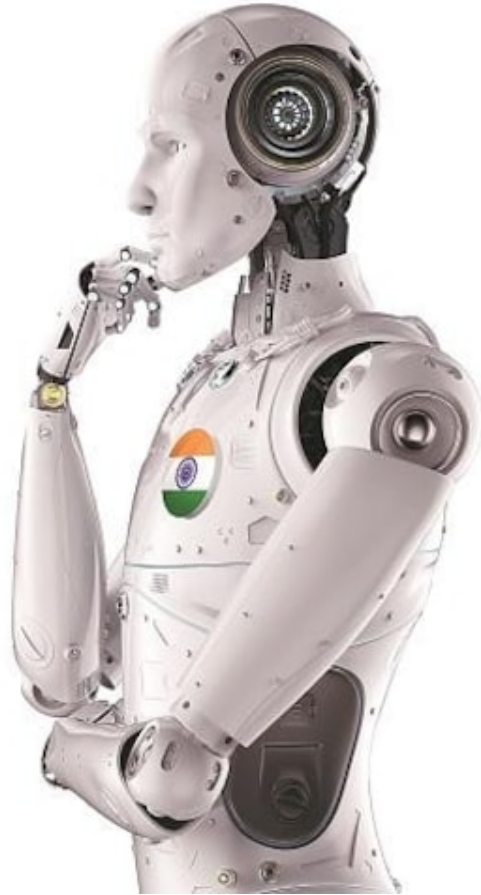


# From AI to digital infrastructure, making high-tech work for India

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On a recent visit to India, Microsoft CEO Satya Nadella was bowled over by the way technology, especially artificial intelligence (AI), was being used in the country. He especially highlighted Bhashini, an initiative which aims to make multiple Indian languages accessible via translation.

The Digital India Bhashini portal is a public digital platform on which 260 open-source API-based AI models are available for speech-to-text conversion, machine translation, and text-to-speech conversion in 11 Indian languages and English. Bhashini is also an apt example of what Finance Minister Nirmala Sitharaman said in her Budget speech -- “Make AI work for India”.

Innovators and scholars of emerging technology are seeing that one statement of the FM as a signal for laying the groundwork for a fundamental structural change in the use of technology. Says Abhay Karandikar, director of the Indian Institute of Technology (IIT), Kanpur: “The intent is very clear: to create a wider data-driven digital infrastructure.”

Karandikar reckons that it is not just AI that the government wants to focus on; it also wants to use 5G as a layer for infusing innovation among students and entrepreneurs.

V Kamakoti, director of IIT Madras, believes that “to make AI work for India”, specific applications of AI are needed that can directly impact the public. Commenting on the three proposed Centres of Excellence (CoEs), he said that they should aid the government with policy requirements and inventions to create proper AI courses and work with start-ups so as to make AI work for India.

The Budget talks of setting up three CoEs for AI. This is over and above the initiatives taken under the National AI portal, a joint programme by the ministry of electronics and information technology (MeitY), National e-Governance Division (NeGD) and Nasscom, which will focus on creating and nurturing a unified AI ecosystem in the country.

“The three CoEs will build a talent pool of skilled AI professionals who will work on India-specific application areas in priority sectors,” says Prashant Singhal, leader for emerging markets technology research at EY.

Addressing the apprehension regarding AI’s effect on employment in India, especially in the wake of ChatGPT’s success in cracking entrance examinations, Santosh Patra, associate professor at MICA, Ahmedabad, notes that the government’s focus on investing in research centres will, in fact, help Indian tech graduates prepare for the changing market.

Experts such as Sudipta Ghosh, leader of data and analytics at PwC India, however, highlight that the identification and prioritisation of the right use-cases will be critical for making AI work in India. Creating an ecosystem of industry, academia and start-ups will be crucial in this regard.

### **100 Labs for 5G applications**

Besides AI, Sitharaman also made ambitious promises for harnessing India’s 5G network. She said that 100 labs for developing applications using 5G services will be set up across engineering institutions, and these will work on providing solutions for applications such as smart classrooms, precision farming, intelligent transport systems, and health care.

Last year, the government also announced a 5G test-bed project for start-ups and industry players. A collaborative project led by IIT Madras, its goal is to provide start-ups with an end-to-end test-bed to validate their equipment for 5G services.

The 100 labs are likely to add to this start-up ecosystem incubated across India’s premier science and technology institutes. Start-ups offering niche use-cases, whether in the space of Internet of Things or machine-to-machine (M2M) communication, may benefit from these labs.

“5G is not 4G-plus,” Kamakoti emphasises. “It offers ultra-reliable low-latency communication, which minimises input lag, and has the potential to transform sectors like online education, health care, surveillance in agriculture, or simply traffic surveillance.”

IIT Kanpur’s Karandikar believes that providing access to the 5G test-beds as well as the right simulation infrastructure to students and researchers will be key for the success of these labs.

