12th ANNIVERSARY SPECIAL

Forbes INDIA

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ESSAYS ON THE FUTURE OF 12 CHALLENGES THAT INDIA FACES IN THE MIDST OF SIGNIFICANT SHIFTS AND DISORIENTING CHANGE

THE FUTURE OF

- MOBILITY • ENTERTAINMENT • HEALTH CARE • JOBS
- MONEY • LUXURY • INEQUALITY • LEADERSHIP
- ENTREPRENEURSHIP • DATA PRIVACY & PROTECTION
- SUSTAINABLE LIVING • FOOD

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Inability to cope with the disease of change will have lifelong implications

Brave New World

Writing about what will happen tomorrow can be both exhilarating and fraught with risk. Alvin Toffler perhaps did it best with his trilogy over three decades, *Future Shock* (1970), *The Third Wave* (1980) and *Powershift: Knowledge, Wealth and Violence at the Edge of the 21st Century* (1990), considered masterpieces for their stunning vision of how lives will change.

More recently, the Trump dispensation had thinkers delving into the future of the liberal story. Yuval Noah Harari's 2018 tome, *21 Lessons for the 21st Century*, attempted to answer several questions, from 'What does the rise of Donald Trump signify?' to 'Can nationalism solve the problems of inequality and climate change?' And *Financial Times*' American commentator Edward Luce shone a light on the hazy line between illiberal democracy and autocracy in *The Retreat of Western Liberalism* (2017). He ends the book with the line: "We will know the difference when we see it."

Few wise men saw a pandemic coming, although many credit Bill Gates for warning in 2015 that "a microbe and not war is more likely to kill millions of people around the planet in the next 10 years". A few works of fiction did paint a grim picture of a viral outbreak, the latest being the thriller *The End of October* (April 2020), Pulitzer Prize-winner journalist Lawrence Wright's novel that's uncannily set in the spring of 2020.

So what are the lessons from the devastating pandemic for India and the years that lie ahead of its citizens? That's one of the 12 topics the team at *Forbes India* shortlisted for its 12th anniversary, a moment in time that calls more for retrospection than for celebration. The team reached out to subject experts—CEOs, startup founders, economists and philanthropists, among others—in 12 areas who put forth their view on the future for their respective domains. From leadership and entrepreneurship, to inequality and wealth, to mobility and infrastructure, this collection of essays is worth poring over for its varied insights.

In his essay on how the pandemic will disrupt Indian health care, Viren Shetty, executive director & group chief operating officer of multi-speciality hospital chain Narayana Health, addresses the question that keeps many of us awake at night: "What if this pandemic never goes away?" On the brighter side, Covid-19 may well reshape people's thinking, as most health care crises in the past have. "Through the darkest days of this pandemic, I console myself with the hope that millions of people who have lost someone to Covid are going to find their voice," writes Shetty. Don't miss 'Integrated Health Care, Tech Will Disrupt Sector" on page 38.

Many essays in this special issue deal with scenarios that tend to be perceived as futuristic. For instance, when painting The Future of Infrastructure, Larsen & Toubro's MD & CEO SN Subrahmanyan drives into a world that brings "sci-fi to reality": Smart highways with neural networks, driverless cars... Are we prepared for this future or, as Toffler put it half a century ago, for a "Future Shock", or the "disease of change?"

Covid-19 is all around us, if not in us by now. Yet, it may well be the inability to cope with the disease of change that will have lifelong implications. "The acceleration of change... is a concrete force that reaches deep into our personal lives, compels us to act out new roles, and confronts us with the danger of a new and powerfully upsetting psychological disease," wrote Toffler. The *Forbes India* 12th anniversary issue is a small attempt to immunise ourselves against the disease of accelerated change and what looks incomprehensible today.

STORIES TO LOOK OUT FOR

▲ Infrastructure demand is to see massive growth in the coming decades; cutting-edge technology has made it possible to treat previously incurable diseases

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Best,

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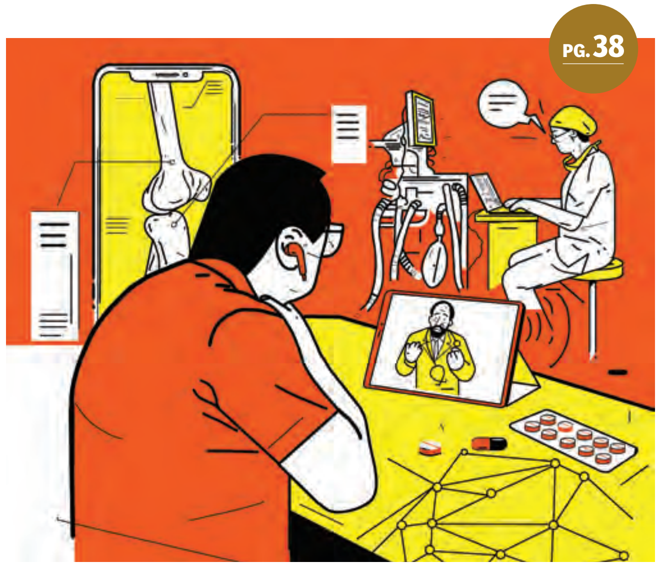

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TO OUR READERS
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PURUSHOTTAM DASS GOEL: INSPIRING MANY TO DREAM BIG AND CHANGE THE FATE OF LIFE

Mr. Purushottam Dass Goel, Founder & Chairman of Lumino Industries Limited Kolkata, was the first generation entrepreneur who started small, dreamt big and used a combination of grit and perseverance to create one of the leading manufacturing companies of Aluminium Conductors & Power Cables and executing EPC Contracting Projects relating to Power Distribution, EHV substation, Solar Power plants and so on.

Born to a middle class Agarwal Family, in a small village in the District- Hisar, Haryana, he was determined to change his fate. He saved a meager amount and travelled to Kolkata in 1967, at a young age of 19, in the pursuit of realising his dreams.

What started off in 1969 as a small electrical shop, in the Electrical Market of Kolkata, with a borrowed fund of INR 10,000 from a friend and with two employees working in a space of 100 sq. ft, has today emerged as Lumino Industries Limited establishing itself as a name to reckon with in the business of manufacturing cables and conductors and executing Power EPC Projects with a team of approximately 1000 employees and workers.

His foresightedness and business acumen led to the diversification from trading electrical equipment to manufacturing cables and conductors and executing infrastructure projects which transformed Lumino Industries Limited into a frontline player of the Power & Infra business segment of East India, achieving a networth of INR 2100 Cr during it's extraordinary journey.

Today, under his towering leadership, his sons Mr. Deepak Goel and Mr. Devendra Goel are spearheading the functioning of Laser Power & Infra Pvt. Ltd. and Lumino Industries Limited, respectively and are set for major strategic growth to position themselves as the leading business conglomerates of India. Lumino Industries has also made headway into the health sector, corresponding to its ideology of social welfare.

Mr. Purushottam Dass Goel,
Founder & Chairman of Lumino Industries Limited

He has imbibed in all his employees the principles of manufacturing quality products, matching global standards and fulfilling the customer's needs whilst retaining highest standards of business ethics.

Mr. Purushottam Dass Goel is passionate about serving devotees and provide them impeccable Healthcare facilities

Lately, Mr. Purushottam Dass Goel has started engaging himself with non-profit organizations, focussing on spiritual upliftment and social welfare of mankind. He is an ardent devotee of ISKCON (International Society for Krishna Consciousness) and a follower of the Krishna Consciousness Philosophy. He is passionate about serving devotees and is intrinsically engaged in different programs to provide them with impeccable Healthcare facilities, projects concerning nutritious 'Food for Life', imparting contemporary education to the children of devotees' and several other such welfare programs. As a direct service to the Lord, he is also continually supporting projects of building temples, guest houses for devotees and organizing preaching programs to spread the message of 'Bhagvad Gita'. In his personal realization and introspection, he mentions that ultimately it is the Krishna Consciousness Philosophy, the knowledge of 'Bhagvad Gita', the teachings of 'Srimad Bhagvatam' and the application of all these in his life has given him tremendous satisfaction and bliss.

Mr. Purushottam Dass Goel is now passionately actualising his goals of serving the Almighty by spreading genuine spiritualism which he himself has experienced and which has today became his ultimate source of constant happiness and divine peace.Today, his success story continues on another realm, inspiring many to dream big and change the fate of life.

Are Vaccine Makers Chasing Large Profits?
Experts say prices are far higher than warranted **P/12**

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Former US president refused to divest his assets when he took office in 2017 **P/20**

CONSUMER GOODS

Will Rural Demand Hold Up in Second Wave?

As Covid-19 spreads, FMCG companies will have to contend with supply disruptions and demand reduction

AS RESULTS FROM CONSUMER goods companies start trickling in, rural demand, which forms a subset of their performance, has attracted disproportionate investor interest. Demand from smaller towns and cities had fared exceedingly well last fiscal but is likely to come under some strain as the second, more deadly, wave of Covid-19 spreads across smaller towns and cities.

One reason why demand for soaps, shampoos and detergents sold in ₹5-10 pack sizes is important is because it is often seen as a weathervane on the direction of the economy. It slows during periods of distress and usually ratchets up when there is a good harvest or there are cash transfers from the government. The last fiscal saw both these factors in play. As a result, consumers were able to spend more on daily necessities.

These markets are also important testing grounds for companies for new products and provide data on price elasticity for their goods. Consumers start with smaller packs and graduate to bigger ones, with higher margins for companies.

Rural consumers are also generally the first to downtrade during bad times. When demand slackens it becomes harder for companies to forecast the future of some segments. These markets are important for companies as they typically grow faster than urban ones. In the past Hindustan Unilever (HUL) has said that rural consumption was growing at 1.5 times urban consumption, albeit from a lower base.

HUL, which announced its results on April 29, was cautiously optimistic on how demand from the hinterland would fare. Sanjiv Mehta, chairman and managing director of HUL, pointed out that the first quarter of fiscal 2021 saw a complete lockdown that resulted in no movement of goods. Things are different this time around, with states announcing

HUL's Approach to Distribution During Covid

- Using its direct **distribution** and **wholesale** network
- Expanded network of **Shakti Ammas**—women entrepreneurs who stock **HUL's** products—to **136,000**
- Added **500,000** retailers to its **Shikhar app**, which facilitates **direct ordering** from the company

shorter, intermittent and localised lockdowns. While this results in planning difficulties, personnel and goods can still move. He also pointed to the absence of pantry loading as a factor that indicates lesser fear. More concerning is the impact of localised lockdowns in smaller towns, which lack infrastructure for home deliveries, resulting in lost sales.

His view was echoed by his counterpart at Britannia, Varun Berry, who announced results on April 27. "Consumer demand trends are similar to last year but the world has got used to living through a pandemic," said Berry, managing director at Britannia. Small-ticket consumption is unlikely to be impacted severely.

Mehta, who declined to comment on a longer-term rural trend, said, "While the last two weeks have seen turbulence it is too early to say what long-term impact it would have." The company did say that there have been a fair number of personnel who have been infected with Covid and that it is working on vaccinating all its 300,000 employees and their families quickly.

As disruptions have increased over the last year, companies have found their own coping mechanisms. At HUL the effort is three-pronged. It has used its rural direct coverage reach to better channel sales to

Shopkeepers in Amritsar wait for customers. Demand from smaller cities are indicators of several key factors for FMCG companies

NARINDER NANU / AFP

the hinterland. It expanded its network of Shakti Ammas—women entrepreneurs who stock company products—by 16,000, taking the total to 136,000. They serve over 100,000 villages. And it added 500,000 retailers to its Shikhar app, which facilitates direct ordering from the company. This is in addition to the wholesale channel that HUL operates.

Last year saw a large part of urban demand shifting to rural India, as workers who would have otherwise consumed in cities bought the same soaps and shampoos in their homes across the hinterland. So, in effect, there was some amount of shifting of consumption, although companies and market research agencies have been unable to quantify how much of a shift in demand that resulted in. For now, market forecasters have not released their medium-term outlook as their surveys have slowed on account of the Covid infections.

The key to demand this year could be how well rural incomes hold. Last year saw cash transfers in the form of free ration handouts. This year the central government has provided 5 kg of foodgrains in May and June at a cost of ₹26,000 crore. Some states like Maharashtra have also said they would provide income support to construction workers and autorickshaw drivers. "We expect rural incomes will be sheltered. Some of the migrant population is going back but it is nowhere are severe as last year," says Rahul Bajoria, chief India economist at Barclays plc.

Going forward, consumer companies are not only keeping a close eye on demand trends but also on inflationary pressures that have started ticking up. Tea, for instance, has seen prices rise. Palm oil prices have risen too. "While these are moving in a cyclical fashion it is too early to conclude whether they will remain elevated for a while," said Mehta. The company may end up making calibrated price hikes in the next few months.

• SAMAR SRIVASTAVA

Joy e-Bikes: Spreading Joy of Sustainable Commutes

Commute is the Key

What is considered to be one of the oldest and biggest inventions of mankind? Wheels! The world saw a revolution with the invention of wheels and motors. In a nutshell, innovation has been driving mankind for centuries and still is.

But there is a question which we always forget or give the least importance to. Why was there a need for a wheel in 3500 BC? There is only one answer to this. Commute. The need for finding a solution for easy commute led to the invention of the wheel and the rest is history. In these years, we have seen different modes of transport based on the simple idea of commute. With the growing population and increased commutes, we never understood the toll it had on Nature.

Solution for A Better Tomorrow

Joy e-Bike is an electric vehicle brand that has more than 10+ electric vehicles in its quiver. Being the flagship brand of Wardwizard Innovations & Mobility Limited, the company shared the same morals and core values as its parent company. With an idea of sustainable mobility solutions for easy commutes, the brand has been running the race in first place in the competition with its competitors and rejuvenating nature. With a whole new level of designs and technology, Joy e-Bike is the only electric vehicle brand in the Indian market with 4+ low-speed bikes and 5+ high-speed bikes.

The Beginning

Joy e-Bike started the electric vehicle race with the introduction of electric bicycles in the year 2016. The brand planned to expand its reach and product line in reference to the immense response received from the people from its ebicycles. The brand knew the drawbacks of increasing the

Mr. Yatin Gupte
MD & Chairman, Wardwizard Innovations & Mobility Ltd.

product line as the world was still not ready for a technology transition, especially in automobiles. The brand took a brave step and launched 3 new products in the low-speed sector. These vehicles neither needed license nor any registrations in the Indian market. Since the retail e-commerce and logistics market was still booming the first 2 vehicles never saw much traction but one in the moped segment threw a silver lining.

Thus, the Revolution Began

Gen Nxt (Generation-Next) was one of a kind in the market for electric vehicles at the time it was introduced. The fact that it never needed any sort of documents to drive and the age barrier of 16+ gave it a boost in the market. This gave the brand its courage to explore the unexplored. With more bikes coming into the market, Joy e-Bike grew huge and its name started spreading on the pan-India level.

The brand later released 3 other products named Glob, Wolf, and Monster. Glob and Wolf catered to the moped segment along with its predecessor Gen Nxt. Joy e-Bike Monster was one of the most awaited electric vehicles in 2019. The brand ran amazing campaigns on-air and social media to get maximum leverage of the sales. Thousands of inquiries flooded in B2B and B2C purchases. With the launch of Monster, we understood India is ready for the transition.

The Grim Challenge

When it comes to challenges, the brand has a lot to list down. But, the more prominent one among these was the global pandemic of COVID-19. Businesses were shutting down, people panicking, no job securities, and much more. The brand knew it had to endure this phase as there is no heading back. We continued with our awareness activities in the same momentum and focused more on building the brand. Competitions were never a challenge as our products were superior both in design and quality. Ignoring the pandemic phase, the major challenge we were going through was with the market mentality. The pandemic also played a huge role in building our brand. This was the time we realized everything won't go according to our plan.

"We never lost hope. The team knew the final figures and knew what had to be sacrificed to achieve it. We fought till we saw the skyline of success"

Key Turning Points:

As a brand, we had our hands on different turning points which led to the success of the brand. But, to point out we have a few listed. Joy e-Bike associated with the Zee Cine Award 2019 as special partner, where the brand and the products went on-air on live television along with India's most adored celebrities. The response was massive and trust us when we say, "we were not prepared". Our tech team found it hard to keep a track of all the inquires flooding in. The awards function gave a pretty boost to the company and placed us ahead of all the competitions. We loved the attention and wanted to maintain the momentum as it is for the coming sectors too.

The Economic Times awarded Mr. Yatin Gupte as – The Most Promising Business Leader of Asia 2020-2021. Further adding a feather to the cap, Joy e-bike got recognized as the Best Brand under the category of Fastest Growing Electric Two-wheeler Company in India by The Economic Times in the 3rd edition of The Best Brands 2020.

By this time, Joy-e Bike had become a well-known brand in the Indian market. We started exploring our overseas operations in Uganda, Africa, and the people welcomed us with a full heart. With all the attention and interest, we understood it's the right time to introduce our much-awaited product line. **Joy e-Bike Supers**. We created a new line of products with high performance and high speed just for the Indian market. With the bikes named Thunderbolt, Skyline, Hurricane, and Beast, they are as rough and tuff as their name itself. We roped in the youth icon Rannviijay Singha to be our brand ambassador and being a motorhead he was excited about the association. To raise the heat of the season in this IPL 2021, the brand took a great step by associating with the **Chennai Super Kings Franchise as their Official EV Partners**.

Our Strength

Joy e-Bike boasts with more than 1000+ dealers/distributors. March 2021 clocked in the greatest number of dealer/distributor networks set all across India. With a massive presence in South India, Maharashtra, and Gujarat, the brand has expanded its reach to Madhya Pradesh, Chhattisgarh, Rajasthan, West Bengal, and Orissa. Is this the brand's strength? No!

The brand's strength is in the bonds. The bond it shares with its fellow partners. The whole business model of Joy e-Bike revolves around the partners. Like many other franchise businesses out in the market, Joy e-Bike doesn't follow them. It shares a simple concept of empowering people. The brand shares the same motto as its parent company **Wardwizard Innovations & mobility ltd of empowering 55,000 entrepreneurs in the coming years. "We are trying to create a bond with our partners so that they can be empowered and can empower others by sharing our vision**".

Way Forward

Smart sustainable mobility is the way forward for every automobile brand. Saying no to combustion engines is a brave decision, but what is stopping you. The brand believes that it is addressing every aspect when it comes to finding a sustainable mobility solution. With more and more products in the inventory and state-of-the-art IoT sensors, and technology, Joy e-Bike is your way to go brand any day over the competitors.

Chairman's Message:

We, at Joy-e-bike, are striving to bring futuristic technology to the Indian market today. Sharing a short glimpse of our future plans to innovate the eco-system positively are:

- A new experience center opening in Delhi.
- Giving out 6000+ Employment Opportunities.
- Launching 2 New Robust EV Models entirely made in India.
- We plan to capitalize 25% of the total market share in E2W by 2030.
- Exploring the new regions of North – North Eastern India.
- Starting Export Operations in Middle East, European and African Regions.

INOCULATION

Are Vaccine Makers Chasing Large Profits?

While manufacturers claim the revised prices are fair, industry experts point out they are far higher than warranted

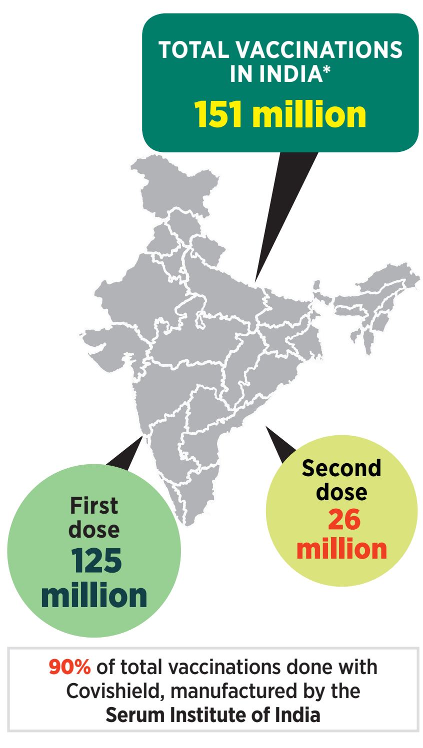
A rice mill worker gets a dose of Covishield at Bavla village on the outskirts of Ahmedabad

AS THE SECOND WAVE OF THE Covid-19 pandemic rages across India—over 30,000 people died in April, and daily cases surged to more than 3.7 lakh—a new battlefront seems to have opened up where the Centre's revised vaccination policy and vaccine prices are concerned.

Desperate to ramp up vaccination numbers, the government now reckons that inoculating a wider group as quickly as possible is key to ending the pandemic; initially it had envisaged an entirely different vaccination programme. The earlier plan was to vaccinate 300 million people, including health care and frontline workers, by July before vaccinating everyone else.

According to the revised plans, from May 1, everyone above the age of 18, which is about 60 percent of the population, will be eligible for vaccinations. For this, the Centre has shifted control of the vaccination programme to states and the private sector. "It would also make pricing, procurement, eligibility and administration of vaccines open and flexible, allowing all stakeholders the flexibility to customise to local needs and dynamics," the government said.

Following this, the Serum Institute of India (SII) and Bharat Biotech announced prices for the private sector and state governments: SII will sell Covishield for ₹300 per dose to states and at ₹600 per dose to private hospitals; Bharat Biotech has pegged prices at ₹400 per dose for state governments and ₹1,200 for private hospitals. SII had announced a price of ₹400 per dose for the states initially, before reducing it by ₹100 a week later. Same for Bharat Biotech, which had initially pegged the cost for state governments at ₹600 per dose. So far, both companies have been selling their vaccines to the Centre at ₹150 per dose. Dr Reddy's Laboratories, which owns the exclusive marketing and distribution rights to sell the Russian vaccine Sputnik V in India, is yet to announce a price, but it is expected to cost less than $10 (₹750). The new policy and prices have caught states unprepared; they are demanding parity with what the Centre was paying. Experts claim the vaccine manufacturers are targeting high profits at the risk of poorer sections losing out on the vaccines. "Considering the economic cost one is paying for Covid-19, there is certainly value at the price at which companies are offering the



AMIT DAVE / REUTERS; INFOGRAPHICS: PRADEEP BELHE

₹4.5K cr

Centre's advance payment to SII (₹3,000 crore) and Bharat Biotech (₹1,500 crore) to scale up production

GETTY IMAGES

vaccines," says Vishal Manchanda, research analyst for pharma at Nirmal Bang Institutional Equities Research. "However, the surge in price from ₹150 to ₹600 seems a bit exorbitant. $1 or $2 per dose is a price that we do get to see in the vaccine space and doesn't seem to be off the mark. The huge demand for vaccines allows producers to operate at a much larger scale than other vaccines they produce, which should significantly help them lower their manufacturing costs per dose." Adar Poonawalla, CEO of SII, clarified that the company will start charging the Centre ₹300 per dose once it completes its initial commitments. "Please understand the ₹150 price which is being thrown around has been for the central government for prior commitments and contracts," he told *CNBC TV18*. "After that ceases to exist, after we supply about 100 million doses to them, which was ordered in bulk a long time ago, we will also charge ₹400 to any government." However, on April 24, the health ministry confirmed on Twitter that the procurement cost will continue to be ₹150. Poonawalla estimates that the pricing of ₹150 has been loss-making for him, especially since SII is looking to ramp up production capacity. "We are losing money at the central government's mandated price of ₹150 per dose," he said. "We have to pay 50 percent of the price to AstraZeneca as royalty."

"For global vaccine makers such as SII, the Ebidta margin on vaccines is between 40 and 50 percent," another analyst with a domestic brokerage told *Forbes India* on April 21. "Those vaccines are priced cheaper, in the range of $1 or $2, like in the case of polio. In this case, with prices on the higher level, and per unit cost being directly related to scale of manufacturing, the Ebidta margin is definitely around 75 percent." Other sector experts agree that the royalty costs don't account for as much as 50 percent. "The royalty that companies typically pay for licensed drugs or vaccines after successful completion of clinical studies is mid to high teens," says Manchanda, and usually doesn't exceed 20 percent. "Comparing prices to the foreign-made vaccines may not be the right benchmark, as these players have the reputation of being the world's lowest-cost manufacturers."

Bharat Biotech, which doesn't need to pay royalty, would have had to invest heavily in R&D. "Even Bharat Biotech would make similar profits," says the analyst with the Mumbai brokerage. "Since it's a privately held company, it is difficult to measure the costs, but it is a function of the price. The higher the price, the R&D cost as a factor will be much lower, compared to when it's sold at ₹150."

Tushar Manudhane, a pharma sector analyst at Motilal Oswal Financial Services, says India will need 1,200 million vaccine doses to cover the population aged between 18 and 45, with current supplies ranging between 100 and 120 million doses. "The supply is much lower than the demand," he says. "After four-five months, there will be other manufacturers, who will come into play, and that could determine the prices then. While supply constraints may keep prices for private markets at a higher level than for the central government over the near term, one needs to have the capacity to fulfil the demand."

Analysts add that manufacturing capacities play a significant role in dictating profit margins. On April 19, Bharat Biotech said it had ramped up its capacity to 700 million doses annually, and received an advance of ₹1,500 crore from the government. Currently, it produces about 5 million doses a month. "The question is about how low you can go on your pricing," adds Manchanda. "And that has to do with capacity. Bharat Biotech has executed its capacity addition. SII has an advantage with economies of scale, which means, it can price it cheaper."

Typically, for a manufacturer with the capacity of making 250 million doses a year, a price of ₹150 will be at a break-even level, or perhaps even a loss. This, without factoring in the cost of capacity expansion that businesses have to bear. "At ₹150, I am not sure if anybody was making money; there are capital investments that an entrepreneur has to recover too," says another analyst at a domestic brokerage. "But, as far as vaccines go, there is a good amount of opportunity available for everyone for the next six to nine months. This is a one-time opportunity. Whether it is sustainable will depend on the effectiveness of the vaccine. We are shorting mankind, and that shouldn't happen."

• MANU BALACHANDRAN & DIVYA J SHEKHAR

"We have to pay **50 percent** of the price to AstraZeneca as royalty."

Adar Poonawalla, CEO, SII, to *CNBC TV 18*

"Covaxin is an inactivated and highly purified vaccine, making manufacturing expensive, due to low process yields. All costs toward product development, manufacturing facilities and clinical trials were deployed primarily using internal funding resources of Bharat Biotech."

Krishna Ella, chairman, Bharat Biotech

The Pricing Conundrum

What the government pays per dose:
₹150 (for both **Covishield** and **Covaxin**)

Proposed prices:

Covishield: ₹300 for states;
₹600 for private hospitals

Covaxin: ₹400 for states;
₹1,200 for private hospitals

Sputik V: **₹750** (estimated)

10-20%: Royalty charges for Covishield (estimates)

40-50%: Profit margins on the new prices for manufacturers, according to experts

CRYPTOCURRENCY

Tiger's Indian Crypto Bet

Investment in CoinSwitch Kuber suggests investor confidence in India's cryptocurrency startups

BEN GABBE / GETTY IMAGES

Scott Shleifer, partner at Tiger Global, says the investment firm is excited to invest in CoinSwitch as it innovates in an emerging asset class

TIGER GLOBAL MANAGEMENT'S $25 million investment in BitCipher Labs in April marked the first investment in an Indian crypto startup for the New York-based investment firm, which is famous for its early backing of Flipkart, India's most successful startup. Bengaluru's BitCipher operates one of India's most popular cryptocurrency buy-and-sell exchanges, CoinSwitch Kuber.

While Tiger Global is known for backing many big tech names, including Facebook, Uber, Airbnb, Stripe and Coinbase, in India, it is known for its investments in Flipkart, Ola, Zomato and Byju's. It has now added an Indian crypto startup to its portfolio. With Tiger's investment, CoinSwitch's valuation jumped five-fold to more than $500 million in just four months.

"As it builds India's leading cryptocurrency platform, CoinSwitch is well-positioned to capture the tremendous growing interest in crypto among retail investors. We are excited to partner with CoinSwitch as it innovates in this emerging asset class," Scott Shleifer, partner at Tiger Global, said in a press release.

CoinSwitch will use the money in three ways. First, to spread awareness about what crypto is and why it could be useful, because there are still many misconceptions about cryptocurrencies, Ashish Singhal, co-founder and CEO of the company, tells *Forbes India*. Second, the company, which has about 135 employees, is looking to go up to 300 by adding top-notch product development talent. Third, it will invest much more in its security infrastructure and in ensuring its operations are stable.

The company is adding 1-1.5 million users every month. It expects to more than double its users to 10 million this year. CoinSwitch is "highly profitable", but Tiger Global's investment brings high-profile global recognition and validation, says Singhal, who founded the company about three-and-a-half years ago with his college mates Govind Soni and Vimal Sagar Tiwari. They had previously worked at Amazon, Microsoft and Zynga, respectively.

"I think Tiger coming in with a big cheque, and valuing the company at over 500 million dollars, is not just good news for CoinSwitch, but also for the industry," Singhal says. "These are the giants who backed companies like Coinbase and paved the path for crypto in different countries."

WITH TIGER'S INVESTMENT, COINSWITCH'S VALUATION JUMPED FIVE-FOLD TO MORE THAN $500 MILLION IN JUST FOUR MONTHS

Singhal's reference to America's largest cryptocurrency exchange Coinbase is because of its recent blockbuster public listing on the Nasdaq stock exchange. With its listing, Coinbase became a $100 billion role model for other crypto startups, and entrepreneurs like Singhal are pumped about it. "Getting these giants to back us, to back the India crypto story, is a very big deal

$15 mln

Amount raised by CoinSwitch Kuber in a Series A funding round in January 2021

India's Top Five Funded Crypto Startups

Company	Overview	Founded Year	Total Funding ($ mln)	Latest Funded Date	Latest Funded Amount ($ mln)	Company Stage	Institutional Investors
CoinSwitch	Online & app-based trading platform for cryptocurrencies	2017	**41.5**	Apr 22, 2021	**25**	Series B	Ribbit Capital; Paradigm; Tiger Global Management; Sequoia Capital
CoinDCX	Cryptocurrency exchange platform	2017	**19.4**	Dec 22, 2020	**13.9**	Series B	hdrgroup.com; Block.one; Digital Gold Laboratory; Coinbase Ventures; Jump Capital; Jet Investment; Shyn Capital; Polychain; Uncorrelated Ventures; Mehta Ventures; Bain Capital Ventures
Unocoin	Exchange platform for cryptocurrencies	2013	**6.75**	Oct 8, 2020	**5**	Series A	Bitcoin Capital; Future Perfect Ventures; Digital Currency Group; BnkToTheFuture; Boost VC; Astir Ventures; ah! Ventures; Blume Ventures; Dream Incubator; Draper Associates; 2020 Ventures; Mumbai Angels; Digital Finance Group; FundersClub; XBTO
Vauld	Financial services for cryptocurrencies	2018	**2.5**	Dec 28, 2020	**2**	Seed	Coinbase; gumi Cryptos; Better Capital; Robot Ventures; CoinShares; Rise Conf; LuneX Ventures; CMT Digital; Pantera Capital; newformcap.com
InstaDApp	Decentralised banking platform	2018	**2.4**	Oct 2, 2019	**2.4**	Seed	Ideo CoLab; Robot Ventures; Coinbase Ventures; Pantera Capital; dtc.capital

SOURCE Tracxn; Venture Intelligence

for the industry," Singhal says. "Even when regulations aren't clear, this is a stamp (of recognition)—from people outside the country who have built this industry—about where crypto is headed in India."

A publicly listed company goes through the checks and balances that every startup strives to live up to someday, so Coinbase is showing the way for others to follow. For the last ten years, it went through the same scenarios that CoinSwitch and other crypto companies in India are going through today—working to convince regulators, Singhal says.

Coinbase gives traditional financial investors a chance to take an indirect exposure to cryptocurrencies by buying its stock on the Nasdaq, Kumar Gaurav, founder and CEO of crypto-friendly neo-bank Cashaa, tells *Forbes India*. Before Coinbase got listed, there were hundreds of other crypto companies that were listed on the Toronto Stock Exchange in Canada, for example, adds Gaurav. And many Chinese investors—barred by the People's Bank of China from directly investing in crypto—have been buying these stocks for three years now, he says. As prominent companies like Coinbase get listed, small, individual investors will also be encouraged to buy these stocks.

