

# Through the looking glass: technology in a post COVID-19 world

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Amidst the socio-economic disruption caused by COVID-19, technology will play a vital role in reshaping consumer, business and even government behaviour. This technology-powered transformation will result in new business models designed for an increasingly 'contact-less' society. This profound shift is set to be extremely challenging, especially as it is at odds with centuries of human evolution into a globally connected collective.

## An optimistic future

As history has shown, every crisis presents an opportunity to emerge stronger. A whole range of technologies can now power an exciting new set of capabilities. These technology innovations can be distilled into three key themes to help identify future opportunities.

### Consumerism - the future of customer engagement

Technology has turbo-charged customer management capabilities resulting in the creation of entirely new business models across multiple areas such as e-commerce, ridesharing, over-the-top (OTT) media, fintech, ed-tech and hospitality. The pandemic is expected to give a fillip to such technologies.

— Financial services and payments are witnessing a significant shift to digital modes as e-commerce and especially prepaid options offering 'zero contact delivery' have been embraced by customers during this lockdown. The dine-out experience is also being reimaged using a smartphone from the time of placing the order till the time of payment.

— Supply disruptions are also expected to change the traditional repeat purchase behaviour into increased adoption of predictable subscription services by customers.

— Lockdowns and a spike in digital channels have overwhelmed customer support teams. Conversational assistants using natural language processing (NLP) and artificial intelligence (AI) are coming to their rescue. Newer 'text-to-speech' technologies are being tested to mimic real human conversation over the phone.

— The lockdowns have fueled the growth of OTT media consumption. Companies are leveraging technologies such as augmented reality (AR), virtual reality (VR) and mixed reality (MR) to reimagine the customer journey and create a more real and personalised experience. These have applications for media, gaming, commerce, education, healthcare, and many other sectors.

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## **Industrialisation – the future of work**

Apart from a significant shift in consumer preferences, businesses are also battling multiple challenges due to fewer employees physically available at workplaces, social distancing, sanitisation requirements, and supply chain vulnerabilities. Automation is, therefore, likely to see accelerated adoption.

— Adoption of cloud platforms and modern applications is likely to grow, enhancing productivity as well as enabling mobility, collaboration and rich analytics. This future-ready infrastructure can enable machine learning (ML) and AI to improve forecasting and reduce 'gut-based' decisions. Cybersecurity, however, would need to be a key factor given increasing automation and points of vulnerability.

— Leveraging AR, VR and MR technologies are now becoming an increasingly attractive proposition for businesses. While supporting devices are powering up, they have several applications including – support and maintenance, prototyping, training and collaboration.

— The COVID-19 pandemic has led to a surge in demand for home delivery, which has coincided with a labour shortage with fewer people willing to perform this activity. The demand-supply mismatch is likely to accelerate multiple trials for last-mile delivery using drones, robots and autonomous vehicles in developed markets. Safety and regulatory requirements are, however, still evolving.

— Manufacturing is already undergoing the most significant transformation since the industrial revolution as companies invest in smart automation and the internet of things (IoT). Additive manufacturing based on 3D printing would witness increased interest as it offers flexibility to rapidly pivot to produce new/critical parts during crises or demand spikes. Adoption of new technologies such as automatic guided vehicles (AGVs) and autonomous mobile robots (AMRs) can accelerate further and help with a smooth transition to autonomous warehouse and inventory management using AI.

— This pandemic has turned the spotlight on supply chain vulnerabilities. In this case, a key consideration for planners would be to diversify across geographies with comparable enablers such as workforce availability, cost and infrastructure. There is, however, a possibility of companies shifting to automated operations for new facilities. This trade-off between cost and automation would define the supply chains of the future.

## **Governance – the future of welfare**

The crisis has overwhelmed governments across geographies, especially with respect to public safety and healthcare systems. This has led to a growing interest in innovative technologies that can help governments manage the needs of pandemics. These technologies can transform a range of government activities across education, benefits transfer, public safety and healthcare by improving access while controlling costs.

— As people resume activities after lockdowns, sanitation would be an area of significant focus. Current approaches, based on manual cleaning round the clock, are not sustainable. Innovation such as disinfecting bots using intense ultra-violet (UV) light to deactivate microbes, including bacteria, fungi, spores and viruses, could be deployed across offices, restaurants, hotels, hospitals, police stations, government buildings, train coaches and stadia. This may also lower maintenance needs as it only requires electricity and no cleaning supplies/refills.

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— Public safety has been a significant challenge despite using infra-red thermometers and drive-through testing to minimise exposure. There are newer computer vision systems that are being designed to remotely and non-invasively monitor temperature, heart rate, sneezing, coughing along with other health parameters. Technologies developed for remote patient monitoring and AI-enabled initial diagnoses can potentially transform home-based healthcare and reduce the load on hospitals. Over the longer term, this could dramatically improve access to quality healthcare for a wider section of society.

— Remote monitoring technology can also be used in conjunction with drones and CCTV camera systems to monitor congregations at offices, public places, social and sporting events. To allay privacy concerns, they may be deployed to identify hotspots at an aggregate level rather than identifying individuals.

— AI has emerged as our most potent weapon against this pandemic. It is being used to scan chest X-rays and identify complications requiring immediate intensive care unit (ICU) treatment. AI is being used in drug development by filtering thousands of possible compounds to a few viable options for human trials. This approach is likely to accelerate future drug development and reduce the upfront costs involved in developing a marketable drug.

### **An opportune moment**

The future is typically defined not by incremental innovation but by tough decisions taken during a time of crisis.

Technology-powered business models have demonstrated superior performance and a sustainable competitive advantage. It is time for companies to develop a vision for the future with technology and digital capabilities at the heart of their competitive strategy. This would require careful planning as there are serious long-term consequences to getting it wrong. Furthermore, digital transformation needs to be accelerated through agile techniques. The time to act is now.

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