

A MOVE TOWARDS DIGITAL ECONOMY.....

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The global economy is undergoing a digital transformation as well, and it's happening at breakneck speed. It is the economic activity that results from billions of everyday online connections among people, businesses, devices, data, and processes. The backbone of the digital economy is hyper connectivity which means growing interconnectedness of people, organisations, and machines that results from the Internet, mobile technology and the internet of things (IoT). The digital economy is taking shape and undermining conventional notions about how businesses are structured; how firms interact; and how consumers obtain services, information, and goods etc. This paper is focussed on the digital economy's challenges, key drivers and the mechanism in our scenario.

Key words - global economy, backbone, mechanism

The world as we know it is continually changing, and one of the fundamental drivers is digital transformation. At its core, digital transformation isn't about Internet "unicorns." The global economy is undergoing a digital transformation as well, and it's happening at breakneck speed. It is the economic activity that results from billions of everyday online connections among people, businesses, devices, data, and processes. The backbone of the digital economy is hyper connectivity which means growing interconnectedness of people, organisations, and machines that results from the Internet, mobile technology and the internet of things (IoT). The digital economy is taking shape and undermining conventional notions about how businesses are structured; how firms interact; and how consumers obtain services, information, and goods.

CHALLENGES FOR THE GLOBAL DIGITAL ECONOMY

NEW TECHNOLOGIES

In the next couple of years, Block chain technologies will consolidate and be applied to different and innovative uses increasing transparency and decentralization of information. New models will challenge how organizations store and manage data transactions and enable internet based companies develop new financial products and services. The expansion of internet of things will create zillions of data sources capable of measuring and combining physical and digital data to create and expand products and services, such as Biometrics authentication. Quantum computing will open new opportunities for a real-time based economy and mobile devices will have computing power.

NEW COMPETITORS

After an early and atomized stage of fin techs entering the financial market, new large competitors will form digital banks and challenge conventional industries. Smaller fin techs will probably specialize in specific sectors and will concede space to large corporations such as Apple, Google and Face book which will focus on online payments and general financial services to their clients.

NEW REGULATIONS

In Europe specially, new regulations such as the second version of Payments Service Directive (PSD2) and the General Data Protection Directive aim to transform the financial industry and stimulate competition in the financial sector and provide more security against fraud. In a more competitive, diversified and open market, companies will struggle to offer services at lower rates.

NEW CUSTOMERS

Millennials and following native digital generations will tackle current digital challenges differently. The robotization of the economy and new measures like the universal income become a reality. Citizens spend less time working and increase their capacity to consume. The debate about privacy will enter in a new phase and individual users will count on newer resources to exploit their personal data, such as personal data lockers. On the one hand, individuals will be less afraid of trading their data, and data collectors will have to pay more for the personal data they can collect.

NEW BUSINESS MODELS

A world without cash will become a reality soon. All transactions being digital will help companies gather a complete picture of their market and understand more clearly market opportunities. A completely digital world will make financial services more transparent and accessible, and will create opportunities for a multimodal explosion like augmented reality, will allow customers to analyze the value of a building or calculate the cost of a mortgage for a specific car. Data marketplaces will enable new business to acquire data they do not produce and generate new products and services. Crowd funding will leave space for crowd lending.

NEW GLOBAL THREATS

New global threats will continue to expand and transform the economy. The sharing economy will find a better legal framework and continue to advance. Massive hacking will force countries and companies to heavily invest in security and political systems will suffer recurring crisis derived from the persistent security crisis.

DIGITAL ECONOMY'S POTENTIAL TO THE BENEFIT OF HUMANKIND

The exponential growth in digitization and internet connectivity is the backbone of the Fourth Industrial Revolution. It has the potential to propel societies forward, enable innovative business models and help governments address legitimate policy concerns. Digitization is transforming business models, the policy landscape and social norms. The aim of the World Economic Forum's System Initiative on Shaping the Future of Digital Economy and Society is to cultivate a shared, trusted digital environment that is a driver of inclusion, economic development and social progress. The System Initiative aims to create networks that enable and encourage action to promote the long-term health and stability of digitally enabled economies and societies through: understanding the shift through leading-edge intelligence; collectively solving new issues via improved governance and policy-making in a digitized society; and partnering to rapidly scale successes by cultivating an online environment of trust and increasing access and adoption information technology in a blended economy.

