Our Views

Powering the AI Revolution: A ₹200 Lakh Crore Opportunity for Capital Markets

Before someone jumps in to say that the backbone of an AI movement is technological advancement and coding brilliance, I would politely disagree. The real backbone is the creation of AI infrastructure — the invisible highway on which AI rides and runs.

We, as consumers, see the shiny end product. We see a chatbot answering questions, an app recommending movies, or a stock exchange or bank detecting fraud in milliseconds. What we don't see is the immense work behind the curtain.

AI infrastructure spans multiple areas — land and buildings; massive electricity generation capacity and distribution grids; cooling facilities; chips (with continuous upgrades, because yesterday's chip is already a fossil); memory and storage devices; fibre and spectrum to build networks; software and its upgrades; data centres; physical and cyber security; the availability of skilled talent; and finally, the oxygen of it all — capital.

While we usually think AI infrastructure means "data centre," the reality is much broader. Power plants must generate electricity. Transmission lines must carry it. Distribution grids must ensure uninterrupted supply. Fibre must carry data at lightning speed. Spectrum must ensure connectivity. Cooling systems must prevent servers from behaving like overworked pressure cookers in May. Every piece is part of the AI infrastructure ecosystem, often loosely referred to as "data centres."

While a number of estimates and projections are being discussed, the fast pace of evolution is constantly reshaping them. However, let's still look at some numbers. India generates roughly 20% of the world's data but has only about 2% of global data storage and processing capacity. That mismatch is not just a statistic; it is an opportunity knocking loudly.

Going forward, global data centre capacity requirements are estimated at around 250 GW by 2030, of which about 120 GW already exists and 130 GW of new capacity will be required. If India were to match its 20% share of global data generation, we would need approximately 50 GW of capacity over the next few years.

A rule of thumb suggests that the all-in cost of related infrastructure, both direct and indirect, could be in the region of US$40 billion per GW. Multiply that by 50 GW, and we are staring at an investment requirement of roughly US$2 trillion.

For perspective, we still remember the famous infrastructure estimates highlighted in the mid-1990s by Dr. Rakesh Mohan, when the required investment numbers seemed astronomical. In 2019, the BJP election manifesto spoke of investing ₹100 lakh crore in infrastructure. At the time, those figures sounded bold. Today, we are discussing almost US$2 trillion (approximately ₹200 lakh crore) for one sector alone — AI infrastructure.

Most of this investment is likely to be driven by the private sector, either independently or in partnership with foreign investors. This could well become the single largest focused private-sector investment theme in India's history. The key question then is: are we equipped to finance it?

Let's analyse the nature of the financing requirement. Unlike venture capital bets on apps that may or may not survive the next funding winter, AI infrastructure is largely backed by long-term contracted revenues. A data centre, for instance, is typically leased to a large domestic or global technology service provider under long-term agreements, often spanning 20 to 25 years. This is not very different from a Power Purchase Agreement in the electricity sector, a toll road concession, or a long-term commercial lease. In other words, these are stable, predictable, annuity-like cash flow assets. Pension funds love them. Insurance companies adore them. Sovereign wealth funds feel comfortable investing in them.

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Encouragingly, Indian capital markets have matured significantly over the last decade. We now have long-term corporate bond markets steadily deepening. We have REITs and InvITs that allow infrastructure assets to be monetised and refinanced through capital markets. We have seen renewable energy platforms raise billions through public and private markets. The creation of Infrastructure Debt Funds (IDFs) to facilitate take-out financing has also strengthened the ecosystem.

In fact, India is now financing a significant part of private infrastructure spending through capital markets — a structural shift from the earlier era of bank-dominated financing. This diversification is critical when facing multi-trillion-dollar opportunities.

Will everything be smooth? Of course not. Regulatory tweaks will be required. Power distribution reforms must continue. Land acquisition processes must become more efficient. Spectrum policy must remain stable. Tax structures should encourage long-term capital. Cybersecurity frameworks must be robust. Talent development must accelerate. But structurally, the ingredients are falling into place.

There is also a strategic angle. AI infrastructure is not just a commercial opportunity; it is a national competitiveness issue. Countries that host data, control compute power, and build digital capacity will shape the next economic cycle. If India generates 20% of the world's data but stores only 2%, we are effectively exporting digital raw material and importing digital finished goods. That equation must change.

The good news is that we have done this before. Telecom looked impossible in the 1990s. Renewable energy looked aspirational in the 2000s. Highways seemed ambitious in the early 2000s. Each time, capital markets adapted, innovated, and scaled. AI infrastructure is the next chapter.

So, is India's capital market geared up to support the financing needs of AI infrastructure? In my view, yes — with the right policy nudges, regulatory fine-tuning, and institutional participation. Our AI revolution may be coded in silicon, but it will be financed in rupees, increasingly through our capital markets. And if we get this right, the servers may hum quietly in the background, but the economic growth will make a very loud noise indeed.

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