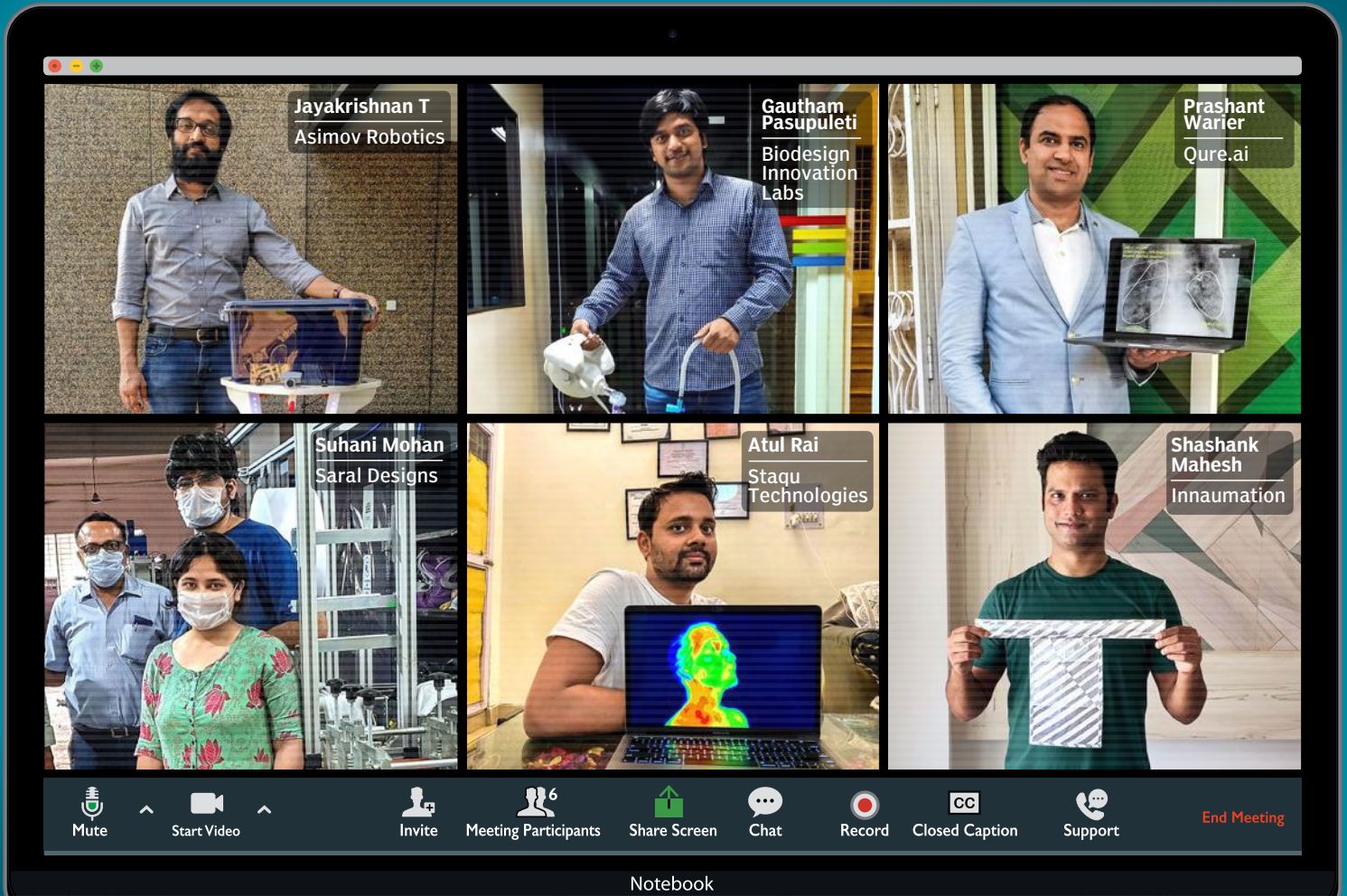


VIVO's V-SHAPED COMEBACK

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INDIA Forbes



VENTURES VS VIRUS

A selection of startups that has tweaked its solutions to lend a hand in the battle against the global pandemic



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FIXING
THE FOOD
SUPPLY CHAIN

MEET THE WARRIORS
ON THE COVID-19
FRONTLINES

OPPORTUNITIES
FOR BIG
TECH

Welcome to the
Forbes INDIA
Tablet Edition

Of Antibodies and Anti-bias

As of April 20, 8 am Indian Standard Time, India had 14,175 active Covid-19 cases, 2,546 infected had been discharged and 543 had died. Those numbers in a country with a population of 1.35 billion may not ring alarm bells, particularly when you compare India with the US (764,265 cases and 40,565 deaths), Italy (178,972 and 23,660), Spain (198,674 and 20,453) and France (152,894 and 19,718).

Yet, few countries share the complexities of India. One of every six urban Indians is estimated to live in slums (typically 10x10 ft rooms in each of which six to eight family members or workers live together). Over two thirds of the population resides in rural areas. And the country's population density is high (1,202 per sq m as against the global average of 38).

Almost 10 percent of India's population—over 120 million—is estimated to be migrants from rural areas to urban labour markets. Staying put in their rented urban dwellings during a lockdown is a poor alternative for them, as they have no work and have run out of money.

Amid these challenges of mass movement and community transmission, testing becomes the biggest challenge. Data released by the Indian Council of Medical Research shows that a little over 400,000 samples from 384,000 individuals had been tested as of April 19. As of April 18, India had tested 0.26 people per 1,000; Italy's ratio of tests performed stood at 22.08.

The good news is that private laboratories have joined government ones in the testing endeavour. And hundreds of thousands of testing kits had arrived from China.

India can do with all the help it can in fighting the Covid-19 battle. And this fortnight's *Forbes India* cover story is on the fascinating innovations of India's startups, who are

remodelling existing solutions to ease the pressure on public health care. Varsha Meghani and Naini Thaker unearthed seven such ventures—from one repurposing robots to treat patients of the pandemic to another deploying artificial intelligence and machine learning technology meant for TB analysis in diagnosing Covid-19. And we have a fine collection of other pandemic-related stories, including one that captures the tribulations (and joys) of health workers at the frontlines, and another on the community-based initiatives to combat the economic fallout.

In a statement in end-March, Fernand de Varennes, the UN Special Rapporteur on minority issues, said that "Covid-19 is not just a health issue; it can also be a virus that exacerbates xenophobia, hate and exclusion". Indeed, across the world—India included—fears around Covid-19 are being exploited to scapegoat communities. The Chinese have been obvious targets and, along with the hate, cries to stop buying Chinese goods can be heard globally. However, the reality is that China is yet at the fulcrum of the global supply chain, particularly for telecom and electronic equipment. The Indian mobile handset market, for instance, is dominated by the Chinese, with Xiaomi at No 1, and Vivo a recent No 2.

Our big story this fortnight is on how Vivo came in from the cold to take that No 2 position. Vivo India CEO Jerome Chen tells Rajiv Singh how the brand overcame the initial perception of Chinese players being fly-by-night. But will Covid-19 set them back? Chen, no stranger to crises over the past couple of decades, tells Singh: "Our culture as a company has been to overcome difficult times." And he has a message for the rabble-rousers: "No matter whether we are in China or India or any other country, it is time to have a strong belief that we can all come together and overcome this."

STORIES TO LOOK OUT FOR



▲ (From left) Jayakrishnan T of Asimov Robotics has created the 'Karmi-Bot', which can provide essential services to patients inside isolation wards; Jerome Chen of Vivo India is bullish about the future despite the pandemic

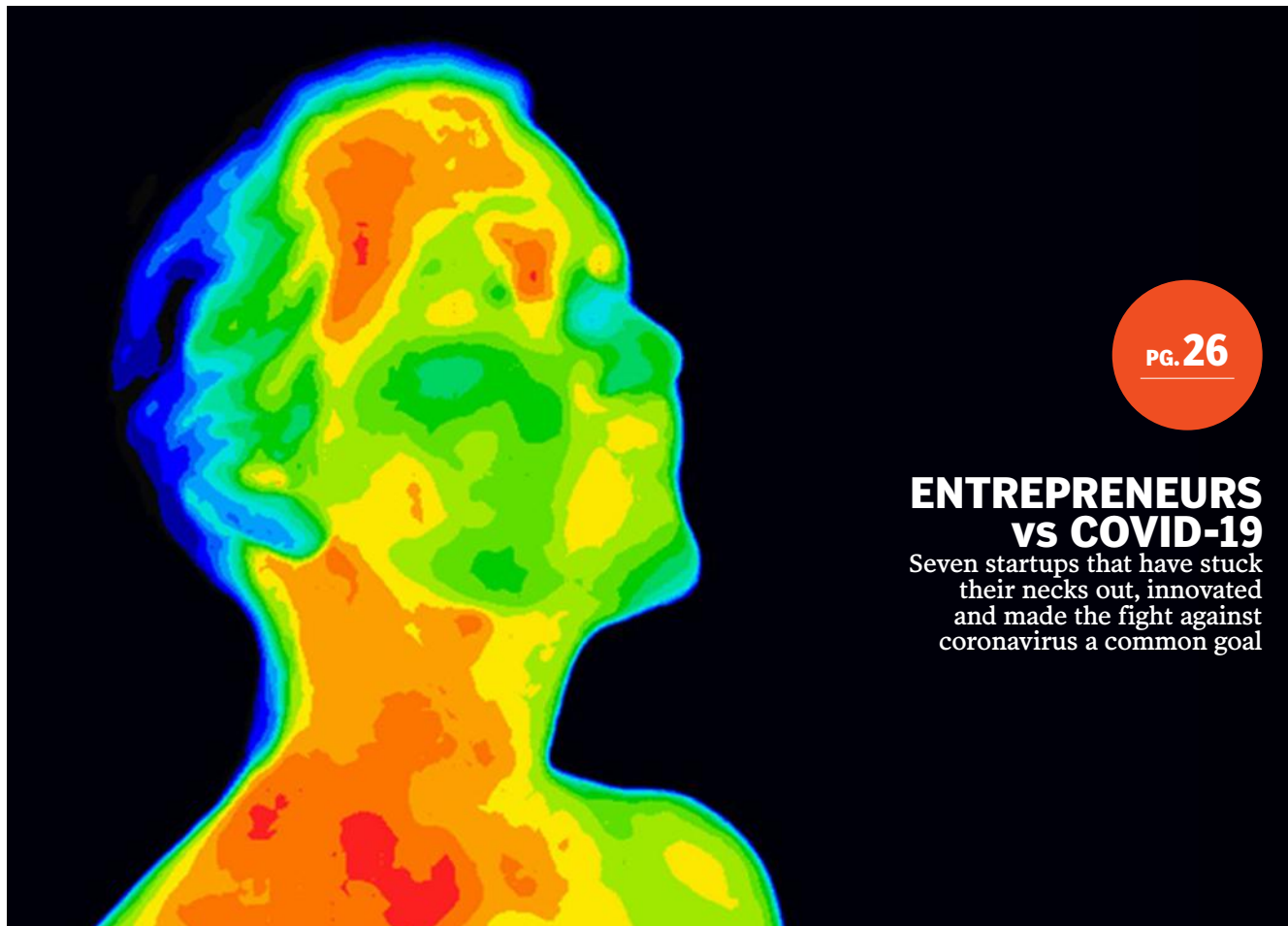


Brian Carvalho
Editor, *Forbes India*

brian.carvalho@nw18.com

Best,
B Carvalho

SHUTTERSTOCK



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ENTREPRENEURS VS COVID-19

Seven startups that have stuck their necks out, innovated and made the fight against coronavirus a common goal

Several startups have come to the rescue of individuals who have contracted Covid-19 and those who are leading the fight against it

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Vivo India CEO Jerome Chen says customer satisfaction is priority

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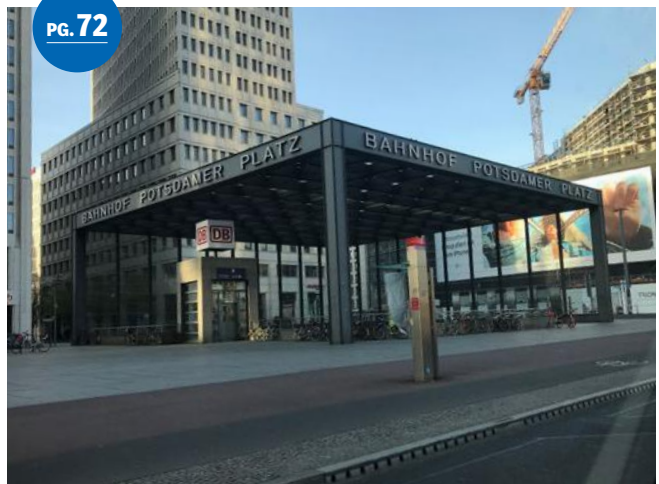
The love of mutton makes Madurai an exception among South Indian religious centres



R RAVI

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Meals prepared in Kerala's jails are sold in packets made in-house



VAISHALI DINAKARAN

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The Potsdamer Platz railway station in Berlin wears a deserted look

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Network 18

TO OUR READERS

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The Modern-day Cupid

CAN A BIODATA DO JUSTICE TO YOUR PERSONALITY? NOT REALLY, BELIEVES ANURADHA GUPTA, FOUNDER AND CEO OF VOWS FOR ETERNITY, A BESPOKE, NEW YORK-BASED, OFFLINE MATCHMAKING SERVICE THAT FOLLOWS AN ORGANIC APPROACH TO FINDING YOUR TRUE LOVE

The focus at Vows For Eternity – an exclusive and personalised matchmaking service with headquarters in New York and presence in Mumbai, Delhi and London – is on understanding an individual through face-to-face conversations rather than algorithms. This ethos is mirrored in the personality of its founder and CEO Anuradha Gupta. As a free-spirited, modern American Indian with roots in traditional values and an intrinsic ability to connect with people, she travels around the world to interact with the global sophisticates, understand their worldviews and help them find their real-life soulmates.

What led you to start Vows For Eternity?

It was my own quest to find the right partner. I got married late by Indian standards. I was looking for an individual - someone who would align with my personality, mindset and value system. I needed assistance in this search but didn't find anyone who could help. Having lived in different parts of the world, I also realised that the challenges are the same everywhere. The time involved in the search, and the frustrations and disappointments along the way, led me to embark on this journey. More than anything, I wanted to make a positive difference to a person's life by connecting them with their special someone.

Is it easy for individuals to find like-minded partners?

It's a challenge at any time but more so today, as marriage isn't the first priority for most individuals. As we grow older, we expect others to fit into our lives seamlessly, which can lead to unrealistic expectations. While the world is shrinking, we're also getting busier with our lives. Today, it's tougher to engage in social conversations and sow a meaningful relationship. In such scenarios, one is more likely to find the right partner through arranged introductions rather than depending on one's limited social circle.

Tell us about your membership packages and the eligibility criteria.

We offer two options – Privilege Suite and Premium. Our membership base, mainly in the age bracket of 22 to 65 years, includes a swish set of well-read and progressive professionals, businesspersons, celebrities and industrialists. Our largest set of members resides in the US and India, followed by a small number in Europe and Asia. What connects them is the way they view marriage – as a sacred bond rather than a settlement. We follow stringent eligibility criteria that focuses on quality. Maintaining confidentiality is also integral to our process.

Do you guarantee a match?

I would love to find a partner for all our members but unfortunately, I don't possess a magic wand. Having said that, my team and I make a promise to every member that we'll put in our heart and soul into the search. Nothing makes us happier than seeing a modern love story blossom.

वोव्स फॉर एटर्निटी

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Top-up for Covid-19

Most insurance policies that cover Covid-19 are useful only if people do not have their own health policy **P/10**

Using the Gender Lens

Experts say India needs to adopt a gendered approach to tackle the coronavirus **P/12**

Private sector vs Pandemic

Companies and private individuals are stepping up to slow the virus's spread and help find a cure **P/14**

ECONOMY

Future Tense

Growth for 2020 has been virtually written off. For India, the hope is for an additional economic stimulus, and for demand in manufacturing and services to pick up

MANUFACTURING ACTIVITY HAS come to a halt as the biggest factories in the US, Europe and China are shut down since February following the coronavirus outbreak. In the services space, hundreds of thousands of workers across the globe have been furloughed or have lost their jobs as malls, hotels, restaurants and airlines remain closed. In the US, non-farm payrolls fell by 701,000—its worst in ten years—and unemployment rose to 4.4 percent.

This indicates that most economies are likely to see de-growth possibly till the first half of FY21 (April-September). The International Monetary Fund (IMF) in April forecast that the world will see its “worst downturn since the Great

Depression” of the 1930s, with output set to shrink by 3 percent in 2020. There are 20,69,819 coronavirus cases and 137,193 deaths because of Covid-19 as of April 16, according to data from the Johns Hopkins University.

Even as parts of China have returned to work, a large section of the globe continues to face disruptions in manufacturing supply chains. The World Trade Organization has estimated that global trade will fall by 13-32 percent in 2020, worse than what was seen during the 2008 financial crisis. China is expected to see a modest low single-digit economic growth in 2020, but the IMF expects growth there to bounce back to 9.2 percent in 2021.

India's growth forecasts look

equally bleak for 2020 as the nationwide lockdown has been extended to May 3. “We believe the existing restrictions on movement are causing much more economic damage than anticipated,” says Rahul Bajoria, chief India economist at Barclays.

Barclays has revised India's GDP to 0 percent for calendar year 2020 (from an earlier projected 2.5 percent) and a marginal rise of 0.8 percent for the fiscal ending March 2021. Fitch Ratings in April slashed India's growth forecast for FY21 to a 30-year-low of 2 percent from 5.1 percent earlier. The lockdown in March saw India's unemployment rate surge three-fold to 23 percent, as of April 5.

The government is set to reopen activity in some sectors such as MNREGA works, MSMEs, logistics and ecommerce firms, agriculture and food processing factories (located outside municipal corporations), and all central ministries and their departments. However, the lockdown notifications will continue for containment zones. With no sales and payment from clients delayed, SMEs are struggling to retain staff and labour apart from not having access to affordable finance.

The RBI has announced fresh measures to boost liquidity for small businesses and microfinance firms. But specific economic relief is yet to be announced by the government for sectors hardest hit such as export-oriented firms, hospitality, tourism and airlines. In view of the rising fiscal deficit, the government may not be in a position to come up with an aggressive stimulus. Mid-and-small companies in these sectors will hope that any relief is not too late.

• SALIL PANCHAL



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LUXURY

Expect the Unexpected At Lightning Speed

Experts say coronavirus will damage the modern luxury industry more than the 2008 recession

GETTY IMAGES

THE NEXT SIX months are crucial for the luxury goods industry and may cause far more pain than the Great Recession of 2008 did. McKinsey estimates that the global industry for personal luxury goods will shrink by as much as 35 to 39 percent in 2020, compared to the previous year.



“It’s true that the House of Chanel survived World Wars, the stock market crash of 1988 and many other world-changing events. So did Gucci, Louis Vuitton and Prada. But the modern luxury industry as we know it—where brands are multi-billion dollar powerhouses, employing hundreds of thousands of people across the globe—has only really existed for the past 30 years,” writes journalist Lauren Sherman in a report by The Business of Fashion (BoF) and McKinsey, titled ‘The State of Fashion 2020: Coronavirus Update’.

“In many ways, the coronavirus pandemic is the first global crisis that will deeply impact the sector since the industry morphed into a virtual oligopoly,” she adds. “How will it fare? The short answer: Expect the expected, and at lightning speed.”

After the 2008 recession, the luxury industry bounced back; this time, however, consumer spending behaviour was already becoming more conscious in the past three or four years, and the pandemic will only accelerate that shift.

Another school of thought says that in certain markets, consumers in the uber-wealthy demographic could go

on spending sprees to make up for the pent-up time. “We could definitely see initial splurge post the lockdown in India,” says Abhay Gupta, founder and CEO, Luxury Connect and Luxury Connect Business School. “Beauty and wellness will witness raised demand immediately, and salons will see a rush. Postponed wedding orders will be fulfilled. The feel-good factor of retail therapy will kick in.”

For some luxury players, it could be a unique opportunity to heighten customer relationships and leverage digital channels. In the post-pandemic era, the McKinsey-BoF report says consolidation will intensify and we could see a ‘Darwinian shakeout’ that will eliminate the weak and embolden strong players.

“Conspicuous consumption may be replaced with demand for conscious, responsible luxury,” adds Gupta. “However, for the hedonist consumer, luxury is a way of life, and the benchmarks of sophistication are unlikely to change. Public memory is short, and luxury will return to its true levels in due course.”

• PANKTI MEHTA KADAKIA

AUTO

Reverse Gear

India’s auto sector, already in the doldrums, is unlikely to see recovery and demand this year

INDIA’S AUTOMOBILE SECTOR has been pushed to the brink and recovery is unlikely this year. The Covid-19 crisis has exacerbated the problems caused by the economic slowdown and a push toward cleaner engines. “With all the uncertainty now, July could be the month when sales begin,” says Puneet Gupta, associate director for automotive forecasting and advisory at research firm IHS Markit. “For calendar year 2020, we expect sales to fall by over 28 percent.”

According to the Society of Automobile Manufacturers (SIAM), sales of passenger vehicles in India fell by 51 percent in March while for the fiscal between April and March 2020, the number was down by 17.82 percent. “A lot will depend on the government stimulus to the industry, and ensuring employment and jobs,” says Gupta.

SIAM reckons the lockdown is causing a loss of ₹2,300 crore a day in production turnover. “There would be challenges on the supply and demand side. The issue of availability of finance would also need to be addressed to bring back growth,” says Rajan Wadhwa, president of SIAM.

Even when recovery happens, the industry could see serious challenges in customer preferences. “Consumers that buy passenger vehicles or two wheelers may go one segment or one variant lower,” consultancy firm PwC said in a report on April 8.



SHUTTERSTOCK

• MANU BALACHANDRAN



SANITISERS

Hands-on

Dettol and Lifebuoy find new rivals as Emami and Marico launch hand sanitisers

FMCG GIANTS EMAMI AND

Marico are taking on the likes of Dettol and Lifebuoy with BoroPlus and Mediker, their respective hand sanitiser brands. The coronavirus outbreak has prompted several companies to enter the

booming hand sanitiser market.

“BoroPlus and Mediker have a strong antiseptic history, one in the cream



SHUTTERSTOCK

segment [BoroPlus] and the other in the hair care segment,” says N Chandramouli, chief executive officer of Mumbai-based marketing and branding agency TRA Research.

Sanitisers might open the floodgates for new entrants to make a deeper dent in the business of market leaders. Chandramouli says if the brands manage to create a mark in the sanitiser segment, they can be followed by extensions into soaps, liquid handwash and the likes.

Abraham Koshy, marketing professor at IIM-Ahmedabad, says consumers would be favourably predisposed towards new brands as fatigue with older ones would have set in due to predictability of marketing and positioning. Also, BoroPlus and Mediker enjoy startup equity, recall and a strong reputation.

Entering the hand sanitiser market also provides these new brands with strategic opportunities to broaden their appeal. “With the arrival of two new players, the antiseptic market, which was otherwise staid and boring, has become more active,” says Koshy.

• RAJIV SINGH

INSURANCE

Covid-19 Coverage

Health insurance companies are providing policies to cover coronavirus infections, but most coverage amounts are very low

THE SPREAD OF THE

coronavirus pandemic has led to a range of insurance products being introduced in the market, to offer a cover that would take care of hospitalisation and treatment. Companies such as Star Health, ICICI Lombard, Future Generali, Digit and Paytm have introduced Covid-19-specific policies for those who contract the disease.

Forbes India's assessment shows that most of these policies—usually for a one-year term—do not provide adequate cover, with the sum insured being too small. For example, Star Health & Allied Insurance's Star Novel Coronavirus policy covers for an amount of ₹21,000 and ₹42,000 while ICICI Lombard's Covid-19 Protection Insurance Cover provides for a cover of ₹25,000.

For those who do not have any health insurance policy, these might be a good starting point. For others, a specific Covid-19 policy might be considered as a top-up to their existing policy, so that it can take



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care of issues such as loss of income during the illness. Most existing health issues and claims would get covered by standard existing health insurance plans, as mandated by the Insurance Regulatory and Development Authority. However some health policies do not cover for epidemics. For buying a policy that covers Covid-19, a person will have to undergo the PCR (polymerase chain reaction) test, but will be covered regardless of the test result.

“It is important to have a comprehensive health insurance cover with an adequate sum insured,” says Amit Chhabra, business head (health) at PolicyBazaar. The “adequate” sum insured should at least be ₹10 lakh per person for people living in larger metros.

Sanjay Datta, chief of underwriting and claims, ICICI Lombard, says, “We are seeking to help those who have mild Covid-19 symptoms. If they are quarantined at home or are being treated in hospital, this policy would help mitigate some expenses.” Their policy claims to pay 100 percent of the sum insured in a lumpsum, regardless of the hospitalisation expenses.

• SALIL PANCHAL

Policies For Covid-19

Star Health (Star Novel Coronavirus):

Provides lumpsum benefit of ₹21,000 and ₹42,000 to an infected person requiring hospitalisation

ICICI Lombard: Insurer will pay entire sum insured (₹25,000) to insured person on first diagnosis of Covid-19, irrespective of hospitalisation

Future Generali: Lump sum payment (₹50,000) through reimbursement in case the person is diagnosed with Covid-19

Paytm/Reliance General Insurance:

Policy provides 100 percent sum-insured (between ₹25,000 and ₹2 lakh) to insured person on testing positive for the virus.

DIGITIZING FUTURE AGRICULTURE THROUGH FarmERP

In a pioneering effort, IT engineers Sanjay and Santosh inceptioned FarmERP with a vision to make farmers realize their value while assisting them in becoming successful farm owners through the amalgamation of 'Upstream and Downstream' businesses.

To imagine a world where a farmer and agribusinesses have 'One Suite' as a touchpoint for what to grow in the best manner, access the finest inputs, help in better produce and yield while monitoring its health via AI & ML. Along with this, this base provides them with access to finance, access to a marketplace to sell the produce to benefit not only themselves but the end consumers with traceability and surety of residue-free products. All of this works around 'Sustainability' as the core principle.

FarmERP is a farm-to-plate future-ready digital platform catering to a wide variety of agriculture and agribusinesses stakeholders on a global scale for more than a decade. Deployed in more than 25 countries, it is helping clients earn more profits and ride on the Agriculture 4.0 wave.

With an extensive vision, FarmERP has 4 focus areas that they are rigorously working on today with agribusinesses globally,

1. Sustainable farming - Meeting present produce related needs,

For more information
farmerp.com
info@farmerp.com

 /farm_erp

without compromising the ability of future generations to meet their requirements.

2. Climate resilience - Assisting agribusinesses to mitigate climate risks. This helps make agronomic activities and, in turn, their results tolerant to climate change.

3. Traceability - Enhancing transparency of the produce entering consumer households, a system where the agricultural products are traced completely through the supply chain till it reaches its final destination.

4. Food safety - Using the safest methods available for growing, handling, processing, and conducting post-production processes to ensure the produce is not contaminated in any way and is safe for consumption.

Aiming at SDG's like zero hunger and climate change, FarmERP strives to empower farmers and agribusinesses to progress as global players. This assistance comes through technologies like artificial intelligence,

machine learning, computer vision, satellite imagery and access to a digitally enabled supply chain, a marketplace to sell their produce, climate-smart advisory, and many more.

FarmERP firmly believes in partnering with farmers, farmer producer companies, contract farming companies, farming companies, financial institutions, funding agencies, research and development institutions, trade bodies and the Government as well. FarmERP has successfully assisted many agribusinesses in their growth story over the years, and now they are using their intellectual assets to enable an individual farmer to become a partner in profits.

They are on a mission to digitally transform agriculture and agribusinesses for sustainable betterment.



SANJAY BORKAR

SANTOSH SHINDE



GETTY IMAGES

GENDER

The Harder-Hit Half

While governments tackle the health crisis, experts say taking a gender-based approach will achieve larger socioeconomic goals



SHUTTERSTOCK

12

EARLIER IN APRIL, UN WOMEN published a report titled 'Emerging gender data and why it matters' in which the US-headquartered organisation stated that since the coronavirus does not discriminate, governments need to adopt a "whole-society approach" to understand its differential impact on women and men. "Supporting gender analysis and sex-disaggregated data is an integral part of a strong Covid-19 response," the report said.

Covid-19 will affect men and women differently in more ways than one, and the latter are bound to be at a disadvantage. According to economist Mitali Nikore, the government is primarily focusing on collecting health data at the moment, but even understanding pre-existing patterns of economic data provided by the Periodic Labour Force Survey or the National Sample Survey Office would indicate that women are likely to feel a compounded economic impact, given that they usually earn less, save less, hold insecure or informal jobs

or live more close to poverty when compared to men.

