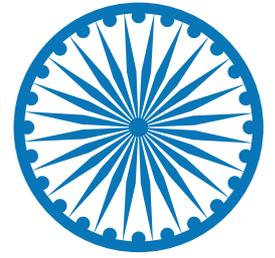


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# Connecting India to global Indians



Dear Readers,

As we step into 2026, I extend my warmest New Year wishes to our readers, partners, and the wider travel and tourism fraternity. A new year brings renewed optimism and an opportunity to reflect on the evolving dynamics shaping our industry.

One reality is unmistakable as the year begins: India has emerged as one of the world's most influential outbound travel markets. From destination marketing strategies and airline expansion plans to visa facilitation and experience design, the Indian traveler is now central to global tourism decision-making.

Our cover feature, "Outbound India: The World's Tourism Boards Compete for the Indian Traveller," explores this defining shift in the industry. Tourism boards across regions are strengthening their engagement with India through local representation, deeper trade partnerships, and more culturally nuanced storytelling. India is no longer viewed merely as a market of potential—it is a priority market demanding long-term commitment and strategic focus.

The Indian outbound traveler of 2026 is confident, informed, and value-driven. Experience, authenticity, sustainability, and purpose shape travel choices. Luxury travel continues to grow, alongside experiential and niche segments such as wellness, adventure, sports, education, and special-interest travel. Indian travelers are traveling farther, exploring newer destinations, and seeking journeys that deliver emotional connection rather than checklist tourism.

Regards,



Editor and CEO  
Richa Jain

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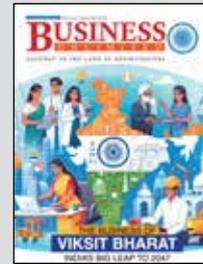
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### REGISTERED OFFICE



#### RJ Associates

55, 3rd Floor, Lane 2, Westend Marg  
Saidullajab, Near Saket Metro Station

New Delhi, Delhi 110030

Official No.: 98101 74678

Email: richa.rjassociates@gmail.com



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## INDIA TAKES THE BRICS HELM 2026, UNVEILS THEME, LOGO AND OFFICIAL WEBSITE

External Affairs Minister S. Jaishankar announced the official inauguration of India's BRICS Presidency 2026 website, theme, and logo. Union Ministers of State for External Affairs also attended the ceremony. The eleven main rising markets that make up BRICS—Brazil, China, Egypt, Ethiopia, India, Indonesia, Iran, Russia, Saudi Arabia, South Africa, and the United Arab Emirates—serve as a forum for international collaboration and consultation on important topics. With its petals in the vivid colours of the participating nations, the logo combines history and modernity to represent togetherness, while the “Namaste” gesture captures India's ethos of friendliness and cooperation. “Building for Resilience, Innovation, Cooperation, and Sustainability” is the theme for India's chairmanship, highlighting a



humanity-centric strategy that Prime Minister Modi outlined at the 2025 Rio Summit. As BRICS approaches its 20th anniversary of founding in 2006, India

aims to leverage the combined strength of its members to address intricately linked global issues, encouraging useful collaboration and communication.

## INDIA EYES EAST ASIA PUSH AS UPI SET FOR GLOBAL EXPANSION: DFS SECRETARY



Financial Services Secretary M Nagaraju stated on 13 January that India is attempting to bring its domestic digital payment system, Unified Payments Interface (UPI), to additional nations worldwide, with an emphasis on East Asia. Nagaraju, who was speaking at the Global Inclusive Finance India Summit, claimed that UPI has been instrumental in propelling the expansion of digital payments in India and currently represents over half of all digital transactions in the nation. The administration is eager to expand this success story to further foreign markets, he continued. Eight nations currently accept UPI: Bhutan, Singapore, Qatar, Mauritius, Nepal, the United Arab Emirates, Sri Lanka, and France. Indian travellers can make digital payments internationally without using cash or foreign cards because of UPI's international acceptability.

## UNION BUDGET 2026 LIKELY ON FEBRUARY 1 AS CCPA PROPOSES DATE

The Union Budget for 2026–2027 is scheduled to be presented on February 1st, according to the Cabinet Committee on Parliamentary Affairs (CCPA). This will be a rare occurrence if it is accepted,

since the administration strives to enact budget suggestions on schedule. The President's speech will kick off the Budget Session on January 28, and the Economic Survey will follow on January

29. The Union Budget will be presented by Finance Minister Nirmala Sitharaman for the ninth time in a row, making it the 88th since India's independence. In order to increase efficiency, the budget

presentation date was shifted from February 28 to February 1 starting in 2017. With her historic ninth presentation, Sitharaman is getting near to former Prime Minister Morarji Desai's record of ten budgets. After the government's third straight term in 2024, she remains in her position as India's first full-time female finance minister, having been appointed in 2019.



## INDIA STANDS FIRM WITH INTERNATIONAL SOLAR ALLIANCE DESPITE US EXIT

After the United States withdrew from 66 international organisations, including the International Solar Alliance (ISA),

India reaffirmed its commitment to the organisation. According to a senior government official, India would keep

working with ISA members, with a special emphasis on helping Least Developed Countries and Small Island Developing States with solar energy development, financing, competence building, and risk management. This action reflects the administration's distance from climate accords like the UN Framework Convention on Climate Change (UNFCCC) and follows President Trump's executive order to cease US financing for several foreign organisations. Given the US's prominent position as the world's largest polluter and largest economy, experts see the country's withdrawal as a significant setback in international climate efforts. The UN Population Fund and other climate and environmental organisations are also expected to lose US support.



## MEA ISSUES TRAVEL ADVISORY FOR INDIANS IN VENEZUELA AMID UNFOLDING SITUATION

Due to a rapidly changing security situation, the Ministry of External Affairs (MEA) advises Indian people to refrain from any non-essential travel to Venezuela. The MEA recommended increased vigilance but did not provide specific causes. It is recommended that Indians who are currently in Venezuela restrict their movement, exercise caution, and stay in touch with the Embassy in Caracas, providing contact information for support. The caution comes as tensions are reportedly rising after US forces evacuated Venezuelan leader Nicolas Maduro due to accusations of drug trafficking and

corruption against his regime, increasing hazards for foreign nationals. Indian

nationals are strongly urged to avoid any non-essential travel to Venezuela in light of recent developments in that country. The MEA stated that all Indians in Venezuela for any reason should be extremely cautious, limit their travel, and stay in touch with the Indian Embassy in Caracas.



## INDIA GENERATES 920 TPD ENERGY FROM FARM WASTE WITH 132 CBG PLANTS: PURI

According to Union Minister Hardeep Singh Puri, 132 compressed biogas facilities in India presently produce 920 TPD of electricity. He highlighted how the Sustainable Alternative Towards Affordable Transportation (SATAT) initiative has been successful in reducing emissions and increasing rural income by converting farm waste into clean fuel. Supported by a 25,429 km pipeline network, the energy infrastructure comprises 8,428 compressed natural gas (CNG) stations, 1.58 crore piped



natural gas (PNG) residences, and 33 crore LPG households. Increased access to domestic gas resources is made possible by the government's efforts to improve natural gas supply through the National Gas Grid's expansion and the implementation of unified rates. The National Gas Grid has been expanded to connect domestic gas supplies and LNG terminals to power plants, among other steps the government has taken to increase the supply of natural gas for power generation.

## TEXTILES PLI SCHEME: DEADLINE FOR FRESH APPLICATIONS EXTENDED TILL MARCH 31

The deadline for new applications under the Textile Production Linked Incentive (PLI) programme has been extended by the government to March 31, 2026. The online application site will continue to be accessible until the conclusion of the current fiscal year, according to confirmation from the Ministry of Textiles. Previously, December 31, 2025, was the deadline for new applications. Textile companies now have more time to finish the application procedure because the deadline has been extended by three



months. The government said that since the portal was launched in August 2025, textile companies have continued to respond, which prompted the decision. A reassessment of the previous timetable resulted from the several companies that submitted

bids at this time. According to reports, the extended window would give candidates more time to fulfil qualifying requirements and turn in the necessary paperwork for the programme. A total of ₹10,683 crore was spent to launch the textile PLI project in September 2021.

## NLC INDIA, GUJARAT GOVT FORGE ALLIANCE FOR MEGA RENEWABLE ENERGY PROJECTS

At the Vibrant Gujarat Regional Conference on January 12, 2026, NLC India Limited (NLCIL), a Navratna Central Public Sector Enterprise, and the Gujarati government signed a Memorandum of Understanding (MoU). The Memorandum of Understanding,

which was signed by Gujarat's Joint Secretary Bhakthi Shamal and NLCIL's Executive Director Devendra Pratap Singh, intends to develop large-scale Renewable Energy (RE) projects, such as solar, wind, hybrid, and battery energy storage, with a

potential investment of about ₹25,000 crore, creating significant employment opportunities. In line with NLCIL's Corporate Plan to reach 10 GW of renewable energy capacity by 2030, this programme is being led by NLC India Renewables Limited (NIRL), a subsidiary committed to green energy growth. In order to guarantee timely project implementation, the MoU makes it easier to get the Gujarat government to grant the required approvals and clearances.

## INDIANOIL, MARUTI SUZUKI PARTNER TO ROLL OUT VEHICLE SERVICES AT FUEL STATIONS NATIONWIDE



A Memorandum of Understanding (MoU) has been signed by Indian Oil Corporation Limited and Maruti Suzuki India Limited to install Maruti Suzuki service facilities at a number of Indian Oil petrol stations throughout the country. The goal of this programme is to give consumers a smooth experience by enabling them to get minor repairs and planned maintenance for their cars at the same places where they fill up. By strengthening Maruti Suzuki's current 5,780+ service touchpoints, the alliance gives millions

of automobile owners a "one-stop" solution. This integration would be supported by Indian Oil's vast network of more than 41,000 petrol stations, giving consumers convenience and peace of mind. Indian Oil's Saumitra P. Srivastava highlighted the company's dedication to improving customer experience through value-added services. Ram Suresh Akella of Maruti Suzuki emphasised the significance of utilising Indian Oil's wide reach to make auto servicing accessible and convenient.

## RAILTEL GOES GLOBAL, WINS MEA DATA CENTRE PROJECT IN ETHIOPIA

By obtaining a project from the Ministry of External Affairs (MEA), Government of India, to build a greenfield data centre for Ethiopia's

Ministry of Foreign Affairs in Addis Ababa, RailTel Corporation of India Ltd., a Navratna CPSE under the Ministry of Railways, has achieved a major milestone in its global expansion. This programme highlights RailTel's dedication to offering top-notch digital infrastructure outside of India and is essential to India's support of the Digital Ethiopia Strategy. The project is anticipated to be finished in a year, and after launch, operation and maintenance support will be provided for three years. In addition to thanking the MEA, the Chairman and Managing Director of RailTel reaffirmed the company's



## BHEL BAGS COAL GASIFICATION PACKAGE FOR BCGCL PROJECT

Bharat Coal Gasification and Chemicals Limited has given state-owned BHEL an order for coal gasification and raw syngas cleaning facilities for a coal-to-ammonium nitrate project in Jharsuguda, Odisha. Bharat Heavy Electricals Limited (BHEL) and Coal India Ltd (CIL) have partnered to form Bharat Coal Gasification and Chemicals Limited (BCGCL). The integrated chemical complex's primary process units, coal gasification and raw syngas cleaning facilities, are covered by the order in terms of engineering, procurement, building, commissioning, and performance guarantee. The air separation unit, coal and ash handling systems, cooling tower facilities, gasifier and related auxiliaries, and steam production plant are all included in the scope of work. The project is the first commercial-scale implementation of BHEL's proprietary Pressurised Fluidised Bed Gasification (PFBG) technology.



commitment to excellence in completing this assignment, thereby solidifying RailTel's position as a worldwide partner in digital infrastructure that is in line with India's developmental objectives. Enhancing India's standing as a technological leader in digital transformation across emerging countries is the main goal of RailTel.

