KPMG

PHD CHAMBER

Chief Secretaries' Conclave 2017: Making New India by 2022

September 2017

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Forewords

PHDCCI

The Chief Secretaries' Conclave is a prestigious flagship event of the PHD Chamber of Commerce and Industry (PHDCCI) which has been relentlessly working for the socio-economic development of Indian states with a motto, 'Strong States Make Strong Nation'. The Conclave essentially carries forward the mission of 'Empowering States', to strengthen India's federal structure of governance.

In 2017, the Chamber aspires to stage 'one of its kinds' initiatives under the flagship of the Chief Secretaries' Conclave, wherein the theme is 'Role of States for Making New India by 2022.'

It aims to support the vision and mission-in-progress for 'Making New India,' by ensuring the best desired outcomes in these crucial areas: Ease of Doing Business, industrial development, education, skill development and employment growth, accelerating the pace of smart cities.

To attain the goals figured out with 'Making New India,' the Conclave spearheads the campaign to transform the way India perceives governance.

A uniquely significant event in India, it fosters a robust ecosystem for businesses, by simplifying the official procedures and making them transparent at decision-making levels, with greater interface of technology. Also, it proactively supports India's 'Economic Reforms Mission,' by bringing the highest echelons of government and industry at one powerful platform where the who's who of India makes their presence felt.

I congratulate the PHD Chamber and KPMG in India for bringing out this in-depth knowledge report on Ease of Doing Business, industrial development, education, skill development and employment growth, accelerating the pace of smart cities.

Gopal Jiwarajka

President

PHD Chamber of Commerce and Industry

The government of India with its latest vision, mission and future goals and policies, is pushing forth the idea of a government which governs, facilitates and encourages the citizens from diverse stratums to participate in economic development activities. Such a vision necessitates innovative means to achieve the desired ends.

In sync with the proposition as mentioned above, the objectives behind the proposed initiative have been deliberated. PHDCCI will lead the momentum with its flagship initiative, 'Making New India by 2022.'

India's position as the world's fastest-moving emerging economy despite unfavourable global headwinds is primarily on account of the dynamic policy measures undertaken by the Modi government, supported by RBI's calibrated focus on inflation and growth. The pulsating policy measures such as Make in India, Skill India, Start-up India, Swachh Bharat, Jan Dhan Yojana and the launch of smart cities have started yielding visible outcomes in all areas of the economy. These can go a long way to put India on a higher growth trajectory and prove how the country's demographic dividend can work to create and skill a new world for today's youth and expand the production possibility frontiers.

Skill development being a niche area of the Chamber, the creation of a skilled industrial workforce is vital for industrial and economic growth, as India has the potential to become the next manufacturing hub, particularly by embracing the digital technologies in their businesses.

The present skilled workforce in India remains at a dismal 2 per cent, which is much lower, compared to other developing nations and number of persons aged 15 years who have received or are receiving skills is merely 6.8 per cent. The country presently faces a dual challenge of severe paucity of highly-trained, quality labour as well as non-employability of large sections of the educated workforce that possess little job skills.

The Chamber strongly believes that a skilled workforce can be an enabler for India's growth story to come true, and thus we have structured our slogan as 'Skilling India for Global Competitiveness.'

This report by PHD Chamber and KPMG in India analyses pertinent issues – ease of doing business, industrial development, education, skill development and employment growth, accelerating the pace of smart cities.

Anil Khaitan

Senior Vice President

PHD Chamber of Commerce and Industry

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PHDCCI

At the outset, I would like to appreciate the new initiative 'Making New India by 2022' of PHD Chamber's State Development Council (SDC). The first Conclave under this theme kept the four broad focus areas, which are aptly covered in this knowledge report –Ease of Doing Business, industrial development, education, skill development and employment growth, accelerating pace of smart cities.

Economies are ranked on their 'Ease of Doing Business.' A high ease of doing business ranking means the regulatory environment is more conducive to the starting and operation of a local firm. 'Minimum government, Maximum Governance' is the guiding principle of the GoI, and now clearly the focus is on simplification of official procedures and reducing the hassles and time at decision-making levels in the government by leveraging technology and transparency.

Further, by keeping the focus on industrial development, the PHDCCI leads the campaign for 'Inclusive and sustainable industrial development' – to bring in the attention of industry towards the government's efforts to make 'Rural India,' the 'new engine of growth.'

As 'human development' is a prerequisite for sustained development, this tops the priority, for 'Making New India.' SDC's initiative concentrates on co-ordination of skill development efforts across the country, removal of disconnect between demand and supply of skilled manpower, building the vocational and technical training framework, skill upgradation, building of new skills.

The Smart Cities Mission is an urban renewal programme by the government of India, with a mission to develop 109 cities all over the country making them citizen-friendly and sustainable. The Union Ministry of Urban Development is responsible for implementing the mission in collaboration with the state governments of the respective cities. These smart cities can make the foundation of a 'New India' and this initiative of the SDC is making it a key discussion point of policy.

I am optimistic that this report by the PHD Chamber and KPMG in India can act as a valuable guide for stakeholders in better understanding the role of thrust areas covered in the Chamber's unique initiative: 'Making New India by 2022.'

Rajeev Talwar

Vice President

PHD Chamber of Commerce and Industry

The Chief Secretaries' Conclave is a prestigious flagship event of the PHDCCI's SDC which has been relentlessly working for the socio-economic development of Indian states with a motto, 'Strong States Make a Strong Nation.' This year's Conclave essentially carries forward the mission of 'Empowering States,' to strengthen India's federal structure of governance – and also officially initiate the Chamber's unique flagship initiative, 'Making New India by 2022,' to transform the way governance is perceived now.

It is in the reckoning that PHDCCI has been leading the discourse on governance through its prominent initiatives and high-powered conferences, inter alia, the Chief Secretaries' Conclave. This knowledge report of the PHD Chamber and KPMG in India has successfully highlighted the core concerns and discussions involving the new initiative 'Making New India by 2022':

- Consolidate a 'way-forward' pertinent to the 'role of states,' to realise the goal of 'Making New India.'
- Recognise and acknowledge the states doing well in certain aspects such as Ease of Doing Business, industrial development, education, skill development and employment, accelerating the pace of smart cities and so on – and present their models, for replication in other states.
- Suggestions for new policies to sustain the governance programmes and further help them to achieve greater inclusive growth.

Sharad Jaipuria

Chairman, State Development Council

PHD Chamber of Commerce and Industry

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KPMG in India

India is steadily marching towards becoming a leading global economy. The government of India's (GoI's) initiatives such as 'Make in India', 'Digital India', 'Ease of Doing Business in India', etc. aimed at strengthening the country, have led to a surge in optimism that has tied both the central and state governments together. Each state is gradually coming out in support of the initiatives and contributing towards developing a powerful economy that is self-reliant and at par with global standards.

Further, the Indian Prime Minister's 'Vision 2022' aims to create a 'New India' through persistent efforts from the government and its people over the next five years from 2017 to 2022, when the country completes 75 years of independence. Revolutionary changes which could make India a new India are expected to focus on inclusive growth and on creating opportunities rather than seeking opportunities. Its mission-in-progress is to transform certain areas which play a critical role in the progress of the country, includes Ease of Doing Business (EoDB), industrial development, education, skill development and employment growth, and accelerating the pace of smart cities.

The central government has emphasised on working along with the state governments and the citizens of India to move towards creating a 'New India', driven by innovation and hard work, characterised by better and equal opportunities, peace and unity, free from anti-social activities like corruption, terrorism and crime. The other initiatives under this movement would be towards the areas involving digitisation, women-led development, nature and resource conservation, supporting people with disabilities, etc. One of the major highlights of this movement revolves around maintaining the Foreign Direct Investment (FDI) inflow of the country and increasing it further. In turn, high FDI inflow can not only bolster the Indian economy and make it among the best bets for investors in the future but also generate a continuous demand for skilled resources and raw materials which could result in better opportunities of livelihood for people. Measures to improve the sluggish investment climate in various parts of the country may emerge as massive job multipliers by boosting the various sectors and industries in India.

Achieving the dream of 'New India' as an outcome of 'Vision 2022' can only be possible through meticulous planning, flawless designing and execution of initiatives and reforms with a progressive outlook and with a long term sustainable goal. To achieve sustainable growth and success in this movement, a number of rules, regulations and measures have been revised by the central and state governments in order to enhance the business climate for investors in India. These along with some of the revolutionary initiatives implemented by the government in the recent past can help the economy reach its desired state.