Another factor impacting women, she explains, is the increasing gender-based violence due to extended lockdowns and social isolation, and the lopsided burden of unpaid care and domestic labour that threatens to revive traditional gender roles.

"Having a gendered approach will actually help the government target beneficiaries more efficiently and design holistic schemes," she says.

According to Lekha Chakraborty, an economist and professor at the National Institute of Public Finance and Policy, India's approach to public policy while framing a Covid-19 response is taking a sequential, and not a simultaneous, path. "But while you are attending to public health, you also need to parallelly look into, say, migration,

jobs, livelihoods, etc," she says.

Experts suggest that applying a gender lens while designing stimulus packages or schemes will help achieve greater socioeconomic equality and opportunity. According to Nikore, the government's immediate focus must be to provide higher wage subsidies for women across formal and informal sectors. "Even the government's announcement of paying 24 percent EPF support is applicable only for people earning below ₹15,000 per month. This proportion can be increased by 10 to 15 percent, while replicating the same in the unorganised sector," she says.

Right now, the government provides income support to women whose bank accounts are linked to Jan Dhan accounts. "Income support can be given to women across self-help groups, even if they do not have a Jan Dhan account. Second, women who have lost jobs should be provided unemployment benefits and access to reskilling programmes," says Nikore.

Chakraborty admits that it might be difficult to collect and process gender disaggregated data related to the coronavirus because of the heterogeneity of India's population, and because India has not undertaken aggressive testing yet. However, to design comprehensive, gender

sensitive public health metrics, she says one can take cues from the International Classification of Diseases codes of the World Health Organization. The economist also points to the need to ensure women have an equal representation in the decision-making related to coronavirus.

"Diversity in perspectives is crucial to stem the pandemic. Giving priority to women's perspective will strengthen policy outcomes," she says.

• DIVYA J SHEKHAR

"A GENDERED APPROACH WILL HELP THE GOVERNMENT TARGET BENEFICIARIES EFFICIENTLY AND DESIGN HOLISTIC SCHEMES."

TRIVIUM MEDIA GROUP

A NETWORK OF CREATORS



Trivium Media Group was incepted 8 years ago by professionals craving to create a community that put a spin on traditional ways of working within the advertising industry. It hones a network of hard workers, experienced souls and hungry-for-success newcomers, who work en masse and understand the magnitude of creating 'something' out of nothing.

Trivium Media Group is a full-service media and content communication agency with a manifold of divisions, that work as parallel brands as well, each an expert in its field. Trivium Public Relations offers services to enhance a brand's image and identity, showcasing its features in the media and building further on what they stand for. They have a steady experience and are well versed and connected in Traditional forms of PR along with New Age PR as well. Trivium Creative & Design is a creative boutique agency consisting of a group of individuals who are fluent in the language of 'innovativeness', giving fruition to the image of a brand. Trivium Productions captures moments in time, providing visuals to associate a brand with. To serve the virtual space, GlobalLocal Digital Media provides targeted exposures for brands on Social & Digital platforms. Expanding into the field of influencers, GIMA (Global Influencer Management Agency) is a project at its inception stage as well.

With a widespread approach owing to them functioning out of Mumbai, Pune, Bangalore, Delhi, and Dubai as well, Trivium is a 360-degree experience in the form of a media agency working on the ideology of 'connecting the dots' for you. The services they offer and the categories they cater to offer a holistic experience for anyone interested in a collaboration. 'Connecting the dots' is a principle the brand follows, where they bring you a path to follow, helping you understand the track for your brand's ascent. This is showcased through an elaborated set of strategies and implementation to gain optimum results.



The versatile parallel brands call for versatility in their client base as well. A few popular mentions of the brands to whom they impart their services to are IHG, Crowne Plaza, Radisson Blu, The Ritz Carlton, Guess, Nakkashi, Label Varsha, FarmERP, GeoAMPS, Studio Gaaba, Clad in Luxury, Uber Luxuries, Prime Class, Levis, Future Group, Bajaj Allianz, Acropolis Purple Group, Emmar, DoubleTree by Hilton and more.

Trivium is well known as a front runner in the Hospitality industry, being associated with some of the best brands globally. Fashion is another core strength with immense knowledge and the right connects for couture, retail, luxury, and lifestyle. Apart from this Trivium is a pacesetter in Real Estate, Interior Design and Architecture, the Textile Industry, Information Technology, and many more. With extensive experience in catering to a variety of industries, today, they wish to be associated and partnered with additional verticals as well. A community in the form of a media agency; Trivium is a thought process, a mindset.

'By paying obsessive attention to detail, Trivium shows you things you wouldn't believe were there and formulates extensive strategies to help your brand make advancing strides into a profitable future.'

Ovez Khan
Founder and CEO

'Where work matters, brands matter, but most of all, people matter'.



SHUTTERSTOCK

COVID-19 RESPONSE

The Private Sector vs The Pandemic

Companies and wealthy individuals of all kinds are stepping up to slow the virus's spread and help find a cure

SEBASTIAN GOLLNOW/PICTURE ALLIANCE VIA GETTY IMAGES



JUST AS AUTOMAKERS

famously shifted to make tanks and planes during World War II, today's corporations are retooling their production lines to make everything from hand sanitisers (LVMH) to respirators (Ford, GE). In the UK, billionaire inventor James Dyson announced his vacuum cleaner firm would start manufacturing ventilators. German drugmaker BioNTech—backed by twins Thomas and Andreas Struengmann, both billionaires—is working with Pfizer and Fosun Pharma to develop a vaccine. It is one of more than a

TWO OUT OF THREE VACCINES MADE FOR INFECTIOUS DISEASES FAIL, SAYS MIT STUDY

dozen Covid-19 vaccines under development—smart considering that two of every three vaccines for infectious diseases fail, according to a Massachusetts Institute of Technology study.

But you don't need to be a multinational or have billionaire owners to pitch in: Italian startup Takis Biotech, with 25 employees, is racing to make a vaccine, while Carbon, a 3D-printing outfit in California, will soon be distributing testing swabs. On the right are

11 companies on the coronavirus frontlines.

• GIACOMO TOGNINI

ABBVIE

North Chicago-based publicly traded pharma firm is collaborating with authorities in the EU, US and China on experimental use of its HIV drug Lopinavir/Ritonavir to treat Covid-19.

BIOMÉRIEUX

French biotech company, founded by billionaire Alain Mérieux, received emergency FDA approval for its subsidiary's new testing kit, which cuts testing times for the virus down to 45 minutes.

CANSINO BIOLOGICS

Tianjin, China-based pharmaceutical company, is starting clinical trials for a vaccine, using the vaccine technology deployed to develop the one for Ebola.

CARBYNE

New York startup's emergency response tool, backed by Peter Thiel's VC fund, is being used by 911 responders in New Orleans to track patients by video-screening callers.

CUREVAC

German company funded by billionaire Dietmar Hopp and the Bill & Melinda Gates Foundation is in the early stages of developing a vaccine.

DIASORIN

This Italian biotech company, owned by billionaire Gustavo Denegri, obtained emergency authorisation from the FDA for its new 60-minute testing kit for Covid-19.

EMERGENT BIOSOLUTIONS

Maryland pharmaceutical firm is developing treatments derived from antibodies found in the blood of people who have tested positive for the disease.

GILEAD

The California biotech giant initiated clinical trials in March for its antiviral drug Remdesivir on patients in the US.

MAMMOTH BIOSCIENCES

South San Francisco-based biotech startup, founded by three Forbes 30 Under 30 alums, prototyped a rapid test by using the gene-editing tool CRISPR to detect the disease.

MODERNA

Massachusetts biotech company was the first to begin human trials of its vaccine, on March 16, in Seattle.

REGENERON PHARMACEUTICALS

Tarrytown, New York, biotech outfit run by billionaires Leonard Schleifer and George Yancopoulos is conducting trials of its rheumatoid arthritis drug Sarilumab, co-developed with French firm Sanofi, on patients in New York.



SHUTTERSTOCK

BILLIONAIRES

Trump's \$1 Billion Coronavirus Hit



AS OF MARCH 1, FORBES VALUED DONALD TRUMP'S NET WORTH AT \$3.1 BILLION, FOLLOWING months of reviewing documents and speaking with more than 50 sources. Then the markets fell apart, and we went back to work.

To approximate how much the coronavirus affected the president's fortune, we looked at the change in price of stocks similar to each segment of his business. Commercial real estate was clearly down, with shares of several companies plunging an average of 37 percent from March 1 to March 18, the date we used to calculate fortunes for the Billionaires list. Similar decreases dragged down the value of hospitality companies, apartment owners and golf businesses. Using those declines as a guide, we applied discounts to Trump's pre-coronavirus numbers, then reviewed the changes with industry experts.

The bottom line: A net worth valuation of \$2.1 billion—a drop of \$1 billion in less than a month. That will surely change again, as every index performs like an electrocardiogram. But, says New York City real estate broker Eric Anton, "The analysis, it's as good as any other way I can think of."

• DAN ALEXANDER

SHUTTERSTOCK



Trump Parc East, New York

RESIDENTIAL REAL ESTATE

More than 500 units in five states

Before coronavirus: \$235 million
After infection: \$148 million

More lockdowns, travel bans and self-quarantines mean fewer buyers. "Purchasers are unlikely to make their largest financial investment of their life through a virtual tour," says Jonathan Miller, a New York residential real estate expert.

CASH

Before coronavirus: \$160 million
After infection: \$160 million

Trump got rid of his stock holdings long ago and now keeps an estimated \$160 million safely in cash accounts—currently the best-performing part of his portfolio.

SHUTTERSTOCK



Trump International Hotel Washington, DC

HOSPITALITY HOLDINGS

Hotel in Washington, DC, and resort in Miami

Before coronavirus: \$107 million
After infection: \$38 million

During a White House press conference in March, President Trump fielded a question about the effect of the coronavirus on his business: "I'm very underlevered and everything, so that's good." Not necessarily at Trump International Hotel in Washington, DC, and Trump National Doral in Miami, however. Deutsche Bank handed Trump \$170 million to remodel the DC hotel, and another \$125 million for the Miami golf resort, which produced \$9.7 million of 2018 profit (measured as earnings before interest, taxes, depreciation and amortisation). "Sounds pretty highly levered," says hospitality analyst Dan Wasiolek.

SHUTTERSTOCK



Trump International Hotel Waikiki, Hawaii

HOTEL LICENSING AND MANAGEMENT

Branding and management deals in Hawaii, Uruguay, India and elsewhere

Before coronavirus: \$80 million
After infection: \$42 million

Shares of Hilton, Hyatt and Marriott all dropped more than 50 percent in recent weeks. It's hard to imagine the president's hotel brand is faring much better.



6 East 57th Street, New York

COMMERCIAL REAL ESTATE

Retail and office space in New York and San Francisco

Before coronavirus: \$1.9 billion
After infection: \$1.2 billion
Trump's portfolio includes 125,000 square feet of retail real estate near Fifth Avenue in Manhattan. With stores shut, retail values have plunged.

GETTY IMAGES



Mar-a-Lago, Palm Beach, Florida

TROPHIES AND OTHER PROPERTIES

Mar-a-Lago, Trump Tower penthouse, Trump Winery and other assets

Before coronavirus: \$348 million
After infection: \$295 million

Trump's shiniest trophy is Mar-a-Lago, the Palm Beach club. It's still valued more as a billionaire's toy than an operating business, seemingly leaving it less affected by the sudden downturn.

SHUTTERSTOCK



Trump National Golf Club Hudson Valley, New York

GOLF COURSES

Ten US golf clubs, three European properties

Before coronavirus: \$271 million
After infection: \$217 million

The good news: It's easy to social distance on a golf course. The bad news: Pricy clubs don't do well in recessions. "The first thing that gets cut out of the diet is the golf budget," says Jeff Davis, managing director of golf brokerage firm Fairway Advisors.



“Vivo India is the second biggest after China. Over the next five years, our plan is to shift gears from a follower to a leader.”

JEROME CHEN, CEO, VIVO INDIA



Veni, Vidi, Vici?

Vivo capped a splendid performance in 2019 by toppling Samsung to become No 2 in the October to December quarter. Can the Chinese smartphone maker maintain its winning run once the Covid-19 dust settles down?

By RAJIV SINGH

Simple things, reckons Jerome Chen, are easy to understand, but quite difficult to do. It's early March, Holi is just a few days away, and the only colour that's visible across the satellite city of Gurugram is blue hoardings of Vivo smartphones on huge metro pillars.

Sitting in a café on the ground floor of the Palms Spring Plaza building, just 100 metres from Vivo Sector 53-54 metro station in Gurugram, Chen looks bemused. Every day scores of bikers and speeding cars miss the U-turn on the main road that goes towards Delhi. A huge signboard reading 'Slow down for a U-turn' falls on their blind spot. "They just need to see the sign and follow it. It's that simple," says Chen, irritation in his voice quite palpable. "Simple things," reinforces the chief executive officer of Vivo India who came to the country in August 2014 to set up operations, "are difficult to do."

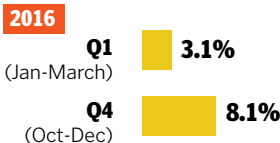
Three years back, towards the end of 2017, Chen too was guilty of oversight, and failing to do simple things. The writing was on the wall, but he couldn't see it. For a company that swears by the philosophy of slow is fast, over-speeding was turning out to be dangerous. In just a year, market share had zoomed from 3.6 percent in the second quarter of 2016 to 12.6 percent a year later.

Then, for the next three quarters, the inevitable happened. Vivo dipped to a low of 5.8 percent in the first quarter (January-March) of 2018, its lowest ever. "We grew a bit too fast. But we wanted to go at a faster clip," recalls Chen. "Kyon hua pata hai (I know why it happened)," he mutters. He's picked up a few Hindi words during his five-year stint in India. During good times, he underlines, it's all the more easy to forget simple things. The company, though, took a quick U-turn, and started doing simple things by sharply focusing on four key stakeholders: Customers, retailers, shareholders and employees.

The U-turn led to a V-shaped

OFFLINE WORKS

Brick and mortar retail volume market share



From 7th biggest offline player, Vivo ended the year by becoming **3rd biggest**



Becomes **2nd biggest** offline player by the end of 2017



Slips to **No. 3** in 2018



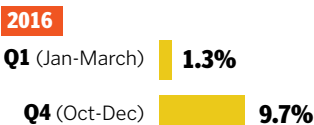
Becomes **biggest** offline player in last quarter



Maintains its **top position** in offline

SOURCE GfK data shared by industry officials

THE JOURNEY TO No 2



recovery. In the last quarter of 2019 (October-December), Vivo pipped South Korean rival Samsung to become the second biggest smartphone maker after Xiaomi. For a smartphone maker that shunned the online route taken by its rivals such as Xiaomi and opted for the traditional brick-and-mortar model to carve a place for itself, the success was even more satisfying. The second biggest player in India, which occupies the same ranking in its motherland behind Huawei, gets over 90 percent of revenues from offline sales.

Cut to mid-April. India is in the second spell of lockdown, Vivo Sector 53-54 Metro Station is shuttered and, although the roads are deserted, a few swanky cars and bikes can still be seen speeding on the empty stretches. "People just need to follow the simple rule of staying at home," says Chen, who declined to step out for a photo shoot or meet for a follow-up interview. "Isn't it simple? We just need to stay put wherever we are unless something urgent pops up," he says. "Well, we can always talk over the phone, can't we?" he says with a laugh.

SLOW IS FAST

For Vivo, the beginning was muted. For Chen, though, "slow was fast". For any Chinese brand, entering India in 2014 was not difficult. The country had seen a bevy of brands from Dragon Land such as Gionee, and the Indian or desi clones such as Micromax and Lava who were assembling the handsets imported from China. Though entry was easy and simple, winning trust was difficult. "People," recalls Chen, "perceived Chinese brands to be of low quality and cheap. Another damning perception was that the brands from China were in India to make money and run away."

JC—that's how Chen is addressed by his colleagues—decided to tackle the bigger challenge first: Battling perception and changing it. He, along with his team of loyal distributors who had come from China, fanned out across India to understand the need

of the market. Along with making progress on the retail front, what helped Chen was a concurrent slide in market share of HTC, Sony and other Chinese brands. The offline retailers, consequently, had to try the new kid on the block. The brand spent the first month in India selling around 100 handsets every day.

What also helped in beefing up the credibility of the brand was nil consumer complaints. In the third month, the offtake increased to 1,000 handsets every day, and then there was no looking back. The company, till February this year, was selling an estimated 71,000 units per day.

Back in 2014, retailers lapped up the generous margin offered by Vivo—an estimated 13-15 percent, much more than the 7-8 percent offered by most other brands. The third factor that helped cement a strong retail footprint was a dedicated team to look into distribution. One person was put in charge of up to 20 shops as against the industry norm of 1:50 or 1:100.

Adding more heft to the offline strategy was appointing Vivo Brand Ambassadors (VBAs): Young marketing executives, sporting Vivo-branded tees, and placed inside the shops. They soon became the face of the brand, and the first point of interaction with the consumers. Trust was slowly built, and the retail footprint was painstakingly expanded. But something else also happened, which made the other brands sit up and take notice. Vivo institutionalised a decentralised form of structure. Every state in India was headed by a Chinese distributor who had come to India when Vivo entered in 2014. Every state ‘company’—as Chen describes it—was allowed to frame its respective distribution and marketing strategy, suited to that particular region. A sense of ownership in the company and skin in the game helped fuel the retail machine.

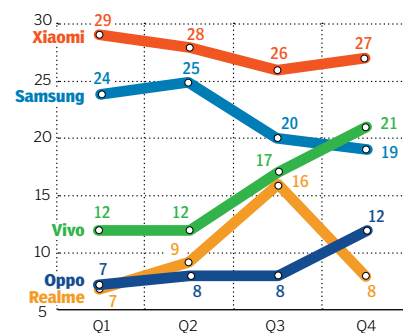
The army of retail distributors traces its origin to an existential crisis faced by BBK Electronics, the parent



“We believe in doing the right things, and then doing the things right. It’s simple.”

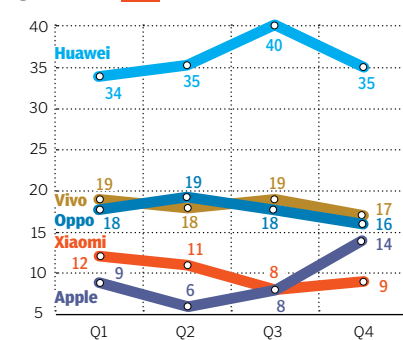
NIPUN MARYA
DIRECTOR, BRAND STRATEGY,
VIVO INDIA

THE TOP FIVE IN INDIA IN 2019...



Market share figures in percentage

...AND THE TOP FIVE IN CHINA



company of Vivo, Oppo, OnePlus and Realme, way back in 2012 in China. BBK, then into the business of feature phones, stared at a bleak future when the entire Chinese market overnight got hooked to smartphones as operators distributed handsets for free. Consumers were only asked to pay for data. “The change happened much faster than anybody’s expectation,” recalls Chen, who joined BBK in 2002.

Sitting on a huge stockpile of feature phones, which were twice as expensive as the newly-arrived smartphones, BBK was left with only one option: Liquidate the stock at a heavy discount. Retailers, along with the company, took a massive hit. But all stayed together. And when BBK entered into smartphones later on, all these retailers became an integral part of the company. “This is the culture of the organisation that helped it to survive the crisis,” contends Chen.

Vivo’s offline bet, reckon industry experts, was timely. In 2014, offline made up over 85 percent of the smartphone market. With a rapid decline in the fortunes of the Indian players, and a concurrent preference of all new players from China opting for online over offline, the brick-and-mortar distributors were left with only Samsung.

“The timing was right, and the market was ripe for Vivo,” says Tarun Pathak, associate director at Counterpoint Research. What also helped in standing out in a cluttered market was Vivo’s focus on music, even as everybody else was flaunting camera. “The gambit worked,” adds Pathak, adding that betting on offline distribution won the loyalty of the retailers who felt threatened by the online juggernaut. The icing on the cake, points out Pathak, was a lucrative retail margin offered by Vivo. Being ready with 4G handsets also proved to be a big blessing as the Indian ecosystem was fast moving away from 3G.

The brand, Pathak, underlines, also took a U-turn last year, in terms

of coming up with a special series for online only: U series. Though the company decided to do away with the online-only product, the success of the U series made it realise the importance of having a hybrid approach in gaining market share.

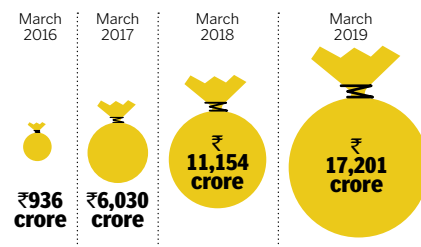
Nipun Marya, director of brand strategy of Vivo India, reckons that following the basics and slogging always helps. For any brand coming to India, online offers multiple advantages: No need for large infrastructure, one can bypass distributors, and a lean team will suffice. “You can just make a product and sell it online,” says Marya, who has had stints with Samsung and Lava before Vivo. In offline, he reckons, hard work is required. “That’s why Vivo is a labour of love for all of us,” he says, adding that the brand has a spread across 70,000 retailers and boasts of 30,000 VBAs.

Marketing experts reckon there is enough juice left in the offline model. When significant brands such as Xiaomi have reached pole position largely on the back of online, it takes some boldness to charter an offline path. “Vivo’s success, therefore, has a sweetness to it,” says Abraham Koshy, professor of marketing at IIM Ahmedabad. While consumers got a good “look and feel” of the brand, salesmanship of the retailers and VBAs worked in tandem to convert the sale, and add to consumer stickiness.

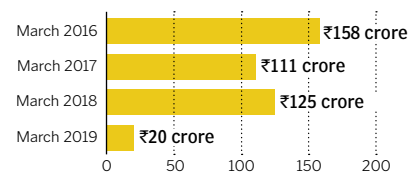
Aggressive marketing was capped by bagging the title sponsorship of the Indian Premier League, rooting for kabaddi—the second biggest sport in India after cricket—and roping in Aamir Khan as brand ambassador. “Speed or over-speed was the only thing that could have undone all the excellent work,” says Koshy, hinting at how the company slipped towards the end of 2017.

Back in Gurugram, JC points out what went wrong. The focus on market share meant that the retail footprint zoomed to over 1 lakh retailers and 60,000 VBAs. “This was

REVENUES HAVE SOARED....



...LOSSES HAVE DIPPED...



WHAT WENT WRONG IN 2017

- ◆ Lean portfolio in all price points
- ◆ Alarming pace of retail expansion hit the quality of offline control
- ◆ Aggressive push by Xiaomi
- ◆ Vivo was hurt by almost negligible online presence

not the right thing to do,” he admits. In the rural markets of Uttar Pradesh and Odisha, there were retailers selling only 30 units per month. “In some places even vegetable and shoe shops had Vivo branding,” recalls JC. All these hit the perception and value of the brand. “We realised we were doing it wrong. We were too eager to gain market share,” he rues.

There was another chink: A skewed product portfolio. Vivo focused more on higher priced products—over ₹20,000. The reason was wide consumer acceptance. When you launch a product, explains Marya, which is double the average selling price in the industry, and also gets a terrific response, it means more revenue. What the company failed to realise is that 80 percent of the smartphone market was below ₹15,000. “At that time, our low-end products were not as good as the top-end ones,” confesses Marya. The result was a steady slide in market share for over three consecutive quarters.

If the setback was striking, the comeback last year was astonishing. The retailer footprint was rationalised—it’s now at

70,000. The excessive VBA flab was shed—it now stands at 30,000, half of what it was during 2018. A renewed focus on the Y Series of handsets (those priced between ₹8,000 and ₹12,000) paid dividends.

A sustained omni-channel play with a presence across all mass price segments also aided in coming back into the game. Being an offline heavy brand, contends Navkendar Singh, research director at IDC India, it continued investments in the offline channel in the form of incentives, attractive margins and timely settlements of schemes, which helped maintain positive sentiment across the channel’s width and depth. Additionally, it also made a foray into the online channel, with the Z and U series. “These were aggressively priced with high-end specifications and found encouraging response from online buyers,” says Singh, who quickly adds a word of caution. Though Covid-19 is going to impact all brands, what might become more challenging for Vivo is an equally aggressive play by online-heavy brands such as Xiaomi and Realme in their offline push. “The competition in brick and mortar will intensify,” he warns.

JC, on his part, believes in keeping things simple. “We will keep doing the right things, and in the right way,” he says, explaining his approach. Since the lockdown the company has been conducting extensive online training of its VBAs. “I don’t care about being number 1, 2 or 3,” he adds. What matters most now, he underscores, is satisfaction of four stakeholders: Consumers, retailers, shareholders and employees. “It can’t be one at the cost of another,” he says.

When asked if the company has enough ammunition to survive the Covid-19 crisis, JC keeps his response simple. He smiles ear to ear, in the shape of a U, and flashes a V sign on a Zoom call. Whether we are in China or India, he asserts, it’s time to have a strong belief that we can overcome this crisis together. **F**

‘We Want to Change How Consumers View Chinese Brands’

When you work for ‘Godfather,’ you know how to survive. In fact, survival becomes a part of your DNA. In 2002, when Jerome Chen joined the army of Duan Yongping, the reclusive entrepreneur billed as Godfather of the Chinese smartphone industry, BBK Electronics was introduced into the education electronics and audio-visual segment making VCD and DVD players. Chen was, early on, introduced to the heroic tale of survival of BBK Electronics, when it faced its first major financial crisis in 1997, just two years after the foundation of the fledgling venture. The company somehow survived.

Then, in 2012, BBK, now a feature phone maker, was staring at an existential crisis. The Chinese market had overnight shifted to smartphones, and the handsets made by BBK were not only redundant but twice as costly as their smart counterparts. The company again survived. “The crisis made the company stronger and much more mature,” contends Chen, who came to India in August 2014 to launch Vivo, the smartphone brand which, along with Oppo, OnePlus and Realme, traces its parentage to BBK. The gritty warrior is now confident of fighting the Covid-19 setback as well. “We will survive because of the culture of the company to overcome a crisis.”

The CEO of the five-year-old smartphone company marshalled his resources to topple South Korean giant Samsung during the last quarter of 2019 (October-December) to become second biggest in India. The bigger challenge, though, is neither survival nor becoming the biggest.



“We want to change the perception of us being a Chinese company to becoming a global company,” he says in an exclusive interview with *Forbes India*. Excerpts:

On becoming the biggest in India

Whether we are No. 2, 3 or 1, we do not care about that too much. What I only care about is satisfaction for the four stakeholders: Customers, retailers, shareholders and employees. It starts with satisfaction of the consumers. Happiness of

the consumer is a pre-condition.

The profit or the market share is a result of doing the right things for these four stakeholders. Even when we became No. 1 in the offline market, and were overall second in the pecking order last November, we didn’t communicate it to the media. The news got out from the marketing research agencies.

On the leader versus follower narrative

It’s very different to be a follower and

a leader. When you become number 1, nobody will teach you. No one is your competitor anymore. Only you are your own competitor and only one thing—how you understand the consumer better than anybody and innovate products to meet their needs—is what would matter. For us it is more responsibility to be number 1 or 2. This means we need to do more innovative things.

We care more about how we can improve the brand perception and improve our customers' understanding. We are not following the competitor. We are following the consumer. We are following the culture. We are following our business philosophy. We are following our company's core values.

On the perception of Chinese brands in 2014

We didn't have a vision, but had a strong belief that we can change how consumers view Chinese brands. People at that time had a perception that Chinese products were of bad quality, were cheap and that most of them came to India to make money. And once they would make money, they would run away. We wanted to change this perception. We also wanted to change the mobile phone industry in India and change opinions of the retailers who had already worked with some of the Chinese brands in the past. Most of the Chinese companies in India were doing short-term business. They just earned some profit and ran away. Nobody wanted to do long-term business here. We wanted to change this.

On early aspirations

We didn't really target market share at that time. We just planned to survive in the Indian market. In the first month, we used to sell 100 handsets daily. By the third month, it jumped to 1,000 daily. At that time, we celebrated the milestone by cutting a cake. Over the next few months, when the sales became much

more, it became difficult to cut cakes for milestones (*laughs*). Actually, we have never looked at any of our competitors including Samsung. We were just doing our basic job: Training the sales team, the promoter's team, expanding our channel network and ensuring our sales team is very supportive to the retailers.

On meeting two early targets

We planned two things. First was to survive for five years. Fortunately, we did. We also planned for India to become a talent output centre for Vivo

“Whether we are in China or India or any other country, it is time to check our culture and strong belief that we can all come together and overcome this difficult situation.”

global. And this too has happened. The Vivo Italy team comes from Andhra Pradesh; the Spain team is from Gujarat. We also have a few people from India at the headquarters in China. The CMOs for Thailand and Philippines are from India. In fact, the team in Nigeria is from North East.