A FOCUS ON THE DIGITAL ECONOMY TO THE IMPORTANCE OF SOCIETY

The digital economy permeates all aspects of society, including the way people interact, the economic landscape, the skills needed to get a good job, and even political decision-making. Our emerging digital economy has the potential to generate new scientific research and breakthroughs, fuelling job opportunities, economic growth, and improving how people live their lives. These changes are happening all around us. In Kenya, mobile data is being used to identify malaria infection patterns and identify hotspots that guide government eradication efforts. Vehicle sensor data from delivery trucks, combined from mapping data analytics, has enabled companies to save millions of gallons of fuel and reduce emissions by the equivalent of taking thousands of cars off the road for a year. Farmers from Iowa to India are using data from seeds, satellites, and sensors to make better decisions about what to grow and how to adapt to changing climates.

TRENDS IN DIGITAL ECONOMY

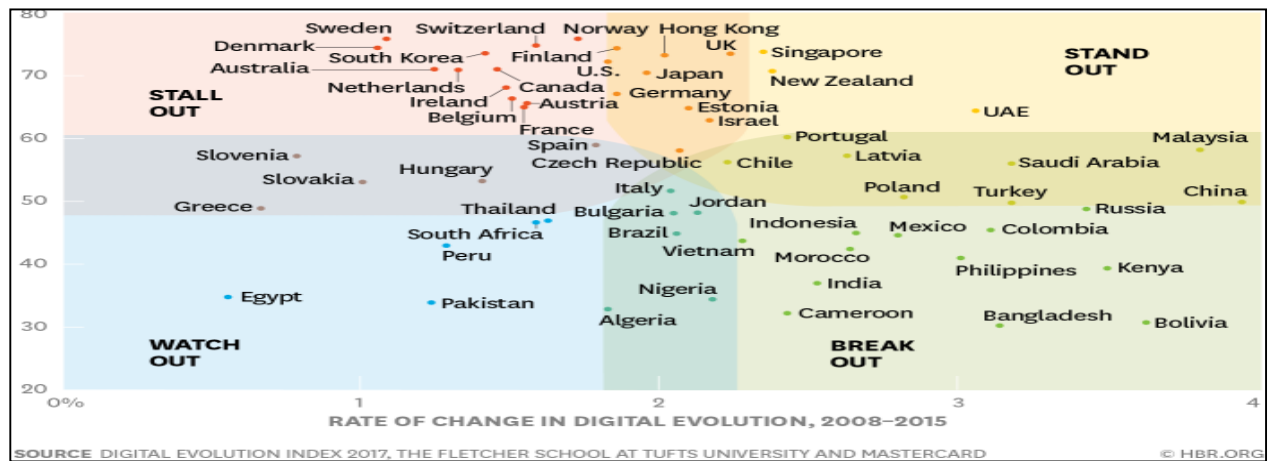
- The ways in which people connect with others, with information, and with the world is being transformed through a combination of technologies.
- These technologies will help us solve increasingly sophisticated problems, while big data will assist us in complex decision-making.
- This is the Fourth Industrial Revolution, and it's going to have a massive impact on the economy as well.
- Already we're seeing the rise of the sharing economy, block chain technology, and changes in manufacturing driven by 3D- and 4D-printing.
- The sharing economy is a model in which people and organizations connect online to share goods and services.
- It is also known as collaborative consumption or peer-to-peer exchange.
- Two of the best-known examples of the sharing economy are Uber (transportation) and Airbnb (housing).
- Block chain is a digital "ledger" technology that allows for keeping track of transactions in a distributed and trusted fashion.
- It replaces the need for third-party institutions to provide trust for financial, contract, and voting activities.
- Bit coin and other digital currencies are some of the most well-known examples of applications of block chain technology.

