities

Alongside initiatives for rural connectivity, the government's 'smart cities' project aims to transform 100 cities through digital and information technologies, urban planning best practices, public-private partnerships, and policy change. The purpose is to drive economic growth and investments by enabling local area development and harness technology. Application of 'smart solutions' is a key ingredient of this program, which will enable cities to use technology, information, and data to improve infrastructure and services. Some core infrastructural elements include robust IT connectivity, digitalisation, and e-governance. Revised budget allocations dedicated to this project were also made in the interim Union Budget (2024).

The smart city project once again highlights the weightage given by the government to public-private partnerships, opening up space for business and investment opportunities in the telecom and IT connectivity sector.

Air and ether: New communications avenues

The stiff competition in the telecom sector has also resulted in the major players diversifying their offerings to consumers.

The 'air fiber' service, which is a 'wireless' broadband service using terrestrial 5G signals for providing WiFi connectivity at homes (as opposed to wired broadband connections), is seeing much demand. As a result, telecom operators are already planning to launch the service in additional cities from the initial cities originally planned for the launch.

Similarly, the DoT recently issuing licenses to telecom operators such as Reliance Jio and Airtel-backed OneWeb, for providing 'satellite internet services' to end-users has opened the doors for an entirely untouched business vertical in India. This has also opened doors for foreign entrants like Elon Musk's Starlink, Amazon's Kuiper and Jeff Bezos's Blue Origin to enter this space. The Telecom Act 2023 also enables the allocation of spectrum for satellite-based internet services, and the government is presently considering such allocations for the licensees. This will be a golden opportunity for investors, equipment manufacturers, infrastructure and service providers, and developers.

Additionally, the government may also roll out a separate license framework for Satellite Earth Station Gateways (**SESG**) – allowing such licensees to provide satellite-based 'resources' to licensed telecom operators (i.e., not to end users). DoT's Digital Communications Commission (**DCC**) had earlier in 2023 accepted TRAI's recommendation for such a separate framework, to allow SESG entities set up the gateway for telecom operators, thus promoting "*gateway sharing*". In the absence of a separate regime for SESG, telecom operators have been required to establish and manage their own gateways, leading to cost and logistical burdens. Thus, these SESG licenses will promote newer entrants into the satellite connectivity business in India and optimise the use of telecom resources.

Moreover, in a recent development favoring foreign investments in the satellite communications domain, the government has now allowed up to 74% FDI under automatic route in satellite manufacturing and operations. Further, up to 100% overseas investment is now also permitted via automatic route for manufacturing of components and sub-systems for satellites.

Under the seas: Submarine cable systems

The Interim Union Budget (2024) announced the extension of the customs duty exemption to vessels engaged in the laying of submarine cables, to up to September 2024. This has been widely welcomed by industry stakeholders.

India's unique geography makes it an attractive gateway location. It is especially becoming an epicentre for data and internet traffic between Europe, Africa and the Middle East. The demand for submarine cable capacities is only growing, with the increase in the number of data centres, higher OTT usage and data consumption by Indian users, etc.

Consequently, TRAI recognised the necessity for regulating cable landing stations and issued certain recommendations in 2023. Amongst other recommendations, such as on stub cables, terrestrial link between two cable landing stations, etc., TRAI has also suggested for ownership or stake of Indian ILDOs (or International Long-Distance Operators) in the submarine cables landing in India. The recommendations are yet to be adopted by the DoT, but, seeing the possible impact, this will remain a watchout area.

Digital public infrastructure: At the core of collective progress



Current backdrop

The creation of an extensive and inclusive digital public infrastructure (**DPI**) stack has been considered as the bedrock of the *Digital India* mission, since its launch in 2015. Over the years, India has made incredible strides in fulfilling and promoting its DPI ambition. The transformative impact of DPI has now made it an integral part of several other running projects, like Make in India, BharatMala, SagarMala, Startup India, BharatNet, etc.