Other experienced and well-known global investors are also backing Indian crypto startups. CoinSwitch itself counts Sequoia Capital as an early investor, and firms such as Ribbit Capital and Paradigm—founded in 2018 by former Sequoia Partner Matt Huang and Coinbase co-founder Fred Ehrsam—joined the Bengaluru startup's cap table in its $15 million Series A round announced in January.

While local investors are concerned about the lack of regulatory clarity, international investors have seen the story play out in the US, China, Europe, Japan and Australia. They know that India will eventually favour regulating crypto, says Sumit Gupta, co-founder and CEO of crypto exchange CoinDCX. He is also a member of the Blockchain and Crypto Assets Council of the Internet and Mobile Association of India, a lobby.

Global investors "see that India wouldn't want to miss out on Internet 3.0", Singhal says. "India could be one of the global giants leading this industry rather than outright banning it." With Aadhaar, India's unique ID system, and its Unified Payments Interface, the country is way ahead of many others in terms of the digital infrastructure. Crypto and its underlying technology, blockchain, "can take this infrastructure to the next billion people", he says.

The total market value of all the cryptocurrencies out there today is over $2 trillion, and Gupta believes it could jump five-fold over the next five years, "which is a long period in the world of crypto". India can "easily" capture 10 to 15 percent of this value, he says, with its 45 million engineers, and companies such as Tata Consultancy Services and Infosys as breeding ground for developers.

The government might face some delay in bringing The Cryptocurrency and Regulation of Official Digital Currency Bill, 2021, before lawmakers for debate as other finance ministry-related bills may be prioritised, according to reports in March.

Entrepreneurs like Gupta are unfazed. "Just imagine," he says. "If the government gives the go ahead, India can produce many multibillion dollar businesses in cryptocurrencies."

• HARICHANDAN ARAKALI

ALPHABET MAN OF INDIA SETTING THE FOUNDATION RIGHT

Sri Nalla Malla Reddy is the Inventor of "Learning Device for beginners for through practice of the letters of Alphabets in grooves" for which patent is awarded in the year 2019.

An educationist with social concern, running Nalla Malla Reddy Engineering College, an Autonomous college, putting up efforts to produce quality Engineers by improving quality of the faculty and students by implementing better practices. While recruiting the faculty and admitting students into the college he was annoyed by seeing the standard of their Education with a litmus test, by giving a white paper and a pad to put up application presenting themselves in few sentences. More than 90% of the M.Techs with distinction marks, Ph.Ds, graduates and students applying for admission proved incapable of writing few sentences correctly on paper. Even the teachers for employment in the school who moulds and grooms the future citizens proved sailing in the same boat of substandard stuff. When an educator does not have standards how could the students get educated properly? The same standardless stuff is being cycled in today's education.

Degrees and certificates with marks are churned out without quality of employability. Apart from this, more than 50% of the students are dropping out at primary to secondary level from the schools. Many of the students at high school level are unable read and write, particularly in the rural schools.

In this pursuit, he started Nalla Malla Reddy Foundation School and went into the roots; found out that the foundation is forgotten rather neglected at pre-primary level. Building blocks are constructed up and up looking at the top neglecting the base.

The strides in expansion and enormous growth of schools, colleges and universities by spending lakhs of crores of rupees of Govt. exchequer, private sector and of the parents is very much laudable and deserving but what is the nett result? Merit and quality are lost and neglected.

Sri Nalla Malla Reddy

In simple terms Education is nothing but reading, writing, learning and becoming knowledgeable with application of mind contributable of the perceived knowledge through the medium of language in written format. The difference between educated and uneducated is, an uneducated cannot put on paper though having thoughts and worldly knowledge.

> ***"In simple terms Education is nothing but reading, writing, learning and becoming knowledgeable with application of mind contributable of the perceived knowledge through the medium of language in written format. The difference between educated and uneducated is, an uneducated cannot put on paper though having thoughts and worldly knowledge.***

Keeping in view of linguistic states in our country, he prepared slates with letters in grooves in 15 major languages out of 22 recognised languages and unveiled "Aksharabhyas" Kit for the beginners to lay proper foundation at pre-primary level itself in reading and writing, "Aksharabhyas" being his trademark.

There is no Education without language. There is no language without Alphabet. There is no Alphabet without letters with specific sounds. Letters of Alphabets make words, words make sentences. Knowledge is preserved for the present and future generations either on paper or digitally through language only.

With experiences in his Foundation School, he observed that, only with foundation in the letters of Alphabets one can read and write, enabling the children in to excel in their future education. This needs thorough practice of letters by reading and writing many times till perfection.

We know the dictum "practice makes perfect". Practice by tracing on paper many times is not possible and a costly affair as well paper needs cutting of forests causing environmental hazard. Educationists put forth many theories for child learning. Slates have become desolate.

He brought out a new age device, the forgotten slate with letters in grooves for learning by tracing hundreds and thousands of times with pencil in the grooves. This slate is unsoakable, washable, unbreakable, less expensive, can be preserved for generations and eco-friendly, saving forests from cutting. Pencil is the only expenditure.

Keeping in view of linguistic states in our country, he prepared slates with letters in grooves in 15 major languages out of 22 recognised languages and unveiled "Aksharabhyas" Kit for the beginners to lay proper foundation at pre-primary level itself in reading and writing, "Aksharabhyas" being his trademark.

AKSHARABHYAS Kit:

The Kit is enclosed with 3 bags in it, part 1 with three slates and part 2 with three slates in Regional, National and English languages including multiplication tables and part 3 with Foundation book to read and learn and a Copy writing book to practice on paper, both of them for learning 3 languages simultaneously.

He started Aksharabhyas Trust with his own money. Checked the learning levels of 3 to 4 years old children by opening 30 centers in Hyderabad 3 years back introducing Aksharabhyas kits. Within one, one and half year they reached the stage of reading and writing perfectly.

Now, it is for the parents, teachers and the governments to realize today's ground reality and implement it for improving the standards, aspiring us to be a knowledge society.

You may please visit our websites **www.aksharabhyas.com** and **www.nallamallareddypublications.com.**
Available for purchase from Amazon.in or Flipkart.com.

THE MIDAS LIST

Goldfingers

Our annual ranking of the world's top 100 venture capitalists.

A NEW ERA OF TECH GIANTS such as Coinbase, Kuaishou and Stripe means a changing of the guard among the world's leading VCs. Now in its 20th year, Forbes' Midas List welcomes 24 newcomers, including its first South American investors. Here are highlights from this year's ranks, including the biggest deals, the Top 20 and a new No. 1.

Cool in a Crisis

In just two days last year, Alfred Lin enjoyed two of the 10 biggest-ever exits among US. tech firms. On December 9, food-delivery service DoorDash went public on the New York Stock Exchange; it ended the day with a market capitalisation of $60 billion. The next day, home-rental leader Airbnb listed on the Nasdaq, scoring a $79 billion market cap.

Those two outcomes alone generated profits—on paper, at least—of more than $21 billion for Lin and his VC firm, Sequoia. They're also a big part of the reason why the Bay Area resident, who also backs wholesale marketplace Faire and social media platform Reddit, has vaulted to No. 1, from No. 32, on our annual Midas List.

Lin's specialty: Helping build organisations the way he did at Zappos, where he was chairman and COO for a time. He and his Harvard classmate, the late Tony Hsieh, sold their first startup for $265 million and plowed some of the proceeds into an incubator that bet early on Zappos; they sold the shoe retailer to Amazon in 2009. A year

Alfred Lin

$328.5 bln The total deal value in the global VC industry as of 2020, compared to $34.4 billion in 2002

later Lin joined Sequoia, which had recently written several early-stage cheques to Brian Chesky's fledgling Airbedandbreakfast.com. Reportedly offered a job there, Lin joined its board in 2012 and soon spent one day a week in its office. When the pandemic hit and Airbnb's business faced the "abyss" in March 2020, Lin dived in, working closely with Chesky and the rest of Airbnb's board to slash costs, lay off staff, take out debt to cover refunds and pivot the business to focus on work-from-anywhere travel. Likewise, Lin helped DoorDash's Tony Xu, whom he'd backed in a Series A round in 2014, secure safety equipment for its delivery contractors, cut commissions and set up free meals for first responders. "It's helpful to have a supporting partner when things are that stressful," Xu says. "Then, when things are less stressful, they're someone who will challenge you. . . . Alfred knows when to balance those two sides of him."

Adds Lin: "I think these trying times are fun. Not because I'm a masochist, but I do think you don't know if you've built something of enduring value until you're tested."

NOTABLE NEWCOMER

After founding three startups and teaching engineering at Stanford, Spain-born Mar Hershenson started Pear VC with former rug dealer Pejman Nozad (No. 15). Their early bet on DoorDash propelled them onto the Midas 100. Ranked No. 29, Hershenson is one of 12 women on this year's list

THE TOP TWENTY

1. Alfred Lin
Firm: Sequoia
Notable Deal: Airbnb

2. Neil Shen
Sequoia China
Xpeng

3. Hans Tung
GGV Capital
Wish

4. Richard Liu
5Y Capital
Xiaomi

5. Michael Speiser
Sutter Hill Ventures
Snowflake

6. Satish Dharmaraj
Redpoint Ventures
Snowflake

7. Chris Dixon
Andreessen Horowitz
Coinbase

8. Zhen Zhang
Gaorong Capital
Pinduoduo

9. Roelof Botha
Sequoia
Unity

10. Lee Fixel
Addition
Roblox

11. Navin Chaddha
Mayfield
Poshmark

12. Sameer Gandhi
Accel
CrowdStrike

13. Jeff Jordan
Andreessen Horowitz
Airbnb

14. Jan Hammer
Index Ventures
Robinhood

15. Pejman Nozad
Pear Ventures
DoorDash

16. Peter Thiel
Founders Fund
Airbnb

17. Scott Shleifer
Tiger Global Management
Postmates

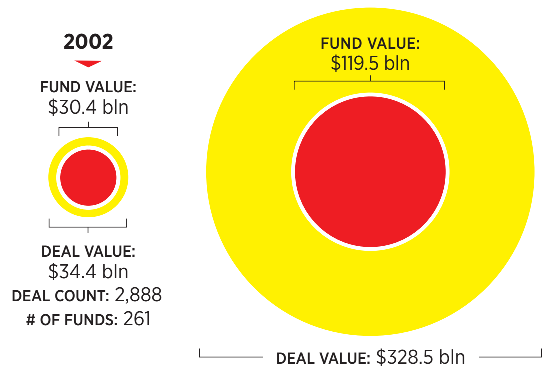
18. Joe Lonsdale
8VC
Wish

19. Jeremy Liew
Lightspeed Venture Partners
Affirm

20. Bill Gurley
Benchmark
Uber

GROWTH EQUITY

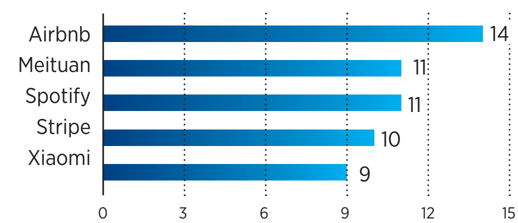
From deal values to the sheer number of funds, the global VC industry has ballooned in recent years. Below, a comparison of 2002, the earliest data available, and 2020, adjusted for inflation



SOURCE PitchBook

HOME RUN HITTERS

These internet standouts have helped consumers around the world work from home anywhere, listen to music, shop online and stay connected as our lives moved virtual. They also helped put the most investors on this year's Midas List



THE MIDAS LEGENDS

John Doerr, a partner at Kleiner Perkins who was an early investor in Amazon, Compaq and Google, as well as DoorDash, Slack and many more. Sequoia partner and former journalist Michael Moritz—an inaugural member who dropped off for one year in 2018—comes close

Most appearances by active Midas List members:


John Doerr
20


Michael Moritz
19


Doug Leone
16


Scott Sandell
15


Vinod Khosla
14

EDITOR: ALEX KONRAD; REPORTING BY BECCA SZKUTAK AND NINA WOLPOW LIN AND HERSHENSON: CHRISTIE HEMM KLOK FOR FORBES; DOERR, LEONE, KHOSLA: GETTY IMAGES; MORITZ: AFP; SANDELL: BLOOMBERG

$2.4 bln

Donald Trump's estimated fortune during his departure from the White House a few months ago


GETTY IMAGES

POLITICS

Trump's Bad Bet

The former president refused to divest his assets when he took office in 2017. It cost him some $1.6 billion

FROM THE TIME HE entered the White House in January 2017 to his departure a few months ago, Donald Trump's fortune fell by nearly a third, from $3.5 billion to $2.4 billion. The S&P 500, meanwhile, increased 70 percent.

Every investor at some point has kicked himself for holding an asset too long. Perhaps none, however, has made such a monumental miscalculation. By refusing to divest his portfolio upon taking office, Trump bogged down his presidency with ethics issues for years, while also missing a chance to cash in on a market boom he helped propel.

If he had sold everything on Day 1, paid the maximum capital-gains taxes on the sales, then put the proceeds into a conflict-free fund tracking the S&P 500, Trump would have ended his presidency an estimated $1.6 billion richer than he is today. Below are his four biggest losers and top two gainers.

6 East 57th Street • *New York*

NET VALUE: **$148 million**

CHANGE DURING PRESIDENCY:
↓ $217 million

Online shopping has wreaked havoc on buildings like this, a glitzy 65,000-square-foot space just off Fifth Avenue in the middle of what was once one of the busiest retail locations in the world. It hasn't helped that Nike abandoned its five-story flagship in 2018. Tiffany, which has been sub-leasing Nike's old space while its own Fifth Avenue hub is being renovated, is slated to vacate in 2022

40 Wall Street • *New York*

WHAT HE OWNS: **Leasehold**

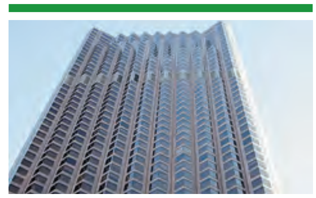
TOTAL VALUE: **$304 million**

DEBT: **$137 million**

NET VALUE: **$168 million**

CHANGE DURING PRESIDENCY:
↓ $195 million

Profits at Trump's Financial District tower, home to dozens of small firms, plummeted 32 percent during the first three quarters of 2020, the most recent period on record



555 California St • *San Francisco*

WHAT HE OWNS: **30 percent stake in three-building complex**

TOTAL VALUE: **$1.9 billion**

DEBT: **$538 million**

NET VALUE: **$422 million**

CHANGE DURING PRESIDENCY:
↑ $102 million

Two of Trump's major tenants here, Goldman Sachs and Bank of America, made a show of distancing themselves from Trump after the Capitol riot. Behind the scenes, however, both re-upped their leases in Trump's most valuable property

Hotel Management & Licensing

NET VALUE: **$57 million**

CHANGE DURING PRESIDENCY:
↓ $163 million

Trump's branding business didn't benefit from four years of polarisation and the January 6 Capitol riot. Several licensees have dropped the Trump name from their properties, and no one seems eager to step in and replace them. "He has done permanent damage to the Trump name and image, at least for two or three decades," concludes real estate analyst Kevin Brown

Trump National Doral, Miami

TOTAL VALUE: **$135 million**

DEBT: **$125 million**

NET VALUE: **$10 million**

CHANGE DURING PRESIDENCY:
↓ $160 million

Business at this golf resort was already bad before the pandemic. Then revenue plunged more than 40 percent. With $125 million of Deutsche Bank debt coming due in 2023, rumors are circling that the Trump Organization may consider turning the property into a casino

Mar-a-Lago • *Palm Beach, Florida*

NET VALUE: **$250 million**

CHANGE DURING PRESIDENCY:
↑ $75 million

When the coronavirus hit, northeasterners flocked south and Floridians stayed put. Huge demand and limited supply were welcome news for the state's homeowners, including Trump. He bought the Palm Beach club, where he decamped after leaving DC, in 1985 for about $10 million: $5 million for the oversized home, a reported $3 million for fancy furnishings, plus another $2 million for beachfront land across the road

Above-Average Joe

President Biden's net worth has soared in recent years

Throughout his career, Joe Biden was fond of saying he was the "poorest," or one of the poorest, officials in Congress. That's no longer the case. During a campaign stop last year in South Carolina, he said he was "stunned" by his post-vice-presidential earnings, citing the success of Promise Me, Dad, his book about his son Beau, who died of cancer in 2015: "I didn't realize it, but I made a lot of money."

Thanks to his book deal and the speaking circuit, Biden and his wife, Jill, raked in about $11 million in 2017 and another almost $6 million in 2018 and 2019. He used some of that to buy a 4,800-square-foot seaside escape in Rehoboth Beach, Delaware, for $2.7 million in 2017. His most valuable asset, it's now worth an estimated $3.4 million, up some 25 percent in four years—lifted in part by surging home values during the pandemic.

Forbes pegs Biden's net worth, after taxes and spending, at an estimated $9 million, including the beach house, a home in Wilmington, Delaware, a federal pension worth more than $1 million, plus cash and investments. That's to say nothing of his recent raise: Biden earns $400,000 a year as President, up from $230,700 as VP

TRUMP BY DAN ALEXANDER; BIDEN BY MICHELA TINDERA

TRUMP: CHIP SOMODEVILLE / GETTY IMAGES; BIDEN: ERIN SCOTT / GETTY IMAGES; CRAIG WARTGA / BLOOMBERG; EPICS / GETTY IMAGES; MATTHIAS LERVOLG / GETTY IMAGES; JULIE THURSTON / GETTY IMAGES; MICHELE EVE SANDBERG / GETTY IMAGES;; JOE RAEDLE / GETTY IMAGES

ankura hospital
for women & children

THE HEALTHCARE BRAND OF INDIA'S FUTURE!

Being the Founder-CEO of a fast-growing healthcare brand means being part doctor, part business leader and full-time entrepreneur, requiring a blend of passion, advocacy, diplomacy, business and financial acumen. The stakes of this role go beyond profit and loss, into the realm of life-saving and nation-building! These high stakes haven't deterred Dr. Krishna Prasad Vunnam, known to his peers as Dr KP. In just under 10 years, he has steered Ankura Hospitals for Women & Children into one of the leading healthcare brands in South India with an emphasis on empowering women and children's health.

Dr. Krishna Prasad Vunnam,
Founder-CEO,
Ankura Hospital for Women and Children

The Sprout!

As a medical practitioner, Dr KP specializes in premature delivery baby management, advanced ventilation in new-born and parental nutrition. After coming back to India from Australia, he immersed himself into understanding how to improve the hospital experience and the future of the healthcare industry overall.

He explains, "Systemic healthcare for women and children is a huge issue in our country, and for me, it's emotionally loaded because it means there are a billion stakeholders involved. We have after all, the world's youngest population, and half of our population is female. We are living and working through a time when healthcare leadership & medical innovation in this segment are crucial for our nation to cement its place as a world leader."

Towards achieving this, his focus has been on innovating new health delivery models, partnering with experts to focus on wellness and prevention, and improving clinical quality. He is also a prominent voice addressing how our society can build a more sustainable healthcare system, one that increases access, affordability and outcome predictability.

Blooming numbers!

The first Ankura Hospital was set up in Hyderabad in 2011. In just a short span of 9 years, Dr KP has built Ankura Hospitals into the top 3 hospitals in India in the woman and child healthcare segment, with 10 world-class centers across Telangana & Andhra Pradesh. Ankura facilitates care for all stages of a woman and child's life pan birth, adolescence, motherhood, menpause and beyond.

Today, over 50,000 families trust Ankura Hospitals with their healthcare needs. Their team has performed over 30,000+ deliveries till date, with some extremely complicated NICU and PICU cases being successfully dealt with.

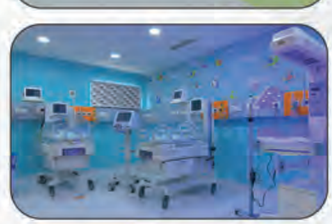
The Seeds of Innovation, Reach & Expertise

Dr KP's tenure has seen Ankura Hospitals come to the forefront of a changing healthcare environment in the segment. His efforts have resulted in outstanding credit ratings, a robust financial profile, and a proven track record of delivering the highest value pediatric and maternal care in South India.

Dr KP states, "From an organizational standpoint, our value proposition is technology leadership, innovative ways to practice and dispensation of medical care at cost and at scale. We want to provide the highest quality health services across geographies by increasing our reach and utilising technology. We are also spreading our wings into tier 1 and tier 2 cities across India. Beyond that, we want to be just a phone or video call away to anyone who needs us, all day every day. The vision is for Ankura Hospitals to be known as a brand for its growing, high-performing health services portfolio, to become a medical destination for women and children with the most complex needs, and to be uniquely positioned in the country as a trusted provider of medical & healthcare services, knowledge and education. We want to be not just the largest but also the most advanced healthcare provider in the country. We want everyone to have the One Ankura Experience"!

The Future

With 10 hospitals and counting, Ankura Hospitals has plans of opening more world-class centers in the coming years. They recently signed up Sonu Sood as their Brand Ambassador. "His compassion, empathy, integrity & reliability in addressing humanitarian issues resonate with our purpose and mission. We see Ankura as the hospital of tomorrow continuing to be the focal point of healthcare delivery in each community it operates". Doesn't all this pressure get to him? "Of course, the hours are long and stakes are high but I love working on these challenges. We have amazing people doing amazing things and it always takes me back, no matter how difficult and consuming some of the challenges I may be dealing with, to the fact that we are making a big difference in people's lives and helping them through significant life events," he signs off!



IT'S TIME TO HAVE A CYBER QUOTIENT

By **SAKET MODI**

Data and its privacy in the new world order needs an all-in-one platform for people to check their sensitive information exposures and remediate the same, learn about preventive measures against cyberattacks, and more robust cyber hygiene practices

"My house is my castle, how can you disturb me at my home? My time is my time; my life is my life. My privacy is supreme to me."

- Former Chief Justice of India Dipak Misra, while delivering the MC Setalvad Memorial Lecture in New Delhi.

For eons, humanity has been able to survive because of its collective ingenuity and intelligence. Anything that threatens to curb this freedom needs to be handled with utmost caution. At the 2019 Stanford Commencement, Tim Cook said that the thoughts, innovations, creations, and designs that humans can create would be drastically stifled if their privacy is at stake.

Under Article 21 of the Indian Constitution, the Right to Privacy is recognised as a Fundamental Right for every living person in India. While we await the Personal Data Protection Bill (2019) to be passed in Parliament, the pandemic has accelerated digital growth and cyber-adoption. What happens when a country of 137 crore people depends on the internet to function? An insurmountable amount of data is being created, transmitted, and stored. An astonishing 463 exabytes of data will be generated each day, and India, a data-rich economy, will account for about 21 exabytes per month by 2025! For perspective, to create 1 exabyte of data, your video call would have to last for 2,37,832 years!

Rightly, Covid-19 has been called the 'great accelerator' of digital transformation. Individuals across sectors including, but not limited to, education, manufacturing, banking and payments, retail, ecommerce, and fitness moved to adapt their life around gadgets. Virtual life has taken center stage as the pandemic continues beyond 2020. At the heart of everything that kept (...is keeping) the gears of the world turning is the well-oiled machinery of 'digital' and 'cyber'. Between data-rich giants such as Facebook and Cambridge Analytica finally being held accountable for their actions, and the common man's furore over the intrusive Privacy 'Terms and Conditions' of WhatsApp, there is a visible recognition of the fact that data privacy can no longer be an afterthought or a commodity.

WHY IS DATA PRIVACY A MATTER OF YOUR CONCERN?

Humans are born with a reflex to protect themselves, but this has developed over years of evolution through learning and relearning. That explains why we still look both ways before crossing a one-way street, yet rarely stop to question the legitimacy of links sent to us by a stranger, online. The pace at which 'digital' and 'cyber' engulfed us did not allow a protective reflex to develop. Unlike the physical copies of important documents that are kept under lock and key, people tend to trivialise the impact a data breach can have on them—at home and at work.

Many applications, websites, and services which don't need access to your data are collecting it anyway with your permission. While you get comfortable with targeted advertisements on social media and customised content, you gently allow privacy to be controlled by corporates. The plethora of data circulated online originates from people saving and sharing Personally Identifiable Information (PII) in abundance without a care in the world. While you're unaware of the number of exposures you have, they're being used to gain access into the accounts you hold most dear—your Gmail (which is further connected to your digital life), your Facebook (again connected to a larger ecosystem,

ILLUSTRATION: SAMEER PAWAR

and experienced a recent breach of 533 million users' data), your bank accounts and financial apps like Paytm and Zerodha (MobiKwik and Upstox—the second largest in these categories—have already seen recent large breaches) and anything else they can get access to, including using your accounts to deceive members of your family. Sensitive information such as sexual orientation, gender identification, addresses, among others, could be misused to orchestrate horrific crimes such as sextortion and teenage blackmail, financial frauds, email scams, and more.

There is a massive gap in how consumers or end-users navigate the internet. No one taught the current digitally-native generation how to use the internet safely, let alone their parents or elder relatives. These are the same people who are employees at an MNC, the CEO of an MSME, a receptionist at an IT company, or the teller in a bank, hence becoming critical for enterprise and national cybersecurity. At a juncture in human evolution at which technology is embedded within every action and thought, security can no longer be an afterthought.

SOFTWARE, HARDWARE, PRODUCTS & SERVICES NEED TO BE SECURE BY DESIGN

The de facto standard of any data that goes and therefore stays on the internet should follow the holy grail of Confidentiality, Integrity, and Availability. This triad is the bedrock of cybersecurity. There are so many forums for redressal after a cyberattack, but so few to improve personal digital hygiene to prevent it.

Depending on corporate entities 'to do the right thing' or waiting for the government to act is no longer sufficient. When the pandemic began, Zoom was a software most of us depended on and used. Their sales jumped 169 percent year-on-year in the three months to April 30, 2020, to $328.2 million! However, a series of hacks revealed security flaws—the company had sent user data, wrongly claimed end-to-end encryption, and allowed meeting hosts to track attendees. Immediately,

People need to hesitate, stop and develop a healthy scepticism about things on the internet the way they do in the real world

FAISAL KHAN / ANADOLU AGENCY VIA GETTY IMAGES

their stock prices dropped like a rock in April, plummeting 17 percent. Is it not time to create technology that is secure by design rather than continuously adopt a reactive approach that is evidently failing?

Despite businesses investing billions of dollars in cybersecurity, the World Economic Forum, EY CEO Imperative Study, the PwC 24th CEO Study and more identified it as one of the biggest threats to the global economy, and 2020 might just have been the worst year so far. Even while 90 percent of data breaches have a human aspect, less than 10 percent of budgets is allocated to prevent it proactively. Case in point: Nearly 70 percent of employees polled in a survey said they recently received cybersecurity training from their employers, yet 61 percent failed when asked to take a basic quiz on the topic!

The issue plaguing data and its security is two-fold: Firstly, there is a total lack of its standardisation—at the macro (international), mini (intra-national), micro (enterprise), and nano (individual) levels. Today, we can estimate a person's health by studying their pathology reports with the healthy 'normal' enumerated. Similarly, we can gauge and standardise levels of intelligence (cognitive and emotional) with granular, decimal point values. However, for a generation that has grown up and lived during the internet's surge, it is uncanny how under-examined their cyber-intelligence is. There is no metric to gauge the cyber-health/awareness of an individual! By what means of comparison, then, does one understand where things are going well and what can be done better unless there is a universal standard of cyber consciousness?

Secondly, the masses rely on unverified videos and online searches for cybersecurity-related answers. Such a siloed approach to cyber awareness is cumbersome. It needs to be repeated periodically to keep up with the evolving trends, tactics, techniques, and procedures used by cybercriminals. This narrative can change with the re-engineering of cyber-consciousness. People need to hesitate, stop and develop a healthy scepticism about things on the internet the way they do in the real world.

For the level of collective re-engineering needed at the moment, there has to be a solution that appeals to the masses and will be the single source of truth. It has to be able to incorporate the infinite number of variables that each individual possesses, while simultaneously being snappy, fast, slick, and modern. It should also retain the essence of cyber awareness—across every digital platform that exists, be it social media or digital payments applications, online shopping, or work emails and communication. What we need is an all-in-one platform for people to check their sensitive information exposures and remediate the same, learn about preventive measures against cyberattacks such as better device hardening, and more robust cyber hygiene practices. With each level of cyber awareness unlocked, individuals can get to know their own 'Cyber Quotient' (an SI unit for personal cybersecurity) and strive to improve it in real time. As cybercriminals get more assertive and sharper, the people of this world will have to step up and come together to make this remarkable global entity—the internet—a safe space for one and all.

'Never Trust, Always Verify' is the newest form of currency for people and businesses to move forward, together. Digitisation is a fundamental reality, and the sooner people realise their role in enabling cybersecurity, the better it will be.

The future of a digital-first world comes with a forewarning: You can have security without privacy, but you can't have privacy without security. Published in 1949, George Orwell in his novel *1984*, had accurately predicted that our ignorance would be the strength of Big Brother(s). However, he also said, "Nothing was your own except the few cubic centimeters inside your skull". Let us use it wisely to keep what's only and only ours precisely that way—private. F

SAKET MODI IS CO-FOUNDER & CEO, SAFE SECURITY

PREMIUM
Your addition in transmission

PREMIUM TRANSMISSION IS INDIA'S FIRST INDIGENOUS INDUSTRIAL GEARBOX MANUFACTURING ORGANIZATION

Premium Transmission is a leading manufacturer and supplier of mechanical power transmission solutions. Started in 1961 with manufacturing Worm gearboxes, today the company has a wide product portfolio encompassing Helical Gearboxes, Planetary gearboxes, Lift Machine Gearboxes, Geared Motors, and Fluid Couplings. They manufacture custom-built gearboxes for special applications as per customer requirements. Their gearboxes are known to operate efficiently under robust conditions. The company's service franchise 'Premium Care' is a One-Stop Solution for overhauling and reconditioning gearboxes, geared motors, fluid couplings and lift machines of any make. They support their customers in any part of the world for pre-installation site assessment, equipment installations, and after-sales service with a single point of contact.

"We have a wide array of products that serve diverse industries. Our customer base is not limited to any particular geographical location. We continuously strive to cater to the global engineering industry. With a vast network of dealers, we supply gearboxes to customers across the globe. Our aim is to serve customers with the best possible service even at the remotest locations. Our manufacturing unit in Germany helps us move forward in visualizing this purpose of serving our customers to the best possible extent," says Neeraj Bisaria, Managing Director & CEO.

More about the CEO

Neeraj Bisaria is a business leader with over 29 years of experience managing key roles in the manufacturing industry. He has pioneered and transformed businesses with his strong leadership skills and people first attitude. Having global experience, he has expertise in managing cross-cultural teams to obtain extraordinary results. With a strong focus on process improvement, Operation management & Capacity enhancement he has turned around businesses to be at par or even exceed international demands.

Neeraj Bisaria, Managing Director & CEO, Premium Transmission

Biggest Challenges faced by Premium Transmission

The pandemic posed a serious threat to businesses. In recent times the biggest challenge for the company was ensuring the health and safety of employees and keeping them engaged in spite of the extremely uncertain external environment. Also, they had to ramp up their manufacturing capabilities to meet customer expectations and contribute to their success as normal without any effect on their project timelines. And the third challenge was to keep the prudent financial health of the company especially in cash situations which enables them to take care of all stakeholders.

"The current time is the biggest test of leadership attribute in any organization if succeed during these difficult times in Pandemic, we are real leaders. We have to work really hard to emerge stronger beyond the pandemic and rise like a phoenix," says Neeraj.

The success of organizations in the manufacturing space will depend on how they will be handling digital transformation along with technological transformation which will be required to address upcoming changing landscapes. Embracing technology to keep abreast of the changing times will be a game-changer for the company.

"Being a leader every decision which protects the interest of customers, employees and investors are very important for me. I take extra efforts to make sure that my decisions are aligned and are in the best interest of all the stakeholders involved," he adds.

