

For corporations

Breaking new ground by deploying solutions for rapid, sustainable and resource-efficient growth

Future of India The Winning Leap



Executive summary



The Winning Leap

Noun; *Breaking new ground by deploying solutions for rapid, sustainable, and resource-efficient growth; a play-to-win approach by young and growing nations seeking a radically different development path; a phrase denoting small steps by millions of people that can culminate in a giant leap forward for their nation; a phrase that citizens, entrepreneurs, business leaders, investors and government leaders associate with a ‘once-in-a-lifetime opportunity’ to lift millions into prosperity; an approach that industry leaders can use to build new capabilities for profitable growth; a state of mind focused on possibilities while recognising roadblocks in solving a wide set of challenges facing a nation*

In its seventh decade of independence, India stands on the cusp of major change: a transformation that could lead to unprecedented economic growth paired with radical improvements in the nation’s Human Development Index (HDI). Over the past two decades, India’s gross domestic product (GDP) has risen by more than US\$1tr, in the process bringing millions of citizens into a new cohort we call the emerging middle class. We set out to understand what it would take for India to increase its GDP by 9% per year to become a US\$10tr economy over the coming two decades.

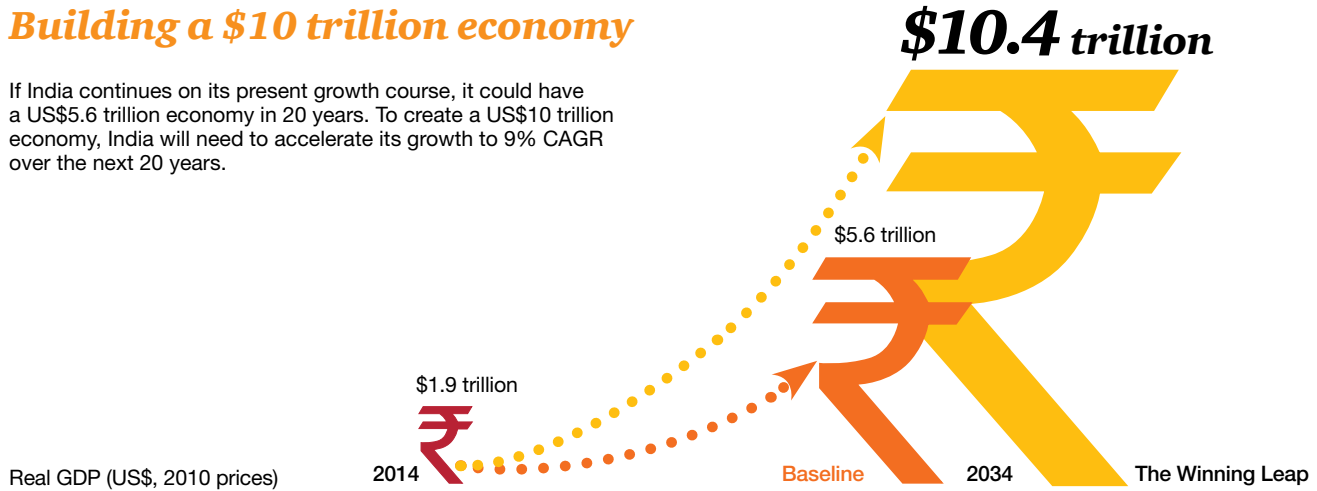
Anything less than US\$10tr would not secure India’s future. The nation needs to create 10-12m jobs every year in the coming decades to provide quality of life for its growing population. Young Indians, particularly members of the emerging middle and the middle class—a billion strong by 2034—have rising aspirations. They are also more empowered to demand change, thanks to ever-greater access to the internet and mobile connectivity. The recent electoral mandate for development is a more immediate signal of Indians’ desire for growth and for the benefits of growth to be extended to all members of society.

A 9% GDP growth rate with a per capita income rising from US\$1,500 to just under US\$7,000 per year will boost quality of life for more than 1.25bn citizens. This would be the largest national development effort any democracy has ever attempted. Reaching this goal will call for a concerted effort—from businesses, entrepreneurs, investors, and government leaders. It will also require new solutions we collectively term the Winning Leap. Our research focuses on the role that corporations and entrepreneurs must play in helping to deliver this growth while building new capabilities.

The national ambition

Building a \$10 trillion economy

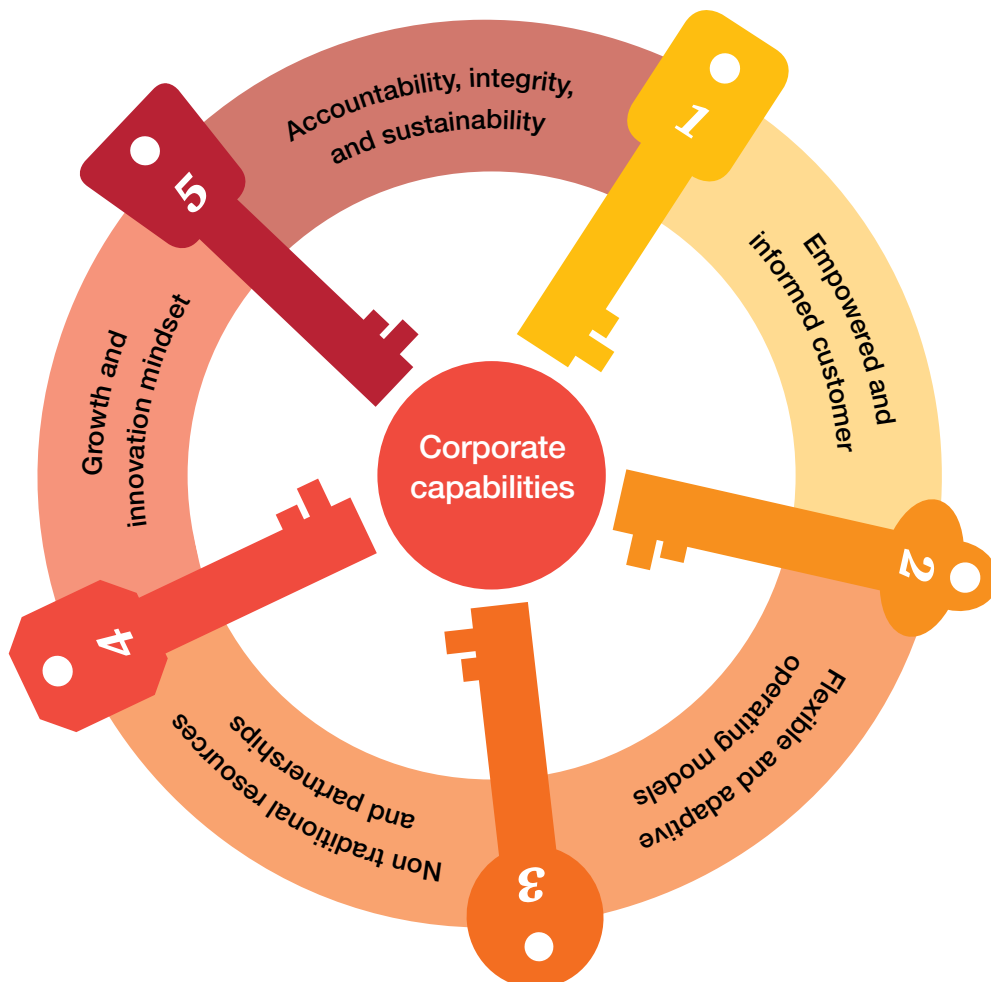
If India continues on its present growth course, it could have a US\$5.6 trillion economy in 20 years. To create a US\$10 trillion economy, India will need to accelerate its growth to 9% CAGR over the next 20 years.



Creating new capabilities

Five key themes for the corporate sector

To lead the Winning Leap, companies will have to address five key themes requiring new capabilities



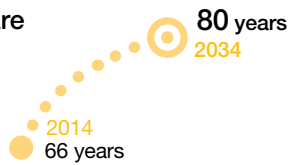
Solving problems across sectors

Achieving the Winning Leap means finding solutions to some of India's most persistent problems. As the country transforms, these must become vectors of growth not weights slowing the country's rise.



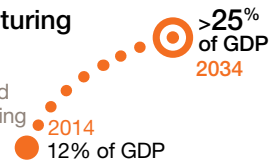
Healthcare

Raising life expectancy



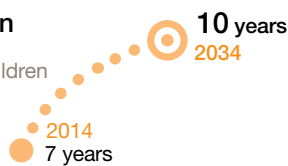
Manufacturing

Increasing value-added manufacturing



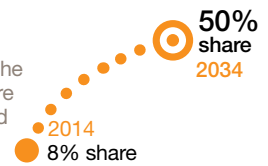
Education

Keeping children in school



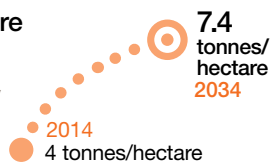
Retail

Increasing the market share of organised retail



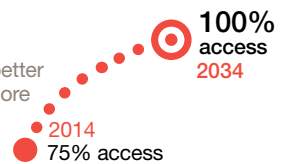
Agriculture

Improving productivity



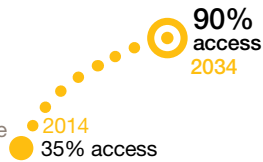
Power

More and better power to more people



Financial services

Providing banking to more people



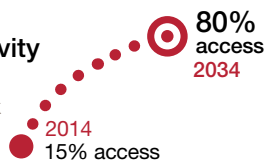
Urbanisation

Modernising urban areas



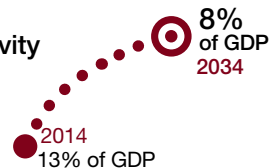
Digital connectivity

Broadening the network



Physical connectivity

Reduce logistics cost



Taking the right sub-leaps



Fierce Catch-up

Using traditional approaches or technologies—to surmount challenges—at an accelerated pace

Significant Leap

Adopting new or different approaches and technologies that may have been developed elsewhere but that would also work in India

Leapfrog

Skip a generation or create an entirely new method of business model or technology



We also highlight the critical role that the government will have to play to support this goal, by creating national platforms and an enabling environment.

Our research methodology comprised interviews with about 80 leaders in India and abroad, workshops with sector leaders, insights from academic and economic specialists, and an online survey completed by more than 1,500 PwC employees. The message we heard was unambiguous: to surmount its challenges and secure its future, India needs to focus on creating new solutions that will radically improve its economic and human-development performance.

We began with an analysis of other countries that have embarked on a similarly ambitious growth journey, including exemplars from middle-income countries in Asia and Latin America. China, for example, has shown remarkable economic growth, albeit under political and social circumstances that are very different from those that characterise India. South Korea has vastly improved its HDI since 1983. And

since 2007, Brazil has been unleashing the power of its private sector to accelerate its growth. In India, we found double-digit growth stories in key states that provide internal examples of what the nation itself is capable of.

Challenges as opportunities

To realise the Winning Leap vision, India needs to view its many economic and social challenges as opportunities for growth and renewal. With this perspective in mind, we investigated performance in ten sectors that, together, constitute more than 70% of India's GDP. Each sector faces challenges whose resolution will require new solutions that are scalable, resource efficient, and environmentally sustainable. For example, the education sector will have to deliver high-quality, formal education to 7m additional children every year over the next two decades. Yet with current education investments estimated at just 3% of India's GDP, achieving this target won't be easy using traditional strategies. India's healthcare sector offers another case in point. To serve a growing

population, the sector will need 100,000 additional doctors and 300,000 additional nurses every year through 2034. But this sector, too, faces an investment challenge. Additional sectors we examined—agriculture, retail, utilities, manufacturing, financial services, urban infrastructure—all confront a similar challenge. Each has to grow, despite resource constraints. Managing this imperative will require significant new investment and innovative approaches.

Complicating things further, all of these sectors are interconnected: a setback in one spawns setbacks in others; improvement in one enables improvements in others. As just one example, higher-quality education and healthcare result in healthier, more skilled workers who can help drive growth and innovation in India’s manufacturing sector.

In addition, we examined performance in what we call enabling sectors: India’s digital and physical connectivity. For each sector examined, we defined a key metric—a “vector of growth”—with which to assess growth performance. (See previous page.) We arrived at targets for these vectors by looking at countries at a similar stage of growth and by consulting sector experts. With sectors that support and enable growth in other sectors, like digital connectivity, we took a more aggressive approach, imagining India reaching world class status by 2034.

Vectors represent targets that must be achieved for the corresponding sector to help drive overall rapid growth in India. Moreover, each vector has quantitative as well as qualitative submetrics. To illustrate, while increasing average years of

schooling matters, spending more time in school won’t mean much unless the quality of the education also improves. And that means strengthening curricula, driving innovation in the use of learning channels, and improving teacher training.

A closer look at the Winning Leap solution

As we investigated these vectors, we saw that linear growth in each will not be enough to enable the growth envisioned for India. Given the complexity and scale of the challenges facing India, the resources required, and the urgency of demands for change coming from Indian citizens, sector players must deploy solutions that deliver nonlinear growth. Our analysis of sector growth suggested three categories of solutions. (See Figure A.)

Figure A: Categories of Winning Leap solutions

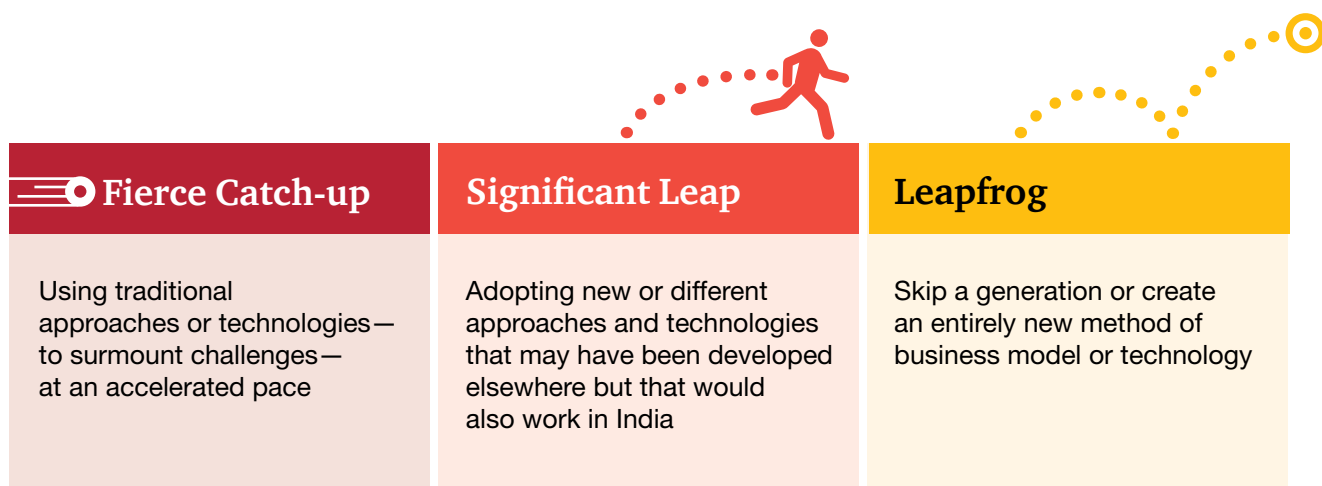
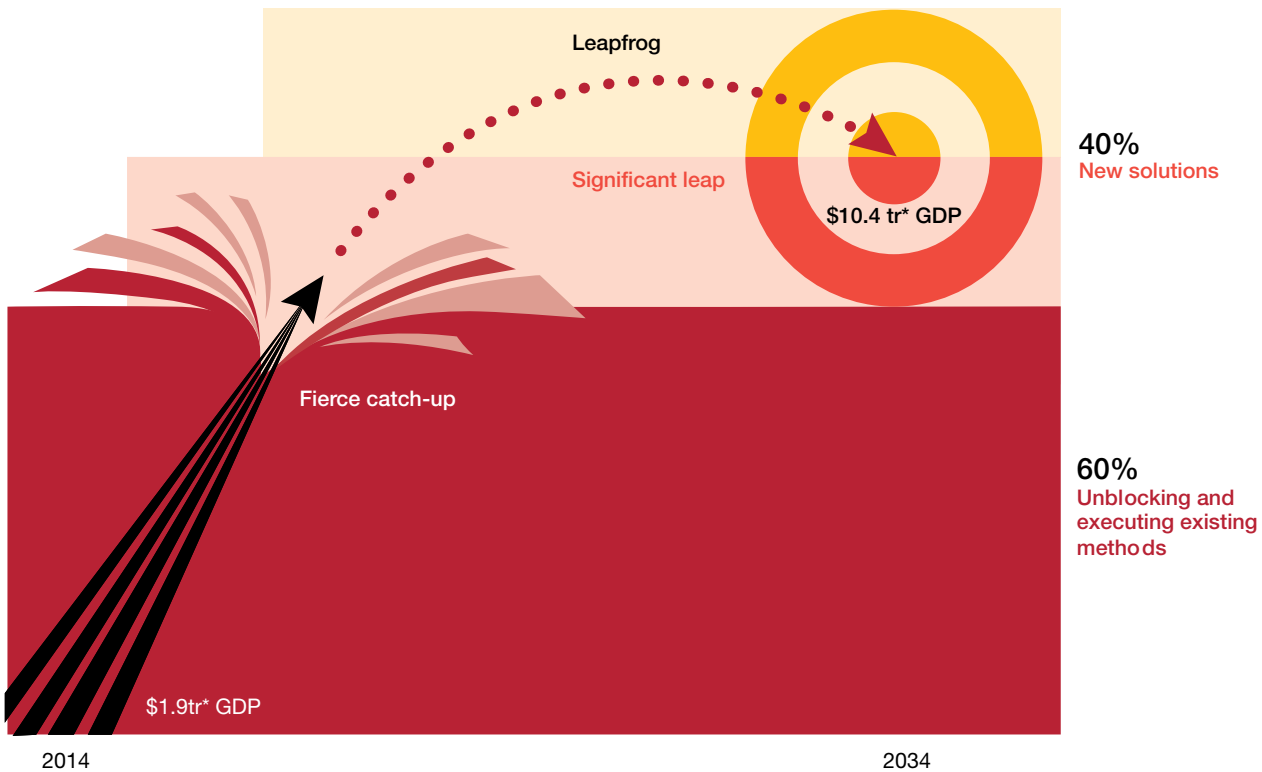


Figure B: How new approaches could contribute to India's economy



Source: PwC analysis

Each sector of the Indian economy will need to execute solutions drawn from all three categories if India is to build its GDP to US\$10tr in 2034 and improve its HDI in an environmentally sustainable manner.

Take the vector life expectancy at birth as an example. To increase life expectancy from today's 66 years to 80 years in 2034, our analysis shows that a traditional approach would require the addition of 3.6m new hospital beds over the coming two decades. A Winning Leap approach will take a decidedly different tack, whereby healthcare-sector players scale more operationally efficient business models (Fierce Catch-up), encourage preventive healthcare and home care (Significant Leap),

and adopt mobile health techniques and technologies (Leapfrog). Combining these strategies could reduce the number of additional hospital beds needed by 1.2m while still boosting life expectancy to 80 years in 2034. That reduction in the number of new beds could translate into savings of more than US\$90bn in capital expenditure on healthcare delivery infrastructure.

Other sectors can benefit similarly. For instance, a Winning Leap approach that increases average years of schooling from 7 to 10 in 2034 could save the education sector US\$170bn in cumulative investments. And a Winning Leap approach providing 24/7 access to power for all citizens while

We are sitting at 1.2 billion, going on to 1.5 billion in population. While this is a huge challenge it is also a large opportunity. It will stretch our finite resources to the limit unless there are some breakthroughs in technology.

Ajay Kumar Misra
Tata Global Beverages

increasing power delivery three-fold can be achieved through approaches that save US\$200bn in capital expenditures.

Our analysis suggests that up to 40% of India's US\$10tr economy in 2034 could be derived from new solutions. (See Figure B.) Such solutions could be successfully implemented with 25-30% less resources than those required by traditional solutions. Therefore,

Winning Leap solutions not only drive rapid growth in a resource-efficient manner but also are environmentally sustainable. The Winning Leap is more than just a new approach; it's a "play to win" mind-set for sector leaders and the country.

These and other analyses are explored closely in Chapters 1 and 2 of this report.





The private sector's role in achieving the Winning Leap

India's private sector—established corporations and entrepreneurial companies alike—can play a key role in developing and deploying Winning Leap solutions. Why? The private sector is more nimble than the government and social sectors in terms of its ability to craft new business models and strategies and leverage new technologies. Given their experience with globalisation, these companies are well positioned to learn from and experiment with best practices developed by their global peers. International companies looking to participate in high-growth markets are equally well equipped to develop relevant solutions.

This growth journey will also require public-private partnering in its broadest sense. To support progress in a number of sectors, the government will need to continue building national platforms such as improved roads, ports, and physical connectivity as well as better digital infrastructure.

If India can achieve a 9% per year growth trajectory, its economy would become the world's third-largest in 2034, after the US and China. This achievement would create world-class companies originating in India that develop capabilities essential for other high-growth markets as well. These companies could successfully serve India's already large and growing domestic market while also competing on the global stage. We anticipate that at least ten

Indian companies will find a place among the global top 100 by size and scale if the nation can achieve its US\$10tr GDP aspiration. These industry champions will not only demonstrate unprecedented growth themselves but also build new capabilities essential for ongoing innovation of new products, services, and business models.

To foster the emergence of such world-class Indian companies, India's private sector will have to invest more in research and development (R&D), particularly for solutions to challenges facing emerging markets, where India has already established a leadership position. Indeed, our economic model shows that India's Winning Leap will require an increase in R&D spending from 0.8% of GDP to 2.4% in 2034.

Five themes for the corporate sector

All too many Indian companies still don't realise the changes highlighted in our research. For those that are aware, many are not responding swiftly enough. To achieve the scale of transformation required for India's Winning Leap, businesses in as much as 40% of the nation's economy will have to execute new solutions and build new capabilities. To accomplish this, companies must focus on excelling at five interconnected themes. (See Figure C.)

These five themes are explored in detail in Chapter 3, including how they interrelate and which capabilities and technologies will prove most crucial for each.

Figure C: Five key themes for the corporate sector

Serving informed and empowered customers



As information grows (in both access and volume) and Indian consumers and businesses are more able to apply this information in their decision making, they become more empowered. And with their increased empowerment, they'll demand ever more value from the products and services they buy—including greater quality and convenience. Companies will need to rethink their business models and competitive strategies to profitably serve these customers.

Creating flexible and adaptive operating models



To reach these more demanding customers, Indian companies must build new kinds of operating models, such as asset-light models; experiment with unconventional sales and distribution channels; and leverage technology in new ways.

Drawing on nontraditional resources and partnerships



To acquire or build capabilities needed to drive growth, Indian companies can import knowledge and technologies through models such as licensing and forge partnerships with the government and social-sector organisations.

Adopting a growth and innovation mind-set



Indian companies must weave a commitment to growth into their corporate DNA by fostering companywide awareness of consumers' needs, investing enough in R&D, and unlocking entrenched organisational structures and attitudes that are inhospitable to new solutions, new business models, and new approaches.

Focusing on accountability, integrity, and sustainability



To drive rapid growth, Indian companies will need to align their top management and board to make everyone accountable for growth, embed integrity into their organisational culture, and uphold sustainability and social impact as core values of the organisation.

Entrepreneurs' role in the Winning Leap

Like large, established corporations in India, entrepreneurial companies in India can play a critical role in developing and deploying Winning Leap solutions. Indeed, the large Indian companies of tomorrow will emerge from the entrepreneurial sector of today. A groundswell of entrepreneurial energy in India has sparked recent, well-publicised successes in the e-commerce sector alone, and our research suggests the potential for similarly entrepreneurial growth in virtually all of India's sectors.

Our research has also focused on the interplay between corporations and entrepreneurs—in particular, how corporations can help by linking new ventures to their supply chain and by mentoring and coaching entrepreneurs on best business practices. In addition to being especially nimble in terms of driving innovation, entrepreneurial businesses have a huge potential to create the new jobs needed by the Indian economy. Our findings and analyses related to entrepreneurs' role in the Winning Leap are discussed in detail in Chapter 4.




The importance of ease of doing business

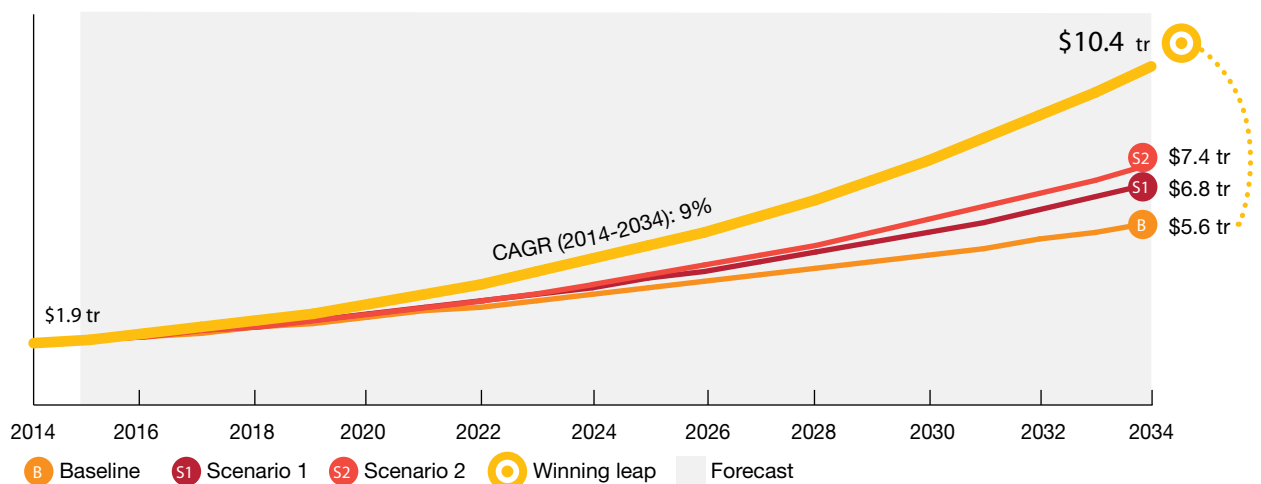
India's private-sector players can deliver Winning Leap solutions only if regulations and government policies make it easy to do business in India. In 2013, India ranked 134 out of 189 economies in the World Bank's Ease of Doing Business index. Our analysis and discussion with experts in this field suggest that there is some low-hanging fruit that could be harvested to improve this ranking—in areas like ease in starting a company and in paying taxes. Progress on these and other fronts could improve India's rank in this index by more than 50 in just a few years. Other improvements will require more complex policy and mind-set changes. An additional benefit of improving ease of doing business in India could take the form of greater confidence in India on the part of multinational companies, which would translate into larger flows of foreign direct investment and know-how into India, two essential ingredients for growth and innovation. The topic of ease of doing business is examined in closer detail in Chapter 5.