## ONGC FORAYS INTO ETHANE SHIPPING THROUGH JV WITH JAPAN'S MITSUI O.S.K. LINES

Japan's Mitsui O.S.K. Lines Ltd. (MOL) and the upstream public sector giant Oil and Natural Gas Corporation Limited (ONGC) signed joint venture agreements for a 50% share in two joint venture entities, Bharat Ethane One IFSC Private Limited and Bharat Ethane Two IFSC Private Limited, registered in Gift City in Gandhinagar, Gujarat. "In each of the joint venture firms, the Maharatna company will purchase 200,000 equity shares at a price of Rs 100 apiece. The business stated in a statement that after the equity subscription is finished, the ONGC would own 50% of the equity investment in each joint venture company, with M/s Mitsui O.S.K. Lines



Ltd., Japan, holding the remaining 50%. One Very Large Ethane Carrier (VLEC)

will be owned and run by each joint venture company.

## NTPC APPROVES ₹23.16 CRORE FOR RADIOTHERAPY UPGRADE AT GCRI CENTRE



According to a Ministry of Power announcement, NTPC Limited and the Gujarat Cancer and Research Institute

(GCRI) have inked a memorandum of arrangement (MoA) to assist the enhancement of radiotherapy services

at GCRI's Siddhpur Satellite Centre in Ahmedabad. As part of the company's CSR drive, NTPC's Western Region-I Headquarters in Mumbai inked the agreement. A high-energy Linear Accelerator (LINAC), a crucial radiation device used to treat a variety of cancers, would be purchased and installed as part of the project with financial support of Rs 23.16 crore granted by NTPC. The installation of the LINAC is anticipated to improve the centre's ability to provide cutting-edge radiation therapy and increase the accessibility of high-quality cancer care services for patients, especially those from surrounding districts who depend on satellite facilities for treatment, the official statement said. Dr. Shashank Pandya, Director of GCRI, and E. Satya Phani Kumar, Regional Executive Director (West-I), NTPC, exchanged the Memorandum of Agreement.

## NHPC CMD EMPHASISES CLEAN ENERGY PUSH, REAFFIRMS NATION-BUILDING FOCUS FOR 2026

At a special event conducted at the NHPC Corporate Office in Faridabad, Bhupender Gupta, Chairman and Managing Director (CMD) of NHPC Limited Navratna Status under the Ministry of Power's auspices, presented the organisation's Vision 2026. Along with senior NHPC officers and staff, the ceremony was attended by Uttam Lal, Director (Personnel); Sanjay Kumar

Singh, Director (Projects); Suprakash Adhikari, Director (Technical); and Mahesh Kumar Sharma, Director (Finance). Speaking to the staff, Shri Gupta wished all NHPCians a happy new year and outlined the organisation's major accomplishments over the previous 12 months. He described NHPC's strategy for sustainable growth, innovation, and operational excellence

while reflecting on accomplishments made in spite of obstacles. He urged on staff to work with renewed commitment and shared responsibility to promote India's energy security and sustainable development, and he reiterated NHPC's commitment to nation-building, clean energy transition, and community development.

## GAIL GAS ANNOUNCES REDUCTION IN DOMESTIC PNG AND CNG RATES

With effect from January 1, GAIL Gas Limited has announced a price reduction of Rs 1 per Standard Cubic Meter (SCM) and Rs 1 per kg for domestic piped natural gas (PNG) and compressed natural gas (CNG) in all of its authorised areas in several states, including Uttar Pradesh, Karnataka, and Madhya Pradesh. The move aims to encourage the use of clean fuels and is consistent with the Government of India's strategy for a gas-based economy. The Petroleum and Natural Gas Regulatory Board (PNGRB) and the Ministry of Petroleum and Natural Gas are putting policies into place to encourage the expansion of the CNG and PNG markets, according to the CEO of GAIL Gas. It is anticipated that upcoming changes to the Unified Tariff, which take effect on January 1, 2026, will further lower transportation costs.



## CLEARER CALLS AHEAD: BSNL INTRODUCES VOICE OVER WI-FI ACROSS INDIA

The leading state-owned telecom company in India, Bharat Sanchar Nigam Limited (BSNL), is happy to announce the worldwide launch of Voice over WiFi (VoWiFi), popularly referred to as Wi-Fi Calling, on New Year's Eve. All BSNL customers across all telecom circles in the nation now have access to this cutting-edge solution, which guarantees smooth and excellent connectivity even in difficult situations. Customers of BSNL in every telecom circle in the nation can now access the service. VoWiFi allows users to send and receive voice messages and calls using a Wi-Fi network, providing dependable and clear access in places like basements, workplaces, residences, and distant areas with



poor cell signal strength. VoWiFi is an IMS-based service that facilitates smooth transitions between mobile and Wi-Fi networks. Without the use of third-party apps, calls are placed using the customer's current mobile number and phone dialler. In isolated and rural locations where mobile coverage may be scarce, the service is very helpful.

## RVNL WINS `201 CRORE DEAL TO SET UP WAGON OVERHAUL FACILITY FOR EAST COAST RAILWAY

On January 8, Rail Vikas Nigam Limited (RVNL) announced that East Coast Railway had granted it a Letter of Acceptance to establish a wagon Periodical Overhauling (POH) plant in Kantabanji, Odisha, with a capacity of 200 waggons. The project, which was granted in the regular course of business, entails building a facility specifically designed to perform routine wagon overhauls, which are essential to preserving operational effectiveness and safety in railway

freight transportation. The project's implementation term has been set at eighteen months. The declaration states that, GST excluded, the project's total cost is ₹201.23 crore. As the only bidder, RVNL was given the contract, and the order was classified as a domestic project. The business made it clear that the order does not qualify as a related party transaction and that neither the promoter nor the promoter group has any stake in the organisation granting the contract.

## IIT BOMBAY, NTPC ACHIEVE MILESTONE WITH INDIA'S FIRST CO<sub>2</sub> STORAGE WELL

An important development in carbon capture technology has occurred with the successful drilling of India's first geological CO<sub>2</sub> storage well by the Indian Institute of Technology (IIT) Bombay and NTPC. With simulation findings evaluating the viability of CO<sub>2</sub> storage in four significant coalfields, this partnership—which was started

under NITI Aayog in November 2022—has generated India's first geological storage atlas for evaluating CO<sub>2</sub> storage in coalfields. The 1200-meter-deep well in Pakri Barwadih, Jharkhand, was finished on November 15, 2022; on December 21, 2022, work on a second well was initiated. In order to fulfil India's net-zero obligations,

Dr V.K. Saraswat emphasised the significance of developing carbon capture, utilisation, and storage (CCUS) technology. He underlined the necessity of meticulous subsurface monitoring and characterisation throughout CO<sub>2</sub> injection procedures. Prof. Shireesh Kedare, Director of IIT Bombay, highlighted the importance of translational research in propelling India's energy transformation, while Gurdeep Singh, CMD of NTPC, recognised this accomplishment as a critical step towards decarbonisation.

# INDIA IS SPEARHEADING IN GLOBAL DIGITAL ECONOMY RACE: SARAF



 **DEVARSH SARAF**  
Founder and CEO  
Bombay Founders' Club

*Driven by scale, creativity, and inclusive digital infrastructure, India is quickly becoming a worldwide leader in the digital economy. Flagship programmes including the India Stack, Aadhaar, UPI, and Digital India have revolutionised financial inclusion, government, and commerce by facilitating billions of smooth online transactions each month. India is now regarded as a paradigm for affordable, interoperable digital payments thanks to UPI's global spread. Growth in a number of industries, including fintech, e-commerce, healthtech, and edtech, is being accelerated by a robust startup ecosystem, robust IT and SaaS capabilities, and a youthful, tech-savvy populace. India's digital backbone is getting stronger because of developments in 5G, cloud computing, artificial intelligence, and semiconductor manufacturing. ONDC and other government-run platforms are democratising digital markets for entrepreneurs and small companies. In an exclusive interview with Business Unlimited, Devarsh Saraf, founder and CEO of the Bombay Founders' Club, discussed the new digital expansion in detail. He explained how India's digital ecosystem will not only improve digital transactions but also establish India as a global leader in the digital space.*

## **How do you envisage the growth of India's digital economy?**

**DS** If you step back and look at where India is today, it's clear that the digital economy has crossed an important threshold. We are no longer in a phase where the story is about getting people online or teaching them how to use digital tools. That part has largely

happened. Platforms like Aadhaar, UPI and DigiLocker aren't "tech products" anymore but a part of the economy's backbone. Payments, identity checks, onboarding and service delivery happen almost invisibly in the background. That's a big shift because it removes friction from everyday economic activity.

UPI is a good example. It started as a payment system, but today it supports credit flows, small business cash management and day-to-day commerce. Digital identity and consent systems are now integral to banking, welfare and enterprise onboarding. At the same time, there's been a quiet but significant build-out of cloud infrastructure, data centres and enterprise software, backed by long-term investment from both Indian and global players.

The next chapter will be driven by AI. And AI in India is not replacing systems but sitting on top of them. It's helping automate credit decisions, fraud detection, diagnostics, logistics and public services. Going forward, growth won't come from adding more users but from doing more with every transaction, worker and enterprise. This will make digital a permanent growth engine, not a separate sector.

**India's digital economy aims to fuel its growth into a developed nation by 2047, targeting a \$23–35 trillion GDP. What are your views and how can this goal be achieved?**

**DS** We can but only if we're honest about where the growth will come from. Technology sectors alone won't get us there. The real impact has to come from improving productivity in agriculture, MSMEs, logistics, healthcare and education.

These platforms are designed to work at massive scale and at low cost. Initiatives around sovereign cloud, national AI programmes, expanding compute capacity and applying AI in priority sectors are all about turning digital capability into real economic value. If implemented well, these systems can reduce leakages, improve capital efficiency and raise output across millions of small enterprises. That's where the multiplier effect lies.

There's also an external opportunity. India has built digital systems that many countries are now studying, such

as, open payments, digital identity and open commerce. Exporting these models to other emerging economies adds another growth lever. When you combine domestic productivity gains with digital exports, the 2047 target becomes less about ambition and more about consistent execution.

**Many startups are coming up with innovative frameworks to further enhance the country's digital economy. What are your thoughts and how is the success rate?**

**DS** I think the startup ecosystem in India has matured noticeably. A few years ago, most innovation was centred around consumer apps and rapid user growth. Today, the focus has shifted.

## **What's encouraging is that these startups are solving real operational problems. They're not just chasing scale but improving how things work.**

Many startups are now working on enterprise software, fintech infrastructure, AI-led sectoral solutions and compliance systems that plug directly into national digital platforms. You see this in areas like agriculture diagnostics, logistics optimisation, health screening and automated underwriting.