### **Data embassies in GIFT IFSC**

Experts believe that perhaps the most intriguing leg of the government’s three-pronged approach to building a comprehensive data-driven digital ecosystem lies in Sitharaman’s declaration that “for countries looking for digital continuity solutions, we will facilitate setting up their Data Embassies in GIFT IFSC.” (GIFT IFSC is a multi-services special economic zone.)

Sharath Srinivasamurthy, associate vice-president at International Data Corporation, India, explains, “The adoption of cloud globally has increased in the last few years and will continue to grow. Hence, the need to have data secured beyond borders while adhering to local regulations, is becoming critical. Setting up data embassies will help India position itself as an important player in a digital economy where other countries can secure data by leveraging diplomatic agreements. This needs reliable, resilient connectivity and infrastructure with back-up, recovery and failover capabilities coupled with a world-class physical and cyber security set-up.”

Sunil Gupta, CEO and co-founder of Yotta Data Services, adds, “Although the concept of data embassies is not new, successful implementation of this policy in India could mean a paradigm shift in the country’s positioning on the global data infrastructure map. Similar to the immunity from local laws enjoyed by foreign missions in India, the framework will extend immunity from local data laws to foreign data stored in Indian data centres, thus encouraging countries to look at India as a safe haven for data storage and processing, along with the freedom to operate the data centre as per their homeland laws.”

However, Tejas Karia, partner and head of arbitration, Shardul Amarchand Mangaldas & Co, points out, “Ensuring secure cross-border flows of information from such data centres while protecting the privacy of Indian citizens is an important challenge. The introduction of the proposed Digital Personal Data Protection Act and Digital India Act will adequately assuage these concerns by improving the legal framework in India.”

Karandikar believes that the three areas that the government wishes to focus on -- AI, 5G and data embassies -- should not be looked at individually. “It will be important to see what overarching policy framework the Centre brings under the National Data Governance Policy. What is clear is that the government is moving towards building a much more extensive and expansive digital infrastructure,” he says.

**Prashant Singhal, Emerging Markets Technology, Media & Entertainment and Telecom (TMT) Leader, EY**

“5G FWA offers an economically feasible way to enhance broadband connectivity and help students seamlessly connect to virtual classrooms, in rural areas. 3D holographic telepresence can virtually beam a teacher to a classroom in a remote location. In agriculture, 5G would boost precision farming, for instance, smart sensors on fields to get round-the-clock data on soil conditions. Moreover, autonomous drones can monitor crops and help in pesticide optimization. For a price-conscious country like India, the labs are likely to focus on developing cost-effective indigenous 5G use cases.”

**Santosh Patra, Associate Professor and Area Leader, Media and Entertainment Management, MICA - Ahmedabad**

As a concept, "Data embassies" are really good and can help with global data integration and provide possible solutions at the time of requirements. Smaller countries take the help of global tech giants to set up their cloud-based data embassies. But the challenge is, at a practical level taking the support of another country/nation-state to establish another country/nation-stated data embassy is a little complicated. There will be political implications and geo-political angles to it. Some smaller countries may take this as an opportunity, but powerful countries may see it as a digital dependency or a threat to their privacy. There will certainly be some geo-political implications on the setting of "data embassies " in India.

**Raghu Ravinutala, co-founder and CEO of conversational AI firm Yellow.ai:**

The proposal to establish three Centres of Excellence for Artificial Intelligence in top educational institutions is a move that will accelerate the country's progress towards the true democratisation of AI.

**Sangram Sabat, COO and co-founder of AI-driven SaaS start-up, Saarthi.ai:**

The CoEs will create a set of standardized practices and processes which will eventually make scaling AI easier. Making AI work for India essentially means ensuring that AI touches and impacts all sections of society, especially SMEs. Agriculture, health, education, and other fields can be further developed by the use of AI that is inclusive. I believe there will be an acceleration and more AI/ML start-ups will flourish. Further, investors and VCs are also likely to increase their funding, considering the announcement.

**Tejas Karia, Partner and Head- Arbitration, Shardul Amarchand Mangaldas & Co.**

The greater ease of doing business in IT sector will boost foreign investment and set up new Data Centres in India. Ensuring secure cross-border flows of information from such data centres while protecting the privacy of Indian citizens is an important challenge. The introduction of the proposed Digital Personal Data Protection Act and Digital India Act will adequately assuage these concerns by improving the legal framework in India.

**Sudipta Ghosh, Partner and Leader Data & Analytics, PwC India**

5G innovation labs will have to not only focus on the applicable use cases around smart manufacturing and logistics(at least to start with) but also create the ecosystem of devices and OT which will help in scaling such solutions in a cost-effective manner.

**Peeyush Vaish, Partner and Telecom sector leader, Deloitte India**

Industry leaders in each field will join forces to solve problems in agriculture, healthcare, and sustainable urban planning by conducting cross-disciplinary studies, creating novel applications, and scalable problem solutions. This will foster an efficient AI ecosystem and produce competent professionals. These new developments will be a major catalyst for the expansion of AI in India and will help elevate the country's standing in comparison to its competitors globally.