TACKLE TO THE ISSUE OF DIGITAL ECONOMY

- To see how this revolution is transforming society, potential gains are only now coming into view.
- Take government: agile governance, an innovative model of government inspired by the software industry, could redefine the relationship between governments and their citizens.
- By making government more flexible and nimble, we can increase government efficiency, improve government programmes, and encourage a more empowered and engaged citizenry.
- This council will have the opportunity to shape this notion of agile governance as well as to examine the impact that the digital economy will have on our jobs, our incomes, and our lives in general

KEY DRIVERS OF DIGITAL ECONOMY

- **Stand Out** countries have shown high levels of digital development in the past and continue to remain on an upward trajectory.
- **Stall Out** countries have achieved a high level of evolution in the past but are losing momentum and risk falling behind.
- **Break Out** countries have the potential to develop strong digital economies. Though their overall score is still low, they are moving upward and are poised to become Stand Out countries in the future.
- **Watch Out** countries face significant opportunities and challenges, with low scores on both current level and upward motion of their DEI. Some may be able to overcome limitations with clever innovations and stopgap measures, while others seem to be stuck



HOW INDIA IS MOVING TOWARD A DIGITAL-FIRST ECONOMY

$$J + A + M = JAM$$

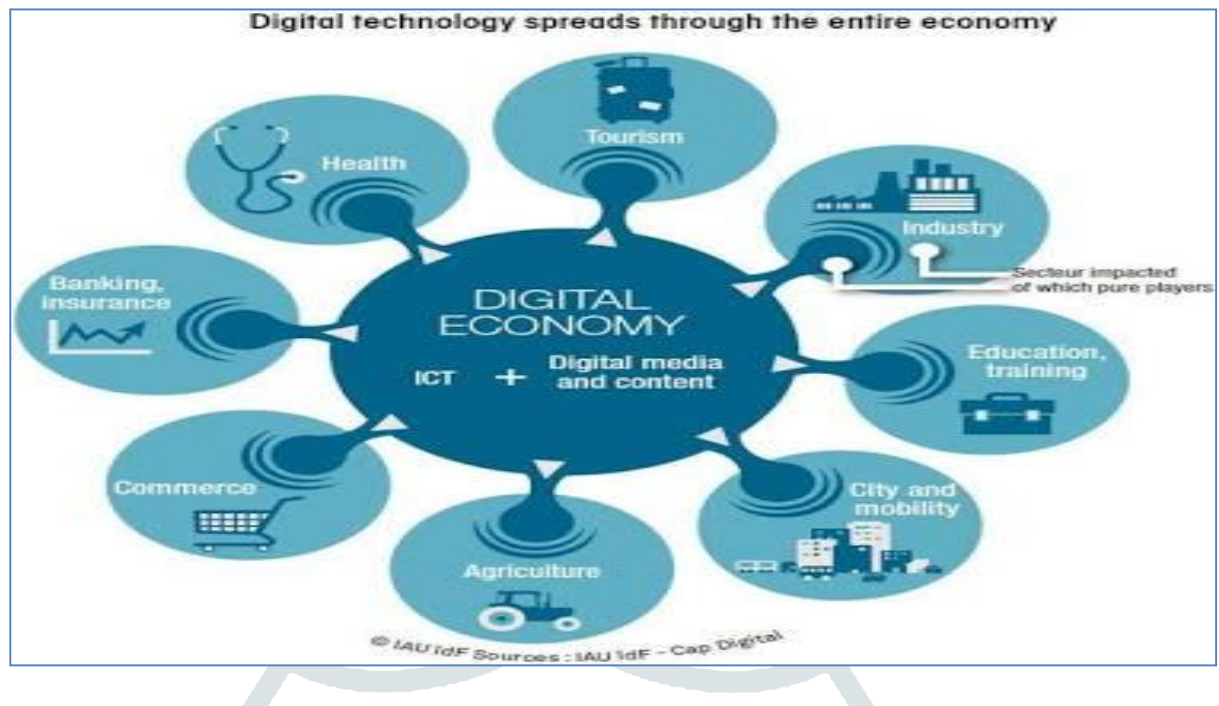
J – Jan-Dhan Yojana (to open bank account)

A- Aadhaar (is a 12-digit unique identity number issued to all Indian residents based on their biometric and demographic data)