Three economic-growth scenarios

With data and modeling from Oxford Economics, we've defined three possible economic growth scenarios for India, each hinging on different strategies and achievements that could come from corporations, entrepreneurs, and the government and each reflecting a different focus for investment:

Scenario 1	Scenario 2 	Scenario 3 
 <p>Pushing old ways faster outlines a focus on investment in education, health, and other dimensions related to human capital. Our analysis suggests that in this scenario, India's GDP could see a 6.6% compound annual growth rate (CAGR) between now and 2034.</p>	<p>Turbocharging investment outlines the impact of rapid and significant investment in physical infrastructure and envisions a 7 trillion for GDP leading up to 2034.</p>	<p>The Winning Leap includes investment in both human and physical capital (as in the previous two scenarios) but also focuses on investment in R&D and innovation and envisions a 9.0% CAGR for GDP between now and 2034. This scenario forecasts the most aggressive growth and is the only scenario that will generate the 240m new jobs that India's growing population needs over the next 20 years.</p>



Source: Oxford Economics

We have also highlighted the challenges and roadblocks to achieving the identified growth in GDP. For instance, for Scenario 1, India will need to capitalise on its demographic dividend while also mitigating the risk of mass unemployment among its youth, which could be amplified by unaddressed health and education problems. In Scenario 2, water scarcity and energy security could jeopardise investments in physical infrastructure. And in Scenario 3, continued weakness in India's intellectual-property protection

system could hurt investments in R&D and innovation. These scenarios are explored more closely in Chapter 6.

How to use this report

The central purpose of this report is to drive action. We hope that the frameworks, analyses, and ideas for action laid out in this document will help catalyse corporate leaders, entrepreneurs, investors, and government officials to take actions aimed at contributing to India's Winning Leap:

Corporations



If you're a senior executive at a corporation, you may find Chapters 2, 3, and 4 of particular interest. These and other chapters can help you spark dialogue on how your company can spur its own growth, craft Winning Leap solutions that benefit India overall, and set the stage for elevating your company to world-class status. See pages: 32, 64 and 80

Entrepreneurs



If you're an entrepreneur, you may want to pay especially close attention to Chapter 4 as well as Chapters 2 and 3. We recommend using these and other chapters to brainstorm ideas for partnering with large, established corporations (such as being mentored by a large corporation), for scaling your company, and for stepping up creation of new jobs. See pages: 32, 64 and 80

Investors



If you are an investor, Chapters 2 and 6 may be of particular interest, because they explore sector opportunities, the different growth options facing India, and the approximate size of the investment opportunity. International companies seeking to enter India, acquire Indian companies, or invest in other ways in India's growth story will find this content equally useful. See pages: 32 and 100

Government



If you're a government leader, Chapters 2, 5, and 6 may be of particular interest to you. These and other chapters can help you and your colleagues explore ideas for improving ease of doing business in India (for example, by working with an industry council focused on this goal) and collaborating with businesses to identify short- and medium-term actions that the government could take to elevate India's ranking in the Ease of Doing Business index. See pages: 32, 88 and 100

These concepts are covered in greater detail in Chapter 7 (page 128).

By using this report, you can initiate new conversations that lead to long-term capability building and profitable growth for your organisation or institution. In doing so, you will be joining business leaders, entrepreneurs, investors, and government officials who participated in our study—all of whom were energised by the possibility of India's rapid growth and spread of prosperity that our report outlines.

The international leaders who took part in our study were especially passionate in their opinion that while the Winning Leap is critical for India, it's equally important for other growing economies. It is our hope that business and governmental leaders in other such economies will draw lessons from India's experience and make strides toward their own Winning Leap.







Chapter 2

Sectoral challenges and the Winning Leap

A person who cannot decide a goal simply cannot win.

Chanakya

India has bold aspirations: to become an upper-middle-income country and improve quality of life for its citizens. We maintain that it can realise these aspirations by achieving a US\$10tr GDP by 2034. To reach that target, it will need to grow its GDP at a compound annual growth rate (CAGR) of 9% over the next 20 years. In the process, we believe, India could create as many as 12m new jobs per year. This accomplishment could transform quality of life for Indians, especially in the areas of healthcare, education, and overall

living conditions—but only if India propels economic and human development simultaneously and sustainably.

Speed, inclusion, and sustainability are key elements in this story. Our research and conversations with influential leaders show that growth must occur across multiple sectors and population segments within India. The sectors are interlinked: growth for one enables growth for others. We call these multiple ambitions vectors for growth. Our

research identified ten such indicators on which India must excel to achieve its ambition of rapid, inclusive, and sustained growth. (See Figure 2.1.)

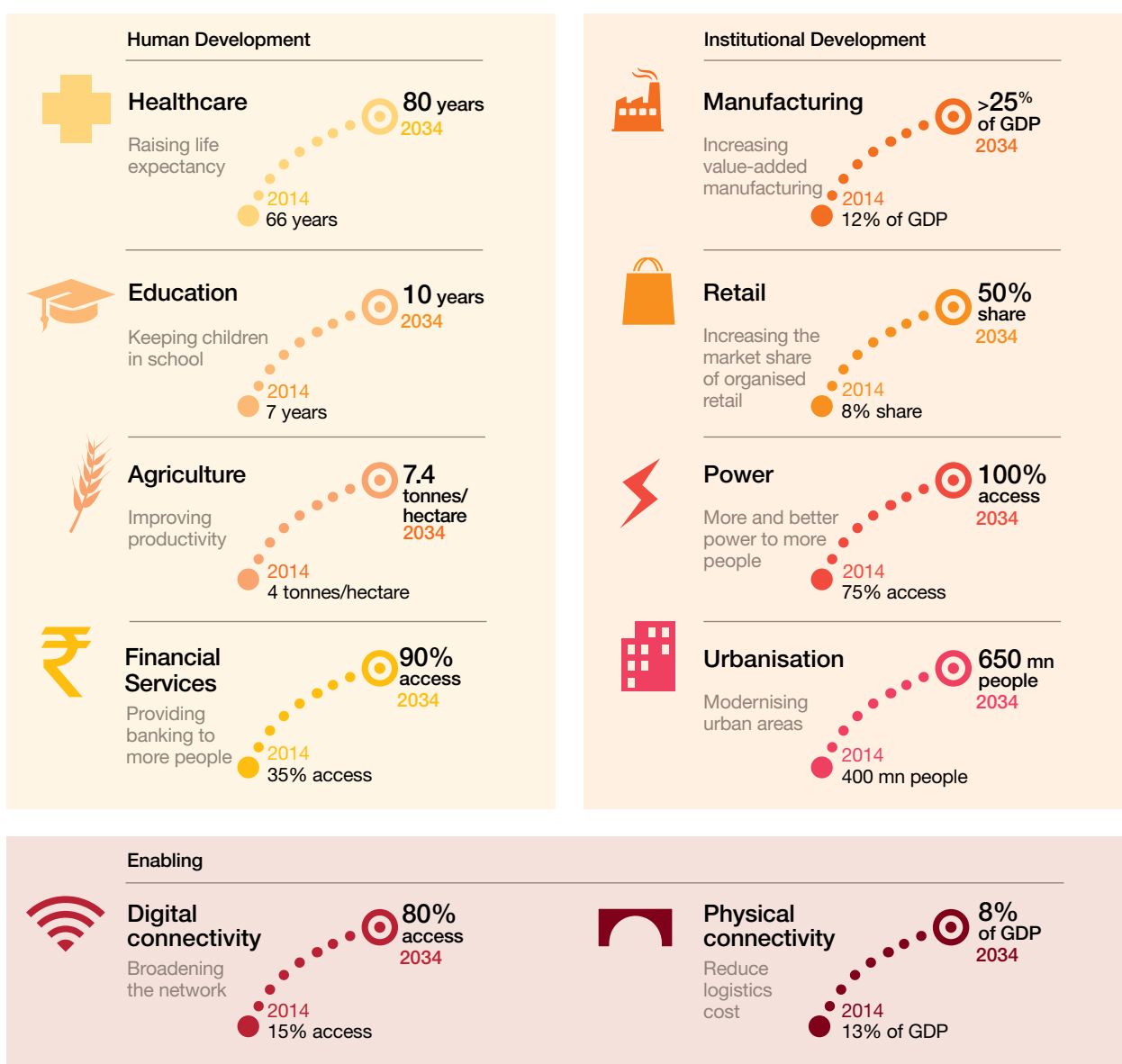
When it comes to the vectors, both quantity and direction matter. For instance, in evaluating improvement in education, the average number of years of schooling is a useful quantitative measure, but it must be augmented by an assessment of the quality of the education being received during those years. Without improvements in quality, an increase in the years spent in schooling may make no difference.

Similarly, in healthcare, life expectancy at birth is important, but healthcare improves even more when the focus of care shifts from reactive to preventive.

We group our vectors into three classifications: Human Development (life expectancy at birth, average years of schooling, agricultural yield, and access to banking services), Institutional Development (share of organised retail, value-added manufacturing, access to power, and managed growth of urbanisation), and Enabling (improving digital connectivity and improving physical

connectivity). The private sector has a major opportunity to help India improve its performance on each vector. Companies that can craft solutions to support such performance improvement can reap benefits including entry into new markets, increased revenues, and a much stronger market position than that of their competitors. To seize these opportunities, corporate executives, entrepreneurs, and government agencies should weave these vectors into their strategic planning over the next 20 years. Key questions to address will include “How can we contribute to growth on a particular vector?” and “What partners will we need to work with to make such contributions?”

Figure 2.1: Ten Vectors of growth



Source: World Bank, government websites, PwC analysis



India is at rock bottom in many sectors, from healthcare and education to organised agriculture and tourism, and we need to evangelise the massive opportunity in all in order to take giant steps to bridge the gap.

Ronnie Screwvala
UTV

We arrived at the vectors by assessing countries that have made significant progress on a particular challenge over the last 10-20 years. To develop the 2034 targets for each vector for India, we drew insights from PwC's sector experts, and we benchmarked comparative countries. To illustrate, for the past 20 years, per capita power consumption in India increased by 100%. However, over the next 20 years, this number will need to increase by 200% to bring India's power consumption to a level similar to Brazil's. Similarly, life expectancy at birth in India has inched up from 59 years to 66 years

over the past two decades, and will have to reach 80 years by 2034 to resemble the South Korea average.¹

To understand the interrelated nature of the vectors, let's consider education. In India, average years of schooling went from five to seven over the past 20 years. To raise that number to 10 by 2034, India will have to increase its investment in education as well as improve sanitation and bathroom availability for girls in schools, efforts related to healthcare. Likewise, improvements in manufacturing performance will come about only if workers are

healthy.²

Creating Winning Leaps across the ten vectors

Incremental change is taking place across the ten vectors, but it's not happening fast or cost-effectively enough. In the sections below, we look at the current conditions for each vector and consider steps that can be taken to drive improvement.

Vector one:

Life expectancy at birth

Good health is critical to human prosperity, yet quality of healthcare varies throughout the Indian population. Even though the country has produced some of the best physicians in the world, the average Indian has poor access to healthcare services. Maternal and infant mortality remains high, owing to inadequate healthcare infrastructure. Moreover, poor nutrition keeps many young children out of school, preventing them from reaching their full potential.

Part of the problem is the shortage of people and physical infrastructure needed to provide better healthcare. The ratio of doctors per 1,000 people is just 0.6. In Brazil and China, it's 1.8. And India has only 1.3 hospital beds per 1,000 people—significantly lower than the guideline of 3.5 beds defined by the World Health Organisation.³

Today, the two most important problems of healthcare in India are lack of awareness and lack of access. The affordability in healthcare can only come if there are volumes. Doctors, nurses, infrastructure, equipment, and instruments are scarce. Hence, affordability will only be possible if there's 100% utilisation.

Dr. R. D. Ravindran
Aravind Eye Care System



Several factors have resulted in poor health outcomes such as low life expectancy as well as high infant and maternal mortality rates. To bring about a Winning Leap in healthcare, we imagine an India that has increased life expectancy at birth¹ from 66 years in 2012 to 71 years by 2024 and to 80 years by 2034. We have also defined a subvector for the infant mortality rate (number of infant deaths per 1,000 live births), which could decrease from 44 to 31 in 2024 and to 12 in 2034. Similarly, the maternal mortality rate (number of maternal deaths per 100,000 live births), which is at 190 today, could decrease to 124 in 2024 to 27 in 2034. To achieve these targets, healthcare-sector players must focus on improving the reach, quality, and affordability of healthcare. The suggestions below can help.

Build more with less

Improving healthcare infrastructure takes time and money. Low-cost operational models combined with innovative financing models could help secure the needed resources. Public-private partnerships (PPPs) present real possibilities. Through this financing model, the government provides land and financial subsidies to private operators, which build hospitals and other healthcare infrastructure.

Specialty operational models also offer promise. In India, pioneers include Aravind Eye Care System and Narayana Health Group. These two hospitals invested in resources for specialised treatment (eye care and cardiac care respectively), which enabled them to streamline and standardise operations, making their services more affordable. High asset utilisation as well as para-skilling of nurses (training them to perform some procedures

that previously only doctors could do) have reduced doctor time, further helping to lower costs and enabling the staff to serve larger volumes of patients.

Permanently lower costs

Improving health outcomes without having to build costly new infrastructure can also boost life expectancy at birth. Narayana Health Group has done this by investing in information and communication technology (ICT) to shift the point of care to patients' homes. Through this model, nurses, community health workers, and trained family members provide first-level primary care at home, with serious cases monitored remotely by doctors and nurses.

Leverage digital technologies

High internet penetration can drive the adoption of telemedicine in India, improving resource efficiency and rapidly expanding access to health services. To these ends, India can replicate global best practices in telemedicine. These include using databases loaded with diagnosis protocols aggregated from the best hospitals, training field workers and on-call medics to reduce escalation of patients' concerns to a doctor, and collaborating with hospitals, doctors, and diagnostic centres to provide services in remote areas.

India can also leverage its strength as a world leader in vaccine manufacturing (it contributes 60% of global production)⁴ to sharpen its focus on preventive care. Indian vaccine manufacturers such as Serum Institute of India, Bharat Biotech, and Biological E are renowned worldwide for their contribution to reducing the cost of vaccines to about US\$1 per dose, making preventive healthcare more affordable than ever.⁵

¹ Life expectancy at birth indicates the number of years a newborn infant would live if the prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.



Improvements in the healthcare sector will ripple throughout the entire Indian economy. For instance, well-nourished children will be more attentive in school. They will learn more and ultimately enter the workforce with the skills and knowledge needed to support innovation in their companies.

Vector two:

Average years of schooling

High-quality education builds a nation's human capital. To avoid squandering its demographic dividend, India must make substantial reforms in its education sector. The nation's education system has benefited the upper class, producing a number of global CEOs. But it hasn't worked for the masses: India has the largest illiteracy rate—33%—in the world,⁶ in part because education is not yet available to everyone.

In simple terms, there aren't enough schools in India, and many existing schools have inadequate infrastructure. Given the poor quality of schools, many students drop out of the formal education system early in

their lives, and many of those who stay in school emerge with insufficient skills and knowledge to find good jobs.

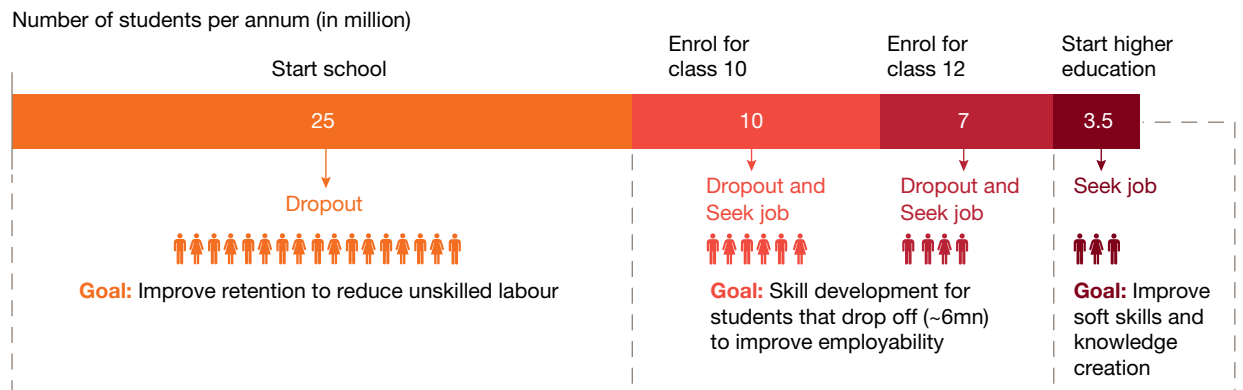
The few Indians who complete tertiary education may also lack the skills needed to excel in the jobs available. In 2012-2013, almost 45% of graduates from tertiary education in India earned less than INR 75,000 (about US\$1,300) a year.⁷ Even as millions join the workforce each year, the shortage of qualified talent remains a top concern for CEOs across India.⁸

The link between poor education and India's low labour-force participation is obvious.¹¹ Against the backdrop of India's rapidly growing working-age population, low participation can have serious social and economic consequences, including unrest among young people. India needs to raise workforce participation from 58% to 80%⁹ to be on par with China. Education and skill development will prove critical for achieving this target.

We have defined the growth vector for education as an increase in average years of schooling from seven in 2012 to eight in 2024 and ten in 2034. Achieving these targets will require innovative solutions across the education value chain. Results will include reductions in dropout rates and greater enrolment in upper secondary education (an increase from 55% to 75%, again similar to China's number). Improving infrastructure for secondary and tertiary education and improving student-to-teacher ratios as well as teacher quality are top priorities. Below, we offer recommendations.

¹¹ Labour-force participation is expressed as the proportion of the population age 15 or older that is economically active; that is, supplying labour for the production of goods and services during a specified period.

Figure 2.2: Reducing the rate of dropouts and boosting skills



Source: World Bank, press articles

Provide more blackboards and desks

In India, primary education is primarily publicly funded and not-for-profit. Boosting private participation could help improve average years of schooling along with quality of education. For instance, PPPs could be used to build new schools—the “blackboards and desks” approach. One possibility is to create multipurpose facilities that can operate as not-for-profit schools during the day and as for-profit vocational education and training centres in the evenings.

India also needs to get more students into school. Sarva Shiksha Abhiyan (universalisation of elementary education) and the Rashtriya Madhyamik Shiksha Abhiyan (National Mission for Secondary Education) are positive steps in this direction.

Empower students through skills development

India can improve inclusion and quality of education by adopting a credit-based system for vocational education and allowing interoperability of credits between vocational and mainstream schooling. This system will encourage students to complete their academic education while also acquiring practical skills that will help them find jobs with employers that need their talents.

Use of technology-enabled solutions such as massive open online courses (MOOCs) to enhance the reach and quality of vocational education is gaining ground. MOOCs are online platforms offering a wide range of courses, most of them developed in partnership with reputable institutions. MOOCs may be a good short-term solution for bridging skill gaps.

Get more from technology

Savvy deployment of technology could help India implement distance-learning solutions. Internet, satellite, and mobile-based distance-learning programmes can improve education quality and affordability at all learning levels. A technology-led model of education, based on remote connectivity, is also highly scalable. Education-sector players can even use existing technology—such as the EDUSAT^{III} satellite—to deliver learning in new ways.

India must also tailor its education system to the needs of the modern economy. Improving outcomes will require more-effective teacher-training programmes; standardisation and accreditation of pedagogy across learning settings, including vocational training; and the linking of curriculum to the needs of India’s digital and IT-enabled economy. (See Figure 2.2.)

^{III} A communications satellite launched in 2004 by the Indian Space Research Organisation to meet demand for satellite based distance education.

Vector three:

Agricultural yield

Agriculture will play a crucial role in India’s economic and human development, nearly 50% of India’s workforce depends on agriculture for their livelihood. Yet agriculture’s contribution to the nation’s GDP has fallen from 42% in the 1960s to 18% today.¹⁰

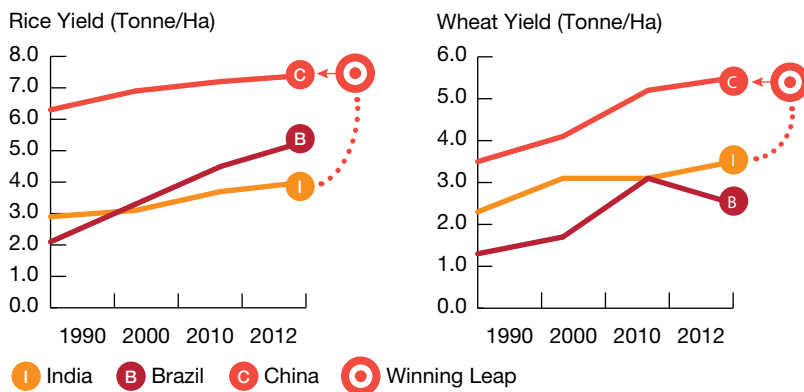
A key factor behind this shrinking share is poor yield per hectare, even though most of India’s agricultural land is already under cultivation. Let’s compare India’s situation with China’s. India produces 235m tonnes of food grain from 135m

hectares of land. China produces 450m tonnes of grain from 100m hectares.¹¹ In key commodities—rice, wheat, and maize—China’s yields far exceed India’s. (See Figure 2.3.)

There are several culprits behind low agricultural productivity. Low penetration of irrigation is one of them: 60% of arable land depends on monsoons for irrigation.¹² Moreover, farming techniques are out of date and inefficient, with limited focus on agricultural research and adoption of new crop technologies.¹³

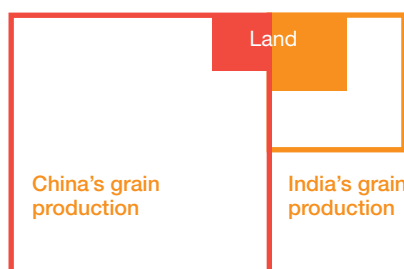
Our research identifies poor agricultural productivity and inefficient food delivery as critical issues facing India. The nation has a significant grain stockpile, just behind that of China, the world leader—yet 20% of Indians remain malnourished.¹⁴ In 2012, India had a 40% shortage of storage space for a total stock of 82m tonnes of food grain.¹⁵ Improved storage facilities and more-efficient food-distribution systems will help address these challenges and could improve food supply per person per day from 2,500 kilocalories¹⁶ to 3,500-4,000 kilocalories.

Figure 2.3: Yield per hectare in India for key commodities



Sources: World Bank data, Wall Street Journal

China produces 450m tonnes of grain from 100m hectares of land whereas India produces 235m tons from 135m hectares, the second-largest arable land in the world.





India could benefit hugely by increasing yield for food grains from 4 tonnes per hectare in 2012¹⁷ to 5.4 tonnes per hectare in 2024 and 7.4 tonnes per hectare in 2034. Reaching these goals will require improvements in irrigation, farmer education, and access to inputs such as fertilisers and good-quality seeds.

Leverage mechanisation and data

Stepping up mechanisation in farming could significantly improve crop yields. The private sector and government can play a role by making loans available for farmers to buy mechanised equipment and by developing awareness programmes that encourage farmers to advance their skills in machinery operation.

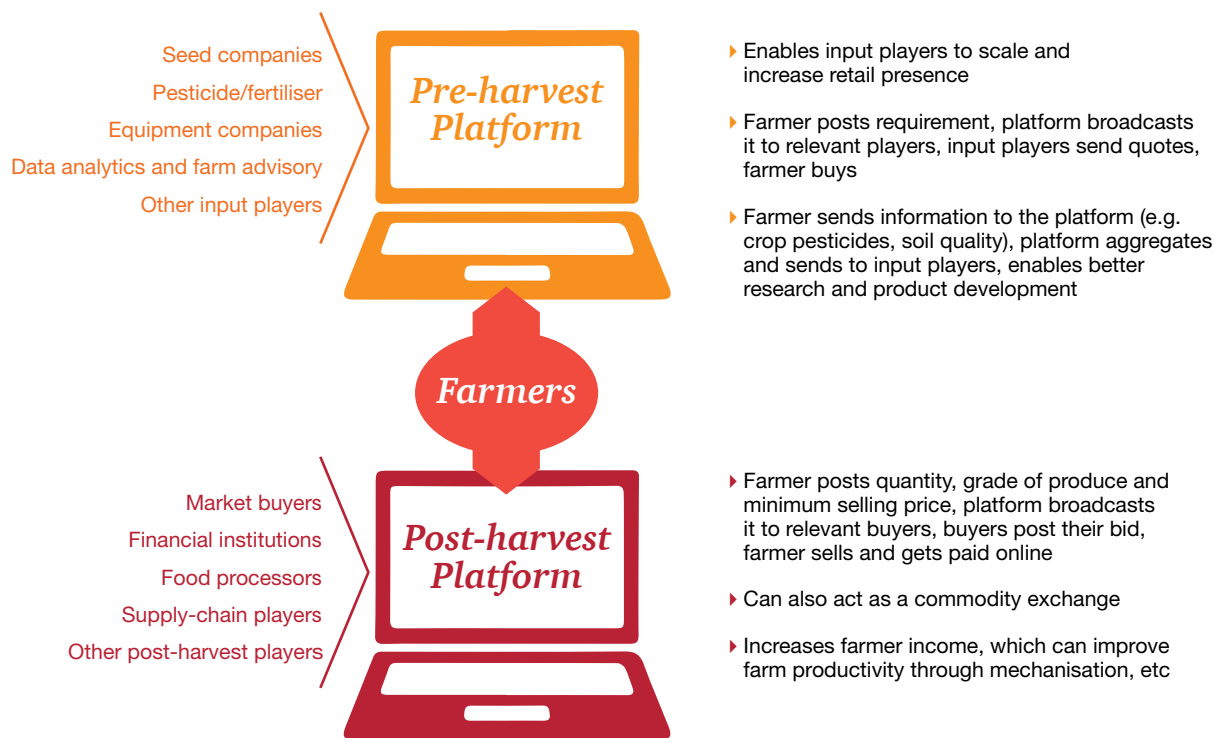
IT-led solutions can also help. Reuter's Market Light and TCS's mKrishi are examples. These education and advisory services, available through mobile apps, help farmers make informed decisions and have been implemented in more than 17 states across India.

