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Digital Debates

CyFy Journal 2020

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Digital Debates

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Editors

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Editors' Note

2020 is our Black Mirror moment. Each day reflecting back at us the deepest and darkest fissures of our digital societies and of our increasingly binary selves. Conversely and perversely, perhaps, our screens were also our only windows to the world, enabling us to stay connected and engaged, offering fulfillment even as the pandemic kept us apart, isolated and distant. We are, consequently, having to relentlessly engage with cleavages in society, amplified by technology, that we had buried and forgotten in the euphoria of globalisation.

Alongside our vulnerabilities, the 'attention economy', where human engagement with devices translates to value and valuations, grew at an unprecedented scale and intensity. From mobility to consumption and transactions, our existence became ever more enveloped in the embrace of big tech and smart tech. The pandemic had tilted the scales of an open debate, and, indeed, human activity and choices (data) were oil in this new industrial cycle. What the Gulf War was to television, COVID-19 has been to online platforms: millions were glued to personal screens, watching human death and misery unfold through the imagery of bar charts and log curves. Millions more were struggling to find—in the digital realm—means to sustain life and livelihood; and nearly all who engage with us at this conference today, were discovering their personas, politics, preferences and, indeed, identities in the world of chrome.

You are connected; therefore, you are.

As identities become indelibly linked to the online world and the apps that kept us connected, these became venues of renewed interest and importance for the state, corporates and communities to mobilise, market and manufacture consent. A heady cocktail of fear and uncertainty saw the emergence of digitally-induced conformity. From masking up to letting go of privacy and choice, we saw a global willingness to conform, submit and allow "draconian but necessary" surveillance measures—think of the submission to temperature readouts and the sharing of our travel history. In this scared and scarred new world, reality flipped over and, suddenly, it was the mobile device that carried a human. In the end, we were little more than our IP code or our mobile number. And the pandemic was certainly was not the only guilty party.

This year's *Digital Debates* echoes the darker undertones of 2020 and the decade ahead of us. Through three big stories that have taken centre stage, the nine essays capture the zeitgeist of our times.

First, the pandemic has demonstrated that the workplace is inconsequential to the creation of value. Are we racing towards the threshold where humans themselves become inconsequential to work? Utkarsh Amitabh disagrees. There is infinite possibility, he says, afforded to ordinary individuals through online spaces. His essay celebrates the arrival of the passion economy, hailing the demise of the workplace as an enabler for people to monetise their skills and create economic opportunities for themselves. Manavi Jain, however, says it may be too early to ring the death knell on our coffee machine chats: our need for collaboration, and for a clear demarcation between work(spaces) and life, will compel us to return to brick and mortar offices. We may, in fact, finally see employee well-being and mental health being given the attention it deserves.

Yet, in the short-term, the outlook appears bleak. 400 million full-time jobs disappeared in the second quarter of the year and many others found themselves unwillingly trapped in circumstances that are typical to the gig economy: "flexible" work hours that served as a veneer for exploitation of labour, and the loss of a social safety net. Analogous to this phenomenon was the deification – though not appreciation in any concrete way – of essential workers in so-called low-skilled sectors. Is it time, as Sangeet Jain enquires in her lucid essay, to shed the denigration of manual labour and reassess what "valuable" work means? Paradoxically, will prolific digitalisation catalyse reassessment of how to price human labour?

Is it also time to formally price unpaid labour? While gender equality in the office space has been an agenda on HR manuals for some time now, the pandemic has taken that discussion straight into people's homes. In a survey conducted across the cities of New Delhi, Mumbai, Chennai, Bengaluru, Hyderabad, Pune and Kolkata (1), 50% of the women reported facing motivational challenges in the work-from-home setup as they disproportionately bore the "double burden" of taking care of household duties while holding down a full-time job. It appears that while men are willing to cede women some space in a formal office set up, they seem unwilling to lend their partners a helping hand at home. Another study showed that women accounted for 55% of the increase in job losses in the US in April this year.(2) This threatens to push back gender equality—in the now fused home and workspace—by decades.

Second, for millennia, a regime change by an external power was achieved through violent conflict, war, and annexation. Now technology allows regimes to be destabilised with a degree of simplicity. This was first brought sharply into focus by the 2016 US Elections. Disinformation, misinformation, falsehoods and lies were the legacy of that election. Millions believe that external actors shaped the US mandate. Whether it actually happened was immaterial. Perceptions were sufficient to bring about a loss of trust in institutions and the delegitimisation of the Trump presidency. As a consequence, the US of A is still a divided polity as we head into the next election cycle. This delegitimisation of regimes is agnostic to political systems—democratic, authoritarian, or otherwise. As we entered the new millennium two decades ago, technology held the promise of giving power back to the people by democratising media and communications. The opposite has happened. The imminent US presidential election has underscored the importance of regulating technology (and with it misinformation and disinformation) to secure democracy. Genie Gan canvasses the cybersecurity landscape during the pandemic, with

a focus on the Asia-Pacific, and highlights how trust and transparency have become the currency that sustains partnerships between governments and businesses, and between state and citizen.

The (lack of) trust in tech goes beyond just politics and governance. Even as we navigate the digital realm with renewed vigour during this pandemic, the safety of cyberspace has deteriorated at an accelerated pace, resulting in a scenario where age-old divides and cleavages are only getting more pronounced. The unregulated web is rife with hate speech, phishing attempts, and cyberattacks with attacks against hospitals and healthcare institutions rising by leaps and bounds during this pandemic. Those groups that faced marginalisation in the real world are facing increased aggression in the virtual, with women and minorities on social media bearing the brunt of online abuse across the world. How do we create safe spaces in a virtual world that is lightly ordered and under-regulated?

Third, technology no longer "intersects" with politics: technology *is* politics. The intimate enmeshing of technology and national identity has become the driving force of geopolitics, and the pursuit of technological gains is not restricted to the realm of fabs and factories, but envelops societies and global regimes and systems as well. James Lewis delves in depth into the exercise of state control in cyberspace, the so-called "Balkanisation" of the internet, while noting with acerbity that the sovereigns are simply reclaiming their role from the quasi-sovereigns, the unwieldy tech giants, whose economic worth has skyrocketed during this pandemic even as economies contracted and half a billion people faced being pushed into poverty. Elina Noor problematises this framework by pointing to asymmetries between the so-called Global North and Global South, where although the latter represents the fastest growing market for digital products and services, they are not proportionately represented in the norms and international frameworks being built around these technologies. Coining the term *technology centrism,* Cuihong Cai explores the different strategies—offensive or outward-looking techno-nationalism vs. defensive or inward-looking techno-nationalism—adopted by nations in pursuit of their technological goals, whether to address or maintain global asymmetries. While Cai calls for an interdependent digital community, with the well-being of people at its core, Lewis underlines cooperation between like-minded nations, noting simply, "Seeking consensus with the authoritarians is a waste of time." Noor, meanwhile, explores the idea of true independence, where all nations are afforded the choice of placing their own self-determination front-and-centre.

In a plagued world—in both the literal and figurative sense of the word—where gated globalisation is the consensus and digital fences are visible across jurisdictions, it is crucial that we hold on to the kernel of hope espoused by the defenders of interconnectedness. Three-quarters of humanity resides in 137 developing countries, and, according to the UNCTAD Digital Economy Report 2019 (3), these countries account for 90% of global digital growth. Billions residing in these nations will be lifted out of poverty through digital tools during this Fourth Industrial Revolution. The grand finale of Digital Debates, therefore, is Nisha Holla's piece, a clarion call for the democratisation of digital technology, emphasising inclusion, rights, legal recourse, and affirmative sovereignty. Content created must now reflect the aspirations of these billions, especially in a diverse

country like India. For instance, the rise of local language content in India is perhaps inevitable with enough users coming online who are conversant only in local dialects.

The hopes and aspirations of these next billions should serve as the motivator for all to strive towards an internet for all. Just as the Cold War "hotline" was a symbol of connectedness even in the face of protracted conflict, the digital lines must remain open even if there is disagreement. CyFy exists not just to debate discord, but to find common pathways for our common humanity. Ideas and perspectives streaming this year from CyFy, New Delhi, reflect a section of the aspirations of India's 1.3 billion people that are mirrored in Abuja, in Jakarta, in Bogota, in Dhaka and beyond.

We aspire, as we are connected.

Trisha Ray, Laetitia Bruce Warjri, Arjun Jayakumar and Samir Saran

Endnotes

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TECHNOLOGY

Democratising Technology for The Next Six Billion

Nisha Holla

The COVID-19 pandemic and the resultant lockdowns across the world have only accelerated the trends of digitalisation, mobile and internet penetration, and technology adoption. In 2000, barely 413 million people were internet users;(1) today, that number exceeds 4.5 billion.(2) Social media was almost unheard of at the turn of the century; today, more than half of the world's 7.7 billion people are active users. With key services like the distribution of essentials, education, health, relief delivery, government communications and bill payments disseminated digitally in many countries, particularly due to the pandemic, techno-citizenship is an inevitable attribute of our future.

Establishing universal access to the internet, digital platforms and cutting-edge technology has become a necessity in every economy. Accordingly, there is a need to make digital rights like data privacy, personal safety, security and self-determination via opt-in consent loops, among others, sacrosanct and inviolable.(3) Beyond the individual, techno-sovereignty fuels the inevitable conclusion that access to and development of digital platforms and cutting-edge technologies is imperative for national security. Countries must build a technological moat to secure their citizens' interests.(4) The year 2020, with the pandemic, the resultant global economic fallout, multiple border disputes, technology disputes and a flight to innovation, brings a fundamental question to the fore—how do we democratise the development of technology and ensure digital equity and protection for all?

Democratising the development and access to vital technologies must be sustainably undertaken in the same manner that public goods or commons are built for society. Leaving this in the hands of private companies like Google or Facebook brings myriad known and unknown risks, including digital monopolisation, monetisation of private data, and financial and privacy losses due to international security breaches, with no recourse to local laws. Depending on other state actors like China for technology development brings other concerns to the fore, primarily national security risks. Instead, digital commons must be developed and deployed as a "shared [national] resource in

which each stakeholder has an equal interest".(5)

For a democratised digital common, one can envision five ideas that must serve as foundational attributes:

1. Universal and equitable access at scale, with no community left behind
2. Active policy of inclusion with a built-in philosophy to reduce costs and friction
3. Sacrosanct rights like privacy (right to private digital communications with encryption), personal safety and security (protection from leaks and abuse of personal data), self-determination (to opt-out of terms and conditions, to control and consent to the use of one's data, portability), not to be profiled (to opt-out of automated profiling and bulk surveillance)
4. Recourse to the law: In case digital rights have been abused, one needs recourse to the law. This is only possible if a citizen's data is within the same borders where he or she is a citizen or resident. Data localisation and sovereignty is invariably the only way to provide every citizen rightful recourse to the law.
5. Supports continuous innovation on top of it: The nature of technology's rapid evolution necessitates continuous updates and innovation. Interoperability is also essential for digital commons to serve as platforms that can support new systems being built on top of them.

India is one of the few large economies that has built digital public goods (DPG) or commons at scale with the potential to incorporate these five necessary attributes practically for its citizens' benefit.

Uniqueness of the Digital Public Goods Model

Private industry has traditionally led the development of technology and digital platforms; the cutting-edge of intellectual property development is still primarily owned by American for-profit companies like Alphabet, Amazon, IBM, Facebook, Microsoft and Qualcomm.(6) The US government, for its part, actively encourages and collaborates with its private sector to develop dual-use technologies—utilised by the private sector for their capitalistic endeavours but also by the government to protect the sovereign interests of the US. For example, customised services are provided to the US government by Google Cloud and Google Maps, Amazon GovCloud AWS services, Azure Government by Microsoft, and Palantir in the intelligence and national security realm.

The US, with its first-mover advantage, has successfully exported its digital technologies and architectures to the world via the globalisation of private companies. As a result, most global citizens use some form of American digital tech every day—either an iPhone or Android smartphone, a social media network like Facebook and Twitter, day-to-day communication over services like WhatsApp, or Google and Amazon for search.

The proliferation of American technology is accompanied by unimpeded access to the data of citizens of other countries for the US security apparatus. The global digital citizen's data flows through the data centres of these companies and is methodically collected, analysed and monetized (7) (8)—most often facilitated by obscure user service agreements that encourage these infringements. On the strength of their vast data banks,

these companies have grown into monopolistic digital and data conglomerates. (9)

Headway was made recently to curb the collection, storage and monetisation of individual data with the European Union's General Data Protection Regulation (GDPR). (10) The GDPR mandates that data collectors cannot sell personal information like names, racial and religious indicators, contact information and location tags to third parties. It directs that users have to be kept informed of how their data is utilised, be allowed to opt-out of automated profiling, to access what information of theirs has been recorded, and to erase or restrict processing of their data.

Previously the user signed off rights over their data to these companies by default and were enrolled into their standard terms, conditions and privacy agreements. Now, the GDPR hands agency back to the user. It places the onus on the data collector to demonstrate that they have a verifiable reason to collect the data, and not just to bundle and sell off to third parties for targeted advertising and associated services. If there is a database hack, the GDPR mandates users be notified within three days. In short, the GDPR lays out a framework that takes the transparency of digital systems closer to the necessary attributes of digital commons. It is a comprehensive template that other countries can utilise to enforce techno-sovereignty.

The largest counterweight to the technological expansion of US companies is the hegemonic global deployment of Chinese technology.(11) China has rapidly developed not only digital platforms and architectures but also the underlying hardware systems used in many smartphones and other devices. The Chinese share of global exports in computers, electronics, and optical products rose from 15 percent in 2003-07 to 28 percent in 2013-17, now accounting for more than a fourth of global movement.(12) After developing their own country into a surveillance state where privacy and self-determination have been suppressed,(13) China is attempting to do the same with citizens of other countries.(14) Chinese apps like TikTok, owned by parent company ByteDance; UC Browser, owned by e-commerce behemoth Alibaba; and WeChat, owned by the multiplatform giant Tencent; among others, enjoyed tremendous growth in the non-Chinese world. This is in part due to their design and manufacturing stranglehold on Android phones and devices—after Samsung at number one, the four largest Android device manufacturers are Chinese. (15) The intelligence arms of several countries, including India and the US, have flagged Chinese apps for spyware and malware components.(16) As recently as June 2020, amidst suspicions of data proliferation and the use of data against national security, the Indian government first banned 59 and then an additional 118 apps by Chinese companies. (17) Following suit, the US government also banned several Chinese apps citing similar security reasons.(18)

Unlike the American model, the Chinese government is intimately linked with the technology development of its companies and deploys them as part of its expansionist strategy.(19) Apart from apps, Chinese companies frequently provide low-cost telecommunication and other equipment to other countries. This has led to a vicelike grip on the most important communication channels, including the 5G architecture of the future.(20) The US had previously restricted Huawei and ZTE from bidding for 5G telecom networks in the US. Australia, New Zealand and Japan have also blocked Huawei from supplying 5G network components.(21)

It is clear both these models, by their very nature, cannot contain the five attributes required for democratised architectures. Left to themselves, technology built by for-profit companies in the American model may always prioritise monetisation and advertising revenues over rights such as user privacy and self-determination. For citizens of other countries, equity and recourse to the law in situations of a breach are unavailable locally. By implementing strict data sovereignty and localisation norms like the GDPR, some of these concerns may abate. But for critical services like financial inclusion, health access and education, one cannot depend on providers external to their state. For the same reasons and more, relying on Chinese technologies and platforms is also unviable.

This is precisely where India has designed an unusual model that fits DPG requirements. DPGs in India are not developed solely by private companies with a profit motive nor are they developed with a government stranglehold on surveillance-orientation. The India Stack has risen as an exemplar of public-private partnership (PPP), a series of volunteer-driven software platforms that form the backbone of the government's Digital India and financial inclusion policies.

Evolution of India Stack

India Stack started by solving a fundamental issue impeding financial inclusion—a lack of a comprehensive identifier. With the launch of the Unique Identification Authority of India (UIDAI) in 2009, the Indian government put in motion the world's largest one-sweep identification system—Aadhaar, a 12-digit unique identifier for every Indian resident linked to demographic, residential and biometric data.

Before Aadhaar, India faced an extensive problem with identifying its then 1.2+ billion population. Various available ID systems like driver's license, voter ID, permanent account number, and ration card were fragmented and lacked interoperability. The country required a systematic nation-wide ID identifying the ordinary Indian citizen who perhaps did not have a bank account or vehicle to avail the existing types of IDs. As of February 2020, 90 percent of the population had an Aadhaar card issued to them. (22) India built the world's most extensive biometric ID system and has been recognised worldwide for its comprehensive coverage, ingenuity and flexibility. Nobel Laureate and Former World Bank Chief Economist Paul Romer said "the system in India [Aadhar] is the most sophisticated that I've seen", "[is] the basis for all kinds of connections that involve things like financial transactions" and "could be good for the world if this became widely adopted". (23)

With the heavy involvement of industry pioneers like Nandan Nilekani, the UIDAI system was architected from the start as a multi-platform public utility with application programming interfaces (APIs) that can be utilised to develop products, services and platforms on top of the system. This decision proved crucial to the development of the India Stack and the DPG model by allowing for interoperable modular design. Aadhaar first unlocked new banking and payments modes. The National Payments Corporation of India (NPCI) launched APBS (Aadhaar Payment Bridge System) and AEPS (Aadhaar Enabled Payments System), which residents with an Aadhaar and bank account could access. (24) The APBS-AEPS network enabled a direct-to-beneficiary transaction system.

This forms the bedrock of India's massive direct-beneficiary-transfer (DBT) system. To date, INR 12 trillion has been disbursed via DBT directly to identified beneficiaries as relief and income support by the Indian government. (25).

On the heels of Aadhaar arrived e-KYC, or know your customer, in 2012. The previous problem of lack of identification in banking was solved in one stroke because businesses and banks could now perform KYC verification digitally using biometrics or the mobile OTP linked to Aadhaar.(26) With mobile penetration skyrocketing in India, the move to link mobile and Aadhaar was another masterstroke of the system. Jan Dhan, the final component of the JAM (Jan Dhan–Aadhaar–Mobile) triad, was implemented in 2014 and remains one of the largest financial inclusion initiatives in the world. It has provided more than 400 million Indians with a digitally accessible bank account.(27)

The Pradhan Mantri Jan Dhan Yojana (PMJDY) launched a platform for universal access to banking, built on the unique identification system that Aadhaar made possible. Some crucial features of PMJDY include the provision of a basic zero-balance banking account for every household, a RuPay debit card for online transactions, access to credit and insurance, remittance and pension facilities.(28) Mobile banking became available on even basic feature phones. A large swath of the Indian public have never had the opportunity to avail services like these before. More than 50 percent of Jan Dhan account holders are women.(29) India Stack is promoting universal access and equity among a billion Indians.

The JAM architecture democratised the access to financial services, and India made the leap beyond financial inclusion into financial integration. JAM enabled different government ministries and departments to launch essential services—e-sign enabling Aadhaar holders to sign documents digitally,(30) DigiLocker eliminating the need to carry physical documents via verified digital copies on registered mobile phones,(31) MUDRA scheme for providing small business loans for greenfield enterprises,(32) central-KYC to build a centralised repository of KYC records for business,(33) Aadhaar Pay so merchants can receive customer payments via the Aadhar biometric system (34) and more.

Another breakthrough by NPCI was the launch of United Payments Interface (UPI), a novel interface using the Immediate Payment Service protocol to operate accounts in any participating bank at any time of day.(35) With UPI, for the first time in the world, money could be sent by a click on a mobile phone from one bank account to another in under six seconds. UPI pioneered the actual movement of money from account-to-account as opposed to the ledger entry and delayed reconciliation system that Visa and other protocols use. It revolutionised digital payments in India by merging various banking facilities, routing funds between banks, and enabling merchant payments on the same platform. The system brought numerous advantages to customers, banks and merchants like cost reduction, simplified opt-in procedures and the standardisation of protocol. It also paved the way for the Bharat Bill Pay System. The BHIM app was introduced as an example of what UPI could enable as an end-to-end use-case. Apps like PayTM, PhonePe and MobiKwik followed up on BHIM by integrating UPI and Bill Pay with the railway ticketing system and various e-commerce networks to create digital one-stop solutions. UPI transaction volumes have been steadily increasing, recording its highest ever in August 2020 at 1.62 billion transactions totaling to nearly INR 3 trillion.(36)

The evolution of India Stack from solving the problem of identification with Aadhaar to the continual addition of interoperable modules for transactions, banking, bill payments, relief delivery via DBT, and more, demonstrates its growing value in democratising access to digital platforms. Modules for data privacy and regulatory frameworks can also be similarly assimilated, as the government has initiated with Account Aggregator (37) and the Data Privacy Bill. These DPGs are not owned by private players but managed by the government via independent technical consultants. Citizens are stakeholders with recourse to the law in Indian courts if their rights are not upheld. In this manner, all five necessary attributes for digital commons can be implemented and enforced within such a system.

Utility of the DPG architecture

In a country as large and diverse as India, financial integration was made possible using publicly owned, regulated technology frameworks that are accessible to private developers in an organised fashion with the open-API frameworks. These frameworks are generally developed in consultation with the private sector and treated as public goods, accessible to all players. Open access has encouraged competition, and spurred innovation and investments, thus delivering greater value to the end-users. The open licensing format prevents monopolies and levels the playing field.

During the pandemic and national lockdowns, India Stack received further validation. The Indian government sent relief support instantly and directly to 420+ million beneficiaries via DBT,(38) including farmers, women Jan Dhan account holders, rural workers, the disabled, widows and other disadvantaged groups. Bill Pay enabled citizens to digitally pay for continuity of utilities. The UPI protocol allowed peer-to-peer transfers at a time when people could not transact in person. E-Sign, DigiLocker and other facilities allowed some businesses to continue operations while in lockdown.