From enabling financial inclusion at the grassroots level through the 'unified payments interface' (**UPI**) systems to integration of digital social IDs (like Aadhaar, Digi Locker), and then the trinity of Jan Dhan Yojana, Aadhaar and Mobile connectivity (**JAM**), helped India achieve 80% financial inclusion in just six years. According to the World Bank the same activity otherwise would have taken 47 years⁴.

Additionally, international collaborations between India and the European Union underscore a shared commitment to DPI, aiming to foster inclusive development and competitive markets. This was also highlighted in the G20 Summit held in India in August 2023. Similarly, the Quad Leaders Joint Statement in

2023 by Australia, India, Japan, and the US underscores the use of DPI to support sustainable development in the Indo-Pacific. The aim is to deliver economic and social benefits, improve digital connectivity, and leverage advanced technologies, including 5G networks.

These efforts reinforce the importance of DPI in driving economic growth and social inclusion and progress on the domestic as well as global scale.

Taking a cue from the success of DPI in public and private service deliveries, the B2B segment also has begun contemplating for a 'standardised' DPI for B2B exchanges, seeing that B2B players continuously engage with numerous partners, suppliers, government entities, financial institutions, and customers.

However, proprietary interfaces and formats impede such exchanges currently.

⁴ Source: <https://economictimes.indiatimes.com/industry/banking/finance/world-bank-lauds-indias-digital-public-infrastructure-in-g20-document/articleshow/103496383.cms?from=mdr>

What's next

According to India's finance minister during the interim Union Budget session (2024), India's DPI has *"emerged as the new 'factor of production' in the 21st century and has been instrumental in formalisation of the economy"*.

DPI provisioning in India has been undertaken almost entirely through public-private partnerships, at varying levels. 2024 will see a continuance of this trend, presenting business opportunities to private players, whether localised or Big Tech.

Since DPI is based on 'open standards' and 'interoperability', cross-platform integration and modular use of DPI enabling seamless integration with various services will remain as common features for all services relying on DPI.

International adoption of India's DPI framework is also on the cards, with the EU exploring collaborations with India on [EU Digital Covid Certificates and Digital Identity Wallets](#). Eight other countries have already signed MOUs with India for the DPI stack. Given the overflowing global interest, India also intends to create a Global Digital Public Infrastructure Repository (GDPIR), a virtual repository of DPI, for the use

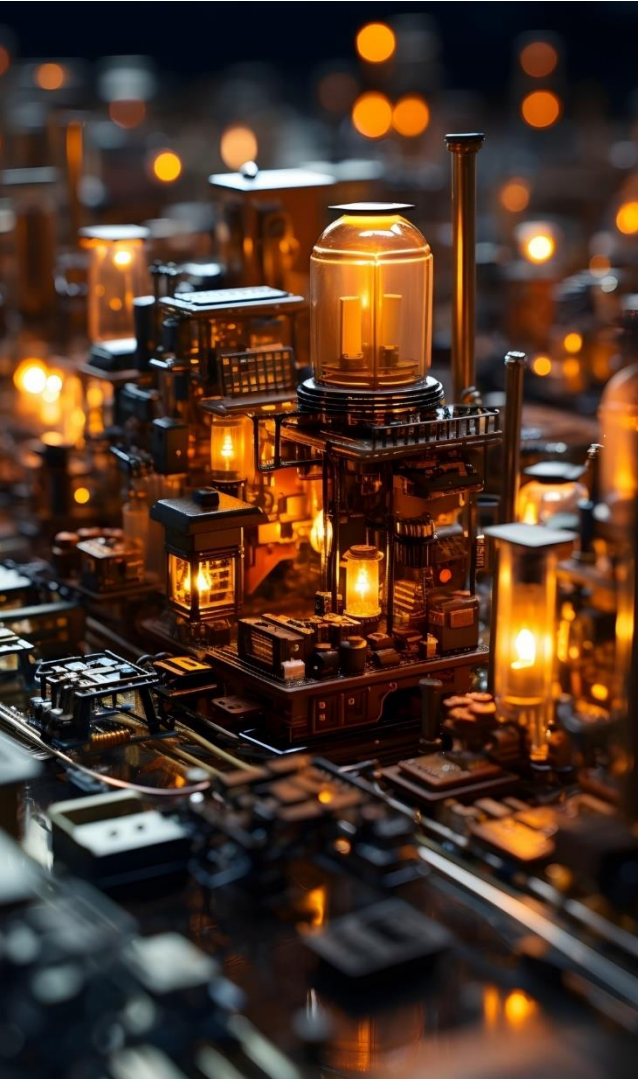
of other countries. This will be a ready repository meant for India's DPI and those adopted and tweaked by other nations.