M - MOBILE NUMBER (linking with bank account)

IN 2030

- It's hard to predict the speed of these changes, but we know that our evolving digital economy will necessitate enhanced focus on trust, privacy, and transparency.
- As people continue to share, collaborate, and interact online, these issues will continue to intensify.
- The world will function quite differently 15 years from now and likely even sooner.
- Everyone will feel the impact of these individual, organizational, governmental, and societal adjustments.
- The potential for democratization and transparency is incredible, and I'm very excited to see what advancements the future brings.
- As humans, we understand our world and experiences using just five senses. Soon, connected devices around the planet will sense a whole range of features about the world to help us better understand and improve the world around us.



CONCLUSION

Our ability to leverage this wealth of data will determine how much we can accomplish in the years ahead and also face the challenge of ensuring that everyone can access the benefits of our digital society. In 2030, to see everyone have regular access to the internet; more governments and corporations applying agile governance principles to their systems; more food security and less hunger due to improved agricultural production; and a dramatic decrease in disease in the developing world, enabled by new technologies.

DIGITAL ECONOMY

Cash comes at a cost, nation moving towards digital economy: Jaitley

Banks must continue to play an important role in supporting India's economic growth, Finance Minister Arun Jaitley said on Monday, adding that digitisation will go up in the near future.

“Excessive dependence on cash has its cost. It is not just cost but it is a curse on society and economy,” Mr. Jaitley said, while speaking at a Punjab National Bank event two days before the first anniversary of the government's demonetisation of high-value currency notes.

“There is a clear subtle change of how Indians now spend their money. That is the only direction.”

Prime Minister Narendra Modi had on November 8, 2016 announced the demonetisation of ₹500 and ₹1,000 notes effective from the midnight of that day.

The Union government has since then been pushing for a less-cash economy by introducing various incentives to spur electronic transactions.

On cash-less path

“It will not happen abruptly but the movement towards a less-cash economy is very clear,” Mr. Jaitley said, adding that such a system would result in more deposits with banks, increasing their ability to lend at affordable rates.

“Banking is the lifeline of the economy and it will gain further importance in the coming days,” he said. “A healthy banking system will help support growth of the economy.”

The Finance Minister also congratulated Punjab National Bank for its recent financial performance, in which it reported a 65 per cent sequential growth in net profits in the second quarter.

There is a curse of cash"

NEW DELHI, NOV 6

Ahead of the first anniversary of demonetisation, Finance Minister Arun Jaitley said today that excessive cash in the economy has “its own cost” and India is gradually moving towards digital transactions.

Prime Minister Narendra Modi announced on November 8 last year the scrapping of old Rs 500 and Rs 1,000 notes as part of the government’s efforts to fight black money and corruption.

Following that, the Centre has been pushing for digital payments and transactions through the banking channel so as to promote a ‘less-cash’ economy.

Jaitley said that some people have problem in accepting the fact that transactions through the digital mode and banking instruments are going to witness a rapid growth as compared to cash dealings.

At the inauguration of the new building of Punjab National Bank (PNB) head office here, Jaitley said, “Excessive dependence on cash has its own cost. It is not just cost but there is a curse of cash. It has impact on both society and economy.”

He said that there is a clear change taking place as to how India and Indians are spending money and the change is only in one direction.

“It will not happen abruptly but the movement towards a less-cash economy is very clear,” he said, adding that it will lead to more deposits with banks, increasing their lending ability at affordable rates.

“Banking is the life line of the economy and it will gain further importance in the coming days,” he said, adding, “A healthy banking system will help support growth of the economy.”

Jaitley also launched two products of the PNB, the Rupay Credit Card and e-Rupaya.

Minister of State for Finance Shiv Pratap Shukla asked banks to focus on rural India and work towards improving customer experience. He also said that managements of banks should focus on welfare of their employees.

The transition to a global digital economy in 2014 was sporadic – brisk in some countries, choppy in others. By year’s end, the seven biggest emerging markets were [larger than the G7](#), in purchasing power parity terms. Plus, consumers in the Asia-Pacific region [were expected](#) to spend more online last year than consumers in North America. The opportunities to serve the e-consumer were growing – if you knew where to look.