Looking at the future, this DPG architecture managed in a PPP model could have immense feedforward effects for the economy, especially in the post-COVID-19 recovery trendline. McKinsey Global Institute's report 'India's turning point' concludes that "financial-sector reforms and streamlining resources can deliver $2.4 trillion in investment while boosting entrepreneurship by lowering the cost of capital for enterprises by about 3.5 percentage points". (39) Next-gen financial services engines have also been pegged as a growth driver for the country. India Stack has already delivered multidimensional financial-sector reforms and streamlining of resources with DBT, real estate flow management, digital payments, bill payments and more. With this strong track record, it is conceivable that this architecture will be crucial to delivering the US$2.4 trillion in investment and the lowering of cost of capital as envisaged by McKinsey.

Beyond India, the DPG architecture could solve problems other countries are also facing, which the global pandemic and economic fallout have sharply revealed. In its recent report 'The Future of Disruptive and Enabling Financial Technology post CV-19', Finch Capital surveyed the macroeconomic impact of the pandemic on multiple regions and estimated the financial technology enablers crucial to economic recovery.(40) It concluded that digital-only has become the new industry norm for financial services

like banking, insurance, wealth management and payments across the world. Moving an entire country's incumbent paper-based financial system to digital necessitates a massive, interoperable, open architecture like India Stack. Finch Capital identifies e-KYC as a vital system due to an "increased need for safe digital ID given [increasing] volume of digital business transacted and robust solutions required for protection of client assets," a problem India's Aadhaar system solved and validated over the last decade. The report also identifies tech-driven toolkits for customer support, account opening procedures, loan processing and automation, developer collaboration and confidentiality requirements as critical components; again, something the JAM architecture with its multiple, interoperable, open-API toolkits has solved. Finch Capital also pegs the crucial role of artificial intelligence (AI) in achieving these objectives; a focused deployment of AI and big data analytics requires clean sets of data collated around uniform variables—like an Aadhaar identification number.

With this novel and validated DPG architecture, India is seemingly ushering in a new dawn of the 'tech by all' and 'tech for all' paradigm for the whole world. Interoperability and modular architectures are the key components here. These pave the way for greater financial integration with vernacular language offerings of services, flow-based lending, different assistance paradigms, including 'vernacular voice assistants', introduction and bundling in of advanced services like demat accounts and insurance schemes, new risk capital vehicles, and customisation of services tailor-made for the individual (the ultimate goal).

While the first wave of innovation of the DPG architecture was in financial inclusion and integration, and rightly so, the interoperable, modular and multiplatform system design forms the basis for reforms and improved productivity in many sectors (health, education, technologies, and labour management in manufacturing and construction). The second- and third-order benefits of the system are tremendous and limited only by the ingenuity of the implementing mind.

Next DPG Frontier: Health and Rapid Pandemic Response

The pandemic has thrown into sharp relief the faultlines in Indian healthcare. World-class healthcare is available only in the few urban agglomerates, and infrastructure is sparse in between. The country faces an acute shortage of trained medical personnel, of about 600,000 doctors and two million nurses, according to World Health Organization estimates. (41) The pandemic demonstrated the need for a real-time information and collaboration system that can provide up-to-date data on the number of infected patients, what condition they are in (asymptomatic, mild, severe, critical), and number of bed vacancies by segment (isolation rooms, wards, ICUs, ventilator-equipped). This is exacerbated by the fact that many Indian hospitals are still dependent on manual paperwork. This situation is reminiscent of the state of India's financial sector a decade ago—undigitised and fragmented, lacking a unified core to build a reliable multiplatform system that all stakeholders can plug into, build their own system on top of and customise to their needs.

The difference this time is India has already spent a decade validating the DPG

architecture that can be deployed in health. India Stack forms the basis for the National Health Stack (NHS),(42) envisaging various layers seamlessly linking to support national health electronic registries, a claims and coverage insurance platform, a centralised personal health records framework, a national health analytics platform and increased coverage under the flagship Ayushmann Bharat initiative, as India steadily inches toward universal healthcare. The NHS too will have open-API toolkits that various governments and health providers can utilise to build their own customised system on top of the public domain system. The private-public multilayer architecture will enable two-way information flow on critical parameters such as bed vacancies, ventilator usage, infection loads, availability and capacity of emergency response, anonymised patient information in an epidemic situation to gauge risk profiles, and real-time information on essential medicines and devices availability. Crucially, the firewall between the private and public layers can be designed to protect personal information while allowing for the flow of anonymised information.

In the same vein, DPGs can be developed for rapid pandemic assessment and response. The country's experience with COVID-19 must be recorded and analysed, and systems developed based on this analysis. The Aarogya Setu app has already put this in motion. With contact tracing, Aarogya Setu had indicated 700 potential hotspots in the country as of May 2020 and alerted 140,000 app users about proximity to infected patients.(43) The World Bank has praised India's contact-tracing effort using Bluetooth and location data on the app.(44) The data collected on Aarogya Setu is extremely valuable in preparing for another pandemic or emergency situation post-COVID-19.

Forward Momentum

Indian innovation on DPG architecture can serve as a case study on democratising technology for the next six billion, without commercial or expansionist interests. Indian DPGs are already deployed on a PPP basis without the expectation or design for profit. Instead, it is intentionally designed as an inclusive, accessible and low-friction platform for innovation. Many countries, especially in the emerging world, can benefit from this approach. DPGs can be designed to be interoperable and modular structures on top of which customised interfaces and databases can operate using APIs, and each country and entity can customise these architectures according to their needs. Alphabet's recommendation that the US Federal Reserve utilise the India Stack-UPI protocol to upgrade the outdated American banking system (45) demonstrates that it is not just the emerging world that might benefit but the developed world as well. As India slowly builds up to becoming only the third economy to grow to US$10 trillion (currently at nearly US$3 trillion or INR 204 trillion,(46) pre-COVID-19 in 2019-20), the rising nation has presented to the world a new model to maintain digital equity.

Democratising technology with the five foundational attributes of universal access, bias towards inclusion, sacrosanct rights, direct recourse to the law and continuous innovation is essential to uphold techno-citizenship and, consequently, techno-sovereignty in this new world order driven by technology and digital platforms. The pandemic has only served to accelerate the world toward this inevitable conclusion. India

is a first mover in this novel idea of democratising technology and developing digital public goods. The world must now come together with forward momentum on these five attributes to usher an era of 'tech for all' and 'tech by all'.

ENDNOTES

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The Next Normal: Building Resilience in the Post-COVID-19 Workspace

Manavi Jain

The COVID-19 pandemic has presented the world with one of the most perplexing challenges in recent times. Unmatched in scale and impact, it has not only exacted a huge toll on human lives and the healthcare system, but also cost the global economy millions of dollars and jobs. Governments have struggled to get a handle on containing the virus, even while grappling with the crucial question of kickstarting economic activity.

As governments, businesses and communities navigate this crisis, the focus is increasingly turning to recovery and reopening, and eventually returning to the 'next normal'. It is now time for policymakers to consider actions that best help businesses reopen safely, while protecting the public and helping restart the economy. With employees slowly returning to work, the world needs a new playbook as the current and virtual worlds collide and reshape both work and home. In the process of adapting to this changed reality, every process, function and role will be re-imagined, fundamentally changing the future of work, workforce and workspace. Amidst this, the key questions are—What are the top policy priorities that should be adopted post-COVID-19? How do we improve the readiness of the public and private sectors to use online tools to move seamlessly to a remote economy? What will the future workforce look like? What will a post-COVID-19 workspace look like?

As a company with over 50,000 employees, these are some key questions that Salesforce has actively engaged with over the past few months. It has worked to leverage its resources, relationships and products to help employees, customers and their communities navigate the crisis. Making decisions is fraught with risk, because nobody has definitive answers about when the situation will improve or end. Even so, Salesforce has built its response, keeping in mind its responsibility as a business to its own staff, customers and the larger society. The playbook has been built on the foundation of its four core values of equality, trust, innovation and customer success, and around three key themes—digital transformation, resilience of the workforce and redesigning the workspace.

This paper aims to examine the post-COVID-19 future of work through the prism of these three pillars that are key to ensuring a smooth recovery, and the attendant opportunities and challenges. First, driving digital transformation, fuelled by universal, high-speed and affordable connectivity, cross-border collaboration(s) with strong data security standards and government policies that support working in a remote economy. Second, building a resilient and healthy workforce, centred on employee wellness and workforce development. Third, evolving a new paradigm of work and workspaces, including a permanent transition to a hybrid work model of office and work-from-home, and a powerful digital command centre that enables a work-anywhere, live anywhere, all-digital environment. How companies confront the opportunities and accompanying challenges will determine their success as we move further.

Driving Digital Transformation

The global pandemic, which precipitated the overnight shift to a distributed workforce operating remotely, has undoubtedly emerged as the single most significant driver of digital transformation. COVID-19 is the exogenous shock that has driven businesses—small and large—that did not previously have digital transformation on their radar to make the transition to stay afloat. A report by Tally Solutions showed that 94 percent of India's 6.8 million micro, small and medium enterprises relied on digital infrastructure to stay afloat during the pandemic.(1)

The months following the COVID-19 outbreak have convinced all business leaders about the need to move towards greater data-driven decision-making and digitisation. It is estimated by the International Data Corporation that there will be US$7.4 trillion invested directly in the digital transformation of business operations over the next three years.(2) In India, a report by Nasscom has projected that over 60 percent of small and medium businesses have already adopted cloud with varying levels of maturity, and have the potential to account for a third of the Indian public cloud market.(3)

Technology is the cornerstone of almost all innovation and new ideas aimed at productivity, efficiency, ease and scale, with data at the core of every business, industry and government process. The digital transformation built on data flows and open internet has created a gold mine of information, with businesses and enterprises eager to extract any intelligence to finetune their product or service to their targeted customer.

The pandemic's forced changes have further accelerated the need to amplify the best digital organisational tools to enable a seamless form of cross-functional, collaborative and remote work. It has catalysed transformation across business models, channels and touchpoints, driven by the need for greater organisational agility and a tighter engagement with clients.(4) The need to respond, adapt and thrive in a post-COVID-19 world has led business leaders to embrace a slew of digital services and integrate them into their business operations, leading to wide-ranging innovation, producing unique, digitally-enabled solutions across sectors such as education, health and financial services. To tackle a multi-pronged problem such as the one posed by the pandemic, including health risk, cessation of travel, closure of offices and a decentralised workforce, businesses need an armoury of modern technologies, applications and processes that help them overcome all

of these, while ensuring the safety of their staff and success of their business.

Take, for example, Salesforce's Work.com, a suite of solutions and resources produced in a span of a few weeks, designed specifically to enable organisations and businesses to respond to and recover from the challenges of COVID-19, and thereafter, to reopen safely.(5) This suite of products includes expert medical advice, a crisis command centre to manage return-to-work-readiness, solutions for contact tracing, emergency response management, shift management and employee wellness assessments. Salesforce has used this product in-house to track the situation in each of its markets. Based on its own standards, coupled with prevailing government regulations, Salesforce has reopened offices in a phased, calibrated manner in South Korea, Japan, New Zealand and Hong Kong.

However, the process of digitally transforming a business is not always going to be uncomplicated and rapid. Despite technology companies democratising access to a slew of new and emerging sophisticated digital services—like machine learning, deep learning and cloud computing—to customers ranging from large corporates to small and medium-sized businesses, challenges persist. These include a lack of access to high-speed, affordable internet, suboptimal privacy and data security standards, a regulatory landscape that hampers rather than enables cross-border remote work, and a lack of preparedness to upskill the workforce.

While by no means intractable, these challenges have profound, long-term implications on various fronts, and if businesses are to succeed, then it is crucial to put in place mechanisms that facilitate digital transformation. Some solutions that would achieve this are ensuring high-speed, universal, affordable, secure connectivity; enabling cross-border collaboration with strong data privacy and security standards; cloud-first government procurement policies and cloud incentives to the private sector for remote health, education and work; and transformation of the global workforce with STEM education and re-skilling.

Skilling, Reskilling and Building a Resilient Workforce

With the advent of the Fourth Industrial Revolution, the global workforce was already in the throes of a constant churn, with the conversation focused on the importance of skilling, reskilling and upskilling. The new demands of the workplace have given it a further impetus. With technology blurring the divide between the physical and digital worlds, businesses have often struggled to match the pace of innovation. With the ongoing COVID-19 crisis, companies are dealing with a business environment where customer preferences are starkly different from the pre-COVID-19 workspace—physical distancing, enhanced digital-first or digital-only experiences, and reconfigured production and supply lines are now the norm. Such drastic changes will in turn demand significantly different workforce capabilities, including a sharp rise in home-based remote operations and a need for shop floor personnel to perform new tasks, all while adhering to strict safety guidelines.(6)

The pandemic will also further augment adoption of digital technologies like cloud offerings, Internet of Things (IoT), augmented reality/virtual reality, artificial intelligence

(AI) and 3D printing to achieve smaller, less complex tasks and to complete tasks where these technologies can be used in a cost-effective manner. These new and emerging technologies will significantly reshape the workforce. As per a World Economic Forum report, for the 75 million jobs that may be displaced by a shift in the division of labour among humans and machines, 133 million new jobs will be created—a net gain of 58 million jobs.(7)

The transformational impact of AI is not lost on hiring managers, and as per a Salesforce Research survey, a majority believe that AI, followed by the IoT and big data, will have the largest impact on the workforce's productivity and innovation.(8) The survey also showed that 59 percent of managers believe the rise of AI will have a substantial impact on the types of skills their companies need, especially new and expanded skills sets such as data analysis, software creation and management, emotional intelligence and creative thinking. Similarly, a McKinsey report suggests that in Europe and the US, the demand for technological skills is expected to rise by 50 percent; complex cognitive skills by 33 percent; and high-level emotional and social skills, such as initiative-taking, leadership and entrepreneurship by 30 percent.(9) In contrast, the demand for physical and manual labour to perform repeat predictable tasks, and basic literacy and numeracy skills, will fall by 30 percent and 20 percent respectively. Newer technologies will significantly alter the skill profiles of future jobs, and workers will have to equip themselves with the requisite skills to stay relevant in a competitive job market.

Despite acknowledging the importance of skilling and workforce development programmes in navigating the constantly changing jobs landscape, many businesses are still slow to act. A survey by Salesforce Research on the Future of Workforce Development showed that 70 percent of managers believe formalised workforce training programmes will benefit employee productivity, while 69 percent believe they will boost preparedness for future disruptions and innovation. And despite 68 percent of hiring managers seeing formalised retraining programmes as valuable, only 46 percent considered it a "high" priority—a dissonance that poses a severe threat to workers' livelihoods and companies' talent pipelines. (10) Surprisingly, aside from budgetary constraints and lack of employee time, the survey did not find any significant inhibitor to modernisation of workforce development, prompting questions on reasons for the inertia and inaction among companies to undertake retraining, and pointing to a more worrying reason—lack of urgency. Workforce development approaches also vary greatly across sectors, with financial services staying ahead of the curve in apprenticeships and engaging underrepresented groups, and technology companies acting fast on rolling out online training resources, while consumer products and retail were found to lag behind the others.

Businesses can deploy several approaches to address skill gaps, including hiring externally for specialised and technical roles, retraining existing staff to prepare for newly created job roles, or a mix of both by deploying a fluid workforce consisting of temporary and flexible jobs, including a skilled, contractual workforce for non-core functions based on demonstrated competencies, as per a McKinsey report on the future of work.(11) Walmart, for example, is investing US$4 billion over four years to train and transition frontline and back-office jobs to new customer service roles, while professional services company Manpower has partnered with the education company Pearson to upskill

130,000 workers over the next five years.(12)

Salesforce has been an early and ardent advocate of skilling and reskilling people for jobs of the future, not only as a strategic business decision for the company investing in its own future to build a talent pipeline, but also to provide a level-playing field. Trailhead is Salesforce's free online learning platform, which makes learning accessible to all—where one can access fast- and self-paced modules, learn valuable skills, earn credentials and college credits, and connect to new opportunities.(13) The Trailhead platform was borne out of the belief that providing a dynamic model of education is not only about equality, a core company value, but also that everyone should be a life-long learner, and the pandemic has proven just how important that is**.** And although traditional education will always be important, it is also unattainable for many people, or it may not teach them all the specific skills required for a current job. As a result, many people are looking for more convenient ways to educate themselves on a range of things—from mid-career professionals and those looking to change career tracks, to young school children, business people, retired veterans and budding developers, amongst others. Trailhead has been successful in the Asia Pacific region, especially during the lockdown, and India has the second-highest number of badges outside of the US. Between March and May 2020, Trailhead saw a 70 percent uptick in youth signups, with over half a million users earning more than six million badges for successfully completing their modules on different topics. This is significant, given the huge need for re-skilling in India, with only 5 percent of the current workforce having undergone formal vocational skill training, as per the Indian Skill Development Ministry's figures.(14) In the post-COVID-19 era, skilling is going to be the single most important type of insurance against redundancy, unemployment and professional stagnation.

While one outcome of the pandemic's impact has been an increased focus on skills and capabilities, the discourse around the workforce has otherwise been framed in broad, mechanical terms, be it government action for citizens, or a company's benefits for employees. But it is imperative to remember that at the heart of this understanding must be the mental and emotional upheaval wreaked on individuals. The blurring of boundaries between home and work, the assumption of availability on the phone round-the-clock, rise of overwork especially in white-collar professions, combined with added caregiving responsibilities, led to a situation where people, early on in the crisis, began to severely feel its psychological impact. The large-scale job losses, poor health, and anxiety and loneliness triggered by self-isolation severely affected the mental health of people around the world.(15) A poll conducted by the Kaiser Family Foundation in July found that more than half of the US's adult population reported that COVID-19-related stress and worry negatively impacted their mental health—up 14 percent from a similar poll conducted two months prior—with women, black adults, younger adults and people struggling financially due to the pandemic's financial impact likelier to suffer.(16) Though there is no corresponding data on mental health available in India, anecdotal evidence of death by suicides and psychological impacts like depression, anxiety and worry due to COVID-19 suggests a similar situation.

Salesforce learned early on, through regular mental resilience surveys, that a third of its workforce reported that the quarantine was having a negative impact on their emotions.

(17) In its efforts to support employees, the company has a 'Be Well' call scheduled daily to help employees with virtual meditations and mindfulness exercises. Salesforce's executive leadership team hosts a weekly call for all of its over 50,000 employees. Thriving Mind, a programme aimed to strengthen psychological and emotional health by understanding stressors and using actionable strategies to manage anxiety, has been made available to all employees and their immediate families free of cost. Meredith Flynn-Ripley, vice president of product at Salesforce, explained how not being at work in-person, not experiencing the finite ending of a workday, and living instead in a time warp with no memory of commuting or of having a water-cooler chat with colleagues was also taking a psychological toll on employees. In some countries such as Japan and Hong Kong, where living spaces may be small, this can be heightened. The product team factored these subliminal stimuli into their product as "solutions," like building alerts to stand up and walk around, or do a virtual treasure hunt, or engage (online) in a water-cooler chat with colleagues to approximately replicate the previous experiences that employees yearned for.(18) In India too, Salesforce CEO Arundhati Bhattacharya has repeatedly emphasised the importance of giving employees the right tools to help create a healthy work-life balance, including prioritising their mental health.

It is important then to ensure that mental health of people remains a central pillar of the state and business communities' response. While such deep-seated challenges are not going to be easy to overcome, the silver lining of the crisis has definitely helped identify priorities—adequate healthcare and an inclusive, broad-based social security framework for a resilient workforce.(19)

In addition to mapping the skills readiness and resilience of workers, it is also important to knit this into the organisation's decision-making processes and structures. Historically, the norms of an organisation's structure, day-to-day operations and company culture have been set by men, while women have been largely kept out of leadership and important decision-making roles. As such, despite significant gains in job opportunities and legal protections afforded to women, long-standing stereotypes about gender roles, women's skills and abilities, and their domestic responsibilities have limited their workplace success. And while the pandemic has reinforced some barriers that undermine women's prospects, it has also in some ways refocused attention on these barriers, not least of all because these are issues that men are only beginning to face on a large scale now.

With COVID-19 keeping a large part of the workforce home, the reality of juggling the twin responsibilities of work and home, including caregiving for the young and elderly, medical care for the sick, and household chores, is finally hitting home. Despite most companies quickly moving to offer work-from-home to their employees, the experience has been neither uniform nor easy across social, economic and professional groups. Among women who tend to assume most caregiving responsibilities, this flexibility is more likely to be offered to those in higher-paying roles and in white-collar jobs. For jobs like domestic housekeeping, which are not designed for remote work, and especially those forms of employment that are casual and informal, it becomes even more important to focus on ensuring strong social protection, such as access to paid leave and other support measures. These basic actions should be combined with analysing employee experiences

internally and rooting out biases and stereotypes, whether they relate to power structures, inequality, or a lack of representation.(20)

The first step is to identify disparities using strong equity benchmarks and internal assessments, an exercise that should help establish actionable, measurable targets for progress. This can be done through internal anonymised surveys and equity assessments to review employee experiences, such as the one Salesforce initiated in 2015 to analyse worker compensation. An internal audit on pay difference uncovered a statistical difference between men and women—through the whole company, every department, every division and every geography. Over the course of four years, Salesforce spent US$10.3 million to ensure equal pay for equal work and correct compensation differences by gender, race and ethnicity. Of those who required adjustments, 39 percent were women, 54 percent were men, while seven percent of the adjustments were due to race and ethnicity. This also illustrates the responsibility of creating an enabling environment for young women, which rests equally, if not more, on men as on women, as well as for such change to come right from the top leadership.

The workplace of the future must also acknowledge and embrace a more well-rounded conception of the home and work, including valuing the full range of experiences and responsibilities that all workers face. This aspect has received some attention in the months since the COVID-19 outbreak due to the undiscriminating nature of the coronavirus that has forced the typical decision-makers in a company (highly educated, wealthy, white) to retreat into the same traditionally feminine space of the household as the rest of their employees, from where they are expected to balance both their work and household duties.

The process of making the workplace a more diverse, inclusive, equitable and safe one is not a one-time intervention, but rather a continuing one that will require regular and continuous assessments, reporting mechanisms, diversity practices and training to understand and address power imbalances, problematic mindsets and implicit biases.