Mritunjay Kapur

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KPMG in India

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KPMG in India

The key elements that define development alongside growth for an economy include meaningful employment, inclusivity, poverty alleviation, standard of living and robustness of institutions and infrastructure. Tracing back to independent India which focussed on the trickle-down approach for development, the recent decades have aimed at direct interventionist policies at target-oriented groups. The convergence of the outcomes is inevitable, however, only with vigour of alignment around the aforementioned binding factors and with unhindered commitment to measurable results. The vision of a 'New India' resounds the trajectory of a growing nation by focusing on inclusivity and self-sustainability.

Various progressive reforms and initiatives have already been implemented by the government of India with a wide focus ranging from enhancing the business environment to ascertaining macroeconomic stability, the economic activity of the country has received a tremendous boost. What is symptomatic of supporting this further are smart initiatives such as smart cities, industry led growth, facilitating ease of doing business and a focus on education and employment.

The next generation social programmes such as Start Up India, Skill India and others are designed in a manner that aim at inclusiveness and integration, entrepreneurship, productivity enhancement and are self adequately aligning themselves with the sustainable development goals that endeavour to formulate one of the leading economies in the decade to come.

Given the vast expanse of the country and the multitude of hindrances faced by it in its path towards progress, it is pertinent to address the fundamental issues for socio-economic development of India from the grass root level. In such a scenario, the state governments of India can play a critical role by letting the planned measures percolate down to the rural areas. The effective and timely execution of reforms, utilisation of the funding given by the central government for development of infrastructure and other areas, the implementation of schemes has to be flawlessly carried out by the state governments. The active promotion of states by their state governments showcasing them as investment destinations to global investors would also increase the flow of FDI into the country. The thought befits the idea of 'Strong States Make Strong Nation'.

By involving the state governments extensively for implementing measures alongside the central government and empowering them by guiding them in the right direction, India can strengthen its federal structure of governance. This could propel the development of individual states in terms of setting up of businesses, improvement of opportunities, more livelihood options and skills and a better lifestyle equipped with sufficient amenities. With proper governance and empowered states, the nation could rise through the ranks and move closer to achieving its vision
of 'New India'.

Nilaya Varma

Partner and Head

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KPMG in India

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Table of Contents

1. Executive summary 01
2. Ease of doing business 03
3. Industrial development 07
4. Education, skill development and employment growth 15
5. Accelerating the pace of smart cities 29
6. About KPMG 37
7. About PHDCCI 40

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Executive summary

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The significance of inclusivity in growth is well recognised by the Indian government which has aligned its various progressive reforms and initiatives with a wide focus ranging from enhancing the business environment to ascertaining macroeconomic stability and achieving sustainable growth for all sections of the society.

Some of the noteworthy initiatives by the government that may act as levers for growth include Ease of Doing Business, industrial development, education, skill development and employment, accelerating the pace of smart cities. Set in this backdrop, the paper discusses the role of governance and involvement of states in advancing the missions set out for each of these programmes. At the cusp of moving towards a 'New India' on the vehicle of these programmes, it is also worth recognising the role of technology integration and areas demanding reform and attention, so as to ensure that the growth is inclusive, holistic and sustainable.

The development at the state level can be ascertained by the state governments by fostering the onset of industrialisation in rural India to creates more jobs not only for the skilled workers but also create opportunities for the local workers, by implementing reforms which mandate automation and help citizens cope up with the change in technology and help the youth gain vocational skills to improve their opportunities. It is also worth noting the indispensability for the states to have investor and business-friendly reforms to encourage investors from within and outside the state and country to set up businesses and at the same time, ensure that the local marketplaces are not endangered.

The section on 'Ease of Doing Business' in the paper discusses some of the crucial factors that impact business such as timelines and the cost of setting up a business, facilitation of construction permits, property registration, tax payments, power supply, cross-border trading, insolvency resolution and contracts enforcement. Taking cue from the World Bank's Doing Business ranking, it discusses the placement of India in a comparative light with the rest of the world. With specific examples of reforms introduced at the state level and case studies of other countries, the section highlights some of the leading practices and models for replication across the nation.

Tracing the trajectory of development, the section on 'Industrial development' highlights the history of growth of various sectors since economic liberalisation, further delving into some of the key initiatives that are taking place in order to boost industrial activity and the growth of the Micro, Small and Medium Enterprises (MSME) sector. The section underlines the importance of investment in infrastructure and recognises stability in policies and transparency in governance as key enablers of industrial growth. Citing the case of Karnataka in creating an enabling environment for growth, the section emphasises the role of states in flourishing of businesses.

Development of skill and human resource are one of the key enablers of a developed nation. Recognising this, the section on 'Education, Skill Development and Employment Growth', focuses on the education sector across primary to higher education. It discusses some of the pertinent issues that need attention and reforms that possess the potential to induce higher productivity and better outcome in education. Further, it discusses some of the nuances in skilling in India and underlines the need to work collaboratively to develop self-sustainable infrastructure for better access and effectiveness. Some of the initiatives that can be taken by the states to boost entrepreneurial activity in concurrence to the central government's policies have also been detailed out.

A 'smart city' is an urban area that has become more efficient, more environmentally friendly, more sustainable and more socially inclusive by leveraging technologies and focusing on resource utilisation. While noting some of the leading practices in smart cities, the section discusses the trajectory of India in urbanisation and the progress on the smart city initiative. Some of the key elements in the successful implementation of the initiative from the standpoint of convergence, stakeholders, governance and investments have been discussed for reflection and debate.

The goal of creating a 'New India' can only be achieved with the effective implementation of reforms, measures, laws and policies which could help in improving the above four components. This has to be carried out with meticulous planning at the country level and at the state level by the respective state governments. The paper has aimed at providing insights and sheds light on areas which should be looked at for intervention and innovation. It also seeks to stimulate the thought process of different stakeholders in order to leverage the vast potential and opportunity for growth that is on offer.

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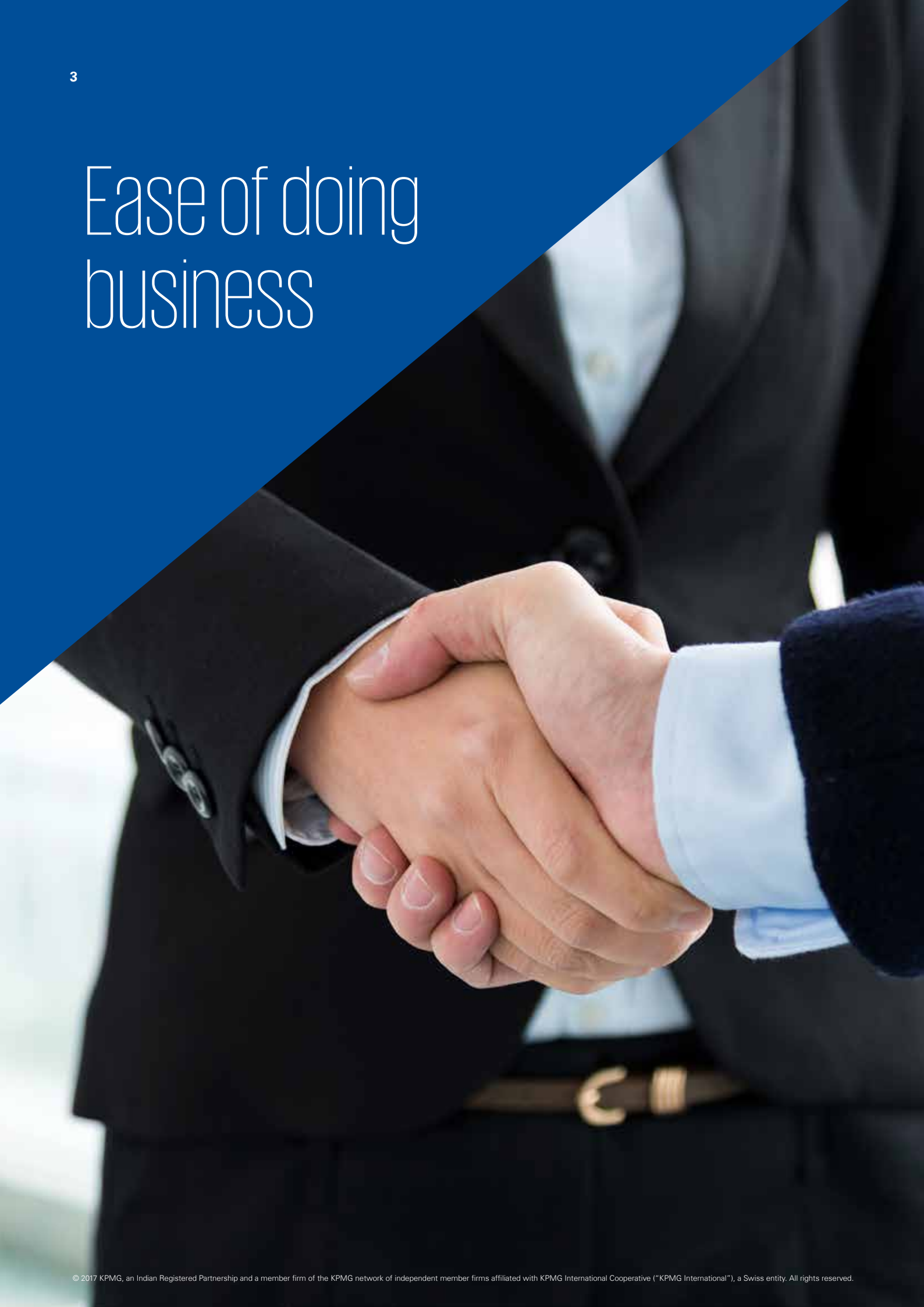
Ease of doing business