Meanwhile, in the domestic B2B market, the establishment of a cohesive system with standardised protocols for B2B information exchange (akin to the transformative influence of UPI on financial transactions) holds the promise of substantial improvements in how trading partners engage. It would streamline processes, slash transactional costs, optimise inventory and resource allocation throughout the network. These enhancements would, in turn, benefit every facet of the supply chain.

DPI adoption in government-led services or in the B2B space, or in international collaborative efforts, signify a shared commitment to harnessing digital infrastructure for broader socio-economic development and must be seen as enablers for enhancing reach to consumers, utilising emerging service delivery models, reducing costs, and driving overall profitability.



Digital manufacturing: India makes for the world



Current backdrop

Post the Covid fallout, digital manufacturers have been increasingly seeking to realign their supply chain and manufacturing operations, into a more stable and favorable financial and regulatory environment.

India has been vying to place itself as one of the preferred destinations for such migrations, leveraging its size, market and technological capabilities, government incentives, and progressive regulatory approach.

In the late 2020s, the government had announced the Production Linked Incentive (**PLI**) scheme for over a dozen sectors, including telecom, electronic tech consumer products and automobile. The scheme allows subsidies for manufacturing in India, whether for the home or the export market. Each year, these incentives have been revised and reinforced.

Concurrently, the government addressed the problem of labor regulations in India, replacing 29 outdated legislations with 4 modern and simplified codes.

The PLI scheme has resulted in unprecedented success for digital manufacturing in India. For example, the PLI scheme for large-scale electronics manufacturing (**LSEM**) has led to 97% of mobile phones sold in India now being 'Made in India', and 'Made in India for the World' as smartphone exports grew by 139% in 3 years⁵.

The government has also often reiterated its commitment for tapping into (and capturing) a sizeable chunk of the global semiconductor manufacturing segment, under the India Semiconductor Mission – announcing the Design Linked Incentive (**DLI**) scheme for this purpose. DLI aims to position India as a global hub for electronics system design and manufacturing (**ESDM**).

⁵ Source: <https://pib.gov.in/PressReleasePage.aspx?PRID=1962137>

What's next

The PLI scheme for digital manufacturing in India will continue to fuel M&A activity in India, particularly given the substantial increase in the budget allocation for mobile PLI scheme in 2024-25 compared to last year.

Similarly, the incentives allocated under the DLI scheme have more than doubled for this year, compared to last year. Industry leaders are envisioning this year as the “breakout year” for semiconductor manufacturing in India. This development has piqued the interest of semiconductor manufacturers and investors alike.

The emphasis this year is on Assembly, Testing, Marking and Packaging (**ATMP**), which has also attracted most of the allocations.

Currently, media reports suggest that over 12 large projects are under discussion between investors and government⁶.

In addition, so far, the schemes have drawn the attention of global players such as Micron Technologies, Foxconn, AMD and TSMC, for setting up fabrication facilities, and for design, 3D stacking, machine learning, etc.