What, then, should the workplace of the future look like? In her piece on the future of work, Jocelyn Frye suggests that companies must work to build a workplace that does not have the same built-in barriers that have been used for decades to undermine the advancement of women, limit their opportunities and depress their wages.(21) She adds that the workplace must be one free of discrimination, where caregiving responsibilities do not hamper any candidate's job prospects, where pay-gaps are non-existent, and where women are not restricted into a narrow range of jobs with low wages and poor growth prospects. More broadly, it is also a culture that embraces diverse perspectives, encourages collaboration between staff and management leadership across levels, and is responsive to the needs of individuals.

Redesigning Work and Workspaces

As COVID-19 exploded around the world in early 2020, businesses across the globe were very quick to pivot to a remote form of working as the best way to limit non-essential physical interaction and to curb the spread of the virus. The first nine months of 2020 saw business processes change with unprecedented scale and speed, with every industry

moving from the traditional, textbook methods to a more agile and iterative mode of functioning.

Slowly, as people begin to 'return to work,' the key questions each company is asking are—Is remote working the next normal? Are companies permanently moving to a hybrid model combining a mix of work-from-home and office-based work? How do companies prepare for this? What effects, if any, is this likely to have on their day-to-day functioning?

Perhaps, no work practice has seen wider acceptance and adoption as has work-from-home in the months since the COVID-19 outbreak. Typically dismissed by most industries as impractical or unrealistic in the long-term or at scale, it has been their go-to solution to ensure business continuity planning. Initially met with scepticism, remote work has come to be seen as a good enough alternative to on-site work. According to job portal Naukri.com, during the lockdown period, there has been a three-fold increase in the number of remote work roles that employers are hiring for in India, half of which are in the business process outsourcing/IT-enabled services.(22)

Businesses have realised that employees will work even without someone peering over their shoulders, or without clocking their hours. Business have also realised that work can be done as long as there is access to devices, connectivity and other resources, with demonstrated gains in efficiency and productivity. This has also led to a new level of trust between management and staff.

Going forward, the COVID-19 induced slowdown will put tremendous pressure on companies to cut costs and stay afloat, given job losses and businesses shutting down.(23) With some companies announcing their intention to cut their physical presence, and several others extending the offer to employees to work-from-home for another year, many have sounded the death knell on commercial real estate.(24) However, despite the demonstrable productivity gains without a footprint, it is neither the moment to announce the demise of skyscrapers and business districts nor the time to determine that companies are moving permanently to work-from-home.

For one, businesses that require employees to be on-site for in-person, collaborative or customer meetings, will require more space to ensure adequate physical distancing, at least until a vaccine is ready, leading to less dense workspaces. Secondly, work-from-home has not been a smooth, easy and better-than-the-office experience for all, with many employees struggling with physical space and juggling work with caregiving and domestic housework. A survey conducted by Salesforce Research on the prospects of returning to work showed that 64 percent wanted to spend at least some time working a few hours at an office, store or factory, while only 37 percent respondents viewed full-time remote work as the most appealing long-term scenario, significantly different from previous rounds that found a higher interest among workers to extend remote working.(25)

The upshot of the new arrangement has been a shake-up in many norms of corporate culture—enhanced top-down communication across businesses, with many managers, even CEOs, talking directly to employees to touch base with them, enquire about their well-being, and help understand and deploy their skillsets better.

At the same time, this shift has not been free from some concerns. The sharp spike in workplace surveillance, brought on by long-standing ideas of using physical presence

as proof of productivity, have led companies to rely on tools like monitoring of screen-time or keystrokes to track workers.(26) This is not only harmful for employees' privacy rights, it also has "detrimental effects on employee morale" and can cause anxiety among workers. Additionally, the lack of physical proximity and the bonhomie arising out of in-person interactions in shared physical spaces poses a hurdle not only to new hires who are only partially integrated with the company and its culture, but also existing employees who rely on their co-workers to brainstorm, unwind and evolve together.

Meanwhile at the workplace, employees and their wellness and experiences are at the heart of workspace design in the post-COVID-19 era. Businesses of all types face complex challenges as they prepare a standard operating procedure to reopen their workplace. With COVID-19 cases continuing to rise in many countries, governments have maintained partial lockdowns and limited public transport, meaning that a return to work will initially see low occupancy and a slow, phased opening up. An early casualty might be the once-hallowed open-plan office, giving way to plexiglass partitions between employees to separate desks, accompanied by contactless entryways, unobtrusive furniture and one-way lanes to prevent employees accidentally bumping into each other. Technology will be at the heart of facilitating and designing a safe and collaborative workspace to enhance employee experience and ensure their wellness and comfort, through tools like desk bookings and shift management to manage occupancy, digital signages, and data-driven decisions by HR managers and office administrators.

Early in the lockdown, Salesforce recognised the need for precisely such a tech-enabled, data-driven, location-agnostic yet space-efficient tool that would help companies and communities to reopen safely. Work.com is a set of new technology solutions and resources to help business and community leaders around the world re-skill employees, and reopen safely and efficiently on the heels of the COVID-19 pandemic. The Command Center brings all data streams together and provides a 360-degree view of return-to-work readiness across locations, employees and visitors, allowing businesses to make data-driven decisions, and to act and communicate effectively. Employee wellness allows companies to create employee health surveys, and monitor trends and use the data to make decisions about returning to work. Shift management enables organisations to orchestrate the eventual return of employees to the office in a manner that reduces office density by avoiding larger groups, maintaining spatial distance and ensuring scheduling breaks. Contact tracing allows public and private sector leaders to manually trace health and relationship contacts in a safe and private manner, by collecting data from individuals who are infected or potentially exposed to an infectious disease and creating visual maps of contacts and locations to monitor potential interactions and outbreak. Emergency response management allows public health organisations, government agencies and the private sector to manage all types of emergencies, deliver care to those affected and allocate resources quickly. Other functionalities to consider are skilling programmes that help employees with out-of-the-box training, and management of volunteers and grants that allows organisations to streamline volunteer coordination and automating the grants lifecycle for greater impact.

Conclusion

Companies are experimenting at an unprecedented velocity to keep up with the curveballs thrown at them by the COVID-19-induced global flux, with policy reforms, reshaping of the workforce, new management practices, changing company culture and new infrastructure. But firefighting the ongoing crisis is going to require support at the government level as well. Policymakers must join hands with businesses to understand their needs and imperatives and take the steps required to revitalise the economy. Some key policy issues that require attention and intervention while charting the path forward are—how to bridge the gaps along gender, race, and urban-rural divides? What does the future of offline businesses look like? What kind of social security nets will the large proportion of the workforce, especially casual workers or daily-wagers or those most affected by the pandemic, require? How can one ensure wider equality of access to better technologies to enable people to stay connected to the economy? How can virtual spaces be made safer? What are the hurdles standing in the way of a progressive regulatory landscape on issues like cross-border collaboration, working remotely, and universal and affordable high-speed connectivity?

The last few months have shown how agile and responsive the Indian government has been to the tech industry's needs, easing their way into remote and distributed work with timely and laudable decisions, such as liberating the work-from-home regime.(27) While by no means a minor challenge, this could very well be India's moment to turn it into an opportunity by establishing itself as a leader of the knowledge economy. These changes to workforce development have the potential to drive more opportunities, while at the same time building a more future-proof workforce. Such reskilling and upskilling initiatives, newly created talent pipelines, and intra- and cross-industry repurposing of human capital will not only help those displaced by the current turn of events, but also provide access to training and opportunities to those who previously did not have a seat at the table.(28)

India has the largest pool of tech talent (with a workforce of 4.5 million, and revenues of US$190 billion worldwide for the IT services industry) with considerable industry expertise and ability to provide high-quality services at a competitive price. This is a good time for Indians to seize the opportunity that emerges from the offshoring of work that will ensue. This will require a move to invest heavily in a digital-first future, to realign the education system to emphasise skills and hands-on training, and work across disciplines and institutional boundaries to become a core part of the Fourth Industrial Revolution by investing and innovating in emerging technologies like AI, blockchain, education-technology and IoT.

This toolkit is only a starting point to help companies prepare for the workforce and workplace of the future—companies are likely to adopt a hybrid model, including remote and safe on-site work categorised by work function or number of days a week; a distributed workforce to guard against the possibility of any one geographic region getting critically affected; and off-shoring of non-core services that can be performed remotely

and cost-effectively; and off-loading own spaces in favour of co-working spaces to cut down on recurring high rental and maintenance costs. The move to allow workers more flexibility to work remotely should be accompanied by expanded caregiving protections, support for a work setup at home, and finally, robust security and privacy practices.(29) The COVID-19 pandemic has given the world a new paradigm of work, one which requires building resilience, both in the workforce and at the workspace.

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Rethinking Decoupling: Interdependence, Dependence, Independence

Elina Noor

In the 1990s, globalisation and digitisation promised to bring the world closer together through trade, travel and technology. The end of the Cold War and the advent of the internet offered a vision of a more interdependent future in which the increased flows of people, investment and supply chains across borders was expected to bring the world greater peace, predictability and prosperity. Instead, the last decade has exposed just what a tangled web we have woven.

Noisy dial-up modems may have long given way to evolving generations of wireless communications. However, innovation has not necessarily resulted in greater trust or integrity of operations or political relations. Tensions between government and industry over encryption, vulnerabilities and privacy are now compounded by a geo-technological rupture between the world's two largest powers. Mounting mistrust between the US and China threatens to upend global supply chains, alienate large parts of the world and complicate international cooperation.

This paper explores the implications of the US-China political rift in the digital sphere, particularly from the perspective of the Global South. In the first part, this paper sketches the reality and risks of digital interdependence. The second part takes a step back by examining the geography and demography of the digital world and asks whether that interdependence is not actual dependence of one part of the world upon another. Who would be most impacted by a geo-technological schism in the long run? Who should technology ultimately serve? The final part of this paper offers some ways ahead for countries in the Global South to eschew the path dominated by the US-China rivalry and to forge their own digital future(s) underpinned by inclusivity, cooperation and stability.

Interdependence

The declaration of "the age of digital interdependence" in the 2019 report of the UN Secretary-General's High-Level Panel on Digital Cooperation is as much reflective of present-day realities as it is aspirational. Recognising that "digital dividends co-exist with

digital divides," the report underscores the urgency of an inclusive digital future through improved digital cooperation.(1) In launching the *Roadmap for Digital Cooperation* (2), which itself builds upon the work of the High-Level Panel, UN Secretary-General Antonio Guterres remarked that, "We are at a critical point for technology governance…If we do not come together now around using digital technology for good, we will lose a significant opportunity to manage its impact, and we could see further fragmentation of the internet, to the detriment of all."(3)

At the manufacturing level, the story of technological interdependence is a familiar one enabled by comparatively advantageous resource and labour markets as well as the efficiency of international logistics supply chains. It is often pithily captioned as, "Designed in the USA, Assembled in China," even though the supply chains of technology titans span nearly half the world. Intel's first tier of direct suppliers alone numbers more than 10,000 in 89 countries.(4) Apple's top 200 suppliers across Asia, Europe and the Americas represent 98 percent of the company's procurement expenditures.(5) The rise of Chinese mobile smartphone vendors such as Xiaomi and Oppo in the global marketplace has further deepened the interdependence of parts and people in the global supply and value chains. About one-third of Huawei's core suppliers are American, with the rest coming from within China, Japan and certain countries in Europe. By virtue of their specialisation, companies that supply chips to Huawei and Xiaomi also supply to Apple and Samsung.(6)

The mobile device marketplace is a microcosm of technological interdependence in the world. As enterprises seek to leverage the digital economy and governments formulate policies around a Fourth Industrial Revolution, faster connection speeds and low network latency will be key. Yet, the promise of both these advances through fifth generation (5G) wireless technology has become fraught with difficult choices. The threat of compromise to a nation's security through 5G installations looms large. The risk calculations, however, vary by country on account of commercial calculations, historical experiences and political-security relations. For example, the UK's July 2020 decision to exclude Huawei from its 5G networks following US restrictions on the Chinese company will require uprooting Huawei legacy infrastructure. As a result, 5G deployment in the UK will be deferred by about three years with financial costs amounting to £7 billion.(7) This amount may be negligible for an economy the size of the UK, particularly when spread out over a number of years. However, developing countries seeking an economic springboard through technology may be less willing or equipped to bear that delay.

Further, for most countries, China is not an adversary even if its rise generates some anxiety. Thus, while the remaining four of the Five Eyes countries—Australia, Canada, New Zealand, the UK, who have formed an intelligence alliance with the US—have aligned their 5G decisions more closely with the US's position on Chinese companies, countries elsewhere—even US treaty allies—have varied in their deliberations. Thailand, the US's oldest treaty ally in Asia, has refrained from ruling out Chinese suppliers in its 5G plans but indicated that it would remain mindful of security concerns.(8) This approach is similar to that of numerous other countries, including the Philippines, another US treaty ally in Southeast Asia.(9) In Latin America, where the socio-economic benefits of the digital revolution are beginning to be felt, countries are keen to avoid a trade war,

fragmentation of the internet and the morphing of cyberspace into the next military domain.(10)

Developing countries with limited resources face tough choices. As these states build upon their infrastructural and digitalisation plans by partnering with China, Japan, South Korea, the European Union and the US' private sectors, governments will find it more and more difficult to extricate themselves from the fabric of critical infrastructure interdependence. Some of this enmeshment will be coincidental and some of it will be deliberate for risk diversification purposes. For the ASEAN region actively seeking to boost intra-regional connectivity through initiatives such as the ASEAN Smart Cities Network, a patchwork of providers underwriting the security of countries' critical infrastructure across borders may be sub-optimal in the long run. Harmonising technological connectivity across ten member states, preserving infrastructural or platform interoperability, while respecting states' sovereign decisions to choose their own networks and vendors may prove tricky if worsening US-China relations spill over into the region. But the flipside of a vendor mélange—single-source reliance—is also risky.

Considerations of a zero-trust network that have begun to shadow the cybersecurity mantra of "trust but verify" may well have to apply to the larger security and strategic considerations of states.[1] Vietnam and India, for example, have embarked on building their own indigenous 5G ecosystems involving local vendors despite the countries' large rural populations and high capital outlay of 5G infrastructure.(11) The prohibitively high costs do not generally make homegrown solutions a practical alternative for smaller states. And indigenous capability, while ideal, remains a long-term goal.

Interdependence, then, may still be the only viable preference. However, interdependence glosses over asymmetrical geopolitical realities in many parts of the world.

Dependence

The grand promise of digitalisation is to improve and uplift the lives of people. In parts of Sub-Saharan Africa, Asia, Latin America and the Caribbean, which are experiencing a rise in working age population, digitalisation can magnify the economic potential of this demographic dividend with the appropriate technological tools, government policies and private sector investment. Indeed, there has been encouraging progress in many parts of the Global South. Technology applications have assisted Ethiopian farmers with weather forecasts, the mapping of Ebola incidences and response in Sierra Leone, the growth of e-commerce across Asia, and managing urbanisation in Brazil.(12)

As of last year, an estimated 4.1 billion people were using the Internet, just over half the world's population. The relative affordability and availability of mobile connections

1 As a concept, a zero-trust network eliminates the reliance on trust within a network. It, in fact, assumes breach from within and beyond a network. Network access, therefore, is severely limited and constant verification is a requirement. Zero-trust is considerably stricter than the trust-but-verify model which assumes trust behind an organisational firewall.

and devices means that in all regions of the world, Internet access is facilitated through devices other than the computer.(13) Today, there are an estimated five billion smartphone connections in the world, with Samsung, Huawei and Apple devices dominating the market. That number is expected to rise to seven billion connections by 2025, with nearly two-thirds of new subscribers coming from the Asia Pacific and Sub-Saharan Africa.(14) The digital future, therefore, looks set to be mobile.

Yet, despite this projection, the lowest mobile phone (not necessarily smartphone) ownership rates are still found in South Asia and Africa because ownership is correlated to income levels. These rates mirror the vastly uneven distribution of Internet access in the world, with most of the offline population living in least developed countries, primarily in Africa and South Asia. Additionally, mobile broadband bundle packages, including voice and data, are relatively more costly in Africa.(15)

This digital divide is even more starkly pronounced when compared against the demographics of the world. Today, 61 percent of the world's population lives in Asia.(16) Much of that figure is presently accounted for by the populations of China and India, but a majority (seven) of the 13 countries with over 100 million in population are also in Asia.(17) By the turn of the century, 90 percent of the world's population is expected to live outside Europe and North America, with most in Asia and Sub-Saharan Africa.(18)

If most of the world's population lives in the Global South and represents the fastest growing markets for digital products and services, then surely these constituencies should have proportionate access to technology? They should also have an equivalent say in how technology should and will change their lives. Correspondingly, it seems only fair to expect the governance structures—the norms, rules and international legal frameworks—of technology to reflect the perspectives, expectations and value-systems of the world's majority. Nothing could be further from the truth right now.

There are two related issues to unpack. The first concerns the consumption of technology as well as data generation in the Global South. The second involves the international governance structures regulating how technology and data should be used as well as who gets to set those rules.

Apart from China and India, much of the Global South consists largely of users rather than producers of technology at scale. The size and population density of countries in the Global South along with increasing mobile penetration rates, therefore, present remarkable opportunities for big data collection and algorithmic processing. This data can be a force for good. But the transformational value of data for social good only emerges when it can serve the diverse and often underrepresented sources from whom it is mined.(19) The loss of agency of individual users upon surrender of their data coupled with the powerful role of Big Tech trigger the concern of "private corporate actors exerting inordinate influence over national development policymaking and efforts."(20)

US-based multinational companies (MNCs) such as Microsoft and Cisco, for example, have had a decades-long presence in the developing world.(21) These corporations and their products have nurtured much digital capacity and created thousands of jobs over the years but "MNCs do not create interdependent relations between local labour and global revenues that form around natural resource extraction."(22) They have also not been without their own surveillance controversies, as the 2013 US National Security Agency

leaks strikingly laid bare.[2] Additionally, the growth of social media goliaths such as Google and Facebook that have catalysed not only a whole new industry of data extraction but "a global architecture of behaviour modification" has provoked accusations of a new form of colonialism.(23) According to July 2020 data by Statista, Facebook alone draws nine of its top ten largest markets from the Global South. India tops that list at 290 million users. (24)

Michael Kwet argues that the domination of this digital architecture at the software, hardware, and network levels has reinvented colonialism in five ways: (1) resource extraction through rent and surveillance; (2) control of the digital ecosystem and thus control of the computer-mediated political, economic, and cultural domains of life; (3) the violation of privacy and concentration of economic power through big data into the hands of these US corporations; (4) private sector collusion with intelligence agencies to conduct mass and targeted surveillance in the Global South; and (5) US elite persuasion that the global society should accede to America's own conceptions of the digital world, setting the basis for technological hegemony.(25)

These concerns persist and are heightened by the entry of newer corporate players, primarily from China, into the Global South. *Le Monde*'s investigative report of Chinese espionage of the African Union's headquarters is but one example.(26) Suspicions have also been raised given the expansive reach of Chinese conglomerates as part of the Belt and Road Initiative (BRI). Like the Western firms that came before them, Chinese corporate—state-owned and otherwise—presence now spans the domains of space (navigation satellite system), cyberspace (network, hardware and software applications), land (railroads, ports, and highways) and sea (international submarine communication cables).

The Chinese domestic market is large enough to fuel China's artificial intelligence (AI) ambitions to be a global leader by 2030. The combination of state-driven policies and local industry innovation have backed China's AI forays into everything from applications, such as healthcare and e-commerce, to the more ominous tools of behavioural surveillance and repression. Ongoing big data collaborative projects with external parties such as the China-ASEAN Digital Trade Center, China-ASEAN Information Harbour, and an e-commerce platform between China and West Asia/the Middle East will provide China further dual-use opportunities for data mining and algorithmic refinement. For example, data sent from Zimbabwe back to Cloudwalk Technology, a Chinese company contracted to undertake a mass facial recognition project for the African nation, will train the company's algorithms to identity people of colour.(27) The supply of Chinese surveillance technology to several other African states, including Angola, Cape Verde, South Africa and Uganda, complete with training and infrastructure, stirs considerable apprehension

2 In 2013, an exposé by former US intelligence contractor, Edward Snowden, placed the US National Security Agency at the heart of an extensive surveillance scandal spanning the globe. The spy programme which also implicated UK intelligence relied on the collection of telephone records, hacks into network backbones, and the co-optation of corporations such as Verizon, Facebook, Microsoft, Google, and Yahoo. See, for example, "Microsoft's Software is Malware," GNU Operating System, https://www.gnu.org/proprietary/malware-microsoft.en.html.

of abuse.(28) However, there is cause for greater worry. Of note, China's infrastructural investment in ports, railroads, highways, communication cables, cloud storage and digital platforms across the globe largely through the BRI have raised unease that the economic and developmental aspects of the strategy may be weaponised through a relationship of dependence cast as one of interdependence.(29)

China's rise and, with it, the spectre of serious competition in a technological race long dominated by the US, has raised the stakes for governance of the digital space. Technical standards-setting, traditionally led by the European and American players, is emerging as a new front of competition as China's drive for domestic standardisation of technology finds an international foothold through the incorporation of its standards into BRI projects as well as in its interest in the institutions of global standards.(30) Chinese leadership in and of standards-setting bodies such as the Third Generation Partner Project and the International Telecommunication Union help ensure China's guidance of technical standards development.(31) Meanwhile, China's participation in the United Nations Group of Governmental Experts (GGE) on Developments in the field of information and telecommunications in the context of international security and its most recent proposal of a global data security initiative, partially in response to the United States' Clean Network Initiative, demonstrate active strides in international security agenda-setting in cyberspace.(32)

In its international proposals, China's rhetoric of multilateralism rather than unilateralism, cooperation rather than exclusivism, and sovereignty rather than imperialism often resonates with many post-colonial nations in the Global South that are still grappling with the influence and overreach of the Global North. For these countries, a digital future should not witness the substitution of one hegemon for another nor should it play out as a tussle for patronage between empires. Equally, unlike the present, the diversity of the world's largest populations in Asia and Africa—to paraphrase the Netflix documentary *The Social Dilemma*—should definitely no longer be underwritten by a bunch of white males in California.