What's encouraging is that these startups are solving real operational problems. They're not just chasing scale but improving how things work. That has not only raised the bar for success but has also improved quality.

Funding has become more disciplined since 2024, which means not every startup will survive. But the ones that

align with national infrastructure, show clear unit economics and deliver measurable productivity gains are building more durable businesses. In the long run, efficiency-led innovation will outlast hype-led growth.

**Expansion of internet access and digital literacy has added much-needed fodder for the country's digital growth. How can this leg be stretched further, especially in rural India, and what are the disparities?**

**DS** India has done exceptionally well on digital access. In sheer numbers, internet penetration is close to universal. But access and impact are not the same thing. In many rural areas, issues like inconsistent connectivity, limited device access and low functional digital literacy still hold people back. As a result, urban users tend to use digital tools for earning, learning and transacting, while rural users often use them mainly for communication and content.

An ecosystem with good connectivity, local-language platforms and practical training allows rural users to adopt digital tools for farming decisions, running small businesses and accessing healthcare. But without these, internet access alone won't change the outcome.

Digital literacy must be linked to income, productivity and resilience. Investments in power, high-quality connectivity and locally relevant platforms are equally important. Rural India doesn't just need to be online but also economically empowered.

**What are the major hurdles that are holding the growth rate of digital infrastructure in India and what are the potential solutions?**

**DS** Interestingly, demand isn't the problem. The challenges are mostly operational and regulatory. Delays in right-of-way approvals, inconsistent state policies and long timelines slow down infrastructure rollout. Data

centres are also under pressure, particularly around power availability, water usage and sustainability, even as demand for computing and storage keeps rising.

As more systems move online, cybersecurity and governance have become critical. Trust and resilience are no longer optional. Interoperability gaps between systems also add cost and complexity at scale.

The solution is to treat digital infrastructure the same way we treat roads or power, as essential national infrastructure. Faster approvals, common standards, incentives for green data centres and clear cyber resilience norms would go a long way. What matters now is predictability and disciplined execution.

***With strong backing from Narendra Modi, how is this support aiding the digital infrastructure sector?***

**DS** One of the most underrated advantages India has had is policy continuity. Digital infrastructure requires long-term commitment, and consistent political backing has allowed initiatives to move beyond pilots and become national platforms.

This has given confidence to investors and operators. We've seen strong public and private investment in telecom, cloud infrastructure, data centres and digital public platforms. Coordination between the Centre and states has also improved, which is often the hardest part of execution. For industry players, this reduces risk and encourages building capacity ahead of demand. That confidence is crucial for long-term growth.

***What key digital solutions is your firm offering that can be considered as one of the changemakers of the country's digital space?***

**DS** Our work is centred on building digital systems that can scale reliably. Instead of deploying isolated



***As India's digital economy matures, stability and reliability will matter as much as innovation. Our goal is to help institutions grow without breaking under scale.***

technologies, we focus on platforms that integrate cloud infrastructure, data systems and automation.

A significant part of what we do is modernising legacy systems and connecting them to national digital infrastructure. This allows organisations to exchange data in real time, make faster decisions and operate with greater resilience. Security and compliance are built in from day one because these systems are mission critical.

As India's digital economy matures, stability and reliability will matter as much as innovation. Our goal is to

help institutions grow without breaking under scale.

***What further support is required by the industry from the current government to make India a frontrunner in this domain?***

**DS** At this point, the industry doesn't need more announcements but faster execution. Clear and timely implementation of existing frameworks, simpler compliance processes and well-defined rules around AI governance, data usage and cross-border operations would unlock significant investment.

Skilling is another priority. As adoption of AI, cloud and cybersecurity accelerate, talent shortages could become a real constraint. Large-scale, outcome-driven skilling programmes are essential.

Finally, India should actively take its digital systems to the world. Supporting global pilots, standards alignment and international partnerships will help Indian platforms scale beyond our borders. That's how India becomes not just a large digital economy but a global digital systems leader. ■

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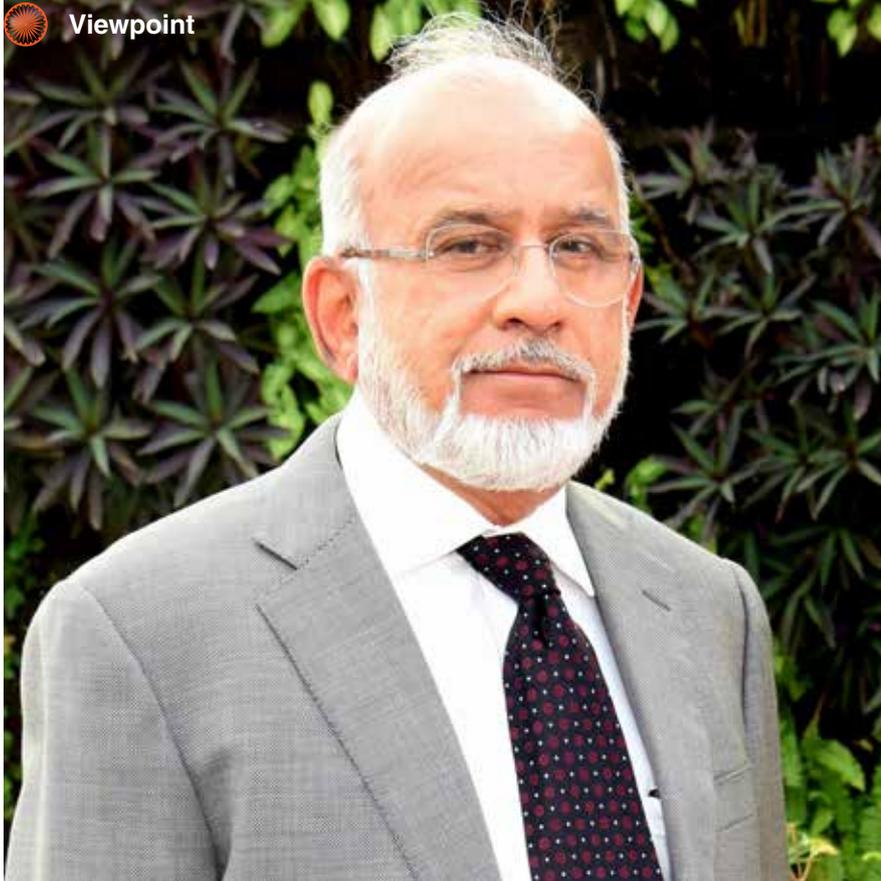
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◀◀  
**JUZAR KHORAKIWALA,**  
Chairman and MD,  
Biostadt India Ltd

*How do you envisage the future of Smart farming in India and how it is aligned with Viksit Bharat?*

**JK** India faces a daunting predicament as its agricultural acreage rapidly diminishes due to urbanization, industrialization, and the impact of climate change. The shrinking agricultural acreage is a major challenge for India, as it needs to produce enough food to feed its growing population. As far as Viksit Bharat is concerned, smart farming is seen as essential to realising the vision of Viksit Bharat @2047, with business and government leaders stressing the use of technology and sustainable practices to change traditional agriculture. Smart farming promotes precision agriculture with modern, sophisticated technology and enables farmers to remotely monitor the crops. The technologies convert traditional farming methods to automatic devices, causing a technological revolution in agriculture. Today, the technology in agriculture has altered the way farming is conducted, and conventional techniques have been transformed by the Internet of Things (IoT). These AI-driven systems, open-source software, and other digital tools will be useful to revolutionize farming practices. Like many other countries, India too is slowly beginning to embrace this

# SMART FARMING THE CORE SOUL OF 'VIKSIT BHARAT': KHORKIWALA

*Integral to Viksit Bharat is smart farming, which is turning India's agricultural sector into a robust, tech-driven growth engine. Smart farming allows farmers to make data-driven decisions that increase productivity while saving resources by combining digital tools like satellite mapping, IoT-based sensors, drones, AI-powered analytics, and precision agriculture. For a country like India that is vulnerable to climate change, it minimises expenses and environmental impact by optimising the use of energy, water, and fertilisers. In addition to increasing output, smart farming gives small and marginal farmers access to data on soil health, market prices, real-time weather updates, and loan connections. This shift is being accelerated by government programmes that support digital platforms, farm mechanisation, and agritech firms. In order to provide more insightful industrial updates on the subject, Juzar Khorakiwala, Chairman and MD, Biostadt India Ltd. had an elaborated conversation with Business Unlimited where he touch down on the key elements of smart farming and how it is aligned with 'Viksit Bharat @2047'.*

transformative trend to enhance food production and consumption efficiency. However, conventional farming practices yet control the watering of crops and spraying of crop protection chemicals. Smart farming targeted towards these tasks will enable precision and improve efficiency of the activities throughout the area.

### ***Do you feel these budding start-ups are adding more technical muscle to India's agriculture sector and these startups are acting as a catalyst for Viksit Bharat?***

**JK** In order to turn the agriculture sector into a technology-driven, climate-resilient, and value-added enterprise, Viksit Bharat 2047 places a strong emphasis on integrating startups. Startups are thought to be essential for fostering innovation, creating jobs, and guaranteeing the prosperity of farmers. To increase productivity and efficiency, startups are utilising cutting-edge technology like AI, IoT, drones, and data analytics. These developments aid in addressing issues including resource inefficiency, low production, and vulnerability to climate change.

As the sector continues to grow, it has the potential to not only transform India's agriculture sector but also create new employment opportunities and contribute towards the growth of the country's economy. As we move forward, it is important for agriculture startups to stay focused on their mission of self-reliance and sustainability, building on the successes of the past. The vision of a self-reliant India is deeply embedded in the startup ecosystem and will remain a guiding force for the years to come.

### ***Which modern technology are driving the agriculture industry?***

**JK** Today, technological advancements are integral to attaining sustainability goals in agriculture. Satellite and GPS technologies, sensors, smart irrigation, drones,

and automation, biotechnology, to list a few, provide the means for smart farming, which further aids in effective resource utilization. On the one hand, they reduce the use of harmful agrochemicals and, on the other, they help conserve non-renewable resources. They also help agriculturists to prepare well in advance for unseasonal or extreme weather events, thereby reducing crop losses during such events.

### ***Do you feel that as more technology is infused into the system there are greater chances of reducing food wastage?***

**JK** Technology in agriculture affects many areas of agriculture, such as fertilizers, crop protection chemicals, seed technology, etc. Biotechnology and genetic engineering have resulted in pest resistance and increased crop yields. Mechanization has led to efficient tilling, harvesting, and a reduction in manual labor. Irrigation methods and transportation systems have improved, and processing machinery has reduced food wastage. It is worth mentioning that Viksit Bharat @2047 prioritises reducing food waste. This will be achieved through various strategies, such as initiatives like Mission LiFE, implementing sustainable food systems, boosting the food processing industry, and utilising agricultural waste for resources like bio-bitumen. This strategy supports environmental sustainability, increases farmer income, improves food security, and fosters green jobs—all of which are in line with the goal of a developed and independent country.

### ***What are the major challenges in imbedding technological solutions into India's agri sector?***

**JK** Despite its potential benefits, precision agriculture also faces some challenges that hinder its adoption and implementation. One of the main challenges is the high cost and complexity of the technologies involved. Farmers need to invest in equipment, software, and training to use precision agriculture tools, which may not be affordable or accessible for many, especially smallholders and developing countries. Another challenge is the lack of interoperability

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## **As the sector continues to grow, it has the potential to not only transform India's agriculture sector but also create new employment opportunities and contribute towards the growth of the country's economy.**

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and standardization among different devices and platforms, which can create compatibility and data quality issues. Moreover, farmers may face legal, ethical, and social barriers related to data ownership, privacy, and security, as well as consumer acceptance and trust.

