Everything you hear about India is true. And so is the opposite. This admonition is a common refrain that echoes throughout this vast country of more than 1.3 billion people. It is a land of diversity and contrast, impossible to describe as a monolith. With 29 official languages and more than 20,000 local dialects, language is one factor that complicates a deeper understanding of the country. Geography, religion and caste further segment this nation, and pose additional challenges for those attempting to understand the subcontinent.

Looking at India’s digital economy magnifies the divisions. Residents of an upscale, leafy New Delhi neighborhood may be whisked off to work each morning in the back of chauffeur-driven sedans while surfing the internet on Apple iPhones. Those in Mumbai’s poorest corners connect with friends and family via feature phones, or basic, low-cost smartphones. Young entrepreneurs in Bangalore are on the cutting edge of digital use, driving an idea-based economy that has made this southern city Asia’s Silicon Valley.

Meanwhile, in rural villages, technology remains a luxury item out of reach for most who struggle to obtain even the most basic needs, such as food, water and shelter.

Despite the growing gaps in wealth, access, education and connectivity, one unifying source of pride that cuts across faith, language, social status and region is the strength of Indian democracy. Each time Indians go to the polls, they participate in the world’s largest democratic exercise. There are about 814 million eligible voters who outnumber the entire population of the European Union.

But Indian democracy is not just about voting. Indians follow the daily grind of politics and hold their leaders accountable. Voters demand transparency not just on Election Day, but every day. The Indian press is a vibrant force on the democratic landscape that serves the dual purpose of informing the people and checking government excess. And civil society groups shine the spotlight on corruption, neglect and need.
These are all hallmarks of a durable democracy, albeit not a flawless one. Issues such as graft, dynastic politics and discrimination persist. Additional challenges extend to the social domain: from literacy and primary education to child mortality and basic public health, India's needs are vast in scale and scope.

But forces throughout society are searching for solutions to these shortcomings. In fact, the concerted effort to eradicate nefarious practices and conditions presents an opportunity for a democratic leap forward, one that the introduction of new technology may facilitate. As in all societies, technological innovations are changing every aspect of life, and India’s democratic institutions are not exempt. For better or, in some cases, for worse, technology has transformed and continues to reshape Indian democracy.

The country's scale and diversity negate sweeping generalizations, and this chapter will veer away from doing so. Instead, the following pages will explore the unique ways in which Indians are coping with and adjusting to technology's impact on their democracy. Can the government remedy digital exclusion in rural India? What's the story behind WhatsApp? How can illiterate citizens take advantage of the digital dividend? What does “fake news” look like in India? This chapter, which examines disruptions to Indian democracy, focuses on such questions.

**Sustaining the World’s Largest Democracy**

On November 25, 1949, the day before India’s Constituent Assembly adopted a constitution, the chairman of the Constitution Drafting Committee, Bhimrao Ramji Ambedkar, warned that his country was entering an era of contradictions. “In politics we will have equality, and in social and economic life we will have inequality,” he said. “In politics we will be recognizing the principle of one man one vote and one vote one value. In our social and economic life, we shall, by reason of our social and economic structure, continue to deny the principle of one man one value.”

Indians now cast more votes in a decade of general elections than Americans do in half a century.

Universal suffrage cemented political equality in the first parliamentary election in 1951, leading India to become the world’s largest democracy. But social inequality remained a harsh reality, with an illiteracy rate of more than 80 percent among voters and more than 60 percent in severe poverty. The illiteracy rate has since dropped to 28 percent, but today half of Indians live on $3.10 or less a day. The challenges of poverty and education continue to be defining aspects of Indian politics, just as they were in 1951.

Indians now cast more votes in a decade of general elections than Americans do in half a century. The scale of Indian democracy is a challenge and a wonder, and the political parties that have achieved national success have found ways to reach voters of many religions, languages and castes. Their strategies have recently entered a digital age, in which the prime minister is India’s most followed tweeter. But this transformation still leaves in the dark millions whose concerns are not internet access, but the availability of clean water and reliable electricity. Parties that will thrive in Indian politics
A History of Democracy in India

Since 1951

1951
- India holds its first general election. The Indian National Congress, led by Jawaharlal Nehru, wins 362 of 489 seats in the first Lok Sabha.
- Nehru dies of a heart attack. After interim PM Lal Bahadur Shastri dies in 1966, Nehru's daughter Indira Gandhi is elected by the INC to lead the government.

1956
- India's states are reorganized. Formerly based on British Indian provinces, the reorganization reflects ethno-linguistic boundaries and leads to more elected governors and state legislatures.

1964
- A second war with Pakistan culminates in the independence of Bangladesh from former East Pakistan. This war is regarded as a victory for India and solidifies support for Indira.

1965
- India and Pakistan clash over the Jammu and Kashmir region. The seventeen day war was brought to an end by a UN mandated ceasefire and the Tashkent Declaration.

1971
- From 1975 to 1977 Indira Gandhi declares a state of emergency, citing internal disturbances. A declining economy and a guilty verdict for election fraud in her previous campaign place pressure on the PM. In accordance with the constitution, she is granted the right to rule by decree.

1975
- Indira Gandhi leads the INC to a resounding victory in the next general election, called early due to a shaky and ineffective coalition government.

1977
- Indira Gandhi orders Operation Blue Star to remove a militant Sikh leader who had taken control of a part of Punjab state. Sikh and government forces were heavily armed and hundreds died in the fighting.

1980
- In October, Sikh bodyguards assassinate Indira Gandhi at the PM compound in Delhi. Anti-Sikh riots commence and thousands of Sikhs are killed in retaliation for the death of Indira.

1984
- Indira's son Rajiv Gandhi and the INC do poorly in the 1989 election and VP Singh of the Janata Dal Party becomes the second non-INC PM. His coalition falls apart and elections are called in 1991.

1989
- Rajiv Gandhi is assassinated while campaigning in Tamil Nadu. The INC wins the election, but the party is weakened and does not win another general election until Rajiv's widow, Sonia Gandhi, leads the INC in 2004.

1991
- The BJP and its National Democratic Alliance (NDA) win the first stable majority in the Lok Sabha since 1984, ending a period of shaky coalition politics that saw five national elections in ten years.

1999
- Mannmohan Singh leads the INC and its United Progressive Alliance coalition to a victory in the general election. India's two major parties now acknowledge that they need to formalize party unions to hold power in the Lok Sabha.

2009
- Narendra Modi leads the BJP to the largest win for a non-INC party in India's history. The NDA wins a total of 336 of 543 seats in the Lok Sabha.

2014
- The BJP achieves strong results in the state legislature elections. In India's largest state, Uttar Pradesh, they win a majority at the expense of the formerly governing Samajwadi Party.
The Lok Sabha

First elected 1951

282 BJP
44 INC

36 states and territories 530 constituencies 814 million voters

India has won! India's victory. There are good days ahead.

Narendra Modi @narendramodi
11:39 PM - 15 May 2014

Retweets Likes
93,681 65,882


INC BJP

282 44
in the 21st century are those capable of closing the gap between these extremes, as the meteoric rise of Narendra Modi and his Bharatiya Janata Party (BJP) has demonstrated.