Improve precision farming and input access

India's agricultural sector needs to shift toward data-driven precision farming—which uses sensors, imagery, and other technologies to generate information for farmers about weather, soil content, fertiliser, and pesticide levels. Farmers use the information to fine-tune their techniques as well as optimise resources and improve the quality and quantity of crops. Yet only 2.5m of India's 120m farmers practise precision farming,¹⁸ largely in the form of drip irrigation. Enabling more farmers to use such practices could help India reach its agricultural productivity targets.

Similarly, partnerships between complementary input players—such as fertiliser, pesticide, and seed companies—will strengthen the agricultural supply chain. That could reduce costs of inputs for farmers and give them easier access to inputs, all of which translates into better performance on agricultural yield.

Figure 2.4: A digital food platform



Source: PwC analysis

Strengthen research

Strengthening research in fields such as biotechnology, especially genetically modified (GM) seeds, could improve crop yield and resistance to pests and drought. However, debate persists regarding the impact of GM seeds on human health and soil quality. India thus needs to invest in research on the use of GM seeds in food crops to make them as successful as Bt cotton^{IV} has become in India.¹⁹

The sector also has an opportunity to develop an integrated digital platform comprising pre- and post-harvest modules. (See Figure 2.4.) Such a platform could create a marketplace in which players across the value chain can interact with one another. It could provide input players with opportunities to scale and to increase their market access while enhancing the transparency of transactions, which lets farmers buy and sell at the best possible prices.

The agricultural sector offers a rich array of opportunities for private-sector companies to help India achieve its agricultural yield targets. Such companies could come from sectors ranging from IT, retail, and biotechnology to fertilisers and farm-equipment manufacturing. Higher crop yield will support inclusive growth and improvements in economic status for the many Indian citizens still dependent on agriculture to make a living.

^{IV} Bt cotton, produced by Monsanto, is a genetically modified variety of cotton that produces an insecticide.

Vector four:

Access to banking services

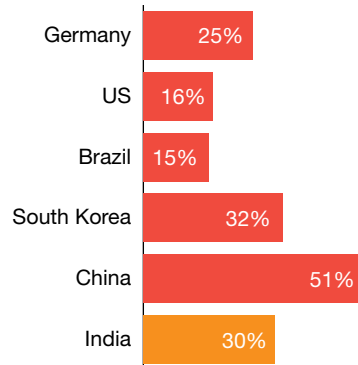
Access to finance promotes economic growth and reduces poverty and inequality. Gross national savings in India have constituted 30% and more of GDP since 2004. However, since 2010, the share of household savings entering the formal financial system has fallen with increased demand for physical assets such as gold and real estate.²⁰ (See Figure 2.5.)

In India, only 35% of adults had access to a formal bank account as of 2011-2012.²¹ Thus, a significant percentage of the country's population is vulnerable to exploitation from people involved in informal channels that fall outside regulatory control, such as money lenders or operators of fraudulent savings schemes. As of 2013, the share of informal rural credit ranged from 77% (to near-landless farmers) to 32% (to farmers with landholdings of 10 hectares and more).²² Also, 57% of families surveyed across major migrant corridors crossing states within India claimed to prefer informal channels for managing remittances, whereby workers send portions of their wages to family members living in other states or regions of India.²³

Our vector for the financial services sector envisions expanding the percentage of Indians who have access to formal banking services from 35% in 2012-2013 to 70% in 2024 and 90% in 2034. By access, we don't just mean the percentage of people who open an account; we mean the percentage who actively use banking services—namely, making at least one deposit or withdrawal each month.

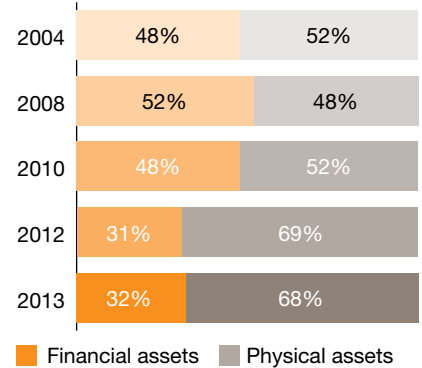
Figure 2.5: Household savings as a percentage of GDP in India

Significant rate of gross national savings in India (% GDP)



Sources: Planning Commission, Government of India

Falling share of financial savings among households remains a concern

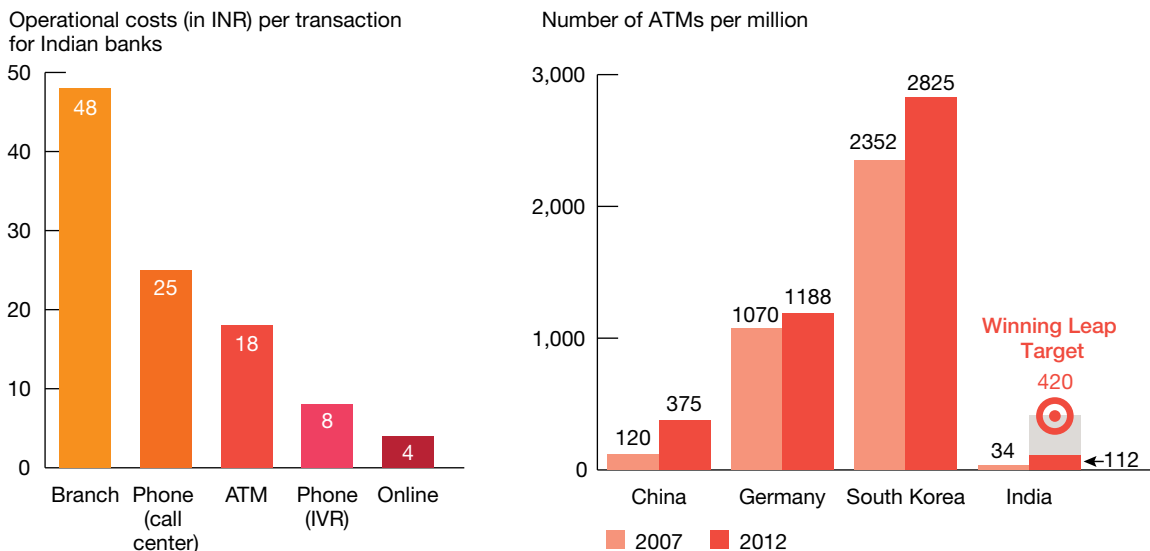


Sources: Planning Commission, Government of India

The financial sector is important because it enables other sectors. To have the most effective financial sector, we need to move more assets from gold and black real estate into productive areas.

Naina Lal Kidwai
HSBC

Figure 2.6: The power of technology-enabled banking



Sources: World Bank, ICRIER, PwC analysis

Tackling India’s financial-inclusion challenge will require multiple interventions. Examples include easing regulatory norms for bank-customer acquisition, improving financial literacy, designing suitable banking services to meet different consumer needs, and expanding the penetration of banking infrastructure into rural areas to make access easier and more affordable for account holders. In the sections that follow, we explore several ideas for making such improvements.

Build branchless infrastructure

Historically, Indian banks seeking to grow have favoured expanding their number of brick-and-mortar branches over deploying branchless technology and have relied on business correspondents (i.e. third-party agents) to reach customers in remote villages. However, the gap between urban and rural branch density remains substantial, with only 38,000 branches serving

almost 600,000 villages throughout the country. The business-correspondent model has extended access to almost 150,000 villages. Yet it hasn’t led to more active use of accounts, because banks have had difficulty incentivising agents and monitoring their performance.²⁴

Quadrupling branch density from 2014 through 2034 could help India improve access to banking services. But doing so would require major capital investments from banks, especially in rural markets.²⁵ Moreover, branch density doesn’t necessarily correlate strongly with financial access. For instance, China and Germany boast much higher financial inclusion than India in terms of the percentage of people actively using bank accounts (64% and 88%, respectively)—but both countries have comparable branch density to India (77 and 139 branches per million, versus India’s 114 branches per million in 2012²⁶).

Our research shows that technology-led infrastructure such as automatic teller machines (ATMs) could significantly lower capital requirements and transaction processing costs for banks seeking to foster greater financial inclusion. (See Figure 2.6.) Banking customers would be far more likely to use permanent, convenient access points such as ATMs to conduct banking transactions, rather than having to wait for agents to visit their villages.

The other key factor India needs to address is the level of Know-Your-Customer (KYC) compliance required to open bank accounts, which increases acquisition costs for banks and excludes many citizens from the financial system. Regulatory shifts such as easing KYC norms for low-value accounts could maximise the reach of financial services for any given level of infrastructure penetration.

Exploit national platforms and new partnership models

Non-traditional partnership models could further improve financial-services penetration in India. Through such models, participants share infrastructure-development costs, lower market-entry risks, and combine their strengths to improve consumer access to services in remote areas. Such models have succeeded elsewhere in the world.²⁷ Take *Mzansi* accounts in South Africa. These no-frill bank accounts were launched jointly by the country's four largest private banks and the state-owned Postbank. More than 6m accounts were opened during 2004-2008, improving penetration from 46% to 63%.²⁸ Brazil's banking-correspondent model is another example. Through this model, the retail banking presence was expanded through partnerships with nonbanking entities such as local grocery stores, drugstores, and gas stations—backed by extensive use of IT systems.²⁹ The Philippines adopted a PPP model to deliver

welfare payments through multiple channels including cash cards, ATMs, rural bank offices, postal services, pawnshops, and mobile payment options.³⁰

Business-model innovations could also be combined with national platforms such as the unique identification number (or *Aadhaar*) to reduce compliance costs for service providers. This could reduce customer acquisition costs by as much as 40%, compared with the face-to-face identification procedures and paper-based processes used extensively today.³¹ And applicants would not have to provide multiple identification documents, a requirement that prohibits many from entering the financial system. The reach of the *Aadhaar* platform has been significantly extended; it covered some 600m registered members by early 2014. Still, banks must create the infrastructure and develop the capabilities needed to adopt and use real-time digital solutions such as e-KYC and biometric authentication

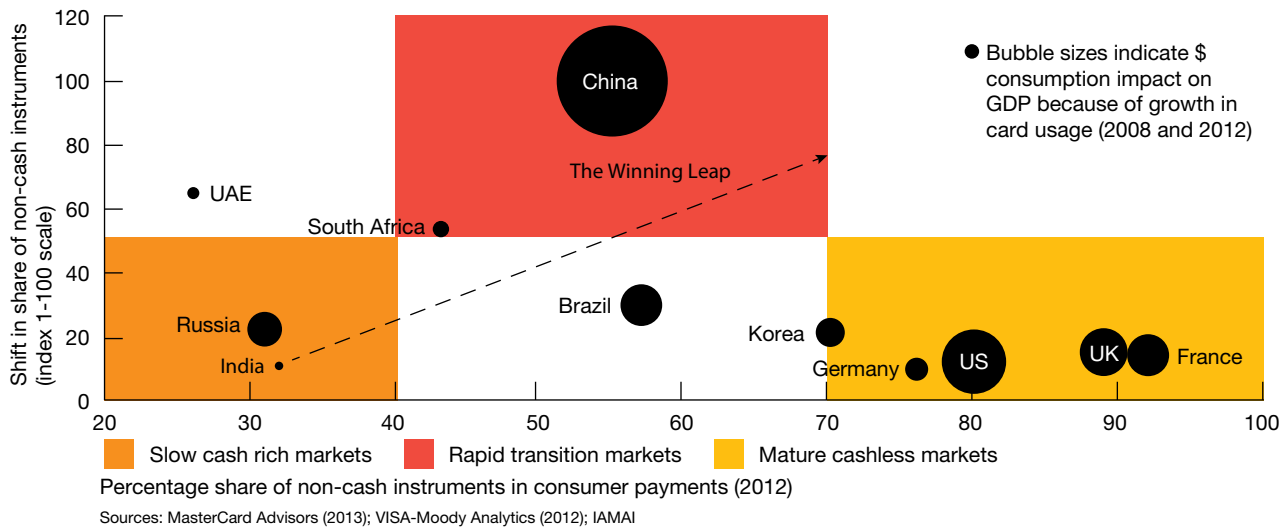
of customer identity. Such capabilities could also include management of partnerships that banks will need to forge to implement and get the most from digital solutions in the coming years.³²

Use next-generation digital channels

Use of digital channels such as mobile and online banking could greatly improve financial inclusion. Mobile money solutions have gained acceptance in markets such as Kenya and Bangladesh. But converting over-the-counter transactions into accounts enabling a full suite of banking services remains elusive even in those markets. The challenge facing nascent markets such as India must be addressed at more fundamental levels. Potential solutions include creating low-cost service models that offer incentives to multiple industry participants (such as telecom providers, banks, and payment providers), improving digital literacy, and expanding broadband and digital banking infrastructure within the country.³³



Figure 2.7: Advantages of digital payments



China's GDP is estimated to have grown by

↑ **\$375 bn**

due to consumption emanating from growth in payment card usage between 2008-2012

Emerging technology solutions such as solar ATMs can help, by slashing ATM setup costs by almost 50%.³⁴ Furthermore, credit-scoring models based on online and mobile usage data could make it easier for banks to evaluate potential customers' credit risk.³⁵ Examples include *M-Shwari* in Kenya, a savings-and-credit product from Safaricom and Commercial Bank of Africa (CBA), and an online credit model adopted by AliFinance in China.

These and other next-generation solutions could help India move toward a cashless economy. Growth of 5% in cashless transactions could help save more than INR 500 crore annually for the national economy through lower transaction and administrative costs.³⁶ And as China has discovered, digital payments could also drive private consumption, further boosting India's GDP.³⁷ (See Figure 2.7.)

Vector five:

Share of organised retail

India is one of the fastest-growing retail markets in the world. The nation boasts a population of 1.25bn. It also has an emerging-middle and middle class (households earning between INR 150,000 and INR 850,000 per year) of 640m poised to reach 900m in 2021.³⁸ India's retail industry could see a CAGR of 10% over 2012-2020, growing from US\$500m to US\$1tr in that time-frame.³⁹ Experts foretell a future when an INR 1,000 increase in per capita consumption could improve GDP by 2 percentage points.⁴⁰

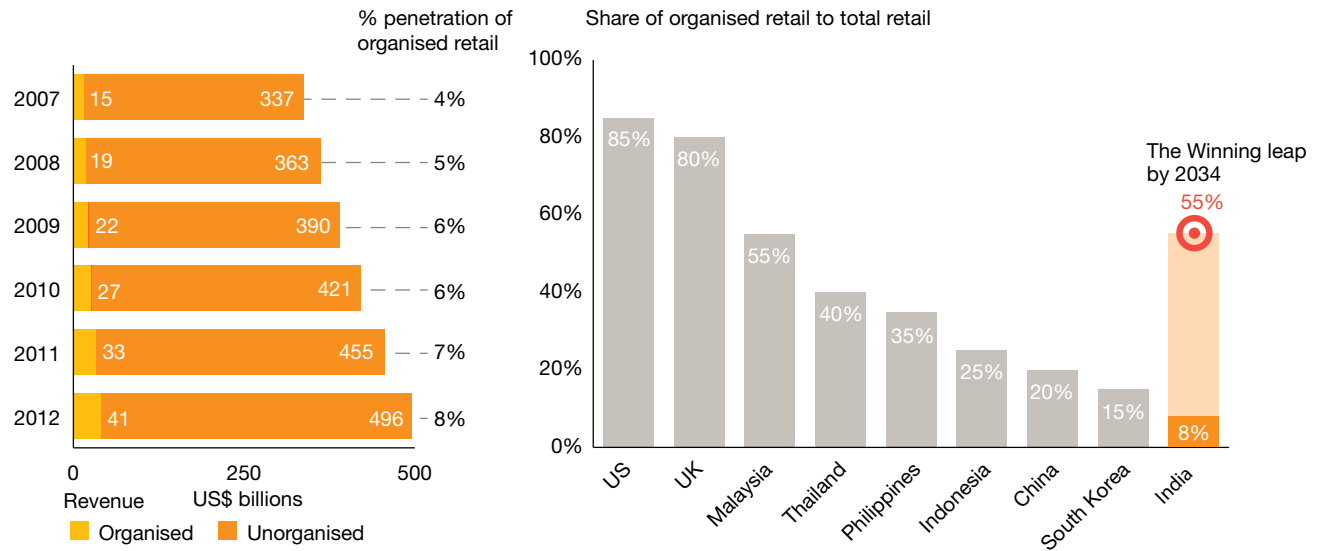
However, 92% of India's total retail market remains unorganised,⁴¹ dominated by local shops owned by independent private individuals.^V (See Figure 2.8.) Promoting growth of organised retail will strengthen India's consumption ecosystem—which includes producers,

unorganised retailers, consumers, and the government. Besides benefiting farmers, manufacturers, the government, unorganised retailers, and logistics providers, growth in organised retail will create more jobs available to people with lower skill levels. Currently, retail employs up to 40m people^{42,43,44}. If the sector is strengthened, it could produce 10m additional jobs in the next ten years.⁴⁵

We envision India boosting the share of organised retail from 8% of total retail in 2012 to 30% in 2024 and 50% in 2034. We don't mean to suggest that unorganised retail channels will lose their relevance in the local communities they serve. Nor do we mean that organised

^V Unorganised retailing refers to the traditional formats of low-cost retailing; for example, local shops, owner-operated general stores, convenience stores, hand carts, and pavement vendors (as defined by the Parliamentary Standing Committee on Commerce, 2009).

Figure 2.8: India's unorganised retail sector



- The retail industry is expected to grow at 10% to ~US\$ 1tr by 2020.
- Organised retail is expected to grow 24%, at a higher rate than overall Indian retail sector.
- Even at 24% CAGR, organised retail will account for less than a third (30%) of the total retail market by 2024.

Sources: PwC analysis, press articles



retail in India will have to mirror the large formats characterising the “big box” retailers in more developed economies. The goal is to support the creation of a retail value chain that improves operational efficiency and that works with the unorganised sector to improve consumers’ overall retail experience—for instance, by offering more choices, more reliable supply of popular products, and lower costs. The end result would be an increase in overall consumption, among other advantages. (See Figure 2.9.) Below, we summarise follow-on improvements that will come from strengthening organised

retail in India.

Bring in efficiencies

Organised and unorganised retail players can partner to improve the overall retail ecosystem while also generating new benefits for their own customers. For instance, the unorganised sector could help extend organised retail’s reach to that “last mile,” where independent store owners understand the local market. Organised players could take responsibility for managing core supply-chain components that require hefty capital expenditures. They could also help unorganised players improve their stores’ ambience, provide IT systems, and educate smaller players on basic management

techniques, in exchange for smaller players’ sourcing specific products from them. This model combines the prowess of organised retailing with the proficiency of neighbourhood stores, creating more value for consumers than either sector could provide on its own.

Use technology to reach customers

Real estate in India accounts for 8-10% of retailers’ revenue; in contrast, the world average is 4%.⁴⁶ By leveraging digital retail channels (e-commerce), retailers could spend less on real estate while also reaching more customers in tier-2 and tier-3 cities. Some leading e-commerce players in India, such as Jabong and Myntra, derive

Figure 2.9: Benefits of strengthening organised retail

Increases tax inflows for the government

- Significant challenge of tax collections from the unorganised sector
- Organised retail players are generally large tax payers
- Organised retail also helps increase indirect tax through development of related sectors (warehousing, logistics, etc)
- State VAT revenues will increase as modern retail grows

Reduces inefficiencies in food supply

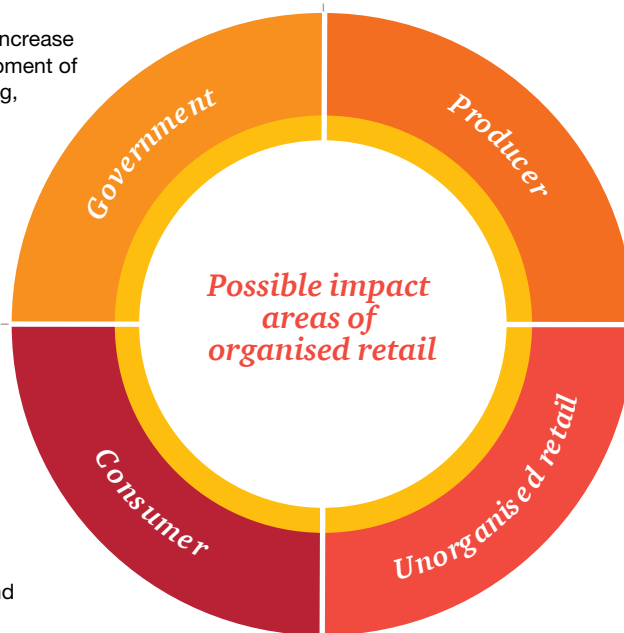
- Farmers integrated into modern retail thereby removing several layers of intermediaries
- Reducing wastage
- Farmers to get a fair value for their produce and a stable income
- Improvement in quality of produce
- Contract-farming and cooperative models can be adopted for partnership

Improves quality of life

- Greater choice of products
- More competitive prices—supply-chain efficiencies and greater competition
- Better quality of products
- Improvement in customer service—policies and staff behaviour
- “Lifestyle parity” with developed markets for consumers in India

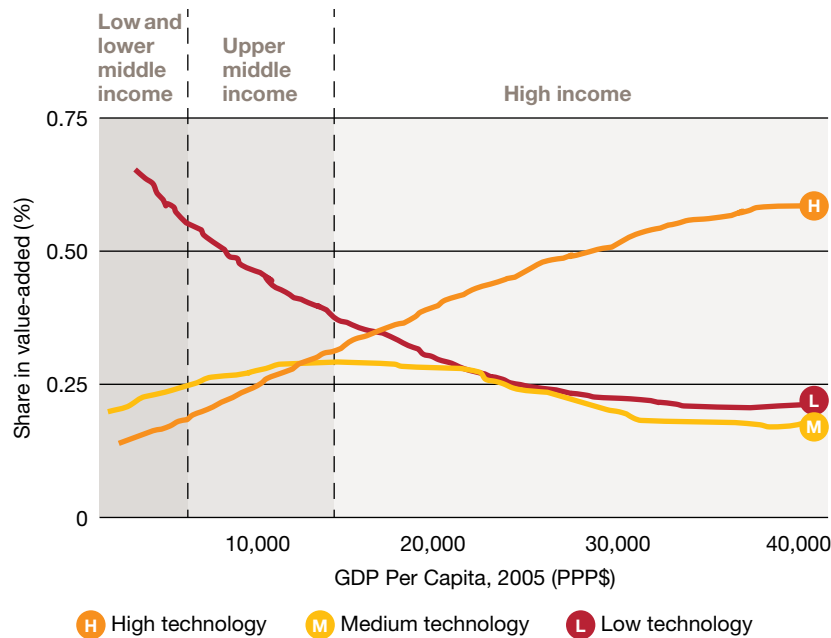
Improves unorganised retail

- India’s large retail sector needs and can accommodate both organised and unorganised retail
- Unorganised retail can source food and non-food items, essential for operations, from cash-and-carry providers, benefiting from bulk discounts
- Unorganised players can become franchise partners for modern trade players’ neighbourhood format



Source: Winning in India’s retail sector, PwC report 2012

Figure 2.10: Share of value-added manufacturing



Source: United Nations Industrial Development Organization

nearly 50% of their revenues from tier-2 cities.⁴⁷

Increasing penetration of Internet subscribers, smartphones, credit and debit cards, and innovative payment models (such as mobile wallet and cash on delivery) are creating a growth environment for digital retail. We project that digital retail could account for 50% of the organised retail market in 2034, resulting in significant reductions in capital expenditure for retail space.

New technologies such as virtual walls and virtual mirrors will further help improve the retail customer experience, thereby encouraging greater consumption. Virtual mirrors let shoppers “try on” clothes and accessories virtually before making buying decisions. Virtual walls help customers scan barcodes for items on an electronic wall, using their mobile phones, and place orders with retailers. Tesco in South Korea was an early adopter of this technology. In India, HomeShop18 has launched India’s first virtual-shopping wall. Scan N Shop at New Delhi’s international airport uses a similar technological interface.