Premium Transmission encourages a culture that's accommodative of the unintentional mistakes and provides them with an environment that enables them to learn from their mistakes. Neeraj constantly asks his people to give their 100% and think out of the box because one should think beyond their daily activities in order to achieve extraordinary results.

Talking about future endeavors, he says, "We are actively engaged in increasing our range of product offerings and expanding our footprints across continents. We want to reach every industrialized country. We have also started working in different areas to support the 'Atma Nirbhar Bharat' initiative. Our indigenously designed products will support in taking the manufacturing industry in India ahead. We have to make our service franchise 'Premium Care' accessible to our customers across the globe. Increasing our footprint in the global market will help us in serving the customers in an excellent manner."

THE NEXT UNICORN FUELS MORE STARTUPS

By **GIRISH MATHRUBOOTHAM**

When we share knowledge, experience, successes, and failures, we make entrepreneurship more accessible than before

Once only for the bold, entrepreneurship is now becoming mainstream. More and more millennials are choosing to build a company instead of taking that first job. We've moved into an era of massive investments—with more funds available than ever before—and increasingly higher valuations. The speed at which companies can scale has never been faster. And we're seeing new businesses every day that solve problems we never could imagine.

So, what is the future of entrepreneurship? From my personal experience, both in growing Freshworks and being part of independent angel investments, I see several trends pointing towards a bright future.

ENTREPRENEURSHIP AS A CAREER

Entrepreneurship used to be taboo—it was only for the bravest among us; those willing to take the risk. We were encouraged to get an education, find a job, build a family, and lead a safe and assured life. When balancing the risk of failure with the relative ease and safety of the traditional path, what would you choose?

When I started Freshworks over 10 years ago, being an entrepreneur was definitely not considered the safe path. But I looked at my decision as a no-loss scenario. I could try out my idea and if it worked... win. If I failed, I knew I would learn a lot along the way—training that would be invaluable for my next 'real' job... also a win.

Now perceptions have changed. Over the last decade, we've seen entrepreneurship become a viable career path. There are university programmes—business schools, engineering schools, master's programmes and more—focussed entirely on entrepreneurship education. In the future, I expect it to be completely 'normal' for a fresher (new college graduate) to eschew the comfortable job and embark on a path of entrepreneurship.

Many can and will embrace different levels of entrepreneurship. Now people think about multiple dimensions to their career: Working at a company and running a small business on the side. Or they seek out 'intrapreneur' roles—opportunities to be entrepreneurial within their current organisation. According to entrepreneur Gifford Pinchot, "intrapreneurs are employees who do for corporate innovation what an entrepreneur does for his or her startup". Think about how powerful that is!

GROWTH OF GLOBAL ENTREPRENEURSHIP

Long gone are the days of the Silicon Valley monopoly for startups. We're seeing new businesses come from every corner of the world. According to CB Insights, in April 2021, more than 48 percent of the current 654 unicorns across the globe are not in the US.

Now, India is becoming a hotbed for innovation, with 31 unicorns of its own. India as an outsourcing provider is an outdated stereotype; the rich talent pool that once provided back-end support for US companies has turned towards entrepreneurship, delivering billions in revenue today and expected to grow to $20-25 billion over the next four to five years. I believe the current Indian innovation ecosystem is creating a flywheel effect for the future—creating huge opportunities for Indian entrepreneurship.

INNOVATING THROUGH A GLOBAL PANDEMIC

No one could have predicted 2020 and the challenges we're still seeing. In the blink of an eye, the pandemic forced

ILLUSTRATION: SAMEER PAWAR

companies to reimagine nearly every facet of their operations. Customers stopped going to stores and employees started working from home. What we buy and how we buy has changed... as is what is important to us.

But life and business must go on. As NYU Stern School of Business Professor Arun Sundararajan said, "Crisis can be... a catalyst or can speed up changes that are on the way—it almost can serve as an accelerant." And that's exactly what we're seeing as a result of the Covid-19 crisis.

There is a huge opportunity for those entrepreneurs who can reimagine the future. Food, groceries, and all essentials are growing. Fashion and luxury have taken a bruising. And past entrepreneurial trends no longer seem important. Digital transformation? It's already here. Collaborating better with colleagues? Zoom. The real opportunity is with accelerating existing trends like automation and contactless everything. Or you may find a way to build a wholly new market with technology by simply reimagining health, fitness, and energy.

FUNDING AVAILABILITY

There was a time when finding the money to bankroll a new business was difficult; banks were risk-averse and often required massive collateral. Venture capitalists (VCs) were rare. Most turned to friends and families for support—definitely a finite resource.

Now, the market is seeing more availability of funding than ever before. Not only financial institutions, but VCs, angel funds, and non-traditional investors are looking for the next big idea—there is a lot of money chasing startups. It's all about supply and demand: More demand for the next unicorn means more people exploring entrepreneurship, which fuels more investing, which fuels more startups, and so on. Ironically, it is the unicorn (plus a few other successful businesses) in a portfolio that allows for this expansion.

INNOVATING THROUGH DIVERSITY

We know from many studies that diversity is good for business—a diverse workforce is more innovative, which, in turn, drives more revenue. And there's the added benefit that it is the right thing to do.

The whole concept of a startup is to create a product or service that is different—if you surround yourself with people who are all the same, how can you expect to build something unique? Diversity in the entrepreneurial mindset is critical, and I expect it will become the norm in the future, as it lends itself to better ideas and new ways of thinking.

REDEFINING SUCCESS

As a founder, CEO, and investor, I've found both of these statements to be true:

• First, entrepreneurship is a game of chance, especially when you know that 9 out of 10 startups will fail.

• Second, and somewhat antithetical to the first: If you create a great product, run a solid business, and have a strong team, you will win.

But what if failing could actually be winning? I like to think of experiences as a collection of failures. And in a shareholder letter, Jeff Bezos said, "Failure comes part and parcel with invention. It's not optional. We understand that and believe in failing early and iterating until we get it right." It's very hard to stomach the idea of failure—we're taught from a young age that failure is not an option. And granted, the majority of us do not have access to the resources that Amazon does to keep iterating!

However, I believe that any innovation, any new invention, regardless of the outcome, is in and of itself a success. In the future, we'll look at failure as an opportunity to learn, and then use those learnings to refine or even pivot. Failure, except in the most extreme cases, is never fatal—it becomes part of the fabric of our experience.

HELPING OTHERS SUCCEED

I do believe we need to pay our learnings forward, and help others be successful in their bid to create the next 'unicorn'. When we share knowledge, experiences, successes, and yes, even failures, we make entrepreneurship more accessible than before. That is why I, along with many others, created SaaSBOOMi, a community of founders who have opened their playbooks to share hard-won experiences and to benefit others by making these learnings available.

FOCUS ON UNIT ECONOMICS RATHER THAN VANITY METRICS LIKE VALUATION, UNICORN STATUS. THESE DON'T MATTER WHEN SELLING YOUR PRODUCT

ENTREPRENEURSHIP 101: THE BASICS

Is there one tried and true formula for successful entrepreneurship? I don't believe so—there's always a new or better or different approach that works for one founder and doesn't work for others. But if you break it down to its core, there are commonalities across most businesses: Getting the basics right, focusing on the things that matter, and winning the right way.

GET THE BASICS RIGHT

Have a brilliant idea and create a great product. This is what I find most entrepreneurs do well. They have a long-term vision and know where they want to go and how to get there. And they get to market fit early.

FOCUS ON THE THINGS THAT MATTER

Be a true craftsperson. Attract good people and create a great team. No one person can do everything; having the right people in the right roles is critical to running a successful business. But I also believe in the future we'll see smaller but more highly skilled teams who will leverage automation to add capacity.

Focus on the unit economics rather than vanity metrics like valuation, unicorn status, etc. These things don't matter when selling your products or building customer traction. It won't help with looking at opportunities for expansion or finding new, valuable markets.

Culture is paramount. It is foundational to scaling your business. It's also persistent—while products and people come and go, culture is lasting. A company's culture can have a powerful impact on performance. It can be the difference between success and failure. And it's the hardest thing for competitors to copy.

WIN RIGHT

Events like fundings or IPOs are milestones; they are not the end metric or measure of success. But if approached with the right frame of mind, these activities will enable your business to grow, scale, and see success.

Build companies that both offer a return on investment and work to improve the world at large. And give back, whether through networking, cohorts where you can share your experiences, or charitable giving.

Today, we have the opportunity to build software for the world—software that disrupts, democratises, and delights. Now when a company can be up and running in the cloud within days if not hours, there's nothing to stop the next generation of entrepreneurs from changing the world. There is so much opportunity just waiting for passionate people to seize the day.

Yes, the future of entrepreneurship is very bright indeed. F

• THE WRITER IS FOUNDER AND CEO OF FRESHWORKS

Jupitice.com
A New Justice Order!...

HOW INDIA'S JUPITICE IS LEADING THE 'PRIVATE DIGITAL COURT' WORLDWIDE

The world's first end-to-end private digital court is ready to take on the bull by its horns, aiming to bridge the ever-growing world justice gap through the private justice system.

Raman Aggarwal,
Founder & CEO, Jupitice

Did you know that approximately 5 billion people lack access to justice worldwide? That's almost two-third of the world population that the justice system is failing to serve. This is not just a humanitarian crisis, but also an economic one. Just lost income as well as the physical and mental stress involved in seeking justice costs developed countries up to 3% of their annual GDP (World Justice Project, 2019).

Raman Aggarwal, a professional CA who also heads India's top legal process outsourcing companies- Aeren LPO stumbled upon these facts, he couldn't help but think how can this issue be addressed. An avid reader and researcher, Raman started looking for solutions himself.

"If you take India as an example, there are almost 4 crore cases pending across different courts of the country. With a ratio of approximately 20 judges per million population, it is unfathomable to think that the public judiciary can be dependent on for basic justice needs," says Raman Aggarwal.

While Alternative Dispute Resolution (ADR) Mechanisms like Arbitration, Mediation, or Negotiation are being advocated for certain disputes, these mechanisms are not very different from that of a court system and are still widely used by large corporates who are well aware of their benefits. Lately, even the concept of Online Dispute Resolution (ODR) gained momentum with many legal firms offering dispute resolution via emails, chats, or video conferencing platforms like zoom or google meet. However, even after being tagged 'online', most of these firms still significantly rely on physical paperwork and other manual work.

Shrey Aggarwal, a leading lawyer, and the COO of Aeren LPO and the co-founder of Jupitice Justice Technologies affirms, "Law firms do not easily adapt to technology. Even now, in developed countries like the USA or Canada, legal work is still done on paper. You need both interest and time to disrupt the current legal market with technology."

And that is exactly what Raman Aggarwal did with Jupitice Justice Technologies. His core idea revolved around enhancing access to justice through the 'Private Justice System via ADR Mehanism'. But this was something that the international arbitral courts were already doing. Then why couldn't it make justice more accessible? "When you think of justice, you think of a court, a judge. This was the perception I needed to change. Justice is and should be seen as any other service. It is not a place, it is a service. If you can get the services of a restaurant, hospital, or spa at your home, then why can't you get justice too from the comforts of one's home or office?", says Raman Aggarwal.

Raman found three major drawbacks in the Private Justice System- (i) absence of any global address like a Traditional Court where one knows the procedure to file their dispute, (ii) ADR Practitioners such as Arbitrators, Conciliators, Mediators etc., are not easy to find, and (iii) no digitalization of Private Justice System. This led to the creation of Jupitice- a Private Digital Court that enables you to get justice anywhere, any time, under the Private Justice System. It claims to have designed the world's first justice delivery platform that offers all the abilities with complete Eco-System & facilitates all the participants involved in the dispute to perform all types of end-to-end dispute resolution processes from appointment of Neutrals, to filing, to decision, all online and on a single platform. Jupitice has also aggregated ADR professionals with diverse expertise & multilingual capabilities across the world to form its 'Marketplace' which makes it even easier for justice seekers to connect with justice providers.

"Jupitice runs on three basic pillars- Discover, Transact & Deliver like any e-Commerce Marketplace. You can discover ADR professionals, connect with them, perform your choice of dispute resolution mechanism (like arbitration or mediation) on the platform, and finally pay for the services," explains Anju Aggarwal, co-founder, Jupitice. This first-of-its-kind platform comprises of over 50+ software & tools built from scratch to address issues faced by ADR professionals while performing tasks online apart from ensuring customization, privacy and scalability.

With a Private Digital Court in the market, it is not just easy for common people to settle their cases outside the purview of the court, but also for the MSMEs to resolve their cross-border disputes without any jurisdiction barrier. Like any other arbitration award, even an online arbitration award received on the Jupitice platform is as legally enforceable as a court decree in over 166 countries. Jupitice platform does not just intend to create a technological disruption in the justice industry, it aims to bridge the world's justice gap through technology by promoting the Private Justice System. Although Raman started working on the Jupitice way before the COVID-19 pandemic hit the world, the current situation has only re-enforced & solidified the need for such a novel platform.

INNOVATION IS NOT LIMITED TO PROFESSIONAL ADULTS

By **GITANJALI RAO**

The future of innovation is not a vague idea; it is a consequence of collective empathy for each other's concerns and the will to solve them

A sustainable world is more than the environment we live in and the planet we need to protect. It is also about the people—all of us—who live in this world and need to survive and thrive. All of us coexist on the planet and have to deal with challenges together. If nothing else, the pandemic has been a great equaliser and has hopefully made all of us think about sustaining ourselves. Our evolution is to find newer ways to solve problems around us as responsible custodians of the planet for future generations. This is where innovation plays a huge role. Solving new problems with old ways is a futile effort. All of us play a crucial role in innovation, and the quest for finding solutions to problems that affect all of us helps develop a prosperous world.

We see problems and challenges that have worsened with time, such as pollution of resources, or have never existed before, such as cyber-bullying. All new tools make our lives easier, but they also open up avenues to create new social problems. New diseases, loss of personal privacy, depletion of natural resources, misinformation and lack of authoritative sources, illiteracy, global income disparity, etc are some of the growing challenges affecting our lives and have the potential to derail them.

Thankfully, we are also living in interesting times where newer technologies are shaping our present and future. These also offer opportunities for innovation and solving the challenges for today and tomorrow.

5G wireless technology is already here. A 20 Gigs/sec 5G speed offers near real-time interaction with almost no lag. Heavy machinery can be operated remotely, traffic patterns and data can be analysed in real-time, surgeries can now be performed remotely, ultra-safe autonomous vehicles can be developed with instantaneous reaction times, or people can be in video conferences as holograms.

Nanotechnology allows the development of bots that are smaller than viruses and can cure diseases. At 50 nM wide, some nanobots can perform functions in human bodies for diagnosis and drug delivery that is today inconceivable.

3D printing has gone beyond a novel concept to mainstream uses. Additive manufacturing today spans a whole spectrum from custom machine parts to pharmaceuticals and even bioprinting. The idea of printing skin grafts is not too far!

In medicine, concepts like brain-computer interfaces, which used to be science fiction, are already here with neuroprosthetics such as cochlear and retinal implants. We can easily imagine patients managing and controlling their health through concepts like 'digital tattoos' and a gene map in a health card. With advances in molecular technologies for gene editing and better mapping of the human genome, I see a future where diagnosis and treatment are more genetic makeup driven, making it reliable, targeted and predictive. Monogenic diseases will likely have a cure in gene-based techniques. Immunotherapy for cancer cure will likely contribute to precision treatment, along with a possible cancer vaccine. Lastly, as I mentioned about "the power of convergence", I strongly believe the next generation of medical innovations will be at the intersection of biology, data science and engineering.

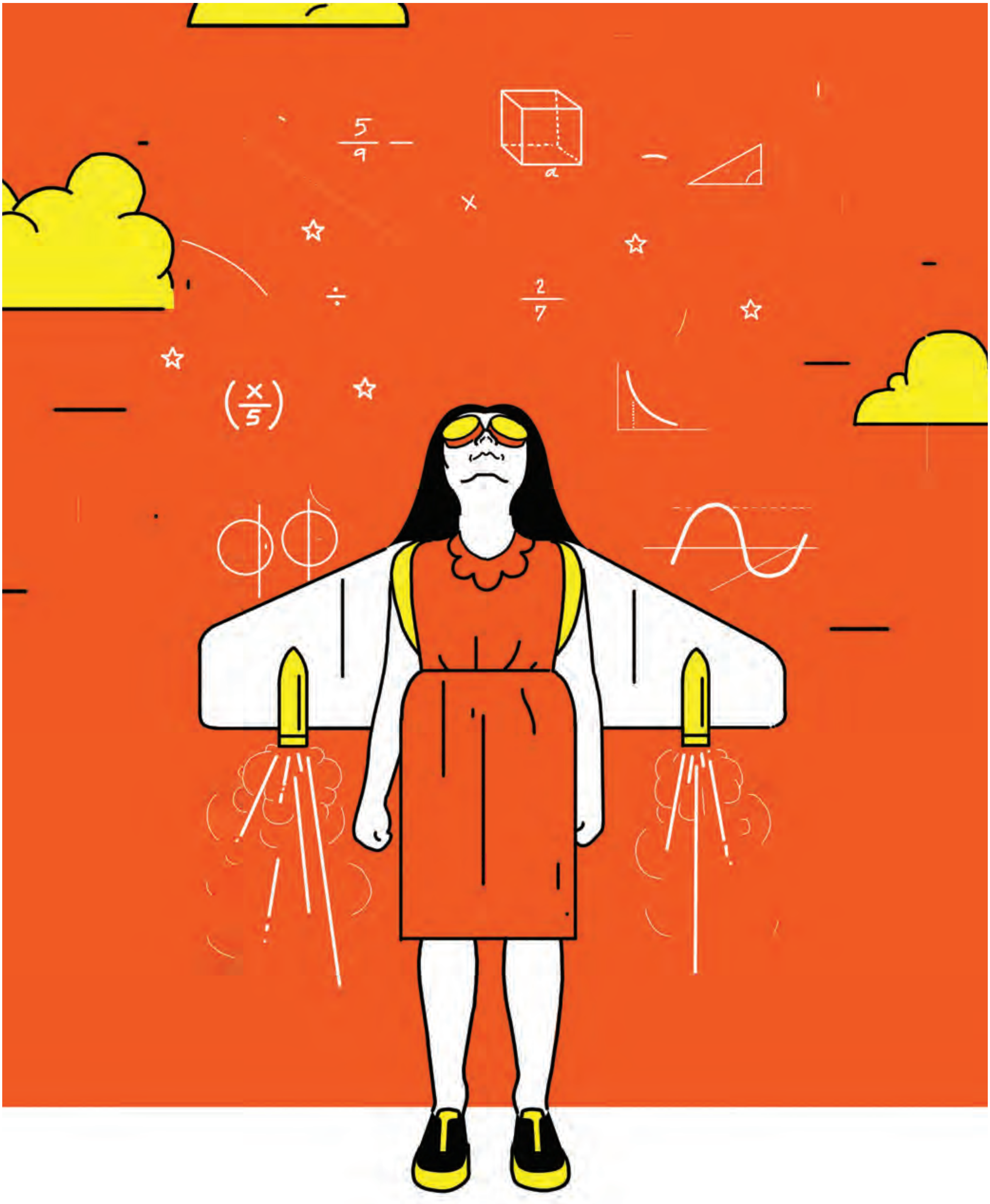


ILLUSTRATION: SAMEER PAWAR

The last century was about machines performing repetitive tasks and automating manual processes. Now artificial intelligence (AI) allows machines to also think and decide like humans. AI machines don't have to be taught to perform a task; they are instead trained to learn to perform a task. Imagine everyday decisions that require human capacity and experience to determine the best options will soon be replaced by intelligence that learns from our history and provides the best recommendations.

We all heard of autonomous vehicles. Now we can conceive autonomous bots and UAVs that can readily be deployed for search and rescue or perform surgeries. With the advent of the Internet of Things, we can foresee an interconnected world that constantly communicates with each other—not just talking to each other but using ultra-fast networks to make split-second intelligent decisions.

In other words, not only are these technologies powerful by themselves, but increasingly they are coming together to develop solutions we couldn't think of just a generation back. As Peter Diamandis calls 'The Power of Convergence'. Think about a future where there are AI-processing chips, nanomaterial medical devices, etc. The optimism is that all of these technologies when used the right way, free us from the mundane and focus on solving hard problems.

Design thinking is a perfect complement to innovation by taking an idea to its natural culmination of something tangible—a solution. The traditional idea of linear problem solving is increasingly giving way to an alternative approach of design thinking that is more focussed on the impact on the end-users, instead of narrowing choices, exploring new choices first. Instead of solving every problem by breaking it down and analysing it, we can try to put combinations together, as Tim Brown calls 'From consumption to participatory' systems where the producer-consumer relationship changes from a one-way transaction to collaborative development solutions that benefit both sides. The design has, down the years, for some reason has started to focus on small things with bevelled edges, cool interfaces, and Bluetooth connections. That's all great, but it needs to expand to solve some of the biggest problems we see today, such as climate change, pollution, privacy, pandemics, and so on.

Surgeons at Robert-Debre Hospital in Paris use a robotic surgical system; the next generation of medical innovations will be at the intersection of biology, data science and engineering

THOMAS SAMSON / AFP

In my opinion, the future of innovation is not a vague idea, but instead is a consequence of collective empathy for each other's concerns and the will to solve them. Tools, technologies, and techniques are only as good as the intention to solve the problem. Innovation has to become a citizen movement and should be part of early education and school curriculums. K-12 education should explicitly teach ideation and problem solving to current or imagined problems. Failure should be an acceptable consequence of innovation and should be expected as part of the learning process.

Teenagers, unencumbered by the so-called practical constraints of the world, can develop solutions that expensive research organisations might not be able to. To cultivate and encourage innovation in youth, additional support and investment is needed in grants, recognition, and resources such as laboratories.

TO CULTIVATE AND ENCOURAGE INNOVATION IN YOUTH, ADDITIONAL SUPPORT AND INVESTMENT IS NEEDED IN GRANTS, RECOGNITION, AND RESOURCES SUCH AS LABORATORIES

Innovation is not an option for us anymore. It is certainly not limited to professional adults in industry and academia. The challenges of tomorrow need all of us. Including innovation as part of early education and empathy to understand the challenges we all face together are the first steps.

THE WRITER IS A 15-YEAR-OLD ASPIRING SCIENTIST AND AN INNOVATOR

CREATORS NOW FIND THEIR EXPRESSION WITH SMARTPHONES

By **SIDDHARTH ROY KAPUR**

The entertainment industry has been debilitated by the pandemic, but there is a glimmer of hope in the surge of digital consumption, growth of short-form content platforms and people's anticipation of the big film experience

Taking the war metaphor forward, the enemy this time is a highly contagious virus that continues to affect countries around the globe. A pandemic in the era of globalisation has unearthed the realities of how interconnected we are, and consequently how interwoven our problems are too.

While 2020 was a landmark year that forced the world to adapt, individuals and industries alike wishfully thought that the end of the year would mean the end of the storm. Unfortunately, with a dreaded sense of déjà vu, 2021 brought back a set of more contagious mutated strains of the virus that has impacted sectors across the board with industries such as hospitality, construction, tourism and entertainment being delivered debilitating blows.

The government has issued data that predicts a 7.7 percent drop in Gross Domestic Product (GDP), the country's biggest contraction since 1952. In fact, it would be the first time this has occurred in India since 1980, and will be the worst slump in Asian countries after the Philippines. India's soft power, the entertainment industry, has found it incredibly difficult, with theatres shut, shootings stalled and content consuming mechanisms shape-shifting overnight. According to a Ficci-EY report, in comparison with 2019, revenues from filmed entertainment fell by 62 percent to ₹7,220 crore in 2020. Estimates are that this fall is likely to accelerate further by 10 to 20 percent in 2021. While it seemed that the trouble had lifted in early 2021, Hindi cinema still saw a tepid response with single-digit occupancies of 5 to 7 percent, going up to 30 percent in rare cases. The Southern states were an exception to the rule, where occupancies varied from 30 percent to 100 percent. Tamil film *Master* ran to packed houses even after arriving on an OTT platform; Telugu film *Uppena* did great business in cinemas and a Kannada film *Roberrt* raked in nearly ₹60 crore on its four-day-opening-weekend alone. Film industries in the South have managed to instil a confidence that had begun to wane in producers and filmmakers alike. It seems clear that once things open up and the bigger movies are released, audiences will once again flock to cinema halls.

As often said, necessity is the mother of invention, and with resourceful minds at play within the entertainment industry, invent we did. Filmmakers began shooting remotely, streamlining their crews and finding new ways to tell their stories. The terms 'Bio-Bubble', 'Skeleton Crew' and 'Covid Marshals' quickly entered the lexicon. As audiences began to watch content in the comfort of their homes, OTT platforms began to expand the scale and genres of content they housed. India's OTT content investment reached $700 million in 2020, according to the Indian Brand Equity Foundation and is projected to grow at a steady 18 percent CAGR. International players are expected to increase the number of original shows and broadcaster-led OTT platforms are following suit.

According to a report by Omdia, audiences could expect 400 original titles this year compared to less than

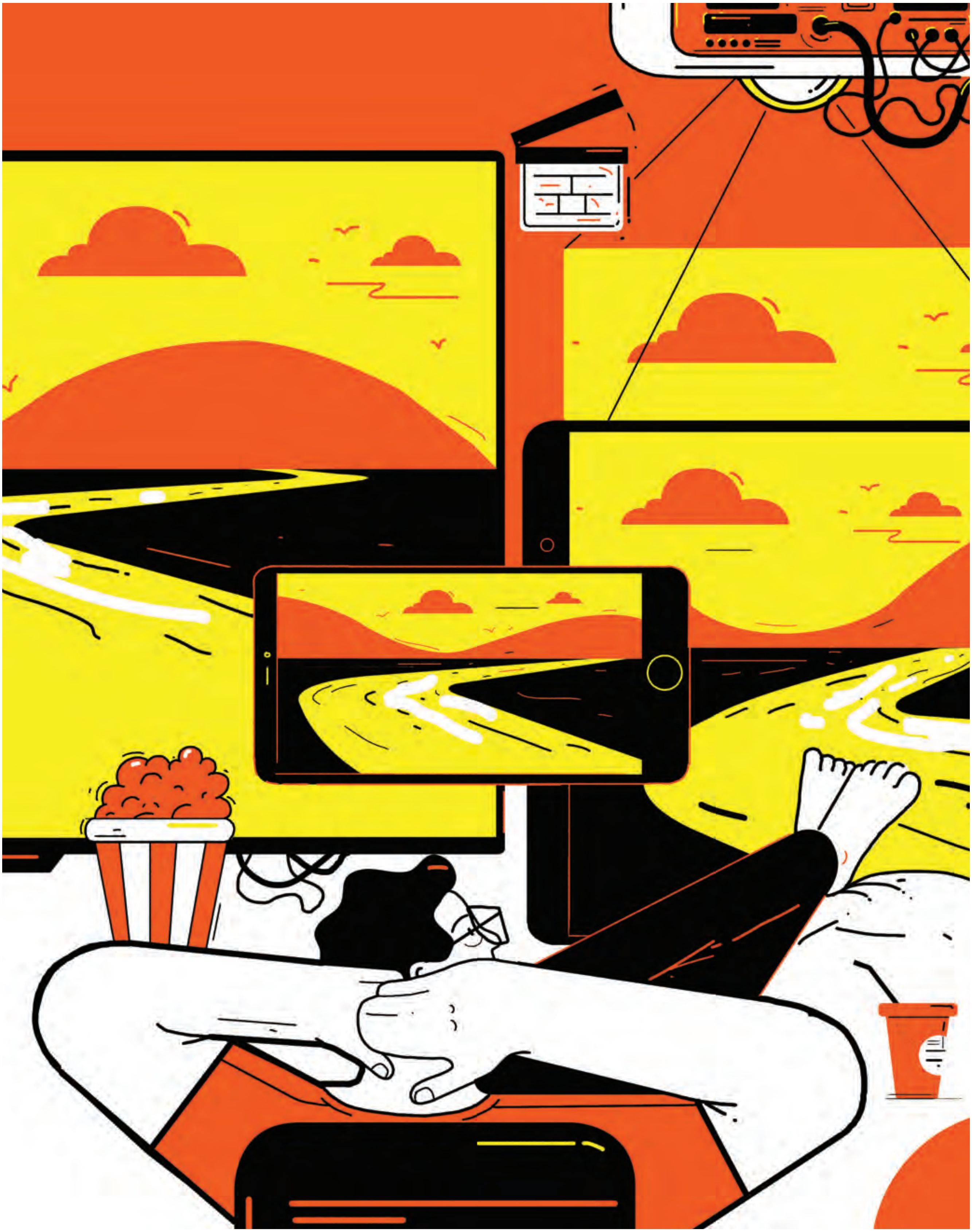


ILLUSTRATION: SAMEER PAWAR

200 in 2020. For the more intimate, personal, lighter stories that are increasingly infeasible to bring to the big screen, OTT platforms have provided a home, where they can reach the audiences they are meant for. In the last year, digital rights grew by 86 percent to reach ₹35.4 billion, as many films were released directly on OTT platforms at margins that compensated producers for lost theatrical revenues.

The current situation has incentivised producers to work within more stringent parameters than before. With eyes set on making the financials work and reducing risk, but with a keen view on the horizon for quality content, the entire process of filmmaking has had an overhaul. Crews have been minimised, virtual meetings have replaced in-person narrations and discussions, budgets have been chalked out more cautiously, and production teams have endeavoured to deliver to the same standard as before but with curtailed resources. Short-form content platforms are also booming and their content creators growing.

This ties in directly with the surge in smartphone usage; a statistic that India leads globally, with users spending roughly five hours a day on their smartphones, the highest in the world. The smartphone has allowed young creators to find their expression through short-form content, and they have begun pushing the limits on what traditional media has defined as content. This burst of creativity has come predominantly from non-metro cities, signalling a potentially untapped market for creators of all kinds.

Of course, the big question everyone is asking is will audiences come back to the cinemas or has this last year made them so used to on-demand content that they will not want to go through the trouble anymore?

Multiplex chain operators and

While Hindi cinema saw a tepid response with lower theatre occupancies, Southern states were an exception to the rule, where occupancies varied from 30 percent to 100 percent. Tamil film *Master* (left) and Kannada film *Roberrt* (right) ran to packed houses despite the pandemic

single-screen cinemas have been suffering from the lack of a fresh slate of releases, poor footfalls and mandated restrictions. While the current numbers depict a grim picture, I do believe the experience of the cinema is beyond the realm of pure convenience and accessibility. The big movie experience is a communal experience that has been built and nurtured over more than a century. Our industry will doubtless need to bring fresh stories to the big screen in a manner that tempts audiences enough to step out and immerse themselves in them. Not only will this improve the quality of cinema, but also inject more confidence into risk-taking moviemakers in the business, leading to a virtuous cycle. And if you're still more trusting of the cold numbers, a survey by the Multiplex Association of India last year revealed that 83 percent of respondents admitted that they missed watching movies at cinema halls. So there!

Our biggest strength as a nation has always been our diversity. The kaleidoscope of thoughts, ideas, experiences and personalities that come together to give us our unique place in the sun.

In the same way, notwithstanding the current headwinds, our industry will thrive due to the myriad ways in which content can now be consumed. The big film experience, the more intimate OTT film, the linear TV family viewing experience, the on-the-go mobile personal entertainer or even the magic of the stage are different arenas for storytelling, which don't necessarily have to compete. The way forward is a more efficient landscape supported by better infrastructure and hopefully more progressive policy, driven by authentic storytelling and powered by intelligently priced offerings. With this, we still have the potential of being recognised as the world's cultural hub for storytelling in the decades to come. You may call me a dreamer, but I'm not the only one! F

THE WRITER IS FOUNDER AND MANAGING DIRECTOR OF ROY KAPUR FILMS

LIVE AND KICKING

The shared experience of live games will remain the future of sports viewership and content providers will need to innovate to shape the narrative

By **NP SINGH**

Last year, after a gap of two months in March-April when most professional sport was suspended due to the global pandemic, the German Bundesliga was among the first to restart in May. It presented an odd sight—football players and coaches in masks, empty silent stadiums, muted celebrations after goals and no handshakes or huddles. The drama, fanfare and energy that we are used to in international football was missing, but it also set the tone for things to come.