A Post-Congress India

The present state of Indian politics owes much to the 1989 general election that ended the four-decade dominance of the Indian National Congress (INC). The party of Mahatma Gandhi and Jawaharlal Nehru won that year only 36 percent of the seats in India's lower house, the Lok Sabha, after winning 77 percent just five years earlier.\(^3\) Since 1991, barring two years of rule by a weak coalition (1996-98) that excluded the INC and the BJP, the two parties have alternated control of the Lok Sabha through broad coalitions. The INC formed such governments after the 1991, 2004 and 2009 general elections, formalizing their bloc as the United Progressive Alliance in 2004. The BJP ruled by coalition after the 1998, 1999 and 2014 elections via their National Democratic Alliance, formed in 1998. While the Lok Sabha is meant to have a five-year term, the five elections held between 1989 and 1999 showcased the uncharted territory of coalition politics in the post-INC era.

Stability has since returned, and the BJP even won an outright majority in 2014, though it still governs via its National Democratic Alliance.

The Legacy of Independence

The INC’s headstart in national political organization, an inheritance from its central role in the independence movement, was instrumental in the party’s nearly unbroken control of the Lok Sabha for more than forty years. Indian politics was built upon the INC’s ability to be a focus of national identity. But maintaining this feat proved difficult. Beneath Indian nationhood, rooted strongly in the fight for independence, is a complex, overlapping network of regional, ethnic, linguistic, religious and caste identities. Weaving these diverse strands into one political cloth has been a major obstacle for other Indian parties with national political ambitions. No other party could match the INC’s credibility and broad appeal until the BJP rose to prominence in the 1990s.\(^4\)

Top-Down Leadership

Candidacy for the country’s highest post is decided at the top levels of India’s political institutions, and in many states the top political offices are available only to those within a party’s small inner circle. The Gandhi-Nehru family has led the INC since its inception, and candidacy for the prime ministership remains largely a family affair. The BJP, similarly, selects its candidates through an internal process, though that does not always mean a smooth one. The selection of Narendra Modi as the candidate for prime minister in 2013 was never endorsed by BJP founding member and former Deputy Prime Minister Lal Krishna Advani. His concerns were overruled by the other BJP elites.

This manner of candidate selection means that party newcomers have slim chances of being permitted to run for office. They must instead work their way up the party hierarchy to prominent posts. However, as the BJP has recently shown by overtaking the INC, change to India’s political traditions can be sudden.

In 2012, anti-corruption activist Arvind Kejriwal founded the Aam Aadami Party (AAP) to run in state-level elections in Delhi after finding no way to advance his anti-corruption platform through existing parties. Three years later, the AAP won 67 of 70 seats in the Delhi Legislative Assembly, and in 2017, it won 20 of 117 seats in the Punjab Legislative Assembly, proving that a grassroots political
organization has potential even if only outside of the establishment.

But the evolution of Indian democracy in the past 70 years has been buffeted by other forces, too. The introduction of online technology has played a significant role, testing India’s democratic resilience in ways that have shaken the political order.

**India Logs On: From Cyber Cafes to Broadband Highways**

The CyberCafe at the Leela Hotel in Mumbai was once the place to be. The year was 1996, and the internet had been brought to India the previous year by a public-sector entity named Videsh Sanchar Nigam Limited (VNSL). Few webpages existed then, so users were often limited to chat rooms or sending e-cards. Despite the scant offerings, the internet was a novelty, and queues formed daily to connect with the world via dial-up connections with an average speed of 10kbs. The introduction of internet service providers and the explosion of webpages online in subsequent years boosted the popularity of surfing, even in a country in which having computer and internet access were luxuries. Despite the relatively low level of internet penetration in these early days, the Indian government launched a series of initiatives that sought to modernize the delivery of government services and change the interaction between the state and the electorate. These early efforts, which included the computerization of land records and national railways, were limited by the tenuous reach of online services of the time. Acknowledging that restriction, the government set about devising a national infrastructure plan. This vision gave birth in 2006 to the National e-Governance Plan that set out the ambitious goal “[to make] all government services accessible to the common man in his locality, through common service delivery outlets, and ensure efficiency, transparency, and reliability of such services at affordable costs to realize the basic needs of the common man.”

This would be a tall order under the best of circumstances. But it appeared to be purely aspirational in the face of significant geographic, technological and financial challenges. Undaunted, the government set about developing the precursors to a nationwide online infrastructure. It was built upon public IT platforms such as State Wide Area Networks (SWANs), which would provide connectivity from state to street level, and Common Service Centers (CSCs) that aimed to connect communities, rural and urban, with online access to employment opportunities, education, telemedicine and e-governance. Although access in urban areas improved, it remained elusive in rural communities. So, in 2010, the office of Information Infrastructure and Innovation, under Prime Minister Manmohan Singh, released a white paper that created a path toward extending digital connectivity to all gram panchayats (local councils).

The study led to the establishment of the National Optical Fiber Network (NOFN) and the Bharat Broadband Network Limited (BBNL), which oversaw and coordinated the consortium that would eventually create the backbone for a digital India. The three key partners in this consortium were the telecom company BSNL; Railtel, to provide a right of way as cables would be laid alongside the rail lines; and the Power Grid Corporation of India (PGCIL). These partners were then given the latitude to subcontract the laying of cables to private internet service providers that would be responsible for delivering online access to every gram panchayat. Each gram panchayat could then determine how to bring the internet...
Building the National Optical Fiber Network in India

Ministry of Electronics and Information Technology + Ministry of Commerce and Industry

Special Purpose Vehicle

Universal Service Obligation Fund

Bharat Broadband Network Limited

Partners

BSNL

Power Grid Corporation of India

State-owned electric utilities company

Railtel

Owned by India Railways, develops telecoms network alongside railroads

Subcontractors connect to Gram Panchayats

Gram Panchayats bring wi-fi to villages

Bharat Sanchar Nigam Limited

State-owned telecoms provider
to the “last mile,” thereby connecting every household in its jurisdiction.

The ambitious goal “[to make] all government services accessible to the common man...”

The NOFN at its inception sought to provide broadband connectivity to 250,000 gram panchayats in three phases by the end of 2016. But in 2015, the Digital Empowerment Foundation (DEF), an Indian non-profit organization specializing in rural access to technology, conducted a study that determined only 67 percent of 59 gram panchayats in the states of Rajasthan, Andhra Pradesh and North Tripura had a landline connection to a fiber-optic network, while more than 20 percent had no connection. The study also revealed that connectivity speed was half of the 100mbps promised by the NOFN.

With 70 percent of India’s population residing in rural areas, unreliable internet access significantly impacts more than 800 million people. Digital exclusion means more than not being able to check one’s Twitter feed. It raises obstacles to getting agricultural products to market, and to accessing education and healthcare services. In terms of democracy, it means the voices of villagers are often muted.

**Wi-Fi or Water: Explaining the Rural-Urban Divide**

Many observers of India rely on stereotypes to understand a diverse and rapidly changing country. The image that most Westerners maintain is that of a startup and call center, or endemic poverty and underdevelopment. These impressions
are reinforced by an economy that has grown unconventionally. Most developing countries move from agricultural to industrial production, then transform into service economies. India leapfrogged the industrial revolution to become a service-sector powerhouse. But it did so before ensuring the basic needs of its citizenry could be met. The obstacles and opportunities from digital transformation are many, and no single factor can explain them all. But in overwhelmingly rural India, examining the differences in technology use between urbanites and villagers can provide insight into the challenges the country continues to face.