Vector six:

Value-added manufacturing

The manufacturing sector will play a key role in India’s development, as the nation grows more urban and industrialised, by providing jobs to a broad spectrum of workers and spurring income growth across different segments of the population. Shifting focus from low- to high-tech industries will prove critical. Countries that have boosted their per capita GDP have done so by making this shift. (See Figure 2.10.) Take South Korea, whose per capita GDP grew 20-fold from 1963 through 2013.⁴⁸ The nation achieved this growth in part by developing the manufacturing capabilities essential for high-tech

Innovation, design, and manufacturing go hand-in-hand. The closer you can co-locate these operations, the more effective is the leverage you can get. It is a little theoretical to talk about design and innovation in one part of the world and manufacture in another.

Banmali Agrawala
GE

Figure 2.11: A path to improved manufacturing competitiveness in India

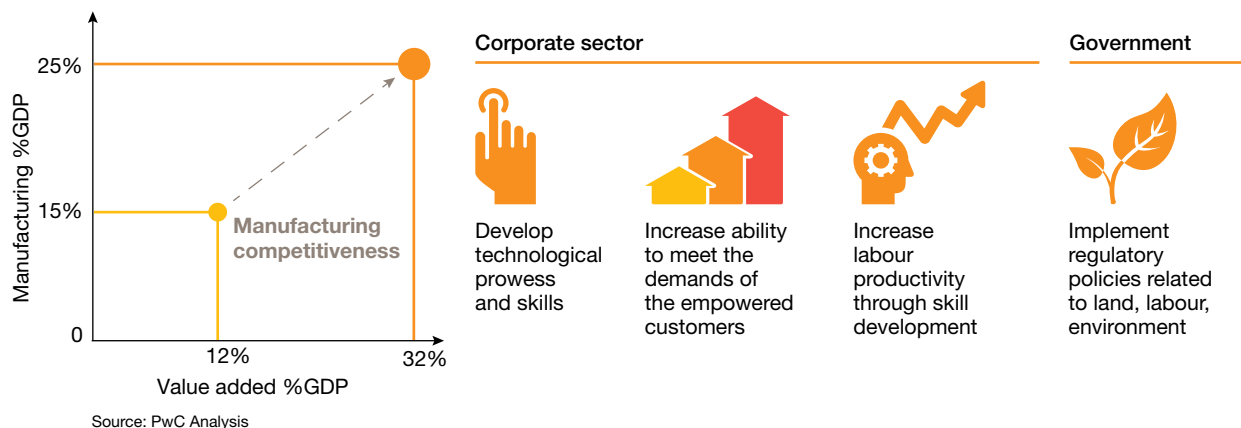
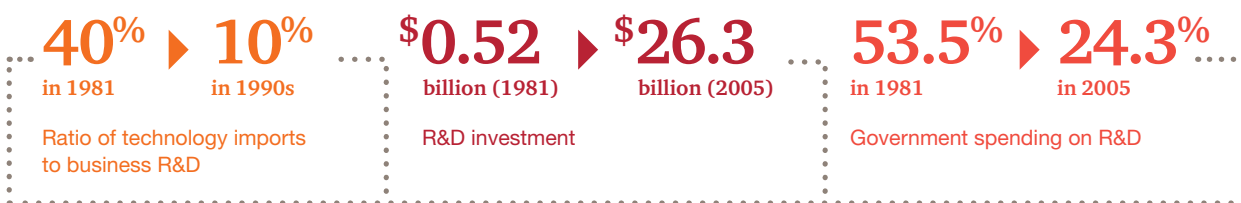


Figure 2.12: Technology importing in South Korea



Source: Issues in Science & Technology - Excelsior: The Korean Innovation Story

industries, which now dominate its manufacturing landscape.

Our research focuses on share of value-added manufacturing as a percentage of GDP. This differs from percentage of GDP that is derived from manufacturing. Value-added manufacturing denotes the percentage of value addition achieved in manufacturing and indicates the level of sophistication in manufacturing processes. Percentage of GDP from manufacturing denotes the proportion of manufacturing in the overall economy. In India, value-added manufacturing stands at 12% of GDP today.⁴⁹ Our analysis shows that value-added manufacturing can grow to 20% by 2024 and to greater than 25% in 2034 if India can step up its manufacturing

competitiveness. Ideas for doing so follow. (See Figure 2.11.)

Remove regulatory hurdles and focus on skills

For India to achieve its targets on the value-added-manufacturing vector, it needs to first remove regulatory hurdles that have made doing business in India difficult. That includes simplifying policies related to land, labour, and the environment and providing single-window clearances for obtaining business permits. Strengthening manufacturing skills training will also prove crucial. For example, in Germany, vocational education and training (VET) is seen as a pillar of the nation’s education system. Two-thirds of German youth undergo vocational training in both the workplace and vocational schools.

They receive broad-based (i.e. basic to advanced) training and gain the skills and knowledge needed to practise a trade. Those completing the training qualify for jobs in about 355 recognised occupations that require formal training.

Import technology to strengthen manufacturing capabilities

Importing foreign technology can help Indian manufacturers strengthen their capabilities. In the 1960s and 1970s, South Korea began enhancing its domestic manufacturing capabilities through methods such as reverse engineering and foreign licencing. (See Figure 2.12.) At the same time, the South Korean government and private sector invested in the capabilities needed to absorb the new technology. Indian companies are making strides in this direction through joint ventures, licence

arrangements, and acquisitions. But they will need to step up the pace to help the nation reach the vector target we've proposed. With the government's help, business can do so by increasing investment in research and development (R&D), with the goal of ultimately reducing dependence on technology imports.

Make structural shifts in manufacturing

As Indian manufacturers shift their focus to high-tech industries, they will need to invest in R&D and develop new technological skills. Our analysis shows that the share of R&D in India's GDP will have to grow from its current 0.8% to 2.4% in 2034 to achieve the desired gains in value-added manufacturing.⁵⁰

Global giants like Toyota have invested heavily in R&D to reduce the lead time from design to production. For example, Toyota's central R&D labs have developed simulation models to predict the impact of noise, wind, and other

factors on automobile frames and to use the resulting insights to design more robust frames. India needs to enhance such capabilities to "move the needle" toward value-added manufacturing.

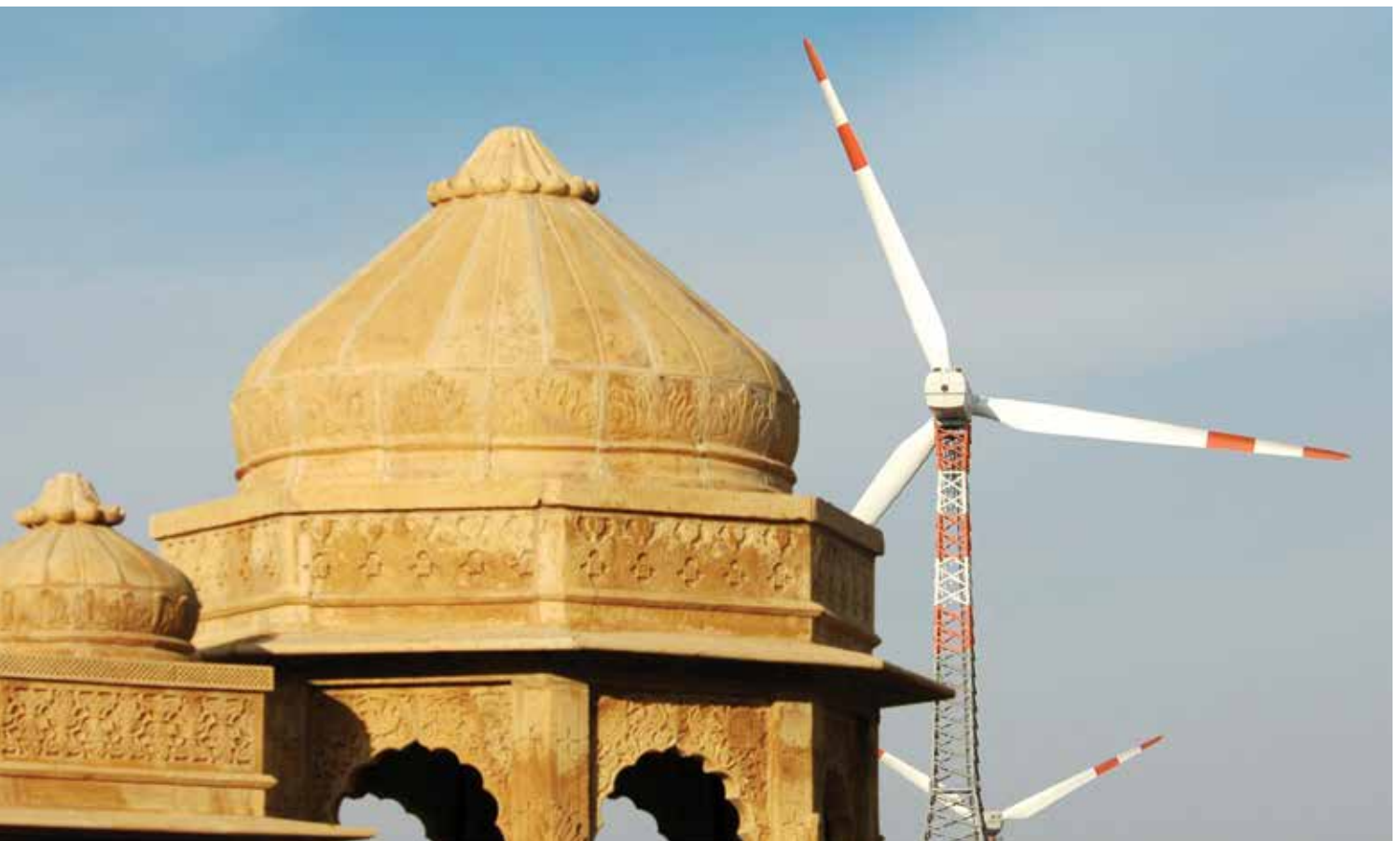
However, this doesn't mean that India should neglect its low- and medium-technology industries. The bulk of job creation will happen in these sectors. But in the short run, India needs to start exporting finished goods. For example, while the top two exports from India to China were cotton yarn and iron ore, China's top two exports to India were electronic goods and electrical machinery, indicating these growth economies' different positions in the manufacturing sector.⁵¹

Vector seven: Access to power

In India, more than 300m people today don't have access to electricity.⁵² And the need for power will only grow, given the

expected increase in urbanisation, manufacturing, and mechanised agriculture. India lags behind its global counterparts in per capita power consumption, at roughly 700 kilowatt hours (kWh) for 2013; in Brazil and Thailand, the number is 2,400 kWh.⁵³ Our analysis and sector experts suggest that India could increase access to power for more than 300m additional people by 2034, with annual per capita consumption of 1,800 kWh for those connected to the grid.

To achieve this feat, India will have to tackle a number of challenges related to fuel supply, power generation, transmission, and distribution and will need an additional 450 gigawatts (GW) of power supply. Despite having the fifth-largest coal reserves in the world, India is the world's third-largest coal importer, with nearly 59% of its power plants coal based.⁵⁴ The nation must mitigate its dependence on coal to avoid resource shortages



and environmental challenges. Diversifying fuel sources could help.

The rural-urban divide in access to power also sounds a loud warning bell. In 2014, almost 31,000 villages in India had no access to electricity.⁵⁵ Moreover, per capita consumption in rural households is estimated to be only one-third of average consumption in urban India.⁵⁶ Below, we present ideas for addressing India's power-related challenges.

Move toward a diverse energy mix

Given the limited availability of coal and the extensive carbon emissions from thermal power plants, India will need to shift its power-generation capacity toward noncoal sources. Only then can it meet the increased need for power in an environmentally sustainable way. Other developed nations that depend heavily on coal—such as Germany and South Korea—are working to reduce the share of coal in their power generation and incorporate more renewable and nuclear energy sources. China, whose power is generated mostly by coal-based plants, is experiencing the consequences first-hand, including a high level of air pollution that's raising alarms around the world.

Encourage private participation in transmission and distribution

As much as 24-30% of power generated is lost in transmission and distribution, including 15% lost to theft.⁵⁷ Use of digital information and communications technology to automate information gathering can help reduce such losses, ultimately improving efficiency and reliability in production and distribution as well as lowering costs. As an example, the US Department of Energy estimates that smart grids in that nation could save US\$46-\$117bn over the next 20 years.⁵⁸

Our experts and analysis suggest that a comprehensive smart grid may not

be financially feasible in the near term for India. However, components of smart-grid solutions—such as integrated communication systems, sensing and measurement instruments, and smart meters—could help improve efficiency, reduce costs, balance demand and supply, and reduce wastage and loss of power. Such tools could also help consumers track and optimise their energy usage, thus reducing their utility bills.

Another idea for improving efficiency in the power system is to encourage private-sector participation in power retail. Utility customers want a better experience, including more pricing options, and private sector companies could satisfy this unmet need. India has historically invested more in power generation than power distribution. If private companies handled more distribution, the entire value chain could be strengthened.

Deploy advanced technologies

India's power sector has an opportunity to skip a generation of technology. Consider the case for distributed power. Investing and developing capabilities in advanced storage and distributed power could go a long way toward addressing the challenge of rural power distribution in India. Distributed power solutions generate power at or near the point of use and can be installed quickly, sometimes in weeks compared with years for traditional centralised power generation and distribution setup. Distributed power also enables a local level of control, management, and demand planning. In China, the government has defined policies aimed at increasing the share of distributed power. By 2015, China aspires to have 1,000 distributed power projects fuelled by natural gas, a solar-power capacity of 10GW, and

100 “showcase” cities receiving distributed power.⁵⁹

Vector eight: Managed growth of urbanisation

As more Indian citizens migrate from rural areas to cities teeming with industrial and service-related activities, the resulting urbanisation will drive economic growth for the nation. Cities will become centres of future investment and job creation. With expansion of city boundaries and creation of new urban centres, India's urban population is projected to soar from 400m in 2013 to 650m in 2034.⁶⁰

But to date, growth in India's urban centres has been largely unplanned. Going forward, Indian cities will have to fill infrastructure gaps to handle significant imminent growth in the need for housing, transportation, public utilities, educational institutions, healthcare services, and recreational facilities. The contribution of India's urban economy to national GDP grew from 38% in 1970-1971 to 63% in 2009-2010 and could exceed 75% by 2030 if the nation addresses its urban infrastructure challenges.⁶¹ Below, we offer some ideas.

Strengthen transportation infrastructure

With rising urbanisation in India, traffic movement across 87 cities could more than double from a 2007 baseline of 229m trips to 482m trips in 2030. Limited adoption of public transport and rapid growth of private-vehicle ownership are contributing to rising traffic congestion, greenhouse-gas emissions, and traffic-related fatalities. The business-as-usual scenario projected by the government assumes that, owing to increased congestion, average speeds on major city corridors could decrease from 26-17 km/hr in 2007 to just 8-6 km/hr by 2030, with emission levels rising seven



times in that time frame. In 2011, public transport accounted for only 27% of total urban trips in India; that number must increase to 60% if India is to manage the urban growth expected over the next two decades.⁶²

Define new policies and develop peri-urban infrastructure

Policy changes could further help India manage imminent urban growth. For instance, if the government provided subsidies on land purchases, cheaper project financing, and faster construction-project approvals, housing prices could decrease considerably. Interventions such as congestion pricing policies, restricted access, and parking-management policies could also be explored to manage traffic congestion. In addition, there is a strong need to strengthen city-level administrative bodies in India and give them greater autonomy to raise infrastructure development funds. Building capacity or developing skills within such bodies to improve planning and execution of urbanisation initiatives can also be given top priority.

Companies and government agencies involved in construction outside tier-2 and tier-3 cities and along industrial corridors could benefit from the lower land costs in such

areas. Consider the Ashray housing project in the Shapar Industrial Zone outside Rajkot, Gujarat. While seeking potential locations, project developers weighted the advantages of the affordable real-estate prices in the area, the proximity to industrial units offering jobs, and the availability of adequate road connectivity and infrastructure such as hospitals and schools. Offering housing units priced between INR 300,000 and INR 500,000, the project sold almost 70% of its units on the first day the units came up for sale. Moreover, during the planning stage, project developers had conducted focus groups with industrial workers in the area to gain insights into their needs and incorporated those insights into the project's design. The result was high demand for the units, even with minimum marketing investment.⁶³

Use technology to manage near-term demand

India could use technology to address infrastructure deficits in the near term. Countries such as Japan have adopted ICT solutions to manage urban transport congestion. India could also adopt systems using real-time data collection and analytics to optimise traffic-signal patterns in response to changing traffic volumes. Procuring these technologies is easy for India, but

ensuring that they are implemented and managed well will prove more challenging, owing to the lack of managerial skills within city-level administrative bodies.⁶⁴

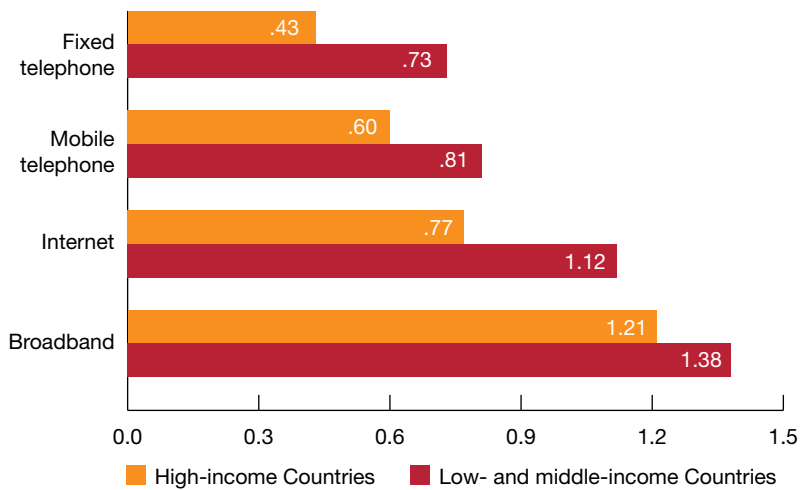
Similarly, prefabricated home-construction models could support rapid scaling of low-cost housing. Offsite construction includes use of prefab panels and advanced materials such as autoclaved aerated concrete bricks.^{VI} Such materials have relatively higher capital costs but can deliver 60% savings on construction time and 40% savings on labour costs. Although prefabricated construction has been popular in developed markets, its entry into India's residential sector remains nascent; wider adoption will likely come with increased buyer awareness and demonstrations of business viability to developers.⁶⁵

Integrate public transport and rental housing

India would also need to significantly modify its existing approaches to address its urbanisation challenges. Creating integrated transportation networks such as those developed in Germany and shifting focus from ownership to rental-based housing models would constitute good first steps.

Transport alliances between carrier companies have gained momentum across Germany, aimed at creating a more efficient and convenient public-transport network. To take part in these alliances, different service providers (such as bus, rail, and ferry operators) had to collaborate to make it easy for travellers to switch from one mode to another. This greater interoperability has encouraged more city dwellers to use public transport. Governed by extensive contractual agreements, these alliances created an independent legal entity to build and manage a coordinated timetable and a common fare and ticketing system. Alliance partners have also conducted joint consumer research on and designed

Figure 2.13: % GDP growth per 10% rise in penetration by type of access



Sources: Broadband Strategies Toolkit, World Bank

marketing campaigns on the downsides of relying on private vehicles compared with public transport.⁶⁶

Similarly, in housing, rental-based models can efficiently cater to members of economically weaker segments of the population,^{VII} many of whom can't afford home ownership. They can manage only small monthly rent payments, and they may not have access to mortgage loans. In some countries—such as the US, UK, and Germany—governments and private players have worked to provide adequate rental housing, with such homes constituting 30-60% of total housing stock. However, owing to rent-control legislation and taxation policies in India, private developers have steered clear of getting into the

VI Autoclaved aerated concrete (AAC) is a lightweight, precast construction material. AAC blocks are three to four times lighter than traditional bricks.

VII The economically weaker section of Indian society includes households earning less than INR 60,000 a year (as of 2011-2012). The government later revised the definition to include households earning less than INR 100,000 a year in 2012-2013.

rental-housing business, because it's just not profitable enough. Policy interventions would have to be initiated for this to change.⁶⁷

Vector nine: Improving digital connectivity

A strong digital infrastructure will help spur efficient growth across multiple sectors in India, such as education, healthcare, retail, and financial services. Academic studies have further established a positive correlation between GDP growth and increase in the penetration of digital technologies. (See Figure 2.13.) This correlation is greater in low- and middle-income countries such as India, with broadband expected to exert the most

impact on growth.

Digital technologies could shape India's growth story in four ways. First, they could improve sector productivity by enhancing access to information and process efficiency. Second, they could boost consumption by providing consumers with greater access to products and services and giving rise to entirely new consumption categories. Third, they could create new jobs. And fourth, they could enable implementation of e-government solutions, lowering the cost of government services and ensuring that services are delivered to the intended beneficiaries.⁶⁸ Below are ideas for enhancing digital connectivity in India.

Take digital to the masses

India boasts the world's third-largest online user base, but Internet penetration, at 15%, ranks far below the global average of 38%. India's Asian counterparts (such as South Korea, Brazil, and China) have made major strides in the past two decades toward improving online connectivity. China crossed the world average in 2009, and South Korea reached more than 80% in the same year. (See Figure 2.14.)

India can benefit by achieving more than 50% digital penetration in 2024 and 80% in 2034. However, to make this leap, the country will have to design significant supply- and demand-side interventions,⁶⁹ such as making broadband the

Figure 2.14: The Winning Leap: Expanding Internet penetration to more than 50% by 2024; 80% by 2034

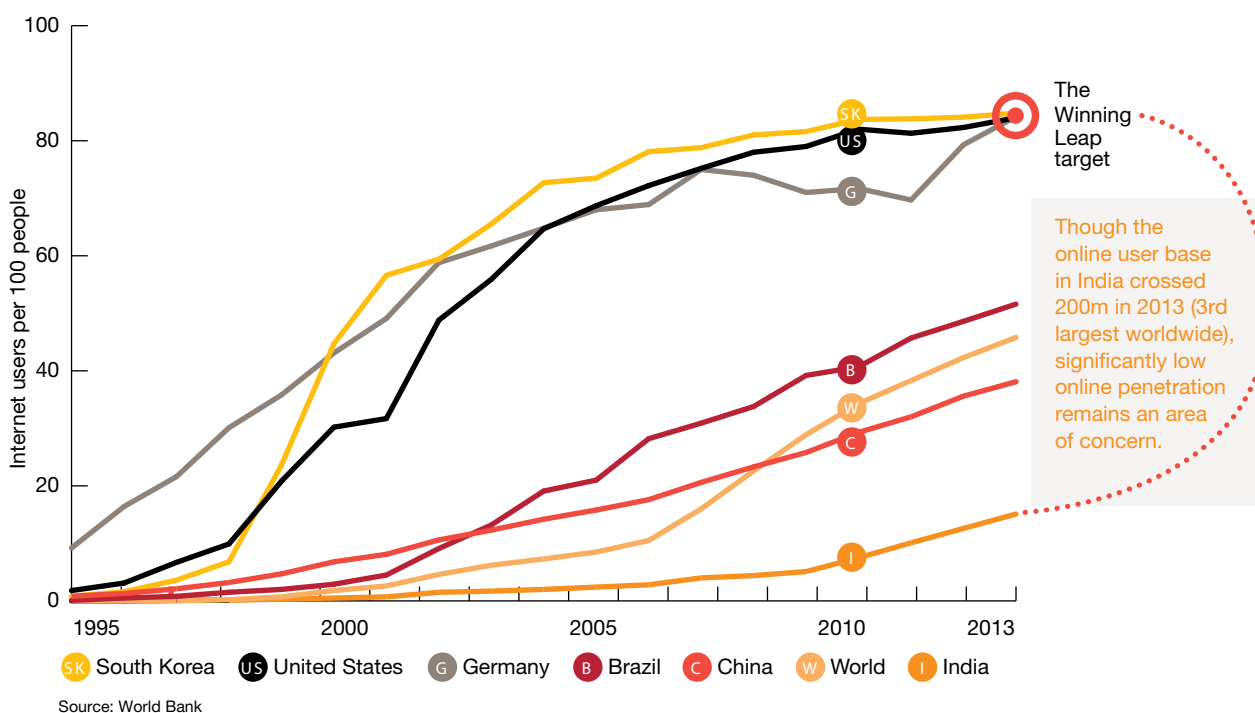
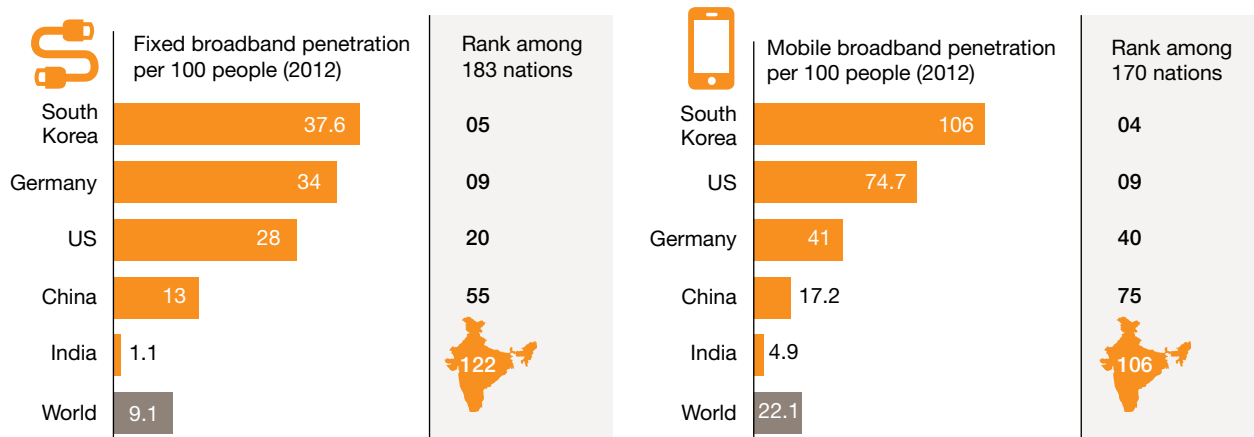


Figure 2.15: Global fixed and mobile broadband penetration



Source: Broadband Commission

primary mode of Internet access and closing gaps in urban-rural connectivity, as discussed below.