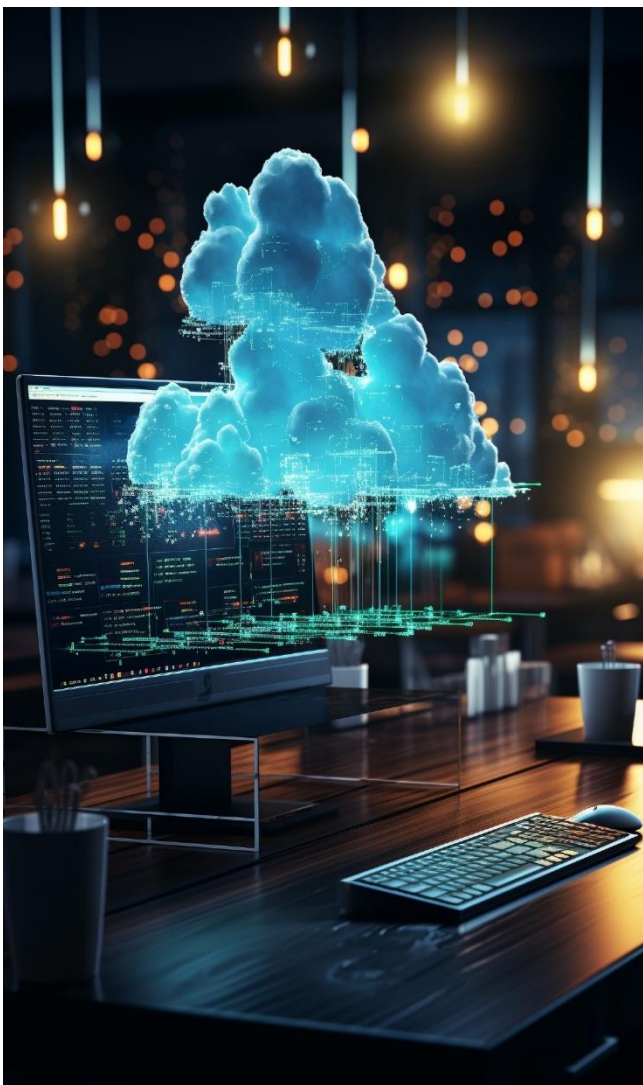
The government's recent announcement of its intention to introduce an enhanced PLI scheme specifically for the telecom sector has garnered widespread praise from the industry stakeholders. While the details of the scheme are eagerly anticipated, the government has emphasized its goal of establishing a robust telecom component ecosystem within India, rather than merely facilitating subsystem assembly. Feedback has also been solicited from micro, small and medium enterprises regarding the potential areas of improvement. This presents a valuable opportunity for the stakeholders to voice their suggestions and concerns.

In addition to the incentives, India also boasts the advantage of a skilled, English-speaking workforce, and balanced labor costs – factors which the Indian industry hopes will tilt the scales in favor of establishing India as a digital manufacturing hotspot on the global stage.



⁶ Source: <https://www.businesstoday.in/technology/news/story/budget-2024-rs-6903-cr-allocation-for-semiconductor-scheme-could-mean-more-plans-in-pipeline-416076-2024-02-03>

Cloud services: Growth unhindered



Current backdrop

India's cloud services industry has seen numerous years of unrelenting growth. India has emerged as a 'cloud-based' outsourcing hub for global industries across sectors. According to EY, India currently constitutes 45% of global GCCs (**Global Capability Centres**)⁷. India's public cloud service industry is set to cross \$18 billion by 2026-27.

Earlier in 2022-23, the growing reliance on cloud services had triggered considerations about the necessity for regulating these cloud services in India. TRAI had proposed a light-touch regime for regulating this sector, suggesting oversight through a registered industry body in collaboration with the DoT / TRAI. However, many stakeholders viewed the potential regulation of the cloud industry as excessive government intervention.

Mandatory localisation or mirroring of 'sensitive' or 'critical' personal data over the cloud was also an area of concern for the industry throughout the previous year, given that the new data protection law (which we will touch upon on [p.17](#)) was in the pipeline until the latter half of last year.

What's next

The new data protection law does not mandate localisation or mirroring of any specific category of data, although sectoral laws will still take precedence regarding any data localisation requirements like earlier. This has been welcomed by the industry stakeholders, as such localisation requirements were widely considered as an impediment for growth.