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Introduction

India has been highlighted to be among the fastest growing economies today and it has a huge potential to become one of the strongest players in the global market. The various state governments are competitive and are striving to implement various progressive reforms meant for transforming their respective states, with enthusiasm. With the aim to leverage this potential and achieve higher echelons of economic development, by involving the various state governments, Prime Minister Narendra Modi introduced the 'Make in India' initiative in 2014, with a vision of transforming India into a global manufacturing hub by augmenting international as well as domestic investments.

The initiative sought to enhance India's competitiveness in doing business, and consequently increase the contribution of the manufacturing sector to 25 per cent of the GDP by 2025 from its current 17 per cent. The campaign has been successfully conducted for the past three years with considerable progress and improvement and aims to generate employment, foster innovation and drive sustainable growth in the near future.

To accomplish this vision, it is pertinent that the business environment in the country is made conducive for investors and that the licencing procedures for setting up and running a business are streamlined, adaptable, transparent and relevant. In the present Prime Minister's words, it is significant that India offers a red carpet to investors as opposed to the hitherto red tape faced by them. The excessively high regulatory burden borne by businesses in India today is one of the fundamental reasons why the country lags in manufacturing. Thus, in light of the 'Make in India' initiative which necessitates a transformation in the investor appeal of the country, Ease of Doing Business in India has become the new normal.

The 'Ease of Doing Business' initiative is manifested by radical regulatory reforms aimed at improving the experience of doing business for investors by reducing the time, costs and number of procedures associated with starting, operating and exiting a business. These further include legislative reforms such as clearly defined timelines and costs for licences and approvals, issuance of a single ID for state taxes, provision of self-certification and third-party certification based on risk parameters, citizen participation in drafting business regulations, etc.; as well as administrative reforms such as online single window systems for obtaining multi-department level approvals and filing returns, computerised risk-based inspection framework, investor facilitation mechanisms such as centralised helplines, technology-enabled interventions such as mobile applications, etc.

Over the past three years since the Ease of Doing Business initiative was unveiled, the reforms which have been implemented across various states have given a considerable impetus to the overall economic growth in India by enhancing investments, productivity and exports in different sectors with a focus on the manufacturing sector. In the years to come, with continued diligence and initiatives, the reforms designed and implemented will further impact millions of livelihoods by deregulating small scale occupations such as street vending and creating jobs in the micro, small and medium enterprise sector.

Ease of Doing Business at the state level

Since 'Ease of Doing Business' was brought under 'Make in India', there has been considerable progress in terms of planning and implementing revolutionary reforms which aim to re-engineer the existing processes and further streamline them. Various state governments have made the 'Ease of Doing Business' their prime task and have relentlessly pursued the goals in terms of implementing the reforms and phasing out the irrelevant processes and have eased the business climate in their respective states, both in rural areas as well as in the urban areas.

Some of the game-changer reforms that have been implemented in various Indian states can be summarised as follows –

I. Reforms on the single window clearance system

The states of Andhra Pradesh and Punjab have been role models for the rest of the Indian states with their single window clearance system which has not only transformed the way their governments function but also by increasing the ease of availing many of the information and approvals required for setting up a business in the state by removing the physical touch-points. This model, which has now been followed by most of the states, consists of a strong IT interface, single desk portal for users and departments with an efficient and dedicated body, single desk bureau, to ensure strong compliance and high performance. A single desk bureau acts as a single point of contact for investors/ entrepreneurs to obtain clearances/approvals for setting up business in the respective state in specified timelines. The bureau comprises of officials with competent authorities from all the stakeholder departments. A single desk bureau reviews and monitors the performance of the single desk portal and accords deemed approval/clearance/ recommendation in case the concerned department does not provide clearance within the specified SLA.

II. Reforms on registering property

A couple of years back, the process of land acquisition and property registration used to take up a lot of time. The long time taken by the process proves to be a bottleneck. The high costs and transaction fees as well as the number of departments to be visited and the number of visits to each department make the land acquisition process complex. As a part of Ease of Doing Business, various states have re-engineered and automated the processes for registering property and land acquisition which has made the processes simple and hassle-free.

1. Doing business: Measuring Business Regulations, http://www.doingbusiness.org/data/exploreeconomies/india, as accessed on Aug 13, 2017

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The government of Gujarat promulgated the Special Investment Region (SIR) ordinance in order to expedite the process of land acquisition and planned development, mainly in the Delhi-Mumbai Industrial Corridor. The ordinance facilitates the establishment, development, operation and regulation of SIR in Gujarat. The ordinance provides for a single window clearance system authority.

The Karnataka government has implemented a system for computerised land transactions and online registration called KAVERI which aims to expedite the generation of encumbrance certificates. The use of advanced technology like biometrics helps facilitate complete verification, faster registration and reduces fraud. The facility of e-stamping across the state facilitates quick and paperless payment of duties and the entire process takes only a single day to complete all registration processes.

III. Reforms on payment of taxes

Various states governments have been consistently working towards improving the processes involved in payment of various taxes under the state government. All the state governments have implemented a series of reforms for easing out the process of payment of taxes. The government of Maharashtra has implemented innovative reforms like introduction of Economic Intelligence Unit (EIU) and Computerized Desk Audit (CDA) which work in tandem to identify the cases for audit or assessment on the basis of certain risk parameters and conduct the audit. This mechanism which enables direct website compliance by dealers for closure of audit issues has received several accolades and awards - Rajiv Gandhi Gatimanta Award, Skoch Award, e-India award to name a few.

IV. Reforms on construction permits

The process of availing construction permits before commencing the construction of the infrastructure of the business used to involve a series of cumbersome processes with multiple visits and stakeholder departments. The state of Madhya Pradesh was one of the first to introduce reforms related to easing out the process. The government of Madhya Pradesh introduced a Comprehensive Automated Building Plan Approval System (ABPAS) that allows online application, status tracking, scrutiny of drawings, uploading remarks/reports/photographs via mobile during site inspections, calculation of fees and online payment, issuance of final certificate and MIS.

The government of Haryana also implemented reforms aimed at simplifying the existing processes by allowing third party certification of structural design and architectural drawings by authorised structural engineers/architects which reduced the number of visits and hence time spent by the approval seeker in meeting different officers from stakeholder departments.

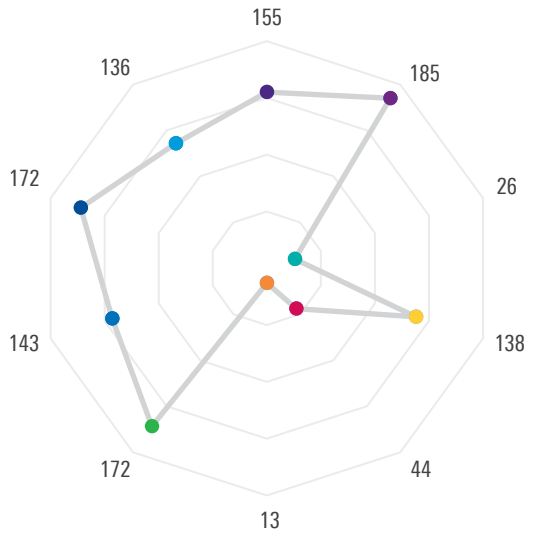
Where India stands in Ease of Doing Business

The importance of 'Ease of Doing Business' at the country level is indispensable as it affects the growth in FDI, the country's GDP as well as the per capita income. Further, it focusses on formulating good rules which are mandatory for social inclusion which help ensure that growth opportunities are available to all the existing as well as to the upcoming firms. The objective of this project is to encourage regulation that is designed to be efficient, accessible to all and simple to implement.