### ***What more is needed from the government so that this technological web can further penetrate in the country?***

**JK** One of the most important ways in which governments can encourage technological innovation is by investing in R&D. Government funding can help companies overcome the high costs and long development time associated with R&D. This would help support scientific research, the development of new technologies, and the testing of innovative products and services. This funding can come from a variety of sources, including government grants,



## The Government also needs to give some subsidies for the adoption of new tech so as to ascertain cost effectiveness.

tax incentives. Need more extension work to transfer the new technology towards farmers.

### ***Are the farmers aware of smart farming technologies? How are they reacting to this development?***

**JK** There is category of farmers who grow cash crop like grapes, apples & other fruits crops or other crops which increase their income. Mostly only these farmers are aware about the new or smart technologies. They have also started to use some new technology such as smart irrigation technology. With this, farmers irrigate their fields at particular soil moisture deficits and

also use technology for the application of fertilizers after soil testing or petiole/ plant leaf testing. However, marginal farmers are not so aware about new technologies up to a certain extent.

### ***Smart farming technologies are meant for enhancing the production and quality, but how cost-effective are they?***

**JK** The timely use of sensors has made the entire farming operation smart and cost-effective, due to precise monitoring. The various autonomous harvesters, robotic weeders, and drones have sensors attached to collect data over short intervals. As

agricultural technologies allow us to meet the food needs of the world's expanding population, it is clear that we can't turn our backs on them. But we can make their negative effects less severe by using and improving precision agricultural techniques that go hand in hand with eco-friendly practices. Because these technologies have the potential to reduce or even eliminate the adverse impacts of conventional farming methods, they help solve a wide range of environmental problems. In this way, industrial agricultural producers may be able to increase their competitive edge and benefit global long-term welfare at the same time. To make it cost effective, extensive work is required to show farmers the productivity of new technology and the investment vs Profit. The Government also needs to give some subsidies for the adoption of new tech so as to ascertain cost effectiveness. ■



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**WIETSE TER VELD**  
Green Hydrogen Expert  
at Atkins

*Green hydrogen is emerging as a revolutionary catalyst that is altering India's industrial ecology and energy landscape as India speeds up its transition to a sustainable energy future. In addition to being an environmental milestone, the government's ambitious goal of producing 5 million metric tonnes (MMT) of green hydrogen by 2030 is a strategic move towards energy security, industrial competitiveness, and global climate leadership. These goals are in line with India's COP26 pledge to reach net-zero emissions by 2070. India's economy is expanding quickly; thus, it needs to boost growth while reducing emissions. Similarly, Middle East is also shifting its energy matrix from being fossil fuel to sustainable energy generation. It is expected that India and MENA region will play a pivotal role in the production of low-carbon hydrogen. Wietse ter Veld, Green Hydrogen Expert at Atkins, in an interview with Business Unlimited, emphasises the importance of green hydrogen as he discusses the future prospects of energy transition in India and MENA region.*

# INDIA'S ENERGY MARKET IS POISED TO LEAD GREEN HYDROGEN PRODUCTION - WIETSE TER VELD

**What are your thoughts on energy transition in Middle East region as it is always considered as fossil fuel driven economy?**

**WTV** According to what I understand, the United Arab Emirates (UAE) intends to quickly capture 25% of the global hydrogen market. Every year, almost 300,000 metric tonnes of hydrogen are produced using natural gas that comes from fossil fuels. Thus,

anticipate a significant rise in the need for hydrogen worldwide in the future, possibly reaching 600 million metric tonnes. The UAE would receive 150 million metric tonnes at a 25% capture rate. In comparison to current output levels, that represents a significant rise. Additionally, in order to produce "green" or "blue" hydrogen, all of the carbon dioxide released during the process must be sequestered. The growth rate will consequently soar. And that's the

UAE's ultimate objective, as far as anyone can determine at the moment. People are already acting, and plans are being implemented.

### **How Green Hydrogen can be considered as a game changer for India's energy Sector?**

**WFTV** Solar and wind power have long been the cornerstones of India's sustainable energy transformation. On the other hand, green hydrogen offers an essential new dimension. Green hydrogen, which is created by electrolysis utilising renewable energy, is a carbon-free alternative to fossil fuels. In contrast to intermittent renewables, hydrogen provides a flexible, transportable, and storable energy vector, enabling decarbonisation in industries like steel production, chemical processing, heavy transportation, and refining that have historically opposed electrification.

### **Why Green Hydrogen is considered the best sustainable option over its alternatives?**

**WFTV** The potential of green hydrogen goes beyond its direct application in the production of derivatives. Green ammonia, for example, has revolutionary potential to decarbonise fertiliser production. One alternative maritime fuel that is helping to decarbonise international trade is methanol. In heavy industry and aviation, where direct electrification is still impractical, synthetic fuels offer routes to clean energy. Green hydrogen is not just a fuel substitute but also a key component of industrial modernisation, with countless possibilities.

### **If we look at global developments, currently there is a massive competition globally to produce green hydrogen on affordable rates, what are your thoughts on this?**

**WFTV** There is a big drive to obtain hydrogen at a far lower cost than what is now accessible, and developments

are taking place in Europe, Chile, and the US. The cost of producing a kilogramme of hydrogen is currently between \$2 and \$5, but it could reach \$7 or \$8. Electricity is the single largest contributor to the cost of manufacturing hydrogen, accounting for 60–70% of the LCOH when hydrogen is created via electrolysis utilising renewable resources. We're trying to figure out how to lower the total cost of electricity because of this. Furthermore, neither Saudi Arabia nor the United Arab Emirates would be a poor decision. The cost of solar energy can be lowered to \$10 to \$20 per megawatt-hour. The region is now on track to meet the \$1 per kilogramme target. The cost of the entire value chain, including the equipment, must be halved. I think it will be feasible in this field within the next ten or so years.

### **What are the major issues that are hampering the growth of Green Hydrogen adoption globally?**

**WFTV** Every link in the hydrogen value chain faces challenges, but green hydrogen is especially susceptible. Even though a lot of technology has been around for decades, it is continually evolving. The technical value chain is the sum of its parts and is not static. Additionally, the financial rationale is evolving. It's not like you have paying clients after building an electrical generator. You don't know who or what will purchase your green hydrogen when you initially start making it. As with the replacement of fossil fuels and their use as an energy element, everyone wants to use green hydrogen as a feedstock and replace the current grey hydrogen with that feedstock. We know that we are in need of it. Additionally, there is a strong drive to decarbonise the European Union (EU) at the moment for both economic reasons related to the conflict in Ukraine and climate change. In terms of defining "green", the European Union is leading the way. As the idea evolves, many regions of Asia and the US are still attempting to define what "green" means.

### **As per you, what would be the perfect roadmap for future of India's Green Hydrogen transformation?**

**WFTV** The industrial diversification of India provides favourable conditions for the early adoption of green hydrogen. India's place in the global supply chain for clean energy is about to be redefined by coastal corridors like Tamil Nadu and Gujarat. According to the Prime Minister's "Viksit Bharat 2047" vision, green hydrogen has the potential to make India a developed, climate-resilient country driven by domestic innovation and environmentally friendly infrastructure. More than just a fuel, green hydrogen offers a plan for a revival of industry. India can become a global leader in the hydrogen economy and decarbonise its industries with strategic clarity, supportive policies, and targeted implementation. Green hydrogen is a national opportunity to spearhead the next phase of global industrial development, not just a clean energy project. India must take advantage of this opportunity to become a cost leader and hydrogen export powerhouse, given its geographical location and one of the lowest costs for renewable energy.

### **How is Atkins planning to address these challenges and what potentials do you see in the Indian Market?**

**WFTV** When the sun isn't shining and the wind isn't blowing, making the business case and designing a project with details like "how you're going to do that" and "where exactly the power is going to come from" becomes challenging. These are the challenges we encounter, and my business is working to get over them. We are in charge of a number of initiatives. I have to be a little careful about where my clients are and who they are. However, we have regional projects in the United Arab Emirates this year for a number of companies in Egypt and Oman. We see India as a growing force in the hydrogen and renewable energy sectors, which is why we have entered the Indian market.

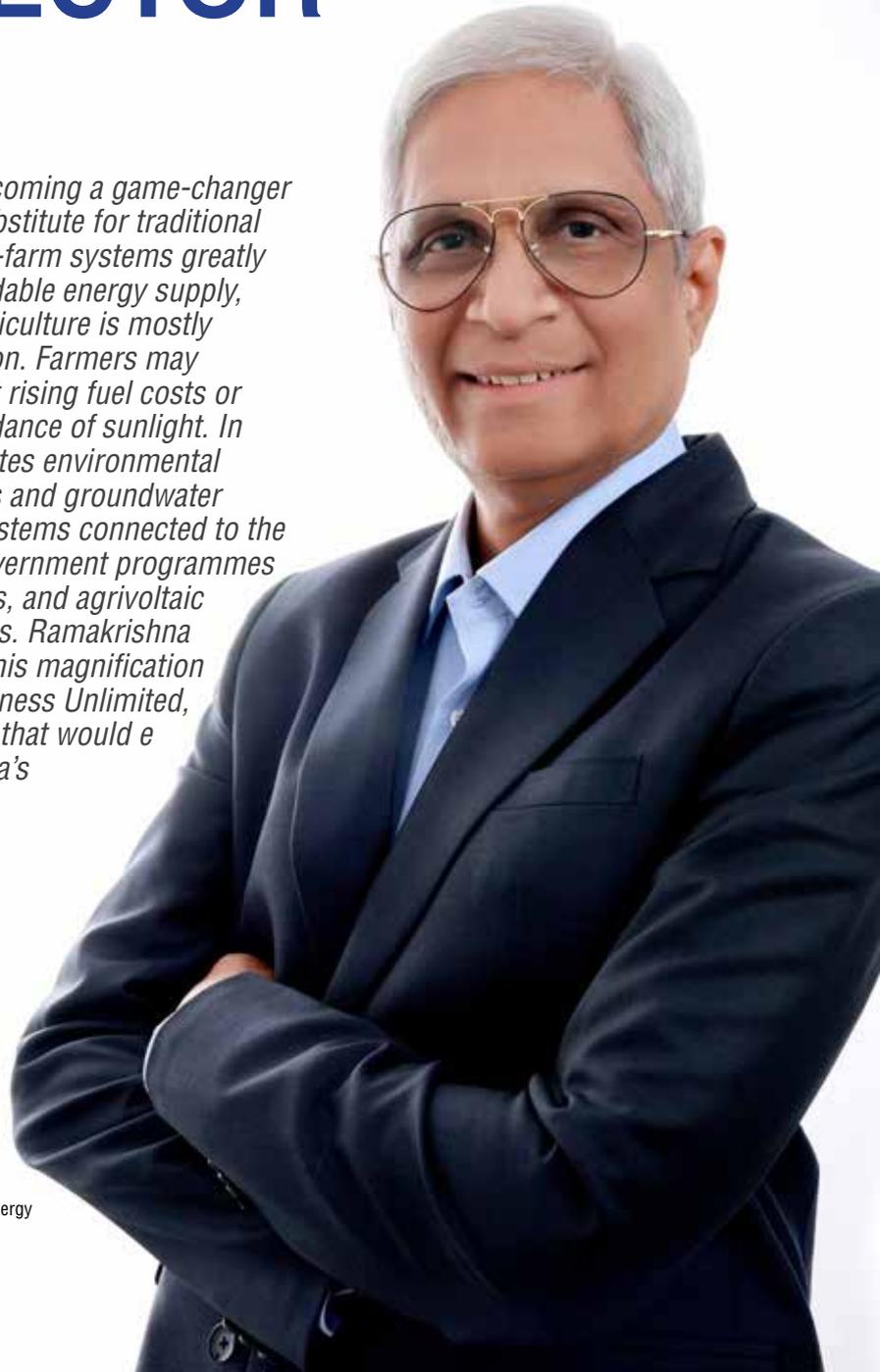
# SOLAR ENERGY PROVIDING A SUSTAINABLE AND COST-EFFECTIVE SOLUTION TO INDIA'S FARMING SECTOR- SATALURI

