India's ability to globally drive five sunrise sectors holds the key to its sustained growth and job creation

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Covid-19 has extensively disrupted economies and lives. At the same time, it has presented us with unique opportunities that can be leveraged. Japan, South Korea, Taiwan and later China focused on sunrise sectors, unleashed a wave of reforms and embraced innovation to grow on a sustained basis for long time periods. In India, the key to a disruptive transformation lies in five sunrise areas of growth.

❶ Mobility: The US already has over 900 cars per 1,000 persons, while Europe has over 800. In contrast, India has only around 20 cars per 1,000 people. This presents a unique opportunity. Our low share of vehicles per capita can be turned into a huge advantage by switching to an affordable, accessible and clean mobility ecosystem.

The average price of a lithium battery that was over $1,000 in 2010 has fallen to a mere $137 per kilowatt-hour (kWh), and will come down to less than $100 in the next three years. Such steeply falling prices have made high-mileage electric vehicles (EVs) cost-competitive. To support the EV segment, GoI has already brought about numerous interventions, including a lower GST structure, tax deduction on interest for loans, and has supported procurement through the Faster Adoption and Manufacturing of Hybrid and Electric Vehicles 2 (FAME 2) scheme.

Two-wheelers constitute over 70% of India's total vehicle population. In the two- and three-wheeler EV ecosystem, India has a huge opportunity to become the lowest-cost global manufacturer.

For long-distance transportation, India needs to focus on green hydrogen, the next-generation energy carrier. New-age technologies, such as polymer membrane-based electrolysers and advanced fuel cells such as solid-oxide fuel cells, are pushing the envelope of the hydrogen economy. India has achieved great success in enhancing contribution from renewable energy and reducing solar prices to as low as ₹1.99/kWh (2.7 cents). With these prices, green power to produce green hydrogen is the future.

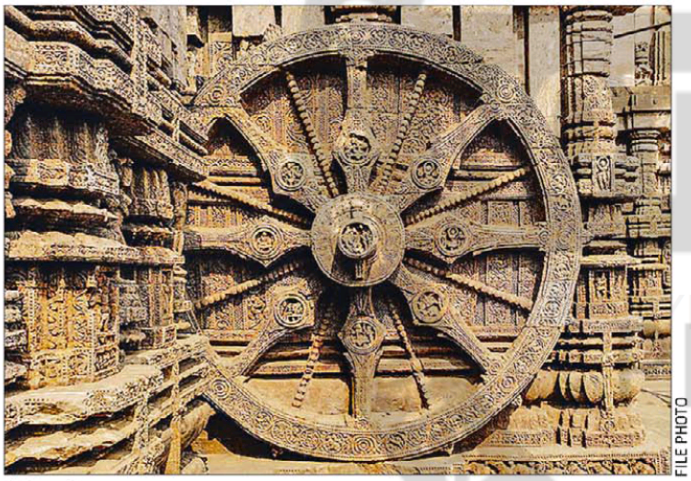
❷ Advance cell chemistries: An April 2019 NITI Aayog and Rocky Mountain Institute study (bit.ly/3qcB2xk) concluded that India's market for EV batteries alone could be $300 billion till 2030. With innovations in solid-state batteries reaching commercial promise, new-age lithium solid-state batteries are challenging the hegemony of traditional liquid electrolyte-based batteries.

Lack of Chemistry

GoI has provided a boost through its production-linked incentive (PLI) scheme. There are disruptions that look beyond lithium, such as sodium-ion, silicon- and zinc-based batteries. India should take the lead in supporting the manufacturing and scaling up of these new-age chemistries that will advance battery storage.

❸ Artificial intelligence: Eight of the top 10 companies are tech and digital companies, and the fastest-growing jobs globally are those of AI specialists and data scientists. A 2017 Accenture report, 'Rewire for Growth' (accntu.re/3sGOLOM), forecasts that AI has the potential to boost India's annual growth by 1.3 percentage points by 2035. This amounts to an addition of $957 billion, or 15%, of gross value added (GVA) by 2035.

India has one of the lowest data costs in the world and over 650 million internet users, one being added every three seconds. It now needs to move from being data-rich to data-intelligent by making available clean, structured and annotated data, and work with the best AI researchers to find solutions to tuberculosis, cancer and enhanced agricultural productivity.



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Follow the sun

An AI-enabling policy environment, supplemented by data-hungry entrepreneurs and product managers, is crucial. India needs to reorient its academic institutions into centres of excellence, producing world-class talent for data science and UI/UX (user interface/user experience) design, and AI scientists.

❹ 5G: Fifth generation mobile network technology will make a paradigm shift to interconnect people, control devices and objects, and ensure faster and better communications. It will be a backbone for the Industrial Revolution 4.0, AI, blockchain and all emerging technologies.

India was substantially late in exploring 2G, 3G and 4G technologies. 5G's user experienced data rate will see a 10-times jump, the spectrum efficiency will be three times higher, the latency in milliseconds 10 times better, and will connect 10 lakh devices per sq km, compared to a mere one lakh devices in 4G. It will drive Internet of Things (IoT) technology carrying huge amounts of data.

Due to massive density across devices and connectivity across sectors, security will be a major concern. Licence conditions for 5G should, therefore, ensure that Indian companies get access to background intellectual property rights (IPR) from global players on FRANDS (fair, reasonable and non-discriminatory) terms. So, India must create its own end-to-end 5G ecosystem.

❺ Genomics: Recent findings in our genomic history and the sharply declining costs of genetic testing and analysis can transform the way public health is delivered. A virtuous cycle of private investment in genetic testing, analysis, counselling and therapy must be set in motion. Last year, GoI launched the IndiGen project, under which the full genomes of over 1,000 individuals are sequenced, and the data handed over to the individuals on a smart card.

Build Solutions in DNA

A national genomics platform is necessary to zero in on the major risk factors individuals face. This can sharply help reduce the incidence of many diseases. The more genomes there are on the platform, the more useful it will be for finding solutions to diseases.

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The writer is CEO, NITI Aayog

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