Manage the supply side—by making broadband the primary mode of Internet access

India must improve accessibility to high-speed broadband services. A majority of Internet users in India (more than 90%) connect at 2G speeds suitable only for low-end applications such as messaging or text downloads. (See Figure 2.15.)

Mobile broadband is widely considered the preferred mode for improving connectivity in emerging markets such as India that already have high mobile penetration. However, India also needs fixed networks to adequately support its rapidly growing mobile traffic. According to Cisco Systems' estimates, almost one-third of mobile traffic worldwide was offloaded to fixed networks in 2012. Hence, India must establish fibre-optic infrastructure for both backhaul and last-mile fixed connections.⁷⁰

Manage the supply side—by closing gaps in urban-rural connectivity

India has to close the gap between urban and rural telecom penetration to enable last-mile connectivity for digital services in its hinterlands. Although India's rural areas account for almost 70% of its population, country residents represent only 42% of telecom subscriptions.⁷¹ (See Figure 2.16.)

High spectrum costs and industry debt levels have restricted Indian telecom players' ability to expand their capacity. Moreover, policy barriers such as high right-of-way costs have constrained the expansion of fixed networks for last-mile connectivity. India deployed only 14m fibre km in 2013; China deployed 125m that same year.⁷²

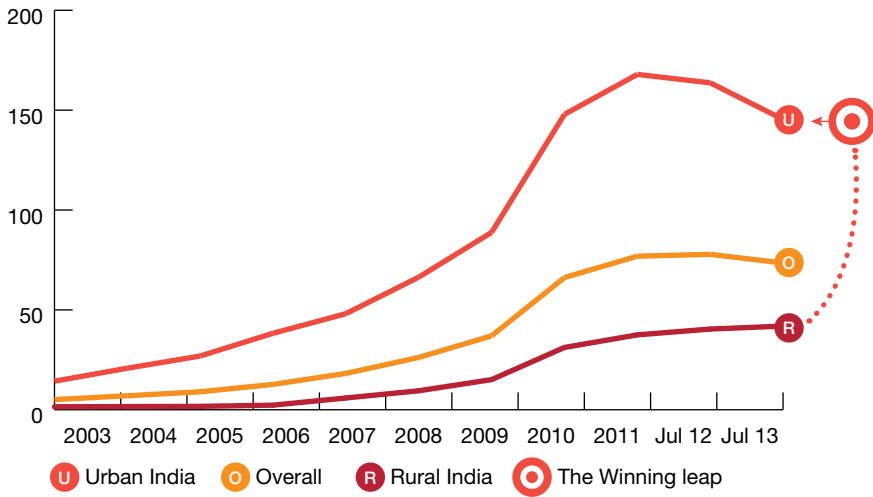
However, service providers can test low-cost alternatives being piloted worldwide and evaluate their potential for wide-scale deployment in India. Examples include the use of "white space" wi-fi networks (unused, unlicensed spectrum) as part of the Mawingu Project in Kenya^{VIII} and the use of satellite broadband technology to enable enterprise-level connectivity in a few remote markets in India^{IX}.

VIII The Mawingu Project provides low-cost broadband to remote areas in Kenya, using unlicensed wi-fi spectrum and unused TV bands. Microsoft is working with the Indian Institute of Technology at Powai and RailTel Corporation of India to understand commercialisation prospects in India.

IX Hughes India has set up more than 10,000 Internet kiosks across urban and rural India using satellite broadband technology, providing a lower-cost alternative to terrestrial broadband.

Figure 2.16: India's urban-rural connectivity gap

Telephone connections per 100 people-tele-density



The gap between urban and rural telecom connectivity has widened significantly over the past ten years

More than double rural tele-density, reaching 100 by 2034

Source: Telecom Regulatory Authority of India





Regulatory interventions will be needed to scale up such options in nationwide.⁷³

*Manage the demand side—
by improving awareness,
affordability, and applicability*

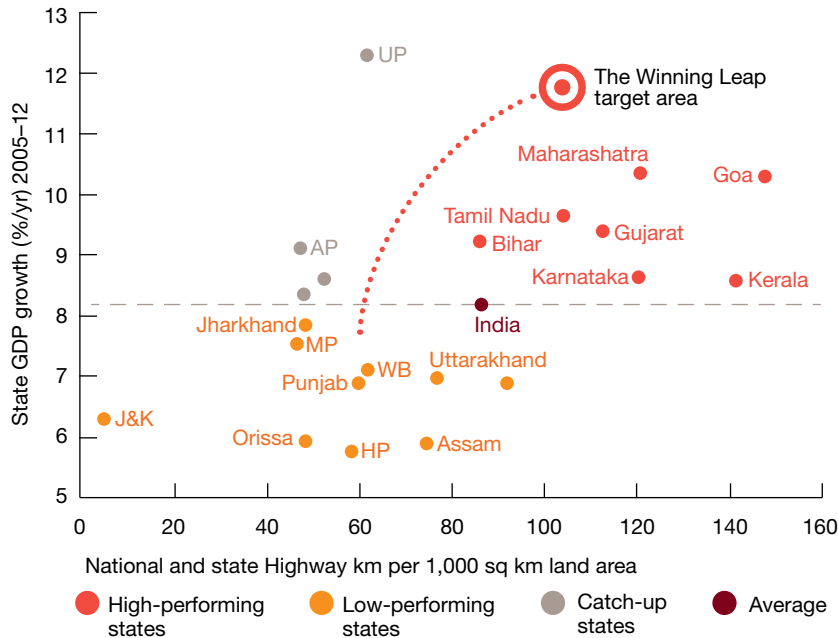
Availability of digital connectivity alone will not guarantee greater adoption of such technologies. To bolster adoption, India needs to improve awareness and increase the affordability and applicability of online services. Computer literacy is estimated at approximately 14% in rural India. Moreover, nearly 70% of non-users of computers in rural India have never heard of the Internet. Staff operating rural Internet centres also need to be suitably trained to play an advisory role and suggest solutions to the uninitiated.⁷⁴

For wider adoption, there is a need to create low-cost solutions—Internet services and devices to enable mass adoption. An

entry-level broadband plan in India costs 5.5% of average per capita income, as compared with 1.7% in developed markets (0.5% in the US, 1.1% in Germany). A major factor behind this is the poor state of data-centre infrastructure in the country, as a result of which most content is hosted on servers outside India.⁷⁵ Low-cost mobile devices also need to be developed, given that the Internet is being increasingly accessed from smartphones.⁷⁶

Last, the country needs digital content and solutions that address the needs of a wide range of users, including elderly individuals, women, and people running or working in small- and medium-size enterprises in rural India. Multilingual content will be required to penetrate diverse regional markets throughout India. Indeed, findings from a study conducted by the Internet & Mobile Association of India suggest that almost 43% of noncomputer users in rural markets

Fig 2.17: Correlation between highway connectivity and growth



Sources: PwC analysis, RBI Statistical Yearbook, MORTH

and 13.5% of those in urban markets might start accessing and using the Internet if content were made available in their local language.⁷⁷

Vector ten: Improving physical connectivity

A nation’s physical connectivity—its network of transportation and logistics infrastructure—forms the backbone of its economy. Robust physical connectivity improves productivity, creates employment opportunities, and lowers logistics costs. Though India has created new airports, metro rail networks, highways, and roads in the past ten years, much work remains for the country to improve its global competitiveness in terms of physical connectivity.

So perhaps it’s not surprising that infrastructure issues were cited as a key factor behind India’s low ranking (54 out of 150) in the World Bank’s Logistic Performance Index.⁷⁸ In addition, logistics costs

in India are significantly higher than in other countries: 13% of GDP versus 7-8% of GDP in developed countries.⁷⁹ Our major metric for physical connectivity is logistics cost as a share of national GDP, which we believe India can decrease to 8% by 2034 if the country addresses challenges in its road, rail, air, and waterway networks. Below are some suggestions for making this leap.

Control logistics costs

Inefficient and costly logistics hamper businesses’ growth. For example, India’s automotive industry is expected to emerge as the third largest in the world by 2020. But in this industry, logistics costs as a percentage of sales is high—roughly 30%,⁸⁰ which far exceeds the number in China and other developed markets. Part of the problem is that in India, automotive companies rely heavily on road transport to move vehicles

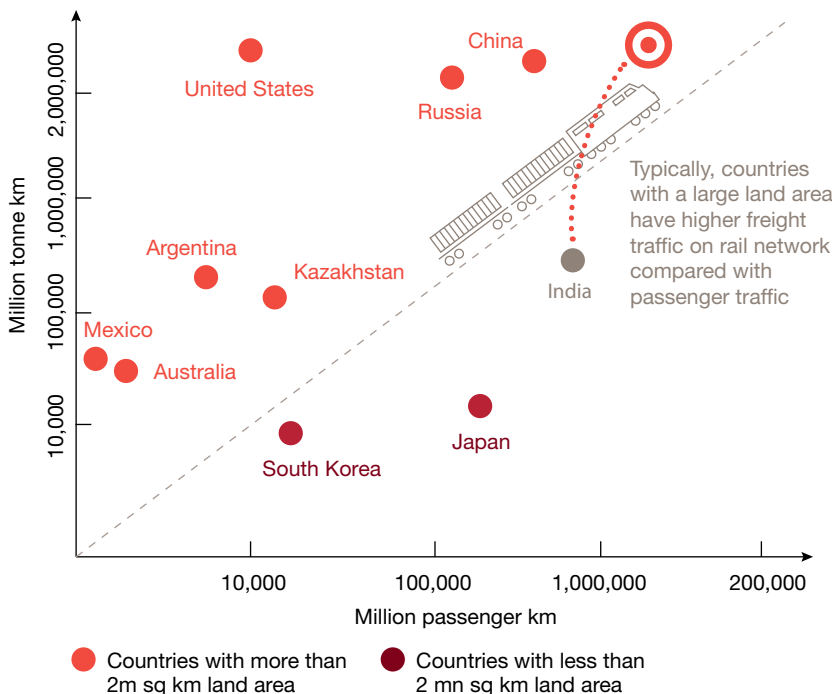
from manufacturing facilities to dealerships and to move automotive components from suppliers to manufacturing facilities. If logistics costs could be brought under control, Indian automotive players would be able to free up more of their revenues to invest in more strategic activities, such as R&D.

Optimise freight traffic across multiple modes

In India, 63% of freight is transported on roadways and 28% is transported by rail.⁸¹ More than 40% is carried by national highways, which account for a mere 2% of the nation’s total road network.⁸² As economic growth accelerates in India, this concentration of traffic flows will intensify even further on the nation’s highways.

Indian states with greater national or state highway density have performed better in the last seven years in terms of their respective state GDP growth. States with a

Page 60: Fig 2.18: Freight-passenger mix on national rail networks



Sources: PwC analysis, World Bank

well-connected physical infrastructure also attract investment, especially in core sectors such as manufacturing. (See Figure 2.17.)

Other transportation modes—such as rail, air, and water—currently, don’t provide a viable alternative to transporting freight by road. Getting freight to ports is difficult because of poor connectivity to India’s hinterland. Rail-freight facilities are poor owing to lack of flexibility in handling varied products and to lengthy transit time. Share of inland waterways in overall freight traffic—at 0.5%—is lower than that of the US (8.3%) and Europe (7%) and well below that of global peers,⁸³ indicating minimal use of inland waterways. India can make considerable headway in its logistics sector if it reduces the load on its road network by optimising its freight and passenger traffic across different modes of transport.

Take railways, India ranks fourth globally in terms of total rail-route network distance, but it ranks eighth in terms of freight traffic carried per km. Its low ranking stems primarily from the suboptimal freight-passenger mix on rail networks—meaning that potential for freight remains fairly untapped, with passenger movement dominating freight traffic on the rail network. (See Figure 2.18.) The government hikes freight rates by nearly 3% every year to cross-subsidise passenger tariffs.⁸⁴ Other countries with a large land area have a higher freight-passenger ratio owing to cheaper, faster, and more-efficient freight handling by their rail networks. Moreover, most rail terminals in India are so antiquated that they’re not set up to carry diverse kinds of cargo. The upshot is that freight transportation by rail network is inefficient for Indian businesses.

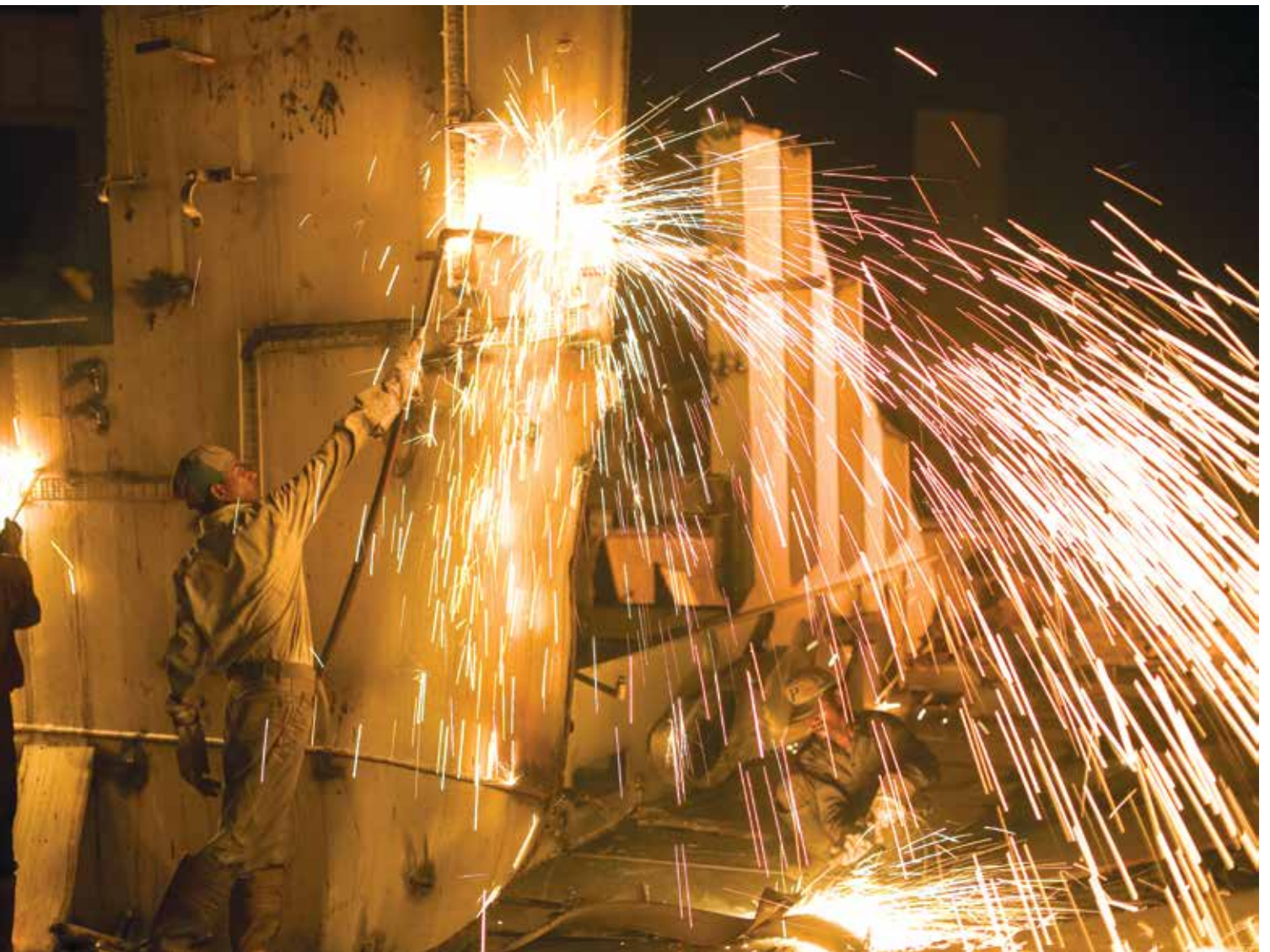
Remove institutional roadblocks to free up operations

A study by Transparency International India, estimated that bribes account for 20%⁸⁵ of the operational expenses (excluding fuel costs) in logistics. Moreover, multiple road checks account for almost 27% of total travel time in India’s trucking industry. These inefficiencies have severe cost implications for freight transportation. The time spent by trucks during check-post stoppages roughly equals the annual labour time of 17,000 drivers.

The key reasons for the inefficiencies are the inconsistent nature of state tax structures and bottlenecks in documentation processes. Middlemen and corrupt officials only worsen the inefficiencies in India’s logistics system. Other sectors have encountered similar challenges. For instance, corrupt meter readers and bribery have led

Infrastructure is the key for the development of the nation. When you have roads, schools, hospitals, water, then people move to those areas and that's when development happens. You have to get people away from urban areas. You have to develop rural areas and make it an attractive place for people to live. You have to create mini cities, which have to be supported by schools and hospitals.

Keki Dadiseth
Unilever



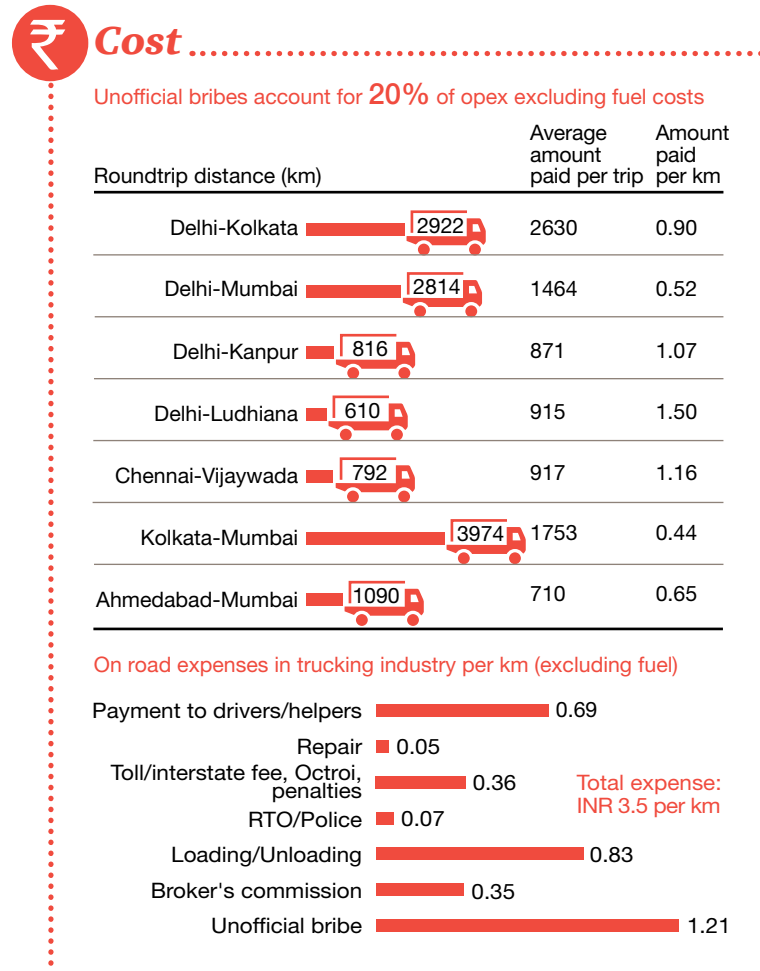
to annual revenue losses on the order of US\$17bn in India's utility sector.⁸⁶ Technology-enabled solutions adopted in other sectors—such as smart meters that human beings can't tamper with—could also be used in the trucking industry. Similarly, digitisation of travel documents along with automation of transport-office processes could free up huge amounts of time for truckers to do their real job: driving trucks. (See Figure 2.19 and 2.20.)

Make greater use of third-party logistics providers

Third-party logistics (3PL)^x companies provide logistics and supply-chain solutions across functions such as transportation, warehousing, and inventory management. There's an inverse relationship between logistics costs as a percent of GDP and the share of 3PL in the logistics market.⁸⁷ By aggregating demand and domain expertise, 3PL players not only help lower logistics costs but also provide higher-quality services. Indeed, according to the 18th Annual 3PL Logistics Study, 3PL services reduced logistics costs by 11% and inventory costs by 6% worldwide in 2014 alone.⁸⁸

Currently, share of 3PL in total logistics costs in India is only about 9%. The number is 50-70% in developed markets. Moreover, in India, 3PL is used in only a few sectors, such as automotive, IT hardware, and telecom.⁸⁹ However, as players in other industries begin sharpening their focus on their core business activities, more of them are outsourcing their logistics activities. As the 3PL

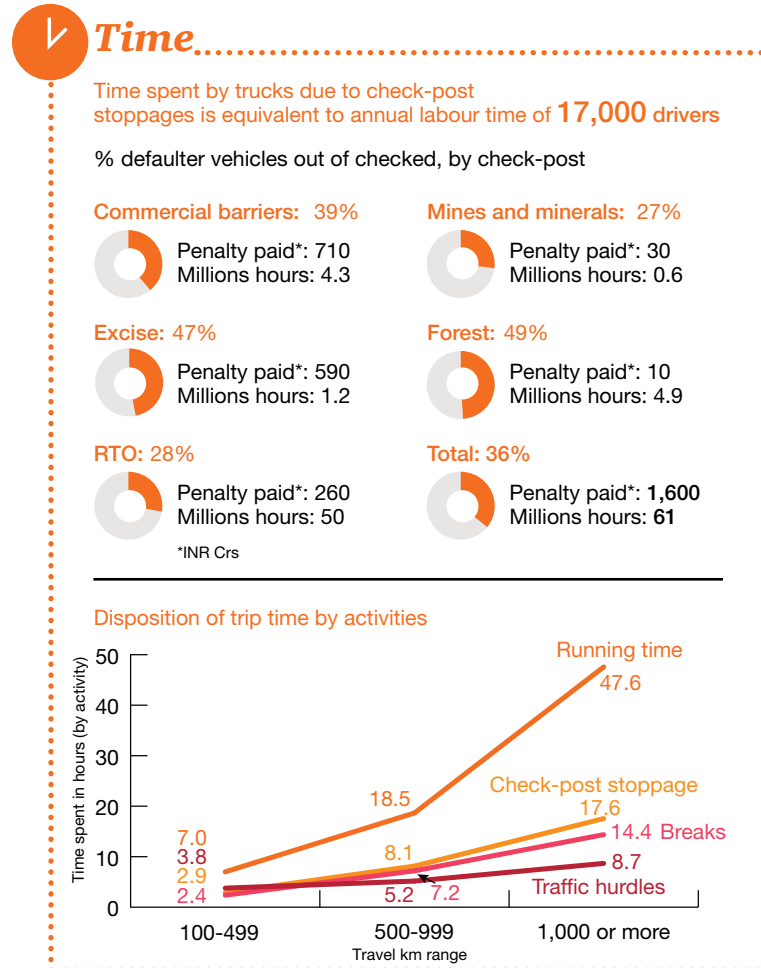
Figure 2.19: Cost drivers in India's logistics industry



Sources: PwC analysis, Corruption in Trucking Operations (MDRA), Economics of Trucking Industry (MORTH)

^x A 3PL company is an outsourced provider that manages all or a significant part of an organisation's logistics requirements and performs transportation, locating, and sometimes product-consolidation activities.

Figure 2.20: Time drivers in India's logistics industry



Sources: PwC analysis, Corruption in Trucking Operations (MDRA), Economics of Trucking Industry (MORTH)

market matures in India, companies using such providers will benefit from their scale and expertise, in such forms as greater efficiency and lower logistics costs.

Better outcomes, less investment: a bottom-up view

The solutions suggested in this chapter for each of growth vector could transform market markets in India—increasing market size and growth, sparking innovative products and services, reconfiguring competitive dynamics, and giving rise to new types of businesses. Such solutions will also redefine the capabilities that companies will need to succeed. Some companies may have to completely restructure themselves to survive and thrive; others may have to partner with organisations from different sectors and geographies to acquire or build the required capabilities. Let's consider how this could play out in various sectors.

The scale and know-how needed to implement Winning Leap solutions for each of the ten vectors will require Indian companies to radically rethink how they do business. In the next chapter, we take a closer look at the capabilities they will have to master and the changes they will need to initiate in order to make that transformation.

Healthcare

Winning Leap

Enabling universal access

to healthcare through the adoption of

Winning Leap solutions could help

save US\$90bn in capital costs in

India's healthcare delivery infra-

structure. As outlined in the section

on increasing life expectancy at

birth, non-linear solutions could

achieve the same outcomes more

effectively and efficiently, with less

investment, if the solutions are

designed around preventive

care, technology enablement,

best-practice scaling, and

Government support.

Currently, the healthcare delivery

system suffers from acute problems

in terms of limited availability of

hospital infrastructure and required

workforce. Consider the metric of

beds per 1,000 population: India

Winning Leap

the fact that the hard infrastructure

is of no use without the people who

are equipped to operate it.

To meet the desired outcomes in

terms of hard and soft infrastructure

capability, the healthcare delivery

system will need to add 3.6m beds,

3m doctors and 6 million nurses

over the next 20 years. This would

require an investment of around

US\$ 245 billion through traditional

means. Such an investment would

not only put fiscal pressure, but

would be difficult to implement con-

sidering the nature and scale of new

additions. For instance, over the last

decade roughly 100,000 hospital

beds have been added annually.¹³

If India continues to maintain this

rate, it will fall short of the Winning

Leap target by 1.6m beds by 2034.