Let’s start with the basics. More than 30 percent of rural Indians are illiterate – using a definition of literacy that falls well short of the aptitude required for online services. To be deemed literate in India, one need only to be able to read and write his or her name in any of the country’s 29 official languages. However, the lack of this basic skill even extends to a significant percentage of city dwellers. The government may have embarked on an ambitious digital literacy plan, but hundreds of millions throughout the country lack traditional literacy.

Even for those among the literate, the cost of a phone and data plan may be well out of reach. The most basic handset may be prohibitive for poor villagers given that two-thirds of Indian GDP is concentrated in urban areas, although just one-third of Indians live there.

The private sector has attempted to counter this by bringing low-cost devices with free data plans to the market. The most successful company to do this, Jio, has offered free data and voice plans, along with a handset, for less than $100. More than 100 million subscribers have signed on to the Jio plan, but many of these new customers were simply looking to drop pricier existing plans. Fewer subscribers come from previously underserved and digitally isolated communities. And for others, the cost remains exorbitant.

Accessibility to technology in India, however, goes beyond cost and literacy. Structural issues also widen the gap between urban elites enjoying 4G connections and the digitally excluded on the periphery. The government may have provided much of the infrastructure to bring digital services to all of India, but the private sector dominates the telecoms sector. Traditional business models for
private carriers discourage expansion into rural areas. Remote communities must therefore rely on costly public services that offer low bandwidth and no physical security for the main hardline connections that attempt to connect villages. This may result in connections without connectivity. Furthermore, connectivity cost or available bandwidth limit access to video content on which illiterate users rely. This leaves these customers with the sole option of low-cost texting, which is of little use to those unable to read.

Accessibility to technology in India, however, goes beyond cost and literacy.

These are enormous challenges, but not all is lost. In India, even seemingly small percentages translate into big numbers. There are more than 700 million Indians under the age of 30, and many experts point to this demographic as the most disruptive characteristic for technology and democracy in India. Facebook estimates that it has 185 million active users, making the Indian community the world’s largest user pool for the company’s services. The company also projects it will have in a few years 550 million users as part of a demographic dividend that will change India’s economic trajectory. There are also about two million small- and medium-sized enterprises (SMEs) on Facebook. Many of India’s approximately 33 million SMEs are migrating online to sidestep cumbersome regulation and high costs associated with starting a business. At the same time, Indians across the demographic spectrum have overwhelmingly chosen WhatsApp as their preferred social-media platform due to its low cost and ease of use. Domestic startups, such as Hike, have tried to grab market share in this billion-person ecosystem, but have been unable to pry users away from WhatsApp.

A Uniquely Indian Environment: Rupees, Reliance and Refills

Prime Minister Modi’s vision of transforming India into a cutting edge, digital society has sought to overturn many conventions. But few policy choices disrupted the Indian economy and its citizens like the November 2016 decision to eliminate the 1,000-rupee note and redesign the 500-rupee note in a process called “demonetization.” With the stroke of a pen, 85 percent of currency in circulation became obsolete following a 50-day grace period to allow Indians to exchange bills for new 500- and 2,000-rupee notes. There were four goals to this policy. First, it complemented a scheme to compel poor Indians to open and use bank accounts that could be monitored for tax-collection purposes. Second, it sought to starve the black market of its lifeblood and force transactions to be conducted in a more transparent, taxable and regulated environment. Third, it aimed to remove counterfeit cash from circulation (many reports suggest that Pakistan is a prime source of counterfeit rupees that are used to fund terrorist activities). Fourth, demonetization was intended to convert India into a cashless economy that would use online banking as a gateway to bring all Indians online.

In the world’s most cash-dependent country, ordinary citizens rather than black marketeers suffered more during the transition. According to Forbes, “95 percent of all transactions in India were conducted in cash, and 90 percent of
vendors didn’t have the means to accept anything but. On top of this, 85 percent of workers were paid exclusively in cash, and almost half of the population didn’t even have bank accounts.”7 From wage earners to farmers, shop owners to rickshaw drivers, the average working Indian bore the brunt of this bumpy transition.

But this challenge gave way to many tech-driven solutions to facilitate the move toward a cashless economy. A company called Paytm began as a platform for making simple transactions and has evolved into a multi-use application that allows customers to conduct financial transactions ranging from paying utility bills to furnishing their homes through an online marketplace. Following demonetization, Paytm launched localized versions of its app in rural and urban areas, sensitive to linguistic variations throughout India. Three months after demonetization, the platform processed eight million daily transactions, and the site now boasts more than 200 million users.8 The expectation is that the next 350 million internet users in India will be brought online through digital payments. And as more users enter the digital space, they will encounter practices that are unique to India.

The cost of data in India has influenced for several years the behavior of mobile subscribers nationwide, and Indians have taken innovative steps to mitigate the expense. According to Nasscom, India’s leading tech-sector association, more than 90 percent of mobile users have a dual SIM phone. The SIM card gives each mobile phone its number and establishes the connection between the device and its telecom provider. It is now common for phones to be designed with two SIM card slots to allow a user to toggle between two accounts to take advantage of a lower cost of a given service. For example, a

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**Paytm**

After WhatsApp, Paytm might be the most important app for Indian smartphone users. The mobile payment app has made its 38-year-old CEO India’s youngest billionaire and its blue logo adorns the field at the Indian national cricket team’s home matches, making it the first e-commerce company to ink a deal with the country’s most popular sports team. Given the boost mobile payment can give to online retailing, it’s no surprise that Paytm’s largest shareholder is China’s Alibaba. As India increasingly comes online, e-commerce is expected to grow more there than in any other country — by a factor of seven through 2020. India’s other leading e-commerce sites, Snapdeal and Flipkart, are also well positioned to take advantage of this growth, while foreign giants Amazon and Alibaba are also hoping to capture market share. Modi’s demonetization policy and apps like Paytm may have accelerated India’s transformation into the world’s next major online retail market.

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user may have one SIM card connected to a service plan that offers free SMS and voice calls but applies a high rate to data and streaming. Meanwhile, the second SIM card connects to a plan that provides more attractive rates for watching YouTube videos, checking Facebook or sending WhatsApp messages.
Many Indians have learned about the extortionate cost of data the hard way. Despite competitive monthly plans that appear affordable at first glance, the arrival of the bill at the end of the month can be shocking. To combat this problem, many providers now offer pre-paid plans that are easily renewed when a balance reaches zero. And top-ups can be done through mobile apps that eliminate a trip to the provider. This makes costs more predictable and the process less time-consuming.

Access to mobile apps is no longer just for the affluent. Many Indians avail themselves of an Equated Monthly Installment (EMI), or a financing loan, that provides sufficient purchasing power to buy a smartphone or computer. The challenge ahead, however, is to keep advancing India’s digital revolution while closing the gap between the haves and have-nots. And that requires addressing universal basic needs before the vision of bringing every Indian online can come to fruition. It is an awesome challenge.

Pay Now or Pay Later
India doesn’t exist in a vacuum. It is buffeted by the cross-winds of government policy and private-sector initiatives that constantly change the technological ecosystem. And like every country, India has its own characteristics that dictate the speed with which its citizens can adapt to new technology and the impact of that adoption.