On initial challenges

When we came to India, we were not taken seriously. Many were not ready to attend our events or launch primarily because we were a Chinese company. When we gave our business cards, many retailers threw them in the bin. In fact, when we wanted to have a meeting with companies, we couldn't meet the CEO directly. We only got to meet people from purchasing. Not even


a manager, the junior most person would meet us. And they would make us wait for hours before meeting us. And then these meetings would finish in five minutes (*laughs*).

It was also very difficult to find distributors. Finally, in 2014 some distributors agreed to do business with us as their business with Sony, HTC and some other Chinese brands was shrinking. They agreed to try Vivo. Many Indian distributors had worked with other Chinese distributors and had heard a little bit about this organisation. So they agreed to try Vivo. The self-belief to succeed was always there. In fact, we even told many retailers that one day we will be the leader here. Nobody believed us then.

On the allegation of Chinese companies burning cash

Frankly, no one can say that we are burning money. No brands can be built without investing. And we don't think it is burning money. Investment doesn't come only from the finance people. Whatever money you spend for building the brand, all this is investment. I believe this has also been a reason for Chinese companies not being successful earlier. They did not take the money they spent here as investment and they always considered it as a spending only. And on spending you cannot get a return. You only get returns on investments.

On surviving Covid-19

We can. Our culture as a company has been to overcome difficult times. Sometimes we do make mistakes. But it depends on how you overcome them and how fast you correct them. We never make deadly mistakes. No matter good times or crisis, this company will be stronger and stronger. Now we face a big challenge of finding a cure for the coronavirus. No matter whether we are in China or India or any other country, it is time to have a strong belief that we can all come together and overcome this. 

Window of Opportunity

Yes Bank has managed to tide over the moratorium to find credible investors. The lockdown is the latest challenge for the troubled lender, but new CEO Prashant Kumar is confident of sailing through with a digital focus

By SALIL PANCHAL

Hours after the Reserve Bank of India (RBI) lifted the moratorium on Yes Bank on March 19, the troubled lender's newly appointed managing director and CEO Prashant Kumar decided to personally address customer concerns at the bank's

branches. What he saw at the Marine Drive branch in South Mumbai pleased him. "I was anxious that there would be a lot of customers. But there was no rush... I saw normal business and a few customers. It was comforting to learn that they were comfortable in dealing with the bank; there were no concerns and they had kept their

deposits," he tells *Forbes India*.

The interaction is hardly a metric to assess the bank's health, but its newly structured board and Kumar will be breathing easy. After all, the moratorium was lifted two weeks ahead of its scheduled date of April 3 once a restructuring plan was approved. Banking operations have resumed as usual for its corporate and retail customers, and across its digital channels. Investor and depositor fears have been assuaged with the infusion of ₹10,000 crore additional capital into the bank, after a reconstruction plan was devised by the RBI and the government. Yes Bank's common equity Tier1 (CET1), a key matrix, stands at 7.6 percent, against a worrisome 0.6 percent in December 2019.

Its newest investors are the State Bank of India—the largest public lender—housing finance firm HDFC and six private banks: ICICI Bank, Axis Bank, Kotak



To boost growth, Yes Bank's newly appointed CEO Prashant Kumar wants to focus more on retail deposits on the liability side

Mahindra Bank, Bandhan Bank, Federal Bank and IDFC First Bank.

During the lockdown on account of coronavirus, about 95 percent of Yes Bank's 1,135 branches are operational and about 80 percent of its staff is working from home. Kumar and about 5,000 employees attend office.

With funding and the moratorium concerns behind it, the Yes Bank stock now moves in a narrow band, trading at ₹24.15 at the NSE—albeit after it was removed from the index Nifty 50 and banking index Nifty Bank from March 19.

GOING RETAIL...

For the reconstruction of a new bank, the RBI superseded the previous board and nominated R Gandhi and Ananth Narayan Gopalakrishnan to join Kumar. The SBI nominated Swaminathan Janakiraman and Partha Pratim Sengupta to the bank's board. Sunil Mehta, former non-executive chairman of Punjab National Bank, is non-executive chairman while Mahesh Krishnamurthy and Atul Bheda are non-executive directors.

However, to create a new financial entity, Kumar will need to do everything different from what its founder-promoter Rana Kapoor did during the bank's glory days. Between 2008 and 2015, Yes Bank expanded rapidly nationwide and lent indiscriminately and aggressively to all, including shadow-lenders and real estate developers. This led to a weakening in asset quality, which became a solvency issue because its capital buffers were diminished due to persistent high growth, including in the most recent years. It was akin speeding without seat belts.

In 2016 and 2017, the bank reported divergences in its gross non-performing assets (NPAs), which led to falsely inflated profitability. The board did not take action against Kapoor, the bank's auditors or the senior management. As loans and credit flow worsened in the banking system, Yes Bank saw a sharp 39 percent erosion



“I expect a spike in unsecured retail loans... but at some point, there will be a collective impact on the retail portfolio, with rising unemployment and/or salary cuts.”

SASWATA GUHA,
DIRECTOR, FITCH RATINGS INDIA

in deposits in nearly 12 months: From ₹227,601 crore in March 2019 to ₹137,506 crore as of March 5, 2020.

“Our experience shows that it is not sustainable for a bank to be over-dependent on large-ticket lending on the asset side or bulk deposits on the liability side,” says Kumar. “Wherever there is an adverse economic cycle [as is now], the balance sheet of a bank will be challenged. We need to move to a granular portfolio—both on the assets and the liability side—to ensure long-term stability for the bank.”

“Our short-to-medium-term strategy will be to focus on the asset side by lending to retail and the micro and small business enterprises, so that the risk is well spread,” adds Kumar. About 43 percent of Yes Bank's loan book is towards retail and MSMEs, as of December 2019.

On the liability side, Yes Bank will try to focus more on bulk deposits from retail. Currently, retail term deposits constitute 31 percent

of its term deposits. “It is a long drawn battle... it will not change overnight,” explains Kumar.

...AT THE WORST POSSIBLE TIME

Yes Bank is still miles behind as it seeks to go retail. Large banks such as HDFC Bank and Kotak Mahindra Bank have grown in size with retail as their growth engine, as have mid-sized peers such as IndusInd and RBL. With balance sheets and income affected due to rising bad loans from corporate lending in previous years, retail had to be the way forward (see chart). Kumar and his team are trying to turn around the bank at a challenging time.

India is grappling with the coronavirus outbreak. And the standstill in economic activity means that growth for the first quarter of FY21 has been written off; activity may only be for nine months or less, depending on how long the lockdown persists.

The RBI has allowed all banks to offer customers a three-month moratorium. So, borrowers can skip their monthly instalment payments on home, personal, auto, education and working capital loans and credit card dues. Kumar says about 15 percent of Yes Bank customers have opted for the loan moratorium and about 4 percent toward credit card dues. However, banks are without their normal cash flows because of this. “The incentive to lend is also reduced,” says Saswata Guha, director and team head, Fitch Ratings in India, which does not rate Yes Bank, but monitors its developments. “Loan growth will be the biggest casualty [for banks]. Other than working capital, we expect the incremental demand for new loans to be quite low.”

Already, non-banking financial company Bajaj Finance says it saw a 22 percent drop in new loans sequentially, in the March-ended quarter, to 60 lakh and lost a million accounts due to the lockdown.

Yuvraj Choudhary, an analyst at Anand Rathi Securities, expects banks'

credit growth to slow down and asset quality to deteriorate further. "Loan growth for several banks will be in low single digits in FY21," says Choudhary. Total bank credit growth in India is at a 50-year low of 6.14 percent, according to RBI.

Both Choudhary and Fitch's Guha fear an increase in retail NPAs with the lockdown extended to May 3. Unsecured personal loans, two-wheeler financing, SME and loan against property are all likely to witness asset quality stress in FY21.

"I expect a spike in unsecured retail loans such as personal loans and credit cards. But at some point, there will be a collective impact on the retail portfolio with rising unemployment and/or salary cuts," says Guha. Yes Bank already has gross NPAs of 18.87 percent as of December 2019. Kumar's retail

"Covid-19 has created fresh uncertainties and strong banks will sail through. For us, scaling would continue for some time. My biggest challenge will be to rebuild customer trust."

PRASHANT KUMAR,
CEO AND MD, YES BANK

strategy will be to leverage the bank's strong digital platform. "We have a lot of deposits which flow through our system, including remittances or NEFT, RTGS transactions," says Kumar, adding they will be used to tap new customers.

TOUGHEST PHASE

Yes Bank also has the approval to raise an additional ₹15,000 crore. Of this, the shareholders have approved the raising of ₹10,000 crore. If the remaining amount is raised through rights issue, shareholder approval is not required, says Kumar. This is likely to happen in the April-June quarter, either through a rights offering or a foreign convertible bond issue.

Kumar, however, admits that the bank's toughest phase is "not over".

"Covid-19 has created fresh uncertainties and strong banks will sail through. For entities like us, scaling would continue for some time. My biggest challenge will be to rebuild trust in the bank among customers," says Kumar.

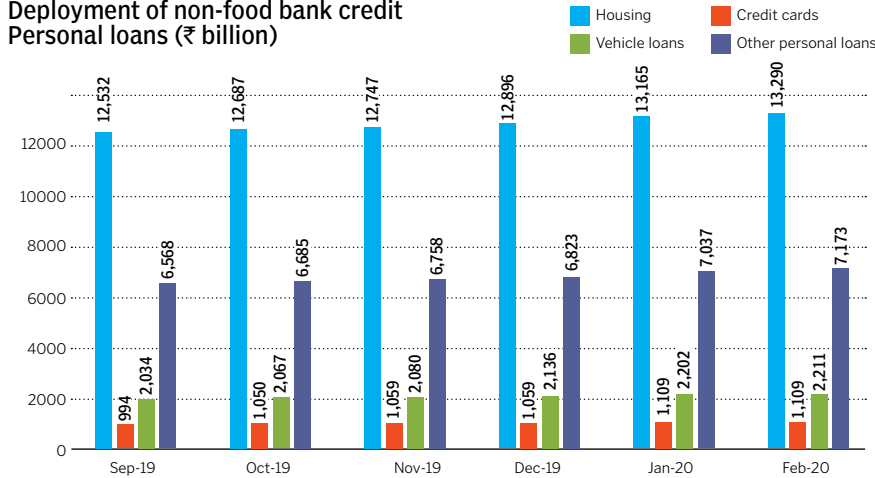
The CEO has outlined deposit mobilisation as a key focus in the near term. But Yes Bank may find it difficult to strengthen its liability franchise immediately, as customers have found more confidence in banks such as HDFC Bank and Kotak Mahindra Bank which have seen strong deposit growth in March.

Strong capitalisation will also have to be maintained. Indian banks have, historically, been weakly capitalised and even a moderate level of stress is enough to impact a bank's balance sheet. The stagnation in economic activity means that a majority of sectors across manufacturing and services will see lower growth even after corporates and businesses are allowed to resume operations. "We are in an unknown unknown, it is not even known unknown," says Guha.

Kumar's intentions to go retail and boost deposit growth are workable, but in a normal economic scenario. The strength of Yes Bank's digital banking platform should help it retain customers. If the bank pulls through this phase, it would help erase negativity surrounding it. The strength of Yes Bank will be tested and seen over the next six months.

THE CROWDED RETAIL BANKING SPACE

Deployment of non-food bank credit Personal loans (₹ billion)



SOURCE: RBI, Centrum Broking

YES BANK: KEY FINANCIALS

	FY17	FY18	FY19	9MFY20
Net Profit	3,339	4,233.22	1,709.27	-19,047
Net interest income	5,797	7,737	9,809	5,532
Total Deposits	1,42,800	2,00,738	2,27,610	1,65,000
Total Assets	2,15,000	3,12,445	3,80,826	2,90,980
Return on Assets (%)	1.8	1.6	0.5	-7.6
Gross NPAs (%)	2	1.28	3.22	18.87
*CET1 ratio (%)	11.4	9.7	8.4	0.61

*CET1 ratio is a measure of a bank's capital against its assets

SOURCE: Yes Bank investor presentations; Moneycontrol; BSE; ICRA; India Ratings & Research

₹ Crore

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Entrepreneurs vs Covid-19

Seven startups that have stuck their necks out, innovated and made the fight against coronavirus a common goal

By VARSHA MEGHANI AND NAINI THAKER





At any rate, the widening coronavirus crisis can be characterised as a black swan—an unforeseen event with drastic consequences. True to its nature, it has sent markets reeling, stalled economies and brought life to a halt. India's startup community, however, is showing no signs of abating.

A Gurugram-based startup's offering, for example—artificial intelligence-driven monitoring of CCTVs in prisons—appears seemingly unconnected to the crisis. Yet the co-founders found purpose amidst the pandemic. They modified their solution to work on a mobile phone, instead of a CCTV camera; taught the software to recognise a patient coughing instead of a truant prisoner. Hospitals

with low medical staff are ideal use cases for this kind of contactless monitoring. Similarly, a robotics startup based out of Kerala, repurposed its androids to serve patients in isolation wards. A mobile app allows nurses to map the sequence of beds for the food-and-medicine-tray-carrying bot to follow. There's also a Mumbai-based maker of sanitary napkins who could have carried on with business as usual given the essential nature of its wares. But when the co-founders learnt that the raw materials used in menstrual hygiene products and surgical masks are similar, they retooled their machines to make the latter.

A selection of seven companies that is taking the battle against coronavirus head-on:

Asimov Robotics: Bots To The Rescue

When Jayakrishnan T first heard about coronavirus, it took him back to the difficulties health care workers had to face during the Nipah virus outbreak, in Kerala in 2018. While Nipah was far more dangerous, containing the spread of coronavirus is not turning out to be easy either. Kochi-based Asimov Robotics, however, has been at the forefront, playing a key role by deploying robots in hospitals. In order to have fewer health workers come in contact with Covid-19 patients, Jayakrishnan thought of creating the 'Karmi-bot', which can provide essential services like food and medication to patients inside isolation wards.

In March, Jayakrishnan and his team deployed two robots in nearby offices in Kochi, for about 10 days to spread awareness about the disease and the precautions that could be taken. "The robot would play videos created by the World Health Organization [WHO]... during lunch breaks, it would interact with

(Top) Kochi-based Jayakrishnan T of Asimov Robotics has created the 'Karnibot', which can provide essential services like food and medication to patients inside isolation wards

Asimov Robotics has been getting inquiries from various state and central governments across the world for the robot

humans and answer any questions that they had about the pandemic, using data and information provided by WHO," says Jayakrishnan.

Currently the Karmi-bot—driven entirely by artificial intelligence and machine learning technologies—has been equipped with "a tray that can carry both food and medicines, a detachable UV-ray disinfectant box [to disinfect patients' used items] and an automatic disinfectant sprayer for cleaning hands after eating food," he says. The bot can be placed near the nursing station, where food and medicines for up to five beds (about 25 kg) can be loaded. Using a mobile phone application, nurses can select

the sequence of beds, thus mapping the route for the bot to travel.

While serving food, the bot is equipped to prompt patients to clean hands using the disinfectant. It also allows patients to have human interactions with the caregivers through the screen on the bot, via video calls. "The UV rays used to disinfect the detachable box are only turned on when the bot is on the move. The minute it stops or the box is opened, the light turns off automatically since they [UV rays] can be harmful for the human skin," says Jayakrishnan.

The team says in case of an issue, 85 to 90 percent of the problems with the bot can be fixed remotely, unless it is a hardware problem.

Recently, the first Karmi-bot was deployed at the Cochin Medical College. Asimov Robotics has been getting a number of inquiries from various state and central governments across the world for the robot. In order to scale up, the team is in talks with some manufacturing facilities, but "the lockdown itself is proving to be a hindrance", says Jayakrishnan.

• NAINI THAKER

Qure.ai: Door-to-door Tests



Prashant Warier says the qXR technology can be used to conduct preliminary tests for Covid-19

Prashant Warier and Pooja Rao set up Qure.ai about two-and-a-half years ago to make quality health care accessible and affordable by using technology. They started with the most common form of medical imaging technique: X-ray.

Qure.ai's qXR uses artificial intelligence and machine learning (ML) technologies to interpret chest X-rays within seconds. Warier, who is CEO and co-founder, says, "We

have a database of 2.5 million chest X-rays that has been used to train our ML algorithms." Currently, qXR can detect 20 types of abnormalities, and identify and mark out the contours of each. "Several publications have shown that our algorithm is more accurate in interpreting chest X-rays than radiologists," he adds.

The company first applied this technology for the diagnosis of tuberculosis (TB) and deployed it in about 15 countries. Whether

or not a person has lung TB can be confirmed by a Genexpert test, which costs \$10 to \$30 (₹750 to ₹3,000). However, Qure.ai's solution can be used as a preliminary test. "Only if the X-ray test turns out to be positive, the patients need to do the Genexpert test. X-rays are cheap anyway," says Warier.

The Qure.ai team realised that making minor tweaks to the technology can help in detection of Covid-19 patients, since it is also a pulmonary condition. According to the company, the technology could be used first to determine the order of treatment, since there aren't enough test kits, and second to see how a patient is recovering during the course of the treatment. "A mobile van with an X-ray machine can go door-to-door to test patients. The qXR technology can detect an abnormality within seconds. If a person tests positive, a swab could be collected for the PCR [polymerase chain reaction] test, which is required for Covid-19 diagnosis," says Warier. With this method, the doctor can better understand the extent to which the lungs have been affected. Consequently, the right combination of drugs can be prescribed. "You can reach a much higher population with the same number of kits as well as remote places that might not have the infrastructure to do the [PCR] testing," explains Warier.

Qure.ai—a grantee of India Health Fund, an organisation seeded by Tata Trusts to identify and support breakthrough innovations—is in talks with several global organisations and governments to use its technology to ramp up Covid-19 testing. So far, qXR has been deployed in 40 hospitals in South Asia, Europe and North America, and has processed 5,000 suspected Covid-19 cases per week. In India, Warier says, "The challenge is that the Indian Council of Medical Research has not recommended treatment based on X-rays."

• NAINI THAKER



Docturnal: Banking On Data

Set up in 2016, Hyderabad-based Docturnal launched TimBre—its flagship mobile phone application—to detect patients with lung TB. The sound of an individual's cough is recorded on a third-party microphone by a medical practitioner and processed in real time to detect if the patient has TB. “We are trying to replicate what a pulmonologist does. Here, the machine learning [ML] model becomes an experienced pulmonologist,” says Rahul Pathri, founder and CIO. With the quality and quantity of data that has been collected over the years, the team is confident of the application's accuracy. It says the same technology can be used to detect if a person has Covid-19 or not, given that it is also a pulmonary disease. “The pre-beta trial has been completed. We are now in the beta stage and in talks with ICMR to help us with actual patient



Rahul Pathri of Docturnal is adapting TimBre to detect Covid-19 from the sound of coughs

data for the ML model,” he says.

However, the technology that was created for TB was a business-to-business model, catering to hospitals. Docturnal plans to make the application available to customers, with a ‘do-it-yourself’ (DIY) test—for asymptomatic Covid-19 patients—which could be used as

a preliminary test. Apart from this, the company, which is incubated by Social Alpha, has plans to launch a symptom checker as part of its app.

With TimBre, the testing is controlled by a health worker. For the Covid-19 DIY testing tool, however, the Docturnal team is yet to work around some challenges. “Data might be affected by simple changes in parameters. For instance, if the subject is sitting or standing or the distance of the phone from your mouth. A protocol needs to be set for this,” says Pathri, adding that according to the test guidelines, the individual is to cough while wearing a mask.

The team is awaiting Covid-19 patient data from various hospitals and ICMR. Once the data is updated in the ML model, after a short trial with ICMR and the required approvals, Docturnal is confident of taking the platform to the market. The pricing will be around ₹100 per test. “Our focus is not the volume of data, but the type and diversity of the data that we get,” he says.

• NAINI THAKER

Innaumation: Masks With A Difference

In 2016, Vishal Rao and Shashank Mahesh set up Innaumation, a medical devices company, to cater to those who lost their voice due to throat cancer. There were devices available in the market that could make them speak, but they were expensive.

The duo designed Aum Voice Prosthesis, a device made of silicon, costing about \$1 (₹70 apiece). The innovation was based on the fact that puncturing the food pipe could turn it into voice box.

Incubated by Social Alpha, the company has now created Laryngeal Bibs for its patients. “These patients have a hole in their throat, which means they can't use regular masks,” explains Rao, co-founder



Shashank Mahesh, Innaumation's co-founder, with a Laryngeal bib

PANDEMIC IMPACT

of Innaumation. The company has designed bibs that function like masks to ensure that patients can protect themselves during the coronavirus outbreak. “Cancer patients and elderly people are more prone to coronavirus due to their low immunity. In our case, it’s a double whammy because most of our patients are elderly and have other illnesses too,” says Rao.

The design team thought of an innovative idea of creating the design for the bib, which looks like a scarf. Instead of a regular mask for

the throat, creating a bib allows cancer patients to effectively cover their throat, which is their new nose. “One of the main innovation was building a heat moisture exchanger, which can moisturise the lungs. The material used to make the bib is water proof, so even while they are bathing, the throat is protected,” says Rao.

The company is ready with raw materials to expand its production capacity for these bibs. Currently, it is providing bibs to patients free of cost.

Seeing the rise in demand for personal protective equipment (PPE) for health care workers, Rao and his team are looking at ways to manufacture PPEs as well.

“We are talking to experts to see if we can use the same material to manufacture PPEs. We are working to scale this up and will begin manufacturing the equipment since it is the need of the hour,” he says. “This [the lockdown] is a true test for any innovator, thanks to the limited time, financing and manpower.”

• NAINI THAKER

Saral Designs: A New Face



Suhani Mohan (right) and Kartik Mehta (behind her) modified their machines to produce 3-ply face masks instead of sanitary napkins

A few months ago, Suhani Mohan and her co-founder Kartik Mehta were pondering over new product launches in the hygiene space. Saral Designs, their five-year-

old Mumbai-based, Acumen-funded startup, not only made low-cost, high quality sanitary napkins but also devised—and sold—the machines that made them, spawning 30 micro entrepreneurs across India.

“Suddenly the Covid-19 crisis came to India,” recalls Mehta. And masks were the need of the hour. Says Mohan, “Surgical masks on Amazon were out of stock and the cost had increased by almost 10



times.” Saral’s customers started reaching out to ask whether their sanitary pad-making machines could be repurposed to create masks.

So the duo, both IIT-Bombay graduates, began studying how surgical masks are made and learnt that the non-woven raw materials used in sanitary napkins are similar to those used in masks. Immediately the design team, led by Mehta, got to work. Within days—working remotely amid the lockdown—they made modifications to their machines so that they could churn out 3-ply masks instead of sanitary napkins.

But the lockdown posed problems. “We could not find suppliers who could fabricate the components that we needed to modify our machines,” says Mehta, who serves as CTO.

Undeterred, Mohan, the CEO, started shooting out emails to everyone she knew. One of them was a junior from her alma mater who works at the Mahindra Group. “I wrote to her, saying your factories will have these tools and components that we need... will it be possible for us to use them?” says Mohan. Within four hours, the head of Mahindra Automotive

got in touch, extending a lifeline.

The car-making giant fabricated the components Saral needed to modify their machines. Saral tested the components, developed prototypes and, once satisfied, shifted base to Mahindra’s facility in suburban Mumbai for mass production. All this within a week of Mohan’s shot-in-the-dark email. Today, they produce and ship 30,000 masks a day to state governments, via Mahindra’s CSR wing, for distribution to frontline workers. “This has been a dream collaboration,” smiles Mohan.

• VARSHA MEGHANI

Biodesign Innovation Labs & AgVa Healthcare: A New Lease Of Life

Prior to the Covid-19 outbreak, hospitals across India had all of 40,000 ventilators, according to one manufacturer. Of these, about 20 to 25 percent are dysfunctional, leaving around 30,000 to 32,000 functional ventilators. By pumping oxygen into the lungs of patients, ventilators are critical for those in danger of lung failure, experienced by about a tenth of Covid-19 patients.

At maximum output, Bengaluru-based Biodesign Innovation Labs (Bild) can produce about 400 ventilators in a month. While AgVa Healthcare, a Delhi-based ventilator manufacturer, can make 300. But that’s not going to be enough. So they called in help.

AgVa struck a partnership with Maruti Suzuki India to help with mass production. According to the terms of the agreement, AgVa,



Gautham Pasupuleti of Bild, which makes automated versions of manual ventilators

which sells ventilators at ₹1.5-2 lakh, compared to imported versions that cost upwards of ₹5 lakh, is responsible for the “technology, performance and related matters” of the ventilators, while the carmaker will reach out to its suppliers to produce the required components as well as “upgrade systems” for the production of higher volumes. The partners plan to produce 4,000 units in April, and 10,000 units by May. “The aim is to hit 20,000 ventilators a month as soon as possible,” says Diwakar Vaish, AgVa’s co-founder and CEO.

Meanwhile, the three-year old, Birac-supported Bild, which makes automated versions of manual ventilators costing ₹50,000 to ₹70,000, had been carrying out clinical trials at various hospitals when the Covid-19 crisis struck. “We suddenly received a surge of orders,” says Gautham Pasupuleti, CEO and managing director. To meet the demand, Bild has tied up with Remidio,



a Bengaluru-based maker of ophthalmology devices, to make 15,000 ventilators over the next 1 to 2 months. Bild will transfer the technology and expertise to them and ensure all compliances are met, says Pasupuleti. The startup is also in talks with Tata Motors and

construction machinery maker JCB India for possible partnerships.

But how easy is it to repurpose factories that make cars or construction machinery to now make ventilators? “Making a ventilator is much easier than making a car,” says Ramesh Singh, professor of

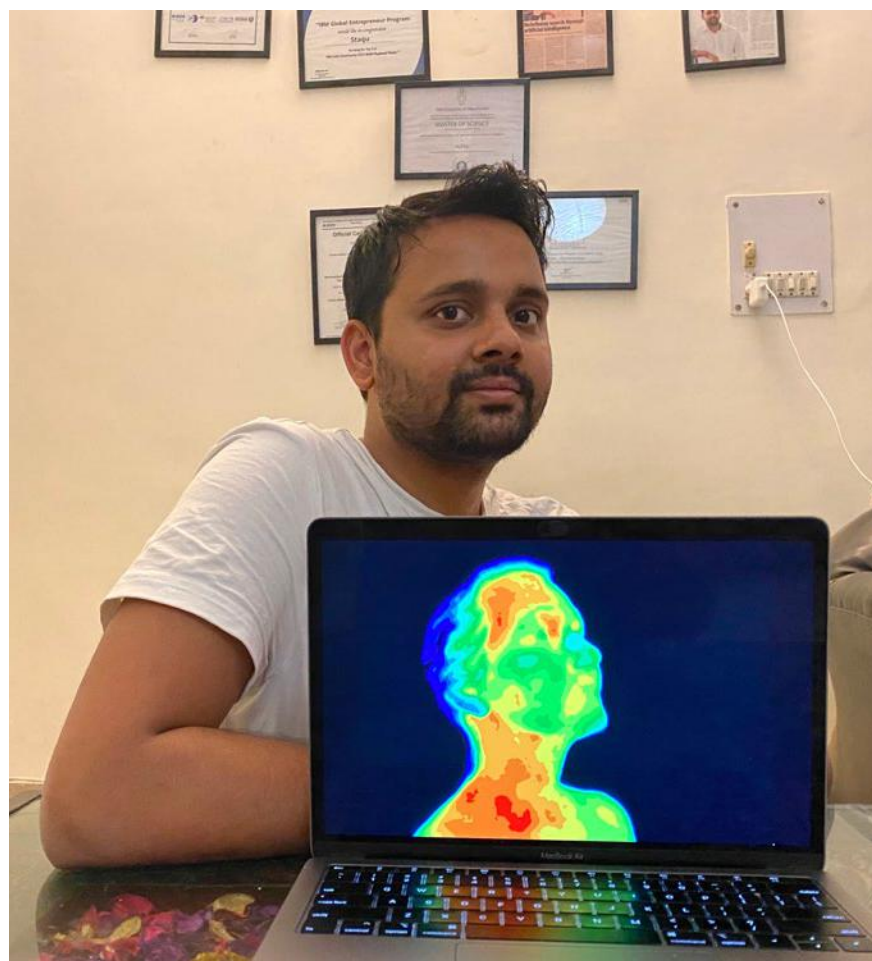
mechanical engineering at IIT-Bombay. Ventilators themselves are not complex devices, besides automobile manufacturing in India is of “very high quality and competency. So they can definitely do the ramping up process”.