Since the project's launch in 2002, a number of economies across the world have been ranked for various indicators on time, cost and procedures involved, the project has been analysing domestic small and medium-size businesses and measuring the regulations applying to them through their life cycle. The World Bank in the due process of ranking economies, takes exhaustive quantitative data gathered over time into account.

The reforms implemented for ease of doing business in a country for the various parameters, aim to encourage the domestic businesses as well as foreign. The reasoning behind it can be summarised as "The new businesses

India's Performance in the World Bank Doing Business 2017 Assessment



Source: World Bank Doing Business 2017 Assessment

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provide jobs as well as bring with them new technologies, which pave the way for substantial sustainable development."

At the country level, ease of doing business brings novelty in indigenous technologies, and helps in formulating innovative solutions. Such interventions on the part of government are necessary to fill up the institutional gaps and help entrepreneurs. It is also helpful for the central government since it focuses on decentralising the work, thereby, reducing its burden of micromanaging each task. Hence, it promotes efficient governance and reduces the roles of government offices.

Today, despite facing a lot of challenges due to the expanse and population, India has achieved praiseworthy progress and is expected to rise through the ranks in the upcoming assessment of the World Bank's Doing Business 2018 index. India already ranks well on the indicators pertaining to Getting Electricity, Getting Credit and Protecting Minority Investors with 26th, 44th and 13th ranks respectively.[1] With a positive outlook coupled with proper planning and execution of progressive reforms, slowly but steadily, India is overcoming its challenges.

Some of the noteworthy achievements in terms of implementation of reforms can be summarised as – pan country implementation of GST (Goods and Services Tax), implementation of an online single window for all No Objection Certificates related to construction permits, implementation of specialised commercial benches and the establishment of electronic case management systems along with a facility for e-payment for enforcing contracts, implementation of reforms related to automation reducing the time and cost by more than one-third the parameters required in 2017 for 'Getting Electricity' and half the parameters required for 'Registering Property' indicators.

The above reforms in each indicators are further supported by efficient IT portals, effective monitoring, verification and tracking mechanisms which are available in the public domain in the form of dashboards, e-registration and e-payment facilities, abolishment of any physical touch points and unnecessary documents and procedures and availability of the required documents and templates online on the department website.

Leading practices by other countries

Case Study I - Singapore

With the introduction of the Construction and Real Estate Network (CORENET) building approval online platform in 2001, Singapore ensured that the builders apply for all construction-related approvals in a single window. The CORENET was successful in processing almost the entire chunk of 150,000 building plan approvals submitted in 2004 in Singapore.

The platform allows users to apply, make payments, track progress, view inspection reports and download the final certificates online. This system has greatly improved the quality and rapidity of construction permits in the country.

Before the implementation of the reform, applicants were required to make multiple applications to different agencies and meet different approval standards, thereby accounting for longer waiting periods, more physical interactions with government officials and expenditure on transport, printing, manpower, office storage, etc. After the introduction of the CORENET, the process of obtaining building plan approvals was revolutionised with the provision of digitisation and knowledge sharing.

Qualified professionals experienced savings from using CORENET for the headers pertaining to printing costs, transport costs, hardcopy storage expenses, manpower costs and time savings.

Case Study II - Bavaria, Ukraine and Korea

Risk-based construction permits in Bavaria, Ukraine and Korea, enabled governments to focus their time and resources on more complex constructions.

Bavaria (Germany) introduced a risk-based construction permit approach in 1994. Low-risk buildings were allowed self-certification, with the condition that designing architects must show proof of their qualifications and assume liability for the construction. For medium-risk buildings, a facility of third-party certification was made where an independent, certified appraiser must approve the plans. Only high-risk projects were fully reviewed by construction permit agencies. This approach of risk-based construction permit was marked as highly successful and advantageous to the builders.

Similarly, in 2012, the government of Ukraine implemented a risk-based approval system, which differentiated buildings into five categories based on their complexity, with categories 1–3 being simpler buildings. This has simplified the procedures required to obtain construction permits for low-risk buildings like warehouses.

In 2006, the implementation of risk-based approvals in Korea enabled small construction projects to obtain construction permit through a fast-track option. This helped the government focus its time and resources on more complex constructions. The reform concurred with an increase in applications for construction permit: between 2004 and 2009 the number of applications for commercial building permits in Seoul increased from 1,521 to 3,895.

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Industrial development

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Indian industries: Growth story with economic liberalisation

The 'Make in India' initiative launched by the government of India in 2014, with a vision of transforming India into a global manufacturing hub by augmenting international as well as domestic investments, is envisaged to leverage this potential and achieve higher echelons of economic development through initiatives that aim to enhance the country's competitiveness in doing business, and consequently, increase the contribution of the manufacturing sector to the economy to 25 per cent by 2025.[1]

A gradual shift is observed from an agrarian economy to an economy that is led by manufacturing and services sector, at the time when India is pushing hard to open up her markets, reduce regulatory roadblocks and develop innovative campaigns such as 'Make in India' to attract more foreign direct investment in a bid to fuel growth in the country and create job opportunities for a fast growing young workforce.[2] The industrial sector of the country accounts for close to 26 per cent of the GDP and employs 22 per cent of the country's workforce. World Bank reports also suggest that in 2015, the country's manufacturing GDP output was sixth largest on US dollar basis (USD 559 billion), and ninth largest in terms of inflation-adjusted constant 2005 US dollar basis (USD 197.1 billion).

This growth and consolidation of the industrial and manufacturing sector of the country was spurred by the economic liberalisation in 1991 leading to liberalisation of the FDI regime, improvement of the infrastructure sector, privatisation of a certain number of government-owned public sector entities, and a concurrent expansion of the Fast Moving Consumer Goods (FMCG) industry of the country. This was further bolstered by the current government's 'Make in India' initiatives aiming to transform the country's economy into a economic powerhouse by 2025.

The economic liberalisation led to defining a structural shift in the Indian economy as well, with the industries and services sector gaining at the cost of the agricultural sector. By the turn of the 21st century, India had already turned into a free-market economy, with increased financial liberalisation, and a significant reduction of state control of the economy.

1. Source: 'A Study of Foreign Direct Investment (FDI) on Manufacturing Industry in India: An Emerging Economic Opportunity of GDP Growth and Challenges', Sanghamitra Samal and D. Venkatrama Raju, 2016, accessed on 25 August 2017
2. Source: The industrial sector of the country accounts for close to 26 per cent of the GDP and employs 22 per cent of the country's workforce.

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Post the economic slowdown in 2008, the Indian economy saw a period of slump in growth due to a plunging Indian rupee, a slow industrial growth and a persistent high current account deficit. India sustained a recovery in 2014-15 with economic growth surging to 7.2 per cent. In 2015-16, the manufacturing sector grew at a 7.6 per cent, higher than that of China which grew at 6.9 per cent. Increased global economic uncertainty, subdued demand scenario, and turbulent political developments leading to de-globalization, however, impacted the growth of the sector in the last two years starting 2016-17. In FY 2017, the industrial sector is projected to grow at 5.2 per cent, a sharp decline against 7.4 percent in FY 2016[3].

Key policy interventions and government support are critical for promoting certain sectors, especially the labour-intensive manufacturing sector. In order to promote entrepreneurship and make India a leader in the startup and entrepreneurship ecosystem across the world, the government has launched the Startup India Mission, run by the Department of Industrial Policy and Promotion (DIPP), promoting bank-financing for startups and offering them incentives.

Other major initiatives by the central government to boost the manufacturing sector of the country include the launch of the Modified Industrial Infrastructure Upgradation Scheme (MIIUS), promoting merchant exports through incentives, and the launch of Micro Units Development and Refinance Agency Ltd. (MUDRA).