India's cloud services industry is now stepping into an era of future service delivery models, like 'industry clouds' tailored for specific industries and verticals, 'domain clouds' for specific domains, 'distributed clouds' allowing connectivity from disparate geographical areas, among others, with advanced features such as AI integration.

Thus, we expect the Indian cloud industry to continue its growth trajectory with more startup players and investment opportunities.

⁷ Source: https://www.ey.com/en_in/news/2023/06/india-gcc-market-size-to-reach-us-dollar-110b-by-2030

Demand for data centres remains high

Current backdrop

India's data centre growth story persists with reports indicating that the data centre capacity is projected to surpass 1,300 MW by the end of 2024, up from 880 MW over 13 million square feet as of June 2023.

This growth is anticipated to persist throughout this year, considering that nearly 500 MW worth of data centres are under construction in various cities. Mumbai, Chennai, and Bengaluru are poised to dominate the market, accounting for an 80% share by the conclusion of 2024⁸.

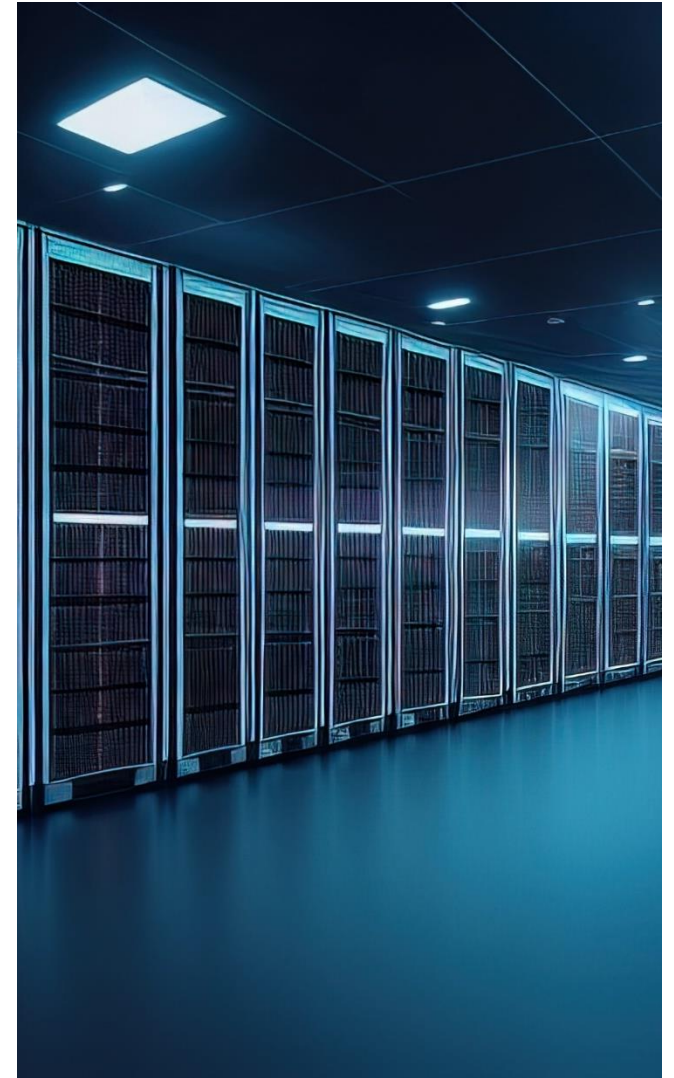
In addition, the post-pandemic shift in the content consumption habits, coupled with widespread smartphone accessibility, and the roll-out of 5G and high-speed WiFi internet, has caused a tremendous upsurge in data consumption across India within a short span.

Concurrently, enterprises are constantly exploring growth opportunities through cutting-edge technologies like cloud computing, AI analytics, Internet of Things (IoT), etc., all of which heavily rely on robust data centre infrastructure.

These factors have collectively bolstered the data centre market in India.

The growth is also backed by the government's positive intent to make India a global player and promote investments in the sector. The draft Data Centre Policy released in 2020 outlines several key thrust areas to achieve this goal.