• VARSHA MEGHANI

Staqu Technologies: Contactless Monitoring

In early March when the government issued a guideline that prison inmates and those visiting them must wear masks, Atul Rai immediately got to work. Staqu Technologies, the Gurugram-based startup he co-founded with three others, was already helping the police in Uttar Pradesh monitor CCTVs in prisons, using artificial intelligence (AI). Nicknamed Jarvis, this AI warden monitors 3,000 cameras in 70 prisons across the state. The band of co-founders modified the technology to identify those flouting PPE compliances in prisons because “manually doing so would be impossible”, says Rai. To broad base its use, Staqu further modified the technology to work in places like temporary hospitals where there are no CCTV cameras. “Let’s say this outbreak happens in a huge manner. It’s possible that we might not have enough medical staff to deal with it. In that case, you can use your mobile phone as a streaming device,” says Rai. If a patient coughs, for instance, that will be detected by the adapted Jarvis and relayed to a command centre. A nurse can then tend to the patient. “This allows for contactless monitoring,” says Rai.

Now Staqu has launched an AI-powered thermal camera to detect body temperatures at a range of 5 to 10 m. “A thermal camera basically calculates the temperature of the whole environment where it is placed and gives you the pixel-wise temperature of each of the objects



Atul Rai of Staqu Technologies, which uses thermal cameras to detect body temperatures

in the scene,” explains Rai.

The technology itself is not new; in factories with heavy mechanical operations, it serves as a preventive maintenance tool to detect overheated or overloaded components. Staqu modified the technology to identify the temperature of the human body, particularly uncovered parts

like the face or hands, rather than all the objects in the scene.

The Indian Angel Network-funded startup is in the process of finalising contracts with “some airports” looking to leverage this technology to pre-screen travellers for Covid-19, says Rai.

• VARSHA MEGHANI



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Imaginarium, a Mumbai-based boutique 3D printing firm, whose focus has been on jewellery, furniture and medical implants, is now racing to make PPE face shields and 3D-printed circuit splitters that will allow multiple patients to use a single ventilator

The 3D Mobilisation

The unorganised and sluggish 3D printing sector could have a windfall gain as companies make PPE and other critical equipment to fight the Covid-19 crisis

By PANKTI MEHTA KADAKIA

A few days before Prime Minister Narendra Modi announced the first nationwide lockdown to control the spread of the coronavirus on March 24, an intern at Boson Machines, an additive manufacturing startup based in Mumbai, pitched an idea: With the situation getting worse, could 3D printing help?

Until now, the company's focus has been on manufacturing the 3D printing machines themselves. Overnight, they found an open source design and printed a sample of a plastic face mask, similar in design to the N95 that is in great demand at the moment. "That's what lit the spark," says Arjun Panchal, 25, who co-founded Boson Machines with

his brother, Parth, 27. "The next day, I saw a tweet from a doctor in Bengaluru saying there's a huge requirement for certain products. We immediately set things in motion."

The Panchal brothers consulted with physician Dr Swapneil Parikh, who has co-authored a book called *The Coronavirus: What you Need to Know about the Global Pandemic*. Parikh has helped Boson Machines develop its core products in response to the Covid-19 crisis: Medical grade face shields made of PVC, with an elastic polycarbonate headband that has foam cushioning.

Face shields are considered an integral part of the PPE (personal protective equipment) for health care workers, adding a layer over the face mask and protecting the

wearer from any contaminated droplets they may encounter.

Boson has delivered more than 12,000 face shields since, to hospitals including Jaslok, Kasturba, KEM and Cooper in Mumbai. "Four days ago, our capacity was to produce 800 pieces per day. But now, with the help of the Maharashtra government, we can make 6,000 masks a day," says Arjun.

The project is entirely crowdfunded—the duo raised close to ₹21 lakh in five days ending March 30 on crowdfunding platform Ketto, after running a campaign with social media celebrity Kusha Kapila. The state government asked them to amplify production, and fast-tracked all permissions needed. Boson has now developed a network of about



150 3D printing machines, so the face shields are being printed at factories from Vasai to Colaba, then brought to their headquarters in Goregaon for the final assembly and quality checks.

Like Boson, many startups with access to 3D printing facilities have stepped up to help provide health care equipment across the country, using inventive designs—and developing entirely new business models in the process too.

For instance, Bengaluru-based Harkness Screens, a 90-year-old company that makes cinema screens for the country's leading multiplexes, has now taken to 3D printing face shields, along with PVC aprons and curtains for doctors and quarantine centres, which can be sprayed with sanitiser and quickly disinfected.

Mumbai's Imaginarium, whose core business is 3D-printed jewellery, has all hands on deck to make face shields too. Imaginarium is also attempting to produce circuit splitters for ventilators, so multiple patients can use the same ventilator—as is Bengaluru-based Ethereal Machines, a deep tech startup that builds CNC (computer numerical control) machines, hardware and software, which control processes such as 3D printing.

"I'm a motorcyclist and I've always been fascinated by the story of Ducati, which started off making radio equipment until after their factory was bombed in the Second World War," says Preetham Daniel, senior vice president - Asia, Harkness Screens. "BMW began as a jet engine maker. I'm always fascinated by such stories, and consciously keep them in mind. To me, this situation is nothing less than a war. Companies will need to adapt. Who knows, our future might be in medical grade equipment."

Daniel says he and his company had no prior experience in the field—"I didn't even know what a face shield was, I was calling it a visor," he laughs—but they could leverage their expertise in dealing

with the PVC fabric, which is also used in their cinema screens.

While they started with an open source design, they had to tweak it to suit local needs. "Open source designs are a great start point but they are very generic," he says. "For example, it's common in India to have longer hair—in the original design, if the doctor had a braid tied, the headband would just slip off. We had to make the back protected such that it would stay in place under any condition."

They have produced 4,000 each of face shields and curtains, and should have a total of 25,000 face shield orders fulfilled by the end of the month, hoping to escalate to 1,50,000 in the next order batch. Two thousand aprons will be delivered after restrictions are lifted.

BATTLE TO BREATHE

India is estimated to have 40,000 ventilators, of which about 20 to 25 percent could be dysfunctional; that leaves about 30,000 to 32,000.

In a worst-case scenario, India will need between 1.1 lakh and 2.2 lakh ventilators by mid-May, says a study from US-based think tank Brookings Institution.

"If people don't stay home and we can't control this, we're in deep trouble," says Kaushik Mudda, co-founder of Ethereal Machines, which raised \$1.25 million last year from investors including Bloom Ventures, Citrus Pay founder Jitendra Gupta and others. "It could take about three months to make so many ventilators; and those that companies like Mahindra are putting their might behind are essential war solutions, but not the complex ventilators we need to really get the job done. We started thinking about what the next best thing was to augment ventilator capacity."

Ethereal started working on their solution on the day PM Modi announced the first phase of the nationwide lockdown. "It's been crazy," Mudda says. "The first five



(From left) Parth and Arjun Panchal of Boson Machines make 3D printers, but are now working with hospitals to make face shields, valves for oxygen masks and plastic masks

PANDEMIC IMPACT

days, we were just driving around from hospital to office, without permits, braving it out, hoping that if somebody stopped us, we would explain to them what we were doing and they would let us go.”

In the second week, they got permission from government authorities to make ventilator equipment. “We decided to put our deep tech expertise to use,” he adds.

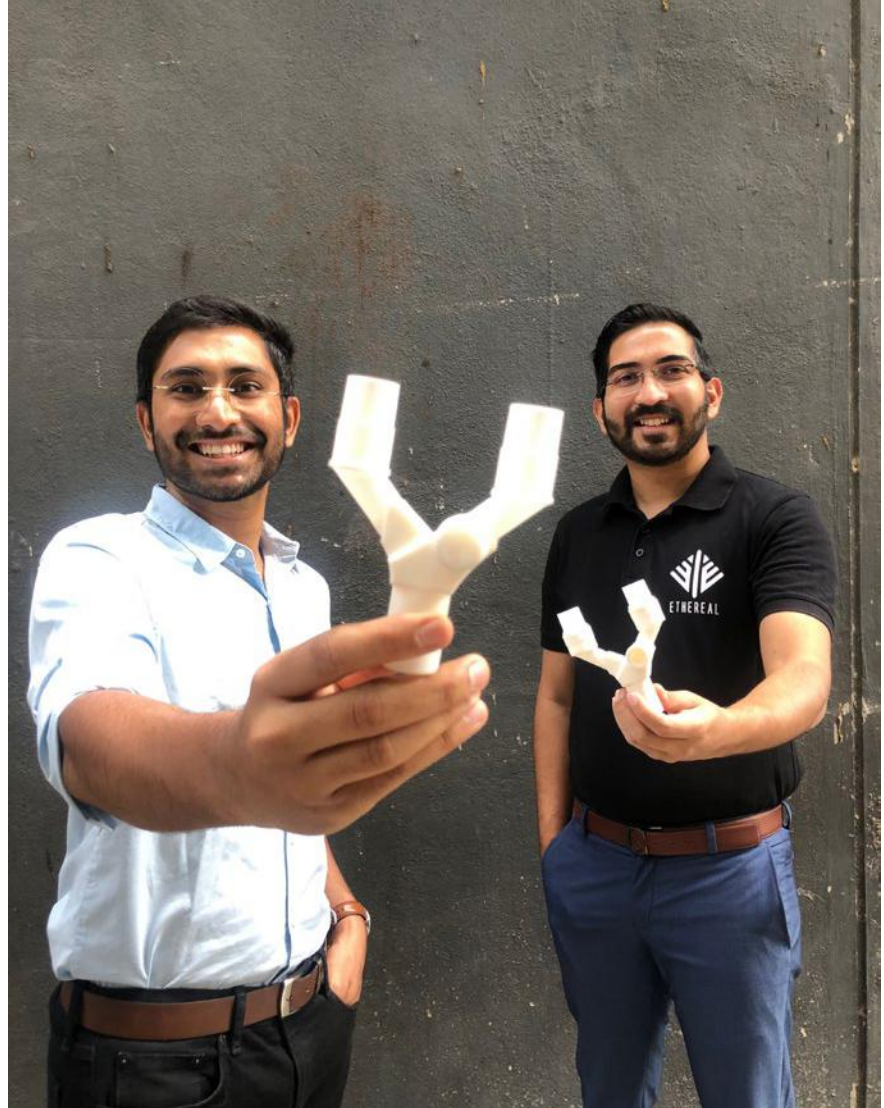
As the crisis played out in Italy, when doctors had to pick and choose between patients, the idea of a 3D-printed splitter came to the fore—where an extra attachment is built for the outside of the ventilator, where the oxygen supply goes from. It splits the supply 50:50 amidst two patients.

“It’s an extreme, last-resort measure,” cautions Mudda. “When we started talking to doctors here, we realised that the issue on ground is with that 50:50 ratio. Different patients have different requirements, and the equal split often ends up making one patient collapse faster while the other recovers. The actual split required could be 30:70 or 40:60, depending on the health of each patient.”

The other issue is of cross-contamination of previous, other illnesses between the patients. Mudda and his team began working on ‘differential ventilation’ that can also prevent cross-flow and claims to have cracked it for the first time in the world. “We were no experts in ventilators or pulmonology, but we sat with doctors to understand how ventilators work. It took us eight iterations over 10 days to perfect a prototype. That speed is thanks to 3D printing.”

Across the world, 3D printing is being used for quick prototyping. It doesn’t need expensive, cumbersome mould making, and lets you print minimal quantities and modify designs down to details. All you need to do is then download the design and procure the material needed.

“3D printing immediately puts



(From left) Kaushik Mudda and Navin Jain of Bengaluru-based Ethereal Machines are making parts for ventilator splitters

out results, and time is absolutely essential right now,” Mudda adds. “We’ve finalised on a design and as we speak, it’s being tried on a test lung. But this is one of those few times when I’m hoping someone doesn’t have to use what I create—it’s really an extreme, last-case measure.”

The 3D printing technology also enabled Inali, a non-profit in the assistive health care field, to quickly iterate a smart ventilator design. Inali, which works between Vadodara and Pune, has been making affordable prosthetic arms for certain upper limb disabilities since 2015. It uses 3D printing extensively to create prototypes. The company’s founder and CEO Prashant Gade, through a course in Paris, has found mentorship in multinational software firm Dassault Systèmes, which specialises in 3D software and engineering.

As part of Dassault’s open innovation and startup accelerator programme, the 3DExperience Lab, Inali began work on a rapid prototyping system in early April. “With permissions in place, we can create 100 ventilators in 15 days,” says Gade. “3D printing lets us use simulation and modelling to see how the system will actually behave, without rigorous trials needed. We’ve got permission from local authorities to travel for material and research, and have built our prototype.”

Inali’s ventilator automatically measures pressure—giving a patient extra pressure could kill him or her—detects leakage and volumes, among other parameters that WHO recommends for monitoring coronavirus patients. The prototype is pending medical approval with government



Preetham Daniel's Harkness Screens usually manufactures cinema screens, but since the crisis began it has pivoted to making face shields and aprons using 3D printers

authorities at the time of writing.

TURNING POINT?

The full potential of 3D printing is yet to be seen in India, where adoption has been largely fragmented. According to a 2018 report by Wohlers Associates, a 3D printing market research firm, India makes up 3 percent of total 3D printing units in the Asia-Pacific region, while China and Japan hold 35 percent and 30 percent respectively.

One of the factors is the prohibitive cost of the machines themselves—the most basic 3D printer variants can cost between ₹2 lakh and ₹5 lakh. The second factor is time; while the technology is great for rapid prototyping, it is slow to mass produce.

It takes six to eight hours to make one unit of the ventilator splitter, explains Mudda of Ethereal

Machines, and about 1.5 hours to create a single face shield, says Panchal of Boson Machines.

“Unless you have a whole line of 3D printers continuously working, you can’t get into the volumes required to address this immediate crisis,” adds Daniel. “In a normal situation, it would have been fine. But right now, demand is running into thousands a day. Even at about 35 minutes a piece, it really takes a toll on the machine.”

Most startups, then—besides Boson, which has enlisted a wide network of printers that are constantly running—are limiting the use of 3D printing to the prototyping stage. Conventional processes like injection moulding, instead, prove more cost effective and efficient to mass produce.


“We went from dumbphones to smartphones in just about two or three years,” says Imaginarium founder Guruprasad Rao. “But even after 30

years of existence, 3D printing has not commanded that kind of disruption.”

One of the main problems, Rao adds, is that there is no concept of economies of scale in 3D printing. Even in mass production, it could cost about three times as much to produce a single 3D printed face shield (Harkness estimates this cost at about ₹65), versus that of injection moulding (in which cost could come down to as low as ₹20 per piece).

“However, we choose to leverage the technology’s strengths instead. So as a company, we work on making one-of-a-kind jewellery pieces, or patient-specific implants. For example, every person’s skull is different. If someone has an accident, their skull will need a uniquely shaped implant, and that kind of custom build with biocompatible or implantable material is made possible by 3D printing.”

In crises like the current pandemic, such strengths could outweigh the technology’s weaknesses. “Certainly, the global pandemic has given a tremendous boost to the 3D printing industry,” says Bhavesh Kumar, SIMULIA lead, India, Dassault Systemes. “However, if we have to make 3D printing successful in India, we first need to build a strong foundation of know-how. In post-Covid India, we should see companies exploring how 3D printing can cater to local demand that was not considered earlier. It is also important to identify the right demand in the market, connect with the right stakeholders and respond expeditiously.”

Currently, when logistics are proving to be a huge challenge because of the lockdown, 3D printing could help fix the critical supply gap of PPE and medical equipment. “Even if I have the capacity to produce 30,000 units, I might not be able to distribute them to where they are needed,” adds Mudda. “Meanwhile, if someone in, say, Kolkata, can download my design, print and hand it over to a local hospital, it might help save lives.” 

The Social Network

A number of crowdfunded and community-based initiatives has come forward to combat the social and economic fallouts of the Covid-19 outbreak

By **KATHAKALI CHANDA** and **DIVYA J SHEKHAR**

MAHESH VENKATASUBRAMANIAN



Residents of Chennai's Zone 13, including Archana Hari (centre), crowdfunded ₹22 lakh for their neighbourhood's 1,038 conservancy workers

It all started with a Facebook post. On March 16, as social distancing was being advised to contain the spread of Covid-19 in India, freelance digital marketer Mahita Nagaraj put up a message on her wall, asking whether her friends who stayed overseas would like her to check in on their near and dear ones, especially the

elderly, in Bengaluru. The response was overwhelming—the post was shared and re-shared, and requests poured in from those asking for help as well as those volunteering it. Within 24 hours, the post snowballed into a Facebook community, Caremongers India, as 200 members joined it from across the country; the number rose to 3,500 in the next three days.

On March 20, Nagaraj acquired a new mobile number to operate as a helpline for Caremongers India. “I was naive enough to believe I could handle operations on my own. Once the phone number was given out, 800 to 900 calls started coming in a day,” says the 38-year-old single mother. But even then, the community was just beginning to grow. The explosion



RENJEN PAVITHRAN

happened after the national lockdown was announced on March 24. “About 80 percent of the help requests we got were from senior citizens. They were the most affected by the lockdown, because of their reliance on outside help, be it their maid, driver etc. Now, in under a month, I don’t think there is a single state in the country from which we haven’t received a request,” says Nagaraj.

While some Caremongers offer physical assistance by running errands—like delivering medicines to an HIV patient in Noida, or food to a post-operative patient in a Bengaluru hospital after its in-house catering unit shut down overnight due to the lockdown—some others help out in spirit by offering contacts and even calling up to check in on members through the period of isolation.

“We are so touched by what these youngsters are doing in times of need,” says Anju Chopra, a retired advertising professional from Kolkata. Chopra, 65, is recovering from a fractured femur, while her 71-year-old husband is diabetic. Caremongers allocated an IT analyst to help them out with the supply of their weekly groceries and provisions. “One day we were running out of money. I gave him a cheque and told him it might take over two days to get encashed. He just got us the cash the next day, no questions asked,” adds Chopra.

Nagaraj borrowed the concept of ‘caremongering’ from a BBC article about the trend in Canada, where community-based altruistic initiatives have seen a spurt in the wake of the pandemic. A play on the word ‘scaremongering’, while being antithetical in its essence, fitted the motto of the group: Of building solidarity. That it would escalate into a pan-India movement with over 32,000 volunteers by the second week of April is something she considers almost a quirk of fate.

While the Covid-19 outbreak has turned out to be as big a humanitarian crisis as it has been of public health, it



Mahita Nagaraj, founder of Caremongers India, started a community-based altruistic initiative to help citizens, especially the elderly, who are affected by the lockdown

has also seen a surge of crowdfunded and community-based initiatives to fight the economic and social fallouts of the pandemic. The national lockdown has mandated that most of the people across the country should stay indoors, but a few communities and volunteers have been selflessly stepping out, risking their own health to mitigate the suffering of the most vulnerable sections.

Be it running community kitchens for destitutes or migrant labourers who find themselves stranded as businesses wind down for the month or longer, supplying rations to the underprivileged, looking after abandoned pets and strays, or raising funds to organise personal

There’s an awareness that in the absence of government help people will have to do what they can in their own capacities

protective equipment (PPE) kits for frontline health care professionals, civil society has stepped forward to stem the downward spiral.

Sociologist Dipankar Gupta believes that more people coming forward to help others indicates an increasing collective awareness that, in the absence of immediate government help, people will have to start doing whatever they can in their own capacities. “A pandemic like this reflects the true essence of people in many ways,” he says.

Consider that in the five weeks that crowdfunding platform Milaap opened up its channels for Covid-19 focussed fundraisers, over 68,000 donors have collectively contributed nearly ₹72 crore across 900 campaigns (as of April 13) initiated as much by NGOs and corporates as by individuals.

“Whenever there is a natural disaster or something that impacts livelihoods, lives, or infrastructure for a lot of people, we notice a wave of collective endeavour by the public,” says Mayukh Choudhury, co-founder and CEO, Milaap. “The first time I saw this was during the Chennai floods in 2015, and it has been

the same subsequently. Bigger the disaster, bigger the public response. We have built our capabilities based on this phenomenon.”

According to data research firm Statista, transactions across crowdfunding platforms in India are valued at \$1.8 million as of 2020. The number of fundraising campaigns in India is expected to increase from approximately 16,000 in 2020 to 24,000 in 2023.

While Statista will take into consideration the specific impact of Covid-19 on the country's crowdfunding segment only in Q2 2020, all the platforms *Forbes India* spoke to have dedicated fundraising pages and resources to handle the increasing number of people wanting to either run their own campaigns or donate to existing ones during the pandemic.

While platforms like Milaap and Ketto—where another 500-odd Covid-19 related fundraisers are in progress—have waived off the 5 percent fee they charge on the total amount raised, they also form credible intermediaries between multiple strata whose paths may not have crossed otherwise. For example, Ketto has helped Sujit Dilip, the proprietor of Rambo Circus, raise ₹8.5 lakh to feed his team of 90 artistes and a few animals, after they were forced to shut since March 13, when the Maharashtra government ordered a closure of malls, auditoriums, and theatres. “This will help us meet the basic expenses through this month. But if this crisis goes on for longer, it will drive us towards extinction,” says Sujit.

Crowdfunding has also enabled IIM-Bengaluru professor Shankar Venkatagiri and his teacher wife Sangitha Krishnamurti transform casual drawing room chatter into action and raise over ₹20 lakh to buy ventilators and PPE kits—the former crucial for critical patients and the latter comprising the first line of

HISTORY SPEAKS

In the past, civil society around the world has often stepped up during disasters

1985

Earthquake, Mexico City

Group of youngsters started rescuing hundreds of people, despite having no training, experience or equipment. A year later, they formed an official search and rescue organisation 'Topos de Tlatelolco'

2001

September 11 terror attack, USA

Between 30,000 and 40,000 volunteers arrived spontaneously at Ground Zero. The Red Cross received 22,000 offers of assistance during the first two weeks after the attack

2009

Black Saturday bushfires, Australia

Two farmers formed a voluntary organisation BlazeAid to clear debris and re-build over 400 km of fences in Victoria. Members of the non-commercial social club Four Wheel Drive delivered caravans to families, cleared debris, re-fenced properties, delivered hay, and helped the fire brigade

2010

Earthquake, Haiti

Online crisis map set up by the students of Haiti University manually processed, crowdsourced and reviewed 1,500 reports through an open-source platform called Ushahidi; aided and rescued 10,000 people through their SMS service

2011

Earthquake, New Zealand

A student volunteer army and the farming community provided an estimated \$1 billion worth of labour in relief work in the first week after the disaster in Christchurch

2015

Earthquake, Nepal

In roughly 45 days, crowdfunding sites raised over \$20 million

2017

Hurricane Harvey, USA

GoFundMe raised \$41.6 million from 209,000 donors; corpus used to repair and rebuild over 600 homes and 420 child care centres, distribute 26 million meals, provide health care for over 6,500, and distribute medicine to more than 10,000 patients

2019

Australia bushfires

Over \$3.4 million raised by over 65,000 donors across over 700 pages on GoFundMe. Around 44,000 international donors raised over \$1.9 million on the platform for the Port Macquarie Koala Hospital

2019

Typhoon Wipha, Hong Kong

YouTuber Jason Chau started a crowdfunding campaign to help people affected by the typhoon, over 4,000 Hong Kongers donated more than ¥13.8 million

SOURCE: Media Reports

defence for health care workers—for St John's National Academy of Health Services in Bengaluru. In under 24 hours of uploading their fundraiser on Ketto, the duo raised ₹5 lakh; in three weeks, they met their goal, and then some more.

“All we did was talk about it and push it just a little. My husband shared it on Facebook and LinkedIn, and I posted it on my fledgling Twitter account. Initially, we had some idea about who was donating—friends, their friends. But after ₹5-6 lakh, we didn't even know; the campaign took on a life of its own,” says Krishnamurti. “The only reason I am talking to people about this initiative is I want to put it out there that it's pretty easy to do something if someone tries. I find it very hard to ask people for money, so if I could do it, pretty much anyone can.”

Help also streamed in once eight residents from Chennai's Zone 13 (that stretches from RA Puram to Thiruvanniyur along the coast) decided to raise some money to incentivise the locality's conservancy workers who've maintained a near-complete attendance despite the lockdown. They launched their campaign on Milaap along with the Janta Curfew on March 22, when Prime Minister Narendra Modi implored citizens to applaud frontline workers by clapping or clanging utensils.

“We wanted to go one step beyond applauding and show our appreciation in a more tangible way,” says Archana Hari, a resident of Besant Nagar. “Most of these workers come from slum areas, are breadwinners, and earn barely enough to make ends meet in their families. We decided to raise some money for a direct benefit transfer so they have the agency to decide how to spend it.”

The campaign ended with nearly ₹22 lakh from about 618 donors, including a 93-year-old grandmother who goaded her entire building and her family in the US to contribute.



The entire corpus was disbursed among 1,038 workers on April 14, on the day of the Tamil New Year. The next day, the local kids gave handmade ‘Thank You’ cards to the workers in their respective localities. “In our regular life, helping others or giving back takes a lower priority, which is normal. But when it comes to a crisis, we see those less gifted than us go through much tougher times. That pushes us to go beyond our routines to see how we can help those affected,” says Archana, who volunteers with a few non-profits.

Pitching in to fight the pandemic isn’t merely about money, but also to ensure the social fabric isn’t ravaged by the crisis. Aching loneliness is a recurrent theme that transcends age groups and social classes through times of forced confinement. A group of 10 friends—film-makers, lawyers, journalists, urban history researchers, among them—from Kolkata, who were deeply involved in a number of socio-political movements before the lockdown, grasped the anxiety the isolation caused citizens when their own activities came to a grinding halt.

On March 24, as Modi announced the national shutdown, they launched a radio streaming service, Radio Quarantine Kolkata, to foster connectedness and camaraderie over airwaves. Hosted on free web-based platform ZenoRadio, RQK is a 24x7 station with a mix of pre-recorded and repeat programming, and ratcheted up over 5,000 listeners (3,820 among them unique) in nine days.

“We thought radio will be an appropriate medium to reach out, because, first of all, it’s fairly easy to set up a station even when each of us is working from our respective homes. Also, generating content for radio is not as big a hassle as trying to make video content. Creating audio content is as easy as recording this phone call,” says Kasturi Basu, documentary film-maker and a trenchant activist.



Activist-filmmaker Kasturi Basu and her friends run Radio Quarantine Kolkata from their respective homes, fostering connectedness and camaraderie over airwaves

“Besides, it’s a medium that makes people nostalgic as well as gives them a break from the constant attack of images.” The content, mostly in Bengali, is a veritable potpourri, ranging from children’s programmes (occasionally hosted by a teacher based in Norway) to current affairs and analysis, and is rounded off with a few hours of music that lasts till 2 am.

Basu is also part of the Public Monitoring Initiative, a loose network operating in West Bengal and beyond that caters to unorganised

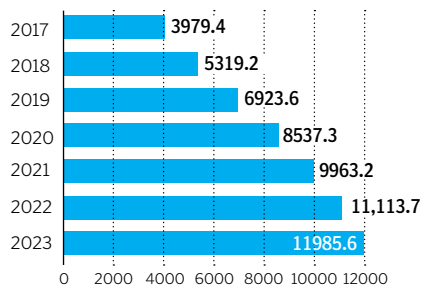
workers, stranded migrant workers and others who make distress calls for unpaid rations and wages. “We have access to the internet, phones and a network where some of us are IAS officers, or some of us know someone in the police or the administration, or are able to reach local NGOs or political parties. We make use of these tools to amplify cases and resolve them,” says Basu.

With about 700 volunteers operating through a Facebook group, Basu claims to have reached out to over 5,000 workers, bridging the information gap over their allowances and redressal mechanisms. “One of our biggest peeves is that the government should have disseminated information to these groups in the middle of this pandemic, but hasn’t. So we pick up the loose ends.”

Making government schemes work for citizens is a motto that drives Kuldeep Dantewadia, co-founder of Reap Benefit, a not-for-profit that enables citizens to solve problems in the local wards, neighbourhoods and communities of Bengaluru. In 2019, Reap Benefit was building a

WHAT'S IN THE POCKET

Transaction value of crowdfunding around the world (in \$mln)



SOURCE Statista; numbers beyond 2019 estimated



Karan Berry (left) and Leon Vaz of Karleo, a fashion brand from Mumbai, repurposed its export order for masks and delivered them instead to BMC for its high-risk workers like cleaners and sweepers

hyperlocal dashboard that would allow citizens to reach out to their local representatives and lobby with them to address pressing civic issues. Even as the team was prototyping it, Covid-19 invaded India, forcing Reap Benefit to transform into a database where people could crowdsource information about infection hotspots, availability of groceries, medical help etc.

The dashboard now has over 65,000 data points and has impacted about 30,000 families. In the last nine days of March, it had between 13,000 and 15,000 views, of which a fourth were returning users.

“Over the mid-to-long-term, the dashboard will become a physical tool, acting like an assisted marketplace to the government and citizens. We are working on mapping all the ₹2 lakh

crore-plus that have been allocated for schemes introduced by the state and the national governments. And we want to get the civil society and citizens together in helping the government deliver these schemes to the people who really need it,” says Dantewadia, who has already

The NRAI is making use of its infrastructure, manpower and stocks to serve meals to migrant workers and help halt reverse migration

expanded it to eight cities.