Recognising the significance of a robust infrastructure ecosystem in the country and its correlation with the industrial development of the country, the central government has shifted its focus towards infrastructure development with a slew of financial, regulatory and institutional reforms. Consequently, investments towards infrastructure development more than doubled, from 4.5 per cent of GDP in the 10th Five Year Plan to approximately 9 per cent of GDP in the 12th Five Year Plan[4]. It was also felt that the key to the country's growth depends on how efficiently, effectively and quickly it can undertake infrastructure development. Due attention was given to Public Private Partnerships (PPPs) that help in leveraging budgetary resources and in improving efficiency in service delivery by the central and the state governments. In order to expedite large project implementations and avoid cost overruns, the central government also reinforced the 'One Team' model for infrastructure project implementation that recognises the importance and role of both the central government and the state governments in the operationalisation of large projects. Private infrastructure investment is also encouraged with the creation of a 'National Investment and Infrastructure Fund' to mobilise funds and ensure adequate access to finance for major infrastructure financing companies of the country.

Sectoral growth story

Industrial development of the country has come a long way between 1991 and 2016. Liberalised import restrictions, improved infrastructure sector, privatisation of government-owned public sector entities, liberalised FDI regime, all have led to increasing domestic and foreign competition as cheaper Chinese entries into the country surged. This was mitigated by reducing costs, revamping management, employing cheap labour and enabling technology and automation. These, however, led to reduced employment generation, even among smaller manufacturers who now relied more on automation even for previously labour-intensive processes.

1. **Engineering industry:** The sector is the largest sub-sector of the country's industrial sector as per its contribution to the GDP, and the third largest in terms of exports. Encompassing sectors such as capital goods, machine tools, transport equipment, transformers, automobiles, railways, switchgears, furnaces etc., the sector employs close to 4 million people of the country.
2. **Petroleum products and chemicals:** The sector contributes close to 34 per cent of the country's export earnings. The country plays host to some of the major oil refineries of the world with the world's largest oil refinery at Jamnagar that churns out 1.24 million barrels of crude oil every day. The country is also the third largest in Asia and sixth largest in the world in terms of chemicals produced by volume, and among the five largest producers of agro-chemicals, polymers, plastics, dyes, and various organic and inorganic chemicals. The chemicals industry is expected to grow at an average annual growth rate of 9 per cent to reach USD 214 billion by FY 2018-19[5].
3. **Textiles:** The country has the second largest manufacturing capacity globally in the textiles and garments sector[6], and contributes 14 per cent of the country's industrial production, 13 per cent to the country's exports, and 4 per cent to the GDP. India's cotton farms, fibre and textiles industry provides employment to close to 45 million people of the country. The country's apparel and textiles sector is expected to grow from USD107 billion in 2015 to USD223 billion by 2021[7].
4. **Mining:** On an output-value basis, the country is among the five largest producers of coal, iron ore, mica, lignite, bauxite, barites, limestone, mica, chromite, and manganese. The country was the third largest producer of raw steel in FY 2014-15, and the largest producer of sponge iron. The country is also the seventh largest producer of aluminum[8]. The country has, however, seen a decline in terms of contribution of the mining sector towards the economy and employment in the sector. Between 2000 and 2010, the sector's contribution to GDP has fallen from

3. Source: Indian Economic Survey 2016-17, accessed on 22 August 2017
4. Source: Indian Economic Survey, 2015-16, accessed on 22 August 2017
5. Source: Tata Strategic Management Group, October 2015, accessed on 15 August 2017
6. Source: Make in India, accessed on 15 August 2017, http://www.makeinindia.com/sector/textiles-and-garments
7. Source: 'India ITME-2016 - the 'Game changer and catalyst' for Textile industry and Textile Machinery manufacturers', Textile Association of India, 15 October 2015, accessed on 16 August 2017
8. Source: Aluminum USGS, U.S. government (2014)

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3 per cent to 2.3 per cent, while the employment in the sector has gone down to 2.9 million people.[9]

5. **Defence manufacturing:** India meets approximately 70 per cent of its defence requirements through imports. The government has recently allowed 49 per cent FDI under the automatic route in the defence manufacturing sector. The portfolio investment limit in the sector has also been consequently enhanced from 24 per cent to 49 per cent. The country's defence sector is expected to grow at a CAGR of 8 per cent to reach USD64 billion by 2020, while defence spending of the country is expected to grow to USD62 billion by 2022.[10]

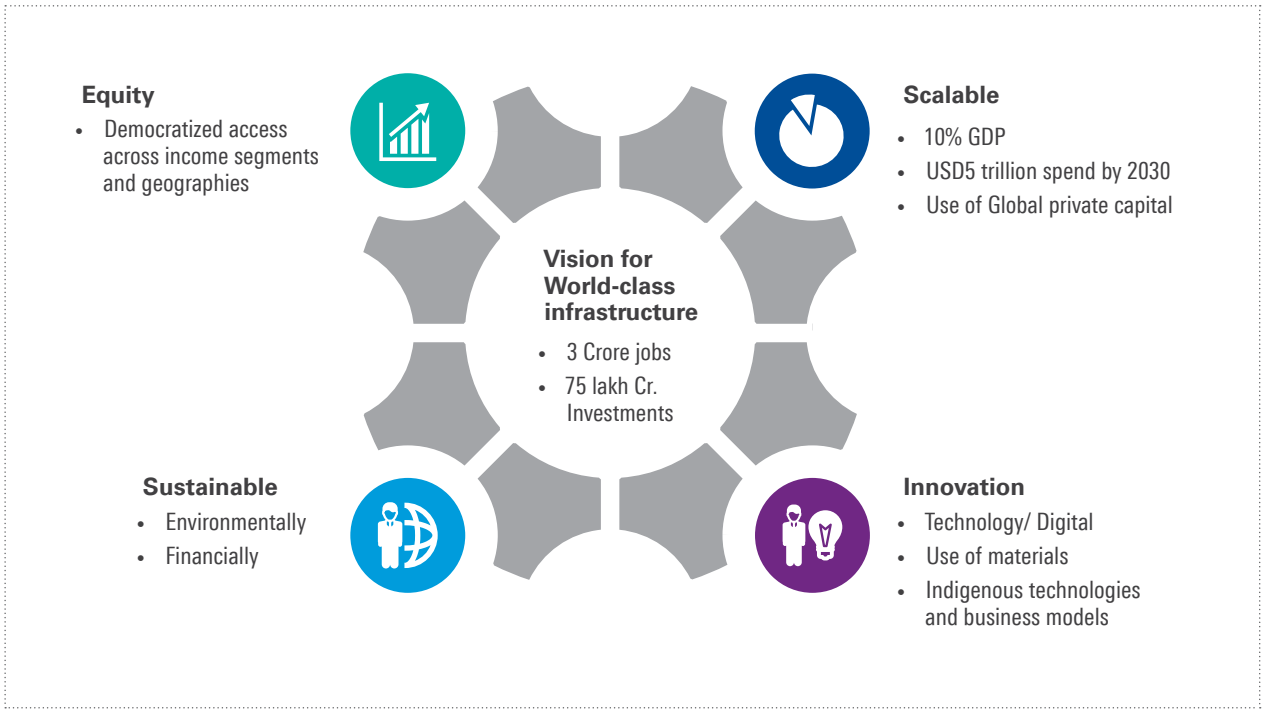
6. **Food processing:** India's food processing sector is the fifth largest globally in terms of production, exports, and consumption. The sector is expected to grow at an average annual growth rate of 11 per cent[11] till 2018, driven by the strong consumer demand for ready-to-eat and packaged food.

7. **Gems and jewellery:** The country is currently one of the largest centres for polishing diamonds and manufacturing of jewellery. The country is also among the two largest consumers of gold. The country accounts for 7 per cent of the country's GDP, and in 2013 accounted for USD39 billion in economic output on a value-added basis. The sector is projected to grow to USD78 billion by 2018[12].

8. **Pharmaceuticals:** The industry enjoyed healthy growth between 2005 and 2016, having grown from USD6 billion in 2005 to USD36.7 billion in 2016 at a CAGR of 17.46 per cent.[13] The sector is expected to grow to USD55 billion by 2020 at a CAGR of 15.92 per cent to emerge as the sixth largest pharmaceuticals market globally. The sector is currently one of the fastest growing sectors and is a significant contributor towards the country's export earnings.