One such characteristic concerns the aforementioned Jio, which flooded the mobile market with inexpensive handsets and plans that offered free voice and SMS services. This reduced costs by forcing competitors to lower rates. It also improved the speed and quality of service. Although Jio’s goal was to bring Indians who could not previously afford mobile phones into the market, the pricing structure had another effect: It hastened the explosion of dual SIM phones. Even middle-class Indians acquired a Jio SIM to offset the costs of their other provider. But as the market shifted, it was clear that even Jio’s parent company, Reliance (one of India’s largest conglomerates), didn’t have pockets deep enough to maintain this model forever. And that subsequently brought about another significant development in India’s digital revolution.
In a plan comparison reported by India Today in March 2017, the pricing plans of mobile services changed again. According to the magazine, there is now a movement toward post-paid plans that are cheaper than pre-paid options. Consumer behavior may take time to adapt, but the features of the Indian mobile landscape certainly herald more users of online services, with access to more content at more affordable prices. This improved access will undoubtedly be a game changer for Indian democracy, too.

**System Overhaul: Tech’s Impact on Democracy**

India’s technological challenges concerning universal internet access are manifest, but that hasn’t discouraged politicians and their parties from employing digital tools to reach voters. It may seem counterintuitive to conduct a primarily digital campaign in a country in which the internet penetration rate (including mobile), at the time of the 2014 general election, was just 21 percent. But the BJP bucked conventional thinking and in the process transformed technology’s role in politics.

**The Campaign of the Future**

Following its loss to the INC in the 2009 election, the BJP reflected on its ability to connect with voters across the geographic, religious and linguistic spectra. Holding large, open-air rallies was logistically and financially taxing, and the return on this effort was insufficient. In 2010, the BJP discarded its campaign playbook and shifted entirely to a digital strategy that created the infrastructure to connect with Indian voters more efficiently and more effectively. The party appointed its first chief information officer and hired a lean staff of 25 to manage its activities from a National Digital Operations Center. This new approach focused on four key areas through which technology could improve the party’s performance: party structure, communications, voter mobilization and citizen empowerment.

By the end of the campaign, Modi had conducted an estimated 200 hologram simulcasts that reached tens of millions of prospective voters.

First, the BJP believed that a revamped party structure could improve its appeal by collecting data that would help it better understand individual voter profiles, directing tailored messages to address constituents’ most pressing concerns. Since messages to voters were more effective if they came from local contacts in each of the 29 states, rather than from anonymous party officials in Delhi, the BJP established a digital chain of command from top decision-makers to grassroots activists in virtually every municipality in the country. This digital reorganization improved the flow of information, reinforced discipline to remain on-message, and reinvigorated the party faithful while attracting converts. Through BJP digital portals alone, the party recruited more than one million volunteers to its cause and created an online donation center that raised a record amount through average contributions of $20 per supporter. No small feat in a country with an average monthly income of less than $150.9
Second, digital tools transformed the BJP’s approach to communications and campaigning. Acknowledging the disparities in internet penetration, the party mapped the country by dividing it into categories based on the level of online access to determine if a digital, conventional or hybrid campaign would be most effective. Through the use of Facebook, Instagram, YouTube, WhatsApp and other platforms, the BJP used a comprehensive strategy to connect with more than 700 million domestic and diaspora voters. From a communications perspective, the party was also fortunate to have a leader in Modi, who was predisposed to the necessity of using technology and had the savviness and charisma to thrive in a digital environment.

Modi was chief minister of the state of Gujarat when violence between Hindus and Muslims flared up in 2002, and he was criticized for not intervening effectively to stop it. This episode, and charges of being a Hindu nationalist, have followed Modi throughout his political career, leading him to embrace social-media platforms to bypass a media sector he perceives as biased. With millions of followers on Twitter (now 28 million), Modi effectively and directly connects with the electorate while forcing traditional media to cover his tweets. He often posts his speeches on YouTube so that voters can hear him without potentially unfavorable commentary.

In the approach to the 2014 elections, the BJP also experimented with less familiar technology to capitalize on Modi’s celebrity and ability to captivate voters and the press. The prime minister employed the first use of hologram technology in India while campaigning in Gujarat. This generated significant media coverage and served the party as a pilot for taking this method nationwide. By the end of the campaign, Modi had conducted an estimated 200 hologram simulcasts that reached tens of millions of prospective voters. This was a particularly useful in rural areas without online connectivity or easy access that would allow Modi to visit in person. With the hologram technology, the party needed only a power generator and projector. It was an ideal solution to conducting a digital campaign amid technological limitations.
For those with limited access to technology, the BJP instituted live call-in discussions that routinely attracted an audience of 125,000. During the calls, Modi would deliver speeches and answer callers’ questions.

The third pillar of the BJP’s approach to digital campaigning leveraged access to data to mobilize voters. By 2015, the BJP could boast about a membership of more than 110 million, making it the world’s largest democratic political party. Many new members were drawn to the party by its myriad online communications tools. Given India’s religious, geographical, caste and linguistic divides, the ability to deliver tailored messages gave the BJP a huge advantage.

The fourth element underpinning the BJP’s digital strategy, citizen empowerment, is now particularly useful with Modi as prime minister and the party’s majority in the Lok Sabha. To maintain proximity to voters, Modi and the BJP operate as if there were an election every hour. The prime minister, in particular, uses a platform called MyGov and his own app to elicit constant feedback and ideas from the electorate. The platform is also used to increase engagement and accountability through consulting the public on proposed legislative initiatives, disseminating policy ideas and attracting rapid reactions from voters to both.

While the BJP was not the first to explore technology’s potential for transforming campaigning and governing, no one in India has done it better. The party triumphed in 2014, winning 282 seats in the Lok Sabha, while the incumbent INC garnered a mere 44 seats. The BJP repeated its success in 2017 in Uttar Pradesh, the country’s most populous state, by capturing 312 out of 403 seats (a gain of 47 seats) in the state’s legislative assembly.

Indian society offers numerous avenues for expressing dissent and protest beyond waiting for the next election.

The digital shift fundamentally changed the BJP’s operations, and other parties are beginning to follow suit. Prime Minister Modi has accurately tweeted: “Social media is a fascinating medium, which gives voice to citizens & enables effective & productive citizen-government interaction.” Indeed, technology has even profoundly affected the functioning of Indian government institutions.

Accountability One Click Away

On all levels the Indian government has prioritized improving governance and accountability, and reducing corruption. The national online infrastructure plan and efforts to raise digital literacy are evidence of this. But the private sector is also playing a role in these efforts. Tech entrepreneurs have developed platforms that facilitate transparency and responsiveness from elected officials.

Local Circles is an e-governance platform that attempts to make India more governable. The service relies on the 400 million Indians between the ages of 19-25, the new generation that uses digital tools to demand public-sector accountability. Local Circles simplifies engagement with government. It takes minor issues, such as potholes and trash collection, and amplifies them by monitoring and curating resident complaints. Analysts evaluate the data to determine a problem’s root cause and if that signals a larger public-policy challenge requiring attention. If
the problem involves multiple public-policy challenges, Local Circles can survey residents to identify a priority issue. From there, the platform morphs into advocacy by digitally petitioning the government for action, thereby elevating the profile of the voters who created the campaign. The platform can also track the progress of an initiative until resolution.