It’s a similar sense of the greater good that prompted a turnaround for Karleo, a Mumbai-based fashion brand that specialises in bridal wear. It repurposed its mask export orders to the US, Italy and Lebanon and delivered them to the Brihanmumbai Municipal Corporation (BMC) instead. The civic body governing Mumbai then provided these masks to high-risk workers like cleaners and sweepers.

Karleo, whose parent company Elliven Exports clocks a turnover of ₹3.5-4 crore per annum, had already created the mask prototype in sync with export guidelines when the pandemic exploded in India, and it approached BMC with a proposal to deliver 5,000 non-medical masks free of cost. Stitched across five



clusters in Mumbai—south Mumbai, Worli, Bombay Central, Mira Road and Jogeshwari—the company has deployed work-from-home women and daily wagers, seven to 10 in each cluster, who've lost employment due to the complete shutdown of business in the state.

“Our whole model is contactless. Once the masks are made, the women pack and seal them, and drop them in a basket in front of their house. We have deputed one person per cluster to pick them up and bring them to our office where we sanitise, iron, pack and hand them over to the BMC,” says designer Leon Vaz.

Like Karleo, the National Restaurant Association of India (NRAI), which represents over 5 lakh eateries in the country, is making use of its established infrastructure, its trained manpower and stocked-up essentials to serve meals to migrant workers and help halt reverse migration, which was the biggest worry faced by Vinay Pratap Singh, the municipal commissioner of Gurugram.

“We have been able to raise over ₹60 lakh, plus have received 6 tonnes of groceries [equivalent to nearly 13 lakh meals, valued at about ₹2 crore] from various NGOs, individual restaurateurs and housing societies,” says Amit Arora, the Delhi chapter head of NRAI, and founder of Buddy Group. The initiative, which has already served over a million meals, is commendable as the F&B industry has set aside worries over its own uncertain future and come together to ‘Feed the Needy’, as the campaign is called.

Brought up in the restive Punjab of the early 1980s, Arora isn't a stranger to curfews or the template of cooking communal meals at restaurants; he has replicated the model in the NCR region, ensuring equitable disbursement of meals on either end of the social spectrum—tony neighbourhoods like Greater Kailash on one hand to far-flung




Kuldeep Dantewadia, co-founder of Reap Benefit in Bengaluru, started a hyperlocal dashboard to address pressing civic issues and has now transformed it into a Covid-19 database

areas like north-west Delhi or the Gurugram-Manesar Road on the other. In the initial days, the supply chain was broken in places but, Arora claims, the Delhi and Haryana governments have ironed out the details in the subsequent weeks.

“The entire government machinery has been extremely helpful in making

sure we get the vehicle passes, the personnel passes; even landlords have been helpful in enabling us to open up our kitchens during the lockdown period, with the right permissions of course,” says restaurateur Zorawar Kalra, who joined the initiative in anguish after watching thousands of migrants walk towards the Uttar Pradesh border on the Gurugram-Faridabad road. “We are in the business of feeding people and this is the best way we can give back.”

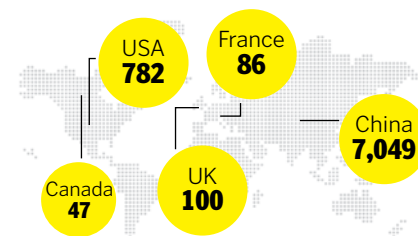
Like the novel coronavirus that knows no boundaries in who it infects, community initiatives too have bridged gaps to combat its perils. “The big divide [between the new, rich Gurugram and the old] has been broken. It's heartening to see the city rise as a community as people from across socio-cultural milieus are organising over a lakh meals a day,” says Vivek Kalia, estate officer, Gurugram and the nodal officer for food distribution within the city during Covid-19.

Perhaps in it lies the outbreak's biggest takeaway. 

• WITH ADDITIONAL REPORTING BY MANSVINI KAUSHIK

WHAT COUNTRIES DONATE

Value of crowdfunding transactions (in \$mln) before Covid-19 outbreak



SOURCE Statista

CROWDFUNDING IN INDIA

\$1.8 million: Transaction value of crowdfunding campaigns

16,000: Approximate number of annual campaigns

\$112: Average funding per campaign

Fate of Food

How agritech ventures are attempting to fix the supply chain that has collapsed during the pan-India lockdown

By NAINI THAKER

Dinesh Tomar had been pacing around in his 500 sq ft house in Tauli Bhud, Uttarakhand, since 9:45 am on April 14, 2020.

In about 15 minutes, Prime Minister Narendra Modi was to address the nation about the coronavirus pandemic. While, at the back of his mind, the wheat farmer knew that an extension of the lockdown was much needed, he couldn't help but wonder how badly this would affect his crop. "This [April] is the most

crucial period for us. *Poore saal ki kamai abhi mult hai* [we earn for the entire year now]," he says. The pandemic has proven to be a great challenge. With no transportation and bare minimum labour, he adds, "if the pandemic continues, my fear is our wheat will stock up, and eventually rot". As expected, Modi announced an extension of the lockdown till May 3, with an ease in some guidelines from April 20.

Although there are guidelines in place, the current disruption in

the supply chain has most farmers like Tomar worried. With bare minimum sale taking place since the lockdown was announced on March 24, what will farmers do with the excess supply? And not just farmers, most of the others in the supply chain—be it wholesalers or retailers—are struggling with either a complete stock-out, or oversupply.

Bengaluru-based agritech venture

The volume of goods at Azadpur Mandi, in north Delhi, has halved due to the lockdown





Krishihub reckons it has a solution: A non-commercial crowdsourced dashboard that brings together sellers, buyers, agri-machinery providers, ambient and cold-storage providers, logistics service providers, pan-India, by location. The dashboard, called Essential Commodities Exchange, has been created along with SatSure, a data analytics company helping farmers be financially secure and have crop insurance, Numer8, a data-science company, and ThinkAg, a platform for agri and food innovation. “This enables stakeholders to know what is available in which location and with who, and acts as a public good in helping reduce shortages and wastage during the lockdown,” says Jyotiska Khasnabish, co-founder and CTO of Krishihub, a B2B platform that enables farmers to sell their crops directly to businesses at a better price. “For certain perishable crops, farmers are selling their harvest at a loss in order to clear their inventory. We have also seen the news of grape farmers dumping their harvests in the ground,” he adds, highlighting why a dashboard like Essential Commodities Exchange is necessary under the current circumstances.

Like Krishihub, a clutch of agritech startups are working on different parts of the supply chain, and trying to streamline the process. One that is looking at the basics—delivery of inputs to the farmer’s doorstep—is Pune-based AgroStar. Founder Shardul Sheth points to another challenge. “The sowing for the kharif crop is to begin soon, especially in Rajasthan and Haryana. But due to the pandemic, farmers are paranoid, and refuse to leave their homes. So there is no sowing happening.” That impacts AgroStar, which is currently working at about 50 percent of its total capacity. In the last two weeks, Sheth has managed to get permissions from state authorities to begin operations in Maharashtra and Rajasthan. “So far there has been a 20 percent dip in demand for inputs from farmers, but



Rajiv Mehta (left), an area sales manager of Agrostar, delivers bajra seeds to Nilesh Patel, a farmer in Vadodara district, Gujarat

we are doing our best to get operations up and running so that we can reach as many farmers as possible,” adds Sheth.

While Agrostar caters to farmers’ input needs, Bengaluru-based Ninjacart goes a step further, and helps farmers connect directly to retailers by placing their orders on the Ninjacart app. The company’s first priority was to strengthen the

existing engine, but it quickly realised they had to do more because of consumers’ limited movements. Some of the solutions that Ninjacart came up with within a span of 48 hours, points out Vasudevan Chinnathambi, co-founder, Ninjacart, “include taking our trucks directly to apartments and setting up a mobile store. Over the last two weeks we have tried to make the experience a lot smoother.”

If the good old kirana stores are turning out to be the saviours for many during the lockdown, it’s also the efforts of grocery-focused business-to-business (B2B) ecommerce players that are helping keep the shelves of these mom-and-pop shops stacked. One such venture is the Bengaluru-based Jumbotail, which works with over 25,000 kirana stores across Bengaluru and Telangana.

In the current crisis, Jumbotail has identified about 500 SKUs (a stock-keeping unit is a distinct item type for sale with a unique code), out of its 3,000+ SKUs as absolutely essential items, and are working with suppliers to make them available. The company claims to be working at full capacity despite the challenges. Co-founder Ashish Jhina says this is because of the five-year-old startup’s robust supply chain, driven entirely by artificial intelligence and machine learning technologies, which allows



SELVAPRAKASH LAKSHMANAN

“As we control our supply chain, we can make changes quickly and redeploy resources.”

ASHISH JHINA
CO-FOUNDER, JUMBOTAIL

PANDEMIC IMPACT

them to serve about 5,000 households daily. “At a time like this, as we are in control of our supply chain, we have the ability to make changes quickly and redeploy resources,” adds Jhina.

At a time when most companies are facing a shortage of labour, Jumbotail has managed to rope in workers from non-essential services. “We are working with non-essential services companies to utilise their workforce to ramp up delivery capacity. Our fully automated in-house supply chain is designed for quick onboarding with just 1 to 2 hours of training and we are leveraging this to bring in more pickers and delivery executives into our system,” adds Jhina.

Agritech startups have been doing their bit in terms of innovating, but existing grocery delivery players such as BigBasket, Grofers and Amazon have seen unprecedented growth in the past few weeks. Not only has BigBasket started hiring executives to meet this demand, they have also tied up with Uber to deliver essential services across India. Other online ventures like Curefit, Zomato and Swiggy have also extended their services to deliver essential commodities to customers.

Thousands of kilometres away from the sporadic bustle outside grocery stores in the cities, Shaukat Khan takes stock of his harvest in Kupwara in Kashmir. Since the pan-India lockdown began Khan, who harvests walnuts, almonds and apples, has been sitting on a pile of last year’s crop that is steadily rotting away in his backyard. “Wheat and a number of other grains are a part of the minimum support price (MSP, a price the government guarantees farmers for their produce), and so those farmers have the benefit of the government buying their crop, no matter what,” he explains. The harvest season for his current crop begins in June, and the impact of the ongoing lockdown will severely affect the next season’s sowing due to lack



“Their [farmers’] biggest fear is who will buy their produce, since logistics is not easy at the moment.”

NUPUR AGARWAL
FOUNDER, KIWI KISAN WINDOW

of liquidity. “We will have to sell at extremely low prices once things get back to normal,” says Khan, adding that he hopes for some ease in the lockdown for farmers like him.

Khan is not the only farm worker living on hope. Since the 21-day lockdown was announced, the entire food supply chain has been disrupted. Since mid-April, there has been a relaxation for grocery and

general stores, food transportation, food processing industries outside municipal limits and those engaged in harvesting, procurement and markets. Still, normalcy in supply may be some time away.

Hemendra Mathur, Venture Partner at Bharat Innovation Fund, an early-stage venture fund that invests in agri innovation startups (among other sectors), believes there’s enough supply but it is the supply chain that needs to be fixed. “The stock is not moving, which is why we have seen much reduced arrivals over the last two weeks,” adds R Ramakumar, Nabard Chair Professor, School of Development Studies, Tata Institute of Social Sciences. Krishihub’s Khasnabish says demand for his venture has fallen as “many of our customers—restaurants, hotels—have shut down indefinitely. So we had to move our focus to grocery stores, apartment blocks and housing societies.”

With the demand-supply equation going awry, pricing has taken a hit. Mathur states that given the restrictions on movement, “the prices of fruits and vegetables will be much lower, if they are sold closer to the location of production. And in other places, where there is demand but



A Jumbotail staff member in a Bengaluru warehouse scans a QR code for the drop location of a consignment of grocery and staples to one of the thousands of kirana stores in the city



restrictions on movement, prices will increase.” According to data provided by the government’s Agricultural Marketing Information Network, prices of potatoes, for instance, have increased across states. In Uttar Pradesh, for instance, they had risen from ₹1,208.72 per quintal in March to ₹1,449.51 per quintal by April. The reason for the price rise: Disruptions in the supply chain, which would take a few more weeks to normalise. “It is not the farmer that is benefitting out of this price rise,” adds Mathur. “It would be one of the front-end players in the supply chain.”

Lack of labour during the lockdown is one big reason for the supply chain disruption. This has had a direct effect on both transportation and harvesting, where mechanisation levels are low. Workers are also needed at the processing units and factories.

CRITICAL PERIOD AHEAD

For wheat merchant Umeshbhai Radadiad of Junagadh-based Om Wheat Process, like wheat farmer Tomar, these few months are extremely crucial. “Unfortunately, our business is currently running at 25 percent capacity because instead of a staff of 50 to 60 people, we have only 10 people,” he explains, reiterating that the farmers would be most affected. “They might sell their stock at whatever price they get.” However, over the last few weeks farmers are finding ways to address the lack of labour: By swapping labour, or getting workers from other non-essential sectors like blacksmiths or relying on the migrant workers who managed to leave the big cities.

Transporters too, at the time of writing this article, were running at minimal capacity in the absence of drivers, and not enough produce (except for essential commodities) to ferry. Parth Vaghasia, owner of the Junagadh-based Parel Transport, says, “Currently we have two to four trucks moving as opposed to 40 to 50 trucks we had earlier.”

SUPPLY CHAIN AND CHALLENGES AT EACH STAGE

Farmers



- ◆ Lack of labour
- ◆ No transportation available
- ◆ APMC markets shut
- ◆ Excess crop piling up
- ◆ No liquidity to buy next season's inputs

Wholesalers & Processors

- ◆ Hotels, restaurants and cafes shut, drop in demand
- ◆ Lack of labour
- ◆ Excess stocks piling up
- ◆ Difficulties in transportation
- ◆ Fewer private players as clients



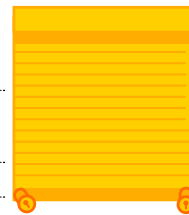
Transporters



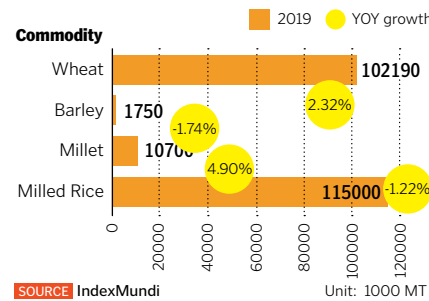
- ◆ No drivers available
- ◆ No stocks being transported, apart from essential goods
- ◆ Only 5% of business functioning
- ◆ Trucks being stopped at every district border

Retailers

- ◆ Stocks sold out, hence need to shut down
- ◆ Due to restricted movement, excess stock rotting away
- ◆ Lack of labour



RABI CROP PRODUCTION (2019)



Most of his truck drivers have gone back to their villages, fearing the pandemic. Vaghasia adds, “Even to transport agricultural goods [that are categorised as essential commodities], we have to convince our drivers to go. We assure them of their safety by providing them with sanitisers, masks and gloves as precautionary measures.” Vaghasia’s trucks are currently transporting essential goods to Delhi, Rajasthan and Maharashtra; at each district border the drivers are stopped for checking. While Vaghasia

agrees it is a necessary measure, according to reports, there were 5 lakh trucks stranded on highways and at state borders as of April 2, 2020.

Like agritech, social entrepreneurs are also doing their bit to help streamline the supply chain, especially for farmers. Nupur Agarwal, who set up the Kiwi Kisan Window (KKW) in 2017, is now working with farmers directly to generate employment by procuring fruits, vegetables and grains from them. She then processes these at a unit in Vikasnagar, Uttarakhand, and sells the produce via the KKW retail outlets. KKW is providing its 3,500 farmers seeds and fertilisers in these tough times, says Agarwal. “Their [farmers’] biggest fear is who will buy their produce, since logistics is not easy at the moment.”

The April 15 guidelines address a lot of pain points of farmers. However, Tiss’ Ramakumar warns, “These [guidelines] maybe look good on paper. But there may be multiple bottlenecks that arise in the supply chain at the ground level.”

He adds that the state governments need to fine-tune the guidelines as per their conditions, and iron out new bottlenecks that arise every day. For instance, in some parts of the country, like Mumbai, despite what the guidelines state, vegetable and fruit vendors continue to remain shut due to the severe impact of the pandemic. Local authorities also need to be in tune with the new guidelines. “For instance, if trucks are full of goods then they are allowed [into cities]. But once they unload the goods and go back empty, they are stopped and harassed.”

Getting the agri supply chain moving again will go a long way in the long haul journey of reviving the economy, particularly the rural part of it. These are, however, still early days and eventually it is how much worse the pandemic will get before it gets better that will determine the fortunes of the various links in the agri supply chain. **F**

RITESH SHUKLA / NURPHOTO VIA GETTY IMAGES

Doctors and nurses are pulling out all stops to treat Covid-19 patients, but some have been abused by neighbours



Warriors on the Frontline

How doctors and nurses in hospitals along with assorted health activists and workers on the outside are taking on the Covid-19 crisis head-on and saving lives against all odds

By NAANDIKA TRIPATHI

After her shift ends at 6 pm at KJ Somaiya Hospital in Sion, Mumbai, Mini enters her two-room home on the fifth floor of a seven-storey building in Kharghar, on the outskirts of Mumbai, some 30 km from the hospital, with tentative and cautious steps. As she ensures that she doesn't

touch anything, her 15-year-old daughter watches from a distance; her mother has told her that they cannot hug each other for some days.

The 48-year-old nursing superintendent has set new rules in the house; she lives alone in a separate room and her routine has also changed. She doesn't touch anything once she walks through the

building gate; her husband is there to help, pressing the lift button to take her home. Mini straightaway heads for a shower and sanitises everything she carries from outside—her uniform, cap and scarf. “Initially it was difficult for us to cope with this new lifestyle, but we don't have any other option. Not hugging my daughter after returning from work



was hard to digest,” shrugs Mini, whose responsibilities at work include delegating nurses to Covid-19 patients and making sure that the 90 nurses in her team are taking all the precautions as suggested.

KJ Somaiya is one of the many hospitals doubling up as isolation and quarantine centres for Covid-19 patients. At the time of writing, the hospital had over 20 patients who tested positive; one died because of coronavirus. Mini and her team have been at it for 15 days now. “Wearing personal protective equipment (PPE) and a mask for long hours is not easy. Plus it is getting hotter by the day. My team comes crying to me with dribbles of sweat trickling down their faces. I see the exhaustion and pain in their eyes. But we don’t have an option. I keep giving them rotational shifts so that they’re not overloaded with work.”

Mini has her own moments of despair, something that she has learnt to hide when she performs



“PPE is in shortage, so we have to use it judiciously... working with the suit on and ensuring that you don’t touch your face is a task in itself.”

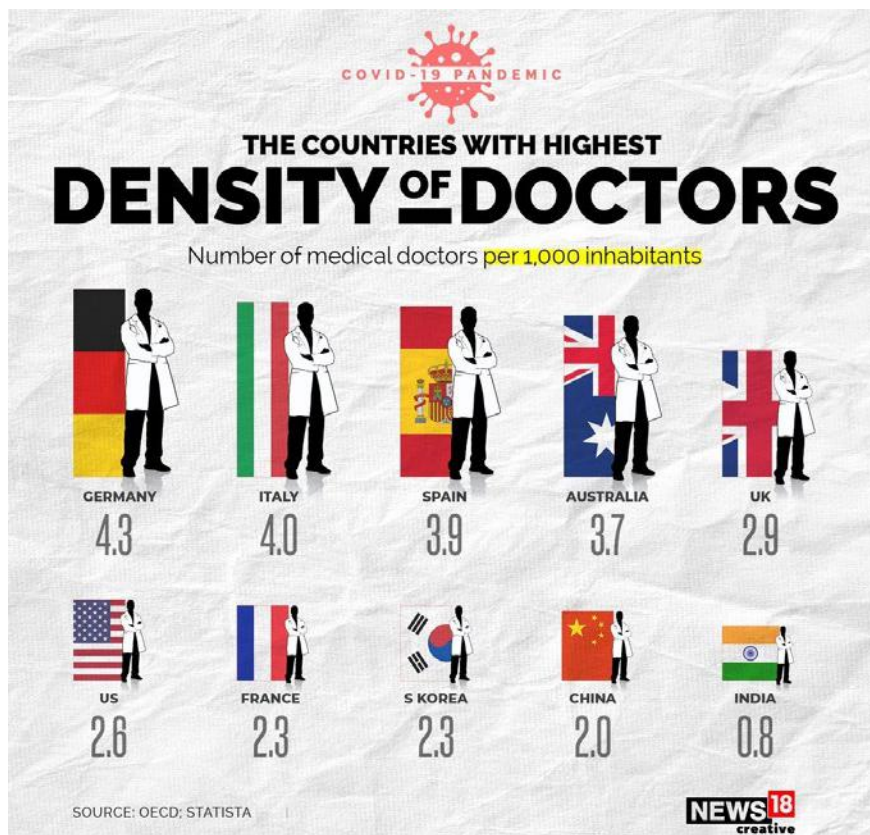
Dr JEENAM SHAH
CONSULTING PULMONOLOGIST

her duties. “The entire team approaches me when they face any trouble; if I start crying in front of them, where will they go? On one particular day I was so stressed that I couldn’t understand what to do... I called up my mom and cried my heart out,” she says. That happened during the initial days of the pandemic when Covid-19 patients were new to the hospital staff. “I have overcome all of it now and am getting stronger each day,” she adds.

As the number of deaths, new cases and those testing positive for Covid-19 burgeon by the day in Mumbai, hospitals are buckling under the virus assault. In mid-April, *Mumbai Mirror* reported that at least 15 hospitals, including Saifee, Wockhardt and Bhatia in Mumbai, had shut down after health staff contracted the virus.

Dr Jeenam Shah, a consultant pulmonologist who would practice at these three city hospitals, describes the tribulations of those at the frontline. “PPE is in shortage, so we have to use it judiciously. Working with the suit on and ensuring that you don’t touch your face is a task in itself,” he says. What’s more, health workers point out that it becomes uncomfortable to move one’s face in the head mask that they have to wear. Those wearing spectacles have a bigger challenge when the glasses get foggy. “And, after wearing PPE, one cannot go to the washroom or eat; if you have to use the washroom, you have to discard everything,” adds Shah.

As the novel coronavirus ploughs its destructive path, doctors and nurses leading the battle are not adequately armed and remain vulnerable. From Mumbai to Delhi, Indore, Chennai and Kolkata, among other cities, more and more frontline workers—an estimated 150 health workers at the time of writing—had tested positive. Mumbai is perhaps the worst off, with an estimated 100 health workers getting infected. Apart from shortages of PPE, hospitals

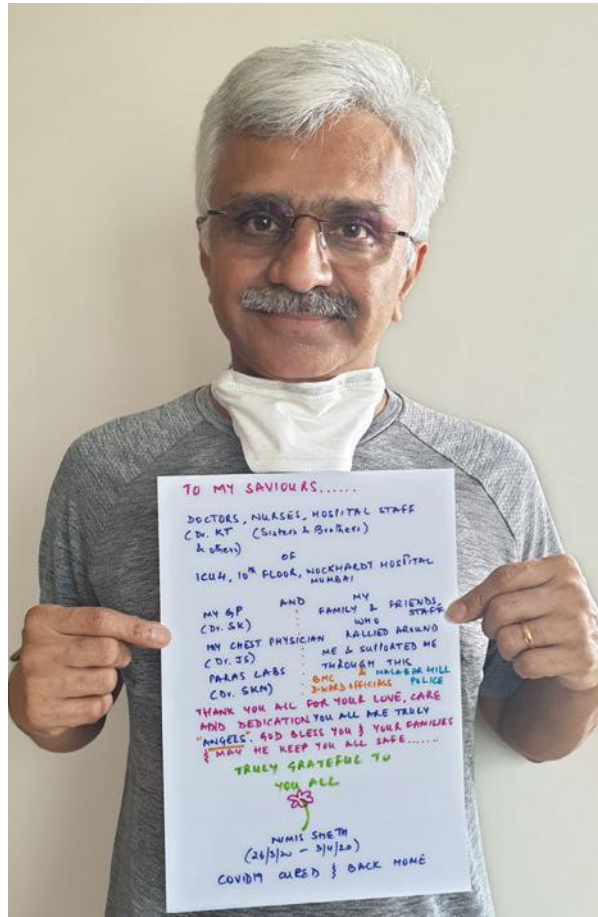


are being held responsible for alleged negligence in immediately isolating staff who carried the virus and went on to spread it. Another reason more health workers got exposed to the virus is that people hid their travel or contact history.

THE AGONY...

Dr Shrikanth Srinivasan, head of department, critical care medicine, Manipal Hospital, Delhi, explains the doctor-patient dilemma: “The problematic part of this disease is that it has such varied presentations that one has to be always alert to make sure that they are dealing with all patients with similar flu-like illness with a high suspicion.” That, however, may not be easy as those being treated may have their own apprehensions, tempting them to not reveal their complete history and hide parts of it. “So during times like these, we have to make sure that we don’t miss out on taking any precautions,” adds Srinivasan, who was also at the forefront when swine flu broke out in April 2009 in India.

According to the Centre for Disease Dynamics, Economics & Policy, India has a shortage of about 6 lakh doctors and around 20 lakh nurses; the scarcity in supporting medical staff will be correspondingly larger. That means losing even a single doctor or nurse due to lack of protective equipment or not following the standard operating procedure in handling Covid-19 cases is reason for alarm for the community as a whole. After all, don’t forget that countries like the US, Spain, Italy, China and France, which have superior doctor-patient ratios, have failed to cope with the spread of Covid-19. As many as 27,000 health care workers tested positive for coronavirus in Spain



“After getting into this situation, I realised the value of doctors and nurses in our lives.”

NIMISH SHETH, A PATIENT WHO RECOVERED FROM COVID-19

while the figure was 9,000 in the US.

While doctors and nurses are dealing with the lack of PPE, many Accredited Social Health Activist (Asha) workers who are also on the frontline of the Covid-19 battle don’t have access to masks and gloves. Between her door-to-door visits, 40-year-old Urmila Patil asks people if they have experienced any symptoms linked to Covid-19 or if they have guests from another state or country. Patil was asked to conduct this health survey in Islampur, a small

town in Sangli district of Maharashtra. The town had already reported over two dozen Covid-19 cases when Asha workers were told to conduct the survey. “Due to the unavailability of masks, I wrapped a stole around my face while conducting these surveys. I knew this was risky, but didn’t have any other option. The sarpanch (village head) warned me not to step out of the house. My family also didn’t support me enough. But I fought with everyone and did what I had to do,” says Patil. The state government has instructed these Asha workers to check for symptoms and advised on precautions to deal with Covid-19.

...AND THE ECSTASY

It was a proud moment for 32-year-old Ligin James, Covid-unit in charge at Global Hospital, Mumbai, after the hospital managed to cure the very first patient of coronavirus who didn’t have a travel history. After testing positive, the patient plunged into depression as the infection was completely unexpected; he was worried about his wife and children. “We continued with his treatment and he

tested negative after 10 days... when we informed him that he will be discharged, the expression of joy on his face is something that I will never forget in my lifetime. It was a fantastic moment for us. He sent a big thank you message. All of us were feeling so good because he was our first patient with this virus and we cured him. This was a motivating factor to save more such lives,” says James. He pauses for a moment and continues, “At times I get frustrated because wearing the PPE equipment for seven hours on



the trot and staying inside the ICU is difficult. Once we wear the suit, we cannot even use the washroom. But we take it positively and keep working because it is for our safety.”

Doctors, nurses and health care workers are not the only ones fighting the battle against coronavirus. Other key workers who often go unnoticed like the police, security guards, pilots, railway staff, utility workers and garbage collectors continue to work to ensure there's little disruption during the lockdown.

Experts say the country's health care system is not prepared to cope with a massive outbreak. After all, around 130 million people will head to hospitals even if 10 percent of India's population is infected. According to the Organisation for Economic Co-operation and Development, India has only 0.5 hospital beds per 1,000 people, one of the lowest ratios in the world. Containing the outbreak with a nationwide lockdown and social distancing will play a major role in flattening the curve. Cases in India have drastically shot up in recent days and these workers are on the ground to ensure people follow the rules so that they can be safe and sound.

Nimish Sheth, 57, who recently recovered from Covid-19 couldn't stop praising the health workers who treated him at Wockhardt Hospital in Mumbai. Sheth tested positive in March-end after returning from the US. “The doctors and nurses are our real heroes during this time. My family and I were going through a tough time, but these health workers made sure that our mental health is sound and stable, and gave proper counselling. It was my birthday while I was being treated and the medical staff got me a cupcake to make me feel special. These are small things, but they really matter... after getting into this situation I realised the value of doctors and nurses in our lives.”