Improved healthcare delivery infrastructure

The issue

Challenges around access, affordability and quality of healthcare contributes to low life expectancy

2014

Average life expectancy



Per 1,000 people:



Desired outcome

Improved health outcomes with easier access to quality healthcare infrastructure

2034



Achieving outcome by traditional means

Building more traditional hospitals



Additional 3.5 million hospital beds required to achieve desired outcomes

Investment in medical education



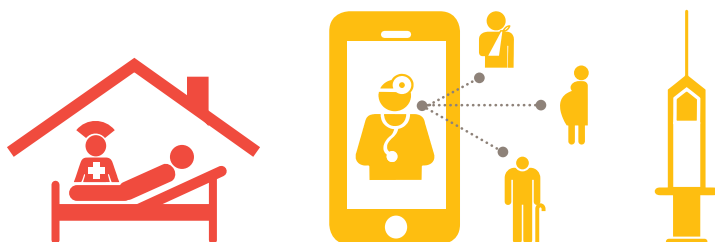
Addition of 3 million doctors

Addition of 6 million nurses

Taking the Winning Leap

Enabling universal healthcare access through the adoption of Winning Leap solutions could help save US\$90 billion in capital costs.

Winning Leap solution enabling alternative healthcare delivery access



Shifting point of care

Noncritical patients recuperate at home reducing average length of stay in hospitals

+

mHealth

Technology enabled solutions to reduce stress on hospital infrastructure

+

Preventative care

Early diagnosis of diseases enables timely treatment and fewer complications

2.2 million hospital beds required



High volume, low cost
Aravind Eyecare prototype



Traditional hospitals



PPP model hospitals
Government as an enabler

Investment in medical education



Addition of 2 million doctors

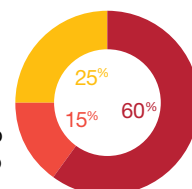
Addition of 6 million nurses

The bottom line (over 20 years)

Projected investment:	Without Winning Leap	With Winning Leap	Winning Leap savings
US\$	245 bn	156 bn	90 bn

Winning Leap contribution:

- Fierce catch up
- Significant leap
- Leapfrog



Power



Winning Leap solutions could save approximately US\$200bn in capital outlays across power generation, transmission, and distribution, while also ensuring universal and reliable access to power. Diversifying and optimising fuel sources, focusing investments on transmission, strengthening R&D in advanced storage facilities, and bringing in smart-grid solution elements are examples of the non-linear moves that could benefit India's power sector.

To meet the desired outcome of tripling per capita power consumption to 1800 kWh, India would require an additional 455 GW of installed capacity along with significant investments and operational improvements in transmission and distribution (T&D) networks. Using traditional means to achieve these targets would require investments of almost US\$ 900bn over the next two decades. To put things into perspective, India spent only US\$ 120bn

of the available US\$ 170 billion in the Eleventh Five Year Plan on power infrastructure.¹⁴ Hence, achieving the Winning Leap target through traditional means would require current investments to be doubled on an annual basis. India's dependence on fossil fuels for energy generation has also resulted in high greenhouse emissions, with India being ranked fourth, behind China, the US and the EU in global emissions.¹⁵ Moreover, growing dependence on coal as a source will require increasing imports which may not be a viable solution for India's economy in the long run. All these factors strengthen the need for Winning Leap methods for India to achieve its universal access targets. Winning Leap solutions could save 20% of projected investment (US\$ 200bn) to provide universal access to power while tripling consumption on a per capita basis.

Universal access to power

The issue

While 94% of urban households had access to electricity, only 67% of rural households had access, compounded with frequent power cuts.

2014

Access to power

India: 75%



China: 99.8%



Brazil: 99%



Per capita consumption

672 kwh

3,300 kwh

2,438 kwh

Desired outcome

Improving access to power by connecting 300 million more people while increasing uptime of power availability for consumers.

2034

India: 100%



1,800 kwh

🏠 Access to power
🏠 No access to power

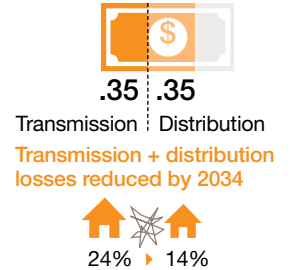
Achieving outcome by traditional means

Installed capacity requirement to increase from 245 GW to 700 GW to achieve desired outcomes



Existing electricity generation mix

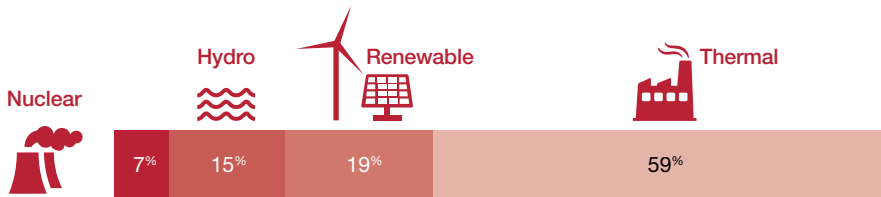
Of every \$1 invested in power generation...



Taking the Winning Leap

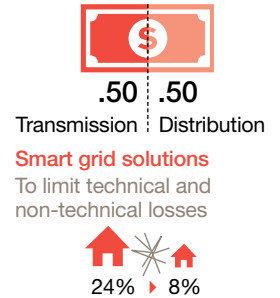
Winning Leap solutions could save 20% of projected investment to provide universal access to power while tripling consumption on a per capita basis.

Changing energy mix towards non-conventional source



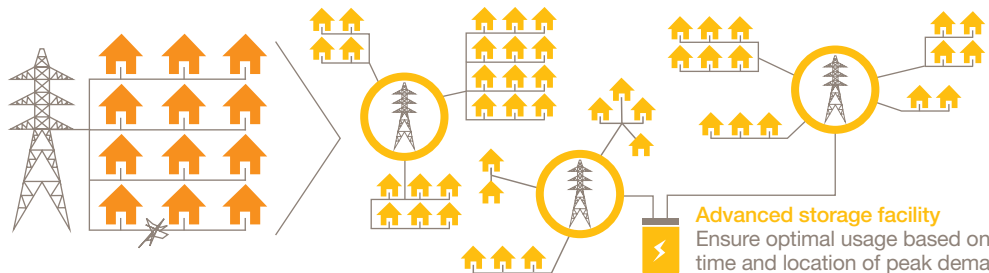
Installed capacity requirement to increase from 245 GW to 540 GW to meet winning leap targets.

Of every \$1 invested in power generation...



Increased investment in transmission and distribution

Generated power saving that are currently lost due to transmission and distribution capacity bottlenecks

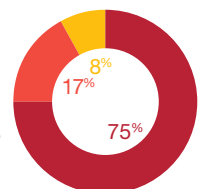


The bottom line (over 20 years)

Projected investment:	Without Winning Leap	With Winning Leap	Winning Leap savings
US\$	900 bn	700 bn	200 bn

Winning Leap contribution:

- Fierce catch up
- Significant leap
- Leapfrog

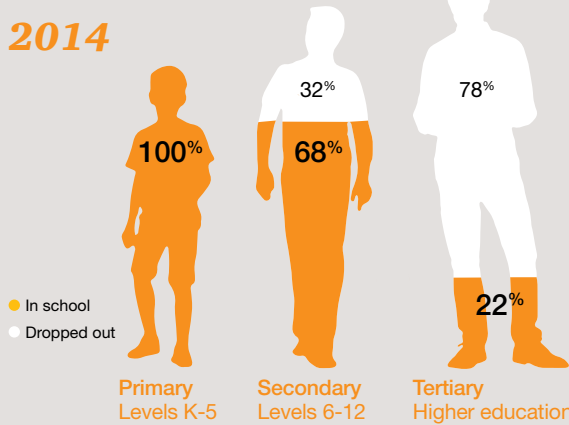


Average years of schooling

The issue

Average years in school: **7**
Increasing drop-out rates at higher levels of education affecting employability.

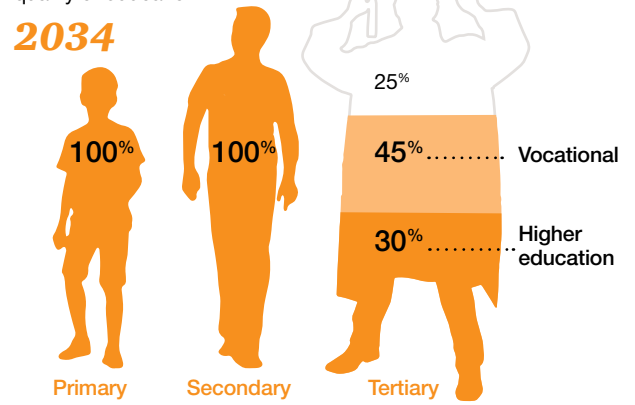
2014



Desired outcome

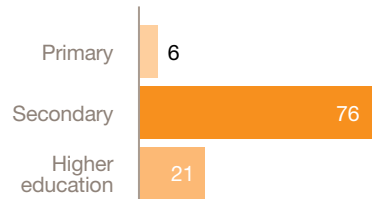
Average years in school: **10**
Improving access to education with higher enrollment coupled with better quality of education.

2034



Achieving outcome by traditional means

New additions
New student admissions required over 20 years



(In millions of students)



Primary and secondary schools



Higher education

Use of brick and mortar schools to meet Winning Leap targets

500,000 traditional schools required across different levels of education required.

Taking the Winning Leap

Use of technology enabled solutions and adoption of the 'PPP model school' format could help save **US\$165 billion** in investments in education infrastructure.

Fast track expansion of traditional brick and mortar schools



Increase focus on PPP model school format
Government as an enabler

Formal education institutions



Higher education



Virtual schools
Access to quality education at reduced infrastructure costs

Massive Open Online Courses (MOOC)
Bringing parity in quality of education.



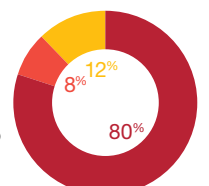
For Profit model in formal education

The bottom line (over 20 years)

Projected investment:	Without Winning Leap	With Winning Leap	Winning Leap savings
US\$	500 bn	335 bn	165 bn

Winning Leap contribution:

- Fierce catch up
- Significant leap
- Leapfrog



Financial service

Adoption of branchless banking channels and partnerships with players in sectors other than financial services could help banks reduce their infrastructure investments by 30% to achieve the Winning Leap target. While creation of a bank account is typically the first stage in the adoption of financial services, the ability of customers to carry out transactions remains the most critical aspect in their evolution. This would entail enabling greater access by addition of physical infrastructure of bank branches and ATMs across the country and significant expansion in the scale of emerging branchless channels such as mobile and internet banking.

Overall, the traditional branch heavy approach to financial inclusion would require an addition of almost 400,000 bank branches and 175,000 ATMs by 2034, to a network of only 100,000 branches and 115,000 ATMs existing at present. Such a significant

transformation for both urban and rural India would require an investment outlay of around US\$ 40bn by 2034 through traditional means. The traditional approach to growth in the banking industry—building ever more brick-and-mortar bank branches—will however always be a profitable proposition, especially in rural markets. Many accounts opened in rural parts, at present, remain comparably inactive and hence operationally inefficient and less profitable for the banks. Branchless banking solutions could therefore be a smarter choice for enabling scale. To deploy such solutions, banks must forge cross-sector partnerships with established players, shift from traditional to emerging low-cost solutions such as solar ATMs, and ride the mobility wave to maximise their reach to customers. As a result, India could hit the target of 90% of citizens having access to banking services (and actively using those services) by 2034 through much lower investments of US\$ 28 bn.

The scale and know-how needed to implement Winning Leap solutions for each of the 10 vectors will require Indian companies to radically rethink how they do business.

Domestic capital for growth

The issue

Two-thirds of India's adult population does not rely on formal institutions for its financial services.

2014

Urban adult population: 175 million

Rural adult population: 110 million

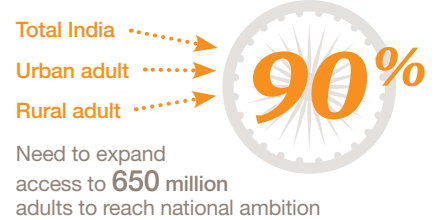
Total India adult population



Desired outcome

Reaching our goal by improving access to capital and driving consumption through digital modes.

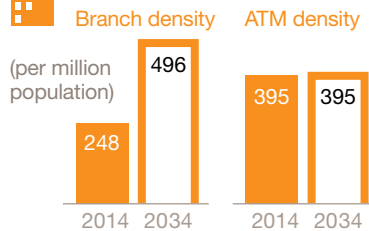
2034



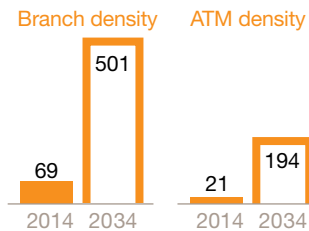
Achieving outcome by traditional means

Branch heavy approach to provide universal access

Urban

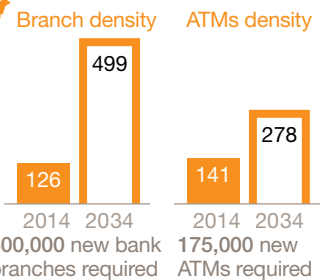


Rural



Total India

The volume of banks increase from 100,000 in 2014 to 500,000 in 2034. Shift in branch/ATM per million translates to 4X new branch addition and 1.5X new ATM additions (where X is existing infrastructure)

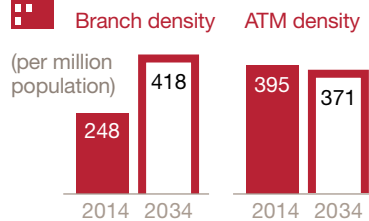


Taking the Winning Leap

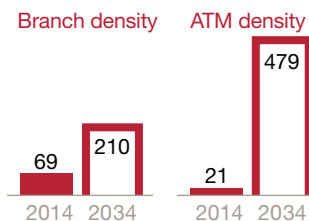
Adoption of innovative branchless banking channel options and forging partnership with non-banking players could help save 30% of infrastructure investment

A shift towards branchless banking solutions

Urban

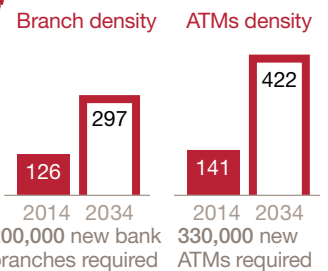


Rural



Total India

Shift in branch/ATM per million translates to 2X new branch addition and 3X new ATM additions (where X is existing infrastructure).



Enable scale by forging partnerships with established non-banking players



+

Solar ATMs to lower capital costs, lesser energy consumption, lower maintenance costs suited to rural needs



+

Mobile and online banking to provide branch banking functionalities on mobiles/desktops

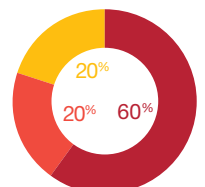


The bottom line (over 20 years)

Projected investment:	Without Winning Leap	With Winning Leap	Winning Leap savings
US\$	40 bn	27 bn	13 bn

Winning Leap contribution:

- Fierce catch up
- Significant leap
- Leapfrog



Chapter 3

Role of the private sector Building capabilities



May we be blessed with the wealth of maximum capabilities.

The Rig Veda

Defining sectoral challenges and vector targets, as well as potential solutions for meeting them, is crucial. But the real question is: who can execute these solutions—and how? The private sector—in particular, industry leaders and

entrepreneurs—will play a key role in making the Winning Leap. Within each sector, specific capabilities need to be fortified. Indeed, the experiences of some companies in India and elsewhere around the world that have

tackled similar challenges offer clues about the aggregate capabilities that will be required.

Winning Leap solutions require considerable technology and innovation expertise, management capability, and execution know-how. They also call for familiarity with global quality and service standards and the ability to forge partnerships with companies in other sectors and noncorporate entities such as academic institutes and social enterprises.



This is the right time to talk about a Winning Leap. I am sure we will pull ourselves out of the 5% growth and get to 7-8%.

KV Kamath
ICICI Bank

Our research suggests that Winning Leap solutions from the private sector fall within three broad categories. (See Figure 3.1.) The first category, Fierce Catch-Up, entails following traditional approaches or technologies to surmount challenges, but at an accelerated pace. The second, Significant Leap,

involves adopting new or different approaches or technologies, which may have been developed elsewhere but would also work in India. The third category, Leapfrog, represents a radically different approach—a paradigm shift—that entails applying a new and potentially disruptive business model. Each

sector of the Indian economy will need to execute solutions drawn from all three categories. With the right mix in place, India could achieve 9-10% annual economic growth over the next 20 years, expanding its economy fivefold, from US\$2tr today to nearly US\$10tr in 2034.¹

Figure 3.1: Three categories of change

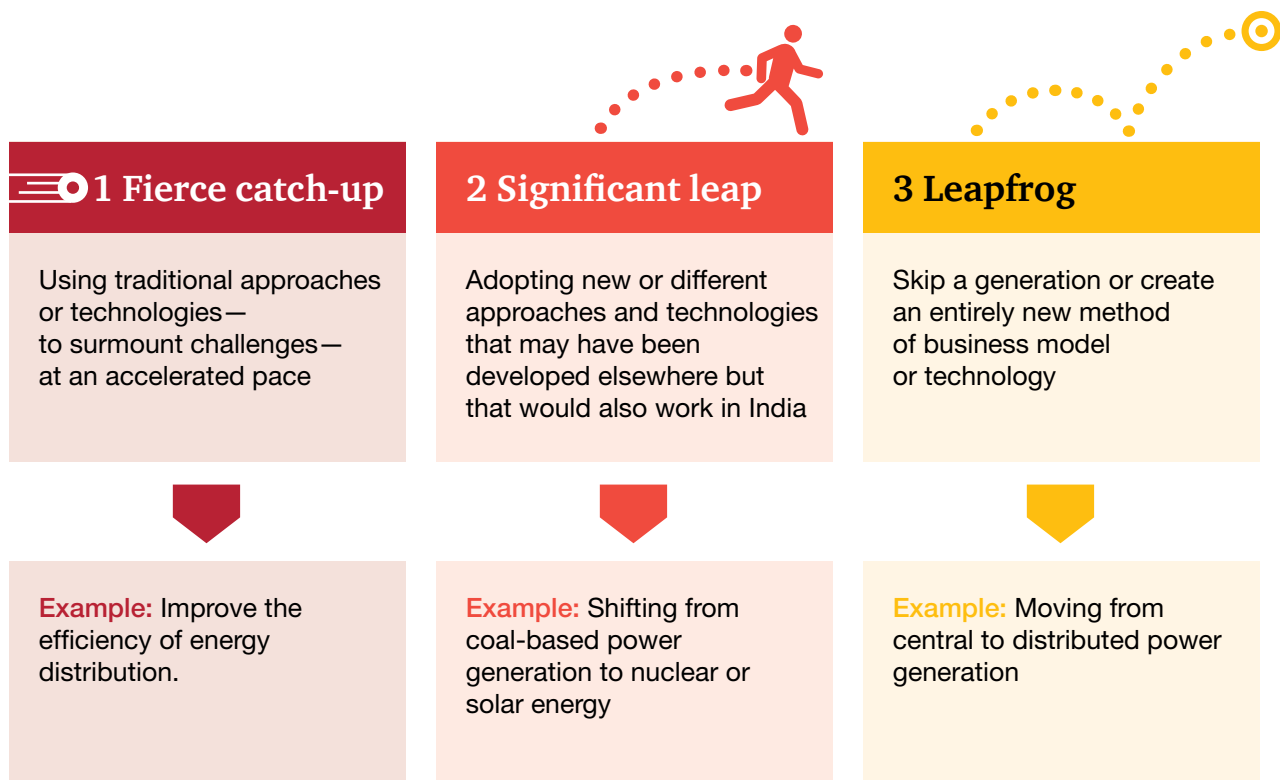
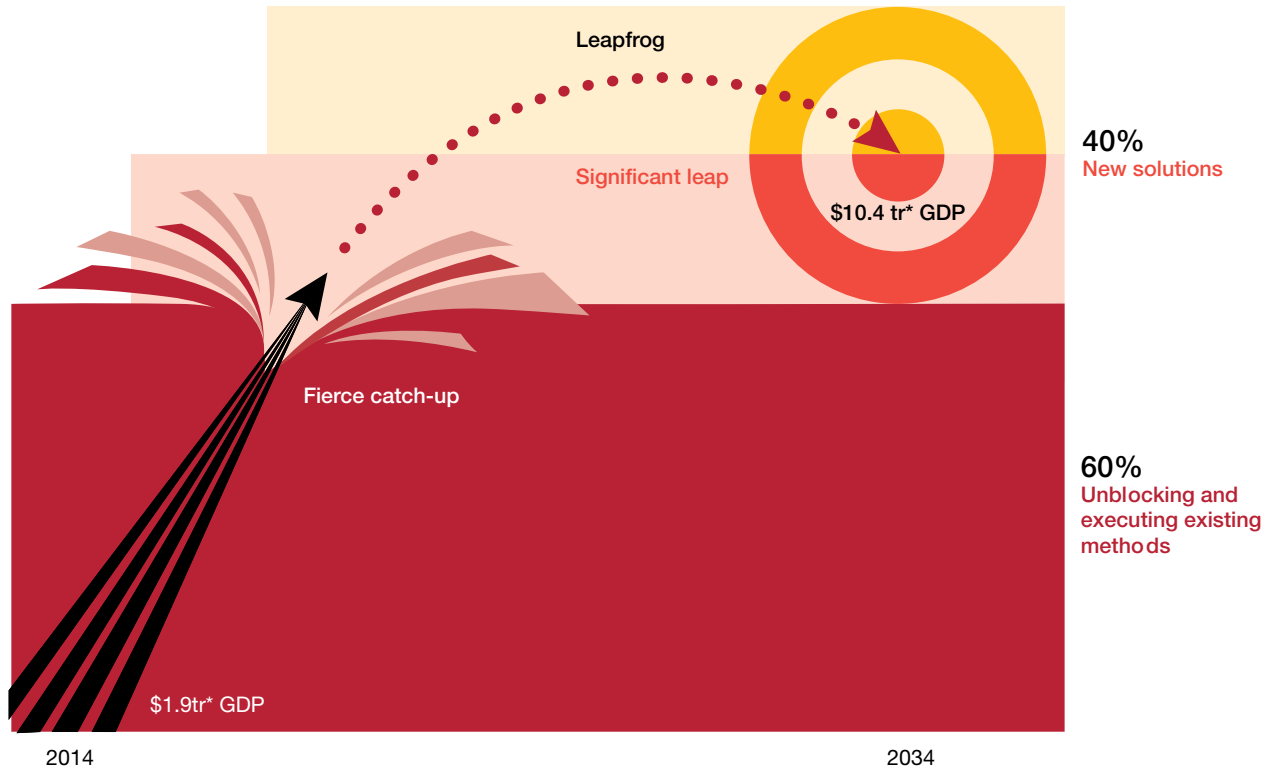


Figure 3.2: How new approaches could contribute to India's economy



Source: PwC analysis

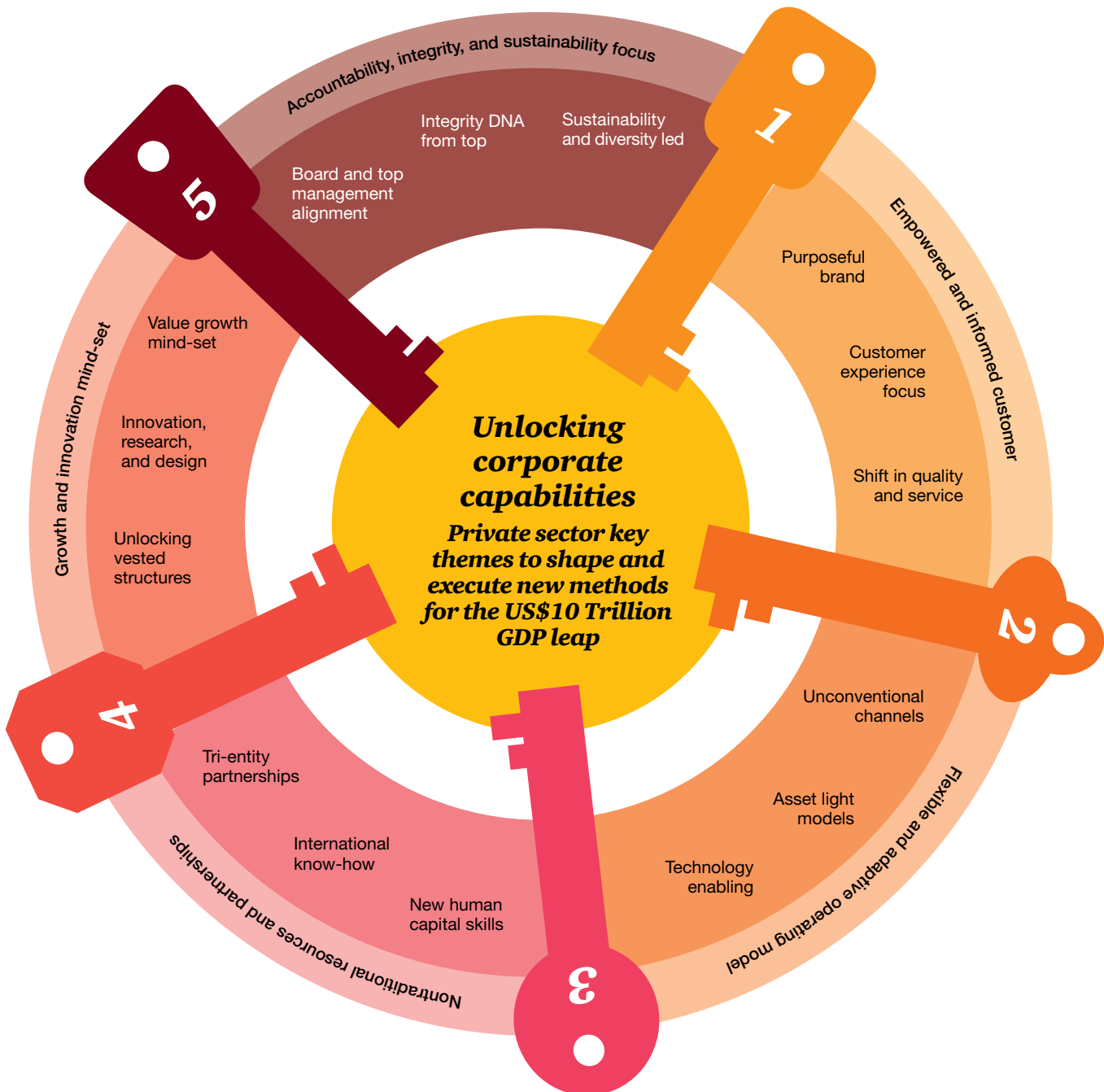
The \$10 trillion leap

According to our analysis, new solutions (both Significant Leap and Leapfrog approaches) will account for 30-40% of the Indian economy by 2034. (See Figure 3.2.) All three solutions combined would cost less to deliver than the traditional approach being followed today; thus, they won't require as much investment. For this reason, they represent the Winning Leap: not only will they help India's economy to grow, they promise to do so in a speedy and environmentally sustainable way.