In recent months, Local Circles has spurred municipal politicians to host online town-hall meetings. National party leaders have used the platform to pressure members who are not effectively dealing with issues raised. Local Circles’ growth has been driven by tangible results. There are now more than 1.3 million users in 200 cities. The platform can also boast about being India’s lowest cost-per-new-subscriber governance or social-media site.

But despite such successes, corruption and opaque government practices persist. Officials allegedly obstruct requests for information, and block internet access in an attempt to hide corruption or potentially embarrassing scandals. Social media has emerged as a solution to overcoming such obstacles.

Mobile Movements: Dissent and Protest Go Viral

Indian society offers numerous avenues for expressing dissent and protest beyond waiting for the next election. Public debate and disagreement have a long and rich tradition, and officials are much quicker to react to public discontent in this technological age.

One such reaction occurred in 2012, when a medical student was gang-raped and beaten on a moving public bus in New Delhi. Historically, these appalling attacks were met with deafening silence by a desensitized public and a government unwilling to address the crime. But in this instance social-media platforms including Twitter and Facebook acted as force multipliers, spurring protests in major cities across India, despite obstacles imposed by local authorities. One student reportedly tweeted, “If it takes numbers for them to listen to us, let’s be there in large numbers.” And they were. The Indian government quickly announced new measures for a security helpline for women and instituted new police training to handle assaults against women.

The story of Delhi University student Gurmehar Kaur provides further evidence of technology's impact on civic participation. In March 2017, she sparked a fierce debate among Indian social-media users via a Facebook post that urged opposition to the right-wing nationalist student group Akhil Bharatiya Vidyarthi Parishad (ABVP), which has links to the BJP. ABVP also has a reputation for inciting anti-Muslim violence, and threatening students and professors with assault and rape. Kaur’s action spurred critics and supporters to circulate a video she made a year earlier in which she details her path to becoming an activist for reconciliation between India and Pakistan. Her video has now garnered over three million views and became instrumental in the campaign to bring Indian and Pakistani leaders together to end generations of hostility. Kaur’s anti-ABVP post unleashed a nationwide debate on Hindu nationalism, India-Pakistan relations and sexism. The discussion even drew a statement from BJP State Minister of Home Affairs Kiren Rijiju, who asked on Twitter “Who’s polluting this young girl’s mind?” Congress leader Rahul Gandhi and AAP Delhi Chief Minister Aarvind Kerjiwal, however, tweeted support for Kaur. Kerjiwal asked, “Threatening our daughters and sisters with rape, is this the BJP's patriotism?” Kaur continued to be in the limelight until safety concerns prompted her to leave Delhi.
Rural communities have less connectivity to the internet and are less directly susceptible to fake news.

The BJP may have exploited social media for political success, but they cannot control the medium. Flashes of protest, such as Kaur’s, can rally support and spark action.

A New Media Landscape: From Information to Affirmation

Despite the growth of online information platforms, illiteracy rates mean that traditional media such as television and radio remain predominant news sources. Newspapers, with their reputation for greater credibility, are popular among the literate. As in other countries, competition for ad revenue and readership has forced some print, TV and radio outlets to deliver more sensationalist reporting. Local news programs in dialect appear to be fending off this trend, but that is unlikely to last indefinitely. Public broadcasting, once a mainstay, now has difficulties retaining skilled talent, and the quality of its product has suffered. This has hastened movement toward other news sources.

Where digitally connected, people are increasingly getting their news from WhatsApp, Twitter, Instagram and Facebook. And while increased information can be beneficial, India is not immune from the scourge of fake news. In August 2013, two Hindu youths Sachin and Gaurav, murdered a Muslim named Shahnawaz following a skirmish in the town of Kawwal in Uttar Pradesh. In retaliation, Sachin and Gaurav were reportedly killed by a group of Muslims. Shortly after, a video was circulated on social media purportedly showing the two Hindu boys being lynched by a Muslim mob, inciting weeks of riots that claimed more than fifty lives. The video was actually more than two years old and wasn’t even filmed in India, but was accepted by many as the authoritative account of the murder of Sachin and Gaurav. The video was widely shared, including by a member of the Uttar Pradesh Legislative Assembly who remains under investigation for uploading and disseminating the video. The ability to share such content quickly and easily to an increasingly larger audience poses challenges globally, but the combination of internet access and illiteracy in India makes the effects of viral video content worryingly unpredictable.

Every minute of every day truth and fiction circulate in the same domain with nothing distinguishing one from the other. The Indian electorate’s ability to hold leaders accountable and preserve the pillars of their democracy are at risk without measures to help consumers make sense of the online content they encounter.
A Final Word

With a rapidly growing economy and a looming demographic boom, Indian democracy needs to adapt to deliver to more than a billion citizens. Conventional methods alone will be inadequate to meet the demands, and Indian leaders’ embrace of technology to do this is encouraging.

From striving for high-speed, universal internet access to shifting toward a cashless economy to bolster financial inclusion, these trends in India are positive. But much work remains. Digital connection without connectivity offers little to the vast majority of rural Indians. The government must still address literacy and basic needs.

This chapter has been an exploration of contrasts that reflect an inability to place India neatly into any paradigm. Its modernity and primitiveness exist side by side. More than one billion people, divided by religion, caste, geography and language, can be unified through a digital transformation. But that process is currently socially and economically divisive. The vision for a digital and democratic India is admirable, but the country must move together toward that goal. If not, India will recede from it.

Anthony Silberfeld is the Director of Transatlantic Relations at the Bertelsmann Foundation.
Citations

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In the last 25 years, the internet, as we know it today, has come a long way. In India, public internet entered a few years later — in August 1995¹ — and has since then largely remained a luxury. However, in the last few years, a change is visible, courtesy of mobile internet. While the mobile phone has been the fifth source of mass communication in terms of evolution (after radio, newspapers, television and computers), it’s the first tool of communication for many across the world (including India) in terms of access. More and more people are coming online in India but there’s still a long, long way to go to truly reach last mile connectivity.

One major reason for this lack of connectivity is insufficient and inefficient fiber optics to reach rural and remote locations of India. The other is lack of interest on part of the Internet Service Providers (ISPs) who do not see any profit in establishing a tower or extending their connectivity in unconnected parts of the country. The third is a lack of contextualization of the digital literacy curriculum and failure in the strategy of teachers/trainers who view this unconnected population as information consumers and not as information producers.

Given India’s distant and wide geographical and socioeconomic divide, it might be difficult to get every individual online within the next couple of years. However, why not look at connecting India institutionally?

Unconnected Village Councils
There are 650,000 villages in India that are governed under almost 250,000 panchayats or village councils, which further come under 6,000 blocks and 672 district — 250 of which have been classified by the government as backward districts² — across 36 provinces, including Union Territories of India.³ Every village council is made up of five to 17 members, adding up to about three million village councilors. Of these, about one million are expected to be women.