Independence?

A digital future for countries, independent of exploitation by government or private actors, may not always be completely possible given inequities in size, capacity, political power and technological capability. Another challenge will be to minimise dependence while preserving infrastructural or platform interoperability as Western and other technology players offer full-suite infrastructure, software, and data analysis packages.

The recommendations below propose three approaches for a more informed, autonomous, meaningfully cooperative way ahead against the backdrop of an evolving geopolitical landscape.

First, at the international level, it is crucial for countries of the Global South to be a part of unfolding conversations on technology, regardless of whether they are technology innovators or not. All states, large and small, have a stake in a global digital future to which they belong, and are therefore entitled and in fact obligated to help shape it. Given the world's population trends, Asian and African states should continue contributing to

discussions by proactively initiating ideas or responding to existing ones drawing from their own unique contexts. Despite the geo-political undertones of their conception, the most current iteration of the GGE and its parallel process, the Open-Ended Working Group on Developments (OEWG) in the field of information and telecommunications, in the context of international security, have been valuable in raising issues awareness, broadening outlooks, and representing diversity of participation.(33)

The OEWG has provided a platform for more voices to be heard and exchanges to be had among groups of stakeholders that would not otherwise be in the same room. This was demonstrated most clearly during the OEWG's informal consultation session in December 2019.(34) For countries not yet represented in the GGE, the OEWG has offered a chance for these states to register their interest and positions on important issues such as the application of international law in cyberspace. Given widespread interest among states in the representational aspect of the OEWG, it seems likely that calls for the continuation of the OEWG process will be supported.(35)

Second, for states to take full advantage of these UN and other international processes as well as of offers of capacity-building, they must be clear about their own priorities and interests. Discussions are most productive when they are informed and inclusive. Exchanges that take place regularly among government, industry and civil society at the domestic level can feed into more constructive and consequential conversations between the producers and innovators of technology on the one hand, and the users or consumers of technology on the other. They also build the foundation for greater self-determination of technology-related approaches and directions that countries may not else feel empowered to take at the regional and global levels.

Third, partnerships below the political level are most meaningful with open communication channels and a mutual willingness to collaborate. Partnerships that cut across backgrounds, such as the Partnership on Artificial Intelligence—a largely American grouping that includes think-tanks, civil society, academia, international organisations and even the Chinese tech giant Baidu—demonstrates the value of bridging geo-technological fault lines. Even in the absence of interdependence, there can still be cooperation.

US-China technological enmity is not preordained, and countries may not have to choose between the two powers. Ang Yuen Yuen argues that while China "excels in applying technology to improve business models – for example, in e-commerce and fintech – the US remains the unparalleled world leader in basic scientific research, the foundation of advanced technologies."(36) China's and the US's technological comparative advantages may be different but not zero-sum. With some political will, their differences could even be complementary.(37) With some optimism, there could even be a détente in this superpower split which would relieve pressures for the rest of the international community.

Hope, however, is not a strategy. Tensions will continue to rise as technology increasingly becomes a key determinant of national power. The politicisation of technology will continue to shroud developments taking shape like AI, quantum computing, and even sixth generation wireless networks. Correspondingly, market access and dominance, as well as technical standards-setting will emerge as greater points of competition.

For most of the world's population in the still-developing countries of the Global South, agency, representation and clear-eyed choices will be key to autonomy in a future full of binaries. While technological interdependence may have been disrupted and independence may neither be desirable nor achievable, the phenomenon of developing world dependence on any one power should still be very much avoided. The premise for inclusivity, transparency and accountability in technology could not be more important. In coda we trust, all else is politics.

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SECURITY

Building a New Digitalised World Through Technology Centrism

Cuihong Cai

With the rapid development of information technology, the world has entered the digital age. Digitisation, networking and artificial intelligence (AI) are the most important developments in the new era. The development of new technologies has made countries around the world seek a new driving force for the digital world and a new impetus for geopolitics and geoeconomics.

Technology Centrism

Technology centrism refers to the trend in the social construct, behaviour mode and decision-making processes in which science and technology are not only means to achieve policy goals and tools to legitimise political power, but are also goals that are constantly pursued.(1) Technology centrism occurs within a country and expands beyond its borders as well. It not only becomes the strategic choice of the country and enterprises, but also becomes the unconscious guideline of individual actions. It is multidimensional, penetrating many different sectors and fields, including economic and social operations.

The global order is being restructured around science and technology. Science and technology occupy a prime position in national strategic decision-making and competition among big countries. The most prominent manifestation is how the US-China trade spat has increasingly evolved into the control of and competition for core technologies and key applications. National policy trends and propaganda often reflect and lead the public's social psychology. Enterprises have also realised the importance of digital transformation and innovation. The top investment hotspots are all related to science and technology, such as intelligent manufacturing, semiconductor, communication technology (5G) and AI.

Therefore, the development of technology affects all levels of decision-making and psychological thinking, and the pursuit of science and technology has become global social imaginaries. It is worth mentioning that, although technology centrism has become a national strategic thinking to some extent, it does not contain value judgment. It is an

inevitable social trend, which is increasingly prominent in the era of rapid social change and technology development.

Policy Choices Under Technology Centrism: Tech-Nationalism or Tech-Globalism?

As a value neutral social construct, technology centrism can provide two policy options—tech-nationalism and tech-globalism—but the choice will differ from country to country. Tech-nationalism is described as technology innovation that is led by the government, while the domestic market is closed or conditionally open to foreign countries, with the aim to prevent globalisation and promote national interests. On the other hand, tech-globalism is described as technology innovation that is led by global market forces, aiming at promoting global interests and promoting cooperation with other countries.(2)

Contemporary tech-nationalism exists in the context of comparison with tech-globalism, and the distinction between the two is closely related to a country's economic system, development level and international environment. Countries with innovative ability implement tech-nationalism policies to varying degrees. But tech-nationalism and tech-globalism are not single policy choices, and countries can adopt one or the other for different fields.

According to the differences in motivation, goal, measures and international impact, contemporary tech-nationalism can be divided into two types— defensive tech-nationalism and offensive tech-nationalism. The strategic motive of a country adopting offensive tech-nationalism policy is to suppress competitors and maintain its dominant position in some or all sectors. It aims to maintain a technology monopoly and implement technology suppression on other countries through technology export control, market access restriction, knowledge transfer restriction, and comprehensive political and diplomatic means. Therefore, offensive tech-nationalism in essence is technology hegemony, which rises from political hegemony.

The basic motivation of a country adopting defensive tech-nationalism is internal balancing and self-improvement—to change its relatively underdeveloped technological environment and the development level of its science and technology industries, and catch up with the advanced economies. It mainly promotes national scientific and technological innovation, and the development of these sectors through research and development, funding and preferential policies.

Global Powers and Their Technology Orientations

Countries adopt different policies towards each other at different times. The strategic orientation and status of science and technology development of the four main international actors—the US, European Union (EU), China and India—can be summarised through their policy choices—offensive tech-nationalism with unilateral hegemonism (US), defensive tech-nationalism with multilateral cooperation (EU), defensive tech-nationalism with independence and cooperation (China), and defensive tech-nationalism with unilateral cooperation (India).

US: Offensive tech-nationalism with unilateral hegemonism

Offensive tech-nationalism with unilateral hegemonism means to suppress competitors and maintain a dominant position in technology through unilateral aggressive means. Due to its leading position in science and technology, the US's strategic goal is to maintain its existing advantages, to ensure that the existing interest pattern will not be broken, and to continue to maintain its additional benefits in the international system and industrial chain. Coupled with the Trump administration's 'America First' strategy, the US overall policy posture can be termed as unilateral hegemonic offensive tech-nationalism.

In policymaking related to key infrastructure, the US has constantly stressed value differences and national interest contradictions, and politicised scientific and technological issues. The US government has proposed the Clean Network plan to protect the country's key telecommunications and technological infrastructure.(3) It lists five new lines of effort—Clean Carrier is "to ensure untrusted People's Republic of China (PRC) carriers are not connected with U.S. telecommunications networks"; Clean Store is "to remove untrusted applications from U.S. mobile app stores"; Clean Apps is "to prevent untrusted PRC smartphone manufacturers from pre-installing –or otherwise making available for download – trusted apps on their apps store"; Clean Cloud is "to prevent U.S. citizens' most sensitive personal information and our businesses' most valuable intellectual property, including COVID-19 vaccine research, from being stored and processed on cloud-based systems accessible to our foreign adversaries through companies such as Alibaba, Baidu, and Tencent"; and Clean Cable is "to ensure the undersea cables connecting our country to the global internet are not subverted for intelligence gathering by the PRC at hyper scale".

Such policy tendencies have and will continue to erode the foundation of ties with China, weaken the momentum of sustainable development of the world economy, and cause serious negative impact on global strategic stability.

The EU: Defensive tech-nationalism with multilateral cooperation

Defensive tech-nationalism with multilateral cooperation means to keep up with technology innovation and industrialisation through multilateral cooperation. The EU mechanism has long been a product of intergovernmental multilateral cooperation. In the technology supply and value chains sphere, the EU is generally behind the US and ahead of developing countries. The goal of the EU's technology policy is to provide advanced, safe and reliable technical policies for member states through multilateral cooperation. Therefore, the EU's policy can be summed up as defensive tech-nationalism with multilateral cooperation.

For infrastructure security, the EU has been advocating sharing and cooperation within the union, expecting to reach a unified set of information and communication technology (ICT) standards for the whole EU.(4) Unlike the US, which banned Huawei's equipment for security reasons,(5) the EU has entrusted the supervision of 5G construction to the European Network and Information Security Agency, which was established in 2019 according to the EU Cybersecurity Act and which conducts the risk

assessment of suppliers based on security and objective standards. On 29 January 2020, the EU released the 'Secure 5G deployment in the EU - Implementing the EU toolbox' strategy(6), which aims to reduce the cyber security risks faced by member states at the regional level, emphasising that the countries should assess the risks of 5G network infrastructure suppliers. It also puts forward specific schemes to ensure the diversity of suppliers, with no mention of excluding Huawei and other suppliers from entering the EU market.

China: Defensive tech-nationalism with independence and cooperation

Defensive tech-nationalism with independence and cooperation means to catch up in the technology race through independent innovation as well as multilateral cooperation. As a big developing country with historically backward technology, China is committed to the great goal of national rejuvenation. At the same time, China hopes not to rely on or be controlled by others, and therefore vigorously promotes independent research and development of core technologies, while attaching importance to cooperation with other countries. China has been promoting technological cooperation on different multilateral platforms, such as the BRICS, Shanghai Cooperation Organization and the Belt and Road Initiative. China is seeking technological cooperation with the developed countries, including the US and the EU, while welcoming foreign technological investment as long as it abides by Chinese regulation.

China emphasises the construction of information infrastructure with Chinese characteristics. In the 'Made-in-China 2025' strategic plan(7), the government pointed out that the country is still in the process of industrialisation and there is a big gap compared with advanced countries. Therefore, it is proposed to rely more on local equipment and brands to achieve the transformation from Made in China to Designed in China. China's 5G technology and mobile network facilities have begun to enter the world market, and China's standards are gradually accepted by many countries in the world.

India: Defensive tech-nationalism with unilateral cooperation

Defensive tech-nationalism with unilateral cooperation means to catch up in the technology competition through selective cooperation with some countries while purposely suppressing cooperation with others. Even though India's technology policy is shaped by its history of non-alignment and attaches great importance to the protection of its information technology industry, it is still a follower of western countries as it hopes to share the dividend of western technological innovation. India is the world's largest exporter of IT industry services.(8)

In the international competition with foreign enterprises, India favours the US position while viewing China as its main competitor. India and the US have created a wide-ranging strategic partnership that reflects "their shared values, democratic traditions, national security and economic interests, and common vision and principles for cyberspace".(9)

For the independence of its IT industry and promotion of national economic

development, India has taken protective and supporting measures in key information infrastructure, giving priority to the technology and components of domestic enterprises. India has been working hard to develop a complete 5G solution independently, and some suppliers have made a breakthrough declaration.(10) The competitive relationship in the science and technology sectors and the military conflicts between China and India make India wary of Chinese enterprises. India has banned Chinese apps several times, with over 200 currently banned.(11)

From a Decoupling to a Digital Community of Interdependence

A decoupling world is emerging. Governments are trying to restrict and control foreign ICT through a series of measures, such as technology bans and restrictions, technical security requirements, domestic technical standards, data localisation requirements, export controls, tariffs, trade agreements, investment restrictions and ownership restrictions. Although these measures could well be rational choices based on technology centrism, they are likely to have unintended consequences, such as distorting the market and hindering innovation and competition, causing negative impacts on national security, cyber security, and trade and industrial competitiveness. Ultimately, ICT trade and diplomatic relations may suffer, leading to a decentralised, partially or completely decoupled technological and economic environment, thereby jeopardising the long-term growth of the global economy, and will undermine the international system in a way unseen since the Cold War.

The continuous development of digital technology determines the interdependence of the digital community. When technology becomes important for a country's development, governments should balance the advance of technology with openness and autonomy, limiting the goal of tech-nationalism and technological hegemony, reducing the interference of national politics in technology, avoid imposing pressure on scientists and engineers, and avoid excessive intervention in the market operations of enterprises and companies. As the COVID-19 pandemic has become the most serious public health emergency in the world, the contradiction between efficient pandemic prevention and data protection and between cooperative anti-pandemic research and political conflicts has become increasingly prominent. Only by limiting the negative impact of tech-hegemony and tech-nationalism and promoting global cooperation in technology can we better promote economic and social development and improve human well-being. This should be the essential and final goal of technology centrism.

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5

Protecting Enterprise Secrets and Intellectual Property in a Volatile World

Genie Sugene Gan

Digital technologies and the digitalisation of the economy and national security over the past two decades have ushered in new possibilities that have revolutionised business operations through integration and the seamless transfer of information in real time. This digital transformation has played a large role in leveling the playing field, allowing startups and smaller companies to scale rapidly and to disrupt established players. This metamorphosis has been most profound in the Indo-Pacific, where artificial intelligence (AI), blockchain technologies and cloud computing hold promise to guide some of the region's largest markets into digital leadership roles through the new 'Asian century'—a prospect largely unimaginable at the turn of the millennium.

As the digital landscape transforms with new innovative technologies, challenges have cropped up in tandem; cyber threats and zero-day exploits—from state-sponsored advanced persistent threats to opportunistic cybercriminals—result in costly intellectual property and data theft. Even single actors can pose grave threats to critical infrastructure, financial and logistics systems, and national security, endangering millions. These ever-present threats affect all industries, including healthcare, energy, transportation and retail, and necessitate constant vigilance, new security solutions and imaginative revaluations of the threat landscape.

Enterprise solutions such as endpoint security, cloud security and threat intelligence have enabled private and public sector entities to detect and keep ahead of such threats as they develop. Yet, new technologies have the potential to expose vulnerabilities and exploit digital weaknesses. The advent of quantum computing, for example, may render traditional encryption obsolete, enabling bad actors to access encrypted data and sensitive information such as trade secrets. While cybersecurity firms are exploring quantum resistant encryption as a stopgap measure, quantum computing may upend the entire cybersecurity landscape, precipitating a total rethink of its most basic tenets.

There has been additional impetus to evolve the current security culture's focus on confidentiality, integrity and availability to account for issues such as online abuse, harassment, disinformation and radicalisation. As the scope of cybersecurity expands,

so too will the drive to define and proscribe this kind of behaviour. The development will spark debates on when intervention is acceptable and when it violates personal freedoms, feeding into larger conversations on tech values, ethics and regulation.

Nevertheless, cybersecurity innovation will not able to address all challenges. As technology evolves and new solutions emerge, governments have taken greater interest in regulatory matters, particularly in Indo-Pacific economies with nascent domestic tech industries. Technology companies must learn to work with regulators to strike a balance between data management and data governance on the one hand and ensuring a fertile environment for continued growth—involving streamlined and uniform regulations—on the other.

Companies must also be mindful that 21st-century geopolitics will play a dominant role in shaping cybersecurity decisions and regulations. In the Indo-Pacific, strategic decoupling and shifting supply chains—trends already in motion well before COVID-19—will accelerate the transformation of the digital landscape, as diversification opens new opportunities for Indo-Pacific countries. Companies in the region may also find themselves pitted between strategic competitors in choosing technology frameworks, security regimes and shared values. Remaining neutral may no longer be an option, as the route chosen will have consequences for societies, businesses and people. The trust of governments, companies and consumers has become an essential ingredient for sustainability and transparency; a hallmark of success.

This paper explores the landscape of cyber security in the Asia Pacific, increased regulations, decoupling and supply chain disruptions, and the geopolitisation of security. It will touch on various challenges in addressing the evolving cyber security landscape in the Asia Pacific region, with a spotlight on India, and discuss how enterprise solutions can help companies overcome the challenges that lie ahead.

Megatrends in Encryption and Cybersecurity

Increased Regulation

In response to the largely unrestrained technology boom over the last two decades, there has been a surge in regulation from governments desperate to exercise control over tech firms that have until recently operated with relative impunity. This is no different in the Indo-Pacific, where countries have adopted regulations to control the flow of information—often for national security purposes—to prevent and punish cybercrime; capture lucrative rents; and allow for fair competition, market access and the growth of domestic tech industries.

But technology is evolving fast and regulators are having difficulty keeping up, resorting to hasty legislation that can be harmful to the tech industry. Such was the case with Indonesia's GR 82 data localisation regulation, which was eventually amended by the less restrictive GR 71. Burdensome cybersecurity legislation can also compromise personal data and information privacy. In 2019, Australia passed the Assistance and Access Act, which allows the government to view encrypted information and requires firms to

create "backdoors" to grant access. The Indian government is now entertaining a similar legislation(1) that may threaten or even outlaw end-to-end encryption, undermining data privacy and leaving the biometrics and other personal information of over a billion people unprotected.

Though tech companies have tried to lobby for regulations favourable to the industry, their absence from policy consultations has sometimes resulted in regulation that may stymie growth and innovation in the tech sector. The emergence of a balkanised patchwork of conflicting regulations from different jurisdictions further complicates compliance and highlights the need for a common framework that advances the interests of all parties involved. Former Japanese Prime Minister Shinzo Abe articulated such a vision in the 2019 G20 summit, where he proposed(2) uniform rules on data sharing and data governance.

Regardless of whether this vision will come to pass, the consultative process will become increasingly important to take into account the considerations of all stakeholders and develop sound and enduring policies. In the meantime, security firms(3) will do well to keep clients abreast of new legislation so they are aware(4) of the environment in which they operate, ensure compliance and make adjustments to their investment calculus.

The Expanded Scope of Cybersecurity Amidst a Pandemic

Cybersecurity firms have been diligent in offering a suite of enterprise solutions to combat the proliferation of traditional cyber threats such as malware, fraudulent activities and denial-of-service attacks. However, the ongoing pandemic has given rise to increased COVID-19-related phishing activity and lured many unsuspecting people into downloading malware to an extent greater than before. For example, there was a COVID-Antivirus website that offered people an executable Trojan instead of an anti-virus solution. And there were other groups that offered a fake World Health Organization (WHO) application to infect home routers and stage man-in-the-middle attacks (DNS Hijacking), and sent attachments with fake WHO information about a COVID-19 vaccine.

Based on Kaspersky's recent data, from January to July 2020, almost half (48 percent) of our users encountered a cyber threat. That is almost two billion cases among our user base, or 205 million malicious files. Compared to last year, we detect 25 percent more unique malicious files a day. That is 428,000 new threats a day.

An inevitable result of the pandemic is the prevalence of lockdowns in almost every city in the world, resulting in people having to work from home on unsecure networks. In the months since the pandemic started, Kaspersky detected 600 million attempts to attack internet of things (IoT) devices, such as routers or cameras, and a 23 percent growth of brute-force attacks on database servers due to remote working.

Decoupling and Supply Chain Disruptions

COVID-19 has accelerated the pace of decoupling and highlighted the importance of supply chain diversification—developments that were already in motion since the geopolitical kerfuffle of a US-China trade war. In the Indo-Pacific, companies are exploring ways to

mitigate risk as they relocate assets from China to other countries in the region, with Vietnam attracting a large share of investments. The digitalisation of supply chains and logistics systems is one method of managing such risk, and countries in the Indo-Pacific are already exploring this option as they scramble to attract investment. In Indonesia, the Minister of State-Owned Enterprises Erick Thohir has called(5) for the digitalisation of supply chains to gain access to new markets and kickstart the county's economic recovery, while Japan(6) is trying to woo their companies to shift production away from China, as the pandemic exposed overreliance, and the Make In India campaign is a chance to restart India's high-end manufacturing growth story.

But digitalisation carries risks of its own that must be addressed to ensure sustainability. As Vietnam becomes a more attractive destination for companies looking to shift their supply chains, it becomes ever more important that the integrity of its digital logistics systems is safeguarded. Thankfully, blockchain technology has the ability to optimise(7) and provide for the security of supply chains(8) and ensure the protection of data critical to their functionality. In Vietnam, the Ministry of Information and Communications is promoting digitised supply chains under the national digital transformation plan, and the country(9) is already developing indigenous blockchain technologies, like its recently unveiled akaChain, with an eye toward supply chain management.

While Japan(10) and Singapore have recognised the value of blockchain to the logistics sector for some time, the Indian government(11) is just starting to consider its potential. During the India Ideas Summit in July 2020, Prime Minister Narendra Modi encouraged investment in blockchain technology, dispelling concerns that India's early aversion to cryptocurrencies meant blockchain was off limits. As India(12) looks to attract investment from companies interested in diversifying supply chains, it may need to digitise logistics, secured with blockchain, to remain competitive.