A range of stakeholders—including government and entrepreneurial companies—would need to help develop (and in some cases, deliver) new solutions. But only the private sector is in a position to lead the shifts necessary to make these leaps a reality. Innovation is critical to unleashing Winning Leap approaches. New and growing ventures will naturally play a key role in fostering innovation and job creation. But the entire private sector must participate in enabling innovation as well as in developing fast, cost-effective solutions to spur the Winning Leap.

None of this can become reality unless all businesses—corporations and start-ups alike—focus on developing new capabilities. Those that develop the right capabilities for addressing solutions across the ten vectors will become India's leaders of tomorrow.

Figure 3.3: Five key themes for the private sector to win in the Winning Leap economy



Consumers today are at the heart of businesses. Companies need to develop the ability to be customer friendly, and they need to see the world from their point of view.

Ramakrishnan Mukundan
Tata Chemicals

Five key themes

To play a leading role in this national transformation, Indian businesses over the next 20 years must embrace fundamental shifts already under way in the global economy. Our research, which included dozens of interviews with India's top corporate and government leaders, revealed five key themes that the private sector must focus on. (See Figure 3.3.)

Empowered and informed customers

As information grows (in both access and volume) and Indian consumers are more able to apply this information in their decision making, they become more empowered. This empowerment is a fundamental attribute of the emerging middle class and the middle class in India—which together have rising aspirations.

Companies throughout different industries will need to respond to these customers' changing habits. They'll have to offer incentives for customers to switch to a new set of offerings, and they must provide alternative solutions that maintain the convenience of existing products and services.

To satisfy such consumers' needs and demands, businesses must cultivate capabilities in three critical areas: creating a purposeful brand, focusing on the customer experience, and raising quality and service standards.

Create a purposeful brand

Brand purpose goes beyond selling a product or service or winning the customer's wallet. It refers to the connection that a brand establishes with the consumer's deepest aspirations. A purposeful brand does more than promise quality and reliability. In effect, it becomes both a supporting partner in, and a symbol of, the consumer's path to prosperity.

Brand importance is easy to grasp in a retail context. But what does it mean for, say, our "Value-added manufacturing" vector? Many manufacturers throughout the world are a source of national pride: consider the *chaebols* of South Korea (Hyundai and Samsung), Japan's conglomerates (Mitsubishi) and automakers (Toyota and Honda), and US automakers (GM and Ford). All have earned deep customer

loyalty and iconic status. Indian companies that want to participate successfully in the Winning Leap must also think differently about brands. Indeed, the aggregate manufacturing sector will have to conceive of brand more broadly if it is to achieve the "Value-added manufacturing" vector target of a 25% plus share of GDP.

India's Hero MotoCorp (originally Hero Honda) is a notable example of a purposeful brand. Established in 1984 as a joint venture of Hero Cycles (India) and Honda, the New Delhi-based company has long positioned its motorcycles and scooters as personal transportation for middle-class Indians frustrated by inadequate public transportation. The fundamental brand connection, however, was always more ambitious: fulfilling the company's vision of "a mobile and an empowered India." From its initial equity investment of INR 0.16 billion, Hero MotoCorp, now independently owned, is the largest manufacturer of two-wheelers in the world,² boasting revenues of INR 257 billion. Throughout its growth journey, Hero MotoCorp has associated its brand with the rising aspirations of young Indians.

Focus on the customer experience

Our research clearly reveals that the desire for a distinctive customer experience. What do we mean by "distinctive customer experience"? Everything from providing greater convenience or language accessibility to offering customised solutions. As per capita income grows and living standards improve, that desire will only increase. India's companies will need to bolster their emphasis on the customer experience to meet the needs of a well-informed, quality-conscious consumer.



The focus on customer experience applies far beyond the sectors we commonly think of in this context, such as consumer goods and retail services. It also encompasses areas such as healthcare and education.

Take the case of Coursera, a for-profit educational technology company. Coursera partners with renowned universities worldwide to create content and offer massive open online courses (MOOCs) in a broad range of disciplines to give more people access to world-class education. More than 2m students from throughout the world are currently enrolled in more than 200 courses.³ Coursera's revenues come from university-branded completion certificates and revenue-sharing arrangements with universities and other partners, such as Amazon. In India, MOOC platforms, especially if made available in multiple Indian languages, could address some of the challenges related to access to quality education.

The causes of poor schooling outcomes in India are well documented. Creating solutions that mitigate these causes—solutions that could help India reach a target of ten years for the vector “Average years of schooling”—means that educational institutions and companies in the education business must focus on customer experience. This means treating convenience, accessibility, and customisation as priorities. These three elements might well have different meanings in different contexts. For example, convenience in urban India might mean making course material available online. In rural India, convenience might apply not to the student, but to his or her parents, in the form of flexible hours or free transportation to and from school. Because of the intensive need for consumer research, the corporate sector is best positioned to lead the effort in developing the kinds of solutions that are so essential, and so difficult to accomplish, in a country as diverse as India.

Raise quality and service standards

Information penetration has raised people's awareness of quality. In response, companies need to move away from their current notions of quality and service and strive to meet global standards. They have to create new, high-quality solutions that will generate enduring value for customers. Moreover, the focus on quality and service applies not only to urban and affluent consumers but also to India's emerging middle class—the consumer segment representing the biggest private sector buyer, by volume, of daily services.

Companies cannot rely on just attracting customers. The experience of financial services businesses targeting unbanked customers, such as the *Mzansi* initiative in South Africa¹ and mobile money service

¹ The initiative refers to no-frill bank accounts launched jointly by four large private banks and the state-owned Postbank in South America. More than 6m accounts were opened during the 2004–2008 period, improving penetration from 46% to 63%. However, 30% of accounts remained inactive, with 55% lower transactions, resulting in a 70% lower fee income for banks than commercial accounts.

providers, shows why. Inactive accounts have become a major cost issue for banks because they yield low revenues. These companies must develop more-targeted products and provide ongoing sales support to convert account ownership numbers into a greater number of account transactions and higher account balances.⁴ This lesson applies to all companies. By embedding greater quality and service into their products, companies will be able to retain, and not merely attract, customers—including members of the growing (and evolving) middle class.

Our discussions with corporate leaders in India suggest that while Indian consumers expect value for money, they are also aware of global standards of quality and service. For example, consider the rapid rise of the relatively unregulated informal education sector in India. Private tutoring, vocational classes, preschool facilities, and training centres for competitive examinations—all of these have attracted large investments from private equity and other investors that perceive consumer demand for a level of quality and service in education that's unavailable in India's formal education sector.

Flexible and adaptive operating models

Tomorrow's economy in India will be radically different from today's. Significant Leap and Leapfrog solutions will be invented and adopted. New technologies will supplant current ones. New regulations and market trends will fuel changes in market sizes, consumer tastes, and customer preferences. Rising consumer aspirations, driven by greater awareness of how much better people's lives could be, will present new challenges for companies.

In such a dynamic economy, operating models will need to be more flexible and adaptive than they are now. To modify their operating models in these ways, India's companies will have to adopt asset-light business models that minimise risk; establish unconventional partnerships, including with potential competitors; and build capabilities that focus on technology.

Create asset-light business models

In markets throughout the world, companies traditionally dependent on hard assets are shifting toward asset-light business models. Such models emphasise asset ownership and instead employ a pay-as-you-use approach. Asset-light models

will be particularly relevant in fueling the kind of growth we envision in the Indian economy over the next decade.

For instance, technology-enabled car-rental services and car-sharing companies are challenging private-vehicle ownership in developed markets including Switzerland, Germany, Netherlands, Austria, and the US. In fact, leading automotive players, such as Daimler and BMW, are entering the business. Studies show that by reducing car ownership, car rentals and car-sharing services reduce the incentive to drive and encourage people to rely more on alternatives such as public transportation. Moreover, these businesses significantly reduce traffic congestion as well as parking-space requirements. One-way car-sharing plans have become especially popular in Germany: more than 50% of the 8.5m one-way car-share trips booked in 2013 were in Germany.⁵

Whether such models can succeed in India is hard to predict. However, given India's projected urban population of 600m by 2034, such asset-light models are clearly necessary to excel on the "Manage growth in urbanisation" vector.

Partner through unconventional channels

To make their operating models more flexible and adaptive, companies need to build capabilities that enable them to target unconventional channels. And to extend their reach and increase efficiency, they must also establish new partnerships, including some with potential competitors or with players in other sectors along the value chain.

Take the case of Aasaan Stores, a retail initiative of Mumbai-based Trans Retail Ventures. Aasaan partners with *kirana*, neighbourhood grocery stores, to train them in

The private sector, in India, is so far built upon the fundamental business premise of the need for scale. But with the introduction of newer technologies, even micro transactions begin to make economic sense, most importantly due to the insights that one gains into the market.

Sanjay Purohit
Infosys

technology, processes, and customer service. In doing so, Aasaan empowers *kirana* stores to make on-the-spot business decisions. Moreover, as part of its franchise arrangement, Aasaan handles store ambience, IT systems, the common supply chain, and branding and marketing. Aasaan converts the traditional counter-based stores into self-service mini-supermarkets. It also equips the stores with point-of-sale terminals and inventory management systems and sets up a warehouse to provide a single supply point for groceries as well as packaged goods. Aasaan thus combines its prowess in organised retailing with the proficiency of a neighbourhood store to create a winning proposition for customers and greater business opportunities for its retailer partners.

This example illustrates the kind of creative solutions suitable for the vector “Share of organised retail.” India might even leapfrog the big-box retail approach dominant in developed markets. However, the organisation of large-scale retail

might take a different tack entirely in India. Logistics costs and supply-chain complexity represent major hurdles for Indian retailers, both big and small. Large retail corporations might lend their capabilities as aggregators of back-end infrastructure to smaller retailers. These are some of the nonlinear approaches that we’re referring to when we speak of increasing “Share of organised retail” to 50% by 2034 and “Improving physical connectivity” (logistics costs) to 8% of GDP by 2034.

Use technology-enabled products and services

Technology—in particular, digital solutions—will play an even greater role in the years to come in enabling and improving access to products and services throughout India. This is especially true for remote markets, where the high cost of delivering services physically has traditionally made business models nonviable for private enterprise.

Take agriculture, the use of big data and analytics in precision

farming can improve the quality and quantity of crop yields, and reduce production costs. It also helps reduce the use of fertiliser and pesticides, prevents soil degradation, and optimises water use. Around the world, precision farming is carried out in tandem with modern farming practices and technologies, including satellite imagery and IT-enabled solutions.

The interconnectedness of our vectors of success is crucial to the Winning Leap. For example, while improving digital connectivity for 80% of the population is an enabler, the real success comes if connectivity can directly boost another vector target—doubling agricultural yield from its present levels. In this sense, companies must also think about establishing nontraditional partnerships.

Nontraditional resources and partnerships

Addressing new and dynamic markets can be a cost-intensive proposition. Many companies lack the resources and capabilities to



Every company has to develop the skills it requires within the company itself. No educational institution can provide you with employees who are ready to work at the factory/company when they join. The training has to be inside the company.

Vivek Chaand Sehgal
Motherson Sumi Systems Limited

expand into new regions or market segments on their own. Moreover, the high cost of building infrastructure—especially given India’s size and widely dispersed consumers—creates a disincentive for private players to target new markets. So does the low-spend potential of customers in some untapped segments (such as in rural areas). In fact, customer-acquisition costs in these segments are prohibitive. For these reasons, it’s vital that companies get access to nontraditional resources (such as advanced production technologies or new distribution systems), and they can do this by forging new kinds of partnerships. With such strategies, they can share market- and infrastructure-development costs, create new delivery channels, and reduce the risks associated with entering new markets.

Through new partnerships, Indian companies can adopt alternative approaches to growth and expansion as economic growth accelerates, with each partner contributing its particular resources and capabilities required to reach these consumers.

Build tri-entity partnerships

To facilitate India’s growth journey, companies need to build tri-entity partnerships by combining their insights and capabilities with those of government and the social sector. The Pantawid Pamilyang Pilipino Program (4P) cash transfer model in the Philippines is one example of such a partnership. The program created a hybrid model for extending welfare payments to poor households that entailed establishing a network of different payment channels managed by a state-owned bank. It provided multiple access points through such channels as cash cards, partner ATMs, post offices, and pawnshops—a strategy that would help customers access services more easily while minimizing their transportation costs.⁶

To improve performance on “Access to banking services” (another key vector) to 90%, a rate at which consumers would be using banks daily to make transactions, tri-entity partnerships will be crucial. Not only do they foster a sense of trust and custodianship among consumers, but they also bring out the best in the private sector, the social

sector, and government as they join forces to solve the tough challenge of financial inclusion.

Leverage international know-how

Historically, Indian companies have not invested as much in R&D as companies in other countries, such as the US, South Korea, and China. Although Indian companies increasingly recognise the importance of R&D, the case for collaborating with foreign companies to access international know-how is strong. Among its benefits: boosting speed to market, developing new solutions, and accessing proven technologies. Foreign players, in return, can gain access to India’s large domestic market, along with local knowledge of commercialisation and marketing innovations.

Many foreign companies choose to enter the Indian market by themselves. But they face a daunting array of challenges. Consider a foreign company that wants to participate in improving performance on India’s “Agricultural yield” vector. It would be forced to deal with multiple layers of stakeholders, regulators, and members of civil society, which would introduce delays, unforeseen costs, and other obstacles. A technology provider that wanted to contribute to better performance on “Improving digital connectivity” in India by installing its new last-mile connectivity technology would find it almost impossible to go it alone. In both cases, local collaboration is a must. The fundamental shifts required for Winning Leap solutions are so enormous that collaboration, alliances, joint ventures, and acquisitions are virtually essential.

Motherson Sumi Systems considers acquisitions an important engine for growth. Itself a joint venture (between India’s Samvardhana Motherson Group and Sumitomo Wiring Systems of Japan), it has

acquired 11 companies over the past 12 years in countries including Japan, Germany, Ireland, the Czech Republic, and Australia to gain access to new technologies and international expertise as well as to adopt new processes and manufacturing capabilities. The strategy helped the company enter new geographies and product lines and, as a result, establish itself as India's largest auto-component manufacturer: from 2008-2009 to 2012-2013, the company grew tenfold, from INR 2,595 crore to INR 25,225 crore.⁷

The case for international collaboration as a means of acquiring international know-how is equally strong at the national level. South Korea is a prime example. Throughout the 1970s and 1980s, the country focused on acquiring technology and new skills through technology transfers, foreign licences, and reverse engineering. In this way, it advanced from a low-technology to a high-technology economy. Today, South Korea counts among the world's most developed nations, with a per capita income of US\$33,440 in 2013⁸ and a Human Development Index (HDI) ranking of 15, the highest in East Asia⁹. The country provides

a powerful example of the importance of acquiring international know-how, at both the industry and national levels, in gaining significant headway in the "Value-added manufacturing" vector.

Build new human-capital skills

Companies need to develop new human-capital skills, at both the leadership and employee levels, to weather the changes brought about by Winning Leap solutions. Among the new skills needed: managing partnership-intensive business models, leading new innovation processes, developing new risk management models, and working with companies in different industries.

For example, enabling financial access for the unbanked is an underdeveloped market in India. But it's an expensive proposition, given that financial-services companies lack the resources and capabilities to expand into these regions by themselves. Partnerships with entities outside the industry could provide a vital alternative approach for expanding market reach. Worldwide, the financial services sector has relied on different partnership models to reach the unbanked, including the use of cross-sector partnerships. Witness

the business-correspondent model in Brazil and the PPP model in the Philippines. However, each of these models requires the core-sector companies to develop new capabilities, such as the ability to identify suitable partners, create and manage new processes (such as incentivising and monitoring agent networks or organising financial literacy campaigns), and craft sound contracts for successful implementation. Risk sharing among partners will also be important, especially for models involving both public and private sector players.¹⁰

A growth and innovation mind-set

Innovation has been the backbone supporting change around the world—providing accessible, affordable solutions that meet ever-shifting consumer needs. Therefore, developing a growth and innovation mind-set is essential for overcoming India's challenges. The private sector needs to take the lead in fostering an innovation culture in India. Companies can do so by adopting a value-growth mind-set, investing in innovation and R&D, and unlocking vested interests—embodied in the antiquated infrastructure that continues to hamper India's growth.

Adopt a value-growth mind-set

To achieve the Winning Leap, companies must develop a mind-set of value growth—one that's singularly committed to multiplying value in every way possible. Such a mind-set will need to promote experimental thinking, focus on India's domestic market to lead national progress, and challenge the status quo.

A value-growth mind-set is also oriented toward building capabilities and solving customers' problems in new ways. It seeks growth that is sustainable, for the industry as well as the community at large.

Flipkart, along with several other

There is no one company that can do everything. The ability to partner, whether it is with industry associations or through a coalition of different partners and companies, is going to become very important.

Bhaskar Pramanik
Microsoft



The Winning Leap and Indian culture



Successful transformations are usually built with the benefit of strong values and cultural change.

As the Global Leader of PwC's Health practice, I've been fortunate enough to make several visits to India. On each occasion I've been struck by the values and culture I have witnessed and the entrepreneurship and warmth of the people I've met. I've also sensed a strong sense of purpose emanating from business leaders, who display a deep sense of social and environmental responsibility which goes way beyond the profit motive.

India's vast historical and linguistic heritage, with a strong tradition of respecting diversity, offers the country an extraordinary source of innovation and is a remarkable asset. As a vibrant country seeking new solutions to the increasingly complex and connected challenges, these assets will need to be an integral part of helping shape the Winning Leap solutions and will strongly influence India's ability to effect change.

Technology is bound to play a central role in any transformation. It is likely, too, that technology will help shape the culture of a new India, especially true in a country where almost 750 million citizens are under 30 and where technology forms an increasing part of day to day life. New cultural norms are likely to emerge—at once respectful and questioning, traditional and digital.

Culture and values will help determine India's success over the next decade and beyond. A culture that values its heritage, but also refreshes and renews, should be at the heart of Winning Leap solutions.

Patrick Figgis
Senior Partner, Global Leader Health
PwC

rapidly growing online retailers that are driving India's e-commerce market, represents a good example of a company challenging the convention in its home market. Instead of relying on the nation's existing logistics infrastructure, Flipkart has built its own logistics system to improve its reach and profitability. As a result, the company has grown exponentially in the past few years and is already developing capabilities to drive future growth. For example, it is adopting technology to manage tenfold growth in web traffic,¹¹ expanding warehouses, partnering with more than 10,000 sellers, fortifying its supply-chain capabilities, and investing in a payment gateway. In addition, Flipkart has partnered with smaller online retailers, letting them use the Flipkart platform and logistics infrastructure.¹² To help small- and medium-size enterprises (SMEs) and traditional artisans get online, Flipkart is also working with the Indian government to train and possibly employ or partner with people in rural and semi-urban areas. The company views this initiative not as an act of corporate social responsibility but also as an

undertaking integral to its pursuit of growth that creates value for stakeholders.¹³

Excel at innovation and R&D

The pace of innovation-led disruption is increasing. Whether it evolves from global best practices or is developed within India, innovation will create the possibilities that enable Winning Leaps. Excelling at innovation and R&D is therefore essential to achieve the growth and new solutions envisaged in each of our vectors.

The private sector must take the lead in creating the requisite R&D capabilities and sharpening the focus on quality growth. To do so, companies will need to step up investment in R&D in the coming years. They will also need to continue offering affordable solutions but not compromise on quality and design. We have already outlined the role of international partnerships in acquiring technologies and process expertise in the Indian market. Partnerships will also be an important means for absorbing foreign R&D capability. But Indian companies must also continue to

invest in indigenous R&D as well. By doing so, they can adapt global innovations to create local affordable solutions.

Mahindra & Mahindra's foray into the nascent electric vehicle (EV) market in India provides an example of how companies can identify and scale up innovative solutions with a partner. The company acquired Reva, a start-up, not only to build its own EV capability but also to scale up and commercialise Reva's EV technology. Access to Reva's technology strengthened Mahindra's EV capabilities, and Reva could leverage Mahindra's vehicle-development technology, global distribution network, sourcing clout, and financing support to launch a state-of-the-art EV for global markets.

Google followed a similar strategy to popularise mobile solutions that provide real-time traffic information when the Internet giant acquired Waze and integrated its solution into Google Maps. Waze, an Israel-based start-up, is a mobile app that uses real-time GPS data from nearly 50m users to deliver accurate



traffic information and help relieve urban congestion. The integration of Google Maps and Waze enhanced the functionality of the application and expanded its reach to many countries throughout South America, North America, and Europe.¹⁴

Unlock vested structures

As the private sector takes the lead in providing services once delivered by the public sector, it must also overcome entrenched infrastructure that is generally inhospitable to new solutions, new business models, and new approaches. India's power utilities are a good example. They were historically government-owned monopolies. Recently, private companies entered the market, increasing efficiencies and providing customers with choices. Such bold moves are required if performance on the "Access to power" vector is to reach 100% penetration by 2034.

Transportation alliances in Germany illustrate how different service providers can join forces and move beyond their individual interests—in this case, to collectively

challenge private vehicle use and popularise public transportation. As part of the alliance, different service providers joined hands and created a coordinated timetable and a common fare and ticketing system to allow better interoperability of their services. Governed by detailed contractual agreements, the alliances also created an independent legal entity to manage operations. These kinds of moves—competitors leaving aside their vested interests to unite for a common goal, or disrupting other entrenched interests—will be necessary for India to achieve the "Manage growth in urbanisation" goal of effectively serving 650m city dwellers in 2034.¹⁵

A focus on accountability, integrity, and sustainability

Managing the challenges of India's marketplace of the future will require greater transparency and accountability throughout the enterprise, from the top echelons through the managerial ranks and even to boards. The partnerships and coalitions we envision, whether private-private or public-private, are based on trust. And trust cannot be built without transparency and

accountability. Leaders also establish trust within an organisation by demonstrating integrity—embodying it through their behaviour and upholding it as a company value. Indeed, customers and other stakeholders are increasingly demanding accountability and integrity, as well as sustainability, from the companies they deal with.

Delivering Winning Leap solutions requires a new framework for governing the company, one that takes into account a company's impact on society as a whole. This framework comprises three key elements: reinforcing the alignment between top management and the board, embedding integrity in the corporate DNA, and upholding sustainability and its social impact as core values of the organisation.

Align top management and board

Today's companies need boards with diverse memberships that are capable of challenging management as well as collaborating with management to balance strategic growth and risks. This is especially important for meeting the challenges posed by the Winning Leap vectors, because the risks involved in developing Leapfrog solutions in particular are considerable. Management and boards will need a different approach, not only to mitigate risks but also to have the courage and consensus to view Leapfrog investments through a long-term lens.

Several companies in India have created boards with this kind of aligned leadership. The Tata Group is one such example. Tata has repeatedly made significant contrarian bets (in such sectors as automotive and urban housing) that go against the conventional models of risk taking. These investments have run the gamut, from acquisitions and greenfield expansions to



R&D and execution capabilities. Such investments could not have happened without a tightly aligned management and board. Today, the Tata Group includes 32 publicly listed companies with a combined market capitalisation of about US\$139bn and a shareholder base of 3.9m.¹⁶ Tata has also established itself as a global powerhouse; it is the only Indian player to rank among the top 50 brands worldwide.^{11,17}

Weave integrity into the corporate DNA from the top

Senior leadership teams need to promote integrity at all levels of their companies. Integrity is manifested in behaviours such as dealing honestly and fairly with leaders, co-workers, and customers, suppliers, and other stakeholders. The integrity of leaders and employees will be critical for developing and delivering Winning Leap solutions. When regulatory bodies know that companies are operating with integrity, they may be more likely to remove barriers to doing business or provide incentives for new solutions to be adopted. Customers also develop a stronger bond of trust with companies that they see as having integrity, and trust is a key requirement for the adoption of nontraditional solutions.

Consider Aravind Eye Care System, an ophthalmological hospital. Aravind is widely regarded as an exemplar of an organisation that has achieved business success through its strong value system, often linking customer service to spirituality. From the time that employees are recruited, the company promotes integrity as a core value. Both management and employees have a clear sense of purpose. Through its deeply embedded values, Aravind has created an environment of success, for patients as much as for the company: it provides the greatest number of eye-care interventions globally.

Foster sustainability and diversity

India's population is rich in diversity. To better serve these diverse consumers, companies will need to link their sustainability and diversity agendas to their customer and stakeholder agendas. Winning Leap solutions outlined in Chapter 2 demonstrate that the sustainable growth of the Indian economy, given the nation's resource constraints, will be impossible without efficiencies and a sharper focus on diversity and empowerment.

The need for “good” growth—growth that is responsible, inclusive, and lasting—will only intensify as India's population continues to expand. But any growth, let alone “good” growth, can be elusive, especially when resources are so constrained. New ideas for sustainability could have far-reaching benefits for Indian businesses and citizens alike.