However, despite their noble deeds, several health care workers



“When he (a patient who got infected) tested negative twice and we informed him that he will be discharged, the joy on his face is something I will never forget in my lifetime.”

LIGIN JAMES

COVID UNIT IN CHARGE,
GLOBAL HOSPITAL, MUMBAI


are dealing with social ostracism and harassment. Dr Sanjivani Panigrahi is one of those to have been at the receiving end. She works at Surat Civil Hospital where coronavirus patients are being treated, but is not deployed in the Covid-19 ward. The 34-year-old doctor was recently physically attacked and verbally abused by her neighbours in front of her three-year-old son. “My neighbours thought I have coronavirus just because I go to hospital every day. They asked me to stop going to the hospital and warned that they will bar my entry in the building otherwise. After constant mental torture from my neighbourhood, I tweeted the entire incident, tagging all government officials. Thanks to social media, our local BJP MLA connected with me and immediately sent the police for help,” she says. Panigrahi posted a video of her neighbours attacking

her while she was leaving her house; after the video went viral, the Surat police took strict action and detained the neighbours.

Panigrahi's ordeal hopefully may not be the norm. Dr Prashant Borade, critical care consultant at Mumbai's Global Hospital, has been treating Covid-19 patients for a month now. “I go home every day and take complete precautions so that my family and people in the surroundings are safe. I'm not facing any issues in my neighbourhood. In fact my neighbours and others in the society seek advice from me about the precautions the society should take to be safe from this virus. It's all about communicating and making people understand what the virus is all about, and what precautions we (doctors) are taking. This makes things easier,” he says.

Borade adds that today, the country is a battlefield and the only warriors are the health workers. “People have started giving us more respect for what we are doing and that gives us the motivation and energy to carry on,” he says. Will that persist once the pandemic blows over?

Dr Om Shrivastava, infectious diseases specialist at Jaslok Hospital, suggests that people need to become more responsible once the pandemic subsides. “This is not the first epidemic that we are seeing, and it is not going to be the last. I think our way of life will have to change from now on... we cannot continue with the kind of lifestyle that we were following. I think it's also important for the policymakers and decision makers in any country to prepare the infrastructure to combat this kind of a situation because all outcomes will depend on what the public health infrastructure is in that country,” he says.

Shrivastava uses a war metaphor to describe the level of readiness required. “The more you sweat in peace, the less you bleed in war. It is important to be prepared.” 

In The Line Of Fire

With a broken supply chain and inadequate stocks, health care workers face an acute shortage of protective gear and the risk of contracting coronavirus

By PRANIT SARDA

These are unprecedented times for those at the forefront of the battle against the coronavirus. A doctor at a government hospital in Kolkata laments the conditions in which health care personnel have to work during the pandemic. From using raincoats as personnel protective equipment (PPE) to being told to buy masks themselves at exorbitant rates, and from dealing with the fear of contracting the virus as they treat patients to facing social

ostracisation, it has been an uphill task in these stressful times (See 'A Dispatch From A Hospital').

The acute shortage of PPE for health care workers is a global issue. Reports have emerged of extreme cases in India where nurses and health care workers were forced to use motorcycle helmets as protective clothing, while others are compelled to use scarves to cover their faces in the absence of masks. Doctors and health care workers in countries such as the US, Italy

and Spain—some of the hardest hit by the pandemic—have protested against the lack of PPEs, taking to the streets and to social media.

With at least three health care workers succumbing to Covid-19 in India, and at least 80 more testing positive as of April 12, the question remains as to whether they are being provided with adequate PPEs. Normally, PPEs are used in hospitals for surgeries and for treating infectious diseases. But now they are a necessity for all health care workers,



The shortage of PPE for health care workers is a global issue. In India, they have had to use raincoats and scarves in the absence of masks



including those who are conducting door-to-door checks for people with symptoms of Covid-19 infection.

Utkarsh Sinha, managing director at Bexley Advisors, a boutique investment bank, says, “It is easy to have the benefit of a 20:20 hindsight, but the sad truth is that our health care infrastructure is stressed, and has been for a while. We simply lack the capacity for providing adequate care at scale. That said, there is little more the establishment could have done to ensure equitable access in this situation.”

According to media reports, by June, India will need 27 million N95 masks and 15 million PPEs, which include face shields and goggles (which are reusable), triple layered medical masks and N95 respirator masks (both reusable until soiled), gloves, coveralls and gowns, shoe covers and head covers (all non-reusable). The demand far exceeds supply, which has been hit by the lockdown that has been imposed in several countries around the world, especially those, such as South Korea, Singapore and China, from where India imports PPEs. Procurement of raw material has become difficult, as has the movement of goods from one country to another, and even within the same country.



“We had material stranded in various parts... there were challenges in accessing raw materials from suppliers who were unable to work.”

RAMESH RAMADURAI
MANAGING DIRECTOR, 3M INDIA

On March 23, the ministry of textiles said in a statement, “Such materials [that fulfil the technical and standard requirements for coveralls] are manufactured by a few international companies, who

expressed their inability to supply on account of a complete glut in stocks and ban of exports by the source countries. Only a limited quantity was offered and procured by the procurement organisation of the ministry of health and family welfare (MoHFW).”

On January 31, India banned export of all PPEs to ensure enough stocks for use within the country, but on February 8 the ban was revoked on everything except coveralls and N95 masks. Rajat Garg, co-founder of myUpchar, a Delhi-based online health service platform, says between February 8 and March 19, however, when the ban was reimposed, Indian manufacturers exported a large amount of PPEs, since at that time the number of infections in India was low and Indian manufacturers wanted to earn high profits. This led to the existing stock of PPEs in the country being greatly reduced.

“A lot of large hospitals have bought PPE kits for doctors, but not for the technical staff and nurses. These hospitals are asking staff members to buy PPEs themselves. In smaller hospitals, even doctors are being asked to buy them themselves,” says Garg. The government has also rationed the distribution of PPEs among health care workers, depending on whether

A Dispatch From A Hospital

I am a doctor at a government hospital in Kolkata and I deal with coronavirus positive patients, although I don't get in direct contact with them. Keeping my identity anonymous is important; recently, I came to know about a doctor who had written on social media about raincoats being provided as personal protective equipment (PPE) and had to face a lot of legal and police troubles. Even until a few days ago, doctors were using raincoats instead of PPEs after some doctors suggested that they will work. But that isn't the case, since PPEs have certain standards and quality, which obviously isn't the case with raincoats.

In the initial stages of coronavirus—when it still wasn't declared a pandemic—we were not even aware of what needs to be done.

There were social media articles on what was happening in China... we didn't know whether our government had procured PPE kits or not. When cases started surfacing in India, we were able to get N95 and surgical masks. This was before the lockdown was announced. But there was no mention of PPEs at my hospital. Doctors of only one hospital in Kolkata were using PPE kits.

The government guideline indicates that high-risk workers should get full PPE kits, moderate-risk workers should get N95 masks and gloves, and low-risk health care workers should get triple-layered masks and optional gloves. The guidelines say each mask can be worn for eight hours, but due to the shortage, we were using the same mask for a 12-hour shift. There were also instances when we were not getting new masks and had to use

the same one.

Recently, a postgraduate trainee resident doctor who was posted in an isolation ward was given a raincoat to protect himself. When he refused to use it, the ward had to be closed for three days until supplies arrived.

Since I am in the department of medicine, all we received from the hospital was a single-layered surgical mask. So I had to purchase an N95 mask for myself, paying much more than the MRP. This was because no proper protocol was being followed. The situation got to a point when we had to write a letter to the authorities, saying we won't work until we are equipped with proper masks and PPEs. Now, we are receiving PPEs at least in the isolation wards after putting pressure on the authorities.

(As told to Pranit Sarda)



they fall in the categories of high risk, moderate risk and low risk.

Hospitals have seen a fall in revenue as the volume of surgeries, pathological tests and sale of medicines have fallen. Hence, they are not keen on spending additional money on PPEs. In some cases, NGOs are supporting hospitals by providing them with PPE kits, as and when required.

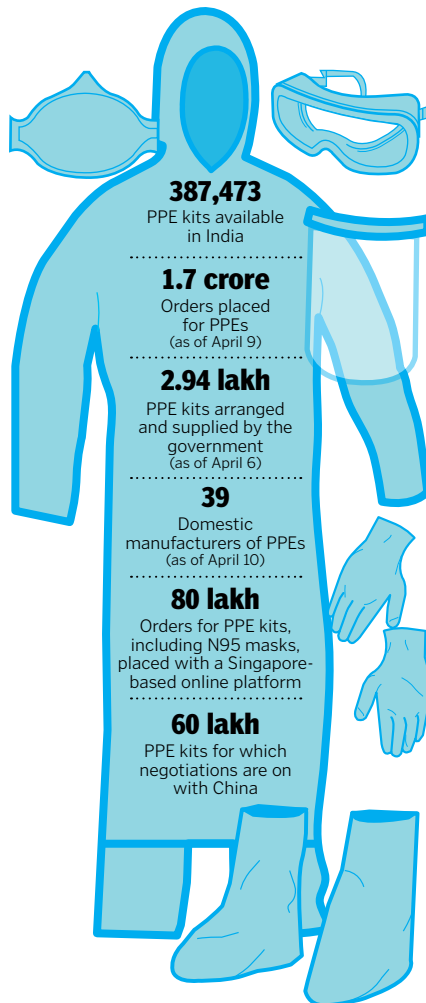
Garg adds that most vendors who provide PPE kits in India take minimum orders of 500 to 1,000 kits. While this is not a problem for large hospitals, smaller hospitals and those in Tier II and III cities don't need so many PPE kits. However, they can't place orders of smaller size. myUpchar is working with vendors to ensure supply of orders of five to 10 PPE kits, although the cost for smaller orders is higher than for bulk orders.

With a broken supply chain, "there is a lot of unpredictability where input costs are concerned", says Sinha, thus pushing up retail prices. Garg says the retail price of a PPE kit is usually ₹400 to ₹500, but now manufacturers are selling them for between ₹1,100 and ₹1,200, while retail prices are between ₹1,500 and ₹2,000. "With low volume, suppliers are not ready to give you big profit margins," he adds.

Sinha of Bexley Advisors says, "It is in the larger interest of the community that there is centralised coordination on the procurement and adequate distribution of PPEs."

To make up for the shortfall in supply, PPE manufacturers in India

THE PPE CRISIS



SOURCE: Ministry of health and family welfare

have increased their production capacities. For instance, 3M, one of the leading manufacturers of respirators, masks and PPE kits in India, is producing about 40 percent more than its normal capacity; its

output of alcohol-based sanitiser has also increased by 50 percent. "When the lockdown was announced, we had material stranded in various parts of the country; there were challenges in accessing raw materials from suppliers who were unable to work; clearances of imports were delayed. It was also difficult to arrange for transportation for our plant employees," says Ramesh Ramadurai, managing director, 3M India, which has plants in Pune, Bengaluru and Ahmedabad, and imports materials from global subsidiaries.

"The major challenge we continue to face is the lack of international flights and freighters to move materials, but by and large we have not had too many problems with the import of materials that support manufacture of masks and sanitisers," he adds.

Also, players in related industries and technologies are adapting existing infrastructure for the purpose of making PPEs. For instance, while coveralls are being made by textile hubs in Punjab, Gujarat and South India, face shields are being made using 3D printing technology by companies like the Mahindra Group, 3Ding and Groundup Technology.

"Several medium and small manufacturing enterprises are working to refocus their capabilities to respond to the crises," says Sinha. "We are working with several; some have repurposed their garment manufacturing lines to create PPEs and masks, while others are realigning their manufacturing capabilities to create ventilators." For instance, AgVa Healthcare is partnering with Maruti Suzuki India, and Skanray Technologies with BEL to make ventilators. Detel, an electronic brand that makes budget mobile phones and televisions, has launched a sub-brand called DetelPro to make affordable PPE kits. ¹

• ADDITIONAL INPUTS FROM NAINI THAKER

"Some hospitals are asking staff members, including doctors, to buy PPEs themselves."

RAJAT GARG,
CO-FOUNDER OF MYUPCHAR





A Testing Race Against Time

After a slow start, will India's efforts to ramp up testing for Sars Cov2 be quick enough?

By SAMAR SRIVASTAVA and NAMRATA SAHOO

Until March 20, the only way to get tested for Sars Cov2 in India was if you'd travelled abroad or come in contact with someone who had and reported a fever, cough or difficulty in breathing. And even then it was incredibly hard to get tested.

The strict testing definition for a virus that had been declared a pandemic masked the crucial lack of testing capacity. In order to get tested, one had to report to a government facility and have nasal or throat swabs taken. They were sent to the National Institute of Virology in Pune and results were made available two days

later. With a testing criteria narrowly restricted to foreign travel, it's hardly surprising that India had conducted only 13,316 tests by March 20 with 236 testing positive. During March, which would later turn out to be a crucial month, scores of travellers with flu-like symptoms slipped through.

By then the speed of the virus'



In India, phone booth or kiosk testing is being actively explored to contain the spread of coronavirus. Kiosks were installed at Ernakulam Medical College in Kerala on April 6

spread had taken the world by surprise. Just like in India, the initial low infection rates in Italy, Spain, the UK and US had lulled governments into a false sense of calm. “It was the virulent nature coupled with the long incubation period that allowed the virus to spread unhindered,” says Dr Harish Mahajan, chairman, Center for Advanced Research in Imaging, Neuroscience and Genomics. This was unlike Sars, which took three days to incubate, making it was easier to isolate infected people.

While the government has steadfastly maintained that the lack of testing capacity is not to blame for its decision to restrict the initial rounds of testing, interviews with people who run laboratories and make testing kits suggest that crucial time was lost in February and early March. Had larger numbers been tested (along with stricter quarantines for international travellers), isolation decisions could have been taken earlier. “Our (and the world’s) biggest problem was that we didn’t have a model to follow and so we had to make things up as we went along,” says the founder of a company that has recently received approval for testing kits.

In a situation where every day makes a difference in the infection curve, the steps taken by the Indian Council for Medical Research (ICMR) were incremental. As a result, laboratories are still struggling to get testing kits and deploy them and, while rapid antibody tests have been approved, the earliest deployment is at least a fortnight to a month away. “Our aim is to first stop transmission and flatten the curve,” says Dr Rajni Kant, director, planning and coordination, ICMR, pointing to the fact that its containment strategy hasn’t worked.

TESTING INFRASTRUCTURE

The first reported case of the Sars Cov2 virus on Indian shores was on January 31 when three students returning from its epicentre Wuhan tested positive in Kerala. These were



“The key advantage of [antibody] tests is that they can be deployed rapidly and you don’t need an expert to interpret the results.”

R KAILASNATH,

MANAGING DIRECTOR, CPC DIAGNOSTICS

early days in understanding the virus; Wuhan had only been locked down a week earlier. The Indian response was limited to cancelling visas of Chinese nationals. Over the course of the next 45 days, airports carried out limited screening on incoming passengers. Samples of suspected cases were sent for testing to Pune.

That changed on March 20 when the speed and geographical spread of the virus increased. In a series of steps, the government progressively widened the definition of ‘would be tested’ and worked on increasing the number of testing laboratories. First, laboratories in state capitals were brought in, then district government hospitals, then private hospitals with laboratories accredited to the National Accreditation Board for Testing and Calibration

Laboratories (NABL) and finally private diagnostics laboratories. At the time of writing in mid-April, there were 166 government and 70 private laboratories approved by ICMR.

But opening up the number of laboratories was only half the battle. There were two other issues that would slow testing. The first was sample collection. Given the highly contagious nature of the virus, labotomists had to necessarily wear personal protective equipment (PPE) suits, which were in short supply. The swabs had to be transported in refrigerated containers to avoid contamination and be tested only in biosafety level 2 laboratories.

“These restrictions mean that there are only a limited number of laboratories in India that can run the tests,” says Arunima Patel, founder of iGenetic, which has received ICMR approval to test for Sars Cov2. She advocates loosening the restrictions. To avoid the risk of infection (and contamination) for the person collecting samples, innovations like phone booth testing and drive-through testing have been tried out. In India, the phone booth or kiosk testing is being actively explored. Kiosks were installed at Ernakulam Medical College on April 6.

Second, the reagents needed to run the tests arrived slowly. Here’s how the process works. The swabs collected are put through a thermal cyclor also known as a PCR machine. Through a process known as reverse transcriptase polymerase chain reaction (RTPCR), they amplify the DNA to check for the virus—a process that takes at least six hours.

PCR machines in laboratories across the country needed reagents to check for the virus. These were in short supply. The initial supply was by the government, but the delay in granting approval to reagents made by private companies meant that private hospitals and laboratories were not able to offer the tests till the first week of April. Even then, they had to rely on



imports that are also in short supply.

Two private diagnostic companies and one supplier of reagents told *Forbes India* that they are only processing between 100 and 200 samples a day. Netmeds, an online pharmacy, has tied up with private laboratories. “The response has been slow partly on account of the costs,” says Jugal Ancharia, vice president, strategy and new initiatives at Netmeds. That is unlikely to change as a recent Supreme Court order has asked private laboratories to provide free testing only for those eligible under the Ayushman Bharat health plan.

The staggering of approvals for laboratories and companies that supply the reagents has meant that India’s testing capacity is still woefully short and will take at least four weeks to expand. The total stock of PCR machines in the country can process 35,000-40,000 samples a day. Private companies are working to increase that number. “My estimate is that processing 100,000 samples a day soon should be possible,” says Chandrasekhar Nair, chief technical officer of Molbio Diagnostics, that received approval for its point of care PCR platform for testing for Sars Cov2. In the meantime, some workarounds are being explored. Samples from areas that have low positivity rates are being pooled. Up to five samples from such areas can be tested at one go. On April 12, the last date for which data is available, India tested 16,002 samples a day, up from 4,346 on March 30.

ANTIBODY TESTS

With the limitation in testing capacity apparent, the ICMR on April 4 approved antibody tests on anyone showing ‘influenza like illness’. These serological tests work on a blood sample drawn intravenously. Results are available in 30 minutes. “The key advantage of these tests is that they can be deployed rapidly and you don’t need an expert to



“My estimate is that processing 100,000 samples a day should soon be possible.”

CHANDRASEKHAR NAIR,
CHIEF TECHNICAL OFFICER, MOLBIO

Low Testing Numbers

- Restrictive testing criteria in the initial days
- Stage-wise approvals to laboratories to test
- Private companies supplying reagents approved only on April 2
- Total testing capacity in India estimated at 35,000-40,000 per day
- Rapid antibody tests could provide an effective screening solution

perform and interpret results,” says R Kailasnath, managing director at CPC Diagnostics, which has received IMCR approval for its antibody tests.

Here’s how they work. A person infected with Sars Cov2 would start producing antigens to develop antibodies to the virus. These tests have been used successfully for other viruses like dengue and measles, but with Sars Cov2, the long incubation period introduces a complication. A person may be asymptomatic and say five days after being infected, has still not started producing an antibody. For such

a person, the test would produce a false negative and they would slip through. Recognising this, the ICMR has mandated confirmatory PCR tests for positive cases, but advises them also for negative cases where there is suspicion.

Where the antibody tests score are in hotspots, allowing civic bodies to test large number of people quickly and make an assessment about the percentage infection levels in a certain area. The lower accuracy is compensated for by the ease and speed of testing. “We plan to conduct antibody tests to check the proliferation of the virus and also to identify obvious suspects,” says Kiran Dighavkar, assistant commissioner at the Brihanmumbai Municipal Corporation. State governments plan to roll these tests out in the next month with Rajasthan and Tamil Nadu placing orders for 100,000-300,000 tests.

As the race to contain the virus continues, the real use of antibody tests is likely to come between six and 12 months from now. Once a substantial portion of the population gets infected and recovers, they’d develop antibodies and would be better prepared to handle a second wave of infections. (An important caveat is that we don’t know if and how the virus will mutate over the course of the year.) At that point, rapid testing through point of care antibody kits would allow people to check for immunity. Think of these as point of care tests like a diabetes test or a pregnancy test that could be done at home.

Testing quickly for antibodies could allow authorities to make quick decisions on when to open up or shut down areas as well as allowing individuals back at workplaces and in crowded places. These testing kits, which may work with just a finger prick test are under development and could hold the key to living with the virus as well as being prepared if and when the next one strikes. **F**

Crank-up Time

How to get the manufacturing and MSME sector that has ground to a halt during the lockdown moving

By POOJA SARKAR



ILLUSTRATIONS: SAMEER PAWAR



HOW TO GET INDUSTRY GOING AGAIN



- ◆ Respective banks must provide moratorium approvals. In many cases, companies are yet to be informed on their approvals
- ◆ Provide sanitation, health care and accommodation to labourers on construction sites
- ◆ Companies want major injection of capital in the hands of their workers from the government
- ◆ Honour government contracts and make payments to contractors; pay pending dues
- ◆ Announce relief package for industries, especially to ease working capital issues

Holding Ltd's rating to B3 from B2 as well as placed it under review for further downgrade. The report says given the market situation, an upgrade in ratings is unlikely in the near term.

Back in Mumbai, Virendra Mhaikar, chairman and managing director of highway construction firm IRB Infrastructure, says, "As a result of the lockdown, our construction of highway projects has come to a standstill and toll collections have been suspended by the government, but we have a regulated concession agreement with NHAI." It is also seeking relief under force majeure of concession agreements.

Mhaikar cites the cash compensation paid by NHAI during demonetisation in 2016 when activity had come to a standstill. "It will be the same compensation is my guess. As an industry, it can calculate the average transactions till lockdown and cash compensate those losses," he adds.

IRB Infrastructure, which also has a listed infrastructure investment trust (InvIT), is hoping to restart construction from April 20 by writing to the district collectors for permission for commencement

As the clock strikes 8 in the morning, the blare of the hooter is a common feature in factories across industrial townships. But with the nationwide lockdown, the hooter has fallen silent as factories across the country have come to a standstill.

As have the cash flows.

The coronavirus outbreak couldn't have hit the country at a worse time. India's GDP decelerated to its lowest in over six years during the third quarter of 2019-20. In January, the International Monetary Fund (IMF) cut its global outlook citing slowing growth and India contributed a lion's share—80 percent—to the downward revision. Now, the impact of the lockdown is only set to make things worse.

"There is not an iota of doubt that this kind of lockdown will have a profound impact. The ones that are less affected are food, fertiliser, information technology or those in which work can happen from home, but sectors like steel, infrastructure, cement have come to a complete halt," says Ravi Uppal, chairman and managing director at Steel Infra Solutions Pvt Ltd (SISCOL).

Uppal, who has previously headed companies like ABB India and Larsen & Toubro, now runs five factories around Bhilai, an industrial township in Chattisgarh—known as the Indian steel manufacturing belt. He believes that the cash flow crunch will adversely kickstart a chain reaction.

"There is no activity after the first 10 days of March, we are saddled with inventory and the whole value is locked in. It is the same with everyone; if you don't supply, you don't get paid, if you don't get paid, you can't pay your vendors," says Uppal.

Ratings agency Moody's investor service, on April 15 placed Tata Steel Ltd's Ba2 corporate family rating under review for downgrade and has downgraded Tata Steel's wholly owned subsidiary Tata Steel UK

of work. It says toll collections won't start anytime soon.

Mhaikar believes once the lockdown is lifted, activity should start within 15-30 days, but it will take time to repair the working capital cycle of infrastructure companies. "Cash flow is being preserved and used for better work. The key demand we have made is that we require a loan moratorium for one more quarter as our working capital cycle is now stretched," he says.

While road companies may get compensated by the government, other sectors don't have such fallbacks.

Down south, airports to power to roads developer GVK Group is grappling with various challenges. On March 25, the road ministry exempted toll collections across the country affecting toll-road companies, including GVK. The company is also facing revenue compression as airports are closed. The group continues to operate two power projects—one in Uttarakhand, which supplies power to Uttar Pradesh, and the other in Punjab while its other two gas-based power plants are unable to fire due to unavailability of gas.

"It will take enough and more to bring things back to normal and we can only wait and watch. Everyone can't work from home (WFH) as in these sectors there is limited amount of WFH, where we are making presentations for banks, NHAI and AAI asking for moratorium," says A Isaac George, director and chief financial officer at GVK.

While cash flows have dried up for almost every core infrastructure firm, some of the payments for operations and maintenance are mandatory to be paid.

"The toll road is a cash-and-carry business... while it is not generating revenues, there are still fixed expenses that need to be met, including payment of wages. There is a working capital sanction for airports and we will dip into it," George explains. The company is trying to structure salaries for its senior staff with a deferral of



payments, while junior employees will be kept out of any payment delays.

According to an IMF note on April 16, the global economy is expected to contract in 2020 by 3 percent, a downgrade of 6.3 percentage points from January and a major revision over a short period. This makes the Great Lockdown the worst recession since the Great Depression, and far worse than the 2008 global financial crisis. Growth in Asia is expected to stall to 0 percent in 2020.

Three other sectors that have been heavily impacted are automobiles and auto components, real estate, and small and medium enterprises. Real estate has been down in the dumps since the fall of shadow banking firm ILFS in 2018, and residential real estate-focussed developers are now facing the challenge of negligible sales. With employers seeking a downward revision of rents, the commercial property sector, too, is set to see lease rentals fall over the next few quarters.

In a lot of cases, retailers are calling for force majeure in their contracts as they are hit hard by lack of sales. While in India, malls had seen their fair share of rental compression during the 2008 crisis, contracts have evolved over the decade in the form of minimum guarantees, rent sharing agreements and relaxed common area maintenance charges.

“The current crisis is in a way revisiting the financial crisis, but during that time there was no shutdown and it had to be dealt with on a financial basis. It is a different ball game now because you have no topline but certain fixed costs that you have to pay, so we all have to work together to find a solution. It can’t be a one-sided approach,” says Manoj K Agarwal, chief executive officer at Viviana Mall in Thane.

Agarwal adds that these negotiations can’t happen over phone. He says if economic activity restarts in 2-3 months, the situation will not be as gloomy.

The automobiles and auto

THE DRIVING FORCES

Sector	Contribution to GDP (in %)	Contribution to Employment (mn)
Apparel and textiles	2	45
Automobiles	7.1	40
Auto Components	2.3	NA
Aviation and tourism	\$72 billion	8
Tourism	9.2	42.7
Consumer, retail and internet	10	NA
MSME	30-35	114
Transport and logistics	14	8.27
Metals and mining	2.4	NA

SOURCE: KPMG report

components sector, which contributes nearly 9.4 percent to the GDP, has been witnessing a steady fall in sales over the last year and the pandemic is now bringing it to its knees.

“The mortality rate of a lot of MSMEs in the automotive sector will be high as there is a lack of working capital. A lot of effort is required by banks to start giving capital to these sectors and in this backdrop, recovery will be a huge challenge,” says Uppal.


Auto sales for March were down by 50 percent and a lot of auto original equipment manufacturers will be forced to delay launches as consumers are expected to cut down on discretionary expenses. Sunil Kant Munjal, author of *The Making of Hero*, says this is the second time since Emergency that the Hero Group (the Hero Cycles business) had shut down. “Our culture remains the same across group companies—we are focussed on planning and forecasting, and the teams have a high ability to execute. Two weeks before the shutdown, we started having half the people work from home. So we had set up process and protocols to WFH and literally three days before the shutdown, I had written a letter to all our team members telling them to work from home. We were a little better prepared as we are doing morning calls, afternoon meetings and evening reviews in these times.”

One of the biggest segments in India is that of MSMEs, which employs nearly 114 million people and contributes nearly 30-35 percent of the GDP. Forty-nine percent of the MSMEs are in rural areas and the rest in urban localities. A study by the All India Manufacturers’ Organisation estimates that about a quarter of the MSMEs in India will face closure if the lockdown due to COVID-19 goes beyond four weeks. This figure is estimated to touch a whopping 43 percent if the situation extends beyond eight weeks.

As Saurabh Mukherjea of Marcellus Investment Group points out, 91 percent of Indians work in set-ups of less than 10 employees and with an operating margin of nearly 10 percent. “If they have to shut down for one month of the year, their margin for the entire year is wiped out. So they will cut costs and try to survive,” he says.

Mukherjea also believes that sectors like real estate, tourism, leisure and hospitality, which are highly leveraged and are witnessing stress in cash flow, will face challenges. But this situation will also work as a cleanser for companies facing existential challenges.

With the lockdown, core infrastructure and heavy industries firms are also finding it difficult to communicate with their employees in far-flung areas. With daily wage labourers rushing back home or stranded at borders as they try to make their way home, India is set to face labour challenges in the coming months.

Until then, it is imperative for the government to step in. “As governments in the US, Germany and France have extended support, India too needs to think about providing cash support to the manufacturing sector. The wages in the manufacturing sector are around 10-12 percent of the costs and direct cash support is needed for payment to workers,” says Uppal. 