Other sports, leagues and competitions followed—roars in tennis arenas were replaced by echoes of the ball hitting the racquet and the word "bio-bubble" got mentioned as frequently as "Virat Kohli". A virus had changed the way audiences view sport, catalysing a few movements, killing a few others.

What separates sport from other forms of entertainment—some may argue that sport should be excluded from the definition of entertainment—is the importance of live action. The winning moment in the final Australia-India Test at the Gabba in January was witnessed by over 76 million Indians on the Sony Sports Network. Recorded matches, replays and highlights have limited value because audiences enjoy a match the moment it's played, not six hours later.

Even if live matches are what drive viewers, there is some merit to video-on-demand (VOD), so sport can be accessed anytime, anywhere. For some time now, the live content space has not been restricted to traditional linear television (TV). Over-the-top (OTT) television has tried to squeeze into this area, increasingly so since the virus refuses to leave us.

The last year has given us an insight into the future of sports consumption that can be extrapolated to something meaningful. On digital, it's best exemplified by the explosion of eSports, fantasy sports, mobile gaming and the billion-dollar valuations that are thrown into the mix. To grab the attention of the younger generation—with its short attention span—traditional decision-makers, whether broadcasters or sports administrators, need to improvise. Just like cricket pivoted many years ago from five-day Test matches to include a 20-over version.

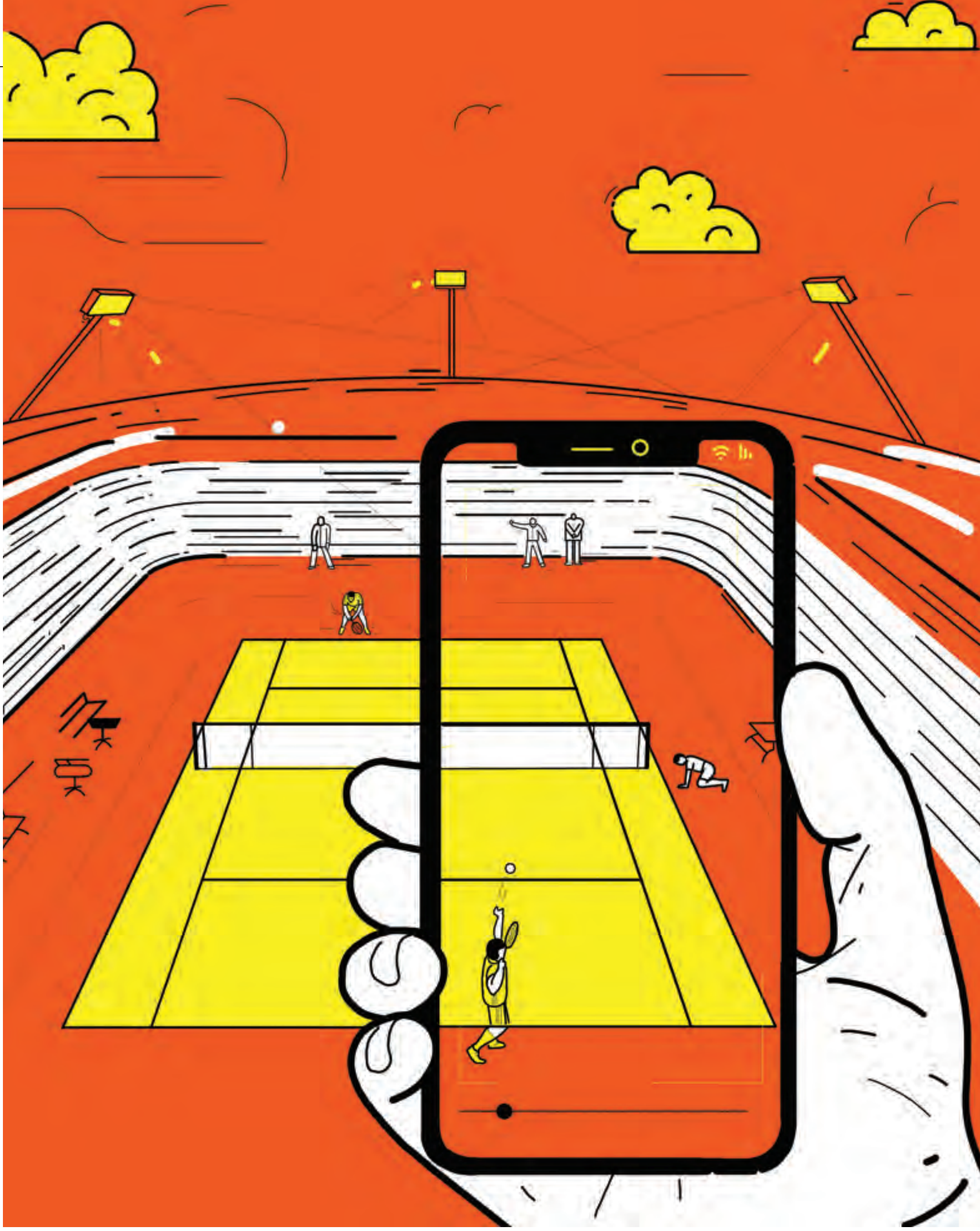
This Gen Z balks at the rigid scheduled timing of sport, more so in these present times when home-bound audiences have discovered the joy of flexible viewing. If stadiums continue to run empty in the near future, addressing the needs of viewers—who would have otherwise trekked to the venue but are now forced to watch on a screen—becomes that much more critical. The answer to that would be a version of a made-in-heaven marriage between live and VOD.

While a majority of sports audience in India is still connected to cable TV, OTT streaming, including digital and mobile, in this country will continue to grow as volume of mobile connectivity remains inversely proportional to the cost of data. For instance, users viewing sports on SonyLIV accounted for 35 percent of the total user base while 30 percent of the subscriptions in the year were driven by live sports.

In 2020, the proportion of live content to the total programming hours dropped by over 50 percent compared to the previous year, which led to the overall genre viewership dropping by close to 40 percent. The Indian Premier League, held out of turn from September, contributed close to half of the total genre viewership last year, with the unpredictably exciting India's cricket tour of Australia in December-January getting Sony Sports Network close to 136 million viewers.

Change is the only constant in this world, as is viewership pattern.

IF STADIUMS CONTINUE TO RUN EMPTY, A MADE-IN-HEAVEN MARRIAGE BETWEEN LIVE AND VIDEO ON DEMAND WILL ADDRESS AUDIENCE NEEDS



percent from the previous year to 87 percent while the share of digital declined almost by half to 5.5 percent.

What does this mean for broadcasters and digital operators? One, sports is a large contributor to viewership on almost any multi-dimensional platform—it contributed to approximately 300 million views on SonyLIV, 10-12 percent of the overall views on the platform. It's this reason that digital, social media and mobile telecom companies bid for the last IPL broadcast rights. Two, with media spends still low, digital platforms have to aggressively seek newer revenue models. One of the reasons for the word paradox earlier is because while advertising is a big revenue model, digital consumers look for ways to watch content without the distracting intrusion of advertisements, which is unavoidable on TV. The word "skip" is perhaps the most joyous word online. Three, innovation is the key that will attract more viewers. SonyLIV implemented player and CDN (content delivery network) optimisations during the course of the year to minimise buffering, start time and stream lag. Frame by frame stream encoding improved the frame quality. Digital ad stitching technology made advertisements seamless and non-disruptive.

Contrary to what it may seem like, people are fatigued of staying home rather than energised by the lack of daily travel. Sports thrives on social connection—with strangers in stadia, late weeknight Champions League matches with friends, debates in the local pub or heated arguments on social media. Sports brings people together, a unifier needed much more now than ever before when we are collectively under attack. That shared experience will remain the future of sports viewership and the stage is ripe for content providers to shape the narrative.

Already fairly popular among the young, WWE, Mixed Martial Arts and UFC—whose ratings for the numbered events almost doubled in 2020—will benefit from the television-friendliness of the format. All broadcasters and streaming services are heavily invested in languages other than English—last year, local language feeds contributed close to 75 percent of the total sports viewership. Sony Sports had pioneered Hindi feeds for properties like Australian Open (tennis), UEFA Champions League, Big Bash League, T10 League, WWE and UFC.

Other sporting leagues, like volleyball, kho-kho, kabaddi etc will reduce the dominance of cricket, which still had an over 80 percent GRP share in 2020. This year, audiences starving on the sport deficit from last year, will lap up the mega events lined up, like the postponed Tokyo 2020 Olympics and Euro 2020 football—particularly if they continue to be, God forbid, still locked down. Cricket will return to Sony Sports with three back-to-back bilateral series with India touring England, Sri Lanka and Zimbabwe.

This brings us to the interesting paradox that the digital platform provides. While the conversation for long has been about how digital is the "future"—indeed this "future" is already here—the numbers still do not support its significance beyond a point. In 2020, television share of total media spends increased by 5

THE WRITER IS THE MD & CEO, SONY PICTURES NETWORKS

ILLUSTRATION: SAMEER PAWAR

INTEGRATED HEALTH CARE, TECH WILL DISRUPT SECTOR

By **VIREN SHETTY**

While clinical research will get a boost, having a skilled workforce and public spending on health care will be challenges in the near term

Scene: Narayana Health 2021 Annual Strategy Session: Getting Back to Business.

"What if this pandemic never goes away?" I ask a computer screen dotted with pixels somewhat resembling managers and doctors from across our network of hospitals. No response. Nine months into this pandemic and our videoconferencing skills were abortive at best.

"What if the world never goes back to normal, and this is what our future looks like?" I could sense the mood in the room shift a little, but still no response. I check the audio settings and curse the UX choices of the developers behind our videoconferencing app.

"How will our business thrive in a world permanently scarred by Covid-19?" I ask as loud as is possible in a professional setting.

A long silence and then someone helpfully chimes in, "Sir, we're not able to follow you clearly." Such a great example of failure to communicate strategic intent. Or maybe just audio issues.

The session did not go the way I had hoped it would. Everyone I spoke with maintained that the pandemic was almost over, and that business will get back to normal. I found this hard to believe. This rogue strand of RNA had already humbled the smartest people to ever face a television camera and brought the world economy to its knees. If there is a simple narrative, it would be that the coronavirus controls the world, and we need to do its bidding. The more nuanced narrative is that we will never wake up to a pre-Covid world, and we need to adapt our business to succeed in a new world order dominated by uncertainty. I was hoping we would come up with a better solution than copy-pasting the 2019 business plan for 2021 and hoping for the best.

Nobody knows for certain what this new world looks like, nor do they know how to succeed in that new world. But people like me are paid by their investors to predict the future and we need to have bold and confident strategies like 'The Future is Digital' or 'We will SaaS our Blockchain on an Electric Cloud'. There is footage of me telling news channels quite confidently that masks are not necessary, the coronavirus will be contained to East Asia, and lockdowns will flatten the curve, so my credibility as a Covid expert is quite low. But I have a library full of books which use the words 'disruptive innovation' a lot, so I know exactly what companies that are nothing like mine did 30 years ago to survive in a country with a high ease-of-doing-business score. With the spirits of Harvard strategy professors whispering in my ear, my predictions for India's future are: 1) Businesses will get disrupted; 2) People will still need health care; and 3) Magazine

CUTTING-EDGE TECHNOLOGY HAS MADE IT POSSIBLE TO CURE DISEASES THAT WERE PREVIOUSLY THOUGHT INCURABLE editors will still want Future of X articles from business leaders.

There are enough beneficiaries of today's technology industry singing paeans to the benefits of technological innovation, but none from the past. I have sourced some of my favourite historical quotes on the topic:

"Why is that hairless ape carrying a stick twice his size?" Last thoughts of the first woolly mammoth to meet the pointy end of a spear.

"These printed Bibles sure seem to be getting popular. Should we ban them?" Pope Leo X, right before the Protestant Reformation.

"What do you mean the ghost people are carrying metal tubes that spit lightning and thunder?" Montezuma, last Emperor of the Aztecs.

As history shows us, time and time again, the benefits of disruption usually accrue to the ones doing the disrupting. We do not know what kind of disruption the health care industry will see, but we know that when books are written about us decades from now, we will belong to the 'Can you believe they used to do this?' chapter.

Health care is still very hospital-centric and hospitals are the most expensive places to deliver health care because they have to account for every minor contingency. A hospital in India and a hospital in Germany are made of 90 percent similar components, even though their patients come from two completely different worlds. The cost of delivering health care has increased dramatically, led by higher input costs for drugs and consumables, followed by higher salaries to doctors and nurses working in a riskier clinical environment.

As Indian hospitals become even more specialised, they are leaving poor patients with regular ailments further

ILLUSTRATION: SAMEER PAWAR

India has highly skilled doctors, but the pace of their emigration is likely to skyrocket after the pandemic as the West faces a shortage of staff

AMARJEET KUMAR SINGH / SOPA IMAGES / LIGHTROCKET VIA GETTY IMAGES

and further behind. To make things worse, the spend on public health care is not growing as fast as the disease burden. This will keep increasing the quality gap between health care delivered in public hospitals versus private hospitals, which in turn will push the out-of-pocket health care spend, already among the highest in the world, even higher.

Narayana Health's mission is to make high quality health care accessible to everyone. We made a name for ourselves by becoming a focus factory for low-cost surgical procedures and driving down costs through process innovation. We have now reached the limit of how low we can safely drive down costs and every incremental improvement we have rolled out has faced diminishing returns. The flaw lies in the current model of delivering 'health care', which Dr Robbie Pearl from Kaiser Permanente instead calls "delivering sick care". Hospitals focus on delivering surgeries, medicines and procedures to patients in the most efficient way possible. But what if that is the wrong model? What if instead of lowering the cost of a medical procedure, we focus on preventing that procedure from having to take place?

Narayana Health has always looked up to health systems like Kaiser Permanente that manage the entire spectrum of care for their patient members. We believe that a fully integrated health care system that incorporates preventative medicine, primary, secondary and tertiary care in a coordinated manner is more relevant to developing countries like India with a younger and poorer population. This is the only way to ensure that hospitals are completely aligned with a patient's long-term incentive to live a healthy life. Narayana Health has begun the process of becoming a fully integrated health care provider and we will know over the next 10 years whether this was the right call.

Digital technology has wreaked havoc across massive industries like transportation, hospitality, food, media, retail and finance, and transformed those industries into something my grandfather would scarcely recognise. There is nothing to suggest that the health care industry will be immune to disruptive innovation coming from non-traditional health care companies catering to the aspirations of a digital-native customer base. There are several billion-dollar health care startups that are bypassing hospitals and offering primary care directly to patients. The largest technology companies in the world have expressed an interest in building a health care vertical and are partnering with health care providers to build solutions that bend the cost/quality curve.

Tech companies need large amounts of patient data and clinical insight to build technology solutions that can automate medical decision-making. The next decade will see an explosion of software that will help doctors make better clinical decisions or empower patients to take care of their own health. It will be interesting to see if tech companies continue working with hospitals once they realise they can sell their products directly to patients or doctors and cut out the intermediary. They do make lovely presentations about being together forever, but we have built a large software development arm of our own. Just in case.

The medical field has benefited immensely from scientific progress and cutting-edge technology that has made it possible to cure diseases that were previously thought incurable. Technologies like CRISPR have the potential to eliminate certain types of cancers and genetic disease. Newer classes of drugs and medical implants can extend the average person's lifespan. None of these were developed in India, and we are completely reliant on universities or companies from the developed world for cutting-edge innovation. Despite our size, we do not have enough specialists available for treating complex diseases and recording their results in a searchable electronic format. The few specialists who are available are too busy treating patients to spend any time doing unremunerated clinical research.

India will need to rapidly scale up the medical education and health care infrastructure to 10 times the present size, to have the critical mass of health care professionals required for innovation to flourish. Clinical research is one field that India can dominate because we have the most critical raw ingredient—millions and millions of sick people. Over the coming years, most major Indian hospitals will run large clinical research divisions in partnership with multinational drug companies or foreign universities.

The future holds great promise, but there are several worrying signals for Indian health care in the near term. Our public finances are stretched thin, and the government will be severely constrained in its ability to ramp up health care spending to fund a national procedure reimbursement scheme and a national Covid vaccination programme at the same time. Procedure reimbursements from government programmes have not changed in over seven years, and most hospitals have huge accounts receivable from government payors. Private equity investment into new hospitals has stopped as the ten-year return on capital is less than the cost of capital for greenfield projects. Most of the investment coming into the Indian hospital sector is being used to fund M&A deals, not add more beds.

The part that worries me most is the growing shortage of skilled manpower. The pace of emigration of Indian doctors and nurses will skyrocket after the pandemic as health care systems in the West face staffing shortages from early retirements of their stressed-out health care workers. Medicine is not a preferred option for students from developed countries, and their governments will relax the visa requirements to encourage a large number of skilled doctors and nurses from Asia to fill the gap. India has some of the most highly skilled doctors in the world working in an environment that does not always value their output. Relatively few doctors who graduate become specialists and earn enough to live in a nice neighbourhood, drive a nice car and put their kids in a good school. Those who don't get into artificially scarce postgraduate training programmes will get disheartened and start looking abroad.

History is littered with examples of pandemics reshaping society. The Justinian plagues split the Roman empire and ended the Mediterranean dominance of Europe. The Black Death tilted the feudal compact in favour of the peasants. The Spanish flu spurred the creation of national health care systems and influences hospital design up to the present day. The Covid pandemic has laid bare the fragility of our health care systems and been an equal-opportunity destroyer of rich and poor lives across the country. Through the darkest days of this pandemic, I console myself with the hope that millions of people who have lost someone to Covid are going to find their voice. They will rise up to the people in power and say, "Never again". They will demand a better system that provides health care for everyone, because until all of us are safe, none of us are safe. F

THE NEXT DECADE WILL SEE AN EXPLOSION OF SOFTWARE THAT WILL HELP DOCTORS MAKE BETTER CLINICAL DECISIONS

THE WRITER IS EXECUTIVE DIRECTOR AND GROUP COO, NARAYANA HEALTH

HOME-COOKED MEAL IS NOW GREATLY VALUED

By **SANJEEV KAPOOR**

The pandemic has also brought with it an improved focus on hygiene, use of technology in dining, rise of cloud kitchens and resurgence in popularity of Indian ingredients

I

I have been part of the food & beverage (F&B) industry for over three decades. I have seen many changes, some good, some not so good, but never could I have imagined that there would be an event in my lifetime that would put India's F&B service industry in dire straits. Business has been put to ransom by the pandemic. But I still continue to believe the virus is just another hurdle in this race of life.

It may be a temporary bump and would surely cost a lot, the cost being not only money, but also lives and livelihood. I would say that this is a 'detox programme' designed by nature, and each one of us will come out of it stronger. It will take some time to get back on the road and resume businesses at the same pace again but there's no reason to believe that it won't be back to normal. People have started to adjust to the 'new normal' and we have seen some huge modifications in our industry.

Let's look at some key trends that have emerged during the pandemic and continue to flourish:

HYGIENE, A TOP PRIORITY

When we talk about the food industry, the main concern for most people since the pandemic began is safety. One of the most appreciated changes is sanitised services at restaurants, which in my opinion, should be continued now and forever. Right from the pani puri *walas* to renowned chefs at fancy dine-ins, everyone is wearing gloves, masks and hairnets to ensure maximum safety and sanitisation. The staff is trained to frequently sanitise surroundings and tables for guests at restaurants. Even at gatherings and weddings, waiters are trained and equipped with solid supplies to serve the guests most hygienically.

CONCEPT OF 'NAKED KITCHENS'

The next trend that is exciting and is here to stay is the concept of 'naked kitchens'. This is where the kitchen has a full-public view and people can see food being cooked in front of their eyes. This view will level up the public's confidence in that particular eatery and give them a sense of satisfaction while enjoying their food. For the longest time, one of my biggest concerns of dining out has been unhygienic kitchens in our country that are below acceptable standards. I am extremely thrilled about this new concept and I strongly believe that it should be continued and followed everywhere. I hope, wish and pray that this trend grows exponentially.

HOME-COOKED FOOD = THE REAL DEAL

Cooking is therapeutic and this pandemic has proved it. When the country was in a state of complete lockdown, everyone donned their aprons and experimented in their kitchens. These 'quarantine chefs' came up with new and exciting trends which were 'gram-worthy'. And even after the lockdown was over, people kept this trend going and preferred to eat home-made food instead of dining out or ordering restaurant food. I feel that everyone has understood and realised the true value of a simple home-cooked meal. This newfound respect for home-cooked food is here to stay.

DIGITAL SHIFT

The biggest shift that has happened in the last one year is the exponential increase in use of technology in all aspects of life. Foodtech was no different. Zomato and Swiggy occupied more space in the minds of diners. Restaurants felt that they were being pushed to the wall because Zomato and Swiggy have been squeezing them with higher fees. This prompted restaurants to come together, and with the National

Restaurant Association of India taking the lead, there is a movement to reach the diner directly without involving delivery and discovery platforms. This needs time, but it may be a good start for the restaurants. Big hotel chains like Taj with Qmin and ITC have also launched their apps for delivery of food from their iconic restaurants. However, restaurants will need to continue to invest in technology and digital media. My suggestion to the restaurant industry and the delivery platforms would be to work together and try not to burn bridges.

National players like BigBasket, Licious, Fresh to Home, Amazon, Flipkart, JioMart and many more regional players are potential partners for the restaurant industry. However, if it is played right, they

ILLUSTRATION: SAMEER PAWAR

all can easily convert into a threat. Licious delivering high quality galouti kabab, BigBasket with its Prasuma Momos, Amazon with its KitFresh Mealkits of restaurant style delicacies... all can eventually eat into the overall restaurant delivery kitty.

Video content has become a big draw for all marketeers, including food. Artificial intellience startups have come up with creative ways to deliver content to the audience, making it simpler. Like, you can ask Alexa for Sanjeev Kapoor's recipes and get a step-by-step cooking manual with just a voice command.

A robot-themed restaurant in Chennai gained a lot of fame recently where the human staff has been replaced by robots and digital tabs. Many dine-in restaurants have also switched to QR code menus to avoid human touch as much as possible. Other than this, restaurants have tied up with a few delivery apps where customers can make reservations and avoid waiting in queues. The big restaurants, the street food stalls and even the food delivery platforms have insisted on people making contactless payments using digital methods. The story has just begun. Food service players have no choice but to play along and play well.

RISE IN CLOUD KITCHENS

People are still extremely fearful and unsure about dining out at restaurants and that's where cloud/ghost kitchens come into the picture. Even though people were enjoying *ghar ka khana*, they also craved experiencing the bliss of a restaurant-style meal. At that point, online delivery platforms offered a plethora of dishes with just a click. While working-from-home, millennials have spent a considerable time scrolling through these delivery apps and ordering regularly. The feasibility that cloud kitchens offer is great: You can order food from anywhere and it gets delivered in no time keeping up with all the safety protocols. It has also opened its arms to street vendors and small-scale fast-food joints that increased their businesses through these apps.

APPRECIATING WHOLESOME INDIANNESS

I have always been a flag bearer of Indian cuisine and there's absolutely no doubt that our indigenous ingredients have magical properties. Ingredients that have been a part of our pantries for ages are immunity boosters, and this pandemic has made everyone realise that. If you talk about the good ol' masala dabba, we've got spices like turmeric, cinnamon, cardamom, pepper, cloves, etc that have been our saviours since our childhood days. I'm sure all these desi spices and other essential foods are the imperative reason we're healthy, safe and sound, and can tackle the pandemic in the best way.

This also promotes our prime minister's idea of an Atmanirbhar Bharat, choosing local ingredients instead of foreign ones. In fact, it

SUNIL GHOSH / HINDUSTAN TIMES VIA GETTY IMAGES

Noida resident Parul Sachdeva became a home chef during the pandemic. Through food shows on TV, YouTube and social media, people have learnt to make various dishes and turned their personal kitchens into kitchens for business has also been the other way round; people abroad are enjoying the good old haldiwala doodh as 'turmeric latte' in an attempt to include Indian immune boosters in their diets. It makes me very happy to see that our people have also started taking health as their top priority.

I was happy to create and curate a menu for Starbucks by blending the goodness of Indian spices into their philosophy of food. It has been hugely appreciated by their consumers, who are primarily young Indians. More and more people have adapted to the concept of mindful eating, where they keep a close check on the kind of food they're consuming and how it is going to benefit them.

There has been a rise in vegan restaurants and people choosing plant-based products has also led us to be more thankful for our Indian pantries given that most of our desi supplies fall under the vegan category.

As I write this, my friend Puneet Chhatwal, who is the managing director and chief executive of The Indian Hotels Company Limited [which runs the Taj group of hotels], sent me to try and taste their new selection of Innergise meals, a selection of home-style immunity-boosting dishes that they are launching soon for delivery. I must admit I was a little sceptical in the beginning when I read the names of the dishes, but on tasting them, my family and I were pleasantly surprised. I could easily subscribe to this and order it at least five to six times a month.

RESTAURANTS BEYOND FOOD AND DRINKS

Moving forward, new restaurants should start looking at providing more than just food and drinks. It has to be an experience that is unique and unparalleled. A friend of mine who manages hotels in Ibiza, Spain, sent me a clip of a place named LIO and he begged me that we need a place like that in India. A three-minute clip of LIO made me think that maybe the time has come for India to offer luxury experiences, with the best of food, drinks, music, live performances, ambience, service et al.

NEW CHEFS, OPPORTUNITIES, AGILITY, EFFICIENCY

There has been a massive increase in the number of home-based chefs. Through food shows on TV, YouTube and social media, people have learnt almost everything and turned their personal kitchens into kitchens for business. Home-cooked meals like dhokla, fafda, dal-chawal, puri-sabzi, etc are being delivered by these chefs at home.

Many restaurant and hotel chefs have lost their jobs and have put their expertise to use and created their own business. Some have started to provide food to the infected families so that they can restore their health with proper home-cooked meals. Some are providing gourmet experiences at home. Since the concept of a big fat Indian wedding has taken a pause, the catering business has come to a full stop. The concept of ready-to-cook mealkits is also trending. There are a lot of ready-to-eat premixes for recipes like idli, dosa, dhokla, poha, upma etc available in the market.

Keeping all these trends in mind, this is the perfect time to become an entrepreneur. India needs more food service and hospitality professionals to turn business owners. They can start small and learn to survive within their means. Once they learn the ropes of the business, they can look at growth. I'm sure we all can get past this and come out stronger than before.

My suggestions to people who are a part of our industry are to be agile, remain open to adjustments and adapt as per new conditions. Attitude will play an important role in identifying newer opportunities and taking them head-on. Efficiency will be critical in all aspects of business. There would hardly be any room for inefficiency.

Manpower will have to be worked upon and re-trained and may be reskilled for multitasking. Cash flow management would be critical. Hence, one has to constantly keep an eye on the ball. The business has to be remodelled where most of the costs should ideally be variable and the fixed cost component is kept to a minimum. The next six-to-nine months may be very tough. Post that, some small recovery may start. Real recovery may happen a bit later.

My mantra for life is, 'live today but keep planning for tomorrow'. Not just in our personal lives but professionally too. The message to all is to keep experimenting from the comfort of your homes and bring out the best. Don't put a full stop on your creativity. Utilise this time to the fullest. Post all this, we need to be more cautious and aware about social distancing, hygiene and well-being of each other. Everyone has to become more positive, compassionate, vigilant, and agile, and has to learn to be more sensitive to the consumer as well as employee needs.

THE CONCEPT OF 'NAKED KITCHENS' IS HERE TO STAY. THE KITCHEN WILL HAVE A FULL-PUBLIC VIEW AND FOOD WILL BE COOKED IN FRONT OF PEOPLE'S EYES

THE WRITER IS A CELEBRITY CHEF

THE PANDEMIC HAS CAUSED WOMEN GREATER LABOUR PAIN

By **DIYA DUTTA**

Covid-19 has shown that women are more likely to face the brunt of job losses than men, and find fewer opportunities when they want to resume. That apart, several have to deal with increased hours of unpaid work at home and even domestic abuse

The surge in the deadly Covid-19 virus worldwide last year followed by the sudden complete lockdown imposed in India from March 24, 2020, left many poignant images of the plight of the country's poor and migrants. One such image was of a dead woman lying on the Muzaffarnagar platform while a toddler, presumably hers, was tugging at the sheet on which she was lying.

The woman was Arvina Khatoon, a migrant from Srikol village in the Katihar district of Bihar. It is said that she died of dehydration and hunger, while returning to her native village after she lost her job during the pandemic, and all sources of income and food.

Initially, it was said the coronavirus does not differentiate between the rich and the poor, and men and women. However, with the passage of time, it was evident that the existing socioeconomic inequalities have led to an unequal health and economic impact among the various population sub-groups and defined their coping abilities in recovering from the crisis. The increasing inequality and the unequal impact on the haves and have-nots have prompted many to refer to the health crisis as the "pandemic of inequality". Antonio Guterres, the United Nations Secretary General, rightly put it in his speech at the Nelson Mandela Foundation in 2020 when he said, "The Covid-19 pandemic has played an important role in highlighting growing inequalities. It exposed the myth that everyone is in the same boat. While we are all floating on the same sea, it's clear that some are in superyachts, while others are clinging to the drifting debris."

The heart-wrenching image of Khatoon tells a grim picture of the huge price that women, both poor and from the middle-class, paid as a consequence of the economic shock that was brought on by the pandemic and the ensuing lockdowns in India. Women are likely to face the brunt of job losses the most because of the precarity of their jobs, lack of job security, invisibalisation of their work, and for working mostly in informal arrangements. Seventeen million women lost their jobs in April 2020. Unemployment for women rose by 15 percent from a pre-lockdown level of 18 percent. This increase in unemployment of women can result in a loss to of about 8 percent or $218 billion to the GDP. Women who were employed before the lockdown are also 23.5 percentage points less likely to be re-employed compared to men in the post-lockdown phase.

Eight months after the lockdown last year, 13 percent fewer women were employed or looking for jobs, compared to 2 percent men. Urban women more so than rural women. After the massive dip in employment

SEVENTEEN MILLION WOMEN LOST JOBS LAST APRIL. UNEMPLOYMENT FOR WOMEN ROSE BY 15 PERCENT FROM A PRE-LOCKDOWN LEVEL OF 18 PERCENT in April 2020, job recovery has steadily risen, but been tilted in favour of men than women. According to IndiaSpend, using Centre For Monitoring Indian Economy (CMIE) data, total employment in India for November 2020 was 2.4 percent lower than in November 2019, but for urban women, it was down by 22.83 percent. In November 2020, eight months since the lockdown was imposed, there were 6.7 million fewer women in the labour force compared to November 2019. In other words, 13 percent women were neither looking for a job nor were they employed. Labour force contraction was 27.2 percent for women as compared to 2.8 percent for men.

According to Mahesh Vyas of CMIE, women act as reserve labour force in the Indian economy. During economic shocks, they withdraw. The downside is that their recovery—

ILLUSTRATION: SAMEER PAWAR

when the shock recedes and things come back to normal—is not always similar to its pre-shock phase. For example, in the aftermath of demonetisation, 2.4 million women fell off the employment picture in India whereas 0.9 million men joined the jobs market, says Vyas. A similar replacement pattern of men replacing women in the labour force is being witnessed in the aftermath of the pandemic and lockdowns. In November 2020, 20 million or 67 percent of 30 million unemployed men were actively looking for jobs; whereas only 7.2 million of the 19.6 million unemployed women or 37 percent were actively looking for jobs, according to CMIE data.

Why women drop off the labour force and don't come back is a complex web of reasons—precarity and informality of their work conditions; lack of social security and health standards; wage inequality; social and cultural barriers to women's employment; unpaid care work responsibilities and expectations from women; lack of safe and affordable public transportation; lack of child care options and inadequate government policy interventions to improve working conditions of women are some of the major reasons.