Along with the establishment of data centre economic zones and data centre facilitation units, the incorporation of data centres under the Essential Services Maintenance Act as 'critical infrastructure', and the development of a distinct category code for data centres under the National Building Code of India – data centre operations have been accorded one of the best protective frameworks as far as business continuity, growth and investments are concerned.



⁸ Source: <https://economictimes.indiatimes.com/industry/services/property/-/cstruction/indias-data-centre-market-attracts-investment-commitments-of-usd-35-billion-since-2018/articleshow/105746293.cms?from=mdr>

What's next

The potential of India's data centres is being widely recognised by foreign investors. Global players across geographies like USA and Japan, domestic real estate investors, and private equity groups have invested significantly in data centres since 2020⁹. Investor trust in this sector has been high, seeing that more than 90% of institutional inflows in this sector were from foreign investors.

Upswing of interest in colocation facilities

The country is experiencing a parallel rise in colocation facilities, which offer shared data centre spaces and resources to multiple tenants. Colocation has emerged as a preferred solution for businesses seeking cost-effective, secure, and reliable data hosting services without the burden of building and maintaining their own data centres. A significant rise in data centres is expected to flow from public sector undertakings and government enterprises, as these are increasing focus on digitisation and e-governance to ease operations.

Government Support via the 'Digital India' Initiative

The 'Digital India' initiative, which aims to transform India into a digital economy, is also fuelling demand. While digital services were traditionally dominated by tier 1 cities, the foray of data centre infrastructure in Tier 2 and Tier 3 cities is emerging as a focal point for expansion. Tier 2 and tier 3 cities are on the brink of becoming the epicentre of data centre infrastructure development and the economic incentives and government support are factors that will further escalate the demand for digital services. Currently, tier 2 Indian cities like Jaipur, Kochi, Nashik, Vijayawada, and Bhubaneswar hold only 4% of the total data centre capacity in India and such cities are emerging as potential locations for data centre expansion, supported by increased internet penetration, increase in the number of startups and technology hubs.

Digital Personal Data Protection Act 2023 is shaping data centre demand

Another driver propelling the growth of data centres is the introduction of the Digital Personal Data Protection Act 2023 (more details on this Act covered on [p.17](#)). It provides a

regulatory framework for the storage of personal data, and sectoral regulations which require data localisation and sets limitations on cross border data storage (including introduction of the cybersecurity regulatory directions which require mandatory maintenance of logs of ICT systems in India for 180 days).

Several Indian states have introduced state level incentives in their policies to reduce the upfront and operational costs, and ease compliance procedures for data centres including reimbursement of stamp duties, single window clearance for approvals, exemption from electricity duty and electrical inspection fees, benefits and subsidies for employment generation and providing right of way for underground optical fiber networks.

Data embassy policy

A draft framework for the data embassy policy has also been recently submitted for the government's approval. Once assented, it will enable the creation of a "trusted data storage ecosystem" in India, fostering a new category of data centres within the sector.

⁹ Source: <https://www.ibef.org/news/india-s-data-centre-industry-is-expecting-an-investment-of-us-10-billion-over-the-next-three-years-cii-colliers-report>



Emergence of 'Green Data Centres' amidst soaring energy needs and growing commitment to sustainability

Focus is also shifting towards 'green data centres' as concerns regarding sustainability are growing due to environmental concerns and escalating energy demands of the digital age. The need for these sustainable data centres arises from the colossal energy consumption associated with traditional data centres, which contribute significantly to carbon emissions. As we move towards a more conscientious approach for environmental issues, businesses are recognising the importance of adopting eco-friendly practices, and green data centres offer a solution by optimising energy efficiency and minimising environmental impact. The growth potential of green data centres is significant, fuelled by both the corporate responsibility to reduce carbon footprints and the potential for cost savings through energy efficiency.