SHUTTERSTOCK



Up in the Air

As top companies defer and revoke job offers, IITs and business schools work hard to help find placements, move online

By MANU BALACHANDRAN

Karan Birpali, a final year biotechnology student at IIT Delhi, has secured a job with one of India's largest hospitality companies. He was to join in June but with the Covid-19 pandemic hitting the country, the date has been pushed to August/September.

Birpali is one of the lucky ones. Vidushi Toshniwal, a civil engineering graduate at IIT Delhi wrote on her LinkedIn profile on April 8. "I am a final year B.Tech student from IIT Delhi (2016-20). I secured a job offer from a US-based leading global market in oilfield services as a Junior Field Engineer. However, due to the ongoing Covid-19 crisis and some changes in the company's policies, the firm has decided to rescind all the job offers."

pandemic and the extreme decline in oil price. In this environment, it has become increasingly difficult to provide students with valuable work experience or job opportunities. We have, therefore, taken the difficult decision to adjust our job offers in line with business activity. This means that, due to the challenging conditions in which we find ourselves, we have been forced to reduce and withdraw internships and graduate job opportunities at this time," says Joao Felix, director of corporate communications at Schlumberger in an email response.

Gartner had not responded to queries from *Forbes India* at the time of going to press.

Companies like Google too are looking to slow down the pace of hiring. In a memo on April 15, CEO

due to the Covid-19 crisis. Already, for the first time perhaps, India has a zero percent Gross Domestic Product (GDP) forecast—Barclays emerging markets research on April 14 cut India's calendar year 2020 GDP forecast to 0.0 from 2.5 percent earlier.

IIT Delhi and the other 22 IITs in the country, are now planning a special recruitment drive, as endorsed by human resource development minister Ramesh Pokhriyal, to help those whose jobs have been rescinded. In addition, the IITs have also set up a task force to look after the mental health of the students in the institutes.

"Even though my job hasn't been revoked there is a lot of uncertainty at the moment," says Shreya Johri, a final year biotechnology student at IIT Delhi. "I have a job offer in the US and my date of joining is in the first week of August. However, there are concerns about visas. In addition, our course has now been extended to July end. All of that adds to the confusion and lack of clarity." IIT Delhi had sent its students on leave ahead of the lockdown, and will now start the final leg of the courses between June and July after which examinations will be held.

Not just jobs, internships that were meted out frequently to undergraduate students, and were used as a platform for future hiring in companies, seem to be on hold. "Summer internships are critical because they provide a whole lot of experience, particularly global experience and also an opportunity for job placements later," says Aurobindo Saxena, former head of education practice at Technopak Advisors, and an education consultant. "But, these are unprecedented times, and many sectors are already feeling the squeeze."

Where jobs have materialised, adjustments and even pay cuts have been made in view of the lockdown and the crisis. Rishika Jain (name changed), who graduated from the Indian School of Business (ISB) and has joined her place of work through

Due to Covid-19, companies that had flocked to India's top institutions to hire talent are now reassessing their options

Birpali adds that in as many as 10 cases, offers were revoked and the institution is now working hard to find jobs for those who have lost out. "They have set up a new portal for the same," he says.

As the Covid-19 pandemic sends ripples across the world, both on the health care and economic front, companies that had flocked to India's top institutions just a few months ago to hire talent, have been taking a serious relook at their options. Already, research firm Gartner has withdrawn offers that it extended to students at various IITs for the year. Besides, others such as Texas-based Schlumberger, it is learnt, have also informed authorities that they will not be able to honour their offers.

"Schlumberger's activity and outlook has been severely impacted by two unforeseen events: The Covid-19

Sundar Pichai highlighted areas for cost-cutting and recalibration. "We believe now is the time to significantly slow down the pace of hiring, while maintaining momentum in a small number of strategic areas where users and businesses rely on Google for ongoing support, and where our growth is critical to their success. By dialing back our plans in other areas, we can ensure Google emerges from this year at a more appropriate size and scale than we would otherwise. That means we need to carefully prioritise hiring employees who will address our greatest user and business needs. Your leads will be in touch with you about how this will work for your team," he wrote.

The decisions by the companies come at a time when India is in the middle of a 40-day countrywide lockdown that started on March 25



an online onboarding programme, was to earlier join in a different city. Considering the travel restrictions, she has for now been offered the role in New Delhi, where she resides. “Since I can’t travel, they have also given the option of joining the local office, if the lockdown is extended further.” Though she did not have to take a pay cut, other classmates have been asked to take pay cuts of over 20 percent even before joining, she says.

The company that Joseph Mathew (name changed) was supposed to join does not have the necessary infrastructure for online onboarding so his joining date has been pushed to December this year. The ISB graduate, who has landed a job with one of India’s many e-commerce companies, has decided to use the delay to upskill himself. “ISB has been proactively pursuing recruiters to follow up

during the ongoing situation, Indian companies have reportedly been resorting to layoffs as business becomes difficult. Across sectors, sales have floundered, and businesses are likely to take a long time to recover. “We have to adjust to the new normal,” says Ramaswamy. “The west, which had been proudly presenting itself as an open world, has begun to look inwards. They are likely to hire more people from their own countries as they look at a more protectionist regime post the Covid-19 crisis.”

Students are also having to defer higher studies due to the uncertainty. Varuni Sarwal, who is to join the University of California, Los Angeles (UCLA) for her PhD in Computer Science is unsure about joining in September. “The visa offices are closed, and the website suggests that the latest I can get an appointment for

economy comes back strongly.”

SP Jain School of Global Management has also been seeing a positive inflow. “With the markets in US and Europe hit hard, we are seeing a positive inflow,” Nitish Jain, president of SP Jain School of Global Management says. “Students who were looking to study in the US are now looking for options closer home. And if we can provide premium education online, it will help bring about a generational shift in the way we see education. Until work from home became the norm, nobody gave it much attention. That’s similarly the case in education where online experience will find many takers.”

Saxena adds that this is also a good time to recalibrate the education system in India. “We have been overproducing engineers and management graduates but

“Classrooms and schools will see a massive shift once social distancing becomes the norm. It’s all about going digital.”

on placements. So far, we have not had any cancellations,” he says.

Institutions have been doing their bit. “We all understand that these are difficult times,” IIT Delhi Director, V Ramgopal Rao, wrote on Facebook soon after offers were revoked.

“But please be considerate to keep your promises. A few months of delay may be fine. Please do not complicate the lives of these brightest children in an already complex environment. If at all, they are capable of getting you out of recession faster than you can imagine.”

However, Narayanan Ramaswamy, head of education practices at KPMG, says that the crisis at IITs and IIMs “has been rather one-sided”. “When there are no offices open and layoffs are taking place around the country, what can the industry do?” he says.

Although the government has asked companies to retain staff

a visa is in October,” Sarwal says. “In these times of uncertainty, I can only consider a deferred admission and join in spring instead of the fall season.” Institutes like Boston University have already said they are likely to reopen their campus only by January 2021.

The move is towards digital and in some cases, closer home. “People assume the education sector isn’t likely to be affected by a recession,” says Ramaswamy. “Classrooms in schools will see a massive shift once social distancing becomes the norm. It is all about going digital now.”

OP Jindal Global University has moved its entire teaching module to an online platform to allow students to take classes online. “We all have to recognise the extraordinary circumstances,” says Dr C Rajkumar, founding vice-chancellor of the university. “There is no better time to go back to the universities and study before the

what the country truly needs are people across other sectors. With foreign MNCs unlikely to look for people outside their regions, it is an opportunity for India to take a relook at the education sector.”

According to the All India Survey of Higher Education by the Ministry of Human Resource Development, India had 32.9 lakh students graduating in the arts, commerce, science and humanities streams in 2019. Engineering and MBA graduates accounted for around 16 lakh graduates last year.

Then there is the massive educational loan sector, which could see some impact. “Many students start repaying the loans once they are placed with a company. But when jobs are revoked or delayed, then there certainly will be some constraints in paying back,” says Saxena. “Globally too, this is expected to become a major cause of concern.”

GETTY IMAGES / ISTOCKPHOTO



Cloud Cover

From supporting work-from-home now to strategising for their customers' long-term shift to cloud-based models, large technology companies see many opportunities amid the pandemic

By HARICHANDAN ARAKALI

When the national lockdown was announced in the wake of the Covid-19 pandemic, some of the world's largest technology companies sniffed a huge opportunity in helping customers tide over the crisis. As most offices sent their staff to work remotely, from

the safety of their homes, it entailed a move to cloud-based systems.

While the initial rush was to establish the communications systems and the remote working capability needed for hundreds of thousands of workers, there will be a more permanent need in future to accelerate the shift towards the cloud, say some of the top tech executives in India.

Since the outbreak, networking tech provider Cisco has been working closely with its customers, partners and the industry, says Daisy Chittilapilly, managing director, digital transformation office, Cisco, India & Saarc. The aim has been to equip companies with tools and technologies that not only facilitate work from home in a secure manner but also help



“We have been one of the first tech companies to articulate that the world will be hybrid.”

SOM SATSANGI

MD, HEWLETT PACKARD ENTERPRISE

in quick and easy scaling up of work. “As a result, we have seen a massive surge in the demand and adoption of our cloud-delivered solutions,” Chittilapilly says. This has been across collaboration (via a software platform called Webex), security, communication management, and analytics. In March, Cisco registered over 14.3 billion minutes of Webex usage globally. In only one week in March, its security trial requests increased by about 40 percent of last year’s total requests. “These numbers indicate the rise of a new way of working, which I believe will become a norm in the future,” she adds.

While in the short term, communications and remote working have taken centre stage, much more is in the offing. “Digital transformation takes on a new meaning during this global crisis. It will be the new foundation for the future, and leveraging the cloud to future proof their organisations and ensure business resilience is more important than ever for customers,” says Karan Bajwa, managing director, Google Cloud, India.

Google Cloud offers three important capabilities for digital transformation: First, high-scale, highly secured and reliable infrastructure, including cutting-edge computing, storage and networking through many data centres—called ‘regions’—around the world. Second, a digital transformation platform to manage data at scale, develop and modernise applications, understand and analyse data, collaborate with people and take advantage of new artificial intelligence capabilities. Third, a suite of industry-specific solutions that deliver new digital capabilities in health care, retail, media and entertainment, and other industries.

Google is helping thousands of organisations change themselves. Worldwide, if one looks at the 10 largest companies in different industry verticals, nine media companies,

seven retailers, six energy and utility companies, five of the top 10 banks, telecommunications companies, manufacturers, and software companies are using Google Cloud as part of their business transformation.

As people transition to remote work, many are looking to build skills and increase knowledge. To help, Google is offering its portfolio of Google Cloud learning resources, including an extensive catalogue of training courses. Anyone can gain cloud experience through hands-on labs, and learn how to prototype an app, build prediction models and so on.

Teams can also build their skills through Google’s on-demand courses on Pluralsight and Coursera. “Our most popular learning paths, including cloud architecture and data engineering, are now available to all,” Bajwa says.

Still, companies will continue to use a ‘hybrid’ model of both privately-owned and publicly-sourced data centres. “We have been one of the first tech companies to articulate that the world will be hybrid—we have consistently maintained this outlook

for the last five or more years,” says Som Satsangi, MD, Hewlett Packard Enterprise (HPE) in India.

HPE customers are reviewing their IT architecture and blueprints to determine the best options—a combination of public cloud, private cloud, and edge environments (meaning the points of networks farthest from the data centres, touching individual users) for their data and applications. The best solution will be determined by workloads and their characterisation of performance, security policies, compliance, data localisation, audit requirements, and cost.

IT decision-makers are seeking stability and service availability as a priority. However, at the same time, some organisations are facing severe decreases and others severe increases in demand for their products and services. From an IT perspective, this means there can be extreme changes in capacity demand, and there is the requirement to support new workloads and services, notably remote applications and virtual interfaces.

In the short term, this drives changes both in terms of technology and flexible IT delivery and financing models. “But these short-term changes are just amplifications of longer-term trends which are fundamentally shifting organisations’ approach to sourcing and running IT,” says Satsangi.

HPE’s Pointnext services portfolio has comprehensive expertise to help customers assess their IT blueprints and build an architecture best suited for their workload. HPE’s advisory service Right Mix Advisor, through an immersive dialogue with the IT decision makers, guides them towards the best mix of tools customised towards their individual complexities and workflows. The company has highly specialised experts in the Pointnext team to help customers optimise their use of both Amazon Web Services and Microsoft’s Azure—



two of the largest cloud providers.

Satsangi says customers are becoming successful in optimising their IT landscapes, reducing complexity and cost while freeing up resources to focus on innovation and other business critical requirements. Hence, the cloud providers see a surge in the use of their solutions. At Microsoft, the company has seen a 775 percent increase in the number of monthly users for Teams, its collaborative software platform, in one month in Italy.

“We have seen a significant spike in Teams usage, and now have more than 44 million daily users,” the company said. Those users generated over 900 million meeting and calling minutes daily in a single week towards the end of March. Windows Virtual Desktop usage has grown more than 3x. And the government’s use of public Power BI, a data visualisation platform, to share Covid-19 dashboards with citizens has surged by 42 percent in the week.

Microsoft is implementing a few temporary restrictions designed to balance the performance for all its customers. It has placed limits on free offers as well as a few resources for new subscriptions to prioritise capacity for existing customers. These are ‘soft’ quota limits, and customers can raise support requests to increase them. If requests cannot be met immediately, the cloud vendor recommends that customers use alternative data centres—called ‘regions’ and the company has 54 of them live currently—that may have less demand surge. “To manage surges in demand, we will expedite the creation of new capacity in the appropriate region,” Microsoft said.

“While cloud computing was already on the upswing earlier, the current situation has further pushed clients towards it,” says Sharad Sanghi, CEO—global data centres and cloud infrastructure (India) at NTT Ltd. “The government has made data localisation mandatory



“While cloud computing was on the upswing earlier, the current situation has pushed clients towards it.”

SHARAD SANGHI

CEO—GLOBAL DATA CENTRES AND CLOUD INFRASTRUCTURE (INDIA), NTT LTD

and we had anticipated it to be a year of accelerated growth in the hybrid cloud market.” NTT was prepared for growth, he says. To meet the increased demand, NTT is providing clients with simplified end-to-end cloud management services across multiple platforms. It expects more companies to move to the cloud to take advantage of the operational and cost gains and improved profitability. “We also hope more on-premises customers, who faced challenges during the lockdown, will transition to the cloud,” says Sanghi. Further, due to cash flow and logistical challenges, customers will prefer the cloud rather than incurring capital expenditure on buying and shipping IT hardware and software assets, adds Sanghi.


NTT is offering customers multiple cloud options via both its own public cloud—called SimpliCloud—and through partnerships with global cloud providers. Its approach is to help customers choose the most suitable platform for their workload and plan the migration.

In the move to the cloud, security is an important factor, says Sajan Paul, managing director and country manager, India and Saarc, at Juniper Networks. “Earlier, it was more of an operational expenditure discussion with our customers. However, now, it has become an important discussion as part of their business itself,” he says. Therefore, Juniper has solutions, Contrail, which allow customers to expand their IT assets across multiple clouds in a multi-cloud security scenario. With Juniper’s Mist and SRX series of products, it can provide enterprise-grade work-from-home infrastructure, he says.

Juniper is working with customers to tackle massive distributed denial-of-service (DDoS) attacks, which slow down the networks significantly. Its new solution in collaboration with Corero Network Security offers service providers with an intelligent DDoS protection that self-heals the network.

Mid-sized Indian IT services companies are also seeing opportunity. “We are seeing our services across infrastructure services and cloud, remote service desk, break-fix services (services as/when needed) and information security, all being in demand due to the nature of the event and the sudden need to shift to work-from-home,” says Anand Ramakrishnan, CEO of Qtek Systems.

In addition, robotics process automation—the use of software bots to automate manual processes—is also getting more attention, he says. So far, this was restricted to certain areas of banking and finance and customer support centres, but Qtek has recently seen a rise in interest for this service. This is possibly because customers have begun to realise that automation spend today may result in substantial benefits during times of crises.

“Once Covid-19 comes to an end, we expect to see a lot more action around cloud and information security together as a strategy,” Ramakrishnan says. 

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Network **18**

Stone Walls Don't Make a Prison

How the Kerala police, led by Rishi Raj Singh, the state's director general of prisons and correctional services, is counting on prisoners to produce face masks, hand sanitisers and hospital gowns

Text and curation by **MEXY XAVIER**; Photographs by **R RAVI**

The facts and figures speak for themselves: Kerala's 54 prisons with around 8,000 prisoners make 20,000 cloth masks every day. About 1,000 of those, priced at ₹10 each, are sold every day at the cafeteria of Poojappura central jail in Thiruvananthapuram. The Kerala State Electricity Board has ordered 50,000 masks for its employees in 14 districts. The inmates also make other items crucial to fight the pandemic. For instance, 500 litres of hand sanitisers daily, which are sold at ₹50 for 100 ml. And Sree Chitra hospital in Thiruvananthapuram has ordered 500 gowns from Poojappura's gown-making unit. Besides, under the initiative 'Food for Freedom', 3 lakh chappatis are rolled and baked, while 550 kg of chicken cooked in the prison kitchens per day. The meals are then packed and sold near hospitals and main junctions across 10 cities. While there is an extensive menu, the cheapest among them, chicken curry and chappatis, comes for ₹35 a pop, and is bought by the civic authorities to distribute among migrant workers.



The gown-making unit at Poojappura central jail makes 25 pieces a day



Each tailoring unit has one tailor. Since most of the prisoners don't have the skillset, they are trained to stitch in the jail itself



Hand sanitisers are prepared under the guidance of chemistry professors from colleges across the state, adhering to the norms issued by the drug controller



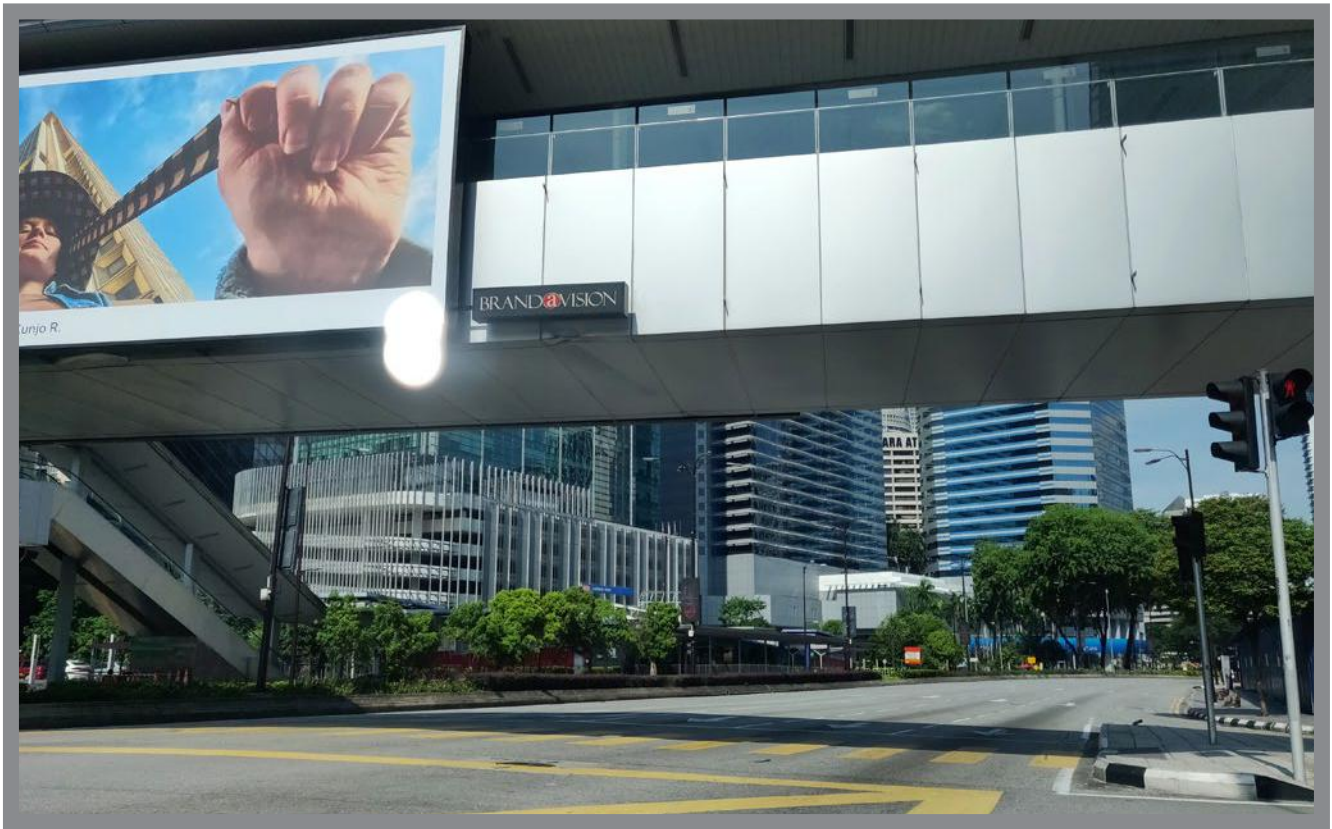


The organic farms at the jails cumulatively produce 300 kg of vegetables every day with which the kitchens rustle up an elaborate menu, including Kerala favourites like puttu, appams and parotta. The meals are then sold in packets that are also made in-house



LOCKDOWN DIARIES


Glimpses of daily life from cities around the world



KUALA LUMPUR, MALAYSIA

By CHARUKESI RAMADURAI

As I stand on the balcony of my 18th floor apartment, I can see an empty road down below. An occasional car zips by, perhaps on its way to a supermarket or an unmissable medical appointment. The silence is punctuated by the alarms of either an ambulance or a police car on patrol. There are also new sounds: The chirping of starlings and sparrows, the mournful yet melodious

 The silence on the empty Kuala Lumpur streets is broken only by the sirens of an ambulance or a police car on patrol

drawl of the koel, and the sudden rainbow flash of a dozen blue-tailed bee-eaters flying low.

A month ago, at this time of the morning, this arterial road would have brimmed with long queues of cars (im)patiently waiting at the traffic light. Mothers and nannies would have rushed children to school; there would have been a few walkers with or without a dog on a leash, along with a handful of perspiring joggers out to get their daily cardio fix before the heat and humidity became unbearable. Perhaps the roti man would have gone by, carrying fresh fruit and popcorn packets, fluffy pav and white bread, all wrapped in plastic covers and tied to his bicycle.

Now, none of them are out on the streets. Malaysia has been under total lockdown since March 18. But people (who could afford to) had started staying at home as much as possible since early March. My swimming instructor cancelled classes around then, while the local bi-weekly farmer's market shut down until further notice. There were signs of panic-buying—long lines at the supermarkets, and shelves that seemed to be emptying faster than they were being filled. And finally, when the Prime Minister addressed the nation on TV, and advised everyone to stay indoors, it was time for my husband to start working from home too.

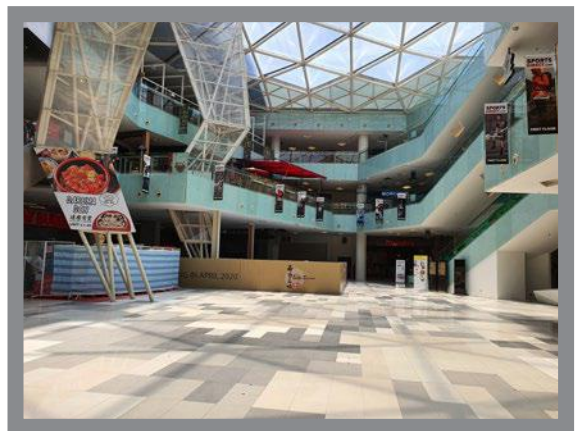
My husband and I had chosen a strange time to move to Kuala Lumpur from our home in Bengaluru. India was still fairly unconcerned then—in the last week of February—but we flew into an airport where face masks and hand sanitisers were in abundance, with warning notices plastered all over. When we stepped into our hotel late at night, the security guard pointed a thermometer at our foreheads and nodded us in only after ensuring we were not running a fever.

Malaysia, hit the hardest in the Southeast Asia region, officially reported its first coronavirus case on January 25. As of today (April 9), there are 3,963 confirmed cases and 63 deaths. To enforce the lockdown, the government promptly sent the police force and—after pleas, threats and spot fines failed to keep people off the streets in the first week—the army.

Overall, the planning and execution of the crisis management strategy has been thoughtful, allowing 48 hours for people to go back home, organise work or stock up their kitchens. The supply chain continues to be steady, and only the head of the household, which is usually a man, is permitted to step out for groceries or essential shopping. Many memes, and even a newspaper article, sprang up instantly about Malaysian men now finding themselves confronted by a bewildering variety of meats and masalas. But these strict measures seem to have borne fruit, at least halting the sudden and fierce spread through local transmission.

I live in a neighbourhood that serves as a safe bubble for expatriate workers from the USA to Australia and Germany to India. On an expats' group on Facebook, I see a wide range of coping mechanisms playing out—from panicked calls for veterinarians, to even more panicked calls about the availability (or lack, thereof) of alcohol in the stores; from silly memes about the latest situation, to serious updates from the government.

▶ (From top): Health workers at a local hospital check a visitor's temperature; a Kuala Lumpur mall shut since the national lockdown was declared on March 18



As a freelance journalist and travel writer, I am used to working from home. Surprisingly, even my husband, an extrovert, who is used to working from an office and likes meeting people, seems to have taken to this schedule easily.

Some delightful stories, too, emerge in the midst of this gloom. Sunandhini Pattabhiraman, my new friend and old resident of Kuala Lumpur, describes her neighbours coming out to their balconies to sing for children who have birthdays amid the lockdown. And then there is my other new friend, S Abdul Shukor, a partner at Malaysian law firm Zain & Co, who facilitated the return of a Lebanese citizen, stranded at Kuala Lumpur airport, to Phnom Penh in Cambodia, where he now lives.

We are already in the fourth week of the lockdown, bravely coping with all its ups and downs. But irrespective of whether the lockdown is lifted or even eased soon, there is a long and hard battle ahead. **F**



DUBAI, UAE

By **CHAITALI PATEL**

The reverberating sound of a fast car's engine, juxtaposed with the chirping of sparrows and the shrill calls of sunbirds, though incongruous, are normal here in Dubai. But things have changed. The birds are thankfully still around, but the city of speed has gone eerily silent.

About a month ago, in early March, when I landed at the airport, everything seemed normal. I felt out of place and silly as I donned my mask before joining the immigration queues. Looking at the list of flight arrivals and the crowds, Covid-19 seemed like a figment of someone's imagination. The only change was that everyone exiting the airport had to walk past heat sensors, monitored by a uniformed man.

Fast forward to mid-April. The airport has come to a grinding halt; except for cargo flights, all aircraft have been grounded till further notice. For a city that thrives on being a nodal point connecting far-flung places across the globe, this is imminent doom.

 A view of the empty access road to the arrival hall of Terminal 3 at Dubai International Airport

The first big clampdown came on March 4, when schools across the city shut with a day's notice. Spring break was brought forward and schools were told to start lessons online; initially, children prepared to study from home for two weeks, and then it was extended till June. Parents scrambled for devices and tables for children to work on. A school WhatsApp group I am part of was abuzz with irate parents, juggling working from home, technology issues and teaching kids.

After schools, many workplaces asked their employees to work from home. Slowly and steadily, as further stringent measures were introduced, both anxiety and uncertainty spread. People could exercise outdoors if they maintained adequate social distance, but gradually all sorts of outdoor activity were stopped. As of today, no one can leave their homes without a permit to visit even the nearest supermarket. We need to fill our personal details on a government website, and the reason why we need to step out, and a permit is granted. It's a fairly easy and hassle-free experience, but the government gets to monitor our movements.

Even as images of empty store shelves from cities around the world flooded the internet, in Dubai the supermarkets are well stocked, and operate normally

while following safety precautions mandated by the government. Customers are instructed to wear masks; many also wear gloves. All trolley handles are given a wipe down before every use, and stickers on the floor indicate the safe distance to maintain from the next person in queue and from the cashier.

I feel like an actor getting ready to go up on stage every time I step out of home, as I put on my mask and gloves. My drama, though, is limited to constantly sanitising my hands and every surface I touch, as well as taking a step back and away from the person nearest to me. Strange are these times, and stranger will be the effects they'll have on us all in the days to come.

Whatever my grievances are, there are umpteen blessings to be grateful for. Like most expats in Dubai, we live well in our bubbles with all possible creature comforts, a well-stocked pantry and glitch-less wifi. Worries about family and friends around the world, possible pay cuts or job losses, and other economic fallout of this pandemic sit somewhere in the recesses of my mind. But, as of now, I choose not to dwell on these. How long this will last is also a question for another time.