*In India's farming industry, solar energy is becoming a game-changer by providing an affordable and sustainable substitute for traditional power sources. Solar-powered pumps and on-farm systems greatly lower input costs while guaranteeing a dependable energy supply, especially in isolated rural locations, since agriculture is mostly dependent on electricity and diesel for irrigation. Farmers may effectively water fields without worrying about rising fuel costs or unstable power supplies by utilising the abundance of sunlight. In addition to saving money, solar energy promotes environmental sustainability by minimising carbon emissions and groundwater overextraction through intelligent irrigation systems connected to the sun. Adoption is also being accelerated by government programmes that support rooftop solar panels, solar pumps, and agrivoltaic models, which combine solar panels and crops. Ramakrishna Sataluri, CEO of Shakti Energy Solutions, put his magnification skills to use in an in-depth interview with Business Unlimited, during which he sought to identify the factors that would encourage the expansion of solar power in India's agricultural sector.*

**How do you envisage the future of India's solar and green energy sector?**

**RS** India's solar and green energy sector is entering a decisive decade, backed by strong policy intent and sustained government action. According to the Ministry of New & Renewable Energy (MNRE), India has already installed a cumulative solar

**▶▶**  
**RAMAKRISHNA SATALURI,**  
CEO of Shakti Energy Solutions



power capacity of around 132.85 GW, including utility-scale, rooftop, hybrid, and off-grid systems making solar the largest contributor to the country's renewable energy mix.

This growth underscores India's shift from capacity addition to energy transformation, aligning with its goal of achieving 500 GW of non-fossil fuel capacity by 2030. Policy initiatives such as large solar parks, rooftop programs, storage integration, and incentives for domestic manufacturing are accelerating solar adoption across utility, commercial, and agricultural sectors. In addition, the National Green Hydrogen Mission, targeting around 5 million tonnes of green hydrogen production annually by 2030, will further decarbonize sectors like industry and heavy transport. With decreasing solar tariffs, advancements in storage technology, and a robust policy ecosystem, India is well positioned to lead the global clean energy transition, ensuring energy security, economic growth, and climate resilience.

### ***Agriculture is still considered the backbone of the Indian economy. How is the solar sector driving its growth and sustainability?***

**RS** Agriculture's dependence on erratic grid supply and diesel has historically limited productivity and increased costs for farmers. Solar energy is fundamentally changing this equation. Solar-powered solutions are enabling reliable, affordable, and clean energy access at the farm level. From irrigation to post-harvest processing, solar is reducing input costs, increasing crop predictability, and making farming more resilient to climate uncertainties. Most importantly, it empowers farmers by giving them control over energy—transforming agriculture into a more sustainable and energy-efficient sector.

### ***Can you shed light on India's National Solar Mission and its impact on the economy?***

## **India's clean energy journey is well planned & all encompassing it is about empowering farmers, Rooftops, large projects, strengthening industry, creating Employment and building a sustainable future.**

**RS** The National Solar Mission is a landmark initiative in India's renewable journey. It has not only accelerated solar adoption but also catalyzed economic growth, employment generation, and industrial development.

By driving large-scale installations, promoting domestic manufacturing, and enabling decentralized energy systems, the mission has reduced India's fossil fuel dependence and foreign exchange outflow. In the long term, it positions India as a clean-energy leader while ensuring energy security for a rapidly growing economy.

### ***Water is a major concern in Indian agriculture. How do solar-powered irrigation solutions help address this challenge?***

**RS** Solar-powered irrigation solutions play a crucial role in addressing both energy and water challenges simultaneously.

With solar pumps, farmers receive assured daytime power, allowing them to irrigate crops efficiently without over-extracting groundwater. When combined with micro-irrigation and smart controls, solar solutions promote judicious water usage, reduce

wastage, and improve crop yields. This alignment of clean energy with water conservation is critical for achieving India's agricultural sustainability goals.

### ***What are the major challenges in installing and operating solar-driven solutions in India's agriculture sector?***

**RS** While the adoption of solar-driven solutions in agriculture has grown significantly, certain challenges still need to be addressed. These include high upfront costs for small and marginal farmers, varying site and soil conditions, awareness gaps in rural regions, and the need for reliable installation and long-term service support.

At the same time, these challenges also present opportunities for innovation and indigenous manufacturing. Shakti Pumps has been a front runner in indigenous manufacturing of state-of-the-art solar pumps, module mounting structures, conducive to Indian weather conditions and a strong fleet for installation and post-sale support to ensure farmer delight.

By combining technology, localized manufacturing, and a strong service ecosystem, such solutions help overcome operational challenges while delivering consistent value to farmers.

### ***How does strong government backing help India compete with international players in the solar sector?***

**RS** The government's proactive leadership particularly under Honorable Prime Minister Shri Narendra Modi has placed solar energy at the center of India's global diplomacy and economic strategy.

Initiatives like the International Solar Alliance, production-linked incentives (PLI), and large-scale tendering have created a predictable and attractive ecosystem for investments. ■

# MADHYA PRADESH TOURISM DRIVES GROWTH AND JOBS IN LINE WITH VIKSIT BHARAT 2047 VISION

*The “Viksit Bharat 2047” initiative outlines the government’s ambitious blueprint for transforming India into a fully developed nation by 2047, the centennial anniversary of its independence. The central goal of this vision is to promote widespread and inclusive economic engagement. Madhya Pradesh Tourism is aligning its vision with the national goal of Viksit Bharat 2047, positioning tourism as a key driver of inclusive growth, employment generation, and sustainable development. With its rich cultural heritage, wildlife reserves, spiritual circuits, and UNESCO World Heritage Sites, the state is focusing on responsible tourism that balances economic progress with conservation. Providing a wider spectrum of MP Tourism aligning its focus with Viksit Bharat 2047, Dr. Abhay Arvind Bedekar, Additional Managing Director, Madhya Pradesh Tourism Board shares board’s vision and roadmap to achieve the set goals.*

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**How do you envisage the future of Madhya Pradesh Tourism as it aligns itself with Viksit Bharat 2047?**

**AAB** Aligned with the vision of Viksit Bharat 2047, Madhya Pradesh Tourism is emerging as a key driver of economic growth, employment and inclusive development. Tourism is poised to become one of the state’s most powerful growth engines over the next two decades.

Since 2016, the sector has delivered over 200 projects, added 10,000+ hotel rooms and generated nearly 34 lakh livelihoods, underscoring tourism’s growing economic impact. Strategic initiatives such as the Rewa Regional Tourism Conclave, Gwalior RTC, and sustained MPTM-led investments have accelerated development across heritage, hospitality and tourism infrastructure, strengthening both urban and rural circuits. Collectively, these efforts have mobilised over ₹10,000 crore in tourism-related investments. At the Global Investors Summit 2025, tourism and hospitality attracted ₹4,400+ crore



in investment proposals, reaffirming strong investor confidence in Madhya Pradesh.

Looking ahead, tourism is projected to contribute 5% to the state GDP by 2028 and 8–10% by 2047, positioning it as a cornerstone of Viksit Bharat 2047.

***Can you shed some light on the roadmap of ‘Sustainable and Responsible Tourism’ which is also an essential part of Viksit Bharat?***

Sustainable and Responsible Tourism is central to Madhya Pradesh’s contribution to Viksit Bharat, especially given our unique ecological assets and global biodiversity significance. As India’s leading wildlife state—with 11 National Parks, 24 Wildlife Sanctuaries and 9 Tiger Reserves, and recognition as the Tiger, Leopard, Vulture, Ghariyal, Wolf and Cheetah State—we carry a special responsibility to ensure that tourism growth remains firmly conservation-led.

Under Vision 2026, tourism development in forested and eco-

**Sustainable and Responsible Tourism is central to Madhya Pradesh’s contribution to Viksit Bharat, especially given our unique ecological assets and global biodiversity significance.**

sensitive regions is guided by Eco-Sensitive Zone (ESZ) planning, conservation-first land-use strategies and regulated visitor management.

Wildlife tourism is being reimagined through new national parks, the Cheetah Safari, and conservation-led forest retreats at Kuno and Gandhi Sagar, supported by scientific wildlife management, habitat protection and strict sustainability protocols. The state is consciously moving away from volume-driven tourism towards low-impact, awareness-led experiences, including guided nature walks, birding circuits, interpretation centres and eco-retreats across Kanha, Bandhavgarh, Pench and Satpura—each operating within clearly defined carrying-capacity norms.

***What steps is the state government taking to chalk out the right plan to promote its natural and wildlife legacy?***

The state government of Madhya Pradesh is actively promoting its rich natural and wildlife heritage through a range of targeted initiatives that showcase biodiversity, enhance visitor access and strengthen conservation-linked tourism.

A cornerstone of this strategy is the promotion of jungle safaris across the state’s premier wildlife destinations—including Bandhavgarh, Kanha, Pench, Panna and Satpura National Parks and Tiger Reserves—where guided safari experiences bring travellers face-to-face with tigers, leopards,

deer, birds and other iconic wildlife, supported by structured booking and expert naturalists.

To diversify wildlife offerings, the government has elevated Kuno National Park as a flagship eco-tourism destination with the Kuno Forest Retreat, combining cheetah sightings (including India's cheetah population), luxury glamping, nature activities and community engagement.

***One of the key initiatives of 'Viksit Bharat MP@2047' is promoting the state's rich cultural heritage globally. What major steps is MP state government taking to drive this initiative?***

Promoting Madhya Pradesh's rich cultural heritage on the global stage is a key pillar of Viksit Bharat MP@2047, and the state government is advancing this through a combination of signature cultural platforms, heritage-led tourism initiatives and national-international outreach.

Flagship cultural festivals such as the Tansen Music Festival in Gwalior and the Khajuraho Dance Festival (KDF) serve as powerful global showcases of India's classical music and dance traditions, drawing international artistes, scholars and audiences to Madhya Pradesh year after year. Heritage-based tourism experiences are being strengthened through initiatives such as the Eco Retreat at Chanderi, a historic town known for its forts, handloom traditions and architectural legacy.

***What are the major challenges for the state that could be considered as roadblocks in its growth and expansion of its tourism industry?***

Madhya Pradesh approaches tourism development with long-term planning, particularly because many of its heritage towns, wildlife destinations and rural circuits are located in pristine, low-density landscapes. While this naturally requires sustained attention to last-mile

## **Madhya Pradesh approaches tourism development with long-term planning, particularly because many of its heritage towns, wildlife destinations and rural circuits are located in pristine, low-density landscapes.**

connectivity, the state has proactively addressed this through integrated mobility and access solutions rather than ad-hoc expansion.