The village councils act as local self-governance bodies at the lowest level of
governance. These village councils are responsible in their jurisdiction for as many as 29 subjects, ranging from agriculture, land reforms, irrigation and husbandry to cottage industries, rural housing, roads, education and social welfare. If an institutional approach to connectivity is adopted by the government in India, it would be able to benefit a larger population — and holistically — rather than an individual-centric approach. Take, for example, the village councils. Delivery of government services should be efficient to ensure that the maximum number of citizens in a region is able to avail itself of benefits and entitlements. At a village level, a good majority of citizens are dependent on government infrastructure and schemes. These village councils are also the source of communication between the government (state and central) and the citizens. Therefore, it is extremely crucial to have an efficient, transparent and accountable service delivery system. For this purpose, provision of connectivity should be seen as a basic infrastructure goal to bring all the 250,000 village councils online for a two-way communication process.

These quarter of a million village councils and its councilors represent the poorest of the poor in India — the more than

#selfiewithdaughter

One particularly good example that comes to my mind of use of information communication technology (ICT) by a village council member — at an individual level — is of Sunil Jaglan, the head of village council in Bibipur, Haryana — a state notorious for female foeticide and female infanticide. Jaglan launched a campaign called #SelfieWithDaughter in his village, which later spread across the nation and was even endorsed by Indian Prime Minister Narendra Modi, to motivate society, especially fathers, to feel proud of their daughters.
300 million individuals who fall under the category of below poverty line (BPL) who, by definition, earn less than a dollar a day. This is the same share of the population that directly depends on access to government schemes or entitlements for some of their most basic needs.

Every year, a certain amount of budget is allocated to the village councils under various heads and subjects. If all the village councils are online, they can share the budget with the citizens who cannot only view the subject-specific allocation but also hold the village council and the government accountable for misappropriation or lack of utilization of funds. Further, every village council is supposed to hold a monthly meeting with its members but it’s not always executed for various reasons, including the availability of the members on a particular date. In a scenario where all village councils are online, council members will be able to conduct their meetings through videoconferences, with public viewing options. This will ensure that all matters discussed in the meeting are documented/recorded, which will result in transparency in the local governance system. Additionally, if all village council websites hold a repository of information on the local demographics, needs, grievances, solutions offered and projects implemented — besides a clear listing of the village council’s roles, responsibilities and progress — imagine the quantity of relevant data that will be available online for citizens and governments to access.

**Digitally Devoid Education System**

If a person invests in one’s education today, its results will be visible 20 years later. That is how the education system works, as a student is taken through kindergarten and middle school to high school and college. However, unless our schools become smart, our country will not be able to create smart citizens in the future.

There are about 1.4 million government schools in India with over 227 million students enrolled. For this vast population of students, there are only seven million teachers. According to a World Bank study, based on unannounced visits to 3,700 schools, researchers found 25 percent of teachers absent. These rates varied from 14.6 percent in the state of Maharashtra to 41.9 percent in the state of Jharkhand. According to the same report, teachers who don’t show up to work cost India $1.5 billion a year. A UNESCO study, meanwhile, states that as many as 47 million students dropped out of school by tenth grade in India. While there are several social and economic reasons that contribute to this high percentage of school dropouts in India, teacher absenteeism is also a reason. So is the lack of proper infrastructure. For
example, many young girls drop out of school after they hit puberty due to lack of proper toilets.

India has a 40 percent dropout rate in elementary schools.

Schools have the moral, social and economic responsibility of engaging India’s children in learning to nurture and encourage them to become part of India’s future workforce and contribute to its growth. Economist and former prime minister of India Dr. Manmohan Singh, in a recent interaction with media, stated that India needs to create 10 to 12 million jobs annually. Call it its strength or weakness, India has a vast population that can and should be skilled in digital tools and technology — even if at a basic level — to meet today and tomorrow’s need so that our young population is prepared to serve India and the rest of the world — which has a high demand for India’s skilled labor.

With the internet having access to unlimited information and learning material in varying formats, it should be the need of the hour to ensure that all teachers at government schools are digitally literate. At the moment, even school headmasters and headmistresses are not digitally literate in most schools; a computer lab in every school is a distant dream. If schools are made smart and equipped with digital labs and broadband connectivity, students and teachers will be able to access content, learning material and “edutainment” resources on the internet for a better and more engaging learning experience. Currently, India has a 40 percent dropout rate in elementary schools, indicating the poor quality of our education system and lack of incentives to finish school. Like several
private schools today, if all government schoolteachers would be able to use tablets, mobile phones and other smart tools for lessons, it would greatly influence the students’ motivation to attend classes. Further, teachers’ attendance should be geo-tagged and time-stamped, and all facilities and physical infrastructure in schools should be monitored via a crowd sourced app or geo-tagged data collection software application. Teachers, students and visitors should also be able to geo-tag facilities — such as toilets or water coolers — in real time to update information about its functionality.

Mobile Academy

Mobile Academy — a training course developed by BBC Media Action to improve communication skills of Community Health Workers (CHW) and expand their knowledge of 10 life-saving health behaviors. Under this project, a mobile phone-friendly audio course was delivered via Interactive Voice Response (IVR) technology. This eliminated the need for CHWs to travel long distances to receive training. To compliment this training, a multimedia service called Mobile Kunji was also created to combine the IVR service with a printed deck of cards that were designed to resemble a mobile phone. Each card came printed with a unique mobile short code, which corresponded to a specific audio health message on a toll-free number.

Not At the Cost of Health

One cannot but question the quality and services offered by the health workers when India’s infant mortality rate stands at 37.9 per 1,000 live births\textsuperscript{11} and maternal mortality ratio stands at 170 per 100,000 live births.\textsuperscript{12} These figures reflect the poor state of affairs in India’s health care system.

At the village level, the health care system is divided into sub-centers, primary health centers (PHCs) and community health centers (CHCs). The Sub-Center is the first point of contact between the primary health care system and the community. A PHC is the link between village community and medical officers; these have been envisaged to provide curative and preventive health care to rural populations. CHCs form the third tier of the rural health care network and act primarily as referral centers to make modern health care services available to rural populations and to ease the overcrowding of district hospitals. According to government data of 2015, there are 5,396 sub-centers, 25,308 PHCs and 153,655 CHCs across 36 provinces of India.\textsuperscript{13} Ideally, every sub-center is meant to cater to a population of 3,000 to 5,000; a PHC is meant for 20,000 to 30,000 people; and a CHC covers four PHCs. However, at hundreds of sub-centers and PHCs, health care providers are unavailable, adequate health facilities are lacking and even an expert’s visit is rare. CHCs, too, are facing a major shortage of staff across the country.

In a scenario where every sub-center, PHC and CHC is connected to the internet and interlinked with each other and the nearest district hospital, the gap between health care seekers and health care providers can be considerably bridged. A simple infrastructure can be put in place to connect local health centers with district-level hospitals on a weekly basis via videoconference to make quality medical
services available to rural and marginalized patients who require specialized consultation. Further, if a PHC or CHC can also digitally link its supply and stock register, it can electronically communicate to the concerned department in real-time to order depleting medicines or equipment and track the progress of its request.

Further, there are about 860,000 frontline health workers (or ASHA workers) and 1.8 million Aanganwadi workers (or Courtyard Shelters that have been designed as mother-and-child care centers to combat child hunger and malnutrition) in India that have been deployed at the village and hamlet level. These workers, all of whom are women, are essentially hired by the government to maintain maternal and child health care. Their tasks include ensuring women in rural India give birth in hospitals under proper medical supervision, ensuring pregnant and lactating women follow a nutritious diet, ensuring infants receive timely immunization and vaccination, and ensuring children grow up in a clean and healthy environment.