The digitalisation of supply chains and the application of blockchain technologies will require countries to adopt legislation that accommodates the changing tech landscape while providing for its security. As technology plays an increasingly large role in managing critical infrastructure, appropriate safeguards will need to be put in place to make sure the advantages to be gained through digitalisation do not come at a terrible cost.

Although the use of industrial control system (ICS) computing has done much to streamline critical infrastructure management—from energy and aerospace facilities to sewage systems—it has greatly increased the susceptibility of such systems to malicious cyber attacks. In 2019, Kaspersky detected over a hundred vulnerabilities in industrial, industrial IoT (IIoT) and IoT solutions. If exploited, these vulnerabilities could pose grave threats to national security, particularly for countries that have a greater dependence on ICS technology.

The looming threat of denial-of-service attacks, remote code execution, session hijacking and zero-day exploits demands robust IIoT solutions that ensure the integrity of critical infrastructure. As of H2 2019, only 39 percent of cyberattacks are blocked on ICS computers globally, though countries in the Asia Pacific tend to be more resistant, with Southeast Asia blocking 55.2 percent and South Asia 48.8 percent. Nevertheless, many Asian countries face a higher volume of ICS attacks than their peers, with Bangladesh, Vietnam, Indonesia, India, Malaysia and Thailand ranking among the most targeted

countries. Ransomware is perhaps the single biggest threat to ICT, and less than one percent of attacks in 2019 were blocked on all systems globally. Southeast Asia ranks the most resilient to ransomware, though it only blocked around 2.1 percent of all attacks, while South Asia blocked 1.7 percent of attacks.

The devastating potential of ICS attacks were clearly illustrated in September 2019, when malware was discovered on India's Kudankulam nuclear power plant and was likely transmitted through a phishing attack.(13) The Kudankulam plant's administrative network was infected with the Dtrack malware, which allows attackers to access user credentials that may place them in total control of the nuclear power plant, a very precarious situation.

Geopolitisation of Security and Values

Governments are increasingly wielding technology for narrow strategic purposes such as defense and security, placing geopolitics at the center in technology discussions. In fact, values form a common thread through all of the above trends in cybersecurity and can have a major influence on their trajectories. Values dictate whether the powers of quantum computing will be used for good or to undermine security in the region; they also inform regulations, where a divergence of values is anathema to regulatory harmony. Values propel disinformation campaigns and determine whether authorities will pursue measured responses that preserve freedom of expression. Above all, values shape the environment in which technology operates and have enduring consequences for societies and people.

In today's geopolitics, it is not uncommon for state actors to hide behind technology and security companies, and use technology for nefarious purposes. They engage in industrial espionage and intellectual property theft, violate data privacy and conduct mass surveillance on their people. While in the past, it was assumed that tech companies could remain independent of the countries in which they operate in, this is clearly no longer the case. Tech and security companies are now expected to articulate the values to which they subscribe and make assurances that they are not extensions of state security apparatuses.

Transparency has become the currency of trust-building and the building blocks of sustainable partnerships at the business and diplomatic levels. In today's ultra-connected world, cybersecurity is no longer simply about protecting hardware and software, but about safeguarding digital governments, economies and everyday lives, and the vast volumes of data they create. If others do not believe they can trust you with their digital data, devices, networks and infrastructure, they will go elsewhere or will put up barriers to reduce any potential risk. Cybersecurity companies need to embrace transparency and demonstrate their commitment to it. This includes accepting the potential risks associated with making source code or processes accessible for review by trusted third-parties.

Spotlight: India

India has seen a rapid proliferation of Internet users with over 550 million users(14), which is expected to increase to 800 million in the next two years, largely fueled by increased rural and mobile phone penetration. The next billion internet users will come from Asia, and the Indian government aims to establish the country as a major presence in the global digital economy setting a digital economy target of US$1 trillion by 2024. (15)

Both the government and private sector are moving towards enhancing the use of new technologies and integrating them in delivering services to citizens and customers. All efforts are being made to set up hardware and services infrastructures to enable Indian consumers and businesses to get online. India's startup sector is now vibrant with seven unicorns—a few with Decacorn potential—and the best 200 fintech units also being housed in India. The government's Digital India initiative has also been driving the adoption of technology, from the use of digital payment systems to the adoption of cloud computing, 5G, e-commerce, and the recognition of new and emerging technologies like AI, machine learning and blockchain. With this proliferation of digitisation, challenges have also emerged in the regulation and protection of online spaces.

Cyber security landscape

With increased internet penetration and digitalisation, India's public and private sectors are vulnerable to cyber attacks, cybercrimes and incidents. Ongoing geopolitical tensions with neighbouring countries such as China and Pakistan, as well as emerging challenges from working from home due to the COVID-19 pandemic, have seen an increase of almost 200 percent (16) in cybercrimes and cyber incidents of all types in India on both public and private sector facilities from state and non-state actors.

Advanced digitisation of supply chains and logistics systems, and the introduction of technology-enabled solutions, cloud computing, AI and data analytics will also result in increased vulnerabilities to cyber attacks. Heterogeneous interfaces, improper configurations, vulnerabilities in hardware and software, and lack of processes will also result in more cyber incidents and cyber crimes.

As India seeks to become a manufacturing intensive digital economy, protecting vital infrastructure against cyber attacks will be crucial to ensure growth and success. Companies would need to look at their existing infrastructure and invest in the right systems. The government, while considering the adoption of new technologies, would also need to make significant investments in shoring up the security of critical infrastructure to protect information security.

The private sector has also started increasing its role in managing and operating critical information infrastructure, including in power transmission, transportation, and healthcare. Keeping in mind the current global cyber security landscape, both from a regulatory and vulnerabilities point of view, companies are investing in building stronger defense mechanisms. There is an increased demand for robust security systems; in fact,

India's cyber security services industry is estimated to grow at a compound annual growth rate (CAGR) of 20 percent to 22 percent (17) from FY2017-FY2025.

New cyber security challenges

- *India's emerging supply chain*

India has the potential to fast become an attractive destination for companies to set up manufacturing units. In this regard, the Indian government has taken several measures to attract foreign investors, such as launching production-linked incentives, and creating technologies and infrastructure parks for large manufacturing units in electronics and pharmaceuticals. The government has announced a vision of a self-reliant India (Atmanirbhar Bharat), which will need to be fueled by increased investments in not just physical infrastructure but digital capabilities as well. The increased investment flows in the technology sector will also result in questions and concerns on the privacy and protection of data generated through online services, spurring legislation to regulate data flows.

Technologies like AI and machine learning can play a larger role in cyber security. Machine learning models that can predict and accurately identify attacks will be a boon to cyber security professionals. However, there is a risk that these systems may be exploited by attackers and used in a reverse manner. With the increased government focus on boosting India's domestic manufacturing capabilities and attracting investments in sectors such as electronics manufacturing, pharmaceuticals, medical devices amongst others, there is an increased threat of cyber attacks on vulnerable systems in the supply chain. The manufacturing of backdoors and embedding for hardware tampering will become common occurrences. Such complex embedded small and tiny systems will target network systems, banking systems and industrial control systems of manufacturing units.

- *COVID-19 changing the security landscape*

The spread of CoOVID-19 in India has led to new and emerging challenges in securing online systems. With lockdowns to prevent the spread of the pandemic, companies have had to shift to work-from-home models of operations. Work-from-home has now become the norm and the center of all activity, including education, work and financial transactions. IT infrastructures, which were meticulously crafted to secure online systems at offices, have now had to cope with a scattered workforce and workspace. Unsurprisingly, hacks on vulnerable systems have increased since the start of the pandemic in India and during subsequent lockdowns. The use of contact tracing apps to detect COVID-19 positive individuals has also given rise to security threats and breaches.

Cybercrimes have largely targeted citizens' wallets and personal data. Several fraudulent techniques and portals have been launched relating to the coronavirus to lure people to make donations to COVID-19 funds. A primary example of this was the creation of fake versions of the 'PM CARES Fund' soliciting thousands of dollars from individuals

and organisations(18) Personal data also remains an attractive target, with increased malware and phishing schemes launched under false pretenses of COVID-19 prevention efforts, aimed at stealing bank details, passwords and other sensitive information.

Cybercrimes have not only been targeted towards individuals, but have targeted key sectors such as defense, health, processing and other sectors relating to national security. Cert-In, India's cyber security nodal agency, has issued several advisories since March 2020, warning users of phishing and malware attacks, and issuing guidelines on protection against cyber incidents and attacks. The government has recently also advised the private sector to undertake security audits to evaluate their infrastructure and human resource capabilities to prevent and manage attacks.

India's cyber security regulatory framework

Along with advances in technology, there is also an increased focus on regulation. Over the last few years, India has seen a rapidly emerging regulatory environment for data protection and governance. The focus on data privacy is likely to reach a tipping point, with the passage of the draft Personal Data Protection Bill, currently under review by a joint parliamentary committee.

The government has, in recent years, also moved towards taking a tougher stance on the spread of misinformation on digital platforms, and the need for increased accountability by online platforms when it comes to national security and cooperation with security agencies. Data sovereignty has become a key approach in forming policies to protect the data rights of citizens, as well as for security agencies to effectively track and trace any breaches.

Regulatory requirements are becoming more stringent, as evidenced by the Personal Data Protection Bill(19), DISHA(20), the Supreme Court of India's ruling on the Aadhaar Act(21), and amendments to liabilities of online intermediaries under the IT Act.(22) This increased regulatory focus is leading to a demand for compliance, and companies are likely to focus on making increased investments in data security and privacy systems, including end-point security. Compliance requirements under the regulatory frameworks, along with a risk to reputation from any data breaches, are expected to drive these investments.

The Asia Pacific's digital transformation has led to the exponential growth of online business models; rise of online banking, e-payments and fintech; proliferation of mobile phones and other smart devices; and expansion of cloud computing and other technologies. However, the embrace of IoT has also exposed significant vulnerabilities that threaten the region's burgeoning digital economy. Moreover, as the COVID-19 pandemic and the transition to remote work accelerate the pace of digitalisation—with over half of Indian firms(23) expected to increase cloud use—cyber threats have grown in tandem. As such, governments, businesses and tech consumers are becoming increasingly cognisant of the need to protect their data—a trend reflected in the surging demand for endpoint security in the Asia Pacific. According to a Mordor Intelligence report(24), there will be an 8 percent CAGR for endpoint security between 2020 and 2025, and Asia Pacific will lead the way as the fastest growing market.

Regulatory institutions like India's central bank, the Reserve Bank of India, through various announcements, and the Securities and Exchange Board of India are also taking cognisance of evolving risks from technological advancements.

- *National Cyber Security Strategy*

Currently the Information Technology Act 2000 is the primary law for dealing with transactions in the cyber space. A National Cyber Security Policy was developed in 2013 with the express purpose of building a secure and resilient cyberspace for Indian citizens and businesses. The purpose of this policy was to protect information and information systems, build and develop capabilities to prevent and respond to cyber attacks, reduce vulnerabilities from cyber incidences through institutional structures, people, processes, and technological capabilities. An updated strategy(25) was released in 2019 is expected to be formalised by the government soon.

Improving cyber security systems in India: Challenges and opportunities

Cyber security governance structures in India are currently fractured, and at times operate in silos. There is also a lack of coordinated and structured information sharing mechanisms between the government and the private sector. India's new cyber security strategy can seek to address these gaps by streamlining coordination between government agencies, creating a centralised system of governance.

It is also imperative that while information sharing is improved within government agencies, this system must also be expanded to cover the private sector. Processes that seek to improve disclosures of security vulnerabilities must be clearly defined and operationalised.

AI, quantum computing, machine learning, the influx of IoT devices and increased digitisation have only complicated the security infrastructure. Governments and companies will need to invest not only in hardware and software capabilities, but also training of manpower to operate and manage such complex systems. India has a vast talent pool that can be tapped into to create a resilient cyber infrastructure.

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Digital Sovereignty in a Time of Conflict

James A. Lewis

The architecture of the internet is changing as the concepts that underpin its technology also change. While the term 'ideology' can have negative connotations, it has a neutral meaning when referring to the framework of ideas and beliefs that guide internet decision-making.(1) The change is in the expansion of government control of network activities—sovereign control. The risk from the expansion of sovereign control is not 'balkanisation' or technological fragmentation, not many separate internets, but a fragmentation of governing concepts, where the underlying technical protocols still support global connectivity, but this connectivity is overlaid with many uncoordinated and often dissonant rules for data, privacy and security driven by different and competing political agendas over what rights should be accorded to individuals.

The issue is not to prevent this 'balkanisation' but to manage it. Current efforts, both private and in multilateral institutions, are inadequate. The problem is compounded by larger international changes, where the US-led post-1945 order is in disarray and faces powerful challengers. The lack of adequate mechanisms for cooperation among states on the 'rules' for cyberspace—and this goes well beyond cybersecurity—is a major impediment for managing balkanisation.

The internet was commercialised soon after the end of the Cold War. Commercialisation, when the US government gave up its role as funder and controller of the Domain Name System, came at a time of economic deregulation, particularly in telecom, and a widespread belief that governance would follow the norms of market democracies and the role of government would shrink in a world where the antiquated "weary giants of flesh and steel" were unnecessary.(2) American values of open markets and free speech (shared by many, but not all countries) shaped the internet's governance from the start and guided those who built its technology.

It is easy to mock these views, but not too long ago, they were enormously powerful and were part of a larger millennial utopianism that possessed many technocrats and some analysts of foreign policy. They shaped, and continue to shape, policies on encryption, privacy and authentication of identity in ways that often work against sovereign control.

New technologies—artificial intelligence and data analytics, with their need for immense troves of data, and "cloud" infrastructures, which scatter data and services across continents—produce immediate tensions with the expansion of sovereignty.

The belief that cyberspace is a borderless commons is nonsense and only worth mentioning because some still believe it. The speed of internet connectivity gives the illusion that there are no borders, and the prevalent ideology reinforced this. However, cyberspace depends on a physical infrastructure entirely under the sovereign control of a state. The issue before us is not how to preserve an illusory commons but how to shape state action in extending regulation in ways that minimise damage to global connectivity and recognising that the interests of all nations do necessarily coincide.

What Drives Balkanisation

Terming the assertion of sovereign control 'balkanisation' fails to recognise the concerns that drive nations to extend sovereignty. The internet provides new and unparalleled opportunities, but this comes at a price we did not recognise at the start. The internet—for all its many benefits—erodes privacy, security is noticeably lacking, and tech giants stalk the earth with scant regard for governments. Few governments will now accept this. The shortcomings in the original, laissez faire approach when it came to protecting privacy and security remain central problems and impel governments to play a greater role to protect their citizens.

The internet serves a global population, with different values and different expectations regarding the role of government. This change in values and expectations took about a decade to come about. In 2000, there was no Facebook or other social media, and Google was a tiny startup. By 2010, the internet had become the central global infrastructure of importance to commerce, finance and security. It created new and powerful social forces that test political stability. In response, countries began to assert sovereign control, making internet policy a new political arena for disputes within and among states.

These disputes are reinforced by concerns over anti-competitive behaviour by a few large companies (American and Chinese) that dominate the market(3), and there is global discomfort with the oversized role of American firms. There is some irony in this, since the people who object to US tech dominance often rely on the services American firms provide. But the risks to privacy and security, combined with the erosion of national sovereignty from transnational connectivity, leads national governments to seek greater control of what is used within their borders.

The trend for the last decade has been the steady extension of sovereign control into cyberspace, as nations have found the laissez faire approach developed in the 1990s too weak. This laissez faire approach was appropriate at the onset of the internet's commercialisation, as the US sought to shelter the fledging industry and accelerate its growth. Indeed, a regulation-heavy model could still throttle development and still poses a risk of slowing growth, but these risks are not always appreciated and as the internet turned into the most important global infrastructure, the laissez faire approach developed three decades ago is seen as inadequate.

There is an understandable and reasonable fear that moving from the original

governance structure will damage the economic potential of the internet. A good case can be made that regulation, the chief tool for extending sovereign control, slows growth and innovation. Europe missed the tech boom, and while there are many reasons for this, overregulation is one. However, between the two poles of laissez faire and overregulation there is a middle ground, and the task for policy analysis is to identify if there are ways to meet legitimate concerns without damaging the prospects for continued innovation and growth.

Balkanisation is a Symptom of Larger Conflicts

More importantly, the internet has become a primary arena for an intensifying contest between China, Russia and Iran on one hand, and the democracies on the other. There is some desire in the internet community not to admit this, since the conflict undercuts the belief in uninterrupted global connectivity and value of agreement (the current UN discussions can resemble the work on the Kellogg-Briand Pact(4), which imprudently agreed to outlaw war as a tool of international affairs). The internet's political transition takes place in the context of this larger shift in international relations as the post-1945 order disappears. There are obvious challengers in authoritarian regimes that would prefer a more government-centric internet.

China and Russia are often accused of seeking to splinter the internet. This misstates their objectives. They do not wish to create a new separate internet, they wish to control the existing internet through its governance structure, and cite a desire to protect national sovereignty and remedy the demonstrable weakness of the current arrangement in providing security as reasons for moving away from the 1990s governance regime. (5) These arguments resonate with some countries—in Europe because of a widespread belief that American tech giants have a cavalier attitude towards privacy, and in non-western countries because they find the tech giants to be unresponsive.

The internet and the digital world have never been truly open or free. The tech giants exercise quasi-government powers. It is worth recalling that internet search engines already filter results, usually without the users' knowledge, so what you see know is only a fraction of what is publicly available.(6) Users are in effect confined to digital provinces determined by language and location. China had planned from the start to design its global internet connections to ensure control and avoid political risk. Russia and Iran follow China's example, and the spectre of the Arab Spring and the Colour Revolutions drive their efforts and those in other countries to constrain individual rights online.

The argument that countries should accept political risk to maximise global economic returns that accrue mainly to Chinese and American companies is unpersuasive. Disparate governance regimes and the absence of an effective global mechanism for policy coordination increases instability. The concern over balkanisation comes at a time when global institutions are weakening generally and the tools for collective international action are fracturing. These institutions depended on a powerful transatlantic core that, with Japan, formed the 'West'. The last two decades have not been kind to the US, and Europe's decline predates the US' woes. Power has flowed from the transatlantic core as Europe's economic and military strength declines and as US strategic incoherence

increases.

There are still no substitutes for the West, however. The decline of the US does not mean the rise of China. China's peculiar blend of an ethnic one-party state is not a substitute for international consensus. The UN, in its current incarnation, is simply too weak to impose order. Perhaps, it can nurture it, but in the past, this has required a degree of comity among the great powers, usually resulting in some kind of binding international commitment, like those that created the International Monetary Fund, the International Telecommunications Union or the International Atomic Energy Agency. Disparate governance regimes increase instability, but this reflects the instability produced by competition among powerful states.

The most likely effect of balkanisation is an increase in 'friction,' inefficiencies produced by politically constrained connectivity. How hard will it be to connect as sovereign rule increases? There are precedents. Countries have their own currencies, and there are costs to using them in other countries, but it is not impossible. Countries have national telecom service providers, but you can call from one country to another for a fee. The most likely change from the extension of sovereignty is this increase in friction, making it harder and more expensive to connect across borders.

Accommodating Digital Sovereignty

Faced with these pressures, change is inevitable. We are, in effect, redefining the ideology of the internet, the core concepts that underpin its governance and architecture. There is little consensus on how to do this, but if there is an alternative, it is the slowly emerging contours of the idea of digital sovereignty. This redefinition must start with a less-romanticised view of cyberspace. While the long-term goal for most states is to ensure privacy, security and individual rights in this new space, the immediate goal is to accommodate the concerns of states to protect their citizens without sacrificing fundamental freedoms.

The key concept for a new internet ideology is digital sovereignty. Digital sovereignty is the right of a state to govern its network to serve its national interests, the most important of which are security, privacy and commerce.(7) States impose national law and regulation upon networks and services to reduce risk and ensure opportunities for their citizens and, in unpopular regimes, to reduce political risk. The problem with this national approach is that the internet and its underlying architecture are global by design and function. A complex web of commercial connections and technical dependencies underpin what we call cyberspace. It is not an aggregate of national networks but a system whose boundaries follow the logic of networks and markets, not politics. It was not designed or built to respect borders. To be effective, sovereign control must be extended beyond a state's physical borders, making it extraterritorial. But extraterritorial measures are never popular with other countries, and there are neither precedents for imposing extraterritorial control over online content and connectivity nor mechanisms to negotiate an agreement on common rules.

The most salient of these efforts to extend digital sovereignty is the General Data Protection Regulation (GDPR). The European Commission has global ambitions in

issuing the GDPR. The GDPR has been influential and has inspired similar rules in Brazil and California.(8) As a result of the GDPR, the European Union (EU) now drives global privacy policy, and the GDPR is the first in a suite of actions that include enquiries on anti-competitive behaviour and tax policy for non-European service providers.

While the European Commission remains very respectful of the multistakeholder internet governance model, it is also moving to establish a regulatory framework for companies that operate in Europe, even if they are not physically located within its territory. This is a new model of extraterritorial reach driven by the 'app economy' where services are built in one nation, distributed globally and consumed in 'third countries'. Those third countries must find ways to extend their jurisdiction to these third-party services (the US's 'capture' of TikTok is another example of this).

Data localisation—government measures that compel companies to store digital data locally within their jurisdiction—is the sovereign response to transborder connectivity. It does not mean that the internet will be 'broken'. Almost 80 countries (including the EU) have passed laws that restrict the flow of data across borders.(9) Personal data represents the most common form of data that countries restrict from leaving their borders, followed by financial and accounting data, government data (including some public records, defence-related data) and tax data (especially VAT-related). The enforcement of these laws varies by country. Data localisation need not result in balkanisation, but it will complicate companies' business models and likely slow overall growth. The costs of data localisation fall first on companies with a global presence. The long-term opportunity cost is that newer or smaller firms may lose opportunities to service a global market.(10)

Balkanisation is unlikely because it is costly. The costs from the damage to connectivity and commercial interests that would result from true balkanisation will deter most countries. A nation could impose new technical standards or protocols for network connectivity, as China has proposed, (11) and if adopted by many countries, this would 'fracture' the global internet, but only at serious economic cost, something that is likely to deter widespread adoption (unless it is coerced, perhaps as a requirement for Chinese investment).