Middle-class women were faring no better than their poorer sisters during the lockdown. Specifically, the pandemic and lockdowns saw a phenomenal rise in women's unpaid care work burden, reversing decades of hard work put in by feminists to recognise and reduce the same. While most managed to keep their jobs, they ended working much harder than normal times. With schools, day care centres and creches closed, child care, looking after and supervising children's online classes were new responsibilities that the women had to take up. In addition, those with part-time domestic help were left to take care of the house and cooking all by themselves as these domestic workers

BURHAAN KINU / HINDUSTAN TIMES VIA GETTY IMAGES

The pandemic saw a rise in women's unpaid care work burden, reversing decades of hard work put in by feminists to recognise it

could not report to work. Elder care was also added to the pool. In fact, the Odisha government issued a public interest advisory exhorting men not to take the lockdown as a holiday and instead become responsible and help with domestic chores at home.

A survey by the Institute of Social Studies Trust (2020) found that among those who could retain their jobs, around 83 percent of women workers faced a severe drop in income. Sixty-six percent of the respondents also experienced an increase in unpaid care work and 36 percent reported an increased burden of child and elderly care work during this period. According to the latest NSSO Time Use Survey 2019, before the pandemic, rural and urban women spent 373 minutes and 333 minutes per day respectively in paid and unpaid activities combined. The total time has now risen with the increase in the workload as a result of being stuck at homes. A study by researcher Priyanshi Chauhan found that approximately 22.5 percent married women compared to zero men and unmarried women worked for more than 70 hours a week during the lockdown. The study also observed that unemployed women witnessed the highest increase of 30.5 percentage points for those who spent more than 70 hours per week on unpaid work.

The work-from-home culture has also blurred the lines between working hours and personal downtime. Women have been working longer hours and simultaneously managing the daily household chores, educational needs of children and care for all family members.

Frontline health workers such as ASHAs (Accredited Social Health Activists) whose work can be seen as an extension of care work have experienced a phenomenal increase in their work. But the remuneration is way too measly—a mere ₹1,000 for Covid-19 duties assigned to them. In most cases, they were sent out on Covid-19 duty with no or inadequate protective gear, thereby exposing them to the virus while they worked for the betterment of their countrymen and women. Oxfam estimates that if India's top 11 billionaires are taxed at just 1 percent on their wealth, the government can pay the average wage of the 9 lakh ASHA workers for five years.

A third area where women suffered the most was domestic abuse—physical, mental and emotional. Indeed, the phenomenal spike in domestic abuse during the pandemic led the United Nations to declare it as a 'shadow pandemic'. By the second month of the lockdown, complaints about domestic abuse doubled in India. Such complaints rose from 116 in the first week of March to 257 in the final week of March 2020. According to the National Commission for Women (NCW), it registered an increase of 2.5 times in complaints of domestic violence in April 2020 from the previous year. The NCW received 5,297 complaints in 2020 compared to 2,960 in 2019, a 79 percent increase in cases.

Cases have been increasing since April. The highest number was in July (660), but it has stayed above 450 a month since June. Total cases in April, May and June combined—the initial months of the lockdown was 1,169. In 2020, between March 25 and May 31, 1,477 complaints of domestic violence were made by women. This 68-day period recorded more complaints than those received between March and May in the previous 10 years.

It is also common knowledge that cases of domestic violence are grossly under-reported. Thus, despite the huge spike in cases registered, it is understood that hundreds and thousands went unreported.

The reason for such a rise in cases was that due to the lockdown, women got trapped at home with their abusers—husbands, in-laws and others. With no scope to leave home, it was a fatal situation for many. It is said that alcohol abuse is a common form of domestic abuse. During the lockdown, alcohol sale was banned. But this led to a reverse form of abuse—men were beating up their women out of frustration for forced abstinence. Besides, loss of jobs and income, the inability to step out of their home and general frustration led to higher incidences of violence against women and girls.

The lockdown and lock-in of women with their abusers meant that abusers had access to the phones and other means of communication that the women use to reach out for help. Thus, while helpline numbers did see a spike in distress calls, they failed to connect with many more women who couldn't escape the surveillance of their abusers. In this regard, the government of Jammu & Kashmir created a unique system where they provided access to helpline numbers for women in pharmacies and grocery stores. These were open during the lockdown and presumably women frequented them for their families' needs. These were least likely expected to be safe zones for women and they could escape the surveillance of their abusers. Many such initiatives were necessary to support women during the lockdown. It was not until a few weeks into the lockdown that the government declared that shelter homes for women domestic violence survivors were part of essential services. Even then, the issue of leaving their homes and reaching a shelter home remained a concern.

If violence against women and girls was an existing curse, the situation exacerbated multiple times during the pandemic. Indeed, a deadly combination of job and income loss, reduced bargaining power with the family, high burdens of unpaid care work, the inability to step out of home for relief and to seek help created a volatile situation and made the lives of many more women precarious. In future, the government should be especially mindful of the fact that women are disadvantaged in the Indian society and need to be extended every form of support to ensure that their condition does not deteriorate further.

It is necessary to build economically resilient communities especially targeting vulnerable groups such as poor women and girls. The government should revise minimum wages and enhance them at regular intervals on the basis of Consumer Price Index. Monitoring mechanisms should also be endorsed to ensure that informal workers such as domestic workers receive minimum wages. Also, informal workers should be formalised through written contracts and provided access to social security benefits such as medical, paid and maternity leave, and Provident Fund. Several steps such as creating an MIS for migrant workers (inflow and outflow) by district labour officers and standard operating procedures for employers (those who are employing migrant labourers) to make provisions of minimum facilities at the workplace and on their behaviours towards the workers during pandemic should also be initiated. F •

THE PERIOD BETWEEN MARCH 25 AND MAY 31, 2020, RECORDED MORE DOMESTIC ABUSE COMPLAINTS THAN THOSE RECEIVED IN THE PERIOD IN 10 YEARS

• THE WRITER IS AN INTERNATIONAL CONSULTANT WORKING ON SOCIAL DEVELOPMENT RESEARCH

PHILANTHROPY SHOULD BE HUMBLE, BUT NOT MODEST

By **ROHINI NILEKANI**

Apart from building a flexible and resilient framework for the future, philanthropists, civil society and the government must work in tandem so that every rupee is absorbed on the ground

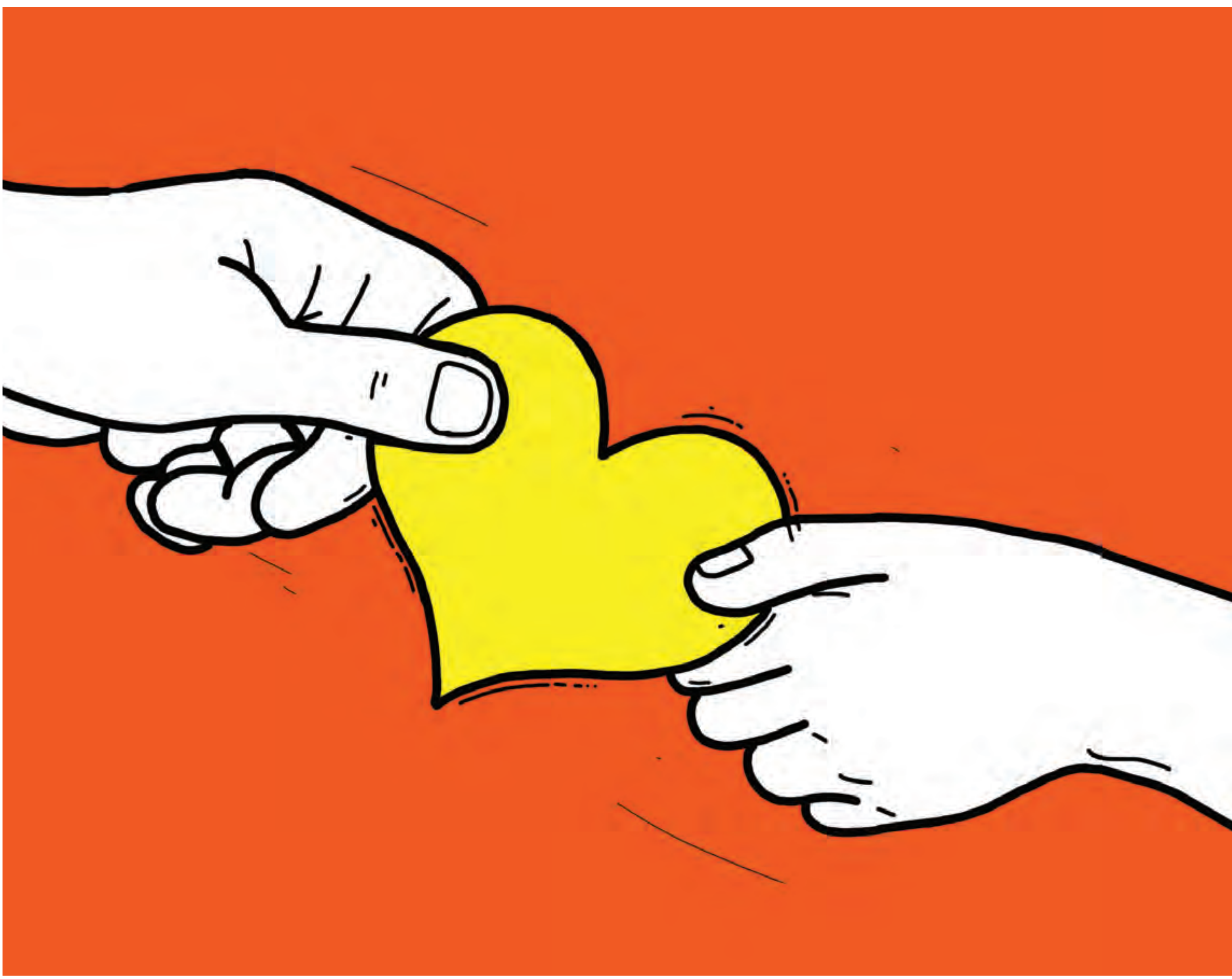


ILLUSTRATION: SAMEER PAWAR

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We can definitely say that civil society and the philanthropy sector stepped up rapidly in the face of the pandemic, March 2020 onward. Very quickly, personal philanthropy foundations, corporates and individuals pivoted their programmes to give immediate assistance and humanitarian aid to whoever they could find and trust. No matter what plans they had for their budgets in 2020-21, those changed to be largely dictated by the needs of people and institutions on the ground.

On the heels of that, most people and organisations also recognised the need to look at their portfolios, change the way they measure how they give, and be more open-minded. I know of several philanthropists who told civil society organisations that they will not hold them to hard indicators of impact and that they will be more flexible with respect to changing budget heads or responses as needed.

Within a few months, some of the more serious philanthropists realised the need to develop a flexible and resilient framework for the future, be it by supporting good leadership, allowing flexibility in creation of metrics for impact, allowing organisations to pivot based on the needs on the ground, rethinking how to move from project to programmatic mode, or even tweaking one's theory of change itself.

Last year, while philanthropists had to immediately address Covid-19 relief needs, civil society organisations were changing how they work. Those working in water, in sanitation, agriculture, education or other areas had to shift their attention to pandemic-related work. So there was no choice for them or the funders in the past 1.5 years. Looking forward, however, things have to be different.

Philanthropic organisations have to keep their budgets relatively flexible to be able to respond to temporary disasters that are going to come at us, wave upon wave. I'm not being pessimistic, but realistic. We've had enough data over the past 10 years to see how droughts, public health emergencies or just market-related emergencies like the financial crisis hit us. Planning for what you cannot plan for is becoming critical for philanthropic organisations.

While we are still in the middle of the second wave of the pandemic, by the end of this calendar year, we should be in a better place to look at the future with calmer eyes. It will take building relationships of trust and discovery. What does this mean? Find the people whose work you believe in, whose ethics you can share, and support them generously without holding back. You can co-create your impact metrics and hold them accountable, but lead with trust. Once you do that, those civil society organisations will have more feet on the ground than philanthropists can ever hope to have. They will have the agency to respond contextually as needed. That is the kind of rethink that philanthropic organisations will have to do.

I've spoken enough about *samaaj-bazaar-sarkaar* (society-markets-governments) linkages. I support work based in the *samaaj*, because I think a strong and resilient *samaaj* enables good government and good markets as well. First of all, acknowledge that we need to invest in strong, diverse institutions and leaderships in the *samaaj*, because it is actors of the *samaaj* that are going to work to make society better. Having a strong civil society foundation not only allows the state to function better, but also allows markets to discover innovations and scale up. So it makes sense to invest heavily into *samaaj* even if you are a market enthusiast.

Some Indian civil society organisations also tend to be a little antagonistic toward the state, but those looking at solving problems should learn to work better with the state as and when they can, since everyone, especially the most vulnerable, benefit from an effective state. Civil society organisations need to also accept that markets can play a very complementary role to expand the work of the social sector. Everyone has a role to play in deepening the positive, trusting relationship between *samaaj* and *bazaar*. Both need to work better with the state and also hold the state accountable for delivering on its mandate of equity and justice.

We all know that many people are uncomfortable with the fact that a few of us are becoming so wealthy, while the rest of the people do not seem to be able to get a leg up. While this is not the space to give lectures on how inequitable the growth of capitalism and markets has been, we need to

CIVIL SOCIETY ORGANISATIONS NEED TO ACCEPT THAT MARKETS CAN PLAY A COMPLEMENTARY ROLE TO EXPAND THE WORK OF THE SOCIAL SECTOR

reinvent the system for it to be much smarter and strategic than what it is now. Those who are building wealth in the process of sheer innovation and by developing good institutions are also the ones that see the potential of rapidly giving forward, and today in India, we are seeing a resurgence of philanthropy from those who have become wealthy just in the recent past.

There is a lot of new philanthropy happening in India and I find it encouraging that the younger people are giving back sooner. They are saying, even if they make $500,000 by selling shares or being bought out, a portion of that will be reserved for philanthropy from the get-go. And that is exactly the kind of thing we want to see as more young people begin to get newly wealthy. This is what is going to separate them from the older generation. The latter often came from industrial houses, whose parents and grandparents had set up businesses that the next generation took forward, but as we know, the younger people do not feel they have full control over the wealth.

The new generation of youngsters that is becoming wealthy has no legacy to uphold; it can think completely freely and afresh, just like we did when Infosys shareholders came into wealth and a few others around us in the IT sector. Just like we were free to spend our money the way we wanted to, because it was not handed down generationally, this young crop is not only ready to do that, but they are also thinking completely differently, beyond even what my generation did. And I find that very exciting.

These youngsters are market-savvy, but not all are market fundamentalists. They recognise the potential of markets, but seem to understand their limitations too, which is why they seem to be mixing their portfolio between market-led investments and outright social non-profit giving. I like that, because one approach will inform the other, and both those together will also change the person who is giving. They are looking at societal impact in mixed ways.

The other departure from the previous generation that I see is that it is much more aware of environmental issues, because it is the climate generation. They and their children are going to face the brunt of the mistakes of my generation and the ones before me. They are willing to contribute toward making the markets more responsive toward climate challenge.

Some of the lessons to be learnt for these new young philanthropists in India is to come in with humility, experiment a lot, double down on a cause you really love and where you are able to find trusting partners. Keep an open mind, keep learning and keep on creating coalitions of philanthropic giving in your own networks, age groups and communities that are coming into wealth. Encourage them to partner with you in experiments of giving forward, because it is going to be one of the most fun things you are going to do in your life.

All crises also provide new opportunities, and the pandemic has brought all of us together to collectively do more than what we could do at an individual level. The ACT Fund, for instance, was so quickly set up during the lockdown and got such a huge response. It offered a great philanthropic model for the future, because apart from the super-rich people of India, there is a sizeable population of rich people who are willing to experiment with giving forward. They don't really know how to do it, because unfortunately we do not have those many organisations that can trustfully support those who want to give, unlike in the West where it's a whole industry. So having your peers set up a fund, deploying the social capital instantly through a platform like this, has been very attractive to a lot of people. So the ACT Fund worked well, and now it is being extended to causes beyond Covid-19 relief work as well. I know more collaborative funds like that are coming up. All these things point to unlocking much more philanthropic capital.

While we are doing that, we should know that the problem is not so much of philanthropic capital, but of absorptive capacity. There is all this philanthropic capital dressed up and ready with nowhere to go. Because we did not invest enough in building civil society institutions that can last and scale. It is no use pointing fingers at civil society because three fingers point back at the philanthropists. We did not invest in those institutions and give core funding. It's like telling entrepreneurs, "Go out there and become successful, but I cannot support your office rent or even give you an accountant." So as these young philanthropists come in and we talk about resilience and responsiveness, it is important to know that putting out philanthropic capital is not enough. We have to start learning the ropes of how to give in such a way that the next rupee and the rupees after that

THE NEW GENERATION OF YOUNGSTERS THAT IS BECOMING WEALTHY HAS NO LEGACY TO UPHOLD; IT CAN THINK FREELY AND AFRESH

PRAFUL GANGURDE / HINDUSTAN TIMES VIA GETTY IMAGES

Children gather at a park in Mumbra, Mumbai, every evening to read books brought by NGO Parcham. Civil society organisations are key to creating on-ground impact of philanthropy

will be absorbed on the ground.

That said, we are all a bit confused and worried about why the government does not seem to have enough trust in the civil society institutions, or even corporate organisations, for that matter. Because the new changes in Corporate Social Responsibility (CSR) laws are dense and baffling to many.

Similarly, it's becoming difficult with the recent Foreign Contribution (Regulation) Act amendments. If we need to stop foreign funding, fine, but then we need to find ways to increase domestic funding. So that even if someone has ₹10 to give, it should be easy to give. In which case, we have to have a dialogue on what is the enabling policy structure that will deepen and widen Indian giving.

There is a lot of work ahead, because otherwise civil society organisations will go under. And while that might not be apparent as a problem right away, over time, you will definitely see a weaker society. Because civil society institutions very quietly do a lot of work that the state and markets simply cannot do. Even if they are tiny organisations, their contribution to nation- and society-building should not be underestimated.

Conversations with the government and deeper dialogues are required much more, so that we can understand and hopefully simplify some of the new rules that have come in. There is a breakdown of trust that needs to be rebuilt. It's a two-way street. We need more transparency from civil society organisations, but we also need enabling policies; not restrictive policies that tie them down. The state has to be more in listening mode and involve more actors from civil society before such rules are made and thrust down. We need the government to explain what is the larger mission and goal. Once we are able to understand where the government is heading, and if we can have a little more dialogue and access, it will be hugely beneficial for everyone.

Looking into the future, there are a couple of changes required. First, the policy environment needs to improve. Two, both corporate and philanthropic foundations need to begin with trust and build out plans to support resilience.

Third, civil society organisations need to get their act together in a sustainable manner to represent their sector when policy shifts and emergencies like the pandemic happen, so that all can work seamlessly and hammer out common interests beyond ideological differences.

Then, of course, people who have come into so much wealth have to experiment with giving more freely. These one-off projects that make you happy are not enough. If you want serious social change as a philanthropist, you have to make multi-year commitments and long-term funding, along with generosity and curiosity.

Philanthropy should be humble, but not modest. They have to genuinely accept failure without glorifying it. I think the future of giving in India remains positive. We should steam ahead. F

• AS TOLD TO DIVYA J SHEKHAR

• ROHINI NILEKANI IS A PHILANTHROPIST AND FOUNDER-CHAIRPERSON OF NON-PROFIT ARGHYAM

THE REAL PROBLEM IS OF UNEQUAL OPPORTUNITIES

By **MAITREESH GHATAK**

It leads to an uneven distribution of gains of growth and limited upward mobility. The thrust of our development policy initiatives should focus on how to deal with that

Does India have an inequality problem? It would appear so.

India's economy experienced the largest contraction (8 percent) in the post-Independence period due to the Covid-19 crisis and its economic fallout last year. Yet, the stock market has recovered from the initial dip and is up by 75 percent from a year ago. The total number of Indian billionaires rose to 140 from 102 last year; their combined wealth has nearly doubled to $596 billion. India has the third highest number of billionaires in the world after the US and China. Yet, if we look at poverty, India's share of the world's extreme poor is higher than its population share. India accounts for 139 million of the total 689 million people (20.17 percent) living in extreme poverty in 2017, according to World Bank estimates, while its population is 17.8 percent of the world population.

Now, India's population is large and the fact that there are many Indians who are rich and many who are poor does not necessarily mean there is greater inequality compared to other countries. But, even if we account for population and economic differences across countries, analysis shows that India does have more than its expected share of multimillionaires.

However, looking at the very top and bottom tails of the wealth distribution gives us a limited glimpse of the problem of inequality. Moreover, the pandemic is a once-in-a-century phenomenon and so we need to dig a bit deeper to see what the story with inequality in India is.

The World Inequalities Database that has been created by Thomas Piketty and his colleagues presents a relatively comprehensive picture of both wealth and income inequality across countries and how they have evolved over time. The picture it presents does point to an alarming rise in inequality in India. If we take wealth inequality, the share of the top 1 percent of total wealth was fairly constant around 12 percent from 1961, the earliest year for which we have numbers, to 1981. Since 1991, the year of liberalisation, it has steadily increased and reached 42.5 percent in 2020. The share of total wealth of the bottom 50 percent fell marginally from 12 percent to 11 percent between 1961 and 1981, but then it started declining sharply and stood at a mere 2.8 percent in 2020. Even the share of the middle 40 percent shows a similar pattern, hovering around 45 percent till 1981 and then falling steadily down to 23 percent in 2020. Compared with other major economies, India has a relatively large gap between the top 1 percent and bottom 50 percent. While the US stands out in this respect, India has a larger gap than France and China, and is only marginally behind Russia.

From wealth inequality, let us now turn to income inequality. Here, the share of the top 1 percent in total income was 13 percent in 1961, and in fact declined gradually to 7 percent in 1981. Then it started climbing up from the 1990s, going up from 10.4 percent in 1991 to 21.7 percent in 2019. In general, wealth tends to be more concentrated than income as it reflects a cumulative process spanning across generations via inheritance. India is no exception. The share of the bottom 50 percent in total income stayed somewhat constant between 21 percent and 23 percent between 1961 and 1981, but thereafter it started declining, going down from 22.2 percent in 1991 to 14.7 percent in 2019. The share of the middle 40 percent shows a similar

pattern—it fell from 42.6 percent in 1961 to 30 percent in 2020. In terms of the gap between the top 1 percent and the bottom 50 percent, India stands apart among major economies—it is higher, for example, than the US, China, Russia, France, and the UK.

Clearly, since the economy started growing faster from the 1990s, inequality has shot up. It was Simon Kuznets, whose pioneering work with national income data earned him a Nobel Prize in Economics in 1971, who established the empirical regularity that economic growth leads to an increase in inequality at first. In the initial stages of development, as new opportunities arise, the richer can take better advantage of them. At the same time, a large population of unskilled workers keeps wages down. Therefore, inequality goes up. This is clearly going on in India. The income of the rich has grown at a faster rate than that of the poor. If we compare GDP per capita between 1998 and 2019, it has gone up 8.5 times. Yet, if we look at rural wages, it has gone up by only 5.4 times.

But the fact that inequality has gone up with growth does not mean we should abandon growth. Since the 1990s, the percentage of people below the poverty line has gone down from nearly 45 percent in early 1990s to nearly half of that. Therefore, growth may have increased inequality, but it has also reduced poverty.

This brings out an important tension that is often reflected in our policy debate—the growth-based narrative versus the inequality-based narrative. The problem with the inequality-based narrative is that without an understanding of the relationship between growth and inequality, just mechanically trying to reduce inequality might lead us to a blind alley. For example, if we focus

ILLUSTRATION: SAMEER PAWAR

just on redistribution, it will hardly make a dent on poverty. If we take the ratio of total billionaire wealth to GDP, it stood at only 20 percent in 2019 (starting with 1 percent in the mid-90s). Even if we took all of this wealth, while it would be a tidy amount (considering tax revenue as a percentage of GDP is only 12 percent), it still would not make a serious dent on poverty given the size of the population that is poor and, more importantly, will be a one-time affair.

But before we jump to the other end and conclude that growth will eventually lift everyone above poverty and so let us not bother about inequality, we should pause. It takes a long time for the benefits of growth to trickle down to make a real difference in the lives of the poor. Suppose, instead of the income level that defines the poverty line, we merely increase it by 20 percent. This is still a low amount. Yet, according to the latest estimates we have of poverty, even after several decades of relatively high growth since the early 1990s, more than 50 percent of the population is still below this threshold.

The problem with the growth-centred narrative is that while growth is necessary for poverty alleviation, it is not sufficient. For example, suppose we ignore the pandemic and contraction in GDP and all of that, and assume a dream growth rate of 10 percent. It will take more than 20 years of sustained growth of 10 percent per year in incomes to bring an Indian who is right on the poverty line up to merely the current level of per capita income, which still is low by global standards. And, no country in history has had two decades of sustained double-digit growth.

THE PROBLEM WITH A GROWTH-CENTERED NARRATIVE IS THAT WHILE GROWTH IS NECESSARY FOR POVERTY ALLEVIATION, IT IS NOT SUFFICIENT

So, the real questions are: What makes growth inclusive and what policies can facilitate this. Kuznets had argued the process of growth would reduce inequality in the long run. He argued that with capital accumulation, eventually the demand for labour would go up sufficiently and this would push up wages. Also, the returns from acquiring skills would go up, which would not only encourage greater investment in human capital on average, but also open up doors for upward mobility. All of this would tend to reduce inequality as well increase growth. But even though average levels of income and educational outcomes have improved following economic liberalisation, mobility in India remains low overall. Those who are born in poorer sections tend to stay poor and this causes inequality to persist. Not just that, inequality directly hurts growth prospects by wasting the potential of those who are born poor but talented—instead of becoming successful entrepreneurs and creating jobs, they spend their lifetime in low-return occupations.

Focusing on mobility allows us to step beyond the stale debate about redistribution versus growth. It also highlights what aspect of inequality is especially harmful. In a society where everyone has a minimum decent standard of living and opportunities are available for all, inequality can still arise due to differences in skill, effort, enterprise and luck. In such a society, our views on inequality and policies relating to it may largely be a matter of ideology or what kind of social values we have, e.g., the degree of our concern for the disadvantaged or aversion to inequality. However, when inequality creates impediments for the poorer sections to take advantage of economic opportunities (for example, by not being able to send their children to good schools), that hurts growth prospects.

So, India surely has an inequality problem. Reports suggest the pandemic has worsened it significantly as the poorer sections as well as the middle classes have been hit hard by the downturn, resulting in downward mobility. At the same time, as we noted at the beginning, the richer sections have actually gained. But leaving that aside, the real problem is that of unequal opportunities. This leads to an uneven distribution of gains of growth and limited upward mobility. The thrust of our development policy initiatives should focus on how to deal with that. Clearly, a part of the answer is to enable the poor better access to health and education. But this is not possible without a sufficient increase in tax revenue. In particular, we need a much more conscious effort to bring the rich under the tax net. After all, the upper and lower tails of the distribution of income and wealth are not unconnected.

There is a popular misconception that only the rich pay taxes. But direct taxes (personal income tax and corporate tax) only yield about half of the total revenue, with rest coming from indirect taxes (GST, excise and customs) and if anything, the pandemic has raised the relative importance of the latter. Moreover, given the alarming state of wealth inequality that we saw, there should be greater emphasis on wealth taxes, such as inheritance and capital gains taxes. These would go directly after the main source of inequality of opportunity—wealth. F

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THE PANDEMIC HAS BEEN A MIXED BAG FOR GIG ECONOMY

By **NALINI GULATI**

While India has emerged as a frontrunner for flexi-staffing, there is also a need for skilling and bridging the gender divide

Over the years, only about 15 percent of the non-farm employment in India has been considered as 'formal'. The remaining workers—in both unorganised and organised sectors—are those without regular jobs or employer-provided social security benefits. These include everyone from a carpenter offering on-demand services in the locality, to a freelance web designer taking up short-term work with a few different firms.

About a decade ago, technological advancements and evolving business models led to the emergence of aggregators and digital platforms. A driver working with a small cab service could now connect with more customers via apps such as Ola. Ride-hailing on the streets was replaced with clicks on smartphones, and haggling over prices and small-change with discounts and digital payments. The drivers made their own hours, and going off-duty simply meant switching off the work phone.

This radically changed the concept of fixed work shifts, and in some ways, reduced control exerted by the 'boss'. On the downside, a period of illness or vacation meant zero earnings. The aggregators did assure end-users of quality standards, but maintained that the service providers are their partners and not employees in the traditional sense. The trend picked up rapidly—onboarding beauticians and food-delivery persons—and transformed the way urban Indians went about their day-to-day lives.

According to the latest Economic Survey (2020-21), India has emerged as one of the largest countries for flexi-staffing in the world. Globally, the International Labour Organization has reported a fivefold increase in the number of digital labour platforms over the past 10 years. At 8 percent, the concentration of these platforms in India is surpassed only by the US (29 percent).

Certain segments of the Indian gig economy have been further boosted by Covid-19-related lockdowns and social distancing measures. Besides, reducing core staff and associated overheads, and engaging task-specific consultants, are cost-cutting measures that firms are increasingly adopting in these times of unprecedented economic distress. The gig economy indeed has the advantage of flexibility for both employers and workers, and perhaps also of better matching work requirement with personnel skills. However, the vulnerability of gig workers in the absence of assured work or social and legal protection, has been underscored during the Covid-19 shock.

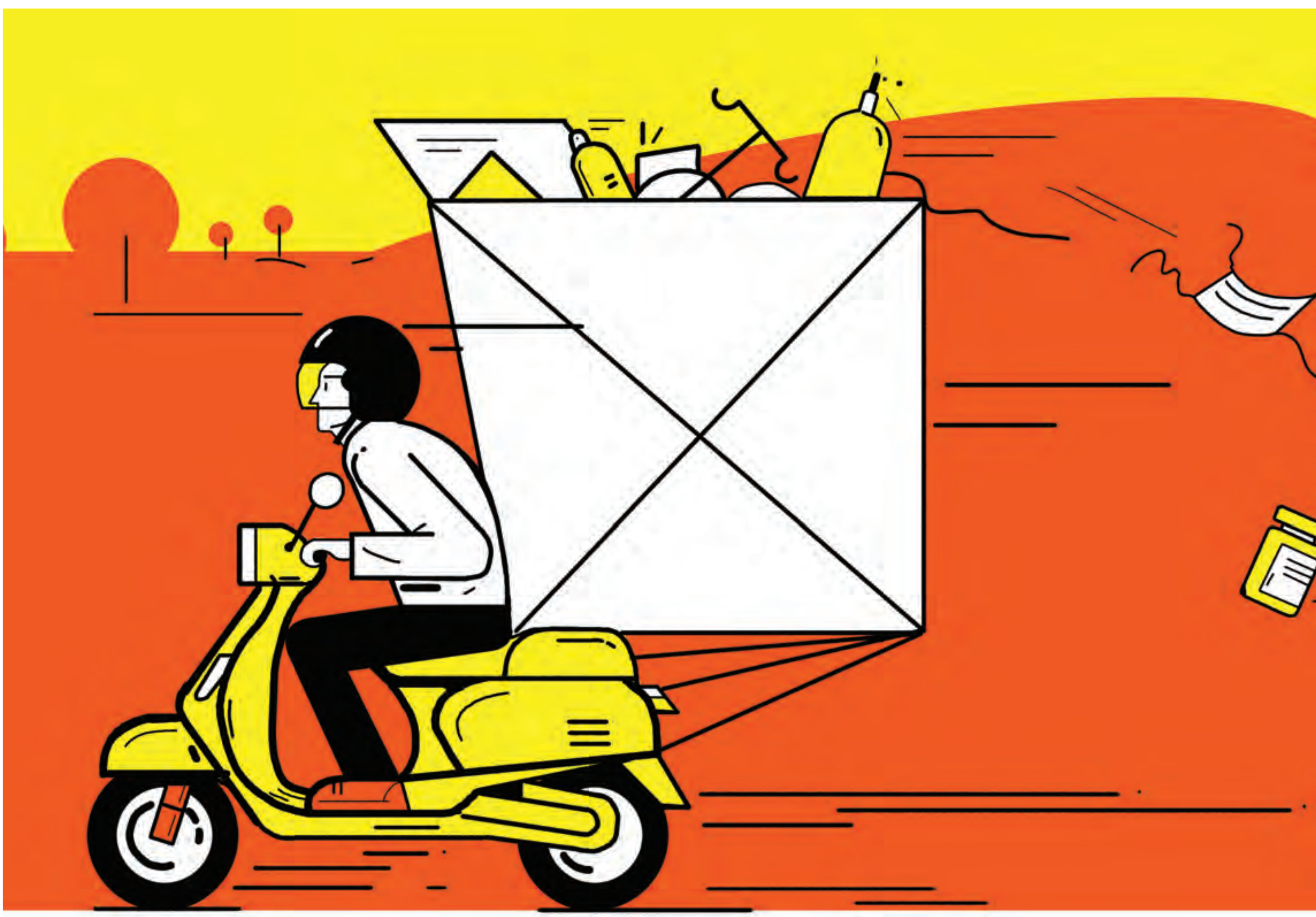
A new study by the Boston Consulting Group and Dell Foundation estimates that the gig economy has the potential to service

THE GIG ECONOMY COULD SERVICE UP TO 90 MILLION JOBS, TRANSACT OVER $250 BILLION IN WORK VOLUME, AND CONTRIBUTE AN INCREMENTAL 1.25 PERCENT TO THE GDP up to 90 million jobs in India's non-farm sector, transact over $250 billion in volume of work, and contribute an incremental 1.25 percent to the country's gross domestic product over the long term. In a situation of economic recession and high uncertainty, this is a glimmer of hope.