These changing rhythms in digital commerce are more than a China, or even an Asia, story. Far from Silicon Valley, Shanghai, or Singapore, a German company, Rocket Internet, has been busy launching e-commerce start-ups across a wide range of emerging and frontier markets. Their stated [mission](#): To become the world’s largest internet platform outside the U.S. and China. Many such “Rocket” companies are poised to become the Alibabas and Amazons for the rest of the world: Jumia, which operates in nine countries across Africa; Namshi in the Middle East; Lazada and Zalora in ASEAN; Jabong in India; and Kaymu in 33 markets across Africa, Asia, Europe, and the Middle East.

Private equity and venture capital money have been concentrating in certain markets in ways that mimic the electronic gold rush in Silicon Valley. During the summer of 2014 alone \$3 billion poured into India’s e-commerce sector, where, in addition to local innovators like Flipkart and Snapdeal, there are nearly 200 digital commerce startups flush with private investment and venture capital funds. This is happening in a country where online vendors largely operate on a cash-on-delivery (COD) basis. Credit cards or PayPal are rarely used; according to the Reserve Bank of India, 90% of all monetary transactions in India are in cash. Even Amazon localized its approach in India to offer COD as a service. India and other middle-income countries such as Indonesia and Colombia all have high cash dependence. But even where cash is still king, digital marketplaces are innovating at a remarkable pace. Nimble e-commerce players are simply working with and around the persistence of cash.

To understand more about these types of changes around the world, we developed an “index” to identify how a group of countries stack up against each other in terms of readiness for a digital economy. Our [Digital Evolution Index](#) (DEI), created by the Fletcher School at Tufts University (with support from Mastercard and DataCash), is derived from four broad drivers: **supply-side factors** (including access, fulfillment, and transactions infrastructure); **demand-side factors** (including consumer behaviors and trends, financial and Internet and social media savviness); **innovations** (including the entrepreneurial, technological and funding ecosystems, presence and extent of disruptive forces and the presence of a start-up culture and mindset); and **institutions** (including government effectiveness and its role in business, laws and regulations and promoting the digital ecosystem). The [resulting index](#) includes a ranking of 50 countries, which were chosen because they are either home to most of the current 3 billion internet users or they are where the next billion users are likely to come from.

As part of our research, we wanted to understand who was changing quickly to prepare for the digital marketplace and who wasn’t. Perhaps not surprisingly, developing countries in Asia and Latin America are leading in momentum, reflecting their overall economic gains. But our analysis revealed other interesting patterns. Take, for example, Singapore and The Netherlands. Both are among the top 10 countries in present levels of digital evolution. But when we consider the momentum – i.e., the five-year rate of change from 2008 to 2013 – the two countries are far apart. Singapore has been steadily advancing in developing a world-class digital infrastructure, through public-private partnerships, to further entrench its status as a regional communications hub. Through ongoing investment, it remains an attractive destination for start-ups and for private equity and venture capital. The Netherlands, meanwhile, has been rapidly losing steam. The Dutch government’s austerity measures beginning in late 2010 reduced investment into elements of the digital ecosystem. Its stagnant, and at times slipping, consumer demand led investors to seek greener pastures.

Based on the performance of countries on the index during the years 2008 to 2013, we assigned them to one of four trajectory zones: Stand Out, Stall Out, Break Out, and Watch Out.

- **Stand Out** countries have shown high levels of digital development in the past and continue to remain on an upward trajectory.
- **Stall Out** countries have achieved a high level of evolution in the past but are losing momentum and risk falling behind.
- **Break Out** countries have the potential to develop strong digital economies. Though their overall score is still low, they are moving upward and are poised to become Stand Out countries in the future.
- **Watch Out** countries face significant opportunities and challenges, with low scores on both current level and upward motion of their DEI. Some may be able to overcome limitations with clever innovations and stopgap measures, while others seem to be stuck.

How India Is Moving Toward a Digital-First Economy

On November 8, 2016, India's government did something that no other government had attempted before at the same scale: It decided to remove 86% of the country's currency notes by value from circulation. Over the months that followed, more than 1 billion people participated in a "reboot" of the country's financial and monetary system.