9. **Construction:** The sector contributes more than 10 per cent of the country's GDP and is valued at USD126 billion while providing employment to more than 35 million people of the country. The sector also accounts for the second largest FDI inflows into the country. The sector is expected to grow to USD186.2 billion by 2017, and employ more than 76 million people[14] by 2022. The sector is also expected to attract investments worth USD1,000 billion by 2017 with more than 40 per cent being fuelled by the private sector.[15]

10. **Leather:** The Indian leather sector accounts for 12.93 per cent of the global leather production. The country is also the second largest producer of footwear and leather garments in the world. The Indian leather market's size is approximately USD17.85 billion with exports accounting for USD5.85 billion.[16]



Source: 'Champions of Change - Transforming India through G2B partnership', NITI Aayog, August 2017, accessed on 25 August 2017

9. Source: 'Development of Indian Mining Industry', FICCI, 2012, accessed on 15 August 2017
10. Source: 'Relaxation of Offset Clause for Defence Procurement', Press Information Bureau GoI, 21 July 2015, accessed on 16 August 2017
11. Source: 'The Next Manufacturing Destination', Make in India, 2016, accessed 15 August 2017
12. Source: 'All that glitters is Gold – India Jewellery Review 2013', A.T. Kearney, 2013, accessed on 16 August 2017
13. Source: 'Medical tourism to keep pharma industry in good health: Study', dna, 20 February 2017, accessed on 20 August 2017
14. Source: 'Investment opportunities under India's mega plans', FICCI, accessed on 17 August 2017
15. Source: 'Industrial Master Plan – Optimization of global production networks', KPMG, June 2014, accessed on 15 August 2017
16. Source: Make in India, http://www.makeinindia.com, accessed on 17 August 2017

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Growth of Industries: Key Reforms, Enablers and Initiatives

Robust infrastructure can be considered to be the fulcrum of economic development of any country. While sector-supportive policies, and competitive and co-operative federalism are hygiene factors of development, the differentiator today, is often the 'big bang' infrastructure ecosystem development that positions the country favourably among investors.

With stable policies that are industry-friendly, and transparent governance, India, one of the fastest growing economies, has created an enabling environment for industrial investments that is among the best. Over the past few years, the economic growth of the country has continued to pick up, while the macroeconomic trends have been increasingly optimistic. For accelerated development and economic growth, the country has already laid the foundation to create new infrastructure funds, facilitating a more transparent and stronger PPP process, and jumpstarting strategic infrastructure development. With investments of USD1 trillion[17] already projected for the infrastructure sector during 2012-17, India is on the cusp of creating history with a growth rate of GDP of 8.1 per cent[18] in the construction sector, and 40 per cent of these investments is anticipated to be funded by the private sector, while 45 per cent of the infrastructure investment will be channelled into construction activities. USD650 billion[19] is already projected to be invested for urban infrastructure in the next 20 years. While investments have poured in from across the globe in the infrastructure sector, most of it has been channelled towards the development of the trunk infrastructure of the country.

1. **Road:** India's road network is one of the largest, comprising expressways, national highways, state highways, major district and village roads, carrying 65 per cent of the freight and 85 per cent of the passenger traffic[20]. The financial outlay in the sector has grown at a CAGR of 12.5 per cent between FY 2010 and FY 2016, with a construction of more than 6,000 km of highways in FY 2016 alone.[21] Investments in infrastructure development worth USD19 billion has been planned between FY 2012 and FY 2017, with 112 completed PPP projects and 149 PPP projects in progress.
2. **Civil aviation:** Ranked among the top 10 countries in the world with a market size of over USD16 billion, the civil aviation sector of the country has been one of the most vibrant sectors in the country in terms of investments. During FY 2015, all operational airports in the country have together handled close to 190.13 million passengers and 2.53 million tonnes[22] of freight, a significant increase from the past few years. A remodelled PPP framework for airports has led to noticeable improvements in infrastructure development and revenue augmentation.
3. **Ports:** Indian ports present ample opportunities for investments. According to the National Transport Development Policy Committee, the projected cargo traffic to be handled by the Indian ports by 2021-22 is 1,695 million metric tonnes, an increase of 61.12 per cent over 2014-15. This implies a cargo handling capacity of the Indian ports of 2,422[23] million metric tonnes by 2021-22, requiring an incremental cargo handling capacity of 901 million metric tonnes within the six years[24] between FY 2016 and FY 2022.
4. **Railways:** Considered as the 'growth engine' of the country, the Indian Railways has constantly seen a rise in government spending towards infrastructure and modernisation. With a network spanning more than 66,030 km[25], the Indian Railways has the third largest rail network in the world, and is the fourth largest rail freight carrier. The Indian Railways is also the largest passenger carrier in the world and carried 8,224.12 million passengers in 2014-15. While the government envisages an investment of INR8.5 lakh crore in the railways between 2015 and 2020, 100 per cent FDI has been allowed in the railway infrastructure segment, opening up opportunities for innovative and cutting-edge technology projects like high-speed railways, and high speed tracks.[26]
5. **Power:** The central government has already set a target for capacity addition of 88,537 MW[27] in the 12th Five Year Plan, with 30 per cent coming from the central sector, 18 per cent from the state sector and the rest coming from the private sector. Moving towards the reduction of aggregate technical and commercial losses (ATandC), the 'Integrated Power Development Scheme' has been launched with a financial outlay of INR36,612 crore.[28]

17. Source: Make in India, DIPP, accessed on 22 August 2017
18. Source: Make in India, DIPP, accessed on 22 August 2017
19. Source: Make in India, DIPP, accessed on 22 August 2017
20. Source: http://morth.nic.in/showfile.asp?lid=364, accessed on 22 August 2017
21. Source: MoRTH Annual Report 2015-16, accessed on 15 August 2017
22. Airports Authority of India
23. National Transport Development Policy Committee
24. Make in India, DIPP
25. Make in India, DIPP
26. Source: 'Indian Railways Statistical Publications 2014-15: The Network' (PDF). Ministry of Railway. accessed on 9 August 2017
27. Central Electricity Authority
28. Source: 'Integrated Power Development Scheme', Ministry of Power, 2014, accessed on 15 August 2017

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6. **Renewable energy:** Growing urbanisation, benign economic growth, and a rising per capita energy consumption have resulted in strong demand and investments in the renewable energy sector as well. Realising the massive potential in the sector, the government has drawn action plans for a total renewable installed capacity of 175 GW by the end of 2022, with 35 per cent coming from wind, 57 per cent from solar and the rest from other sources.[29]

Major government initiatives and regulatory reforms

The government recognises that the intended change in the industrial ecosystem of the country is a transformational goal and in order to facilitate this, it will introduce big bang reforms and initiatives, rather than incremental changes, in changing the policy paradigm, enabling innovative programmes and campaigns, and encouraging a culture of entrepreneurship that could help create a healthy ecosystem to do business in the country.

Major initiatives besides Make in India, Ease of doing Business, Skill India and Startup India that are expected to spur the growth of industries in the years to come include:

I. Enhanced government spending in infrastructure and rural economy which is expected to buttress the growth of various sectors within manufacturing including steel, cement, construction materials, engineering goods, etc.

II. Reducing corporate tax rate allowing more profit to companies that can be gainfully used for capital investments

III. Allowing more disposable income into the hands of the general public which could then increase their propensity to spend more and increase demands for different sub-sectors

IV. Setting up dedicated freight corridors to attract greater industrial cargo shipment via railways, implemented through the PPP route

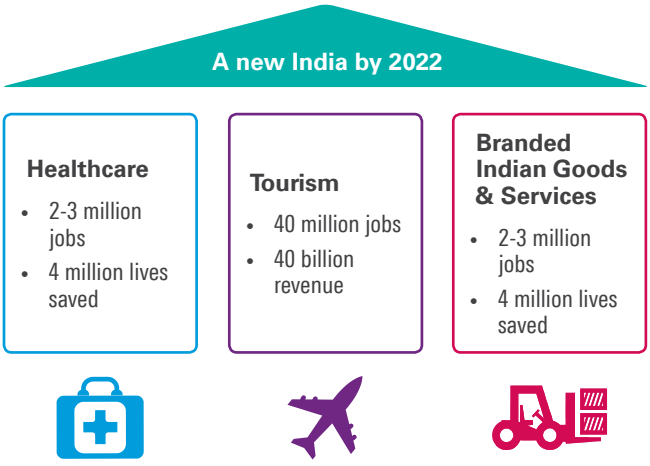
V. Allocated budget for the development of inland waterways for freight transportation to reduce costs of transportation significantly

VI. Promotion of digital means of payment with the launch of Bharat Interface for Money (BHIM) application to move towards a more transparent and compliant economy, and waiver of transaction charges on debit cards.

VII. Above all, the roll-out of GST, ushering the country into a unified taxation structure, is likely to have a far-reaching impact on industries that may have to realign the bottlenecks in production time, production cost, supply-chain, logistics, etc., thereby favouring the growth of the industrial sector of the country.