Yet, a sobering reality is the low levels of digital skills, and access to devices and internet among the population. For instance, as per the 75th Round (2017-2018) of the National Sample Survey, 55.3 percent of urban Indians (64 percent for females versus 47.1 percent for males) in the age group of 15-59 years, are not able to use the internet. Only 23.4 percent of urban households are in possession of a computer, as defined to include devices such as smartphones. More people ought to be empowered to have the option of taking up opportunities in the gig economy; else we risk leaving many behind and deepening existing socio-economic disparities.

TO CATER TO CHANGING WORKPLACES, INDIA NEEDS TO REVAMP ITS PUBLIC TRAINING PROGRAMMES, WITH RESKILLING, UPSKILLING, AND MULTI-SKILLING

Given the concerning trend of low and falling female labour force participation in India, the general expectation is that the gig economy will enable more women to work flexibly, while balancing domestic responsibilities that tend to be disproportionately borne by them.



ILLUSTRATIAON: SAMEER PAWAR

However, in addition to the gender dimension of the digital divide creating entry barriers for women, division of work within the gig economy appears to be gendered as well. The fear of contracting the virus has led to a plummeting of the demand for in-person services such as beauty and wellness—mostly supplied by women inside homes—even as the need for 'delivery boys' bringing groceries and other essentials to our doorstep is at an all-time high. While social and cultural norms will only change slowly, provision of gender-sensitive public transport and enhancing women's safety in public spaces can help level the playing field.

Given the low female labour force participation in India, the general expectation is that the gig economy will enable more women to work flexibly, while balancing domestic responsibilities

The trend of fast-paced automation affecting jobs pre-dates Covid-19, and the pandemic has only served to accelerate it. The World Economic Forum (2020) predicts that 85 million jobs globally may be displaced by a shift in the division of labour between humans and machines by 2025, while 97 million new roles may emerge that are more adapted to the new division of labour, machines and algorithms. To cater to the changing realities of the workplace—and possibly preparing for a future of self-driving vehicles and drone deliveries—India needs to revamp its public training programmes with a focus on reskilling, upskilling, and multi-skilling.

Whether or not the robots are coming for our jobs, or if the future holds more pandemics and economic crises, it is clear that India needs to streamline and strengthen its social protection architecture. The recognition of gig workers—for the first time—under the category of unorganised workers by the new Code on Social Security, 2020, is a progressive move. It is envisaged that the central government would frame and notify, from time to time, suitable social security schemes for unorganised workers on matters relating to life and disability cover, accident insurance, health and maternity benefits, old age protection, and so on. Every eligible unorganised worker who registers, can avail benefits of the schemes. The aggregators would be required to make a contribution of 1-2 percent of their annual turnover, up to a maximum of 5 percent of the amount payable to its gig and platform workers. The schemes may also be partly funded by the central and state governments, and via contributions collected from the beneficiaries. If implemented effectively, this policy initiative could greatly improve the well-being of the country's expanding cadre of gig workers, and pave the way for more sustainable development of this segment of the economy. More broadly, time seems ripe for serious deliberation on the feasibility and desirability of the various versions of 'universal basic income' for India, advocated by leading economists. F

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MONEY SHARMA / AFP

TIME TO GET ON THE JOB

Pandemic-induced brain drain, skewed gender ratio and the inability to absorb low-skilled labour paint a dark picture for employment in India

By **MAHESH VYAS**

Before we address what India might start to see in terms of jobs and employment in the years ahead, at a time the second Covid wave rages on, we must understand how the labour market fared in 2020. The unemployment rate, according to the Centre For Monitoring Indian Economy (CMIE), was at a record high of 23.5 percent in April last year and then it slid to 10.9 percent in June before tapering off more in the months that followed. While the unemployment rate for a country always grabs headlines, what is far more critical is the labour participation rate (LPR).

The LPR is simply the measure of the proportion of a country's working-age population of 15 years of age or more that engages actively in the labour market, either by working or looking for work. It tells us how many of the working-age population are willing to be employed. If this proportion keeps falling, it does not bode well for India's growth story and for the well-being of its people.

The LPR for India has been falling systematically since 2016-17, when it was 46.1 percent. In 2017-18, the year that showed the full impact of demonetisation (announced in November 2016) and the July 2018 introduction of Goods & Services Tax (GST), the LPR fell by 256 basis points. It slid by 77 basis points in 2018-19 and then again by 14 basis points in 2019-20, to an average of between 42 percent and 43 percent before the pandemic.

LASTING IMPACT OF THE PANDEMIC

In 2020, the pandemic year, the LPR slid to 35.6 percent in April before climbing back marginally in June, but it has not yet touched the 41.9 percent level seen last March. So while the unemployment rate has recovered somewhat to 6.5 percent in March 2021—from high levels of 23.5 percent in April 2020—the LPR never repaired itself. A large portion of people who were part of the labour force are no longer part of it—it's the lasting impact of the pandemic.

A country with a declining LPR over several years comes with its own set of concerns. It all depends on which part of the development cycle the country's economy is in. Even in the West, like the United States of America, the LPR is falling, but that is because the per capita income of the country has risen enough to enable people to quit the labour market at a particular age. For a developing country such as India, a falling LPR means that the country is unable to provide jobs to a thriving labour force. Our working population is increasing, but it is not getting jobs, which is not a good sign.

The problem of high unemployment is only a recent phenomenon. In India, till the 1990s, the unemployment rate was extremely low, of around 3 percent for several years, and people picked a low-wage job because they could not afford to remain unemployed. The opening up of the economy in the early 1990s led to the great shift from low-productivity farm jobs to higher-productivity factory jobs.

But this growth petered out in recent years. The biggest loss of employment in 2020-21 was among the salaried employees. As of March 2021, there were 76.2 million salaried employees. This was 9.8 million less than the 85.9 million salaried jobs observed in 2019-20.

> THE PROBLEM OF HIGH UNEMPLOYMENT IS ONLY A RECENT PHENOMENON IN INDIA

ILLUSTRATION: SAMEER PAWAR

GENDER BIAS

Every time there is a shock to the economy, be it demonetisation, introduction of GST or the global slowdown, the people who suffer the most are women and the youth. When the going gets tough, data shows that women quit the labour market due to adverse conditions. In difficult economic conditions, enterprises prefer to retain men rather than women. People who quit the labour market are young women. When they enter the labour market in their mid-20s, they don't get jobs. This is odd because in the last five years, the number of women graduating is much higher than men.

The LPR for men in 2019-20—pre-pandemic—was 71 percent and just 11 percent for women. In the same period, the average unemployment rate for men was 6.3 percent and 17.5 percent for women. For March 2021, the LPR for men was 66.9 percent and just 9.7 percent for women while the unemployment rate for men was 5.7 percent and 12.7 percent for women. Data suggests this is an urban phenomenon because, in rural India, women might get farm-related jobs.

The biggest impact of this on the economy is that India completely loses on its demographic dividend—if 71 percent of men are working, then there is no headroom for more men to work. All the headroom of people adding to the workforce and contribution to growth in household income is women. But women do not join the workforce.

PANDEMIC SECOND WAVE: 'W' SHAPED RECOVERY

The second wave will give a further jolt to the recovery of the labour market, with a concern over livelihood. In October 2020, the average household income was ₹20,000, which was 20 percent below a year earlier, according to CMIE. This income will have dropped further. Its impact in future will be troublesome because the average does not tell us what the distribution is by income groups. We know the savings rates and income for the richer people have risen, but they have fallen for the poor.

So there was a 'K' shaped recovery for the economy, but this is widening and looking like a 'W' shaped recovery. I am not sure how deep the 'W' is going to

A falling labour participation rate means the country is unable to provide jobs. Also, jobs at the lower end are likely to vanish soon

ANINDITO MUKHERJEE / BLOOMBERG VIA GETTY IMAGES

be, but it does look like the 'K' will widen for sure. Income inequality and poverty are getting worse.

We have seen the fragility of the salaried job market during the pandemic's first wave (see chart). As the second wave deepens, in the short-term, more people will move into farm jobs as disguised employment and there will be a gradual decline in the absorption of labour in the organised sector. This is because the businesses of enterprises such as micro- and small businesses (MSME) are shattered and their capacity to absorb labour is declining rapidly.

The long-term impact is that companies will increasingly move towards artificial intelligence in the services sector in a bigger way, automation in the manufacturing sector and mechanisation in the mining sector. This will mean fewer jobs for output.

The jobs at the lower end will vanish soon. The government has also virtually frozen hiring. So where will the jobs come from?

FUTURE: CONTRACTS WITHOUT SOCIAL SECURITY

A lot of the employment is moving away from good quality jobs with social security to contractual jobs with no social security. Even jobs which are increasing are of poor quality. The government is still implicitly promoting jobs in capital-intensive industries.

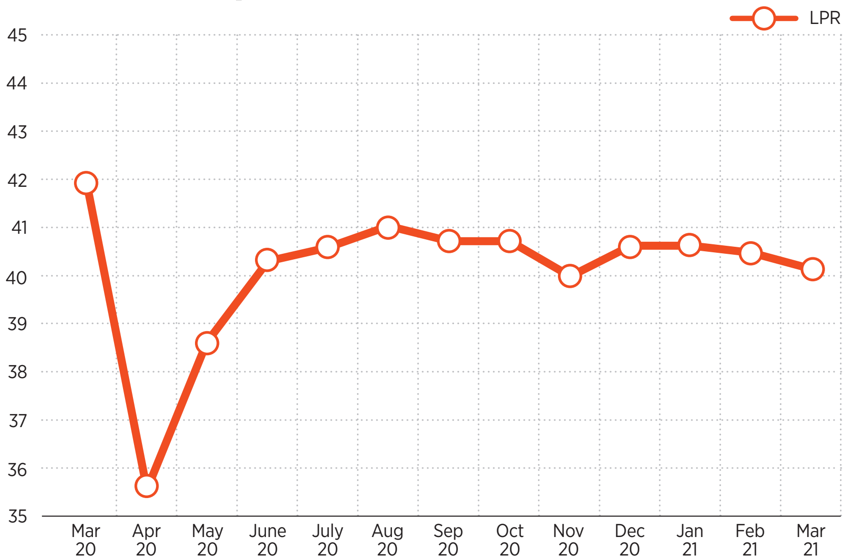
> A LOT OF THE EMPLOYMENT IS MOVING AWAY FROM GOOD QUALITY JOBS WITH SOCIAL SECURITY TO CONTRACTUAL JOBS WITH NO SOCIAL SECURITY

The recent production-linked-incentive schemes announced by the government—in some cases to manufacture mobile phones—are capital-intensive and very low on labour absorption. But it is particularly important for India to have industries which absorb large amounts of low-skilled labour and there is no push towards this. In fact, we have a paucity of high-skilled labour.

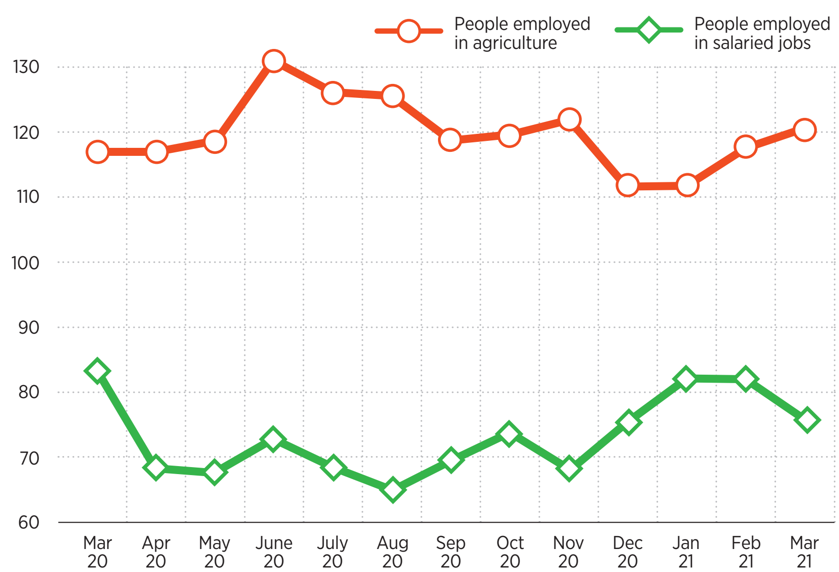
Automobile manufacturers are increasingly focusing on hiring contractual labour; at the other end we fear excess labour could get laid off when government or state-owned undertakings get privatised.

Expanding the startup ecosystem has made a huge difference to the labour ecosystem, having absorbed both skilled and unskilled labour. Look at Urban Clap, which hired skilled labour and deploys it well. Others like foodtech giants

Labour Participation Rate (%)



Employment: From Formal Jobs to Farm Jobs (mln)



SOURCE Centre For Monitoring Indian Economy

Zomato and Swiggy have employed lesser-skilled labour well.

In the mid-1990s and early 2000s, the rush was to seek a high-quality information technology (IT) job, but that is not true today of the jobs which startups offer. We also need a big push for hiring of skilled engineers in manufacturing and in IT... the level of engineers being hired is not the same as those hired between 1960s and 80s, and even the 1990s. India's wage growth has also been declining during the pandemic. Formal workers' wages in India have been cut by 3.6 percent while it was a 22.6 percent cut for the informal workers, according to a 2020 global wage report from the International Labour Organization (ILO).

It is difficult to assess what kind of jobs will emerge. We have a conundrum on the demand and supply of jobs. We have a large supply of low-skilled labour for which there is little demand (thousands say they do not find jobs) and a short supply of high-skilled labour—such as coders—for which there is high demand (corporates say they cannot find high quality labour). The situation does not look good, but we should be hopeful for a better tomorrow.

BRAIN DRAIN

Also, it looks like the rest of the world is coming out of the pandemic much faster than India is. In the current fiscal, with living conditions being tough, the vaccination drive slow and fewer jobs available, the educated and high-skilled Indians might be tempted to leave the country to seek opportunities elsewhere.

A critical question also arises: With the current LPR of 41 percent, how many new jobs does India need to create? This figure works out to around 8 to 9 million each year (which is not happening at all). The number of people aged above 15 is growing at 20 lakh a month and with an LPR of 41 percent, it works out to 8 lakh per month. Multiply this by 12 and we get just over 9 million jobs if we are to accept our current LPR. [The global average LPR, according to ILO model, was about 59 percent in 2020].

We need to recognise the employment problem and at a public policy level. There is a disconnect between economic policymaking and the political compulsions—of making unrealistic promises to the electorate—arising out of the situation. It would be better if the political establishment, both the Centre and states, assigns direct attention to the problem of employment. F

• AS TOLD TO SALIL PANCHAL

• THE WRITER IS MANAGING DIRECTOR AND CEO OF CMIE

LEADERSHIP WILL BE ABOUT SEEING THE BIGGER PICTURE

By **SURESH NARAYANAN**

Leaders must not only guard their teams first during a crisis, but also deal with stakeholders with respect and dignity. And apart from pursuing business goals, they should remain committed to our planet and the environment

Today we are standing at the crossroads of uncertainty. The Covid-19 pandemic has raged on to become the greatest global crisis; and we are confronted with the climate emergency impacting our planet, our children, the future generation and the entire human race. Propelled by the new landscape, which is dynamic and fluid, leaders have an important role to play today and in the future.

The 'future of leadership' would rest in the hands of people who can navigate these tough times with wisdom, lessons from history, decisiveness and most importantly, empathy and compassion. An indomitable will that embraces responsibilities, that firmly believes that our spirit is stronger and cannot be broken.

CARING THROUGH THE CRISIS

Like human beings, organisations have also witnessed radical shifts with equations between people, purpose, partnerships, planet and profits for businesses changing in the contours of a world shaped by the pandemic. In extraordinary times such as the present, it is only empathetic leadership that can carry forward teams as well as customers, consumers and communities. With their eyes fixed on the horizon, a leader must be able to endure the storm and anchor the organisation through the depths of the current adversities and volatilities.

As a human being and leader of a company, the first task leaders will have to embrace is to manage themselves amidst ongoing challenges or potential crisis. A leader must be positive and hopeful to overcome a crisis. Attitudes and behaviours are infectious, and hope is contagious. Hence leaders will have to demonstrate the same to their teams. It is critical to give your people the calmness, resoluteness and confidence that you will be able to come out of the crisis, and that there is light at the end of the tunnel. If you are concerned only about yourself, your comforts and discomforts, you reflect it very differently with your team.

Selflessness is not something that can be dictated from top down. It must demonstrate itself in behaviour, by the top leadership and this can resonate in the most difficult of times. The values of dignity, respect, compassion and empathy are universal, and it will be the task of every leader to demonstrate those, especially in a crisis. The primary task of a leader is to guard their people during a crisis to ensure they are safe and protected. A true leader will protect and serve his people just like his own family in a crisis and instil a spirit of strength.

IN EXTRAORDINARY TIMES SUCH AS THE PRESENT, ONLY EMPATHETIC LEADERSHIP CAN CARRY FORWARD TEAMS AS WELL AS CUSTOMERS

ILLUSTRATION: SAMEER PAWAR

PROMISE TO OUR PLANET

Another aspect which leaders will have to look at championing going forward is sustainability. The pandemic has been a wake-up call for all our collective conscience. The Covid-19 pandemic shares similarities with the climate crisis: It is systemic, with knock-on effects around the world. Good intentions will no longer be enough; organisations need to join hands and work towards the greater cause. Sustainability focuses on meeting the needs of the present without compromising the ability of future generations to meet their needs. However, a lot more can be done in some specific areas in the future.

Climate change is one of the biggest challenges facing mankind. Addressing this will require a multi-stakeholder approach to collaborate and monitor progress, laying the foundation for a better world. This includes regenerative agriculture practices, a transition to 100 percent renewable electricity, apart from reformulating products to make them more sustainable. There is a need for accelerating actions towards reducing greenhouse gas emissions, aiming to create more recyclable or reusable packaging products. Plastic waste is becoming a big menace. There are concerns around the quantity of plastic waste entering the natural environment and damaging ecosystems.

The need for organisations and businesses will be to stay committed to the planet and foster economic growth that complements the environment. Make thoughtful changes and shifts, stay aware and stay alert. It also takes unprecedented levels of collaboration and innovation to trigger the big, systemic changes required to achieve these ambitious goals. The power to accelerate this change will require a multi-stakeholder approach to collaborate and monitor progress, laying the foundation for a better world. There is an immediate need for all organisations to support, implement and provide solutions and actions

Leadership is about having unwavering faith in the people who make up your ecosystem

SHUTTERSTOCK

to contribute to the conservation of resources, steward them for future generations and meet the climate goals collectively. We need to work collaboratively to protect the health of our habitats, improve soil management, protect the oceans and preserve biodiversity. Working with partners to preserve shared water resources, promoting regenerative agriculture and improving water management practices will be important initiatives.

It has been demonstrated time and again that no one can prosper alone, and business too depends on a thriving society and planet. I would like to share an African proverb that I truly believe in: "If you want to go fast, go alone; if you want to go further, go together". Instead of acting individually, we all need to combine our efforts, with one ultimate end in mind: A sustainable future for the generations to come.

IT HAS BEEN DEMONSTRATED TIME AND AGAIN THAT NO ONE CAN PROSPER ALONE, AND BUSINESS TOO DEPENDS ON A THRIVING SOCIETY

BELIEF IN PEOPLE

Leadership will essentially be about seeing the bigger picture and having unwavering faith in the people who make up your ecosystem. One of the key qualities that a leader must have is the ability to value their people. Whatever a leader achieves, he does so from the shoulder of giants. It is not one hero who makes everything happen, but an entire team, supported by partners and well-wishers; where seemingly ordinary people do extraordinary things.

Another quality that a leader must have is clarity of expectations from his people. Besides, he must be deeply respectful and transparent. The purpose of communication and leadership is to leave a residue, an impact, and a few questions that people ponder over to act upon for the future.

At the core of everything that a leader does is 'respect'—respect for himself, respect for others, respect for diversity and respect for the future. Like a phoenix rising from the ashes, a leader should be able to combat unsurmountable challenges and offer that message of hope to people. Feeling the pulse of the organisation and understanding people in the overall chain will be vital aspects of overcoming challenges.

To serve employees who toil hard, to the customers who go beyond the call of duty, to serve consumers who wait patiently in remote corners of the country, to the communities whose livelihoods are intrinsically linked to the business, a leader will have many promises to fulfil. It will be incumbent upon the leader to embrace responsibility and take ownership of failure, while letting teams thrive on success. A leader should act with agility and tenacity by taking bold, swift, judicious actions, and restore confidence in people; embody a spirit of service, tempered with humility, and with quiet fortitude show that there is light at the end of the tunnel. Firms will have to spend more on improving their work culture, to have better-run companies.

FEELING THE PULSE OF THE ORGANISATION AND UNDERSTANDING PEOPLE IN THE OVERALL CHAIN WILL BE VITAL IN OVERCOMING CHALLENGES

FAITH IN PURPOSE

We recognise that both corporates and human beings cannot stake claim to immortality. There will always be times of stress and challenges from the environment or unprecedented curveballs in the way. Every crisis leads a company back to its values and purpose. This is because these are what help people overcome adversities. Purpose is the guiding spirit of your life. It is not materialistic, but it is what you want to be remembered for as a human being. When imagination is joined to common purpose, it translates into magic. There must be an end motive larger than the person himself.

A leader must live by the purpose of the company, guided with the compass of values that determines his relationship with his employees, partners, stakeholders, customers and consumers, to anchor the ship amidst the storm. A leader must choose hope over fear, purpose over discord and courage over temerity.

Purpose has helped businesses stay consistent through different storms and made them strong enough to take on the travails of the future. They have been helping in the nation's fight against the Covid-19 pandemic by giving every possible support to the communities and authorities who are fighting tirelessly and valiantly each day against the virus, as well as reaching out to vulnerable communities.

STRENGTHENING PARTNERSHIPS

Brands that act in the interest of their employees, stakeholders and society at large will reinforce their expertise, leadership, trust and strengthen the bond they have with consumers going forward. This will help increase penetration and proclivity towards more credible, transparent and trustworthy end products. Long partnerships help strengthen trust and create an everlasting bond among stakeholders.

Companies also have to recalibrate the way they engage with people and this will be a focus area going forward because the whole purpose of organisations is to recalibrate, to empower, to enable decision-making at the appropriate levels. The goals of all partners need to be aligned: To have a positive impact on people's lives and create maximum value for the consumers they serve. This thought gives meaning to what they do and serves as a lighthouse for aligning their actions.

People are looking for companies they can believe in, trust in, a company that has a social impact, which can change lives positively. The future will demand increased commitment from companies, making sure that business stays committed to the community, the consumer and the planet. When contending with a crisis of magnanimous proportions such as the ongoing pandemic, leaders can easily forget this. In order to pivot, they need to recognise the changes, adapt and grow from them. As they navigate the crisis, leaders need to focus on the six 'R' mantras: Relevance, resonance, renewal, recalibration, reconstruction and resurgence.

In the words of Admiral William H McRaven: "Take some risks, step up when the times are toughest, face down the bullets, lift up the downtrodden, and never ever give up. If we do these things, then the next generations and the generations that will follow, will live in a world far better than the one we have today." F

THE WRITER IS CHAIRMAN AND MANAGING DIRECTOR, NESTLÉ INDIA

GRANDMASTERS OF RESILIENCE

To navigate times of crises, leaders need to be able to wear many hats in order to guide, inspire and innovate

By **CP GURNANI**

The coronavirus outbreak started a war that united the world in a unique way, and it has been testing the resilience of all nations and economies. Businesses of all kinds have been forced to adapt to remote work, reconfigure physical workspaces, revise logistics and supply networks in order to cope with the unprecedented changes brought about by the pandemic.

Though it has spread panic across the globe, it has also demonstrated and made us understand the significance of crisis management, business continuity and resilience. It served as a lesson for businesses across the world to find opportunities amidst uncertainties. To survive and thrive in this new world order, we need to dismantle the known order to discover new capabilities. It calls for leaders to be focussed, and yet open to revisiting strategies, taking bold risks, and being agile and nimble—with people at the centre of every decision. I believe that this has been possible because leadership is not just a single role; rather, it is a dynamic combination of roles across disciplines.

LEADERS AS WARTIME GENERALS

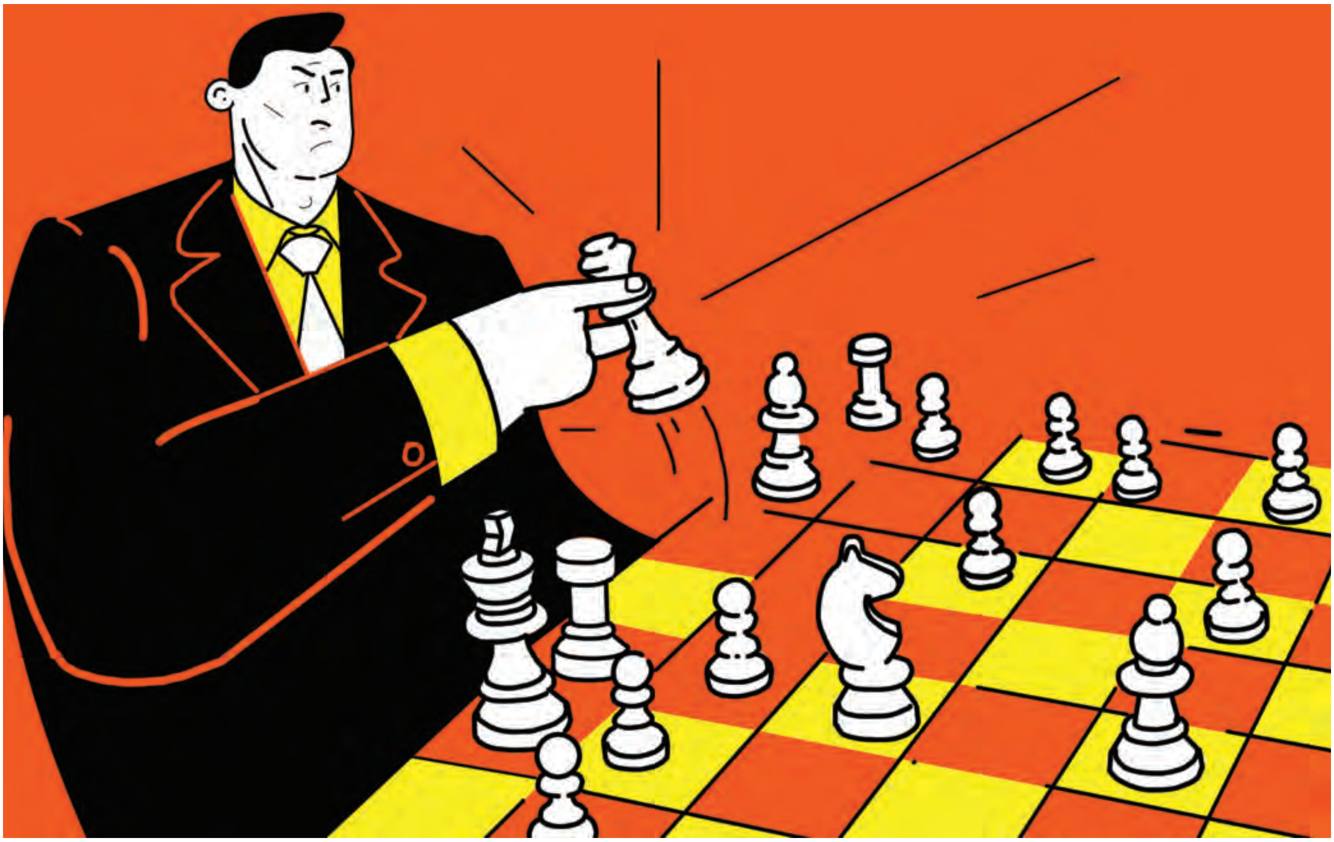
I believe that the pandemic necessitates business leaders to take a leaf out of the military book and move from being 'Peacetime Leaders' to 'Wartime Generals'. The enemy, in this context, is the virus, and globally we are leading the combat against it, together. The scale and complexity of the situation are daunting, and the stakes are high. We need the skills to attack (convert opportunities) as well as defend (mitigate threats).

Military leaders are skilled in managing various circumstances. From fighting wars in unimaginable circumstances, to conducting emergency operations, and providing relief to troubled civil societies—the armed forces do it all. Taking a cue from them, CEOs, CFOs and business leaders should hone their risk-assessment abilities to decide on the required action in real-time. It is encouraging to see leaders taking important decisions with speed, under pressure, and with no known templates to work on. Organisations have re-prioritised their strategies and sought the help of technology partners for business continuity and protecting stakeholder engagement, as we remain connected even when we are compelled to remain physically distant.

LEADERS AS FUTURISTS

Now, more than ever, rapid technology-enabled innovation is imperative; but I believe that creating and sustaining an innovative culture is not so easy; it requires discipline and motivation. Armed with discipline, tolerance for failure and a willingness to experiment, businesses that 'keep trying' are sure to gain success in overcoming the obstacles created by Covid, or any other challenge for that matter. The world is on the cusp of the greatest period of transformation, and technology is the force multiplier for this change. In order to completely leverage this, leaders must also be futurists. It is no longer about what they know now; rather, it is more about what they know about the 'next'. Continuous upskilling is a necessity for this and leaders should keep themselves updated on every new technology and sharpen their skills accordingly. Only then will they be able to create opportunities for upskilling their employees in the right direction for the organisation. When legacy systems are under strain, new and unusual ideas are created, which prove to be of tremendous value. Today, the world is drawing heavily from new technologies and innovative approaches that are the 'arsenals or firearms' needed to emerge victorious from this war. Digital is the centrepiece of the recovery puzzle we are all attempting to solve. It was heartening to see how IT and digital startups rose to the occasion, during the peak of the first wave of the pandemic, innovating and solving problems on the go.

LEADERS AS ENGINEERS OF HUMAN RELATIONS



Organisations must invest in building morale, mental health and family stability, which form the core of a healthy and progressive society. The stress of a crisis has the potential to explode existing personnel issues or create new ones. The entire organisation should have values, empathy, and a purpose, which can keep them positive even in times of adversity.

It is important for leaders to be humane and boost employee morale. Involving remote workers, and lending them a patient ear while helping them to overcome feelings of anxiety that an uncertain situation entails, is imperative. Confidence is like a muscle. The more you build it, the stronger it gets. As we battle to keep businesses afloat in a contactless world, leaders need to equally focus on building confidence, empathy, and trust among employees. No matter which century we are in, human engineering skills and empathy will always be the core trait of leadership; without them, a leader can never lead, as they form a foundation from which a team builds faith in the leader.

LEADERS AS ARTISTS OF A DIVERSE AND INCLUSIVE WORKPLACE

Leaders need to understand and appreciate new cultures, actively seek diverse teams, lead employees with different backgrounds, and have the know-how to foster creativity and disruptive thinking, which in turn will help the organisation to deliver meaningful customer experience across the world. Diversity and inclusivity at the workplace are instruments for growth; we should value and celebrate the uniqueness of every individual. As technology continues to accelerate, it is imperative to paint the workplace canvas with employees across all ages, genders, races and disciplines to ensure the survival of a business in terms of their ability to ideate, innovate and collaborate. It is therefore important for businesses to invest in diverse human capital and leverage their ideas and approach to make better quality decisions.