An active debate has since ensued as to how the transition unfolded. Some have seen calamity for the economy, [while others](#), like us, see something quite different: a threshold moment in India's digital transformation. Consider, for example, a government payment system created in 2016 that was processing 100,000 transactions per month in October of that year, prior to the sudden demonetization. A year later, after demonetization, the same system is processing 76 million transactions per month. Meanwhile, [according to India's Ministry of Finance](#), the country's economy is operating with \$45 billion less cash than it did prior to demonetization. India's digital infrastructure is coming to life, with [a combination of policy](#) and technological innovation having played an important role. The country is moving rapidly toward a digital-first economy.

One of us, Arvind, is head of technology for Indian Prime Minister Narendra Modi's BJP party, and has been for the past seven years. His views on digital transformations include his experience as a member of the research team that developed the first web browser (Mosaic, the predecessor to Netscape) in the early 1990s and as a technology entrepreneur. The other, Philip, is an economist whose most recent book traces processes of digital disruption over the long arc of human history. We collaborated here to describe what we see as a truly unique story of government-led digital disruption.

Demonetization isn't the only high-profile economic act India's government has undertaken recently. It has also implemented what was arguably the largest-scale tax reform ever implemented at a single time: the replacement of a complex web of 17 different taxes with a single Goods and Services Tax (GST). Once again, predictions of dire consequences preceded the move, and critiques of the implementation of the policy have followed since. Yet the fact remains that, in the first month after the introduction of the GST, [over 1 million businesses registered with the system](#). In only the first few weeks after implementation, the increased transparency and digital data availability that are integral to the GST began to open up new sources of lending to small and medium-size enterprises (SMEs). However haltingly, and with whatever inevitable difficulties occurring along the way, the bottom line is that a process of rationalization of the tax code is, after decades of delay, under way at last.

Digital Transformation in Government Does Not Happen Quickly

The benefits of digital transformation in the provision of government services do not occur overnight. In fact they are always greatest over the long-term, while the [costs are concentrated](#) in the near-term. That is exactly why technology-led disruption is generally resisted by *status quo* interests: at least some of them lose out as a consequence of change. For this reason, the debate over short-term consequences of disruption largely misses the point of this, or any, technology-led disruption.

This general point holds very specifically for demonetization and GST implementation; these were policies designed to have long-term and dynamic effects. While the accelerated uptake of digital financial services following demonetization and the increased lending to small businesses following tax code reform came as a surprise to many outside observers, neither was an unintended consequence of the policy; they were consciously intended to activate India's digital infrastructure.

The name for this digital infrastructure reflects its roots in the world of software development rather than public policy: It is referred to as [the "India Stack."](#) In the software world, a "stack" refers to multiple, interdependent layers of software services that are built on top of one another. The India Stack comprises multiple layers, but the layers in this case are defined by different categories of government services. At the base of the stack — and thus at the beginning of India's story of digital transformation — is a nationwide system of digital identity, generically termed the UID (Unique Identification) system, but more often in India referred to by its project name, Aadhaar.

Aadhaar: The Base of the India Stack

In broad terms, digital disruption by government has not kept pace with digital disruption in business. Of the [systems that have broken the 1-billion-user mark](#), many originated in the U.S. and are private-sector efforts — Facebook and Google being among the prominent examples. An exception is Aadhaar, which means "foundation" or "base" in a number of Indian languages, including Hindi.

To state the fact directly: Aadhaar is both the only non-U.S. technical system globally to have broken the 1-billion-user threshold and the only such system to have been developed by the public sector. Due in part to its unique public-sector origins, Aadhaar has the distinction of having reached 1 billion users the fastest; the services built on Aadhaar, through the interoperability that defines the India Stack have, in turn, built their own record of scale and scope.