Health workers will be able to access relevant information via a simple Google search.

If a common mobile application is developed for all Aanganwadi health workers across the 36 provinces of India, it will enable these health workers to list their tasks, roles and responsibilities on a daily, weekly, monthly and annual basis. This will set their goals straight, and both the health workers and the relevant health department will be able to monitor their progress. Further, this app should come with built-in interactive and multilingual audio and video files that the Aanganwadi workers can hear/view to train themselves

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Chanderiyaan

Chanderiyaan is a project initiated by DEF in the handloom cluster of Chanderi in the Indian state of Madhya Pradesh. In the last six years, DEF has been able to introduce various interventions in the areas of digital literacy, digital designing, digital cataloguing, digital skilling, digital archiving, digital market linkages and e-commerce. Hundreds of weaver families in the cluster have given up manual paper-based designing for specialized design software like CAD/CAM; learnt to use e-commerce platforms; and adopted social media tools for sales and marketing. Additionally, households have subscribed to wireless broadband to enjoy its benefits. Young people have even set up small enterprises, offering digital services such as printing, copying, typing and internet surfing. Over the years, the results have been impressive. What was a Rs. 650 million ($10.07 million) industry in 2009 is now worth more than Rs. 1.5 billion ($23.25 million), according to a research study on Chanderiyaan by the Institute of Rural Management Anand and the Indian Institute of Technology – Calcutta.
and to create awareness among women in the community. Additionally, with an internet-enabled mobile phone or tablet, the health workers will be able to access relevant information in a timely manner via a simple Google search as well. Since a lot of diseases are preventable in nature rather than curable, services like these can go a long way to educate men, women and children about health, hygiene, nutrition and lifestyle, thereby creating a ripple effect of preventive health care knowledge.

### Local Entrepreneurs and Artisans Have Restricted Markets

There are over 156.4 million micro, small and medium enterprises (MSMEs) in India that employ more than 930.9 million people. As many as 2,000 of these are cluster-based enterprises dealing in handloom, handicraft, leather and craft, among others — most of them are offline. In a scenario where they have access to the internet, each MSME can have its own website and e-commerce portal that will give it access to state and national-level markets, and even global markets for many. The online presence of MSMEs will also assist public procurement, as the government will then be able to interact with them in real-time basis with electronic records of all communication, bringing in more accountability and transparency to the system.

Access to the internet will also give MSMEs a chance to access information related to their sector and trade. Often, most MSMEs live in information darkness with little or no knowledge of market trends and market prices. What they sell at nominal prices to local vendors or in local markets is sold in other markets at much higher prices. Take the handloom sector of India, for example. A simple cotton saree that a weaver makes in four days for a meagre weekly wage of Rs. 350 ($5.46) — in Nuapatna town of Odisha state — is sold in the nearest major city Bhubaneswar for no less than Rs. 1200 ($18.6). With access
to digital tools and the internet, weavers can access relevant information about raw materials, market trends and market prices in a timely manner; design their own patterns rather than be dependent on middlemen for designs; promote their products through social-media channels, including WhatsApp; sell their products through existing and popular e-commerce portals or exclusive websites; find out information about government schemes and entitlements available in their sector; and access global markets.

**Civil Society Faces Threat of Lack of Transparency**

The civil society is representative of the challenges in a society. In India, there are more than 3.2 million non-governmental and voluntary organizations; and less than 10 percent of them file tax returns. Most of the other 90 percent of organizations are offline; they do not have a Web presence and the staffers and volunteers at most grassroots organizations do not know how to operate a computer, let alone access the internet. If every NGO comes online and sets up an exclusive website, it will firstly bring in a greater sense of transparency and accountability for the civil society — a challenge that India has been facing for the last couple of years with the ongoing government crackdown on civil society. Through their websites, the NGOs can share their registration certificates, financials and annual reports in a public space. Once trained in digital content creation, representatives of NGOs will be able to share updates about their activities and progress with a larger audience and be appreciated for their efforts, and at the same time receive feedback and suggestions to improve. An online presence also opens doors for NGOs to access institutional funding, donations and crowdfunding campaigns. This can be especially motivating for grassroots NGOs that operate on very small budgets and have limited access to large and credible funders.

**Post Offices as Potential Public Spaces for Access**

India has the largest postal network in the world with over 154,882 post offices, of which 89.86 percent are in rural areas. While all are supposed to have an internet connection (and be digitized by the end of this year), internet connectivity is non-functional at hundreds and thousands of the post offices, especially those in rural areas, which are largely disconnected from mainstream communication tools. The government-operated institution employs over 466,000 people; and offers a range of mail and monetary exchange facilities.

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**Plantix**

Plantix is an app developed by the International Crops Research Institute for Semi-Arid Tropics to allow farmers to identify pests and diseases using their mobile phones or tablets. Farmers can upload a photo of their infected crop and wait for the app to process the information to offer diagnoses, mitigation and preventive measures. Odaku is another mobile app that caters to the fishing community. Its GPS-enabled, easy-to-use interface allows fishermen to store data in the cloud, navigate without internet connectivity to ensure they don’t cross international sea borders, access an online market to sell their catch, buy/sell used boats and even access weather updates about seas levels and chances of rain.
With such wide and fairly well-connected networks (especially in rural India) meant to serve areas of about 20 square kilometers and populations of around 8,200 people, it would be ideal if post offices could have access to functional internet connectivity and bandwidth to not just carry out traditional services offered at a post office but also to transform itself into entitlement offices. This way, every post office will also act as a government center that provides citizens with information on various government schemes and entitlements, and enables access to the same by downloading relevant application forms for the schemes, assisting rural communities in filling out the forms and submitting the forms online on behalf of the beneficiaries.

Farmers are Living in Information Darkness

Over 58 percent of the rural households depend on agriculture as their principal means of livelihood. Agriculture, fisheries and forestry together form one of the largest contributors to India’s Gross Domestic Product (GDP). As many as 250 million people are engaged in this sector, according to the Planning Commission of India. Millions of these farmers are living in extreme poverty in remote and underserved regions of India. Simple access to the internet on their mobile phones can open a world of unlimited information for the agriculture community.

With access to the internet, farmers can gain information about market prices, the latest agricultural trends, technological innovations in the sector, suitable transportation channels, weather updates and direct access to the market. The internet will also give them direct access to experts with whom they can share their queries and receive solutions or responses.

In several smaller pockets, innovators have come up with brilliant mobile applications in regional languages to benefit the
farming and fishing community. At the moment, due to lack of awareness, lack of connectivity and lack of digital literacy, these apps — and several others like them — are used by a very small segment of India’s farming and fishing community. An institutional approach to digital literacy can help in the adoption of such apps on a mass scale.

**We Need a Targeted Approach to Digital Literacy**

The Government of India, under the leadership of Prime Minister Narendra Modi, launched an ambitious program in 2014 called Digital India. While the Indian government is trying hard to push digital adoption and penetration, its efforts are not targeted strategically to create a ripple effect or a cascading effect for beneficiaries. With the intention to promote the adoption of Digital India, the government launched the National Digital Literacy Mission (NDLM) the same year with a target to make four million Indians digitally literate. Last year, the government raised its goal to 60 million additional individuals; and, unfortunately, implementing partners have been working day and night to meet numbers and not the vision.