Greater sovereign control, if it is badly designed, means that countries will not extract the full economic benefits from digital connectivity. Other priorities (security, privacy, sovereignty) will trump income. Countries will make a political decision to balance the economic cost of regulation against the benefits of privacy and security, but none will decide on actions that lead to major fracturing. The precedent here is China. China's users are denied access to valuable information (Chinese researchers complain of this) and have a strange view of events that the Communist Party distorts to serve its interests. But this does not prevent Chinese companies from doing business. China is an extreme example.

Data localisation laws that require that citizens' personal data or accounting records be stored or processed within the country became more common after 2010. However, most laws that impose restrictions on international data transfers allow data transfers provided certain conditions are met. Examples include explicitly requiring the consent of the data subject or restricting export to countries that have laws ensuring 'adequate data protection'. Data localisation laws can be a barrier to companies expanding their international presence, and some companies often lack the personnel, financial and legal

resources to develop compliance strategies. However, many governments see trading some potential growth for greater protection of sovereignty as a reasonable exchange.

Mechanisms to Reshape Cyberspace

The trends reshaping the digital world—decoupling, regulation, militarisation and mistrust—are symptoms of larger international problems—the resurgence of nationalism around the world, the declining power of global institutions and the growing conflict with authoritarian powers. But just as nations can have different political systems or even different cuisines and still do business with each other, the internet will continue to serve as a platform for global connectivity. Airspace is split along national lines, but international air travel remains possible, in part because there are international agreements on standards and safety, under the auspices of a UN organisation.

The lack of a strong mechanism to coordinate and guide national actions is a central problem for reducing friction and managing the spread of sovereign controls. The UN, the logical place to locate such a mechanism, is itself in crisis. The UN Secretary General's High-Level Panel (12) was an effort to remedy this, but it has structural issues and its report and the work following its release have not gained traction. The competing powers have suspended meaningful security dialogues. Arms control and disarmament is eroding as international tensions increase. The 'militarisation' of cyberspace is a symptom of these increased tensions, and treating the symptom rather than the cause will not lead to an improvement. If the likelihood of armed conflict is increasing, which country will disarm? Creating peace institutes or having concerned netizens call for peace does not address the fundamental problem that authoritarian states seek to reshape global rules and institutions to better server their interest, reduce Western influence and shrink the space of free expression at a time when its defenders are enfeebled.

There is a real risk that the democratic principles and values that guide it now will be devalued online as global politics is restructured. This is not inevitable, but it is more likely to occur if we rely on appeals to the concepts of the past to defend the existing multi-stakeholder structure. A more persuasive narrative for a global audience is needed. It was reasonable to argue that the laissez faire approach to the internet, which maximises economic returns, was best but only when it was embedded in a larger framework of understandings and shared values for international relations. Now that this larger framework has fractured, appeals to commercial advantage or accelerated innovation will be unpersuasive as countries consider the trade between the constraints that sovereign control requires.

The situation is difficult, not hopeless. Building a mechanism for coordination in cyberspace is a first step. This would first need to be a mechanism composed of like-minded states. Privately funded initiatives lack legitimacy. The Paris Call for Trust and Security in Cyberspace, although a valiant effort, lacked political substance and had procedural problems—one of the major powers declined to sign after being given a 'final' text a week in advance for review. The text itself was not compelling because it did not address the central problem of international conflict over democratic values and individual rights. Any effort that fails to win support from India, the US, Russia and China cannot be called

a success.

If the Paris Call is a precedent, it is unfortunate, but it offers instructive lessons. In 1915, concerned about the First World War, Henry Ford purchased a ship (informally christened the 'Peace Ship'), assembled a group of clergy and academics (ancestors of today's multistakeholder community) and set sail for Europe to press the case for peace. The warring powers received Ford and his compatriots coldly, if at all, and the press ridiculed his effort. Well-meaning private efforts carry insufficient weight when the central interests of great powers clash, and attempting to restore an earlier age of apparent digital peace can no longer succeed. (13)

However, it is not 1915. These precedents are imperfect. There is already extensive conflict in cyberspace, but it has not yet caused death(14) or destruction. To avert the reception afforded the Peace Ship, three things are needed—recognition of the true nature of cyber conflict and the powerful political disagreements that drive it; the limited space for agreement between opponents; and the absence of effective mechanisms for achieving any reduction in conflict or tension even among like-minded nations. This international conflict drives balkanisation as much as national desires for digital sovereignty to remedy shortcomings in privacy and security.

It is possible to manage risk on the internet without closing off commercial opportunity or expanding restrictions on human rights like free expression. One option is for countries to allow access to commercial information, while restricting access to politically-sensitive information. China was an early master of being open for business and closed for politics, which is difficult but not impossible (at least in the near term). The development and availability of technologies that allow government to exercise greater authority in content and surveillance are increasingly easy to come by.

This does not mean that this kind of cyber sovereignty is a desirable outcome, however, particularly for those who see the internet as a tool for expanding fundamental freedoms. And ill-conceived approaches to digital sovereignty will harm innovation and economic growth. It is not that balkanisation is increasing, it is that freedom online and off is shrinking. The vision of the internet as a vehicle for personal freedom and individual rights is only over if we fail to work together. Some balkanisation is unavoidable, if by this we mean the establishment of regulatory boundaries, but a core group of democracies can guide this to address the challenges to privacy, security and commerce while preserving, at least in their own sphere, fundamental rights.

This conflict takes place in the context of political changes the internet has helped create. Citizens now expect to have free access to information and see access to information as a fundamental right. Democratic political discourse is under pressure from the boost to extremism and polarisation that the internet provides. It is likely that the internet's easy access reinforces nationalism and populism (although we do not wish to overestimate this effect). But it is essential to remember that the same pressures apply to non-democratic states that are ultimately less able to deal with them. The internet increases the fragility of authoritarian states and their efforts to minimise this should not be allowed to shape any new internet architecture and ideology.

It would be useful to articulate a new ideology based on principles that respect not only sovereignty but also individual rights. A second step is to develop a robust, formal

mechanism for cooperation among like-minded democracies and use this as a platform to negotiate to avoid risks of damage from balkanisation while meeting the legitimate concerns that are reshaping the internet.

This mechanism cannot be a global effort, at least at first. For the foreseeable future, the world is fracturing along political lines and the internet will follow suit. Any new mechanism must exclude those who are not demonstrably committed to fundamental rights. Seeking consensus with the authoritarians is a waste of time. The internet in its initial ideology had an ideal of personal freedom at its core, making it the ultimate child of the Enlightenment and its emphasis on individual rights. The choice before us is not to prevent balkanisation but to manage it to collectively defend the internet as a space for individual action—in speech, in data and in innovation.

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SOCIETY

Reimagining Work and Welfare for the Indian Economy

Sangeet Jain

The Indian economy is in trouble. The COVID-19 pandemic has exposed and exacerbated the debilitating insecurity that has been a pervasive feature of the Indian labour market for a while now. Even as a small section of the population was able to shift to remote work and learning, for the large majority, sustenance has meant a choice between life and livelihood. The pandemic has also accelerated automation anxiety, giving us an inkling of the kind of disruption that should be expected on a grander scale—from the climate crisis to the gnawing realisation of the growing levels of inequality and concentration of economic power in the country. These are not new concerns, but have been rendered existential issues today, and demand renewed perspective.

There is a moral reconfiguration taking place around the question of work across the world, accompanied by a call for greater social security and a larger role for the State. This essay is an attempt to look at the question of work and social protection in India, and to place these topics within the broader debates around structural transformation, the future of work, informality and State capacity. The debates on automation and the impact of emerging technology on employment have often been conducted as though they have nothing to do with the broader labour market. This essay is an endeavour to engage with the vital linkages and interconnections between these issues.

What has contributed to a situation where most of the country's workforce is falling through the cracks due to the impact of the pandemic? Critically analysing the prevailing constructs of work, contracts and welfare will help us arrive at an answer, and reimagining them for a changing world of work will show us the way ahead.

The Rising Precariousness of Work and Contracts

The pandemic-induced lockdown hit the Indian economy in a fell swoop, causing the urban unemployment rate to triple in a record three weeks;(1) 67 percent of workers were rendered unemployed, with the urban and self-employed (non-agricultural) workforce hit disproportionately hard. About 80 percent to 90 percent of India's workforce is part of the

'unorganised informal sector,' which is outside the ambit of social security frameworks. (2) Even the salaried class was not spared by the pandemic, with 70 percent of salaried and casual-wage workers either losing work during this period or seeing massive pay cuts. (3)

In recent years, India has seen an increasing casualisation of work even in the so-called 'organised sector'. One of the largest good-quality employers in the economy—the organised manufacturing sector—is now increasingly employing swathes of temporary contract workers who are ready to work at a fraction of the normal wage.(4) The platform economy's numbers are also rising, with both highly-skilled workers and low-wage earners looking towards platforms for gig work.(5) The platform economy produces a different variant of informality and precarity for workers by leveraging a large pool of flexible workers who are available on-demand without contractual arrangements. Gig workers have borne extra responsibility and have been essential workers at the frontline during this pandemic, ferrying essential supplies to people stuck at home, without any protection gear or financial safety net for themselves.(6)

A Broader Employment Crisis

It is widely recognised that this precariousness is the product of a poorly regulated labour market. However, it is also emblematic of a brewing employment crisis in the Indian economy. India's growth story has been sharply affected by the pandemic, with the country seeing a 24 percent GDP contraction in the first quarter of 2020.(7) However, growth had been slowing even before the pandemic struck, and for long before that, India had been witnessing a period of "jobless growth". According to an analysis by the Azim Premji University, a 10 percent GDP increase in India now sees only a 1 percent employment spurt; 2013-15 numbers show job numbers shrinking overall.(8)

Even in 2019, there was talk of an unsustainable rate of open unemployment (at over 6 percent), with even higher rates for the rising young and well-educated workforce, which is not usually seen in low-to-middle income countries.(9) Unable to find well-paying satisfactory employment opportunities, high-skilled workers are increasingly choosing to postpone their entry into the labour market by enrolling in higher education, agitating for government jobs, turning to gig employment or choosing to opt out of the workforce altogether. The labour force participation rate in India is strikingly low—estimated at 49.8 percent in 2017-18.(10) Good work is getting scarcer, and fast.

How Did We Get Here?

This crisis is the consequence of several factors. A crucial reason is India's structural transformation trajectory, which has played out in a rather unexpected way. Instead of labour moving from agriculture to the manufacturing sector, India witnessed de-industrialisation and an expansion of services at the expense of manufacturing employment. A period of jobless growth ensued, with surplus labour creating a construction sector boom.(11) The economy was simply unable to create employment avenues for its demographic dividend to power growth. There was also a neglect of agriculture and a rise in farm distress that

compounded the problem and drove urban migration, creating the large body of migrant labour in construction and other low-wage urban contract employment, and also drove people into the crowded rural non-farm sector.(12)

The changing dynamics of work due to emerging technology has also played a role in the current crisis. Emerging technologies had already begun to contribute to a growing polarisation in employment in favour of high-skilled workers. However, automation anxiety has seen a sharp escalation across the world due to the pandemic, which has created new incentives to replace humans with machines that are more productive and immune to infectious disease. Will there still be plenty of jobs to go around? Experts are no longer sure.(13) We have so far relied on the labour market to provide the logic for the distribution of material prosperity and provide meaning and purpose to people. This may no longer be viable.(14)

Digital transformation has also given rise to the platform economy, powered by a flexible, global pool of labour. As incomes and jobs in the traditional labour market decline for a highly-educated workforce, many have turned to low-paid freelance work.(15) However, even as these platforms provide additional opportunities for flexible work to underemployed jobseekers, they also create exploitative work relationships where labour has no bargaining power. There are huge asymmetries of power between the employer and employee, no scope for career progression and volatile work patterns with access to no form of security and social protection.(16) India is now the largest supplier of digital labour in the world.(17) In their seminal book *Ghost Work*, Siddharth Suri and Mary Gray have written about the invisible and increasingly large labour force that powers the global digital economy. India is the biggest supplier of these ghost workers—on-demand workers who are the force behind the seamless running of artificial intelligence and computing systems across the world, hired through platforms like Amazon Mechanical Turk that procure and anonymise their labour. These workers are independent contractors, working behind computer screens at home, alienated and invisible to employers and regulators alike.(18)

An Economy for All?

This precariousness does not affect all sections of the population equally. India's labour market remains an exceptionally segmented one, perpetuating social prejudice and discriminatory attitudes along the faultlines of gender, caste, class and disability, inhibiting social mobility for some more than others.

Disadvantaged in the labour market due to patriarchal norms and structures, women are underrepresented in services and manufacturing, at 16 percent and 22 percent respectively, but over-represented in care work, comprising 60 percent of all domestic workers.(19) Women have also found employment in chronically underpaid but essential work, such as frontline health work as *anganwadis* and ASHA workers, who, incidentally, have proven themselves indispensable during this pandemic. India's female labour force participation rate is exceptionally low—23.3 percent in 2017-18. 20) To add to their woes, women are also in the most precarious forms of employment and, therefore, have found their livelihoods hit first as the pandemic struck.(21) Lower-caste and lower-class

women have found themselves in a much worse situation, with even more restricted employment options, such as those in the leather tanning industry.(22) Women are also overwhelmingly low-skilled workers, and are therefore likely to be the first in line to be replaced by automation; up to 12 million Indian women could find themselves displaced due to automation by 2030.(23) Women also remain marginal participants in the platform economy due to lower access to technology and structural constraints.(24)

Caste-based segregation also persists to a high degree in India, restricting work opportunities for a vast segment of the population. Scheduled caste and scheduled tribe groups in India are over-represented in low-wage occupations and 'traditional' jobs such as the leather industry, even as they are now well-represented in public posts due to successful reservation policies. Caste segregation also creates inefficiencies in the labour market, dissuading upper-caste workers from applying to certain occupations that are considered the domain of the lower castes.(25) Such low-wage jobs have been particularly vulnerable to the pandemic's impact, with job losses for lower-castes exceeding those for upper-castes by a factor of three.(26) This discrimination inherent in the labour market has been one reason for attracting many to ghost work—women and marginalised communities have found succour in the anonymity and have been attracted towards the opportunity to have a level playing field.(27)

Conceptualising a Welfare Architecture for the Times

With its headline "Virus lays bare the frailty of the social contract," the *Financial Times*(28) succinctly captured how COVID-19 exposed the world's threadbare social systems and the precarity of contracts in economies that are, in Martin Sandbu's terms, not "economies of belonging"(29) but vastly unjust and unequal. The dichotomisation of welfare and growth—treating welfare as a temporary means to keep people afloat while prioritising growth—was never really fit for use but feels especially dated today. It is certainly not fit for a future in which work is likely to be both structurally underpaid and scarce. We require an architecture that can support workers in making the transition to a greener economy and a world of less work.(30) Social security can no longer be a luxury or an avoidable cost, it has to be seen as an investment in building a more equitable, just society.(31)

It is time for India to revisit its old welfare versus growth debate. Social security must complement quality employment and needs to be designed as such. (32) (33) With this in mind, the paper proposes a set of recommendations for how India must re-adjust its paradigms of work and welfare.

Rethinking the value of work

The pandemic has triggered a fierce debate on "essential workers" around the globe, as countries paralysed by the pandemic discovered some parts of the workforce to be indispensable for societies to function. Crucially, the crisis has also revealed how these 'essential' workers'' pay is at complete odds with the value they create for society and the economy. The market value of work is evidently not in consonance with lived reality, and this is one of the major reasons for the current precariousness that plagues our

economies.

The neoclassical economic view of labour markets has rested on an assumption of 'just deserts'—in a competitive labour market, a worker's wage is equal to her marginal product (contribution to output). Nancy Folbre's pathbreaking work has unraveled this assumption, by pointing out that markets are not competitive, they are skewed by monopolies and powerful corporations; by prejudice along the lines of ethnicity, gender, caste, class amongst others; and by collective action, and they're also not well governed. Additionally, a lot of work is performed outside the market and is a determinant of living standards. Therefore, wages do not really reflect contribution to social output.(34) This necessitates a revaluation of what we believe to be a meritocratic method for the distribution of incomes and wealth.(35)

For instance, good work is fundamentally dependent on good care and yet the burden of care is hosted disproportionately by women for little to no pay.(36) More than 33 percent domestic workers have no form of regulation of work or pay, nor any leave or benefits.(37) The traditional metrics of growth and wellbeing like GDP need to be updated to reflect work that contributes to society, such as unpaid domestic work. In some ways, these metrics take us in a completely counterproductive direction; for example, care work is an area where we deliberately seek lower productivity and growth as we prefer nurses give their full attention to five beds instead of 50 in a day.(38)

Reformed measurement must also be accompanied by a change in norms for it to be effective. For far too long, cognitive ability has been privileged over other forms of work like manual and care work. This has created a meritocracy that denigrates certain forms of expertise, making way for social cleavages and conflict.(39) India remains a society where dehumanising work like manual scavenging still exists, which is illegal, determined by caste-affiliations and unpaid/lowly paid. Laws have proven to be ineffective where norms have remained unchanged.(40)

Re-conceptualising the role of the State

In a conversation about their new book *In Service of the Republic*, Vijay Kelkar and Ajay Shah lamented that the reason Indian economic reforms have been unsustainable is because the Indian state did not make efforts to bolster its institutional capacity and think through the role of the State very well, thereby, slipping into a convenient form of paternalism.(41) Deregulation did not have to mean a shrinking role for the state. It should have meant a dynamic and renewed role for the State. This vision required greater public investment and expanded capacity to build robust institutions, however, state capacity remains poor in India and public spending has actually fallen, from 18 percent of GDP in 1990-91 to 12.2 percent in 2019-20.(42)

The structural transformation imperative

To create broad-based quality employment for the masses, India must build a vibrant manufacturing sector through robust industrial policy. India still needs to create 16 million new jobs every year to meet our target to reach the 'Lewis Turning point' (the point

at which surplus rural labour is fully absorbed into the manufacturing sector) in 15 years.(43) The country also requires serious investment in rural and agricultural productivity. Policymakers could go back to the Swaminathan Commission's recommendations for inspiration in this regard.(44)

India also needs to consider its vast informal economy as a crucial sector that actively contributes to GDP and not as a temporary aberration in pursuit of formality. For far too long, the informal economy has been considered an anomaly that has to be kept afloat through social security measures. Careless and actively debilitating policies like demonetisation and the abrupt imposition of a lockdown in India due to the pandemic have neglected the fact that the informal economy is a particularly precarious and important part of the economy, which contributes to both growth and a majority of livelihoods.(45)

The question of emerging technology

Automation anxiety is a phenomenon as old as the Industrial Revolution, but does the current technological revolution augur a future we have not seen before? Technological revolutions create considerable social turbulence, bringing new wealth to some and dislocation and economic pain to others.(46) They are a recipe for social unrest and populism but historically have also been the source of growing wealth and prosperity for societies in the long-run, as the complementary benefits of new technology outweighed its substituting impact. However, this particular technology revolution is likely to be very different.

Daniel Susskind of the University of Oxford argues, along with several others, that the current technological revolution is likely to create substituting effects that overwhelm the complementary effects. According to Susskind, there is no sensible way to predict how far automation can go, instead we must prepare ourselves for "task encroachment" in every sphere.(47) The State must therefore prepare to play an outsized role in directing the gains of emerging technology in an equitable direction, by creating the conditions for investment and growth, and robust institutions that are able to distribute the benefits of a technology revolution equitably.(48)

The future of work will also require the revival of the capabilities approach to welfare. As demand for high-skilled work increases, investment in the requisite capabilities will be critical to be able to leverage technology gains. Social spending therefore needs to be reimagined as an enabling investment towards generating capabilities rather than just a safety net.(49)

The regulation conundrum

The post-pandemic economy is likely to see an exacerbation of unemployment, swelling the ranks of gig and unorganised workers. Cushioning the impact will require a well-regulated labour market.

India has recently sought to simplify and upgrade its labour regulations in the form of four labour codes. Some provisions are particularly encouraging. For instance, the

2020 Occupational Safety Bill has provided for a social security corpus for unorganised workers. However, a major chunk of recommendations offered by the relevant Standing Committee have not been added to the final versions of the codes. Economists reckon that the reforms appear to have been designed in favour of employers, to the detriment of workers.(50)

According to the new codes, social benefits will continue to be linked to establishment size; this excludes informal workers and those working in small firms from social security coverage. The delivery of benefits will continue to be fragmented, and crucial concerns such as portability and the need for comprehensive registration of workers have not been addressed by the code.(51) Pegging establishment size thresholds has also meant that there is no disincentive to hire contract labour—a major concern in the labour market today.(52) The provision of hiring 'fixed-term' employees does not remedy this problem. It offers employers the opportunity to hire temporary workers and those workers are entitled to benefits, but this works out majorly in favour of employers as the power to renew contracts rests with them and there is nothing to prevent employers from hiring fixed-term employees in lieu of permanent employees, which ultimately weakens labour bargaining power.(53) The new Industrial Relations Code has also made strikes and lock-outs harder, rendering labour unions weaker in the process. (54)

About the gig economy, the Code on Social Security has made a beginning, but it has hardly been as far-reaching as had been anticipated. The definitions of "gig" and "platform" workers are ambiguous and overlapping. Additionally, the legislation recommends much and mandates very little. Controversially, the Bill also mandates workers to provide their Aadhaar number to avail of social security benefits, potentially going against Supreme Court guidelines.(55) The code's provisions fall far short of the standard emerging globally, which is to treat gig workers as employees and not independent contractors, following California's AB5 in 2019.(56)

The need of the hour today is for policymakers to think ahead and consider the concept of social security as a universal right, decoupled from employment. To do that, governments will also need to think about the related concern of taxing the digital economy effectively to raise funds.(57) Regulating the digital economy will also require multilateral, cross-border negotiation.(58)

A role for unions and solidarity networks

Labour unions have a crucial role to play in bolstering workers' bargaining power in the traditional economy, as also in the digital economy where labour from the Global South is disproportionately subject to exploitation due to the disintermediation and decentralisation of work.