DPDPA 2023: Revolutionising data privacy in the digital age

Current backdrop

Following years of deliberations and stakeholder consultations, the enactment of the Digital Personal Data Protection Act 2023 (**DPDPA**) heralded a transformative shift in India's data protection landscape, driving companies to reevaluate their privacy and data security strategies. It is anticipated that key rules governing the crucial aspects of the Act will be released imminently, offering greater clarity on the necessary measures to be undertaken.

Before the enactment of the DPDPA, India lacked a comprehensive or dedicated data protection framework, leaving it lagging compared to international standards regarding data privacy and protection. Such an absence of a comprehensive framework meant that India's data governance practices were seen as misaligned with the global benchmarks, potentially undermining trust and hindering business growth, particularly in the cloud services and data centre space.

What's next

The implementation of the DPDPA is seen as a catalyst for multiple business verticals in India, establishing a modernised and more comprehensive compliance threshold for data protection and privacy. This alignment not only bolsters the outsourcing industry but also benefits businesses relying on digital systems, reinforcing the overall competitiveness and adaptability of various sectors.

Expectedly, the DPDPA would enable more companies in the EU and other countries (which are bound by globally recognised frameworks akin to the General Data Protection Regulations of the EU) to now choose Indian data centres and cloud service providers for their outsourcing requirements. This will also be facilitated by the absence of specific data localisation requirement under the Act. The portfolio boost for Indian businesses will also drive-up their profitability, making them more suitable investment targets.

Simultaneously, the DPDPA may necessitate increased investments in data security infrastructure domestically to achieve compliance under the DPDPA. Companies would need to deploy advanced encryption, secure storage solutions, and robust cybersecurity measures to comply with the forthcoming regarding organisational and technical measures required for handling personal data.

Separately, the DPDPA introduces the novel concept of 'consent managers' to manage the consent preference of individuals across various platforms. In the process, these consent managers may themselves become repositories of high-value user behaviour pattern data, which will make them as lucrative targets for investments. Though a globally untested concept, this new business segment of consent managers as a service will likely be powered by AI.



Artificial intelligence: The global enabler

Current backdrop

India's digital infrastructure is swiftly advancing with a vigorous emphasis on integrating AI technologies. The ever-growing presence of AI in enhancing, personalising, and enabling user-experiences across 'daily-use' digital fronts such as smart devices, streaming services, e-commerce, digital advertising, and virtual or augmented reality, has been reshaping global consumption avenues.

All departments of the government have consistently affirmed the vision of AI integration into both public delivery systems and private sector offerings.

This is evidenced by key initiatives such as the IndiaAI portal and widespread deployment of AI across diverse sectors. This strategic emphasis on AI underscores its pivotal role in shaping India's digital future and economic growth trajectory.

What's next

The establishment of IndiaAI portal, coupled with the deployment of AI in numerous government systems, and publication of the IndiaAI report by the Ministry of Electronics and Information Technology, signifies that, for India, AI is seen as an extension of the digital infrastructure push.

The IndiaAI report articulates the government's ambition to foster 'smarter and more data-led' governance. The report is a collaboration of seven working groups which provided practical considerations and recommendations on enhancing India's AI ecosystem. According to the findings, AI is projected to contribute \$967 billion to the Indian economy by 2035 and \$450-500 billion to India's GDP by 2025. Additionally, India ranks fifth globally, in both private investment in AI and the number of newly funded AI companies.

Building upon existing initiatives such as the Draft National Data Governance Policy 2022, the report aims to augment a nationwide AI ecosystem.

India demonstrates a mission-centric approach towards developing a robust national AI ecosystem, with the objective of 'AI for All'. India aims to establish an inclusive AI ecosystem, driving both private investment and the emergence of new AI companies.

In conjunction with the DPDPA, the AI industry is poised to attract increased investments, driven by the potential measures aimed at responsible and transparent handling of personal data. This is anticipated to foster the development of 'privacy conscious' AI applications, consequently bolstering user trust in digital service delivery models.