India launched Aadhaar in 2009 with the then-improbable goal of giving every Indian a single digital identity in the form of a biometric authenticated 12-digit number. This National Unique Digital Identity system combined the best of open technologies to build a system that generates a unique number based upon de-duplication of the applicants' biometric information, their submitted iris scans and fingerprints. Within five years of the first registration the Aadhaar system, over 600 million people had voluntarily registered with Aadhaar and obtained UID numbers. However, during this initial period, the search for a "killer app" to prove the value of Aadhaar was elusive. While the ability to authenticate identity was now digital, bank accounts and payment systems were still paper-based — requiring separate and laborious Know Your Customer validation procedures that had the result of continuing to exclude a majority of people in India from accessing the benefits of banking.

When Prime Minister Modi assumed power in 2014, he put digital transformation at the center of his plans. For this reason, [to the surprise of some](#), Modi not only backed the system developed by the previous government but also dramatically increased its funding, broadened its scope, and — most important — amplified its impact.

Using Technology to Go from Identity to Financial Inclusion

Among the first actions the Modi government undertook was to launch the Pradhan Mantri Jan-Dhan Yojana (PMJDY, or Jan Dhan) financial inclusion program on August 28, 2014. On the very first day that Jan Dhan was implemented, the government created 10 million bank accounts using existing Aadhaar IDs in a paperless manner, at a fraction of the minimum previous customer acquisition costs. Since then, the government has created more than 300 million new, no-frills bank accounts. In addition to a free, zero-balance account, the Jan Dhan provides accident insurance coverage of 100,000 rupees (about US\$1,500), along with an overdraft facility of 5,000 rupees (US\$80) available for account holders — the point being to incentivize people to participate in the formal banking system.

Having a biometrically-verifiable identity number and a bank account created the potential for adding another layer to the service stack: mobile payments. With an identity to create a bank account, and a bank account to receive funds, the hundreds of millions of people eligible for the receipt of government services in India suddenly had a way to access those services digitally, from beginning to end. In India this digital infrastructure is nicknamed the “JAM” trinity, referring to innovative interlinking of Jan Dhan (low-cost bank accounts), Aadhaar (identity), and mobile numbers. The India Stack could now have four layers: an identity layer, a documents layer, a payments layer, and a transactions layer.

To understand the human impact of these changes, consider the plight of a mother in an Indian village who is eligible for a government subsidy to send her two daughters to school. Until less than two years ago, in order to avail herself of those funds she would have needed to fill out a form verifying her daughters’ attendance, get that form validated by the school, and bring that form to a government office. Assuming there were no impediments in the processing of the form — a big assumption — she would then have waited as the form traveled up the system to the point when a check would be issued to her in the amount of her benefits. To collect the check she would have needed to travel to a government office. If there turned out to be [corruption in the office](#), she would have needed to produce a sum in cash equal to 15%–20% of the total amount before finally receiving the check. Then, of course, she would have needed to travel to a bank to cash the check. In the end, of the 2,000 rupees to which she was entitled, she would (in a good outcome) have received about 1,400 rupees, with the balance having gone to travel and corruption money.

If we consider this same situation using India Stack, the mother can use a tablet or smartphone to validate her identity using her Aadhaar number in the office of her daughters’ school. Her eligibility for the program is already in the system, and her Aadhaar number is now linked to the zero-balance bank account created for her under the Jan Dhan financial inclusion program. The workflow approves her request in a batch process. Within 24 to 48 hours she gets an alert on her phone that the full 2,000-rupee amount has been transferred to her bank account.

The India Stack has had a similarly transformative impact on the provision of government services through a number of other programs, notably including pensions and the provision of cooking gas, with comparable gains in both the quality of the citizen experience and government efficiency. In the cooking gas program alone, more than 20 million people have voluntarily given up a benefit they had previously claimed, but for which they were not rightly entitled, and over 25 million households now get their cooking gas subsidy directly into their bank accounts, simply as a consequence of having government services linked to their Aadhaar number. As with the case of the school fees, the subsidy is going to the intended beneficiaries directly — not to intermediaries.