Building solidarity is often hard over platforms, though there have been some encouraging instances observed during this pandemic, with Amazon workers staging walkouts in protest and the Indian Federation of App based Transport Workers successfully organising a quiet and socially-distanced protest demanding adequate personal protective equipment and better pay.(59) Information asymmetry is significantly higher for platform

work, where the employer is invisible and there is virtually no human interaction.(60) This is also true for ghost work, where people have tried to find each other by creating online communities because the platform does not allow for any interaction or collaboration.(61) Cooperative platforms built by workers have done the trial of organising and building solidarity, and they have worked considerably well.(62)

Policy must enable and not hurt worker unionisation; India's new Labour Codes have taken a discouraging stand on the subject, which does not augur well for worker rights in the country.

Social capital

Building a resilient welfare architecture requires a recognition of the value of social capital and communities. The Legatum Institute's Prosperity Index ranked India at a very low 101 out of 142 countries in terms of social capital, and rated Indians as the least likely to trust and be altruistic towards strangers.(63) Social capital is an underappreciated but extremely critical aspect of resilience. It is an especially invaluable resource for developing countries, which are plagued by limited State capacity and find their strength in communities and social networks. Subhamoy Chakraborty and Reunka Sane have written on how one in ten households relied on borrowing from shops to survive post-demonetisation stress in India.(64)

Generating social capital will require bridging the trust deficit between citizens and the State, and the rising mistrust between the Centre and states in India. Building trust requires active civil society engagement and the empowerment of local governments. The centralised deployment of technology solutions needs to be buffered by real people interacting with the claimants of social benefits to address real concerns effectively.(65)

Worryingly, the gulf between the Centre and states in India has also widened significantly. The Indian State has squandered social capital during the pandemic, through its high-handed decision-making. Centre-state consultation and negotiation mechanisms have slowly eroded, and the states have been rendered fiscally weakened. It will require considerable effort and an investment in horizontal rather than vertical institutions (like inter-state councils for example) to restore deliberative democracy to India.(66)

Conclusion

The pandemic has provided the impetus for academics and policymakers to take on particularly thorny challenges with renewed vigour and moot ideas that were previously considered too radical to be discussed. This is just as well; the pandemic has accelerated the forces that are transforming work and made the imperative for structural transformation even more urgent than before. The debates around work and the welfare architecture in India need to be urgently reframed and translated into practical reform. India must use the pandemic to switch to a more forward-looking sustainable growth trajectory before it becomes too late to matter.

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Envisioning the Digital, Remote-First Workspace

Utkarsh Amitabh

The world lost about 400 million full-time jobs in the second quarter of 2020 (April-June) due to the COVID-19 pandemic, according to the International Labour Organisation (ILO)(1). The ILO also pointed out that about 59 per cent full-time jobs have been wiped out in the Asia-Pacific region.

The situation in India is alarming—over 122 million people are jobless with no prospects of finding meaningful work in the short term; lay-off rates in large companies have increased(2); Huawei cut its India revenue target for 2020 by up to 50 percent and laid off more than half of its staff(3); and Reliance Industries, one of India's largest private companies, announced pay cuts of up to 50 percent for some top oil and gas division employees(4). In terms of high-growth companies, Swiggy laid off over 1,000 people; Ola let go of 1,400 employees; ShareChat, an Indian video-sharing social networking service, laid off about 100; and Zomato fired 13 percent of its staff.(5)

Are the lost jobs coming back? It is hard to say at this point. Startup hiring might improve marginally but they do not employ nearly as many people as those seeking opportunities. Governments are struggling to get economies back on track, and with intense pressure on the healthcare sector, providing stimulus to other sectors will not be easy.

Millions are likely to be left to fend for themselves. They will have to reach out to their networks to explore new roles and find or create opportunities for themselves. As in previous recessions, many iconic companies will be born that will go on to create enormous financial wealth. They will become the employers of choice in the coming decades. But can people wait for that to happen?

In the short term, people will need to learn to monetise their skills and create unconventional economic opportunities for themselves. Waiting for the economy to bounce back is not the smartest recruitment strategy in the COVID-19 era.

Erstwhile side hustles will become full blown jobs, creating a wave of micro-entrepreneurs who will have the arduous task of finding their niche and figuring out a reasonable business model. High-growth software startups will be accompanied by a new

category of hyper-local or niche-serving creators/micro-entrepreneurs.

People are also likely to have a portfolio of professions. For instance, one person could be an Uber driver during the day, a digital media strategist in the evening, a task-rabbit hustler post-dinner and a writer/musician/gamer monetising their content late at night.

Exploring the Passion Economy

The experience of Coss Marte, the founder of Conbody, a prison-style fitness bootcamp that hires ex-cons to teach fitness classes, can be a useful example to navigating the post-COVID-19 world. Born to poor immigrant parents from the Dominican Republic, Marte started dealing drugs in his teens and was making more than US$2 million a year before getting caught(6). He spent four years in prison where he discovered his passion for fitness and eventually figured out how to transform it into a viable profession. This kind of passion-centric job creation will drive the economic engine of the 21st century.

According to economist Adam Davidson and the recent future of work report published by venture capital firm Andreessen Horowitz,(7) the gig economy and the "Uber for X" model will at least, in part, make way for the passion economy where micro-entrepreneurs like Marte monetise their individuality and creativity.

Marte's fitness classes are good and his subscription-based business model makes sense, but his success cannot be attributed to them. A key component of the passion economy is storytelling and Marte tells a gripping story through his business. It creates a strong bond between customers and instructors.

In addition to becoming fit, the customers are actually involved in the redemption of their instructors. Unlike other gyms where hourly paid instructors change every few months, Conbody instructors are there for life. Marte's genius is that he has taken objectively negative facts and found a way to tell a true story in an authentic way (something many of us will need to learn, especially if we have been fired or furloughed).

There are several other examples that demonstrate the power of storytelling in the passion economy. Dave Dahl spent 15 years in jail before setting up an organic bread company, which he sold for US$ 275 million in 2015.(8)

Obviously, one does not need to go to jail to create a memorable story. The larger lesson is that in the passion economy, even some of the hardest, most painful aspects of our lives (for instance, losing your job in the middle of a pandemic or getting fired on Zoom) can become core pillars of our business strategy. We do not need to appeal to everyone all the time. All we need is a small group of people who understand what we are doing and are willing to support us through subscriptions and micro-donations.

According to former Andreessen Horovitz investor Ji Lin, these stories are indicative of a larger trend called the "enterprisation of consumer".(9) While the gig economy flattened the individuality of workers, the passion economy will allow anyone to monetise their unique skills or stories.

Platforms for Passion Economy

Patreon is a membership platform that enables YouTubers, podcasters, musicians and other creators to earn money by offering exclusive content to paid subscribers or "patrons". There are many such platforms empowering micro-entrepreneurs worldwide.

Take, for instance, Vicky Bennison who read zoology in college, graduated with an MBA from the University of Bath, worked in international development and is now best known as the person behind *Pasta Grannies*, a YouTube channel that finds, films and monetises the talents of real Italian grannies (*nonnas*) making handmade pasta.(10) Inspired by Bennison, one Network Capital member who worked at a major bank and got fired in the middle of the pandemic, started a YouTube channel for cakes and breads. Within weeks, it became one of the most popular channels among certain millennials and she now earns twice as much as she earned at her previous job.(11)

While the passion economy will be immensely rewarding for creators, it will not be all fun and games. People will need the discipline and the rigour to work hard, experiment fast and deliver consistently. Unlike regular employment, creators will need to figure out human resources, accounting and legal issues themselves. Paul Jarvis, author of Company of One: Why Staying Small Is the Next Big Thing for Business, shares that today creators spend more than 50 percent of their time doing extraneous stuff. That is a colossal waste of income and potential.(12)

AI and Passion Economy

Instead of debating whether artificial intelligence (AI) will exacerbate job losses in the COVID-19 era, we must figure out how it can augment the productivity of creators and micro-entrepreneurs who will be the pillars of economic rebuilding in the post-coronavirus world. We need to free up time for creators to do the work they truly care about and are good at. That is how the passion economy will blossom and lead to the next wave of economic growth.

Will AI lead to job losses? Of course. Are the number of jobs in the world finite? Of course not. In the years to come, we will witness a reduction in the number of institutional jobs. Governments and enterprises will hire fewer people. Some jobs would even be outsourced to robots and algorithms.

This phase shift will be immensely stressful if we keep running after the next big thing or the next new technology without a sense of purpose. However, if we learn to augment our creative pursuits with meaningful stories and new age technologies, the passion economy will unleash innumerable possibilities, just like it did for Marte, Bennison and Dahl.

Building a Category of One

"Competition is for losers,(13)" says Peter Thiel, investor and co-founder of PayPal. He adds, with a twist on Leo Tolstoy's masterpiece *Anna Karenina*, that every failed company is alike in that it fails to transcend competition. Thiel's analysis is as true for businesses as it is

for work and careers in the post-pandemic world. The basic laws of demand and supply tell us that it is challenging to defend what is abundantly available. That is why it makes sense to think outside the box, be a contrarian and build a *category of one* where your uniqueness quotient is your value proposition.

While for traditional jobs there will be more applicants per advertised position, for those exploring passion economy, there will be an opportunity to escape competition and create a category of one.

Ben Thompson got his MBA at the Kellogg School of Management (14), worked at Microsoft and today lounges in Southeast Asia writing a newsletter on technology trends, **making more than US$3 million in profits each year (15).** Thompson started by charging US$100 per year and at the last officially reported count in 2015, he had 2000 monthly paying subscribers. The picture below explains his growth trajectory. It is a conservative estimate as Thompson has not talked about numbers since 2015.(16)

Date	**Subscribers**	*calculated*
4/16/2014	0	
11/5/2014	1,000	
12/16/2014	1,500	
1/25/2015	2,000	
2/20/2020	25,189	24,861
5/19/2020		26,303
7/1/2020		26,841
12/31/2020		29,132
Revenues (yearly)	**$3,285,351**	
Split yearly/monthly	24,157	2,684
	$120	$144
	$2,898,839	$386,512

Amidst the COVID-19 pandemic, there has been a surge in the number and quality of newsletter entrepreneurs like Thompson. Not everyone will go on to make millions of dollars, but many will be able to carve out a meaningful job that provides financial security.

Passion Economy and the Remote-First Culture

Whether we like it or not, remote work is likely to be the new normal for creators, participants in the passion economy and for corporates around the world. Emergencies

fast-forward culture. Until last year, organisational psychologists believed that within a decade, 90 percent of companies will be remote-first and globally distributed. The COVID-19 crisis has shrunk that timeline considerably.

WordPress CEO Matt Mullenweg is a pioneer in building a remote-first, distributed work company. His hypothesis was that talent is equally distributed around the world, but opportunities are not. To bridge the talent-opportunity gap, he made a conscious choice to hire the first 20 employees without meeting them. Essentially anyone could apply if they could get the work done. It was designed keeping millennials and digital nomads in mind. Today, Automattic, WordPress's parent company, has close to 1000 employees in 67 countries.(17)

Despite the success of WordPress and a few other distributed work companies, there is a huge debate about the merits and shortcomings of remote work. A 2014 research paper 'Does Working from Home Work? Evidence from a Chinese Experiment'(18) suggested that remote workers are 13 percent more productive than their office-going counterparts(19). But work entails more than just being productive. We need cross-pollination of ideas, lateral thinking and creativity. Remote workers tend to have a slight disadvantage when it comes to collaboration, creativity and building on others' ideas. Their productivity gains may even be neutralised by their collaboration disadvantage. That is why an ideal distributed work culture combines elements of both.

Building Productive and Creative Remote Workspaces

How can organisations build such a culture? How can passion economy participants and creators shape productive workspaces that also augment creativity? This can be done through five steps:

First, communicate goals to all stakeholders clearly. There is a huge difference between goals and tasks. While we should set a few clear goals that can be tracked, we tend to fritter our day away conducting tasks that give us the illusion of being busy. To build a remote-first culture, we need to have clear goals and ensure that everyone understands their unique contribution towards shaping them.

Second, document everything. When people work remotely, there is no hallway conversation and water-cooler chatter. We need to communicate our thought processes and ideas succinctly so that people in different time zones can build on our work. Mullenwag explains that this process of documentation also helps as organisations scale and new people join.(20)

Third, learn to write effectively. Learning to write clearly and creating a culture where people share fully formed thoughts will go a long way towards optimising everyone's time. Abusing instant messaging by interrupting someone else's work must be avoided as companies adopt a remote-first outlook.

Fourth, schedule unstructured social time. The office is not just a place where work gets done. It offers a platform for social connections and friendships. Distributed work companies need to figure out a way to replicate this online.

Fifth, incentivise working remotely. Renting an office is far more expensive than

paying employees/partners/freelancers to work where they like. That said, cost is not the only motivator. Incentivising remote work is also a way of expressing trust in employees, partners and stakeholders.

Making Remote Work Work for Women

The Institute for Fiscal Studies and University College London interviewed 3,500 families during the early months of the pandemic to gauge how men and women distributed chores and responsibilities in a work-from-home setup.(21) Their findings are applicable to families where both mothers and fathers were working, as well as to families where both parents were furloughed or out of work. The results are worth reflecting on:

1. Mothers were only able to do one hour of uninterrupted work, for every three hours done by fathers. A female interviewee said "[My partner] is furloughed and yet my work telephone calls are interrupted by the children asking questions, while daddy is just watching Netflix."(22)
2. Mothers are doing, on average, more childcare and more housework than fathers who have the same work arrangements.
3. The only set of households where mothers and fathers share childcare and housework equally are those in which both parents were previously working, but the father has now stopped working for pay, while the mother is still in paid work. However, mothers in these households are doing paid work during an average of five hours a day, in addition to doing the same amount of domestic work as their partner.
4. Only two percent of new mums and dads split their entitlement to parental leave. This generally leaves women in charge of establishing a routine and learning how to be a parent—usually by trial and error.

On analysing remote work for women, organisational psychologists Herminia Ibarra(23), Julia Gillard(24) and Tomas Chamorro-Premuzic(25) offered six suggestions to make work from home/remote work work for women.(26) While most of their suggestions are directed at corporations, some ideas are applicable to passion economy participants, freelancers and micro-entrepreneurs as they deal with customers, partners and other stakeholders in the ecosystem.

First, do not make assumptions. Instead, focus that energy on collecting and analysing data. Data is known to be a powerful tool in revealing gaps, therefore, the organisation's human resources department needs to shift to becoming more evidence-based and not rely on its intuition as much. A starting point could be viewing remote work level-by-level and ask—is there equality in terms of career benefits among the entry-level, mid-career, and executive strata?

Second, employers should change with, rather than against, their organisational culture. If the existing culture is 'This is how we do things around here, get with it,' then the company should accommodate some sort of flexibility and ask its management employees 'How should we do work from home around here?', and the answer should include paying attention to gender equality and other dimensions of diversity. Since this is a new experience for everybody, it does not make sense to continue with older

organisational policies that were written when people physically went to work. While technologies such as Zoom have made things easier for both employees and the firm (wherein they provide employees with flexibility, and firms with increased efficiency), these technologies will prove to be an even greater asset if the organisation can effectively integrate them with its culture.

Third, understand that remote working (unlike the office) does not occur in an environment free of interruptions. Organisations should actively attempt to do away with any embedded assumptions about the gender-normative roles of mothers and fathers so that these biases do not influence managers' and colleagues' perceptions of what work from home looks like for men and for women.

Fourth, make sure the organisation is based on collaboration and fairness for all. If most employees are working from home, but some do physically come to work, management should make sure that this does not turn the office space into some sort of "VIP area of a club or the first-class section of a business lounge". The only way to get an organisation to function effectively during this time is to strive for a balance that will essentially require organisations to examine the gender distribution at home and in the less-crowded office, ensuring an equal amount of flexibility and "hybrid" access for everyone.

Fifth, organisations should make sure that everybody (even top management) is educated about 'company rules'. If firms hope to make work from home function effectively for everybody, it should ensure that its managers understand their colleagues' obligations, and that all employees have access to workshops/sessions and guidance on work stress, work-life balance and inclusion. This will help employees differentiate between their personal and workspace and be empathetic to their colleagues' work from home arrangements.

Sixth, focus on output, and keep in mind employees' situation during the lockdown period. The firm's performance evaluation processes and metrics should be upgraded to ensure that there is a focus on overall output. Moreover, management should be mindful of its employees' enhanced struggles during the lockdown, and, perhaps, should consider not including assessments from that period.

Vulnerable Groups: Discriminations to Watch Out For

Ageism, sexism, groupism and other forms of discrimination have been—and still are—rampant in many spheres of work, but unless we make structural changes, things will get worse in the post-pandemic world.

Age discrimination in the job market tends to worsen during recessions. Some employers are using COVID-19 as an excuse to get rid of their experienced workers who are paid higher wages, only to replace them with younger professionals who are eager to accept any offer. The National Bureau of Economic Research found that age discrimination goes hand-in-hand with the unemployment rate.(27) Older workers tend to be fired first and hired back last.

Jobs held by women—concentrated in the service industry—are especially vulnerable in the coronavirus economy. There is evidence that women have been laid off or furloughed

at a significantly higher rate than men.(28) Research has also shown that women are more likely to carry out more domestic responsibilities while working flexibly, whereas men are more likely to prioritise and expand their work spheres.(29)

Another threat to working women in heterosexual relationships is choosing to opt out of the workforce to manage their homes. Since children are not physically going to school, and families are forced to take on significantly more domestic labour, women tend to sacrifice their work to take care of the domestic situation at alarmingly higher rates than their partner. According to the BBC, even if women feel their jobs or incomes are relatively safe, many just cannot carry on the way they are for long.(30) Women have traditionally carried out a "second shift" at home once their workday had ended. Now most women are trying to work the two shifts at the same time, and the mental health toll has driven many to quit their jobs during the pandemic.(31)

Cognitive Diversity as a Design Principle for the Post-Pandemic Era

It is well known that diversity of thought, conviction and action enables better problem solving. One often ignored category is cognitive diversity—the difference in perspective or information processing styles. Tackling new challenges requires striking a balance between what we know and learning what we do not know at an accelerated pace. According to UK-based professors Alison Reynolds and David Lewis(32) a high degree of cognitive diversity generates accelerated learning and performance in the face of new, uncertain, and complex situations. Cognitive diversity and complementarity of skills are probably the two most crucial factors that will propel modern workplaces to tackle tricky challenges unleashed in the pandemic-battered modern workplace looking for revival.

The challenge is that even though cognitive diversity is crucial, its adoption is hard. That is why it needs to be thought of as an integral element of workplace design as we regroup. The truth is that many startups and corporates try but often stumble into two bottlenecks. First, cognitive diversity is hard to detect from the outside. Reynolds and Lewis state that it cannot be predicted or easily orchestrated. Being from a different nation or generation gives insufficient clues as to how the person processes information and responds to change. The second reason is that there are cultural barriers to cognitive diversity. People prefer to fit into the organisational culture rather than question the way things get done.

One of the biggest mistakes organisations make is to only hire people who fit in to their existing culture. They should instead hire for cultural contribution. In practical terms, this means empowering employees to evolve and shape cultural norms. This also helps an organisation analyse existing challenges with a fresh perspective.

Even for micro-entrepreneurs, solopreneurs and passion economy participants, cognitive diversity will be an essential tool for broadening their focus, expanding to new customers and partnering with those who may not share their worldview.

Salaries Post COVID-19: The Case for Wage Transparency

In most developed countries, women are paid less than men for the same work. According to the statistical office of the European Union, for every US$100 earned by a man, a woman earns US$78.50 in Germany, US$79 in the UK and US$83.80 on average across the other EU countries.(33) In every OECD country, men are paid more than women. Averaging at 13.5 percent, the gender pay gap ranges from 36.7 percent in South Korea to 3.4 percent in Luxembourg. This gap persists, despite the attention it has received, and, it is widening in some cases.(34)

COVID-19 has resulted in widespread job losses and in salary cuts across the board. On average, people are ready to do more work for less money. This is as true for freelancers as it is for those seeking conventional employment. It is conceivable that the wage inequity of the pre-COVID-19 era will get magnified once the pandemic is behind us. Maybe the flexibility offered by remote work comes at the cost of women's salaries.

One solution to overcome wage inequity is wage transparency. In Sweden(35) you can find out anyone's salary with a simple phone call. Businesses with 25 or more employees must establish an equality action plan. And companies with big pay gaps face fines if they ignore it. While naysayers might suggest that examples from Nordic countries are not representative, but studies suggest otherwise.

A 2015, PayScale study(36) surveying over 70,000 American employees, demonstrated that the more people knew about why they earn what they earn, especially in relation to their peers, the less likely they were to quit. Dave Smith of PayScale said that "open and honest discussion around pay was found to be more important than typical measures of employee engagement". (37)

INSEAD Professor Morten Bennedsen(38) collaborated with Columbia Business School and Cornell researchers to conduct an empirical study to look at(39) the impact of mandatory wage transparency. In almost every context, disclosing gender disparities in pay narrows the wage gap. Further, employees are more motivated when salaries are transparent. They work harder, are more productive, and collaborate more with colleagues. Wage transparency is not a panacea, but evidence clearly suggests that it is worth a try.

Implications on Mental Health and Wellbeing

Remote work, physical distancing and social distancing

As remote work becomes the norm, how will it impact our empathy to our colleagues and coworkers? Jamil Zaki, author of The War For Kindness (40), explains that physical, social and emotional distance does not have to coincide. He suggests that we should start by renaming social distancing to physical distancing to emphasise that we can remain socially connected even while being apart.