ITC is a case in point. The Indian conglomerate has made a systematic and concerted effort toward sustainability across its business portfolio. The company views sustainability as more than corporate social responsibility; it is value adding. ITC is carbon-positive, water-positive, and solid-waste-recycling positive, all while supporting some 6m livelihoods across India. The company's well-known e-Chaupal initiative provides digital infrastructure to 4m rural farmers. Its Women's Empowerment initiative provides livelihoods to more than 40,000 rural women. These achievements, along with 26% annual growth in shareholder returns for several years, demonstrate that a sustainability and diversity agenda need not sacrifice a company's economic benefit.¹⁸

More holistic measurement systems are needed—systems that account for global megatrends and that let management make decisions based on criteria beyond the traditional metrics. PwC's total impact measurement (TIM) framework measures business success beyond financial results; a value (and a cost) is calculated for a company's social, environmental, and financial activities. A business can thus see at a glance the impact it's having and the trade-offs between strategies. With the TIM framework, a business can identify the decision that's optimal for all its stakeholders.¹⁹

It really is about doing small projects but doing them right. It is about empowering local governments and the local leadership. You need to provide them with an agenda, hand over responsibility and make them accountable.

Vikrampati Singhania
J. K. Fenner (India) Limited

¹¹ The Tata Group was ranked 34th worldwide in the Global 500 2014 ranking by Brand Finance. Other Indian companies in the list include SBI (rank: 347), Airtel (381), Reliance Industries (413), and Indian Oil (474).



Role of women in the Winning Leap



India has seen a silent revolution in women's empowerment in the past few years. Recent data shows that for the first time in India's history, the number of women enrolled in educational institutions has climbed steadily and is now higher than the number of men. This trend suggests that Indian women are participating more in the economy and in society than they did in the past.

We maintain that women will play a critical role in India's Winning Leap. Here's why: Research by John Gerzema and Michael D' Antonio on masculine and feminine traits* (informed by polling of more than 32,000 people from 13 countries) suggests that women are redefining what it means to "win". This research suggests that the definition of "winning" is shifting from a zero-sum game to an inclusive experience. In a highly interconnected and interdependent world, traits such as aggression and control (which many of the research participants associated with men) are considered less effective than the ability to collaborate and share credit (which many of the research participants associated with women).

The coming era of change and new solutions requires a renewed role for women. Indian women today may have less political or economic power than men, but they are also less associated with vested structures and old ideas and methods. Thus, as India seeks to implement new solutions in its ambition to become a US\$10tr economy, we believe that women will emerge as champions of change and new thinking, thanks to their increased participation in India's economy and society.

The Winning Leap needs the active participation of women citizens, entrepreneurs, investors, and corporate and government leaders. Not only will such participation unleash the talent of 50% of India's population, even more important, it will use their collaborative and change-oriented mind-set to make the Winning Leap possible.

Naina Lal Kidwai
Chairman , India
Director, HSBC Asia Pacific

Chapter 4

Entrepreneurial sector



You see things; and you say 'Why?' But I dream things that never were; and I say 'Why not?'

George Bernard Shaw

The task of fuelling the growth and innovations needed to power India's Winning Leap will fall naturally to the country's corporate sector. But corporations alone cannot do the job. At present, India's corporate

sector lacks the capacity to generate the 12m jobs needed each year to absorb the flood of job-market entrants unleashed by India's demographic dividend. The entrepreneurial sector must therefore

also play a major role; it has the nimbleness in operations and the depth in ideas to create the radical new solutions required for a vibrant future economy.

Entrepreneurs and the entrepreneurial sector as a whole also possess other qualities critical for developing innovative solutions: the willingness to take risks, an aptitude for fast decision-making, and bold leadership. Yet to achieve Winning



Leap objectives, the entrepreneurial sector will also need to expand, in both size and impact. India must cultivate entrepreneurs on a scale unprecedented in its business history. Furthermore, the notion of entrepreneurialism should not be limited to growth-oriented companies rooted in India's major urban centres. Entrepreneurialism must also percolate in smaller towns and districts throughout the country. As it does in other countries, the entrepreneurial sector in India will also spawn tomorrow's multimillion dollar companies.

Entrepreneurial DNA

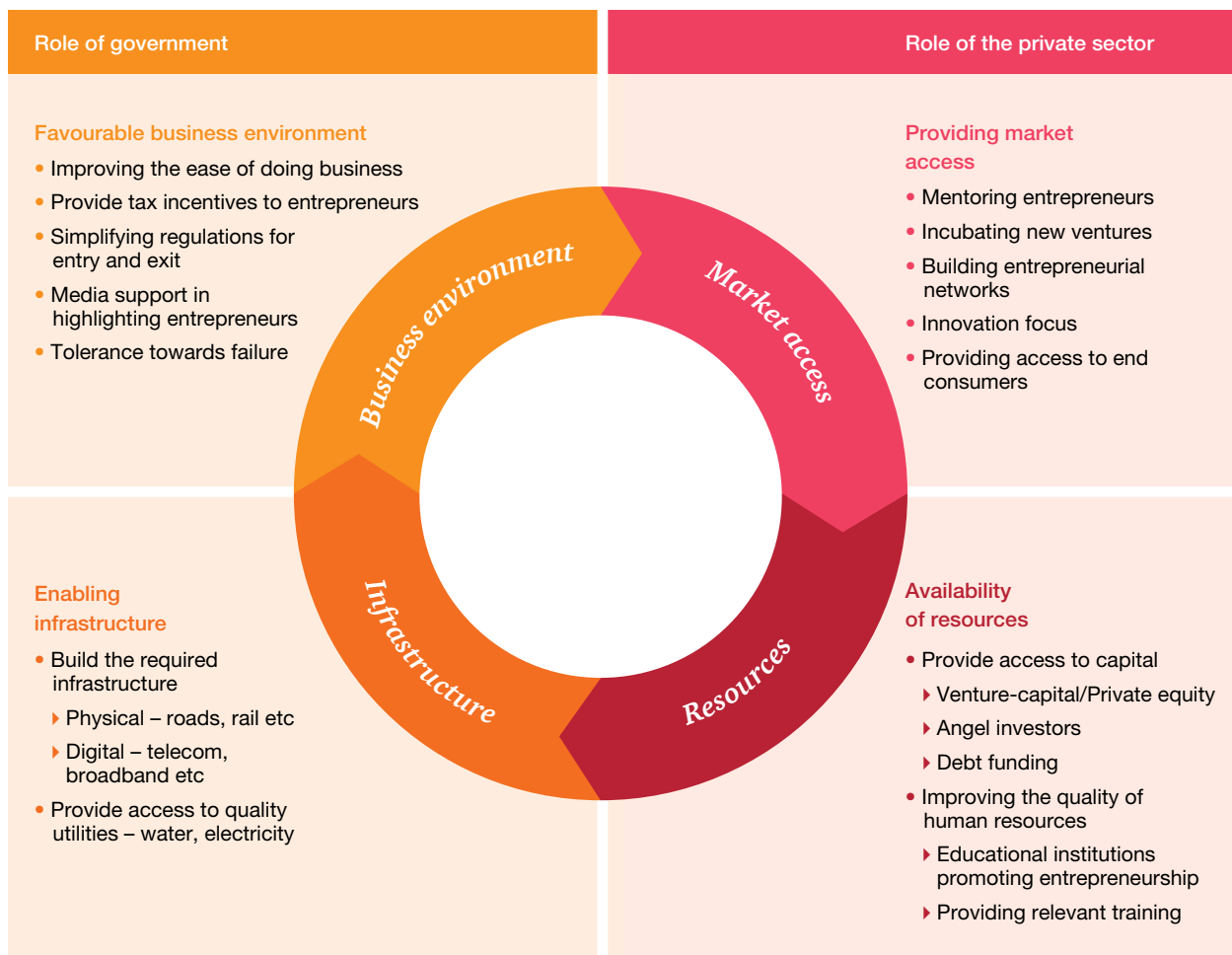
Much has been written about India's entrepreneurial DNA. Indeed, the Indian diaspora is considered one of the most successful entrepreneurial communities throughout the world. So why hasn't a dynamic entrepreneurial ecosystem taken root in India?

It's not because India lacks entrepreneurialism. A case in point is India's information technology (IT) revolution, whose exports over the past two decades exploded from less than US\$100m to US\$86bn in 2013-2014¹ and generated business solutions for multinationals and other leading companies worldwide.

India's telecom sector has enjoyed a similar growth trajectory, thanks to entrepreneurialism. Within almost 20 years (1995-2014), the sector racked up 910m² mobile-phone subscriptions—18 times the number of landlines (50m)³ in place in 2006, the year when landline subscription reached its peak in India.

Entrepreneurial sector successes are important for another reason: their multiplier effect. The IT industry, pioneered by companies such as TCS, Infosys, and Wipro, fostered an entrepreneurial mind-set that is powering the latest boom in India's e-commerce sector. This effect can, of course, play out in any sector—and

Figure 4.1: The roles of government and the private sector in creating an entrepreneurial ecosystem



Source: PwC analysis

in India, it will be essential. As the government takes steps to promote a culture of enterprise, India's corporate sector has an important role to play in promoting entrepreneurialism in India, as our research shows.

Building the entrepreneurial ecosystem

Corporations must view entrepreneurs as their partners in creating Winning Leap solutions. The government must also recognise that the corporate and entrepreneurial sectors need to collaborate to develop the solutions to India's challenges. And the corporate sector and government can help unleash Indian entrepreneurship. (See Figure 4.1.)

Provide market access

Entrepreneurs need access to markets to launch and scale their businesses. The corporate sector can help small- and medium-size enterprises (SMEs) by engaging them as providers. By bringing them into their supply chain, they connect new ventures to markets. Corporations have the institutional know-how to overcome the many barriers to accessing markets across India's states, such as cross-border taxes and different legal and regulatory requirements.

Royal Enfield motorcycles is an example of this approach. It has repositioned itself as a branded and high-value product seen as an aspirational bike. Thus, it has to focus on the front end of its business: creating new channels, strengthening the brand, and cementing relationships with customers. To do so, it has partnered with a number of SME suppliers that produce many of the key components that Royal Enfield earlier manufactured in-house. This back-end partnership enables Royal Enfield to focus on its business priority of quality-driven market growth as it benefits from the specialisation and mass-production skills of its suppliers. The corporate sector can

Innovation and Entrepreneurship—links with the Corporate Sector

At Marico, innovation has been at the heart of our business. Some years back we instituted an Innovation council to formalise the fostering of innovation in the wider economy. This has resulted in us launching a magazine – *Innowin*, and organising a yearly award ceremony that celebrates innovation in all walks of life, both economic and social

Over the past 3 years I have launched a social initiative called ASCENT to provide an acceleration platform for scaling-up enterprises. As part of this journey I have observed that more than access to resources like capital, these young entrepreneurs are also looking for guidance and inspiration from someone who has trodden a similar path. This has resulted in a forum called “Huddle with Harsh”, wherein I engage with 15 entrepreneurs every month, in an interactive format where they can bounce their ideas with me, and amongst themselves as well. Over the past many Huddle sessions we have discussed topics like attracting and retaining talent, building organisational culture, managing growth, balancing strategy & execution and various other details. Not only am I able to guide them with specific points in terms of scaling their business, fostering a growth mindset in their teams but often I am also able to connect them with other entrepreneurs or markets that can benefit their business.

It is my firm belief that only widespread entrepreneurship can give purpose and employment to the millions of young Indians who are entering our workforce every year. Corporate India can take part and benefit from a mentoring relationship as it provides companies an insight into new ideas and fresh thinking. As Marico grows and builds capabilities for its own Winning Leap, I believe our relationship with smaller, entrepreneurial companies will be a key ingredient for growth and success. Finally on a personal basis I feel refreshed by the young energies of these entrepreneurs on whose shoulders lies future growth and innovation of our economy.

Harsh Mariwala
Chairman
Marico

Innovation in any economic system happens through a process of variation and selection. The process resembles that of evolution in nature. In an economic system, entrepreneurs typically provide the variation in ideas and solutions, while large firms help select and scale the right ventures to bring about wider change.

Jaideep Prabhu
Author, Jugaad Innovation

also facilitate access to markets for entrepreneurs in other important ways: by mentoring them, by providing incubators for promising new ideas, and by helping them build entrepreneurial networks. Doing so makes sense, for companies as well as for experienced entrepreneurs. Both benefit directly from these collaborations, as Silicon Valley and other innovation hubs demonstrate so vividly. For example, a disruptive product idea would likely need to be developed without the restrictions it would face in a large organisation—navigating the approval process, getting funding and resources, and so forth. Mentors, incubators, and entrepreneurial networks can play a vital role for new entrepreneurs, offering them needed skill sets and guidance, as well as the ability to accelerate decision making.

Make resources available

As with most business leaders, the two most important resources for entrepreneurs are financial capital and human capital. New-venture founders cannot rely on traditional investors for funding; such investors are too averse to unquantifiable risks, even those on a small scale. The investors that entrepreneurs can attract want consistent regulation and the ability to move money in and out of the economy, this is especially true for foreign investors. Moreover, such investors want a robust regulatory environment that ensures market protections and safeguards and thus allows venture capital and private equity

to flourish. Debt markets and credit assessment must also be available.

New ventures also need a supply of talent, especially talent with entrepreneurial experience. In an enabling environment for entrepreneurialism, in which many new ventures coexist, talent is generally more available owing to the network effect of talent creation. It took just a handful of successful IT start-ups in the 1990s for entire ecosystems of technology talent to develop in Hyderabad and Bangalore, India's Silicon Valley. In Chennai, the same story appears to be unfolding in the automotive sector, begging the question: could Chennai be the next Detroit?

The Hyderabad and Bangalore examples also demonstrate that educational institutions provide crucial support for the development of this ecosystem. For example, the presence of a large number

of engineering colleges in the state of Karnataka has provided a steady flow of skilled workers for IT companies in the state's capital (Bangalore). The city is also growing as a hub for R&D, boasting a number of institutes catering to industry needs, such as the National Centre for Biological Sciences, the Jawaharlal Nehru Centre for Advanced Scientific Research, and the Indian Institute of Science.⁴

Providing entrepreneurship-specific training as a degree or vocational curricula can benefit a young workforce, at both the leadership and employee levels. Public and private educational institutions play a leading role in supporting education and training, and the corporate sector could contribute content, curriculum, and delivery mechanisms (such as on-site learning). The need to recognise the crucial importance of entrepreneurship and its skill sets is essential for this basic requirement.

Large-scale manufacturing cannot provide the scale of jobs that our country requires. We need to make doing business easy in India and unleash the entrepreneurship sector.

Shikha Sharma
Axis Bank

Provide enabling infrastructure

India needs to develop physical and digital infrastructure to foster the growth of entrepreneurial companies. For small manufacturers in India, the cost of transportation (including its associated delays) accounts for a disproportionate amount of operating costs compared with global standards.

High transaction costs remain a major barrier to entry for many cash-strapped entrepreneurs. It's expensive to start a business—and

to conduct business. This is a broader, systemic problem, one that the government could play a bigger role in addressing.

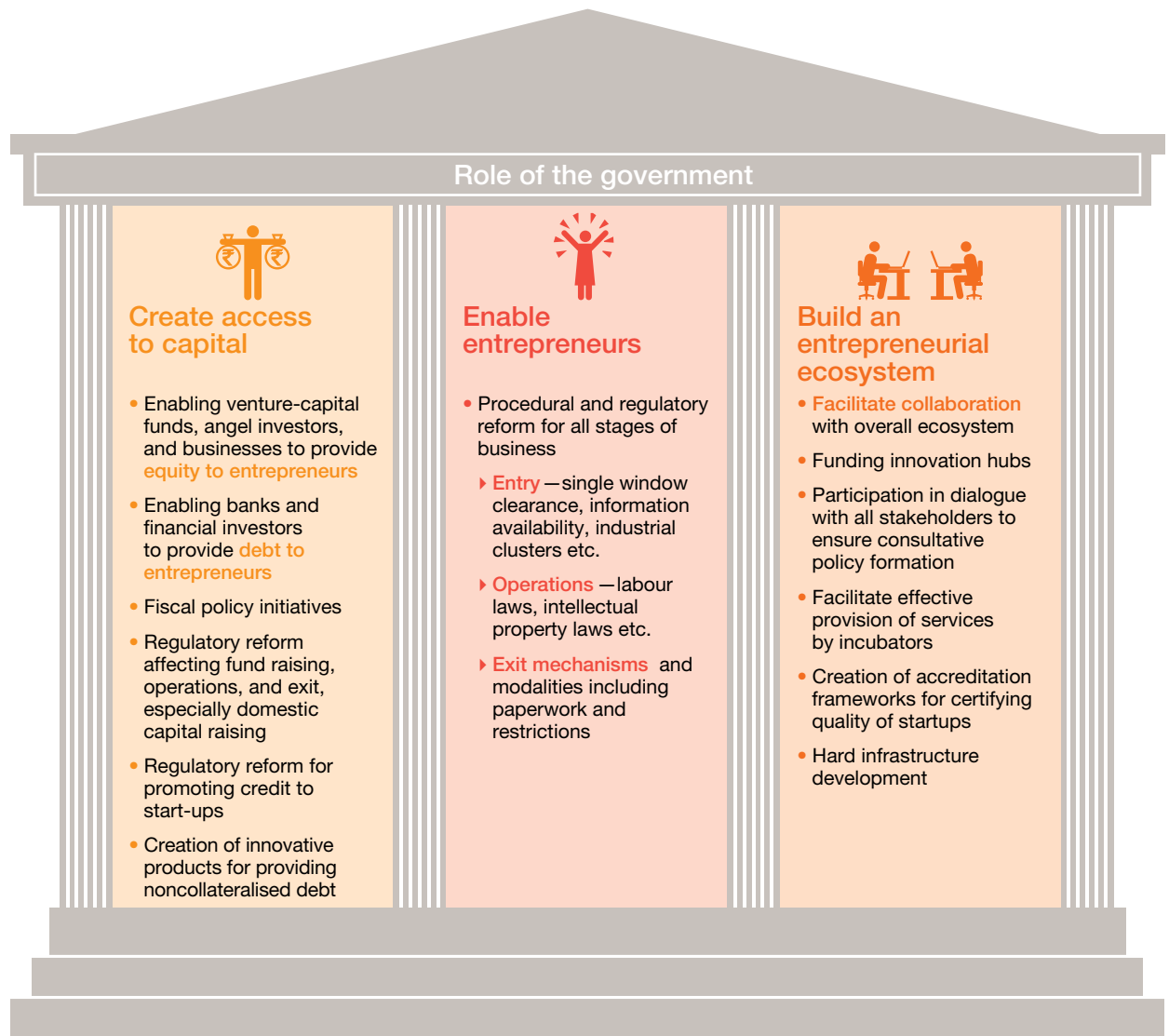
Ensure a favourable business environment

A key role of government and policymakers is creating an environment conducive to business formation: making it easy to launch and operate a business. Government plays a role in three primary areas: facilitating the ecosystem (for example, by funding innovation labs and working with stakeholders to

shape policy), enabling capital to flow smoothly, and reforming regulations and procedures to facilitate establishing new businesses. (See Figure 4.2.)

Beyond the formal barriers, Indian culture hasn't traditionally celebrated entrepreneurialism. This is not just a failing of the private sector or the government. The media, schools and civil institutions, and even the family have a responsibility here. For instance, there needs to be a greater tolerance for failure, to encourage the kind of risk-taking

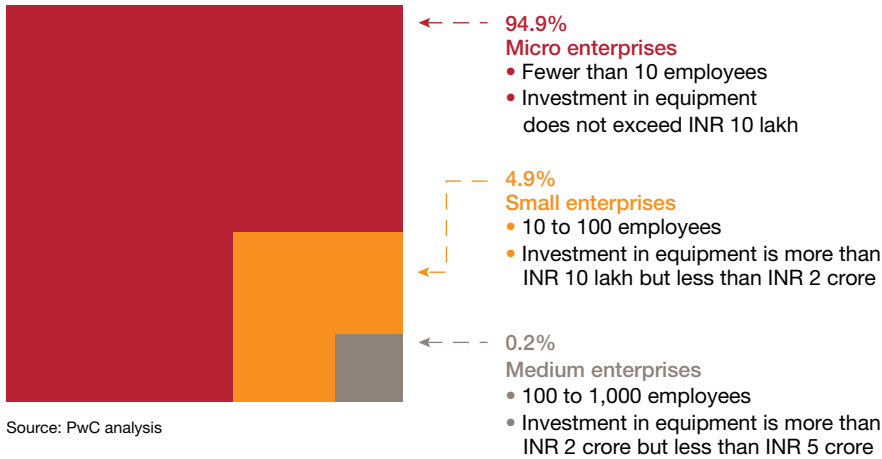
Figure 4.2: How the government could establish a favourable business environment



Source: Planning Commission, Government of India

Figure 4.3: SMEs in India and the lack of scale

Percentage indicates number of businesses in each category



Source: PwC analysis

Entrepreneurship initiatives in India are driven by primary motives of addressing gaps—and not for creating paradigm-shifting change.

Vineet Rai
Intellicap

that's central to entrepreneurship. The media could help change attitudes, too, by bolstering coverage of innovation and innovators and by highlighting entrepreneurial role models.

The potential of SMEs

India has 48m SMEs, the second-highest number in the world after China (with 50m). SMEs' impact is not trivial, either: they contribute 45% to India's manufacturing output, account for 40% of total exports, and play an important role in job creation.⁵ However, the regulatory environment is difficult in terms of multiple procedures and the high paid-in capital required to start a new business. As a result, 94% of SMEs are currently unregistered, which leaves them struggling with issues such as a shortage of skilled workers, limited market exposure, and restricted access to capital needed for growth.

Such an unfavourable regulatory environment limits Indian SMEs' ability to grow. Of the total number of SMEs, only 0.2% are medium size, employing between 100 and 1,000 people. And although SMEs employ 40% of India's overall workforce, they contribute only 17% to the nation's GDP. Lack of scale is a major issue, and the constraints that SMEs face in growing puts considerable limits on India's overall economic growth. The presence of many unregistered SMEs also contributes to systemic inefficiencies that sap productivity, such as low technology adoption due to limited access to finance. As a result, SMEs contribute less to GDP than they might otherwise. (See Figure 4.3)

The role of the private sector

Although government plays a vital role in enabling entrepreneurialism, it's the private sector that has the most crucial part in developing entrepreneurs in India. It does this

by nurturing the entrepreneurial ecosystem: specifically, by providing access to markets, support systems, and funding.

Perhaps the most important way that private-sector entities—established companies and investors—can contribute is by identifying promising ventures and providing them with the support they need to develop. Consider the following two approaches.

Build an ecosystem to identify, develop, and scale new solutions

TCS's Co-Innovation Network (COIN) comprises customers, alliance partners, venture capitalists, start-ups, academic institutions, and industry groups organised to create a research and innovation ecosystem. Through COIN, TCS identifies niche products, new products, and disruptive innovations. TCS then supports the entrepreneurs in developing client solutions, through its

The role of entrepreneurs in India will be to provide variation and come up with innovative solutions. The role of the corporate sector will be to select and scale these ventures.

Porus Munshi
Making Breakthroughs Happen

own capabilities and with the help of other COIN partners. COIN has established alliances with entrepreneurs in the US, Europe, and Asia focusing on emerging areas such as data-centre optimisation, on-demand distributed software development, and compliance-cost-reduction solutions.⁶

Mentor entrepreneurs and provide support through their journey

Future Ventures is a venture-capital fund that targets the retail industry and that has invested in more than 15 Indian companies, including BIBA, Anita Dongre Designs, Indus League Clothing, Capital Foods, Holii, and Indus Tree. The fund

invests in a controlling stake or as a joint venture partner, and generally takes a hands-on approach: it closely manages its holdings, influences business decisions, and mentors management. It also shares best practices learned from its earlier retail successes. For example, Future Ventures provides distribution and logistics support, along with fundamental business expertise such as inventory management, advertising, and accounting processes. Additionally, Future Ventures provides access to consultants, business networks, venture capitalists, and prominent speakers, as well as one-on-one coaching.

Clearly, such collaborations established between large private-sector players and small entrepreneurs can be successful. At this critical juncture in India's business history, the country needs more of them. If government and the corporate sector play their parts, a thriving entrepreneurial ecosystem could be the solution to India's daunting employment challenge.



For more information

Steering Committee

Deepak Kapoor
Chairman and Territory Senior Partner
PwC India

Juan Pujadas
Vice Chairman-Global Advisory Services
PwC International Limited

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Global Strategy and Leadership Development
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Neil Wilson
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PwC India

Shashank Tripathi
Strategy Consulting Leader
PwC India

Special Thanks to

Swati Prasad
Sarah Hunter
John Kerr
Lauren Keller Johnson
Catherine Cuddihee

Design Team

Odgis + Company
Nidhi Jain
Pallavi Dhingra

Project Lead Partner

Shashank Tripathi
Strategy Consulting Leader
PwC India
shashank.tripathi@in.pwc.com
+91 981 96 78900

Core Team

Arup Mazumdar
Principal Consultant, Strategy Consulting
PwC India
arup.mazumdar@in.pwc.com
+91 993 05 88938

Suman Jagdev
Associate Director, Emerging Market CoE Lead
PwC India
suman.jagdev@in.pwc.com
+91 982 00 06396

William MacMillan
Manager
PwC Advisory LLC
william.j.macmillan@us.pwc.com
+1 267 761 8463

Gagan Oberoi
Aditi Kedia
Raunak Bavishi
Mayank Sankar Nayak
Katyani Gupta

On Media Enquiries

Nandini Chatterjee
nandini.chatterjee@in.pwc.com
+91 9805 08 447

Rahul Virkar
Mamata Borthakur

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