Laying down the law: Digital Competition Act

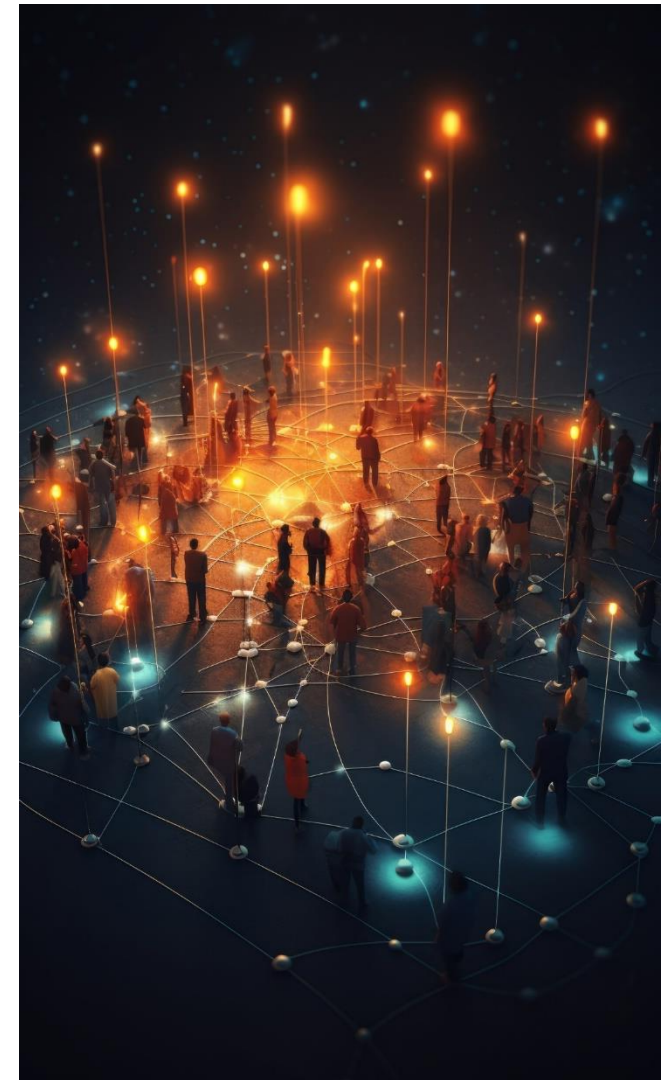
Current backdrop

On 22 December 2022, the Parliamentary Standing Committee on Finance submitted its report titled “Anti-Competitive Practices by Big Tech Companies” (“Report”). The Report identified ten different anti-competitive practices in digital markets (such as anti-steering, self-preferencing, bundling/tying, unauthorised non-public data usage to one’s own advantage, etc.) and proposed a framework for addressing their adverse impact. Upon assessment of these practices and the developments in certain foreign jurisdictions, the Report recommended the formation of the Committee on Digital Competition Law (**CDCL**) to study the possibility of introducing a Digital Competition Act (**DCA**) for ex ante regulation of digital markets (i.e., pre-determined rule-based enforcement). A nine-member CDCL was established on 6 February 2023 to study the facets of digital markets and draft the DCA.

Mr. Haigreve Khaitan, Senior Partner of Khaitan & Co, is a member of the CDCL.

What’s next

The DCA will mark a fundamental shift in Indian antitrust regulation from the Competition Commission of India’s (**CCI**) ex-post facto review of conduct to now an ex-ante framework, in the digital markets. The DCA is expected to address the ten different prevalent anti-competitive practices in digital markets as identified in the Report, and additional concerns that may be identified by the CDCL. Further, the DCA will lay down the process for identifying systematically important digital intermediaries (**SIDIs**) and lay down the new ex-ante regulatory framework that SIDIs will have to comply with under the DCA. This development comes at a time of heightened scrutiny of the digital markets by the CCI, which has already imposed penalties on Google for abusing its dominant position in two different cases pertaining to the digital markets, and is currently investigating other digital market players such as Apple, Amazon, Flipkart, WhatsApp (Meta), etc.



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