If we let physical distancing lead to social disconnection, it can intensify our loneliness, which may further lead to sleeplessness, depression, cardiovascular problems and produce a similar mortality risk to smoking 15 cigarettes a day.(41)

Now, more than ever, we need empathy and to create a sense of solidarity within and outside our communities. We need to channel it to meaningfully connect with fellow sufferers, our friends, neighbours and colleagues.

Empathy is flexible. It is an acquired skill that can be developed by training, deliberate practice, personal application and self-awareness. Zaki offers an interesting analogy. Our empathy is like a muscle (42), left unused, it atrophies; put to work, it grows. There is, however, a catch. Empathy diminishes with time and distance (43). In addition, as Yale University professor Paul Bloom suggests, our empathy flows most for those who look like us, think like us, seem familiar and are perceived as non-threatening. Since the specter of the coronavirus transcends time, distance and the extent of familiarity, it is a rare opportunity for us to scale our empathy and think of empowering others along the way.

Many of us blame online technologies and social media for ripping apart our social fabric (44). It has been found that when we are anxious or stressed, we tend to aimlessly scroll through our phones and find our anxiety transformed into unmitigated panic.

While this is a fairly common use case, we should keep in mind that how we use technology is not pre-ordained. Those very tools that we love to hate are now our best hope for increasing our empathy quotient.

When footage of inhabitants of the Tuscan city of Siena singing their city's official song from their balconies started circulating on social media, Italians all over the country started sharing videos in which they also sang from their windows. This trend soon made its way to Beglium. The online group 'België zingt … uit het raam! – La Belgique chante… de sa fenêtre!' (Belgium sings… from the window!) built a huge community where people from across the country sang from their windows every evening.(45) Millions of citizens around the world used such online message boards, support groups and independent sites to share information, common challenges and develop innovative ideas to grapple with isolation.

Videoconferencing tools, social media apps and online support groups are playing a crucial role today by enabling us not only to work and collaborate but also to 'hang out' digitally. When we meet offline, we do not expect every minute to be productive. We get our work done and strengthen our social bonds with meandering discussions. Now it is the need of the hour to find ways to replicate this digitally.

The COVID-19 crisis is far from being under control. As physical distancing becomes a norm, we will all need digital spaces and support groups to transform our personal loneliness into communal empathy. Through our suffering, perhaps for the first time, billions of us have more in common than ever before.

Grappling with Regressing Under Lockdown

Many of us who had initially found creative ways to deal with the lockdown reported feeling irritable, withdrawn and less productive as the pandemic progressed. It turns out that feeling disoriented and directionless is not only normal but also unavoidable. *Battle Mind* author Merete Wedell-Wedellsborg(46) studied several prominent CEOs dealing with tough business decisions and observed that most crises tend to have three stages: Emergency, regression and recovery.

The first weeks of managing any crisis (emergency stage) can feel both meaningful and energising. Despite a drop in key business metrics such as revenue, customer engagement and profits, there is a sense of adventure and purpose in grappling with unfamiliar challenges. Among other things, emergencies reveal personal and organisational grit. For some, emergencies bring out the best and for others, the worst. That said, even if one has excelled at the emergency stage, it is prudent to watch out. Initial momentum rarely lasts. The adventure of crisis management devolves into panic mitigation, making day-to-day business challenges seem insurmountable.

That is what marks the beginning of the second stage—regression. Psychologists tell us that regression is our defense mechanism against confusion and insecurity by creating the illusion of an emotional comfort zone. We feel listless, bicker over trivial matters, mess up our sleep cycles and either forget eating or overindulge. The regression phase is both uncomfortable and unavoidable. The key challenge for anyone in the regression stage is to pull through without the burden of unrealistic expectations, get to the recovery phase and prepare for the new normal.

On May 12, the Canadian federal government(47) sent a thoughtful email to all its employees with guidelines on working from home. The most empathetic aspect of that email was that it acknowledged regression as a natural phenomenon and offered constructive suggestions to deal with it.

The first step is to identify the triggers of our regression. The next step is to disrupt status quo. Fresh starts reenergise us, especially if we focus on doing things differently. Subtle nudges and micro changes in habit make all the difference.

The third step includes learning to calibrate the emotions of people we interact with regularly. Simply discussing our scores and sharing our coping mechanisms led to a meaningful conversation about the support needed to negotiate the crisis.

The fourth and final step is to go beyond the survival-first instinct(48) and visualise the impact of our work. Wedell-Wedellsborg suggests we rephrase "How can we handle the crisis?" to "How might we emerge from the crisis stronger?" Such reorientation tends to shift our focus from managing short-term risks to working towards our long-term vision.

This four-pronged plan can help us negotiate better with the unavoidable regression that marks every crisis. While regression can be uncomfortable, it can help unburden us from the pressure of unrealistic expectations and reveal new answers that chart the road to recovery.

Panic Working in the Coronavirus Era

Far from slowing down, many of us have pushed ourselves into even more demanding schedules as we grapple with the specter of COVID-19. We feel compelled to conquer the crisis by accomplishing more than we are usually satisfied with. Gianpiero Petriglieri, professor of organisational behaviour at the INSEAD Business School, calls it "panic working"(49).

Working extra hard provides an illusion of control in times of crises when things are falling apart. Obsessive work and hyper-productivity also offer a false sense of comfort. It

is a defense mechanism where we desperately try and hold on to the world we once knew. Indirectly, we are trying to prolong our denial and work ourselves into numbness.

Although panic working temporarily shields us from feeling out of control, it comes at a high price. We lose our ability to experience things as they are and connect with people. In other words, we subdue our empathy and compassion to create a false sense of order in our lives. During times of crises we need to focus on helping others, figuring out what our community members need, and attempting to make a difference to their lives. Health workers were hailed as the heroes of the COVID-19 crisis because they worked relentlessly to keep others safe.

While health workers spent many more hours at work, it is not what Petriglieri calls panic working. They worked to address our panic and they are, perhaps, doing the most meaningful and most professionally satisfying work of their career. Therein, lies an important lesson for us—in times of crises, it helps to shift focus from our own suffering to that of others. By doing so we not only make a difference, but we also end up doing some of our best work.

Based on a survey conducted on Network Capital, about 70 percent of the 940 responders (50) said that they were working more under the COVID-19-induced lockdown. Not everyone who is working more than usual is panic working, but it is easy to slip into the denial mode where we go on hustling pretending nothing happened.

If you identify as someone who is panic working through the crisis, it might be time to take a short pause to reflect on what matters to you and why. You do not necessarily need to prove to yourself or the world that you outworked the virus. It is perhaps time to be kind to yourself and accept that these are extraordinary times. Disorientation, agitation and anxiety are natural byproducts. These feelings cannot be swept under the rug by beating self-imposed deadlines and accomplishing challenging professional goals.

Crises tend to crack us open and reveal who we are to our own selves. This crisis will be etched in our memories long after we have found its cure but what we will remember the most is how we felt, what we did and who we served.

Putting it All Together

Voltaire said that work spares us from three evils—boredom, vice and need. The current pandemic puts things in perspective. Work has never only been about a pay cheque but in the post-pandemic world, it is sure to alter the alchemy of relationships at scale as people will need to keep purpose and insurance constantly at the back of their minds while making professional choices.

As we think of the future of modern, remote-first workplaces, we are likely to witness new business models. Leisure will be redefined and hopefully a healthier conversation about mental health would take place.

The 'fittest' will survive but who will take care of the most marginalised? Those who crumbled under the COVID-19 crisis but could not bounce back? Employment figures often gloss over such uncomfortable subjects, but we cannot afford to push them under the rug for too long. A combination of emotional resilience training and practical hands-on skill building will be required. There are, however, several unanswered questions:

Who will pay for it? How will this be delivered? How will you measure success? Whose responsibility is it anyway?

As we grapple with these questions, we must strive to make diversity and inclusion integral to business strategies and business models of the future. A semblance of equity is surely worth working towards.

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Work from Home to Work from Anywhere: The Future of Co-Working Spaces

Arnav Singh Gusain

When we look back at 2020, there will be a clear distinction between life before and 24 March, the day that marked the start of India's complete two-and-a-half month nationwide lockdown. This should in no way be construed as the beginning of the pandemic experience in India, but the date marked a seismic shift for most, where our homes and offices became one.

Last year (2019) feels like a distant past. In that world, flexible workspaces were a rapidly growing segment of commercial real estate across the globe.(1) This small yet 'hot' segment was a veritable growth catalyst for the larger commercial real estate industry. Across the globe, these spaces were no longer just an option for businesses looking for cost-effective, efficient, dynamic and state-of-the art physical environments for their employees. Closer to home, the demand for flexible offices—including co-working spaces and serviced offices—has grown faster in the Asia Pacific region than anywhere else,(2) with India emerging as the second-largest market for flexible workspaces in the region.(3)

The year 2020 was supposed to be another 'growth' year in this rapidly growing segment, with even skeptical analysts slowly coming around.

But we all know what happened next.

Across the world, entire industries pressed pause without an end in sight. The interruption to work and our work lives had a debilitating impact on the flexible workspace industry. Spaces that were synonymous with life, energy and ideas now resembled the start of an old Sergio Leone Western. The onset of work from home created its own negative headlines in the media. But as days turned to weeks and weeks turned to months, the lockdown-induced doom and gloom has slowly given way to hard-nosed pragmatism. Indications are that the sector will bounce back with more resilience and potential growth opportunities in a post-pandemic world.(4) The cause for optimism emanates from the fact that the massive disruptions brought about by COVID-19 has created the need for business solutions that are cost-effective, agile and sustainable.

COVID-19: Impact on the flex spaces Industry

Through late March and April, the immediate impact of the pandemic was primarily driven by a shutting down of business activity due to the nationwide lockdown. As companies went into business continuity planning mode, workforces were trimmed, and the lines between work and home blurred. Several influential companies completely curbed their onsite business activities during the lockdown and simultaneously launched policies that allowed employees to maximise output through work from home (WFH) setups.

In the months following the lockdown, flex operators witnessed a 50 percent dip in footfalls at their spaces.(5) But amidst this crisis, the inherent resilience of the industry has become apparent and gradually, the industry has shown signs of bouncing back. To be sure, there is historical context to this. During the Brexit transition, companies in the UK were looking to relocate to mainland Europe and flexible workspaces proved to be a natural choice, with flexible spaces in both Berlin and Paris ending up being major beneficiaries.(6) Furthermore, even during the current economic slowdown, enquiries for serviced workspaces in Australia saw a 30 percent increase. (7)

This period also ushered a new term into our collective lexicon—social distancing. Due to this, maintaining a six-foot distance became *de rigeur* across all physical spaces, including our own, and this has forced companies to reconsider seating, design and operations.(8) Moreover, several companies adopted innovative work plans and gravitated towards revised working schedules by implementing rostered working days. This mass-embracing of 'flexibility' has instilled renewed belief in a business model like WeWork's where we are considered a long-term strategic partner to complement their revival and growth in a post-pandemic world. Moreover, as many of these companies are tightening their purse strings and reconsidering their fixed asset investments to save on overhead costs, flex spaces will play an important role in rationalising costs and maintaining financial agility.

But the question remains—what about individual consumers working from the safety of their homes? Here, too, the pandemic will act as a catalyst wherein the WFH model will lead a transition to a world where remote working is the norm. The mantra will change from 'work from home' to 'work from anywhere'. Another truism that has come to light thanks to the pandemic is that offices continue to be important spaces for training, mentorship and collaboration—something employees have vocally stated that they miss. Whilst industry leaders like Google's Sundar Pichai and Accenture's Julie Sweet have emphasised the importance of in-person interactions for business growth(9), a 2020 McKinsey report also found that teams that work in the same space find it easier to build trust(10). The report also emphasised several other challenges faced by employees practicing WFH, including lack of sufficient communication and coordination.(11) These findings were echoed in a Brookings Institution report that reiterated that people prefer communicating complex information face-to-face rather than digitally.(12) Due to these problems, studies have shown that over 90 percent of people want to return to the office at least one day a week. Statistics like this highlight the value people associate with physical workspaces.

Another important question to ask is what happens to physical office spaces that are lying vacant and might never reach a pre-COVID-19 level of occupancy? Once again, flex spaces can prove to be a problem solver as outsourcing office spaces to flexible workspace

operators could substantially ease the commitments associated with maintaining a permanent staff whilst also ensuring that social distancing, sanitation and safe hygiene within premises is strictly adhered to.

As WeWork India CEO Karan Virwani said, "The coronavirus pandemic has accelerated the shift to flexible workspaces. The company can help businesses and educational institutions de-densify their spaces. Corporate clients contribute around 65-70% of the business and it will remain so going forward." (13)

Given that the feasibility of WFH is limited in India due to several restrictions, from the lack of widespread internet connectivity (14) to other severe challenges, flex spaces offer both flexibility to employees and cost-effective solutions to businesses, which will be especially relevant in a post-COVID-19 world. These spaces already support a significant number of small and medium enterprises, with reports revealing that over 13 million people were predicted to work out of flex spaces by 2020 in a non-pandemic context.(15) Moreover, flexible workspaces will also complement the upsurge in the Indian gig economy, which has a 17 percent annual growth rate, whose scope will now broaden dramatically and encompass not only blue-collar jobs but also various white-collar jobs.(16)

COVID-19: Flex Spaces as Problem-Solver?

The initial days of the WFH model in India were rife with reports stating an increase in productivity as well as employees eluding to feeling a greater work-life balance. (17) However, as the months have passed, several challenges have emerged, including mental health issues. A recent survey by a Kochi-based NGO highlights that WFH was more stressful and lethargic than working from office for most people and nearly 87 percent of the respondents felt that companies must evolve clear WFH policies focused on the wellbeing of employees. (18) Increased screen time, awkward sitting positions and a lack of social interaction has also resulted in physical health-related issues. Such sedentary work patterns have been known to have long term health impacts, including increased stress levels. According to a pre-pandemic report by the World Economic Forum, (19) concerns around people's diminishing mental health and physical wellbeing were on the rise in countries like the UK. The report also stated that businesses can lose up to £100 million every year due to workplace stress, depression and anxiety.

Compared to this, flexible workspaces are a study in contrast. By employing dedicated community managers and hosting a variety of events at the spaces, operators have tried to promote a culture that balances recreation with work. Such spaces are inherently designed to allow employees and members to be surrounded with people from a myriad of industries, which ensures a collaborative work environment and facilitates conditions for networking and knowledge-sharing. Very often, valuable business advice and potential business opportunities exchanged within these spaces facilitate the growth of the members. A recent WeWork-ORF study showed that co-workers express a relatively high degree of satisfaction with their job and workload, experience a positive work-life balance and remain optimistic about their future job opportunities. (20)

Further, flexible workspaces promote a culture of diversity and inclusivity. According to the same WeWork-ORF study, the average age of the workforce fell squarely in the 'youth'

category and more importantly, consisted of more female workers (~39 percent) in comparison to the overall labour force (~26 percent). The benefits of flexible workspaces for working women in India are also essential in assessing the viability of such spaces. Female workers are currently overwhelmed with both domestic and professional responsibilities as the extended period of WFH has increased family dependence on them. Flexible workspaces allow these women to restore a balance between these two domains.

Moving beyond the confines of the office space, organisations can also leverage the accessibility of these workspaces—where these spaces are present in a city—to ensure commute time is reduced. This enhanced accessibility holds an even greater advantage in metro cities, since Indians spend more time in daily office commute than most countries in the world—over two hours on the road every day.(21) A report by MoveInSyn showed that Indians spend 7 percent of their day commuting to office, averaging less than three minutes per kilometre.(22) By having offices distributed across cities, this model also allows employers to recruit talent without accounting for proximity issues. Finally, remote working also enables employees to cut living costs by moving to affordable cities instead of metro cities where the average household rent in cities like Mumbai, Bengaluru and Delhi are bordering on the exorbitant.

Another major advantage a shift towards flexible workspaces brings relates to urban infrastructure development. With a rapidly growing number of people residing in cities, there is an urgent need to think about decongesting our cities, especially the central business district areas. Flexible workspaces offer this compliance with the 'smart city' model by facilitating ease of travel, access to the latest technology and reliable sanitation—all under one roof. (23) By providing the facilities for office spaces in local areas, flexible workspaces solve the problem of growing congestion in cities due to traffic-related pollution. Data reveals that car ownership went up by 27 percent in 2017 from 2015, with over 11.2 million registered cars in Delhi.(24) In the same period, car ownership increased by 21.8 percent in Mumbai(25) (3.2 million vehicles) (26) and 10 percent in Bangalore (6.8 million vehicles) (27). Not only does this mean that metropolitans in India are becoming unimaginably crowded, the air and pollution levels—both sound and air—in these cities are also going off the charts. The use of flex spaces could help decongest Indian cities and this decluttering will also help reduce time spent stuck in traffic—a menace that most metro dwellers will attest to. To put things into perspective, reports have shown that the average Bangalorean spends 243 hours in traffic each year.(28)

If time is money, this is not time well spent. Even from an employment point of view, flexible workspaces make a lot of sense to India's growing 'gig' workforce. More and more professionals, especially the increasing millennial workforce, prefer freelance work and smaller contracts. Indian freelance workers today make up 24 percent of the global online gig economy (29) and flexible workspaces have a long history in catering to these workers' space needs. Trends are also showing that full-time jobs are diminishing, and assignment-based hiring is gradually becoming the norm. Flexible workspaces will allow businesses to keep resizing their workforce without getting burdened with logistical arrangements related to workspaces. Thus, the onboarding of new employees or the expiration of the older employees' contracts will not present a logistical burden to the organisation and will, instead, be managed with ease by flex operators.

COVID-19: How The Government Can Step In

Several reports, including a June 2020 survey by Gartner Inc,(30) have indicated that a substantial number of employers intend to allow their employees to work remotely full-time even in the post-pandemic world. Such forecasts call for policy measures by the government and enhanced cooperation between the industry and officials to facilitate the growth of flexible workspaces and ensure that they recover from losses induced by the pandemic.

To start with, the flexible workspace industry needs formal 'industry recognition' from the government. This will enhance awareness about the industry whilst helping contribute to the growth of flexible workspaces. This, in turn, could help define the 'future of work' as a trifecta of agility, flexibility and accessibility. The industry recognition could also pave the way for discussions around infrastructure development in the office space, which is currently focused on large metros.

Secondly, government assistance to the flexible workspace industry is also bound to act as a catalyst for other businesses that depend on such spaces—a number that is set to increase in the aftermath of COVID-19. Some of the key consumers of flexible workspaces are startups, a sizeable number of whom are facing an existential crisis owing to the pandemic.(31) How can flex spaces facilitate governance assistance for small and medium enterprises and startups? For instance, the government has launched several relief packages and schemes during the current healthcare crisis to rejuvenate application developers; the Ministry of Electronics and Information Technology and NITI Aayog recently launched the Atal Innovation Mission to incentivise technology innovators to create an Indian-origin app ecosystem with substantial cash rewards. Initiatives like this depict the sustained efforts by the government to support startups.(32)

Flex spaces not only act as the top preference for budding startups as office spaces but also provide incubation opportunities to facilitate their growth. Initiatives like WeWork Labs(33) and the 91Springboard Incubator,(34) which assist entrepreneurs with mentorship and investment opportunities, demonstrate the role flex spaces are playing in facilitating India's startup ecosystem. A partnership between government initiatives and industry players in this space can amplify the benefits of such support and accelerate innovation in the country.

Thirdly, government intervention to support the flexible workspace industry also becomes important when we realise that Indian work culture is currently showing a shift towards a gig economy. Millennial workers, who are predicted to constitute over 75 percent of the global workforce by 2025,(35) prefer flexible work cultures that offer them the option of freelancing with projects that suit them best. By supporting the growth of the flexible workspace industry, the government will directly engage with an emerging gig workforce—most of whom fall in the 'young demographic'—who will be critical to not only a post-pandemic rebound but also to help boost growth prospects in years to come.

Fourthly, as employees transition from WFH to physical office spaces, the government needs to provide effective standard operating procedures for a safe return to onsite work. Industry players need to ensure that these procedures are being effectively implemented to ensure the safety and wellbeing of employees. Throughout the lockdown phase and in the 'back to work transition', flex spaces have set benchmarks for on-site health and safety protocols,(36) and these practices could be leveraged by the government as the benchmark for

other industries to follow as they reopen their workspaces.

Finally, a collaboration between government bodies and the flexible workspace industry also appears prudent when we acknowledge the shared urban development model between the two. The government has come up with several provisions to make Indian cities 'smarter' through its smart city missions. With over INR 111 trillion(37) set aside for the National Infrastructure Pipeline, the official priority appears to be around ensuring that cities continue to act as agents of growth and higher living standards. Flex spaces too have a similar mission with their focus on making Indian megacities 'smarter' by ensuring reliable technological access to professionals and working towards decluttering city spaces and fostering sustainable urban development.

Conclusion: Life After The Pandemic

The pandemic has compelled businesses across industries to think of innovative work solutions. While COVID-19 has been a crisis of unimaginable proportions and rightly made us question current work practices, the onus will now be to look at the future with optimism and with the belief that the country's economy can bounce back. Employees all over the world have managed to conduct their operations remotely through WFH, thanks largely in part to digital platforms that exist in the world today. However, as this paper has argued, WFH is not a sustainable work-model and the industry is showing a decided pivot towards a 'work from anywhere' model instead. The hope is that the government, companies and workers will coalesce around the idea of remote working.

The accelerating remote work culture born during COVID-19 is bound to further propel the growth of flexible workspaces, especially since several employers are looking at remote working as a long-term practice. A symbiotic and sustained collaboration between the government and the flexible workspace industry is required to navigate this growth and to ensure that the economy benefits from our innovative workplace solution(s).

In the years to come, 24 March 2020 will always be looked at as the day India came to a standstill. But if there is one thing that history teaches us, it is that moments of crisis can turn into opportunities. Looking back, the aftermath of the SARS outbreak in China convinced millions of Chinese consumers to embrace a platform called Alibaba whilst the Y2K bug turned into a blessing in disguise for the Indian IT industry and took business process outsourcing to scale.

What is to say 2020 cannot do the same for remote working?

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