Over the weeks my worldview has expanded, but my field of view has shrunk. I know what's happening in far-off corners of the world as I keep track of Covid-19 numbers, but I don't know what's happening in the park behind my house, its view blocked by a low-rise building. It's the time of year when the gulmohar trees will slowly burst to life. These are small markers that give me a sense of rootedness. I know that spring is here as sunbirds flit about the few flowers in our little garden. Soon, cooler mornings and pleasant evenings will become a distant memory as summer sets in. Then, the confinement indoors will be total.

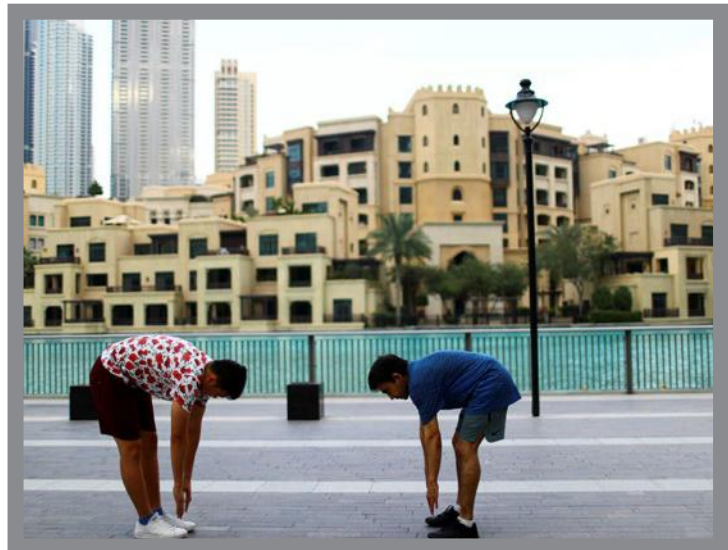
As someone who works from home, I am used to minimal social interactions and spending long hours indoors. However, the indoors I am accustomed to has transformed. The noises outside on the street have reduced, while the commotion within the four walls of our house has grown.

I struggle to find my writing zone amidst the many interruptions, from a teething puppy who

I KNOW WHAT'S HAPPENING IN FAR-OFF COUNTRIES BUT I DON'T KNOW WHAT'S HAPPENING IN THE PARK NEAR MY HOUSE



CHRISTOPHER PIKE / REUTERS



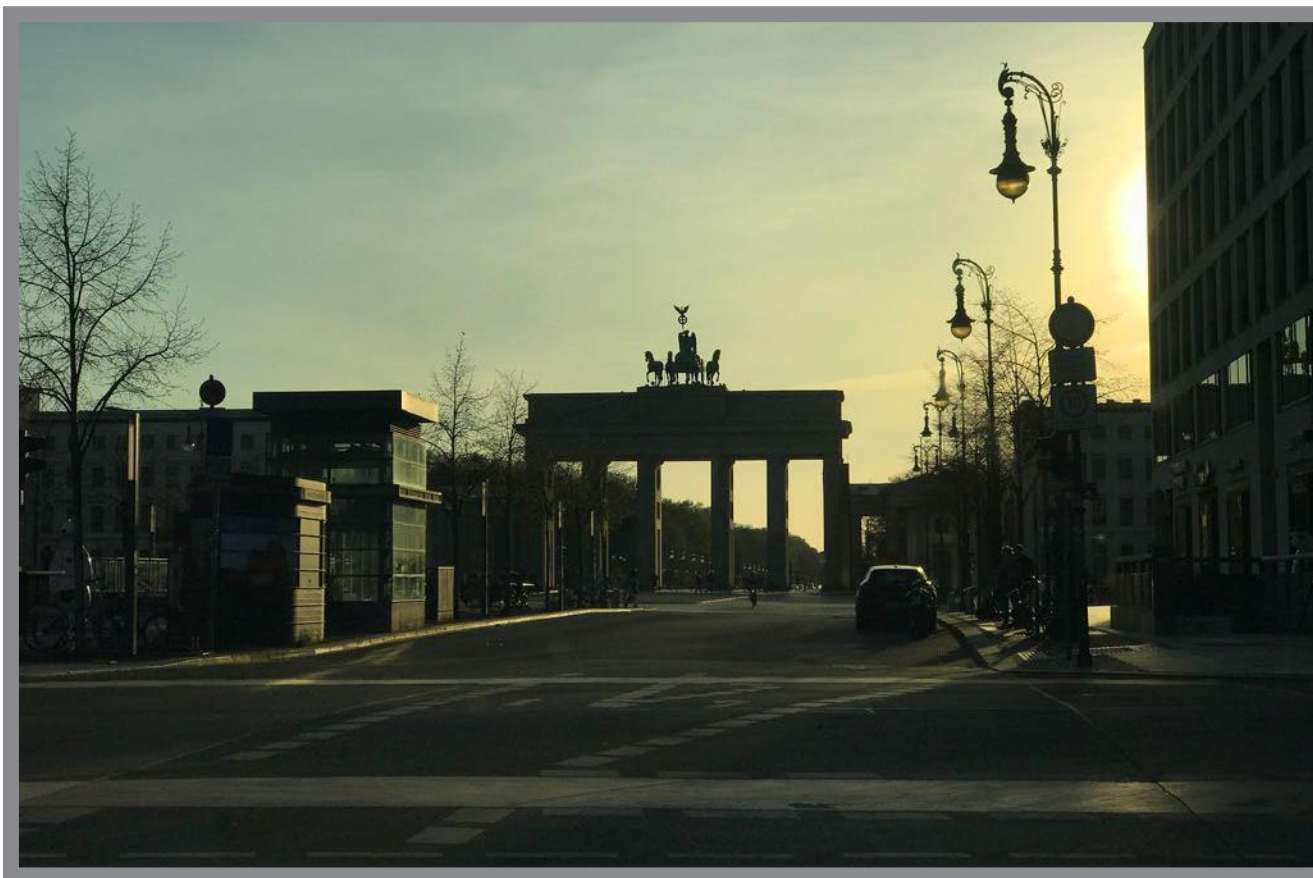
AHMED JADALLAH / REUTERS

▲ (From top): Supermarkets in Dubai are well-stocked despite the lockdown; citizens exercise while maintaining a distance between themselves

demands constant attention to a perennially hungry child. Like almost all travel writers, I am grappling with a slew of rejections, lack of demand for articles, and a highly uncertain future.

My husband, who always said he could never work from home, has adapted to his new arrangement extraordinarily well, and clocks in nine hours every day. Our daughter is thriving, with the freedom that the lack of a rigid timetable brings and no extra-curricular activities eating into her time. This confinement is like an extended vacation for her, albeit strange without friends and activity.

I often wonder how she'll look back at this period of her life when she grows up. Will it just be an aberration or will it leave a deeper mark? I go to bed with a stash of unanswered questions and wake up with several more. **F**



BERLIN, GERMANY

By VAISHALI DINAKARAN

We'd been back home for just three days, having completed a 2,000-km drive from Arvidsjaur in North Sweden to Berlin in Germany. It had

been a rather long work trip up north. As we moved south, travelling away from a cold, harsh winter into what appeared to be spring, the sunshine made the prospect of a pandemic a little more tolerable. The plan was to follow the advice: Get home, stay indoors for two weeks, and even after that, continue to observe 'social distancing'. Which is why when my husband Ronny's phone rang, and I heard him yell, "What do you mean, 'Come downstairs?!'" I was startled.

The two of us grabbed our jackets and ran down and out the building. Standing on the far side of the yard were Ronny's mother, Irene, and his uncle, Willy. They'd motored over to see us, and make sure we were in good health, and had placed

▲ Brandenburg Gate without the usual throng of tourists with selfie sticks

a little bag of essentials—bread, pasta, a large box of multivitamins—on our doorstep. They were standing far enough away to not violate the rules of kontaktsperre—no contact. So there we stood, first shouting pleasantries at each other, and then admonishing them for leaving their homes for a socially-distanced visit. No hugs, no kisses, just lots and lots of space between us. The new normal.

The ausgangsperrre or "lockdown" in Berlin isn't a complete lockdown. Of course, malls, theatres, concert halls, and educational institutions are closed. And the recommendation is for people to work from home if they can, which a lot of people are able to manage. No more than two people can be out in public together, and you have to maintain a distance of at least 1.5 metre from others on the streets.

When I look out of the window of my apartment in suburban Kaulsdorf, I can see some activity. There is a steady stream of traffic going by for two reasons: One is because there's a hospital less than a kilometre away, and then, there's a bus terminal and a local train station, or S-Bahnhof, nearby. At any rate, other than having a batch of groceries delivered, and in

a moment of sheer exhaustion, ordering a pizza, I haven't encountered anyone other than Ronny.

The fact that my office is usually wherever my laptop happens to be is something that I've been used to for a while now. So even while all work-related travel has been cancelled, there are still articles to be written for various publications, a motorsport section to be put together for a magazine, and some leads to follow. But even this semblance of normality doesn't really feel normal. Given that I'm on my computer a lot, things are tricky. Endless news—essential, non-essential and morbid—are all just a new browser tab away. I find myself constantly tracking the number of Covid-19 cases in Germany, in India, in France, in Italy. And then breaking it down further into cities, and still further into recoveries and deaths. Into statistics of every imaginable sort. Every time I log onto Twitter, I feel like I'm seeing Tweets from more people who have either lost a loved one, or lost their jobs. By the end of two weeks, I'm feeling miserable, and the effects of cabin fever are setting in.

There's honestly nowhere that I really need to go. But given that my two weeks of self-isolation are up, I can go for a short walk. So I'm relieved when my neighbour Miriam suggests we walk to the Kaulsdorfer Seen—twin lakes about 2 km away. The sun is out, and the weather is a pleasant 23°C. When we leave the built-up portion of the neighbourhood behind, and cross into a grassy field, for a moment I forget everything grim and morbid. Miriam's throwing sticks for Lotte, her dog, to catch, and we continue down the mostly deserted path to the lakes, where we're in for a surprise. The weather seems to have made people forget the global health crisis. A fair number of sunbathers are at the lake, many of them nude—Germany is famous for FKK (Frei Korper Kultur, which translates to free body culture). Social distancing seems to have been thrown to the wind, so we hightail it back home. I later learn that not all Berlin parks are similar. My friend Eleanor Turner tells me that at Gorkitzer Park, a famous haunt of the city's drug dealers, she spotted, “drug dealers not only wearing face masks and maintaining social distance, but also have set up a makeshift hand-washing station for the public.”

The next time we leave the apartment, it's to go to a nearby supermarket for groceries. It's the Thursday before Easter, which means normally it would be crowded. But now the aisles are sparsely populated. There's hand sanitiser for customers to use before entering the store. The cafe and baked goods section are empty. And there are stickers on the floor for

▶ Please maintain a 1.5 m gap, reads a sign on the floor of a supermarket



▲ Family visits in the time of social distancing

people to stand 1.5 m apart. But I'm relieved to see that people are only buying what they need, and there's no dearth of anything. Not even toilet paper.

It's Saturday evening when we decide to drive through the city. I'm curious to see what Berlin looks like on Easter during a lockdown, and also I've realised the Indian store in the heart of the city is open for three hours each evening, and I'm out of my favourite brand of tea. I've never seen the city like this before. The lawn outside the Reichstag—the German parliament building—usually packed with tourists, now has a few people sitting on it. I've never been to the Brandenburg Gate before without nearly getting thwacked with a selfie stick, but now it's nearly empty. The new normal.

Berlin is the most energetic city I've lived in, besides Mumbai. And to suddenly see it stripped of this is strange. The stillness is peaceful, but discomfiting, like watching a movie on mute. It isn't a movie that I've seen before. And I don't know how it ends. **F**

TASTES FROM A TEMPLE TOWN

The love of mutton makes Madurai an exception among South Indian religious centres

By RATHINA SANKARI



78

I remember, as a 10-year-old, waking up even before the sun had made its presence felt. Although it was too early for the day's regular morning routine to have started, downstairs I could hear a babel of voices. As I walked down the steps, I watched my maternal grandmother giving instructions to my uncle about the items to be bought from the market. Mutton topped the list, followed by goat blood and bone marrow. She was clear about the cut and quantity, for it was no normal day. It was the day of Lakshmi puja.

Meat being prepared on the occasion of Diwali might be unheard of in many parts of India. But not in the temple city of Madurai and its neighbouring towns, where butchers open their shops before the crack of dawn on this auspicious day. I have fond memories of biting into the juicy pieces of suvarotti (goat spleen), rich in iron, roasted and smeared

with nothing but salt and pepper, prepared by my grandmother. It was here that I mastered the art of tapping the bones and sucking the mushy marrow out from them. She would regularly prepare karikuzhambu (mutton curry) doused with coconut paste, and the kothukarikuzhambu (mutton keema curry), which was the perfect accompaniment for idlis, dosas, parottas and pooris. But try as I might, I could never gather myself to savour the rathaporiyal (goat's blood stir fry), a delicacy that would be prepared every Diwali.

In most religious centres of Southern India, such as Udipi in Karnataka, Tirupati in Andhra Pradesh and Guruvayur in Kerala, the culture of eating meat isn't popular. But Madurai is home to a long list of roadside eateries and restaurants that serve varied non-vegetarian dishes. Every part of the goat is savoured: The brain, shank, trotters, head,

▲ Madurai is home to a long list of restaurants that serve varied non-vegetarian dishes

PHOTOGRAPHS: RATHINA SANKARI



◀ Devika Marivel runs the 40-year-old Burma Idiyappam-kadai in Madurai; A non-vegetarian meal with Ayira Meen Kulambu served with white rice; Meenakshi temple, Madurai



FRÉDÉRIC SOLTAN / CORBIS VIA GETTY IMAGES

kidneys, intestines, liver... you name it. “Besides being a temple city, Madurai has for centuries been a commercial hub for trade and commerce,” says Shanmughapriya Thyagarajan, who manages Mystical Palmyra, a heritage tours company. “This distinguishes Madurai from other temple cities, which are primarily pilgrimage centres.”

Madurai, the seat of Tamil Sangam (the renaissance of Tamil literature that spanned the 3rd century BC to 3rd century AD) and popular across the globe for the highly revered Meenakshi Amman Temple, is an ancient city with evidence of human occupation for more than two millennia. It finds mention in the writings of ancient Greek historian Megasthenes, who visited India as an ambassador around 3rd century BC. The city also finds mentions in the Greco-Roman accounts of Pliny, Ptolemy and Straboin in the 1st and 2nd centuries AD, as the region traded commodities like pepper, pearls and textiles with the Greeks and Romans. Excavations close to Madurai have also unearthed ancient Roman artefacts, such as coins.

On my biannual visits to the city of my childhood, a walk along the concentric streets surrounding the temple is a feast for the senses: The woody, creamy fragrance of sandalwood paste as you pass by a sandalwood vendor, the waft from the seductive Madurai malli (jasmine) as you cross women wearing flowers in their hair, the noise of traffic, the towering, colourful gopurams (spires) of the temple, the aroma of fresh, soft idlis from roadside corner shops.

The city has many names, each referring to its many legends and attributes: The name Koodal refers to the congregation of scholars during the Tamil Sangam, while the name Madhura refers to the legend that ‘madhura’ or nectar flowed from the matted locks of Lord Shiva into this region; and the people from far and near who visit the city for commercial purposes have given it the sobriquet Thoonga Nagaram, or the city that never sleeps. The vegetable market, fruit market, flower market and fish market function through the night, with cargo being unloaded, packaged, distributed and sold.

To cater to these throngs of people, roadside eateries and tea and coffee shops work through the night. “At two in the morning, you can get piping hot biryani, kothuparotta, string hoppers, idli, tea... you name it,” says Praveena Mukunthan, who hosts food trails called Foodies Day Out in Madurai. Both vegetarian and non-vegetarian fare is served in all these restaurants and street food joints.

Madurai is also home to numerous joints called ‘mess’. They have their origins in the rustic, makeshift roadside stalls that locals set up to sell

home-made food. These soon flourished and moved into permanent, but no-frills, set-ups. Amma Mess, Kumar Mess and Chandran Mess are some of the big names that serve a few vegetarian dishes, and focus more on meat dishes that are pocket-friendly and have a home-made taste. Mutton brain roast, kola urundai (meat balls), liver roast, kaadai (quail) roast, turkey biryani, crab pepper fry, mutton egg parotta, and mutton curry dosa are some of the dishes that typically appear on the menus of these joints. “The region has an abundance of karuvelam trees or *Prosopis juliflora*, which the goats feed on. Hence the easy availability of mutton,” says Shanmughapriya.

Every year in the scorching heat of May, a motley crowd that was my family would bundle into a state-run bus, which would move at a snail’s pace to my maternal grandfather’s village Lakshminarayanapuram, 60 km from Madurai. The purpose of this trip was to celebrate the kedavettu Pongal, a festival celebrated with goat sacrifices at the Kali Amman village temple. A fun-filled week-long affair, it involved folk dance performances, women carrying mulaipari (nine grains germinated in clay pots) on their heads, preparation of Pongal (sweet rice) by the women, and the sacrifice of goats and chicken to the village deity.

The slaughtered goat would be taken back to the courtyard of its owner’s house to be butchered. Some of the meat would be used to make biryani, mutton curry and varattukari (mutton fry), the rest would be salted and dried to make uppukandam, or jerked meat, which has a long shelf life. These would be consumed either as a curry to be had with rice, or fried in oil as a side dish in a traditional South Indian meal. I would always persuade my grandmother to pack large quantities of uppukandam for me while leaving my hometown. A lover of mutton, on her death anniversary her children continue to prepare different mutton delicacies in her remembrance every year.

Such is the love for meat in this region that when girls attain puberty, a lavish feast is thrown for friends and relatives, which includes rich non-vegetarian fare. When one-year-olds are tonsured at clan temples, and their ears pierced, Pongal is prepared in earthen pots and a goat is sacrificed. Guests are served meat dishes for lunch.

In recent years there has been an influx of Western fast food in the city. “But Madurai residents still go back to their traditional food as their go-to food. However rich they might be, they have no qualms about waiting at a roadside stall for their favourite local delicacy,” says Praveena.



▶ Roadside vendors sell mulu murungai vada and paruthi paal or cotton-seed milk

There is, of course, more to Madurai’s food scene than meat. The city has a substantial presence of Saurashtraans, whose ancestors migrated from Saurashtra in Gujarat. In the early 17th century, Madurai was ruled by King Thirumalai Nayaker—he also constructed a namesake magnificent palace—who invited the Saurashtraans to live in the city, thus bringing their expertise in weaving, and giving Madurai the famous sungudi weave.

Also called Patnulkarar, or silk weavers, the Saurashtrian community has contributed immensely to the city’s cuisine and culture. On my visits to the city, I often drop in on my father’s friend, a



◀ The Madurai malli is synonymous with the city; Puttu or steamed rice cakes find references in the *Thiruvilayadal Puranam*

PHOTOGRAPHS: RATHINA SANKARI Saurashtrian. Their puliyodharai, or tamarind rice, is the calling card of my sojourns. I have had this simple dish in many homes across the state, but nothing beats the preparation of a Patnulkarar.

To relish the other specialities of the city, head to the roadside stalls opposite Sarveshwarar Temple. Mulu murungai vadai (rice-based, deep fried savoury snacks made with the leaves of *Erythrina variegata*) and ragi vadai (a deep-fried snack made of finger millet with shallots and curry leaves) are served hot and fresh, off the stove in the evenings. The halwa shops of Madurai have contributed immensely to its fame, such as the

century-old Nagapattinam Halwa Shop on Chitrai Street, and the Prema Vilas sweet shop on Town Hall Road. When this gooey sweet made of wheat flour, loaded with ghee, melts and slides down your throat, it is indeed poetry. A packet of this sure does find a place in my bag whenever I visit the city.

As you stroll down its streets you are bound to notice many cycle carts mounted with a brass pot containing hot paruthipaal or cotton-seed milk. Mixed with palm jaggery and laced with dried ginger, grated coconut and cardamom, it is said to improve digestion and blood circulation and ensures good functioning of the nervous system. Another highly irresistible drink is the jigarthanda, made with almond resin, china grass, sarsaparilla syrup, basundi, chilled milk, lots of sugar and topped with a scoop of ice cream. This decadent dessert is the perfect antidote for Madurai's heat. The best place to down a glass of this would be one of the numerous outlets of Famous Jigarthanda that dot the city.

About 4 km from the Meenakshi Amman temple is the teppakulam, or the temple tank of the city. Every evening you will find a couple making and selling hot puttu, or steamed rice cakes, from a pushcart beside the tank. This healthy snack is best had by sprinkling sugar or jaggery and grated coconut on it.

Whenever I dig into a plate of puttu I am reminded of my paternal grandmother, who would narrate the riveting tales of Lord Shiva's divine acts, with Madurai as his playground, from the *Thiruvilayadal Puranam*. One such story says that when the river Vaigai flooded the city, the Pandya king issued an order that a member from every family would help in building a bund on the river banks. But Vanthi, a lone woman, couldn't take up this work due to old age. Shiva appeared before her in the guise of a young man and agreed to work on her behalf if she fed him puttu. To this day the city celebrates the festival of puttu every year to commemorate this event.

I stop by Janakiram, a non-vegetarian restaurant, to relish some of the city's specialities. I order Ayira Meen Kulambu, a fish curry made with the tiny spiny loach that is indigenous to this region and is found in the marshy beds of its dams, lakes and rivers. I know it cannot rival my maternal grandmother's preparation, but I take the plunge nonetheless. The flavours of the dish transport me to her home: I see her, clad in a sari, a towering figure, as she stood at the gate talking to the fishmonger, checking the day's catch mounted on his bicycle with an adept eye.

Madurai continues to be my favourite food playground for life. **F**

A pick of the best, the latest, the greenest, the quirkiest, the most luxurious that money can buy



Work

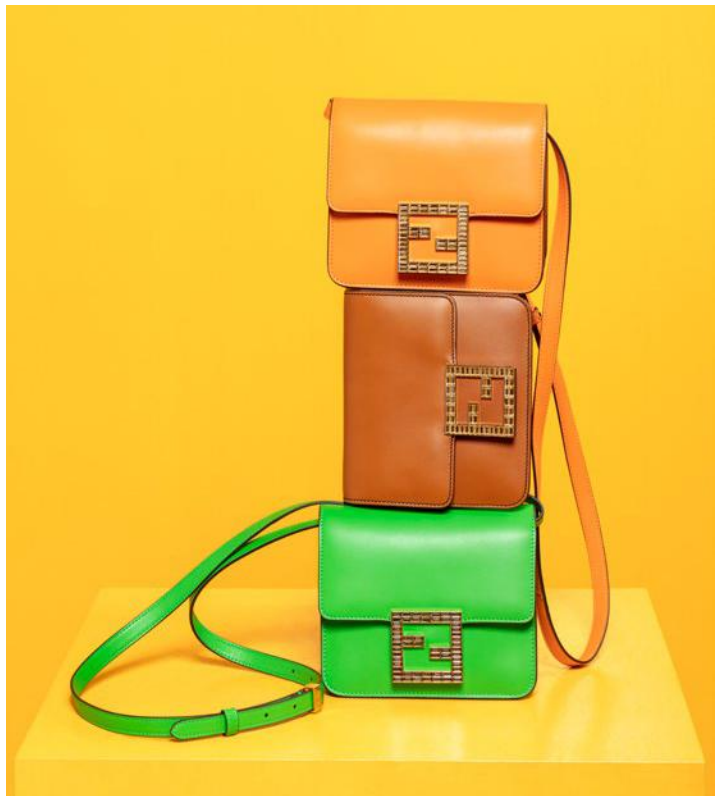
FOR THE CHAIRPERSON

Herman Miller, which makes modern innovative office furniture, has introduced Cosm, its first task chair with an automatic tilt, in India. Designed by Berlin-based Studio 7.5, Cosm comes with superior ergonomic support, and can adapt to any user, thanks to its in-built Auto-Harmonic Tilt. This provides continuous support and fluid movement, corresponding to the person's body, posture and seated position. Cosm's armrests have Leaf Arms, which cradle the elbow, supporting its delicate nerves in a variety of positions. This 2019 Red Dot Winner in the Office Chair Category is available in three back heights and as a stool, making it useful in a variety of applications. hermanniller.com

Style

VINTAGE FUN

The Fendi Fab is a compact, cross-body bag with a new squared FF logo buckle designed by creative director Silvia Venturini Fendi. Part of the Spring/Summer 2020 Collection, the bag has a vintage flair, with a modern twist. It is made of leather, with the traditional gold buckle or a more glamorous crystals buckle version, while its leather adjustable strap lends it functionality. It is available in pop colours as well as natural hues of pale pink, black and brown. [fendi.com](https://www.fendi.com)



Music

A FINE BALANCE

Balance, from Bang & Olufsen, is a compact-yet-powerful speaker with a distinctive, sculptural silhouette. It has a large base unit supporting a textile-covered cylindrical speaker, with a touch- and voice-activated interface on top. The timber base unit contains a large, omnidirectional bass speaker driver, while the softly sculpted upper unit contains the precise mid- and top-end drivers, which complete the warm, well-balanced audio performance.

[bang-olufsen.com](https://www.bang-olufsen.com)



Style

LONDON TIME

The Berkeley Renaissance timepiece from Backes & Strauss is inspired by the perfectly symmetrical Berkeley Square in London's Mayfair. It is made in stainless steel, and features an ideal cut 0.06 carat diamond, known as the Backes & Strauss signature Jewel, in the crown. The dial features a bespoke stamping to mirror the facets of a diamond, making this wristwatch both subtle and striking.

[backesandstrauss.com](https://www.backesandstrauss.com)

For the chairperson, courtesy *Better Interiors*



SHUTTERSTOCK

The challenge is to practice politics as the art of making what appears to be impossible, possible.

—HILLARY CLINTON

Life's a challenge, but that's the best part.

—VENUS WILLIAMS



GETTY IMAGES

Why go through life if you're not going to challenge yourself?

—CONOR MCGREGOR

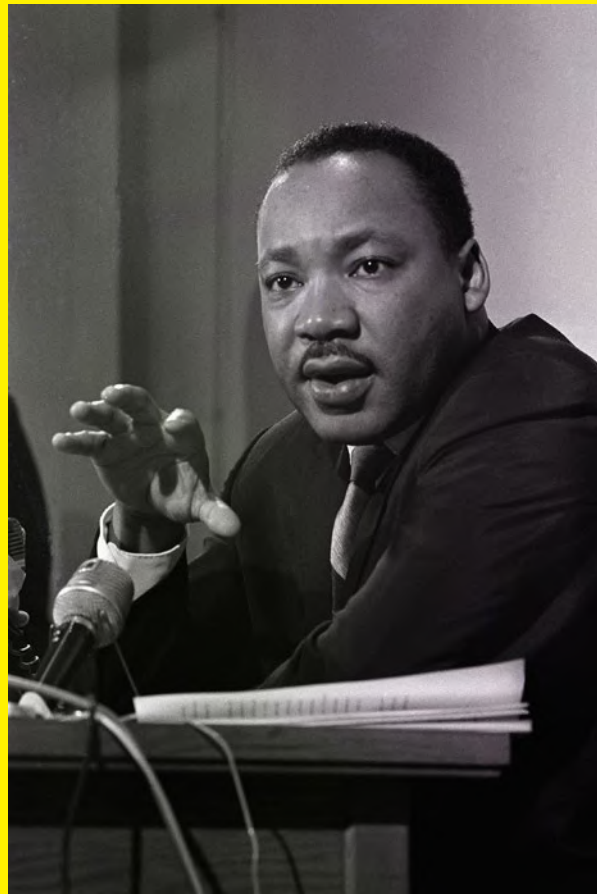
To my mathematical brain, the numbers alone make thinking about aliens perfectly rational. The real challenge is to work out what aliens might actually be like.

—STEPHEN HAWKING

The challenge of the unknown future is so much more exciting than the stories of the accomplished past.

—SIMON SINEK

BETTMANN / GETTY IMAGES



The ultimate measure of a man is not where he stands in moments of comfort and convenience, but where he stands at times of challenge and controversy.

—MARTIN LUTHER KING, JR

If you cannot understand that there is something in man which responds to the challenge of this mountain and goes out to meet it, that the struggle is the struggle of life itself upward and forever upward, then you won't see why we go.

—EDMUND HILLARY



SHUTTERSTOCK

I love the challenge of new ideas.

—RALPH LAUREN

The challenge is to stay cool enough to handle the pressure in the moment so that you can succeed in the future.

—JURGEN KLOPP

The only use of an obstacle is to be overcome. All that an obstacle does with brave men is, not to frighten them, but to challenge them.

—WOODROW WILSON

There is nothing like a challenge to bring out the best in man.

—SEAN CONNERY

We must accept life for what it actually is—a challenge to our quality without which we should never know of what stuff we are made, or grow to our full stature.

—ROBERT LOUIS STEVENSON



SHUTTERSTOCK

Even if you have a terminal disease, you don't have to sit down and mope. Enjoy life and challenge the illness that you have.

—NELSON MANDELA

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