A key achievement in this direction is the strengthening of air connectivity through regional aviation and heli-based services, enabling faster access to remote cultural and wildlife destinations. Initiatives such as PM Shri Paryatan Vayu Seva and heli-tourism services are designed specifically to bridge the last-mile gap for high-value tourism circuits, significantly improving travel time and convenience.

***Can you elaborate on rural and experiential tourism that the state is really focusing on? How are you planning to promote rural homestays and link them to e-commerce platforms?***

Rural and experiential tourism is a key focus area for Madhya Pradesh, driven by a community-led and responsible tourism model that places local livelihoods at the centre of visitor experiences. At the village level, homestays have emerged as a flagship initiative, offering travellers authentic cultural immersion while directly benefiting host communities.

Today, Madhya Pradesh hosts 332 operational homestays, which have welcomed nearly 30,000 visitors, including international travellers. These homestays go beyond accommodation to offer local cuisine, folk traditions, village walks and craft-based experiences.

The Tourism Board is systematically developing entire villages as

experiential tourism destinations, integrating homestays with local crafts, culinary traditions, folk arts and guided rural activities. More than 240 homestays have already been launched across multiple villages, with a long-term plan to scale this network to nearly 1,000 rooms across the state.

***How are you knitting the concept that can allure adventure tourists who are always ready to explore more with new adventure destinations?***

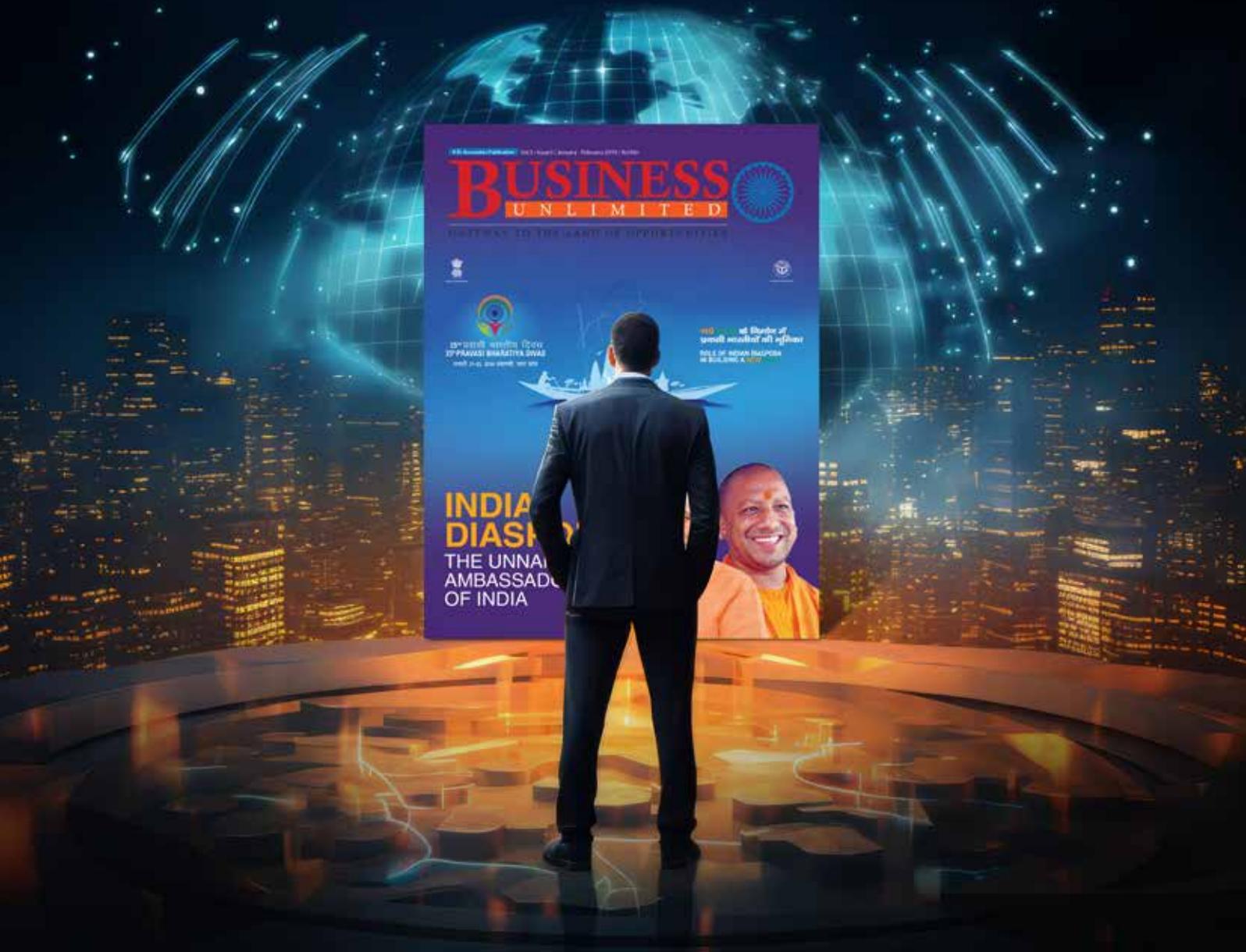
Madhya Pradesh is attracting adventure tourists by curating a diverse, sustainable and experience-rich adventure portfolio, rather than promoting isolated activities. The focus is on offering new-age adventure experiences that combine nature, fitness, exploration and responsible travel.

The state has institutionalised signature outdoor events such as marathons at destinations like Pench, Pachmarhi, Khajuraho, Jabalpur and Bhopal, positioning them as green sporting experiences that blend adventure with destination discovery. At the same time, multi-day trekking trails, developed in collaboration with professional partners, offer low-impact exploration while promoting environmental awareness and local engagement.

Adventure offerings are further expanded through rock climbing at Pachmarhi, curated birding experiences, and cycling trails through national park buffer zones such as Kanha, Pench and Satpura—creating high-adrenaline yet low-carbon ways to experience landscapes beyond traditional safari tourism. ■

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# BODE RAMACHANDRA YADAV

## A TANGIBLE VOICE FOR THE MARGINALIZED

With the Bharatiya Chaitanya Yuvajana (BCY) Party, the political alternative led by him is not simply seeking representation but attempting to fundamentally redefine regional power dynamics by mobilizing marginalized communities for a seat at the decision-making table.

The evolution of political leadership in Andhra Pradesh and Telangana often follows established channels of dynastic succession, the film industry, or wealth-based ascension to power. A significant development challenging this established order is the rise of Bode Ramachandra Yadav, a figure whose influence is rooted in first-generation entrepreneurship and a commitment to social justice from the Backward Classes. His political trajectory is defined by a refusal to accept the region's traditional power-sharing arrangements, positioning him as a non-elite alternative.

Yadav operates with a demonstrable commitment to accessibility and grassroots engagement. His schedule is reportedly dominated by direct interaction, dedicating significant time to fielding calls and meetings with both mandal-level party functionaries and ordinary citizens. This approach of nearness contrasts sharply with the often-distanced, hierarchical structures of established regional parties, effectively translating personal recognition into political mobilization at the village level.

His career has been marked by high-profile direct action and confrontation. A critical example of this assertive politics was his involvement in the protest against the forcible acquisition of fertile lands in the Kandukur-Karedu-Ramayapatnam belt. Facing roadblocks and restrictions, he utilized an unconventional approach, arriving by sea to join and lead the farmers' demonstration on the national highway. This move successfully escalated the local



grievance into a major state-level issue, highlighting his capacity for strategic disruption against state policy.

Yadav's activism has resulted in substantial legal and political pushback. Successive state administrations have lodged numerous FIRs against him, framing public actions like protest marches as "unlawful assemblies" and highway sit-ins as "serious offenses." Interestingly, this very confrontation with the state machinery underscores his significance. The subsequent court directive for Y-plus security, a protective measure typically reserved for entrenched political figures, confirms his status as a high-impact political actor whose security risk is acknowledged by the very systems he challenges.

Beyond his public persona, Yadav's private conduct reflects a deliberate image of austerity and commitment. Reports indicate a spartan personal life, focusing on yoga, meditation, and quiet charitable

work—specifically aiding students and patients. This carefully maintained contrast with the opulent displays common among political rivals serves as an ideological statement, reinforcing his image as a leader dedicated to service rather than personal enrichment.

The foundation of his long-term strategy is the establishment of the Bharatiya Chaitanya Yuvajana (BCY) Party. This is a systematic effort to transition community sentiment into a structured political organization. The party's focus is clear, building a platform that goes beyond symbolic representation to secure seats at the decision-making table for Backward Classes, farmers, fisherfolk, and youth. In a political landscape dominated by established organizational 'forts,' Yadav's approach is to meticulously assemble a viable structure, leveraging the localized pain points of marginalized communities.

In both Andhra Pradesh and Telangana, he offers a new political language centered on self-respect and the rights of agricultural labor. This rhetoric is not merely a political script but a reflection of his background, serving as a powerful covenant between the leader and his base. His influence is growing as more voters begin to view this disruptor of entrenched elites, a leader who combines grassroots authenticity with strategic defiance, as a potentially central figure in the region's evolving political narrative.

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# THE BUSINESS OF **VIKSIT BHARAT** INDIA'S BIG LEAP TO 2047



*Few nations in modern history have reached an inflexion point as profound as the one India stands upon today. The idea of Viksit Bharat 2047—transforming India into a fully developed, globally competitive economy by its 100th year of independence—is not just a policy framework. It is a national mission that reflects a renewed sense of possibility, momentum and purpose. What sets this vision apart is not only its scale but also its timing: India enters the coming decades with unmatched demographic strength, digital readiness, financial stability, and geopolitical relevance.*

India is already the world's fastest-growing major economy. International projections estimate India's GDP will reach roughly USD 4.1 trillion by FY26, with long-term forecasts suggesting the economy could expand to between USD 23 trillion and USD 35 trillion by 2047. These figures position India to become the second or third-largest economy globally within the next two decades.

As Business Unlimited returns after its post-COVID pause, India's economic narrative is undergoing a sharp redefinition. The post-pandemic world has reconfigured global supply chains, accelerated digital transformation, and intensified the race for sustainable growth. It is within this environment that India is poised to redefine the future of global business. This relaunch issue captures the unfolding story of The Business of Viksit Bharat—a tale of reform, resilience, entrepreneurship, and the bold steps shaping India's journey to developed-nation status.

### Defining Viksit Bharat: The Vision of a Developed India

The government's articulation of Viksit Bharat is wide-ranging yet sharply focused. It envisions:

- A high-income, innovation-driven economy
- A global hub for manufacturing, technology and services
- A digitally empowered society powered by artificial intelligence
- World-class physical and digital infrastructure
- A leader in sustainable and green growth

- A nation with robust human development, equal opportunity and resilience

Behind this vision lies a strategic shift in the country's development approach. India is no longer planning for incremental upgrades—it is preparing for transformation at scale.

NITI Aayog's strategic frameworks for Viksit Bharat highlight six pillars:

1. Fast, sustained economic growth
2. Substantial human capital and skills
3. Technological depth and innovation
4. Efficient institutions and governance
5. Environmental sustainability and climate resilience
6. Global competitiveness and leadership

The message is clear: India aims not only to succeed domestically but to lead globally.