LEADERS AS GRANDMASTERS OF RESILIENCE

Leaders constantly reassess and redefine plans and actions to prevent crises and manage them efficiently when they happen. This also requires training employees for emergency responses, and to adapt to changing circumstances. Uncertainty is inevitable in many spheres of life, no matter how psychologically painful it may be. A leader creatively finds opportunities from them and checkmates them. The resilience that businesses thus develop in the face of disruption can provide a new foundation for growth and success. Victory brings joy to all—even more so, collective victory—and behind every victory there will always be a sea of uncertainty that the team has had to overcome, to become a stronger, more confident and resilient unit. F

THE WRITER IS MANAGING DIRECTOR AND CEO OF TECH MAHINDRA

ILLUSTRATION: SAMEER PAWAR

CONSUMER EXPERIENCE WILL DRIVE VALUE IN LUXURY

By **SABYASACHI MUKHERJEE**

Brands will now need to find ways to weave stories that appeal to the weary consumer who has been stuck at home for months. And buyers will feel empowered to express themselves with products that make them happiest

What is luxury? If you opened your browser right now and did a quick search on the internet for its definition, you would find 1,001 opinions and no consensus.

People will say, often unequivocally, that luxury is exclusive or expensive or authentic or anything that provides comfort that is not considered a necessity or any combination of these sprinkled with other adjectives until there is no meaning left in the word at all.

This is not a failure of Google to offer clarity nor is it a failure of language to succinctly define a complex notion. The problem is that we incorrectly frame luxury as something intrinsic to the product itself rather than as a unique and ungeneralisable consumer experience.

We do not—and we cannot—land on a single definition of luxury because we all differ in what we deem to be luxurious.

Do the richest-of-the-rich and the middle class agree on what constitutes a luxury product? I do not think that's always the case.

Do you agree with me that Mysore Sandal Soap is a luxury product? Though it is neither exclusive nor expensive? Perhaps not.

I wanted to make this point before talking about what the 'Future of Luxury' might be. As a leader in the market, I must always view my products first and foremost through a framework that contemplates consumer experience as the driver of value.

My challenge, along with any brand that wishes to be considered 'luxury', is, and has always been, to understand what consumers want before they know they want it. Because every year, and for any reason, each individual's opinion of what they consider luxury to be might change. Brands need to zero in on the changing tides of consumers' desires, and the most successful brands of the future are the ones who are best at predicting it today.

This is especially important now. We are in the midst of a global crisis whose emotional and financial toll will be felt not for months, nor years, but decades. In confronting this pandemic, we have been asked—or forced—to change our routines. We have remained at home. Forgone travel. Lost jobs. Lost friends. Lost family. There is a collective sense of grief which we will all have to grapple with.

In times like these, when we face such seismic shifts in the paradigms we're accustomed to, there is no question that it will reflect in consumer attitudes and shopping habits. I've given much thought to what these changes will mean for my brand and the industry as a whole. When thinking about what

AFTER SO MUCH TURMOIL, GRIEF, LOSS AND ANXIETY, WHAT IS MORE LUXURIOUS THAN THE FEELING OF JOY? OF LEVITY?

ILLUSTRATION: SAMEER PAWAR

the future of luxury is, brands need to answer the following questions: To what will consumers assign the most value? And how will that be different from before the pandemic?

Here are my answers:

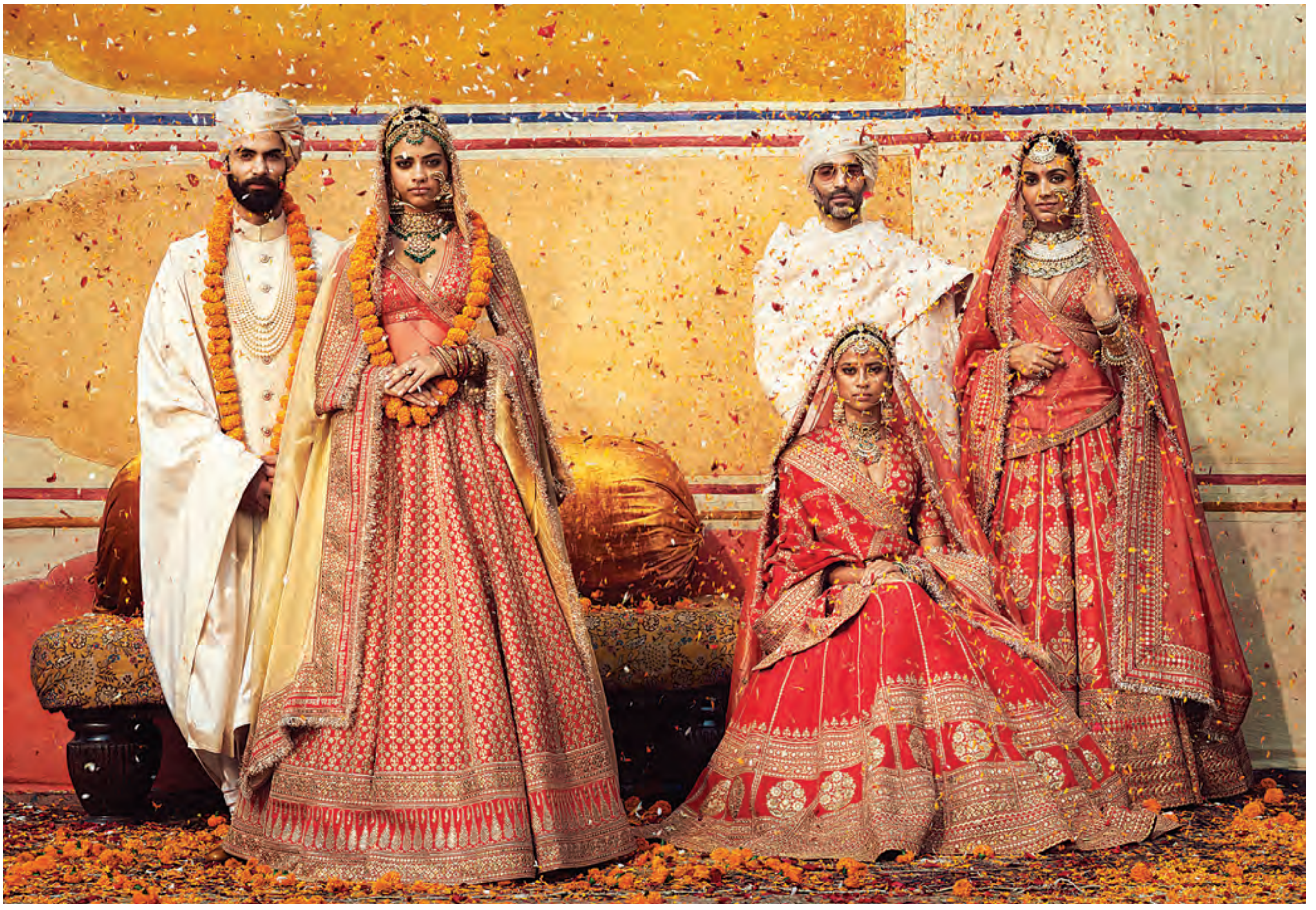
Authenticity: Consumers are increasingly looking for authenticity in experiences and products. In this digitally connected world, gone is the appeal of buying a kimono at Gucci. When a consumer can, within seconds, find the most reputable and authentic kimono brand in Japan, why then would they shop elsewhere? This bodes well for brands who tell a story that is rooted in culture and history—it is under the premise of authenticity that relationships between consumers and brands will form.

Another appealing aspect of authenticity is that it is often moored to exclusivity. Mass production makes it possible for any brand to produce any product from anywhere in the world. It is much more difficult to find brands that celebrate craft traditions and centre their product stories around their own unique culture.

Connectedness to a Greater Story: After we've all been homebound and isolated for so long, I see a much greater desire for emotional connectedness. In terms of luxury shopping, consumers will look for products that present an entrée into a story larger than themselves.

Luxury brands will need to find ways to weave stories that appeal to the weary consumer who has been stuck at home for far too long. A bag will not just be a bag, a lehenga will not just be a lehenga. These products need to represent so much more to potential buyers than they ever did in the past; they need to be an invitation for something larger, something communal, and something aspirational.

Utility: We learnt how fragile society can be. Within a matter of weeks, our world, quite literally, shut down. The ensuing economic anxiety brought about by a potential loss of income, even if experienced vicariously, will affect how people spend their money. Consumers will question the value of every purchase they make.



Whether bags or lehengas, products will need to represent much more to potential buyers than they ever did in the past—they will need to be an invitation for something larger, communal and aspirational

IMAGE COURTESY: SABYASACHI

Is this product worth it? Will it add value to my life? Will it last? Can I use it and reuse it frequently?

I am not suggesting that people will embrace austerity. On the contrary, I think people's appetite for shopping and spending has reached voracious levels. However, consumers will scrutinise purchases like never before, and make decisions based on the presumed utility of the product to their lives.

Over this past year, people realised that it's possible to buy fewer things of higher quality and still be happy. That will be the prevailing wind of post-Covid consumption.

Sustainability and Ethics: Whether or not a mass awakening of some sort has happened as a result of this pandemic is yet to be determined. But the conversations that we as a society have so intently ignored in past generations have come to the fore in our younger generation's psyche. Racial and ethnic injustices, gender and LGBTQ equality, and the havoc our lifestyles wreak on the environment have become major topics in public discourse.

This will all translate to increased consumer demand for accountability and transparency. Brands will need to learn how to navigate the calls for ethical practices and do so authentically. Consumers are savvy—savvier than brands have given them credit for; they'll know what's pandering and what's real.

Joy: Lastly, and perhaps most importantly, is joy. After so much turmoil, grief, loss and anxiety, what is more luxurious than the feeling of joy? Of levity? We'll all be seeking products and experiences that simply make us happy. I think consumers will feel empowered to express themselves through products that make them the happiest—whatever they may be and however they may look.

While what people consider luxury is ever-changing, there is a formula to it that has remained constant throughout the history of commerce. Luxury is never intrinsic to the products, it is a word whose very definition is decided by the consumer. Luxury brands are those brands that seek to understand what the consumer wants and create products to satisfy those wants in a beautiful way.

THE WRITER IS A FASHION DESIGNER, JEWELLERY DESIGNER, RETAILER AND COUTURIER WHO SELLS HIS DESIGNS UNDER THE SABYASACHI LABEL

DIGITALISATION WILL HELP IN VALUE CREATION

By **GAURAV DEEPAK**

As the pandemic brings technology and innovation to the core of business and daily life, the next decade will see about 150 million digital-first families in India

We will see a strong jump in value creation in India in this decade, an almost 200 percent increase. In the decade of 2001-10, we saw an incremental value creation of about $1 trillion and a similar number in the decade of 2011-20. This created a market cap of around $2.5-2.7 trillion, combining both public and private markets by end of 2020. In my estimate, we will end the current decade at a market capitalisation of $7.5-8 trillion, which implies an incremental value creation of $5 trillion, which is five times the previous two decades.

I believe that this value will be driven by three key forces: Digital, large-scale manufacturing and sustainability.

I want to focus on digital here. I believe that 50 percent of the incremental value creation will be driven by digital and digital business models, which will account for 30 percent of the total value of the market that we will see at the end of this decade. This number stands at approximately 10 percent today.

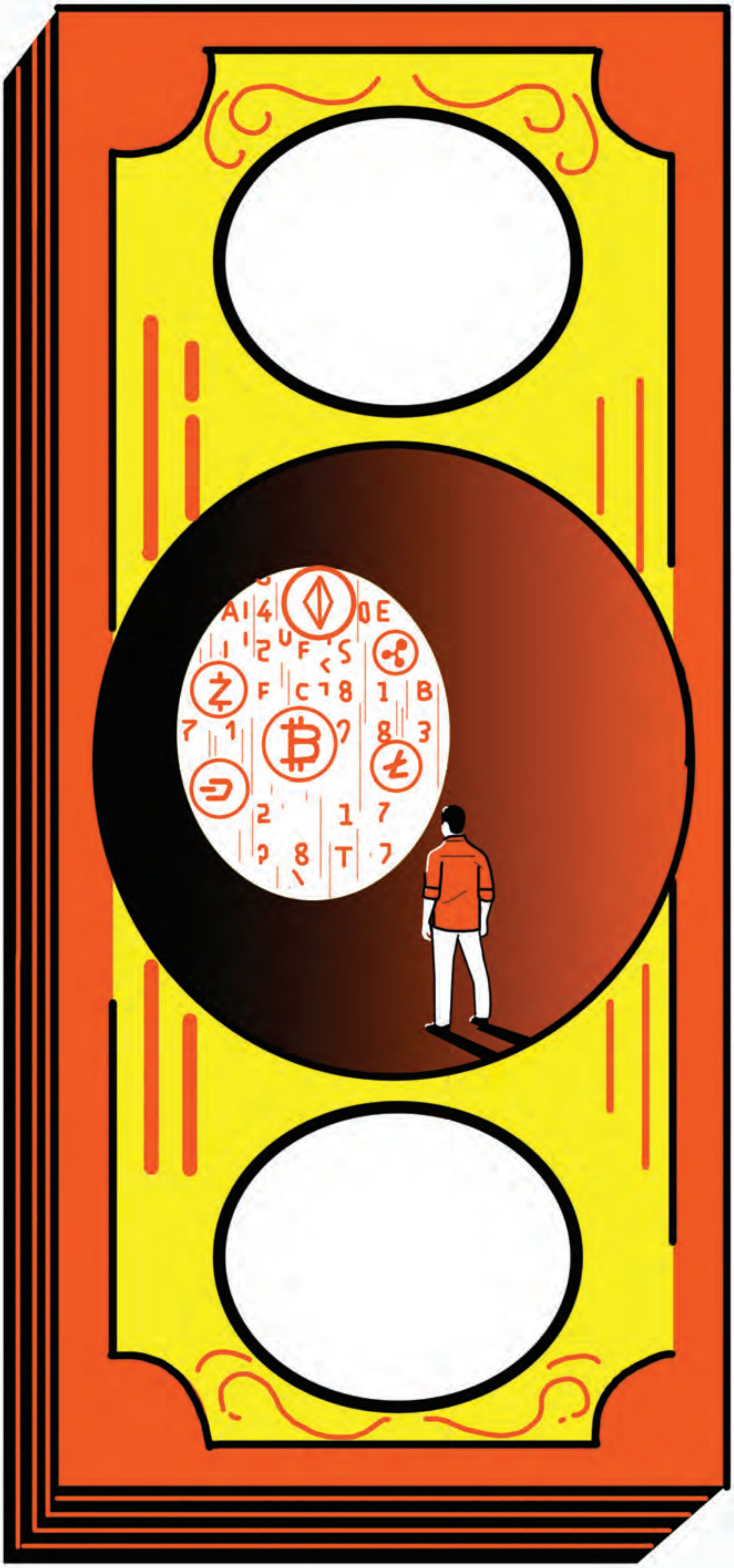
India does not have the physical infrastructure that is required to provide a standard of living that one would expect in a developed country. While estimates vary, economists believe that $12,000-$15,000 gross domestic product (GDP) per capita is good enough for a high standard of living. By leveraging digital, India would be able to achieve a high standard of living at a much lower GDP per capita. I would be bold enough to say that it may be nearly half of the number suggested by economists.

In the first wave of digitalisation, we saw digital largely around B2C commerce, travel, entertainment, payments (started with wallets), ride sharing, car and financial products and marketplaces. We also saw deep penetration in urban and semi-urban areas where families have adopted digital in daily lives. In this evolution of digital, the first few years was all about data and content consumption, then about discount hunting leading eventually to pay for service, quality and convenience. Our estimate of digital-first families in India is approximately 10 million, which is less than 3 percent of the families in India. And digital-first businesses you can count by name, with most of them being native digital. Traditional businesses still have not changed their models to become digital-first businesses. Once they do, the digital game will climb into a different orbit.

You are all aware that Covid has deeply accelerated digital adoption not only in India, but in the world. This has led to two core fallouts. One is that families and businesses have started adopting digital faster and deeper in their daily lives; two, entrepreneurs have started innovating products like never before. The products and services we use today were mostly conceptualised pre-pandemic, but you will now begin to see a full flow over the next 12 months of new innovation that was driven by the large-scale adoption of digital during the pandemic.

The fact that families, businesses and communities are getting comfortable with digital, and the

50 PERCENT OF INCREMENTAL VALUE CREATION WILL BE DRIVEN BY DIGITAL; IT WILL ACCOUNT FOR 30 PERCENT OF THE TOTAL VALUE OF THE MARKET



overall telecom penetration levels, will lead to a deeper digital penetration over the next five to 10 years. Let me give you a few examples. Pre-pandemic, the role of digital education was minimal in the Indian context.

The pandemic has upped the quality of education products, driven by marketplaces, quality tutors, and technology being available on the fingertips of everyone, irrespective of where you are. Vernacular has received a huge leg up as well. I expect digital learning to become the mainstay of learning, instead of just supporting traditional learning. This is truer in place where we don't have good quality teaching infrastructure and teachers. I would see this as driving high-quality literacy in India.

Similarly, another area that has undergone a sea change is health care. We all know that the infrastructure and trained doctors to provide quality health care at scale in this country are still lacking. But several corporates and governments are now trying to make headway. I would see this transforming, driven by digital across pharmacies, doctor consultations, telemedicine and diagnostics, both for preventive and curative health care. The entire data that is being generated can be used to create far better and cheaper outcomes for consumers across India, not only those in the large metros.

We are seeing a big change around supply chains being digitalised. This world has been traditionally driven by incremental innovation, rather than rethinking how to drive outcomes very differently. So let me give an example. To go from point A to point D, we traditionally would go from A to B, B to C and C to D, and we spent decades fine-tuning A, B and C. What we are seeing today is a situation where the new-age entrepreneurs are focusing on outcome D, while the starting point and the path could be anything. This allows for significant efficiencies in the supply chain, and these are being shared with the customers, making

ILLUSTRATION: SAMEER PAWAR

SAKIB ALI / HINDUSTAN TIMES VIA GETTY IMAGES

A farmer charging his phone at a jerry-rigged charging station during protests near Ghazipur, in Ghaziabad. Traditional businesses in agriculture are leveraging digital native businesses to aggregate village-level produce to ensure farmers get the best price

the overall business more efficient.

Two examples, among others, jump out at me—Infra.Market and Ofbusiness. Both have created, over the last couple of years, half a billion to a billion-dollar supply chain businesses, and yes profitable ones at that. They are creating differentiated business models using digital data and innovating in industries which are steeped in tradition and incremental thinking.

The other area that will see massive impact of digital will be 'Bharat'. Here you will see maximum innovation that will be India-led innovation. It is also an area that will have maximum impact from our country perspective. You will see deep innovation in areas like agriculture, commerce, health care, education and others. In the post Covid-19 era, traditional businesses in FMCG, agriculture are leveraging the digital native businesses to address their broken supply chains—whether it is illuminating the last-mile, data-dark kirana shop in an upcountry market, using city / town level entrepreneurs to increase distribution of not-so-well-known local brands, or aggregating village-level produce to ensure farmers get the best price and consumers also win due to disruption of the middle-men network, digital-first businesses are transforming Bharat. Three examples will illustrate the point. ElasticRun is revolutionising last-mile kirana shops in upcountry markets. DealShare is using thousands of micro-entrepreneurs and a social platform to sell high frequency daily items to millions of consumers and DeHaat is making sure that both supply side and demand side supply chain for farmers is well-oiled and transparent.

Another area which will have deep impact will be financial services. We have already seen rapid change in the payment landscape driven by UPI. India is at the global forefront in payment systems even though it is a country of significant complexity and heterogeneity. This is accentuated by the need to provide solutions at very low costs to account for lower ticket sizes. We have not seen digital making a dent yet in core financial services such as lending. Early experiments here have not borne much result.

The players in fintech have learnt from the mistakes and are super focussed on confluence of acquisition-underwriting-collection. Banks are increasingly willing to partner with fintech players; and more and more co-option models are emerging. In insurance, online distribution through Policybazaar, has become the biggest channel of distribution, with high quality customer base for many insurers. Availability of data is enabling digital insurance manufacturers such as Acko to underwrite far more smartly than through traditional means. The government and industry initiatives such as OCEN (Open Credit Enablement Network) and DEPA (Data Empowerment and Protection Architecture) are enabling the commoditisation of data for superior underwriting by banks, fintech players and NBFCs, benefitting the consumer and increasing credit penetration.

Leveraging data will also be relevant to a lot of other areas, including health care, education supply chain and a host of others, not just at the firm level, but also at the community and country level. It is my hope at this point in time that in areas like health care, we can leverage data to make this country far more efficient, which is what the government is trying to do through health care IDs.

Let us now talk about another sector that is ripe for value creation in our country. Compared to the global average of approximately 8 percent, the logistics cost in India stands at about 14 percent of GDP (about $400 billion).

This presents a massive opportunity for players to address the competitiveness gap of about $180 billion (about $500 billion by 2030). After having seen early adoption of RFIDs, GPS and IoT devices, Indian players are now transforming in line with global peers to adopt Industry 4.0 trends, based on artificial intelligence (AI), robotics and blockchain to build agile, high-visibility, resilient and green networks.

We expect continuous digitisation of front-end technology, increasing direct access to customer and tech-enabled efficiency increase to drive the boom in logistics in India.

These private initiatives are supported by strong policy initiatives and investments, aimed at optimisation of modal-mix, omnichannel distribution and high-quality core infrastructure. Central government-sponsored infrastructure investments are aimed at boosting hinterland connectivity (DFCs, Bharatmala, Sagarmala), world-class storage (MMLPs, FTWZs, Industrial corridors), and port-modernisation, further aided by domestic manufacturing schemes (Make in India, PLI schemes). DFIs, SWFs and PFs will continue to be active capital providers in the logistics sector, wherein 100 percent foreign direct investment (FDI) is permitted through automatic route.

Moving on, we would see a complete change in how we look at mobility in the coming decade, driven by shared mobility and electric vehicles (EV). A move towards electric vehicles is an integral step for sustainable long-term economic development of India.

India has the fourth largest automobile market in the world, which if fully electrified represents a market opportunity of over $200 billion. Electrification will provide energy security to the country by reducing the oil import bill (over $120 billion in FY20). India has already started its move towards an electrified future, and it stands to benefit from abundance of renewable energy sources and availability of skilled manpower in technology and manufacturing sectors.

By 2030, in a moderate EV adoption scenario, the EV ecosystem in India will present a revenue opportunity of $50-100 billion spread across various segments like OEMs, battery and other components, charging infrastructure and e-mobility services. This is a classic example of how there is opportunity for success by doing good.

Transaction sizes in India are among the lowest in the world and the customer demands exceptional outcomes even at these ticket sizes. The Indian entrepreneur has innovated very deeply, both in products and processes, to deliver these outcomes and still generate good economic margins. I think it is these innovations that will make many companies regional or global market leaders.

THE INDIAN ENTREPRENEUR HAS INNOVATED VERY DEEPLY BOTH IN PRODUCTS AND PROCESSES, TO GENERATE GOOD ECONOMIC MARGINS

You can see that I am biased around the role of digital in driving outcomes for the people and this country. I believe in a decade you will see about 150 million digital-first families in India, which is almost half the Indian population. And most of the market leaders in their respective areas would be either digital-first or native digital businesses or businesses that have adopted digital as a core ethos.

The next decade of value creation will be an exhilarating journey. It will bring smart minds together to solve problems and to present solutions that we can't even dream of today. Let's get ready for the ride! F

• THE WRITER IS THE CO-FOUNDER AND CEO OF AVENDUS CAPITAL

77

CHARGED UP FOR AN ELECTRIC FUTURE

By **TARUN MEHTA**

New-age mobility will be driven by technological advancements, and influx of data and connectivity. Investments and infrastructure will boost confidence of manufacturers and hasten the transition to electric

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Electric, connected and autonomous vehicles are already a common sight, and over the next decade, they will revolutionise the concept of mobility. This isn't just a bold claim or a pipe dream. This is the result of colossal advances in electric vehicle (EV) powertrains, autonomous and connected vehicle tech in the global market. Mobility tech has been steadily maturing, becoming more cost-effective and allowing engineers to experiment with more features which, in turn, makes it more easily accessible. The evolving digital and physical infrastructure around electric and autonomous vehicles can address multiple pain points in cities while making it safer, affordable, sustainable and accessible for everyone.

One of the most fascinating advancements in new-age mobility is the influx of data and connectivity. Governments and private players around the world are collectively developing a robust and cohesive infrastructure to incorporate the data and features available on these vehicles to make mobility safer and more manageable. Over the next decade, we will see numerous improvements in managing the flow of vehicles thanks to data—like managing traffic violations, speed limits automatically enforced on vehicles with the ability to switch based on the roads you are travelling, fleet tracking to manage traffic jams across metropolitan areas during peak hours, and hopefully a steady decline in all accidents from fender benders to serious collisions.

While the world is getting ready to commercialise self-driving cars, India will take several more years to get there. The ecosystem and cost structures will first need to stabilise for autonomous vehicles to be a viable option in a price-sensitive market like India. Until then, we have electrification to look forward to.

Electrification in India will be led by light vehicles like two-wheelers and three-wheelers, and heavy vehicles like buses and trucks. As the price of electrification is fast approaching a tipping point and with the battery price expected to reach \$100/kWh in the next three years, the unit economics of two-wheelers and three-wheelers is seeing a path to profitability in the short term. The four-wheeler market, on the other hand, will make the shift to EVs slowly mainly because the market size is low and unit economics will take time to stabilise.

The government of India is playing a key role in hastening the transition to electric. Fiscal incentives to encourage EV purchases from both central and state governments have led to an introduction of competitive replacements for current internal combustion engine (ICE) vehicles at an attractive price point. In addition to subsidising EV purchases and essential infrastructure development, the government has taken a keen interest in supporting the domestic design and manufacturing of EVs. This investment, coupled with India's decades of experience in auto manufacturing, and a strong community of engineers will pay off strongly in the coming years.

Today, even traditional automakers like Bajaj, TVS and Hero MotoCorp are heavily investing in EVs and speeding up product availability in the two-wheeler segment. Startups like Ather Energy and Ola Electric are investing in building a nationwide EV ecosystem, including supporting charging infrastructure. With more product offerings and charging platforms being available, India will continue to see significant growth in the private and shared ownership of electric

ILLUSTRATION: SAMEER PAWAR

NASIR KACHROO / NURPHOTO VIA GETTY IMAGES

Electrification in India will be led by light vehicles like two-wheelers and three-wheelers, and heavy vehicles like buses and trucks

two-wheelers. The government's clear intent and traditional two-wheeler manufacturers' investments have built the confidence of the supplier and ancillary ecosystem, as well as increased confidence among consumers. More suppliers today are willing to take a chance to work with EV makers—from prototyping to production.

The EV market could be valued at $206 billion in under 10 years. This will be powered by 80 percent of two-wheelers and three-wheelers going electric, followed by buses and commercial vehicles. And these 102 million EVs will need at least 2.9 million public chargers. In the short term, we can expect to see some "chaos" in charging infrastructure because of the lack of availability, accessibility and education around EVs and charging. India still doesn't have any standardised connectors, though there are policies that cover the safety and utility of chargers. With more consumers buying personal EVs, there will be a surge in home charging, which means that Resident Welfare Associations, apartment societies, tech parks and housing complexes will begin to offer charging infrastructure. Indian end-consumers might also drive innovations by way of our famous "jugaad" system.

By 2030, a steep increase in electric two-wheeler sales, year on year, will have an incredible effect on the quality of ownership, ease of riding and quality of life. We will witness a drastic change on-roads, notably with the shift in heat and sound generated by all the vehicles. A 110 cc scooter engine typically generates 6 KW of heat, which is equivalent to the heat and power consumed by a centralised AC system for 1,500 to 2,000 sq ft of space. The average two-wheeler produces 80 decibels of sound today. With more EVs on roads, our environment and our daily commute will be noticeably more peaceful, limited just to the sound of electric.

On the product front, traditional ICE vehicles have limitations of design because the system requires standard form factors based on the power output requirement. Beyond the aesthetics of the body panel, lighting fixtures, etc, there is little else for industrial designers to work with. The wide variety of electric powertrains allows electric two-wheelers to have power variance ranging from 2 KW to 100 KW and each of these vehicles could have a unique form factor. This will allow customers to choose vehicles from across the spectrum, rather than from today's limited power variance available, more than 100 cc, 110 cc, 125 cc, and so on.

EVs will be a key enabler in micro-mobility travel solutions like Yulu's range of e-cycles and mopeds, all the way to Bird scooters and last-mile delivery solutions. There is a strong case to be made for the long-term profitability to use electric two-wheelers in the supply and distribution of both people and cargo. There are already several players like Go GreenBOV and Lithium that are offering electric alternatives for everything from last-mile delivery to employee transportation.

Two-wheelers aren't the only electric revolution you can expect in the near future. Commercial vehicles are already going electric. Electrification in this segment, from today's Tata Ace to 18-wheeler trucks, fits right into the business model and their scale allows for unit profitability, reduced running cost, and servicing cost plus the added benefit of charging infrastructure becoming more commonplace. Commercial vehicle electrification will lead to an increase in charging infrastructure not just within cities and on highways, but also in tier 2 and 3 towns and villages to support supply chain and distribution. The bulk of India's energy production (with nearly 36 percent already coming from renewable sources) will be used for EVs, drastically reducing our reliance on fossil fuels. Over the next couple of years, expect charging infrastructure to be more readily available, which will improve customer awareness about EVs and push other original equipment manufacturers (OEMs), service providers and policymakers to support the transition.

The electric transition will be ably supported by the increase of connected vehicles. Today nearly all electric two-wheelers offer a certain degree of connectivity, either via an app or directly on the vehicle. According to a report, amid the Covid-19 crisis, the global connected vehicle market is estimated to reach a size of $251 billion between 2020 and 2027 with a CAGR of 16 percent. Connected vehicles will be the major driver for a new form of urban mobility that will provide actionable insights about vehicular and individual movement. Connected apps on these vehicles share data about road and traffic conditions to allow other connected vehicles to anticipate bottlenecks and improve traffic flow.

For example, being able to personalise vehicles could become a practice in the future. Connected scooters could use data to learn your favourite routes to shops, work, school or the gym, and thus be able to make personal decisions like what time is the most efficient to commute to work and how to make the best use of our time on the road. It will not only help people plan more efficiently but also provide information based on route planning to get vehicles to the closest refuelling and charging points, saving people a lot of time and expense.

These connected vehicles will profoundly change the ancillary industries. Insurance companies will use the data to assess the health of the vehicle and will have more data to assess the veracity of claims. Within OEMs, the data can open new business models and new ownership models for customers, after-sales can be done remotely and will be designed for each vehicle based on the health of the vehicle. Vehicle data will also help the second-hand sales industry by providing more quantitative and qualitative data to buyers and sellers, offering a more transparent pricing structure. Ather Energy also provides Ather Health Certificates to owners based on comprehensive data-based inspections on every aspect of the scooter—battery health, expected range, status of peripherals and so on. OEMs who are adopting the technology on their vehicle platforms can also work with policymakers for more integrated data across the ecosystem in terms of sales, ownership, charging infrastructure, and second life.

Financing models will see new additions like subscription-based ownership. There has been an upswing in private ownership in recent years, making it cost-effective while also allowing consumers to upgrade or change their vehicles easily, and will drive more sales. Usage models offered by both manufacturers and service providers will see more takers as EV product portfolios grow. There will be a larger market base looking for short-term ownership—from a few days to only three years, and these vehicles will find a second lease of life in the shared sector, if not in the second-hand market.

2030 is likely to see the complete transition to electric mobility. Market pundits, economists and consulting firms across the globe have been building models and predicting this revolution for over 20 years. EV predictions have consistently been getting more bullish and analysts have moved from predicting 25 percent electric two-wheelers by 2030 to 25 percent by 2025 in the last six months. And when one is at a true tipping point, by definition we are still underestimating the pace of change.