Making New India: Role of industries government initiatives towards Making New India

In the last three years, the government has launched a wide range of developmental programmes and missions aiming to benefit each citizen of the country, with the confidence that they will be taken to fruition through the concerted efforts of the citizens of the country. These programmes focus on bringing transformative change in areas such as good governance, employment generation, education and health, farmer-centric initiatives, innovative budgeting, accelerated inclusive growth, Swachh Bharat and Ganga rejuvenation, and energy efficiency. The emphasis is on enhancing people's participation in governance and improving their lives. Some of the notable priority programmes include Pradhan Mantri Krishi Sinchayee Yojana, Pradhan Mantri Fasal Bima Yojana, Deen Dayal Upadhyay Gram Jyoti Yojana, e– National Agriculture Market (eNAM), Standup India/Startup India, Beti Bachao Beti Padhao, Pradhan Mantri Ujjwala Yojana, Swachh Bharat Mission, Atal Mission for Rejuvenation and Urban Transformation (AMRUT) and Smart Cities, apart from the flagship Make in India, Digital India, Skill India, and Ease of Doing Business.



Source: 'Champions of Change - Transforming India through G2B partnership', NITI Aayog, August 2017, accessed on 25 August 2017

Making New India focuses on taking progressive measures for development through citizen centric governance, time-bound creation of world class infrastructure, and enabling inclusive growth and gainful employment opportunities for the citizens of the country. While the ball has started rolling for Digital India, the canvas for development is huge for the citizenry. Districts should start graduating to faceless, paperless and cashless ways of working and ensure that they make facilities available to educate people about going digital such as audio-visuals, internet connectivity, educational materials and more.

29. Source: 'Report of the Expert Group on 175 GW RE', NITI Aayog, September 2016, accessed on 15 August 2017

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To chart out the specifics of the intended development of the country, the government has adopted a vision for building a 'New India' with concerted efforts targeting time-bound outcomes for world-class infrastructure. These include:

I. **Urja Se Unnati:** Distribution reforms by endorsing the right to energy for the people, allowing all subsidies through Direct Benefit Transfer (DBT), automatic monthly tariff adjustments, implementing Power Supplier Portability (PSP), and creating power suppliers of the future.

II. **Vidyut Mala:** Supply of 100 GW in 10 years, and 200 GW in 15 years through offshore wind turbines, along the coastline and supported by grid storage.

III. **Mision RASAD (Rail-Sadak-Daria):** Integrated logistics enabling seamless freight movement through an integrated network.

IV. **Sabka Swagat:** A comprehensive tourism policy to double domestic tourist movement and triple foreign tourist arrivals by 2022, by creating tourism clusters, visa fee waiver for five years, open and liberal skies policy and aviation hubs.

V. **Sabka Swasthya, Sabka Vikas:** Universal holistic healthcare for all at INR2 per person per day by 2022 through New Integrated Health Design 2022, and Universal Healthcare Coverage JAM enablement

VI. **Aapka Saath:** Implementation enablers to change the image and perception of the country, by launching the Build India campaign, creating model infrastructure financing institutions, and empowering and reforming the bureaucracy by providing a safety net.

Today, India is witness to a high degree of competitive federalism in the country. To effectively compete with the developed nations and get a lead on the comparative ones, the country has ignited the spirit of healthy competition amongst the states to expedite implementation of the selected priority programmes.

Role of states in Making New India

Making New India can be achieved only if holistic growth of individual states of the country are adopted through appropriate sector-level interventions in policies, infrastructure, skilling, MSMEs, and marketing for the sector in the state. State governments now recognise that the intended change in the industrial economics of the state is a transformational goal and in order to facilitate the same, they will introduce enablers in the form of branding, changing the policy paradigm and encouraging a culture of entrepreneurship that could help create a healthy ecosystem of doing business. With the central government's thrust on competitive and co-operative federalism, states are wooing investors by showcasing their potential to be agile and facilitative. While robust infrastructure and sector-supportive policies are hygiene factors for development, the differentiator, today, is often the "big-bang" policy that positions the State favourably among investors. Accordingly, the state governments are continually updating their investor ecosystem to make it more user-friendly, robust and conducive to business.

To chart out the specifics of intended national development, today, each state is gradually coming out in support of the initiatives and contributing towards developing a powerful economy. With every state in India undertaking aggressive policies, regulatory and infrastructure initiatives towards achievement of national priorities, it is time to acknowledge and appreciate the success stories from the ground in the major national priority programmes.

In Startup India, Karnataka has become a lighthouse state, being the first state to announce a multi-sector start-up policy, along with a dedicated startup cell to help startups with registration, application for incentives, booster-kits, etc. Karnataka is also a pioneer in setting up the first Startup Warehouse in 2013 in collaboration with National Association of Software and Services Companies (NASSCOM) and has also set up the Bangalore Bio Innovation Centre. The state aims to stimulate growth of 20,000 technology start-ups including 6,000 product start-ups by 2020, generate 6 lakh direct and 12 lakh indirect jobs in the sector, mobilise USD312 million funding for investment in startups through government intervention alone, by leveraging the Fund of Funds proposed to be put in place by the state government, facilitate generation of at least 25 innovative technology solutions with social impact in areas such as healthcare, food security, clean environment, education, etc.

Telangana has notified an innovation policy, offering various incentives for incubators and start-ups, and has the first of its kind rural livelihood incubator. T-Hub, a Telangana Government initiative, has become one of the largest start-up ecosystem builders in India, with over 2,000 start-ups in its database clustered into various stages of growth. As the government targets doubling farmers' income by 2022, Indian states have taken exemplary initiatives in the agriculture sector through the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), and electronic National Agriculture Market (e-NAM). In Anantpur, Andhra Pradesh, most farmers have adopted micro irrigation in their fields, and 141,975 farmers have benefitted with an average increase of 31.8 per cent in their annual incomes. In Kurnool, through the cascade of tanks along with feeder channels, 15,000 km of streams and 2,000 Kuntas/ tanks have been connected, and ground water table has increased for nearly 1 lakh acre of land.

In Bareilly, Uttar Pradesh, total value of trade on the eNAM platform was INR41.37 crore, covering 98,026 quintals in volume traded. Across three districts in Himachal Pradesh, more than INR14 crore have been traded on the platform, covering 27,000 quintals of volume traded. In Telangana, INR77 crore of trade has been transacted through the eNAM portal, of which more than 90 per cent were cashless. Gujarat performed even better, with INR101 crore of trade, 100 per cent of which was cashless, giving an added impetus to the collective effort towards becoming a cashless society.

The central government has sought to address the problem of low levels of electricity access through various programmes. The Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY) announced in 2014, has been highly successful in rural electrification. In Barwani, Madhya Pradesh, a 24x7 centralised call centre has been set up in the district. Free LED bulbs and free of cost connections

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were provided to each Below the Poverty Line (BPL) household, and 40 villages have been electrified in the year 2016 with close to 24 hours power supply. In Katihar and Munger, Bihar, more than 47,000 and 56,000 BPL households respectively have been electrified. In Kishanganj, Bihar, all 110 villages which were without power earlier have been electrified. In Nagaon, Assam, 210 villages were electrified, using innovative methods such as rafts for transporting electric poles to villages, and each village was given a separate transformer.

A few other noteworthy governance examples in other parts of the country[30] include:

- Creating a completely cashless village in backward Dantewada region in Chhattisgarh, empowering villages for digital transactions
- Comprehensive education development through the setting up of an 'Education City' in Sukma, Chhattisgarh for holistic education and teacher development for students from backward and interior villages
- A system for early detection and screening for breast cancer, in Thrissur (Kerala)
- 'Farm Pond on Demand' to provide protective irrigation to overcome water scarcity and make Maharashtra a drought-free state
- Generating power from municipal solid waste, in Jabalpur, Madhya Pradesh
- Solid waste management initiatives in rural Tamil Nadu
- Solar Urja Lamps project in Dungarpur, Rajasthan
- Spectrum harmonisation and carrier aggregation to free up additional spectrum and enable service providers to introduce new technologies – Long Term Evolution (LTE), 4G etc.
- The Neem project in Gujarat which is generating employment for nearly 1.75 lakh rural people, either directly or indirectly
- The WDS (Widow Divorced and Separated) for benefitting nearly, 9000 widowed, deserted and separated women with entitlements from various government schemes.

Industrial development in India has been a story of evolution and has resulted in social and economic development. Over the years, investments in the industrial sector of the country has increased to stimulate economic growth, and propel job creation. At the time when India is at the cusp of creating history with a double digit economic growth and pushing hard to open up her markets, and reduce regulatory roadblocks, the central government's focus on industrial development can further accelerate this momentum. With innovative initiatives such 'Make in India', 'Digital India', 'Start-up India, 'Stand-up India', the central government is trying to attract investors to make investments in the industrial sector of the country.