The Shock Therapy of Demonetization

As of our writing, 1.18 billion users have registered with the Aadhaar system. (For the record, these registrations are voluntary. However, the fact that an Aadhaar ID is required to link bank accounts, SIM connections, and income tax returns, among other services, has made the possession of an Aadhaar ID number a functional requirement in Indian society today, much as a driver’s license or other government-issued ID is a functional requirement in the United States.) But the government of India did not — and does not — conceive of the deployment of the India Stack as a purely technical undertaking, designed exclusively to improve the delivery of government services. Rather, the India Stack is envisioned as new social infrastructure with the capacity to increase the resilience of Indian society to change, and thus to help propel India into the 21st-century digital economy. The deployment of the India Stack was one significant precondition for major structural reforms undertaken by the Modi government. This brings us back to demonetization and implementation of tax reforms.

The idea of accomplishing a dramatic shift in the nature of the economy with a set of suddenly implemented policies is not new. The “shock therapy” programs of the early 1990s, intended to accomplish the shift from socialist to market economies in Eastern Europe and the former Soviet

Union, were based on a similar premise. However, where those programs created an environment in which a few powerful individuals were able to appropriate vast quantities of formerly government-held assets, India's digital shock therapy has — measurably and verifiably — accomplished the opposite: It has eliminated vast concentrations of “off-the-books” wealth, resetting the clock of development at a more equitable starting point.

When India underwent demonetization, the India Stack was suddenly and dramatically thrown into action. India's own payments corporation launched the BHIM application, a digital payments platform using the Universal Payments Interface underlying the JAM trinity. BHIM became one of fastest-downloaded financial payments applications in recent history. The Universal Payments Interface system is very inclusive, such that it serves both smartphone and non-smartphone users, so every Indian can access banking and make payments digitally.

The result? To begin with quantitative outcomes, the Indian economy is operating with about \$45 billion less cash than if demonetization had not taken place. Banks have far greater liquidity, SME lending is at an all-time high, and digital transactions have multiplied 760 times over in some cases.

When it comes to the tax system, too, the India Stack plays a big role. To appreciate the magnitude of change involved in this policy change, it is important to note that the government of India is structured as a federal system, with states having powers and responsibilities at least as great as those of states in the federal system in the United States. Prior to the introduction of the GST, companies of any size in India had to keep track of no fewer than 17 different categories of taxes on sales and transactions, including state-level value-added taxes and levies on the interstate transportation of goods. On July 1, 2017, all 17 of those taxes were subsumed into one tax: the GST.

The implication of this policy change meant an opaque and irrational system that had developed over decades, and that varied across states, was replaced by a simple, transparent system applicable nationwide. For this reason, the slogan that the government of India adopted for the introduction of GST was “One nation, one tax.”

But as with other types of disruptive change, GST can be understood as the beginning of a long-term process. State governments must do their part to simplify and harmonize the tax code, rather than protecting treasured exceptions and localized benefits. The central government must continually use feedback to ensure its online payment system is as easy to use as possible. And, yes, businesses will need to adjust to a new reality, which will be costly in the short term. The reward will come when India truly sheds the antiquated and inefficient tax systems that built up during the first 70 years after independence, and replaces it with the 21st-century, digitally-enabled digital alternative to which the country is currently adapting.

Building a Digitally Empowered Society

India is adding almost 110 million smartphone users every year, and is on the verge of launching Aadhaar-compliant devices with biometric authentication built into phones and tablets. The power of the JAM trinity will come into full force when transactions are enabled using Aadhaar and biometric authentication, creating a system that is not only cashless but cardless. Already, a new entrant into telecommunications service in India has succeeded in using the India Stack to enroll 108 million consumers in 170 days with a totally paperless, mobile-centric manner — in the process achieving customer acquisition costs of less than \$1 (USD) per customer, compared with the prior industry standard of \$25.

The process of digital disruption — whether led by government or not — creates numerous significant social challenges. Rather than seeking to slow that process to reduce those challenges, India has taken the opposite approach: to not only embrace but accelerate digital disruption, to ensure its full potential for economic and social inclusion is realized.

India's development was inequitable and inconsistent for far too long; the country still has a long way to go. The societal challenges created by digital disruption, challenges both expected and unintended, are real. They will be addressed only with a combination of administrative humility and entrepreneurial determination. But the long-term benefits are real.

The reality is that India is moving into the future at an unprecedented rate. And the path it is taking to get there is digital.