If a more institutionally-targeted approach is adopted by the government in India, it will help make our government officials, government representatives, school teachers, frontline workers, civil society representatives, agricultural community and other institutional members digitally literate, who can then utilize this knowledge to bring efficiency and transparency to the government service and delivery system and, at the same time, share the knowledge with others. This will not only create a pool of digitally literate individuals and institutions, but also incentivize the adoption of digital tools and technology, thus creating a cascading effect.

**Excluding the Excluded**

Lack of access to the internet means lack of access to information; and this is the reason a large population of India continues to be marginalized. Lack of connectivity restricts a majority of India’s population from receiving their entitlements, submitting their grievances, accessing government notices, finding appropriate markets and accessing the thousands of services that the government has now moved online under its Digital India program — thus leading to further exclusion of those already excluded.

Further, India’s 1.25 billion population cannot rely on ISPs for mobile internet either since they don’t see any return on investment in setting up a tower or extending their connectivity to parts of the country that are still unconnected. This only increases the cost of accessing information or a service online that is much more expensive for the people at

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**Community Network**

In the Baran district of Rajasthan, DEF in partnership with the Internet Society (ISOC) has established a 200-km community network and connected it to a local server, enabling both internet and intranet services to the community. This way, even if the internet is down, the community can share content and access content through the local server, thus creating a system of intranet or community network. This has also encouraged the community to create a localized database and archive for their oral and traditional knowledge, art and culture.
Lack of access to the internet is the reason a large population of India continues to be marginalized.

One simple example to illustrate this would be accessing the service of a printer/copier machine. Unlike urban locations in India, where a printer/copier service is available to people in their homes or a few blocks down the road, people in rural India have to often travel up to 20 km or more to reach the nearest digital services shop. A significant percentage of those in rural India is engaged in the unorganized labor sector. So, to access the service shop, a person would lose the equivalent of a day’s wage (average Indian wage is Rs. 200 or $3), pay Rs. 40 ($0.62) to travel to the nearest village/town that has this service to offer and then pay another Rs.10 ($0.16) to get a one-page document photocopied — adding up to a total of Rs. 250 ($3.88). The same service in urban India would not cost more than Rs 2 or 5 ($0.03 to $0.08) because the facility would be available at a walkable distance for much less due to the demand of the service.

This is the reason we need to democratize and decentralize infrastructure and adopt community networks on a large scale.
Establishing Community Networks

Community networks allow public and private institutions — such as village councils, NGOs, community radio stations, small and medium enterprises, entrepreneurs — to buy internet connectivity from ISP and then distribute it within a community. Community networks engage consumers and community members (or depend on grants from funding organizations to meet the cost of infrastructure) to act as participants and help build and use the network by utilizing frugal technology, free and unlicensed spectrum, and alternative equipment like radios and relay boxes and share towers and infrastructure.

The institution or individual who buys the connectivity from the ISP becomes a franchisee for the ISP to sell the service on behalf of the ISP to individuals, households and smaller institutions on a chargeable basis — this could be on a monthly rental basis or a per hour use charge.

This community-driven, community-managed and community-owned infrastructure replaces the classic top-down operator-driven paradigm with a bottom-up approach to access. However, infrastructure established through grant money or through alternate technology — such as wireless mesh or Point-to-Point — may not be as robust as fiber optic lines but is more than adequate to provide network services in the access and information-deprived areas of India. Further, the government and the private sector need to allow permission to share existing infrastructure of all kinds and open up ISP licenses to a wide range of institutions such as NGOs, community radio operators, small and medium enterprises, panchayats and even entrepreneurs who can further transform themselves into public wi-fi hotspots.

A public wi-fi system can address the gap of digital access perfectly in India. Just imagine a scenario in which all 250,000 village councils, 1.4 million schools, 600 district libraries, 184,359 health centers, 156.4 million MSMEs, 3.2 million NGOs and 154,882 post offices of India turn into public wi-fi hotspots (or local/rural ISPs) for millions of individuals across India.

Access is a prerequisite for better governance and information. With institutions connected to the internet, there will not only be a better exchange of information within the government department and ministries, but citizens, too, will have more access to information, schemes, rights and entitlements. This will greatly reduce marginalization and exclusion of individuals, and magnify government institutions’ role as hubs of connectivity.

A Consultation Paper on Proliferation of Broadband through Public Wi-Fi Networks released by the Telecom Regulatory Authority of India (TRAI) cites the examples of Digital Empowerment Foundation and AirJaldi as the only two organizations in India that are already leading projects in this area by implementing wireless mesh networks through unlicensed 2.4 GHz and 5.8 GHz spectrums to provide internet connectivity in remote areas of the country. The same paper also suggests ideas on how public wi-fi can be converted into revenue-generating models.

Access Opens a Window of Opportunities

Over the years through our work in rural, remote and underserved regions of India, we’ve seen some beautiful stories of connectivity which cannot be measured in monetary terms, but hold so much value. We’ve seen children in Rajasthan traveling the world though Google Images; girls
in Puducherry taking online courses to become beauticians; women in the slums of Karnataka watching make-up tutorials on YouTube; men learning about organic farming in Andhra Pradesh; tribal communities demanding their rights in Tamil Nadu; weavers digitally designing sarees in Odisha; boys selling craft items through WhatsApp in Uttar Pradesh; women looking up recipes on Google in Bihar; men running online campaigns for better public infrastructure in Assam; and so much more. We’ve witnessed and collected hundreds of such stories of digital impact.

Further, social-media penetration is rising in India, both in urban and rural areas. Though it cannot be denied that social media penetration in urban India is greater than in rural India, Facebook has become a popular communication tool in rural India as well. Ministries, too, have realized the importance of their digital penetration and communication through social-media channels. Take the Indian Railways, for example: the Indian Railways ferry 23 million people across the country every year. Last year, Twitter opened a special service called Twitter Seva for Indian ministries and government departments. This service, a grievance redressal mechanism, has been particularly well-adopted by the Indian Railways and now handles 4,500 to 5,000 tweets per day. This allows passengers to tweet their grievances and receive responses/action in real-time. Several other ministries and departments — such as the Ministry of External Affairs, the Ministry of Commerce and Industry, the Uttar Pradesh Police — are leveraging the power of social-media, especially with the government being gung-ho about the Digital India initiative. However, unless infrastructure and connectivity go geographically
deeper into India, its full potential will not be realized and its services will only be accessible to a restricted few.

Access to the internet not only opens access to information, rights, entitlements and possibilities of a better livelihood but also enables behavioral and social changes in communities. While the paradox of India and Digital India continue to exist together, it is expected that India may soon make a technological leap to become the most populous connected country, riding the ongoing wave of mobile penetration. All it needs, perhaps, is functional and effective broadband connectivity on mobile phones.

**Osama Manzar** is the Founder-Director of the Digital Empowerment Foundation.

**Udita Chaturvedi** is a former print media journalist, and currently a Media Researcher with the Digital Empowerment Foundation.

Note: The views of the author do not necessarily reflect those of the Bertelsmann Foundation.