**From digital public infrastructure to green energy and advanced manufacturing, India is building the pillars of a high-income, innovation-led economy at an unprecedented scale.**





## THE ENGINES POWERING INDIA'S LEAP TO 2047

### Manufacturing: The Rise of Make in India 2.0

A developed India requires a robust manufacturing base—and the country is moving decisively in that direction. The Production Linked Incentive (PLI) schemes, covering 14 sectors with a combined outlay of ₹1.97 lakh crore, are reshaping India's industrial landscape. These incentives are catalysing growth in industries such as electronics, semiconductors, automobiles, medical devices, and telecom equipment.

Industry assessments suggest that PLI-driven expansion could add USD 500 billion to India's total output by 2030, helping the country integrate





**Viksit Bharat is not an aspiration—it is India’s most strategic economic project. The coming two decades will decide our place in the world for the next hundred years.**

more deeply into global supply chains.

Complementing PLI are:

- New industrial corridors
- Expanded logistics networks
- Plug-and-play manufacturing zones
- Simplified FDI and regulatory pathways

India’s ambition is clear: to evolve from a manufacturing alternative into a manufacturing superpower, with advanced capabilities in design, R&D, smart factories, and high-value production.

**The Digital Economy: India’s Global Advantage**

Digital transformation is India’s superpower. With platforms like Aadhaar, UPI, DigiLocker, ONDC,

FASTag, and CoWIN, the country has built the world’s most comprehensive digital public infrastructure.

This digital backbone has accelerated financial inclusion, reduced transaction costs, and enabled a governance model built on transparency and scale. Government assessments project that India’s digital economy will reach 20% of Gross Value Added (GVA) by 2029–30, surpassing traditional sectors like agriculture and manufacturing as independent contributors.

The next wave will be shaped by:

- Artificial intelligence and machine learning
- Robotics, automation and Industry 4.0
- Cybersecurity and data governance
- Deep-tech startups in space, biotech and defence
- Digital services embedded in global corporations

A major driver of this trend is the rise of Global Capability Centres (GCCs). India now hosts more than 1,700 GCCs—the highest number globally—employing nearly two million people. These centres anchor India in global value chains, housing advanced capabilities in engineering, AI, analytics, cybersecurity, and operational intelligence.

Together, these trends position India not just as a participant but as a leader in the global digital economy.

**Green Growth: The New Economic Engine**

Climate commitments are reshaping the world economy, and India is positioning itself at the forefront of this transition.

The government has committed to achieving 500 GW of non-fossil fuel energy capacity by 2030. It has already surpassed 100 GW of installed solar capacity—placing India among the world’s largest renewable energy markets.





The National Green Hydrogen Mission, with a multi-billion-dollar investment pipeline, is set to make India a major exporter of green hydrogen. Meanwhile, rapid adoption of electric vehicles, incentives for battery manufacturing, and emerging carbon markets are creating large-scale opportunities for businesses.

For India, green growth is not a cost—it is a competitive advantage. It has the potential to generate millions of jobs, attract global investment, and build an environmentally resilient future.

### Tourism, Services & MICE: India's Soft Power Sector

India's tourism and service sectors have quietly become some of its most

powerful growth engines. In 2024, the travel and tourism sector contributed more than ₹20 trillion to the national economy and is expected to surpass USD 500 billion by 2034.

A renewed push toward MICE—Meetings, Incentives, Conferences and Exhibitions—positions India to host major global events. The government supports business events by introducing new convention centres and improving connectivity, establishing the MICE sector as a key element of India's service economy.

MICE is more than tourism—it is business diplomacy, trade expansion, knowledge exchange, and global visibility rolled into one.



## India's Reform Architecture: The Foundation for 2047 Ease of Doing Business 2.0

India is rewriting its regulatory playbook.

Key reforms include:

- National Single Window System for clearances
- Labour code simplification
- Faceless tax assessments
- Decriminalisation of minor business offences
- Digitised compliance frameworks

These changes aim to make India one of the world's top investment destinations.

### India's Infrastructure Boom: Building a Developed Nation

The PM Gati Shakti National Master Plan is reshaping India's infrastructure story. Integrated infrastructure planning—aligning roads, ports, airports, railways, and industrial zones—is dramatically improving connectivity.

Recent assessments estimate India's logistics costs have fallen to about 8% of GDP, compared to earlier estimates of 13–14%. This improvement is critical for export competitiveness.

The scale of infrastructure development includes:

- Dozens of new or upgraded airports
- High-speed rail and Vande Bharat expansion
- Modernised ports and inland waterways
- Industrial corridors and multimodal logistics parks
- Electric mobility and smart city integration

India is not just building infrastructure—it is building economic capability.

### Innovation, Startups & Deep-Tech Leadership

India boasts one of the world's youngest and most dynamic startup ecosystems. Nearly 200,000 startups have officially emerged across sectors



such as fintech, logistics, education, health, food, sustainability, and deep tech.

However, the next wave will focus on frontier technologies:

- Semiconductors and chip design
- Space technology
- Defence innovation
- Robotics and automation
- Climate technologies
- Synthetic biology and biotech

Government-backed incubators, R&D incentives, credit guarantee schemes, and academic collaborations are accelerating this shift.

A developed India will showcase its ability to innovate, not just its capacity to produce. Where the Biggest Business Opportunities Lie

- 1. High-Value Manufacturing:** Electronics, EVs, defence, aerospace, medical devices, and advanced materials.
- 2. Urbanisation & Real Estate Growth:** Smart cities, transit-oriented development, commercial infrastructure, and housing.
- 3. Green Economy:** Green hydrogen, battery storage, solar manufacturing, recycling, and carbon markets.

- 4. AI & Enterprise Tech:** AI governance, automation, cybersecurity, predictive analytics and enterprise digitalisation.
- 5. Tourism & MICE:** Convention centres, business hotels, experiential travel, and tourism infrastructure.

These segments will define India's growth trajectory and shape global perceptions of the country.

### Challenges on the Path to Viksit Bharat

Even as momentum builds, India must navigate significant challenges:

- Skilling a workforce of 600 million
- Improving R&D spending relative to global standards
- Strengthening urban planning and sustainability
- Reducing import dependence in critical technologies
- Ensuring balanced regional development
- Enhancing climate resilience and water security

These are complex, multi-layered issues—but not insurmountable. India's advantage lies in its ability to undertake reforms at scale and speed.

## The Role of Indian Enterprise in Shaping the Future

The government's vision sets the direction—but businesses will build the destination.

To seize the opportunities ahead, Indian enterprises must:

- Invest in R&D, automation and modernisation
- Embrace sustainability as a core business strategy
- Develop globally competitive products and brands
- Build digital and AI capabilities
- Scale operations with long-term vision
- Foster innovation and intrapreneurship

A Viksit Bharat will be shaped not only by policymakers, but by the ambition of Indian entrepreneurs and corporations.

### Conclusion: The Decisive Decades Ahead

India today stands at a pivotal junction where aspiration meets execution, and where potential is rapidly becoming performance. The foundations of a developed nation—digital readiness, industrial capacity, global competitiveness, strong institutions, demographic energy, and entrepreneurial drive—are already in motion.

Viksit Bharat 2047 is not an abstract idea—it is a national project rooted in economic strategy, technological innovation, and societal transformation. It calls upon every stakeholder—government, business, academia, and citizens—to participate in building a future defined not by limitations, but by leadership.

As India prepares for its most consequential decades, one truth stands out:

***The rise of Viksit Bharat is not just India's opportunity—it is India's responsibility.***

And the journey to 2047 has already begun. ■

# TECH, TALENT & TRANSFORMATION INDIA'S DIGITAL ECONOMY TO 2047

*As India advances toward its vision of becoming a developed nation by 2047, one foundation stands out as both catalyst and differentiator: its digital economy. Over the past decade, India has engineered a rare phenomenon—technology on a population scale. From the world's most interoperable digital payments network to an AI-ready youth population, from fast-emerging deep-tech enterprises to a national data backbone unmatched in the developing world, India is entering an era where digital capability becomes a defining marker of its economic identity.*



**B**y 2047, the country will become not just a large digital economy, but a strategic digital superpower—shaping global innovation, setting standards for digital public infrastructure, and exporting knowledge capital at unprecedented levels. Five converging pillars power this transformation: AI + data, digital public goods, cybersecurity & sovereignty, deep-tech innovation, and a vast skilling revolution that will prepare India's workforce for the next generation of jobs.

This report unpacks how these pillars will shape India's intellectual, technological, and economic ascent over the next 25 years.

### AI + Data: The New Economic Engine

Artificial intelligence and data systems will underpin India's next wave of growth, much as IT services powered the last two decades.

#### AI Scale, Indian Style

India can build AI at a population scale, thanks to:

- Massive datasets generated across digital platforms
- A youthful, STEM-rich talent pipeline
- Rapidly expanding compute infrastructure.
- Government-led AI frameworks for social sectors

By 2047, India's AI sector will contribute \$1.2–1.5 trillion to GDP, powered by:

- AI-led manufacturing and predictive maintenance
- AI-assisted healthcare diagnostics
- AI-governed traffic, logistics and urban systems
- Agricultural intelligence platforms
- AI copilots transforming white-collar productivity.

The Rise of India's AI Labs & Chips India is making strategic bets on:

- **AI supercomputers** for national research clusters

- **Indigenous AI models** trained on Indian languages and contexts.
- **Semiconductor fabs** focusing on AI accelerators and edge computing.
- **Trusted AI frameworks** to ensure safety, transparency and fairness

The next decade will also see the rise of AI engineering as a mass profession, comparable to software engineering's boom in the 2000s.

### Digital Public Goods: India's Blueprint for the World

One of the most important changes in India's tech growth is the rise of Digital Public Infrastructure (DPI), which are open networks that can transform whole markets.

UPI, Aadhaar, DigiLocker, FASTag, CoWIN, and the Account Aggregator (AA) framework are already global exemplars. Over the next two decades, these systems will mature into the backbone of a \$10-trillion economy.

### India's Digital Public Infrastructure—from UPI to ONDC—is becoming the world's most influential technology export.

#### UPI: From Payments to Commerce Rail

By 2047, UPI will evolve far beyond payments:

- Intelligent credit engines embedded directly into transactions
- Global interoperability powering cross-border commerce
- Seamless micropayments for content, mobility and IoT devices

#### ONDC: India's Open E-Commerce Revolution

The Open Network for Digital Commerce (ONDC) is dismantling platform monopolies by enabling:

- Open participation for millions of SMEs and retailers
- Hyperlocal commerce at a national scale
- Interoperability across logistics, payments and catalogues

By 2047, ONDC could anchor one of the world's largest open-market ecosystems, integrating commerce, mobility, finance and services.

#### AA: The Data-Empowered Citizen

The Account Aggregator framework gives users secure control of their financial data to unlock:

- Instant lending
- Personalised credit
- SME financing
- Insurance innovation



## Experiences

The Account Aggregator framework creates the architecture of data democracy—a model now being replicated globally.

### NDHM: The Future of Digital Health

The National Digital Health Mission is building health IDs, digital prescriptions, telemedicine platforms and interoperable records. By 2047, India could have:

- AI-assisted health screening in every district

**By 2047, India is positioned to become a strategic digital superpower—anchored by AI, deep-tech innovation and the world’s largest tech-ready workforce.**

- Universal telehealth access
- National disease surveillance using real-time data

India’s DPI model is becoming a blueprint for other developing countries and could also become a major export sector.