These predictions and models might not always be 100 percent accurate (none of them accounted for a global pandemic). But I can vouch for the fact that at least in mobility, the future might be here already.

ANALYSTS HAVE MOVED FROM PREDICTING 25% ELECTRIC TWO-WHEELERS BY 2030 TO 25% BY 2025 IN THE LAST SIX MONTHS

THE WRITER IS CO-FOUNDER & CEO, ATHER ENERGY

CONNECTED CAR TECHNOLOGY HAS LIMITLESS POSSIBILITIES

By **MARTIN SCHWENK**

As individual mobility continues to grow, the focus will be on introducing sustainable automobiles that are smarter, intuitive, green and customer-friendly

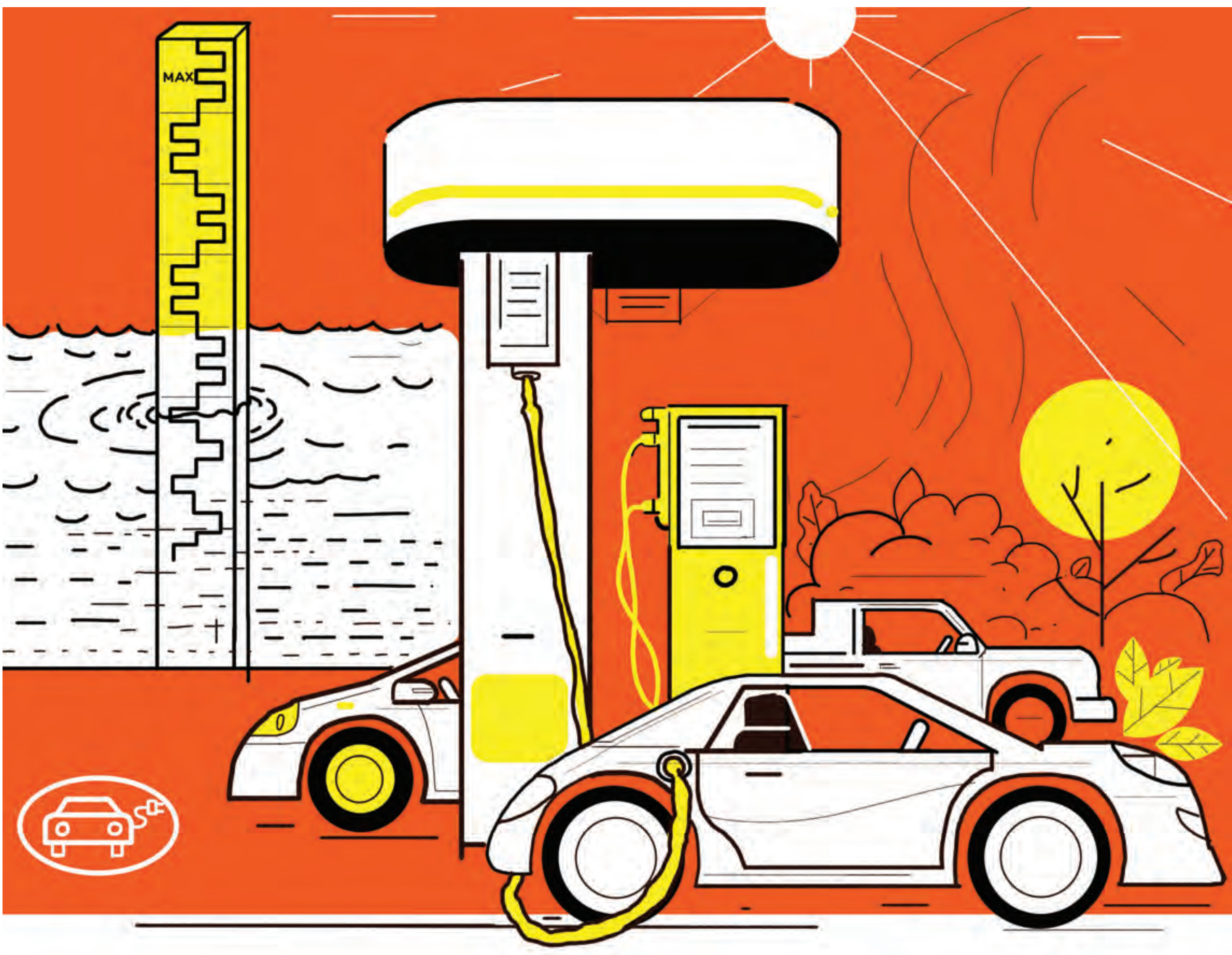

ILLUSTRATION: SAMEER PAWAR

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When I was moving to India, relocating from China two-and-a-half years ago, I was naturally curious and asked a lot of questions to understand the specifics of the Indian market. One question to our dealer partners and customers was, "What are your views on electric vehicles?" To put it in short, the consensus was around 'don't bother'. Things have changed substantially since then. Government policies, customer awareness and a demand for sustainable solutions in general, and electric mobility in particular, are becoming more mainstream. With that, I am convinced that 'sustainable luxury' will grow manifold in demand and will form the base of 'future of mobility' as we see it.

I could witness many trends in the past, from the growing importance of SUVs, the diversification of product portfolios to the introduction of new business models like car sharing.

Today I believe we see a more radical shift than ever before. Digitisation and decarbonisation are the driving forces behind the changes in society; as technology and innovation leaders, the auto industry has to take this challenge and lead the way.

Digitisation is a wide field with many different aspects. To understand its impact on the automobile sector, I believe it is helpful to look at it from a customer's angle. There are two distinct factors influencing people. Connected car and autonomous or assisted driving have the biggest impact on customer experience.

The future of mobility is thus being shaped by 'connected car technology', which I believe is going to play a major role in integrating automobiles to the customer. From sharing important car data to remote operations adding convenience, the connected car technology has limitless possibilities at every step, to the extent of even saving the lives of occupants in case of an emergency.

The future of mobility has to complement sustainability and climate protection, and the automotive industry has to set high standards for creating sustainable mobility. As the basic requirement of individual mobility continues to grow, the direction will be towards introducing sustainable automobiles, which are smarter, intuitive, green and customer-friendly. In my opinion, in the coming years, commitment to climate protection will become the most important agenda for the automotive industry globally and in India.

Globally, plug-in hybrids and all-electric cars already comprise 10 percent of our overall sales—in Q1 2021, Mercedes-Benz sold 590,999 units of passenger cars of which 59,000 units were either plug-in-hybrid (PHEV) or battery electric EVs. Of these, 16,000 were only EVs.

We will also continue to extend our wide electric vehicles product range by offering customers about 30 plug-in hybrid variants by the end of 2021. In addition, by 2025 we expect a share of around 25 percent of these electric or electrified vehicles.

The electric vehicles story in India is still at a nascent stage and we have a long way to traverse. We are, however, glad to see more players now eager to explore the luxury segment and we believe this will further strengthen and widen the luxury electric vehicles segment from a customer's perspective. I am glad to state that customers in India will not have to wait too long to experience global technological marvels—they will be launched here soon. The ecosystem conducive to mass electric vehicles adoption has just started to develop and there are numerous challenges that we need to overcome in order to encourage customers to switch to sustainable mobility.

As the first luxury carmaker to launch an electric vehicle in India, we have gathered enriching experience and inputs from customers and dealers.

THE FUTURE OF MOBILITY HAS TO COMPLEMENT SUSTAINABILITY AND CLIMATE PROTECTION, AND THE AUTO INDUSTRY HAS TO SET HIGH STANDARDS

The customers are looking at cost parity with ICE and at a robust charging infrastructure. However, what is most pleasing is the sheer excitement of a customer when they experience new products and technologies, and that, as a product-centric company, gives us the opportunity to define 'future of mobility' in totality. We, as the automotive industry and as product-centric brands, have that ability to create a better tomorrow with products that are sustainable, and at the same time keep our customers inspired with the desirability and exclusivity of our vehicles. F

THE WRITER IS MANAGING DIRECTOR AND CEO, MERCEDES-BENZ INDIA

ILLUSTRATION: SAMEER PAWAR

SCI-FI TO REALITY: INFRA TO RIDE ON SMART SOLUTIONS

By **SN SUBRAHMANYAN**

Digital revolution and new technologies will redefine the industry, with the energy sector being the biggest harbinger of change

The future of infrastructure will truly be like bringing sci-fi into reality. Smart cities, smart highways with neural networks, intelligent buildings with real-time digitally-monitored utilities, artificial intelligence (AI)-induced traffic management systems, driverless cars, clean energy, green fuel and greener emissions.

Consider safety at workplace enabled through a simulated (virtual reality) system that can 'mimic' potential dangers, hazards and feel of the ecosystem. The 'connected workman' will don 'smart wearables' that can detect altitude, temperature and other environmental conditions, and monitor vitals such as heartbeats, pulse rates, blood pressure and fatigue. Use of AI models, sensors and beacons will generate timely alerts in real time to prevent incidents.

Consider, Internet of Things (IoT) technology connecting a number of machines deployed across hundreds of project sites, communicating with each other in real time. Consider remote monitoring and providing insights into various performance parameters of equipment. Consider using neural-control technology to move and control machinery at sites.

Consider drones flying overhead, scanning sites constantly, inspecting the works and using the data collected to predict and solve problems before they arise.

If these sound too far-fetched, in reality, all of the above are work-in-progress. Last year, in December, we successfully 3D-printed a ground-plus-one-floor building with reinforcement for the first time in India at Kanchipuram, Tamil Nadu. 3D concrete printing is a technology disruptor with the potential to radically redefine construction methods and fast-track conversion of innovative design ideas to product. Today, we are well-positioned to push the boundaries of automated robotic construction. With India aggressively pursuing creating 60 million houses under the Housing for All programme by 2022, 3D printing technology of concrete houses will certainly give a huge fillip to the mass housing segment under the Prime Minister Awas Yojana (PMAY) scheme.

Project sites are now equipped with multiple sensors and intelligent gateways on equipment, enabling the streaming of real-time operational, production and condition data on location, movement, switch on/switch off and idling time, number of hours worked, volume of work done, pressure, temperature and fuel consumption. Armed with this goldmine of information, planners can evolve strategies to improve production, reduce costs and enhance productivity.

For the construction and infrastructure industry, the volume of data being continuously generated by a wide range of sources will require new software and algorithms, skilled data analysts, better information management and insight.

Smart buildings employ communication and automation technologies to integrate various building subsystems, which otherwise typically operate in silos. These sub-systems, including HVAC, lighting, fire protection, access control systems, surveillance, smart meters, water, UPS, elevators, etc share information to optimise the performance of buildings. A smart building is in sync with smart grids which enable it to optimise its energy requirements.

With an experience spanning over 500 buildings, including high-rises, hospitals, commercials complexes, IT parks and factories, we are now investing to create a unique Building and Energy Management System (iBEMS) which integrates several technologies to provide measurable benefits to customers. iBEMS provides event-based data retrieval

With high economic growth and fast-growing populations leading to significant urbanisation, the demand for new infrastructure is predicted to see massive growth in the coming decades

SANJIT DAS / BLOOMBERG VIA GETTY IMAGES

for real-time data access (data analytics, reports, 3D visualisation) along with historic data support with a user-friendly interface.

Indeed, data gathering and storage must become more intelligent in the future to ensure that information is used to drive improvements in the way systems operate and infrastructure is built and used. The digital technologies used to operate and maintain infrastructure will continue to evolve once infrastructure is built. Infrastructure owners and operators will, therefore, need to develop strategies to integrate and use different generations of technology as well as intelligent information, effectively managed and reused.

Companies which have relied on one traditional approach will be challenged and therefore should become agile and innovative. Collaborative approach and industry partnerships will become vital.

In future, IoT will power smart buildings built with new energy-generating or breathable materials. Smart cities will adapt instantly to changing circumstances. Construction will be faster, with the advent of 3D printing. Also, 4D printing will have self-transforming objects responding to changes in heat, sound or moisture levels to change shape. Wearable technology will reduce worker injury and improve their health while increasing productivity.

Infrastructure will shift from concrete and steel to include new materials which respond to their surroundings. Thinking only about design and construction will become an outdated concept as infrastructure becomes multi-functional.

New, disruptive ideas will emerge for making mass transit faster, safer and less damaging to the environment. Direct neural control over devices and vehicles will be accessible to the industry.

A whole host of other new innovations, both in terms of regulations and skills, await us. Multi-pronged security solutions on turnkey basis—that are modern and reliable for a whole spectrum of smart infrastructure—will be the norm. Smart buildings, smart energy, smart water solutions, smart transportation and logistics, emergency response systems, real-time information systems and smart cities are close by and will become standard features sooner than later.

Moving further, the biggest harbinger of change in the future of infrastructure will be brought about by the energy sector. Hydrogen economy, carbon capture, biofuels, electric vehicles, green buildings, water desalination etc will be some of the major disruptors of the future. The world is gradually advancing towards adopting hydrogen as the prime mover for energy storage, away from the prevalent fossil fuel. Electrolyser technology, used for splitting water using renewable power for production of what is called 'green hydrogen', is on the cusp of large-scale commercial usage.

Green hydrogen was named among the World Economic Forum's top 10 "most exciting technologies" to have emerged in 2020, and *Bloomberg* predicts hydrogen could meet up to 24 percent of the world's energy needs by 2050, creating a market worth $600 billion.

In India, five pilot plants are being set up to ascertain the commercial viability of 'green hydrogen'. With a target of 175 GW by 2022 and 450 GW by 2030 of renewable power, India can potentially be a large producer of hydrogen. Surplus energy storage, the biggest challenge in renewables, can easily be solved by hydrogen to store energy using power-to-gas or power-to-liquid technologies.

Hydrogen could also be an ultimate replacement for oil and natural gas. In a few cases, it could be an intermediate between fossil fuels and renewables-based electricity. However, for hydrogen to make a significant contribution to clean energy transitions, it needs to be adopted in sectors where it is almost completely absent, such as transport, buildings and power generation.

The government's National Hydrogen Mission is expected to lay down the various approaches and India's medium- to-long-term strategy to exploit an opportunity in being a sizeable player in the new energy industry. L&T is seriously exploring to provide integrated capability in the hydrogen business.

Hydrogen is also set to revolutionise the transport system in the future. Apart from the electricity and industrial sector, there's adoption of fuel cell electric vehicles (FCEV) in the mobility sector, where onboard hydrogen will power the vehicle for much larger distances than the present vehicles are capable of. FCEV is currently limited by handling and availability of hydrogen.

Infrastructure is overdue for change. The digital revolution will further redefine the sector. For companies to capitalise on it, digital transformation must encompass the whole organisation, and pushed down the supply chain to benefit. To be sure, the infrastructure industry will become increasingly focussed on innovation and both contractors and customers will become less risk averse. The shape and offers of the infrastructure industry will change significantly, with new business models, products and services.

Considering the inevitability and significance of a "green future", our focus should increasingly be directed toward environmental impact.

L&T is one of the few companies which started to report sustainable practices long before the regulator mandated the use of business responsibility and sustainability reporting formats for various industries. We at L&T fully recognise our responsibility as a global engineering, construction, and manufacturing conglomerate to make our operations sustainable and are fully committed to build a safe and prosperous future. We focus not only on our operations, but also engineer sustainable solutions for our customers. We approach these solutions holistically, going beyond just the environmental regulations that govern them, to fully consider the communities and environments they impact. We aim to create long-term value by operating sustainably in the ecological, social and economic spaces. Development and destruction need not be synonymous—and L&T is proving it every day. Our focus has broadly been on people, the communities we operate in, the environment at large, and on expanding our green portfolio. Thrust areas such as employee safety and well-being, community development through health, education, water and sanitation, skill-building, energy conservation, GHG emission reduction have been identified and the progress on them has been good.

Building a green portfolio that cuts across several existing capabilities and adjacencies, green and clean technologies must become a part of our mainstay offerings to cater to sectors such as renewable energy generation from solar and wind, energy storage and transmission, decarbonisation, hydrogen generation and utilisation.

CONSIDERING THE INEVITABILITY OF A "GREEN FUTURE", OUR FOCUS SHOULD INCREASINGLY BE DIRECTED TOWARD ENVIRONMENTAL IMPACT

Infrastructure is a political and economic priority in India, as it is across the world. Increasingly, complex projects are being commissioned to stimulate economies, upgrade old systems and cater to growing and changing populations. With high economic growth and fast-growing populations leading to significant urbanisation, the demand for new infrastructure is predicted to see massive growth in the coming decades.

Our holistic adoption and embrace of technology will significantly push smart infrastructure needs to sustain the future of our nation.

THE WRITER IS CHIEF EXECUTIVE OFFICER & MANAGING DIRECTOR OF LARSEN & TOUBRO

REAL VIRTUALITY

We are blaming it on the virus. But it seems, in hindsight, as if we were anticipating this moment in time, when we could be forced to withdraw from other fellow beings. The proof is the technologies and devices we invented. On the surface, they may have seemed to be about more sociability, but it was always harbouring its invisible other, the asociability of it all

By **MADHU KAPPARATH**

SUNIL VERMA / AFP

CHARLY TRIBALLEAU / AFP

GYPSY DANCER

INDIA

A Kalbeliya gypsy dancer Aasha Sapera hosts an online dance class amid the Covid pandemic in Jodhpur. The pandemic has forced many people to go online, but the largely nomadic, marginalised Kalbeliya face bigger challenges than most, with several living in mud huts or tents with patchy electricity and non-existent WiFi

BEATBOX MONK

JAPAN

Yogetsu Akasaka, a Japanese musician and Buddhist monk, presenting a livestream beatboxing performance at his home in Tokyo. Akasaka has become a viral phenomenon with musical tracks marrying religious chanting with beatboxing, with his Heart Sutra Looping Remix being viewed on YouTube many million times since it was posted last May

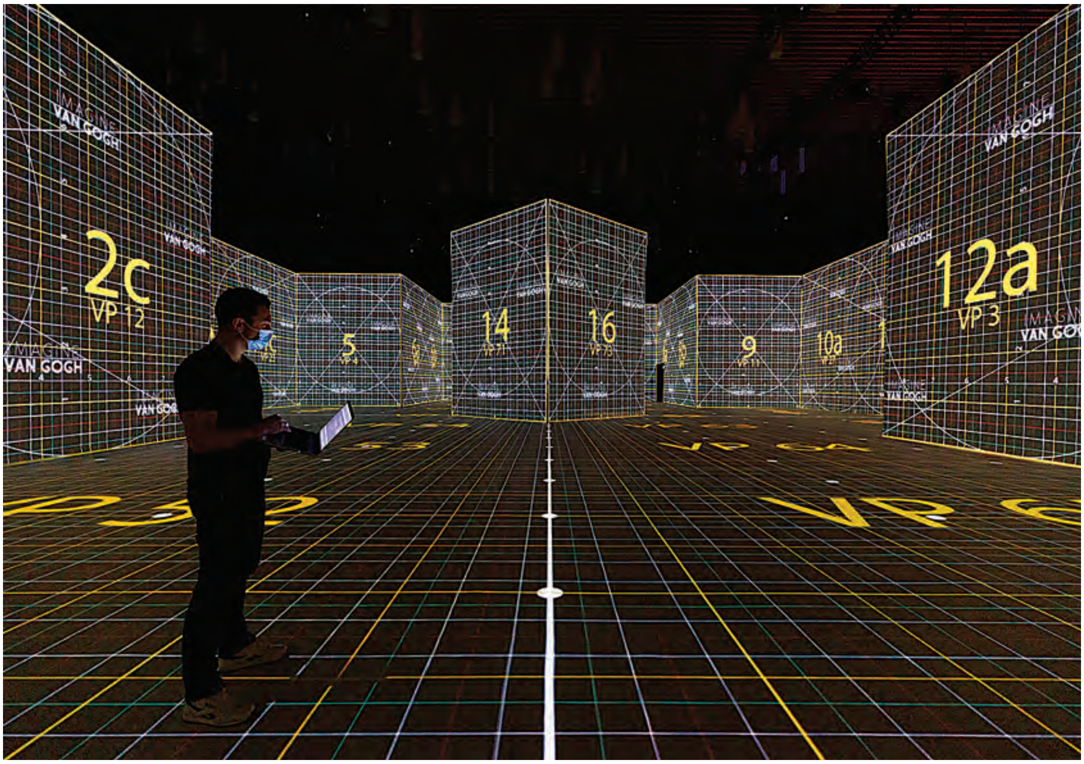
ROSLAN RAHMAN / AFP

EXPENSIVE DAYS
SINGAPORE
Blockchain entrepreneur Vignesh Sundaresan, also known by his pseudonym MetaKovan, shows the digital artwork 'Everydays: The First 5,000 Days' by artist Beeple at his home in Singapore. In March, the programmer bought the world's most expensive NFT for $69.3 million, highlighting how virtual work is establishing itself as a new creative genre

COURTESY TERRAIN.ART

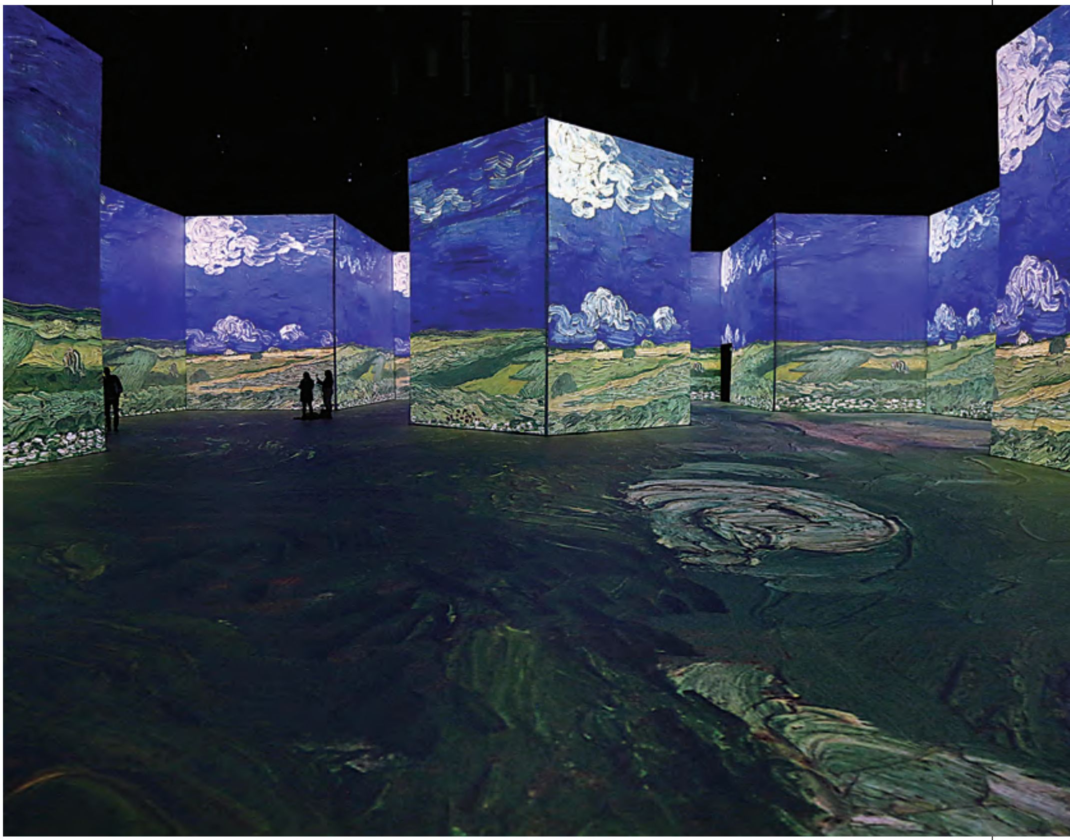
A TOKEN ART
INDIA
Natlet, an artwork by Susanta Kumar Panda and Ramakanta Samantaray, highlights the perfect beauty of nature and the fatality of unchecked rampant urban expansion. It's among a series of artworks presented by Terrain.Art, India's first blockchain-powered platform and the brainchild of Aparajita Jain. The platform mints a corresponding NFT for each work on Ethereum, establishing its authenticity and eliminating fakes

ANDREW CHIN / GETTY IMAGES



STARRY NIGHT
CANADA
Assistant director Nicolas Babillon calibrates the set-up before a preview of Imagine Van Gogh, an immersive digital art exhibition at the Vancouver Convention Centre in Canada. The event is based on French photographer Albert Plécy's concept of 'image totale', the feeling of being surrounded by an artwork, to experience their energy, emotion, and beauty

STARRY NIGHT
CANADA-2
Created by French artistic directors Annabelle Mauger and Julien Baron, the massive projections create a space where people experience van Gogh's art in ways unlike traditional museums. The brushstrokes appear several feet wide, as original canvasses are expanded and fragmented, then projected onto the walls and floor in unusual shapes to emphasise the mesmerising exaggerations and distortions of van Gogh's work



MERT ALPER DERVIS / ANADOLU AGENCY VIA GETTY IMAGES

PHILIP FONG / AFP

MEET GEISHA PROJECT

JAPAN

A geisha rehearses for an online drinking party with clients in Hakone in Kanagawa Prefecture. With the pandemic forcing the postponement of the 2020 Tokyo Olympic Games and shutting down international travel, the Meet Geisha project explored other business options due to the drop in tourism and offered their traditional arts in the most modern of formats— Zoom calls

VALERIE MACON / AFP

KINKY PLAY

USA

Dominatrix Madame Margherite rehearses in front of her laptop in her dungeon ahead of a virtual strip club event livestreamed on September 4, 2020, in Los Angeles, California. Until the pandemic, Margherite was known to specialise in pet play, running a human zoo filled with kinky clients who paid $300 per hour to roleplay as her pet

ALESSANDRO SERRANO' / AGF / UNIVERSAL IMAGES GROUP VIA GETTY IMAGES

DIGITAL DRAG
ITALY
At an atelier filled with shelves overflowing with wigs, feathers and hundreds of stage costumes, Karma B prepares for her livestreamed performance on StageIt. The aim of the first online drag festival had been to allow drag and LGBT performers who have had live shows cancelled, to perform for their fans

VITAMIN CLOWN
GERMANY
Clinic clown 'Vitamins' (real name Ute von Koerber) conjures up surprises and humours 11-year-old Pauline online, who is recovering at a hospital in Cottbus, Germany. In 2012, Ute co-founded the association Lachen hilft e.V. She combines play, improvisation and therapy to help heal ailing patients

CHRISTOPH SOEDER / PICTURE ALLIANCE VIA GETTY IMAGES

KIM KYUNG-HOON / REUTERS

MEMORABLY GROUNDED
JAPAN
Katsuo Enuoe and his daughter enjoy the trimmings of a business class cabin and soak up the sights of Florence and Rome—without ever leaving Tokyo. Tapping into a growing virtual reality (VR) travel market for Japanese holidaymakers grounded by Covid restrictions, First Airlines provides virtual reality flight experiences, including 360-degree tours of cities and meals

ROW YOUR BOAT
CHINA
The scenic route starts from Ping Hu Qiu Yue, also known as the ‘Autumn Moon Over the Calm Lake’ and gently glides over spots like ‘Two Peaks Piercing the Clouds’. Visitors wearing VR holographic glasses experience riding a boat on the West Lake during the 3rd China International Import Expo at the National Exhibition and Convention Center in Shanghai, China

GUO ZHIHUA / VCG VIA GETTY IMAGES

CHRISTOPHE ARCHAMBAULT / AFP

CYBER SINGER
FRANCE
Japanese virtual singer Hatsune Miku—an animated 16-year-old with saucer eyes and lengthy aquamarine pigtails—performs on stage during a concert at the Zenith concert hall, in Paris. One of Japan's most famous pop stars, Miku is a singing voice synthesiser featured in over 100,000 songs and has performed sold-out 3D concerts worldwide. Miku has gone from being a vocal synthesiser to a collaboratively built cyber celebrity with a global user community

VIRTUAL WIFE
JAPAN
Akihiko Kondo (35), a Tokyo school administrator, poses for a photograph with a doll modelled after VR singer Hatsune Miku at his apartment, wearing their wedding rings after marrying her hologram in Tokyo. Akihiko's mother refused an invitation to her only son's wedding. Gatebox, the company that produces the hologram device featuring Miku, has issued a 'marriage certificate', which certifies that a human and a virtual character have wed 'beyond dimensions'.

KWIYEON HA / REUTERS

FEATURE CHINA / BARCROFT MEDIA VIA GETTY IMAGES

SUMMER VACATIONS
CHINA
For children in Guizhou, summer vacation days out means a VR experience in a showroom of new technology at a tourism attraction in Xingyi in southwest China's Guizhou province

TRIP TO THE ZOO
JAPAN
A RakuRo autonomous self-driving robot developed by ZMP Inc moves past a zebra at the Chiba Zoological Park, Japan. The online event allows children quarantined at home to virtually tour the zoo through a remote controlled robot with a 360-degree camera

TOMOHIRO OHSUMI / GETTY IMAGES

YE AUNG THU / AFP

CHEF'S HAT

MYANMAR

Young chef Moe Myint May Thu films a cooking video at home in Yangon. From boiled catfish soup to spicy fried frog, this eight-year-old in pyjamas and a chef's hat delights audiences with her culinary prowess in online classes, at a time the nation has been told to stay at home to be safe from the virus

SOARING BALLET

KENYA

Lydia Akoth (10), a member of Project Elimu, practises dancing on a sofa at home during a ballet lesson via a mobile phone at the Kibera slum in Nairobi, Kenya. Project Elimu is a non-profit founded by former professional Kenyan dancer Mike Wamaya to provide extracurricular activities to schools within informal settlements, empowering children and teachers

GORDWIN ODHIAMBO / AFP

ON THE FUTURE

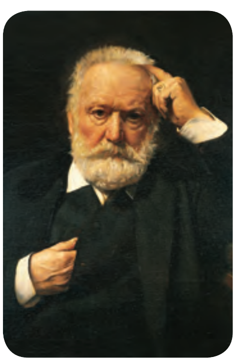
GETTY IMAGES

Prediction is very difficult, especially if it's about the future.

—NIELS BOHR
DANISH PHYSICIST

A person often meets his destiny on the road he took to avoid it.

—JEAN DE LA FONTAINE
FRENCH POET



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There is nothing like a dream to create the future.

—VICTOR HUGO
FRENCH POET, NOVELIST AND DRAMATIST

The factory of the future will have only two employees, a man and a dog. The man will be there to feed the dog. The dog will be there to keep the man from touching the equipment.

—WARREN BENNIS
AMERICAN SCHOLAR

KEVIN KANE / GETTY IMAGES NORTH AMERICA / GETTY IMAGES VIA AFP

Map out your future, but do it in pencil. The road ahead is as long as you make it. Make it worth the trip.

—JON BON JOVI
AMERICAN SINGER-SONGWRITER

Destiny is no matter of chance. It is a matter of choice. It is not a thing to be waited for, it is a thing to be achieved.

—WILLIAM JENNINGS BRYAN
AMERICAN POLITICIAN

There is always one moment in childhood when the door opens and lets the future in.

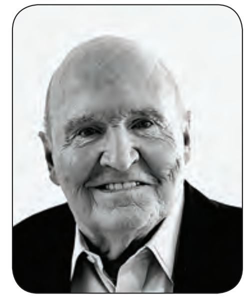
—GRAHAM GREENE
ENGLISH WRITER AND JOURNALIST

I am tomorrow, or some future day, what I establish today. I am today what I established yesterday or some previous day.

—JAMES JOYCE
IRISH NOVELIST

The future influences the present just as much as the past.

—FRIEDRICH NIETZSCHE
GERMAN PHILOSOPHER



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Control your own destiny or someone else will.

—JACK WELCH
FORMER CHAIRMAN & CEO, GENERAL ELECTRIC

Let the future tell the truth, and evaluate each one according to their work and accomplishments. The present is theirs; the future, for which I have really worked, is mine.

—NIKOLA TESLA
SERBIAN-AMERICAN INVENTOR

You can never plan the future by the past.

—EDMUND BURKE
IRISH STATESMAN & PHILOSOPHER

GETTY IMAGES

When did the future switch from being a promise to a threat?

—CHUCK PALAHNIUK
AMERICAN JOURNALIST & NOVELIST