### Cybersecurity & Digital Sovereignty: Guarding a Connected Nation

As India’s digital presence grows, so do the risks. By 2047, the country will need strong cybersecurity and digital sovereignty strategies.

The Rise of Indian Cyber Defence Key shifts underway include:

- National-level cyber readiness frameworks
- Domestic encryption and secure hardware
- AI-driven threat detection
- Cyber ranges for workforce training
- Resilience mandates for critical infrastructure

By 2047, India will become one of the world’s top three cybersecurity markets, offering indigenous solutions for:

- Banking and finance
- Power grids and energy systems
- Defence and aerospace
- Public-sector networks
- Consumer digital platforms

### Data Sovereignty & Strategic Autonomy

India’s digital sovereignty strategy will emphasise:

- Local storage and processing of critical data
- Indigenous cloud infrastructure
- Trusted AI and platform governance
- Standards that ensure consumer rights and transparency

Digital self-reliance will become a cornerstone of national security.

### Deep-Tech Startups: The Frontier Innovation Wave

India’s startup scene is changing. In the next decade, deep tech companies



driven by science and engineering will take the lead, rather than consumer tech.

### The Next Frontier Sectors

By 2047, India's deep-tech industries will include:

- Quantum computing
- Space technology & launch systems
- Robotics and autonomous systems
- Materials science & advanced manufacturing
- Synthetic biology and biotech
- Climate-tech and carbon removal solutions

These industries will help India compete globally in new ways.

### A New Innovation Ecosystem

Expect to see:

- University-based innovation clusters
- Cross-border R&D partnerships
- India-led IP in frontier technologies
- National testbeds for robotics, drones, EVs and AI
- Moonshot missions in energy, materials and space

Deep tech will make up a growing part of India's startup value, exports, and high-skilled jobs.

### Digital Inclusion & the Skilling Revolution

A digital economy needs skilled people to succeed, and India has the world's largest youth population, with the world's biggest digitally skilled workforce, spanning AI, robotics, cybersecurity, cloud computing, design, genomics, and space engineering.

### The Skills that will Define 2047

Key areas include:

- AI engineering and model training
- Data science and cybersecurity
- Robotics maintenance and programming
- Semiconductor design and fabrication
- Bioinformatics and genetic engineering
- Sustainability engineering



- Creative digital design and media tech

### The Rise of India's Learning Infrastructure

India will increasingly rely on:

- National digital skilling platforms
- University-industry innovation partnerships
- On-the-job apprenticeships at scale
- AI-led personalised learning engines
- Regional tech training hubs in tier-2 and tier-3 cities

Digital inclusion will help ensure that all citizens, not just those in cities, benefit from India's technological progress.

### India's Intellectual & Innovation Leap: The Road to 2047

India's digital economy is changing from being focused on services to being driven by data, AI, advanced science, and engineering.

By 2047, India will become:

- A global leader in AI and digital public infrastructure

## Deep tech—not consumer tech—will define India's next startup wave, from quantum and space to synthetic biology and robotics.

- A hub for deep-tech innovation
- Home to the world's largest innovation-ready workforce
- A secure digital nation with a strong cybersecurity architecture
- A pioneer of open digital networks, India's digital journey is more than an economic change; it is also an intellectual leap.

India's path to Viksit Bharat will depend not just on markets or manufacturing, but also on the creativity, skills, and ambition of its people.

And in this transformation lies the defining story of India's next 25 years. ■

# SUNLIGHT AND A MOLECULE

## HOW SOLAR AND GREEN HYDROGEN ARE REWIRING INDIA'S ENERGY FUTURE

*As countries work to change their energy systems for a low-carbon future, India's transition stands out for its speed and strategy. Once dependent on coal and imported fuels, India is now using two key resources: its plentiful sunlight and a growing green hydrogen industry. This shift is more than an environmental move; it is also an economic, industrial, and geopolitical strategy to secure India's role in the global clean-energy landscape. From solar panels in the deserts to new hydrogen hubs along the coast, India's energy transformation is happening on a massive scale.*

## FROM EXPERIMENT TO BACKBONE



In Rajasthan, the desert sun shines over rows of solar panels that seem to go on forever. These panels, with their neat and shiny appearance, represent a new era of energy. Ten years ago, scenes like this were uncommon. In 2014, India had just 3 gigawatts (GW) of solar power, and many saw the technology as interesting but limited.

By the end of 2025, India's solar capacity is expected to reach 129 to 130 GW, making it one of the world's leading solar-powered countries.

Even more impressive, as of October 2025, more than half of India's installed electricity capacity comes from non-fossil sources, reaching this goal five years early.

The solar expansion is reaching every scale. In cities, people are installing solar panels on millions of rooftops. In cities, millions of rooftops now have solar panels. In rural areas, farms that once used diesel generators now run on clean solar energy. They generate their own electricity, dramatically lowering monthly bills. In agriculture, the benefits

are equally profound: nearly 920,000 solar pumps under PM-KUSUM have cut diesel consumption, stabilised irrigation, and given farmers unprecedented control over water usage. Union Minister for New and Renewable Energy Pralhad Joshi describes this model as "the most successful in the world," citing the scale and efficiency of solar adoption.

Solar power has moved from being a new idea to becoming the main support for India's renewable energy.

## INSIDE INDIA'S SOLAR FACTORY BOOM

Beyond farms and rooftops, another big change is happening in India's industrial areas. The country is creating one of the world's largest



solar manufacturing networks, aiming for self-reliance in technology and to compete globally.

India's solar module capacity is expected to reach 200 GW, and solar cell capacity could grow to 100 GW. The country also plans to make more parts like wafers, ingots, and polysilicon, with the goal of having "swadeshi solar cells by 2028."

Production-Linked Incentive (PLI) schemes have led to large investments. Higher import taxes have encouraged companies to manufacture locally. Industrial areas in

Tamil Nadu, Telangana, and Gujarat are quickly becoming centers for solar manufacturing, with advanced automation and large-scale production lines.

Yet this rapid rise comes with risks. Too many solar panels worldwide could lower prices and upset markets. The Ministry of New and Renewable Energy (MNRE) has advised companies and lenders to exercise caution and avoid rapid expansion. It is entering a new phase—not just building capacity, but building a globally competitive, resilient industrial backbone.

## GREEN HYDROGEN: THE FRONTIER FUEL

While solar power is already a strong point for India, green hydrogen is its most ambitious new effort.

Started in 2023, the National Green Hydrogen Mission (NGHM) wants to make India a world leader in producing, using, and exporting green hydrogen, which is made by splitting water with renewable electricity.

The mission has a detailed investment plan of ₹19,744 crore, divided as follows:

- ₹17,490 crore for incentives under the SIGHT programme

- ₹1,466 crore for pilot projects in hard-to-abate sectors: steel, fertilisers, shipping and heavy mobility
- ₹400 crore for R&D

The main goal is to produce 5 million tonnes of green hydrogen each year by 2030, using large-scale electrolyzers.

### Why Hydrogen Matters

Green hydrogen is essential for cutting emissions in industries where electricity is not available. Sectors such as steel, fertilisers, petrochemicals, and long-distance transport require high heat or special materials that renewable electricity cannot provide.

Hydrogen, particularly green hydrogen, can be used as a plant fertiliser.

- A high-temperature industrial fuel
- A pathway to green ammonia exports
- A key enabler of decarbonised heavy mobility

Prime Minister Narendra Modi says hydrogen is the technology that can give India a “quantum leap” in clean-energy leadership. As the world’s demand for hydrogen grows, India wants to be a leader, not just a participant.



## WHERE SUNLIGHT MEETS HYDROGEN

The connection between solar power and hydrogen is both essential and straightforward.

India’s sunniest states, such as Rajasthan, Gujarat, Karnataka, and Tamil Nadu, are becoming centres of green hydrogen production. In these places, operators run electrolyzers on excess solar power during the day to produce hydrogen. People can then store, transport, and use this hydrogen whenever needed. This approach helps

address the problem that renewable energy is available only at certain times.

Electrolyzers also help manage the power grid. They can use extra renewable energy when demand is low and reduce their use when the grid is under pressure. This flexibility helps keep the grid stable as more solar and wind power are added.

The government is making it easier to combine solar and hydrogen by offering

waivers on interstate transmission charges, changing open-access rules, and setting up special hydrogen corridors.

The main idea is straightforward: **Solar power supplies clean electricity, and hydrogen stores clean energy in a form that can be used anytime. Together, they make a renewable energy system that works around the clock.**

## THE CHALLENGES AHEAD: COSTS, CONTRACTS AND THE GRID

Even with its progress, India's move to clean energy still faces big challenges.

### The Price Gap

Green hydrogen still costs more than hydrogen made from fossil fuels. To lower prices, India needs to make more electrolyzers, build large projects, and set up long-term agreements between producers and industrial users.

### Global Competition

Countries in Europe, West Asia, and East Asia are competing for hydrogen markets by offering subsidies and forming export partnerships. India needs to use its strengths—plentiful, low-cost renewable energy and strong local demand—to stay ahead.

### Grid Preparedness

As India adds hundreds of gigawatts of solar and wind power, its electricity grid must also improve. The primary needs are: admission corridors.

- Flexible hydropower and gas-peaking plants
- Improved renewable forecasting



- Energy storage expansion
- Better mechanisms for balancing supply and demand

If the amount of renewable energy made does not match what is actually used, some capacity could go unused. To prevent this, clear market rules and steady prices are needed.

**India now gets more than 50% of its installed power capacity from non-fossil sources—five years ahead of its 2030 target.**

## A TRANSITION THAT WORKS FOR PEOPLE



One of the most important parts of India's energy transition is how it affects people's lives.

Solar has already delivered:

- Lower electricity bills
- Clean irrigation solutions

- New rural and urban jobs
- Income opportunities through rooftop solar

Clean energy is no longer just an idea in policy documents or something found only in factories. It is now part of homes, farms, and communities all over India.

Green hydrogen brings these benefits to advanced industries as well. India wants to lead in clean value chains, building everything from electrolyser factories and fuel-cell assembly units to green shipping terminals and special logistics routes, rather than just exporting raw materials. A fair and inclusive transition is at the heart of India's plan. The goal is to create opportunities in all regions and help workers as industries change.

## THE BIG BET: A NEW ENERGY MISSION FOR A NEW INDIA

The next ten years will show if India can turn its achievements in solar and its hopes for hydrogen into long-term economic benefits. If it succeeds, the results could be life-changing:

- Reduced fossil-fuel imports
- Greater energy security
- Global competitiveness in clean-tech manufacturing
- Millions of new jobs
- Deep energy Solar power has already changed from a small, specialized technology to something India depends on.

Hydrogen is now seen as the way to bring India's solar energy into steel plants, fertilizer factories, transport routes, and markets around the world. National markets.



Together, solar and hydrogen are at the center of India's new energy plan. This mission aims not just to power the country, but also to change India's place in the world's clean-energy economy.

India's sunlight, which was once seen as a problem during hot summers, is now a valuable resource. Hydrogen, though simple, could help turn that sunlight into the base for a greener, stronger, and more successful future. ■



**With a target of 5 million tonnes of annual production by 2030, India is positioning green hydrogen as its next big industrial revolution.**