30. Source: Department of Administrative Reforms and Public Grievances, Government of India

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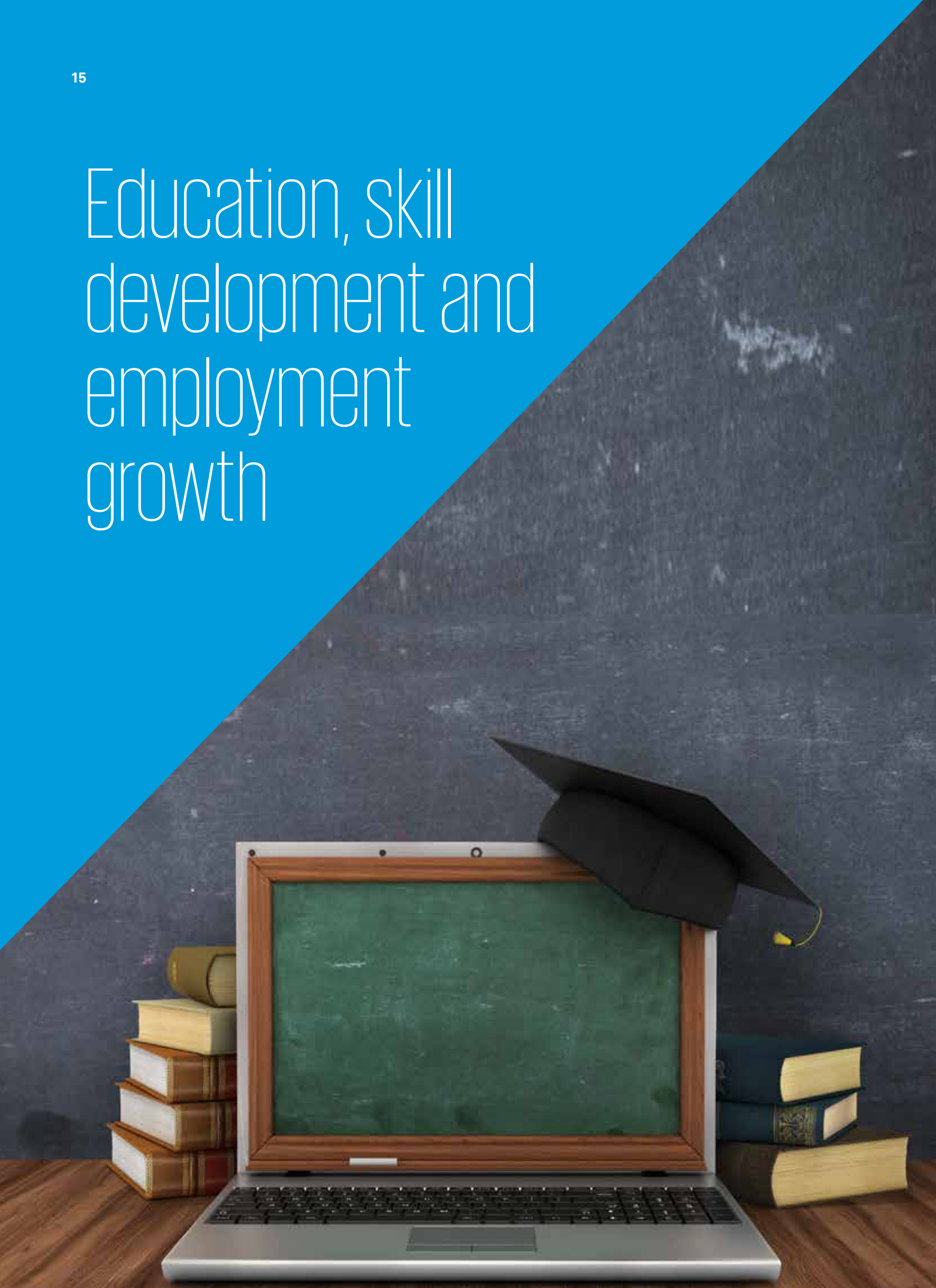
Education, skill development and employment growth



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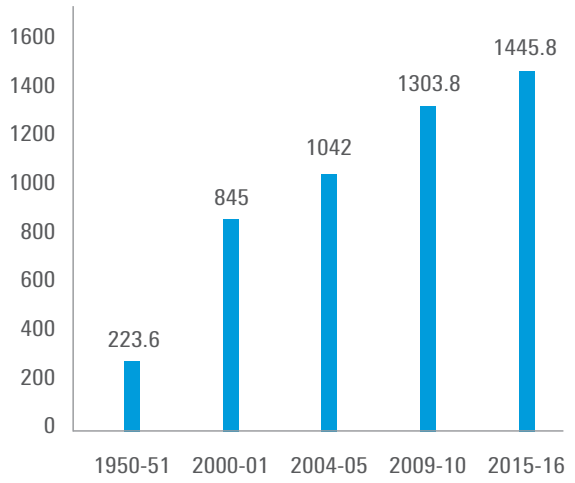
Education and skill sector landscape

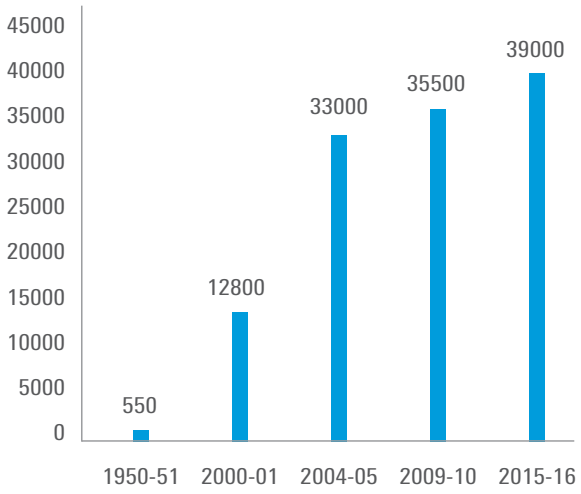
As of 2017, India's economy is expected to grow at the rate of 7.2 per cent, making it the fastest growing major economy in the world. India is expected to become the world's youngest nation by 2020 with a median age of 29 years.[1] The country's workforce is expected to be the largest and youngest the world has ever seen. While the numbers are in our favour, to what degree we leverage our mammoth workforce is dependent on creating adequate infrastructure, opportunities and environment for this workforce enablement, seeding through policy changes and reforms in vocational educational and training. A country's education system is the driving force behind its national development, be it economic or social development. Recognising this, India, over the years, has worked on strengthening its education system across all levels from primary school education to higher education through various policies and schemes.

Figure 1: Growth in the number of schools imparting primary education (number of schools in 000s)[2]



India today has the largest K-12 network in the world with almost 1.5 million schools and 250 million students[3] enrolled across all levels from primary to higher secondary. From 1950 to 2000s, the school education system has witnessed enormous progress in terms of an increase in the number of institutions, rise in enrollments, and a growth in the number of teachers. The gross enrollment ratio in primary education has risen from 42.6 in 1950s to 99.2 in 2015-16[4]. Today, the rise in enrollment and improvement in infrastructure can be attributed to several key initiatives such as Sarva Siksha Abhiyan, Mid-day Meal Scheme and the Right to Education Act.

Figure 2: Growth in the number of colleges in India[5]



In higher education, India is home to the third largest network of institutions comprising 39,000 colleges, catering to 27.5 million undergraduate and 4 million post graduate students[6]. Higher education has witnessed tremendous growth in the last few decades. For instance, the number of colleges has grown 70 times from 550 in the 1950s to 39,000 in 2016[2]. Similarly, the number of universities has increased from 30 in 1950 to 800 in 2017[7]. The IITs today are recognised among the world's leading institutions in engineering and technology. In recent times, the role of the private sector is also increasing considerably in higher education. For instance, the number of state-run private universities has grown from 105 in 2011-12 to 197 in 2015-16[8]. Further, the country is widely recognised as a hub for talent in science and engineering, which can be attributed to the strides made in India's higher education system.

In the area of skilling, the government, over the years has recognised the need to have the capability and capacity to cater to the increasing manpower demand created by a rapidly growing economy. Creation of a separate Ministry for Skilling and Entrepreneurship and launch of the Skill India campaign with the aim of training over 400 million people by 2022[9] are a few of the steps taken in this direction. One of the key agencies that work with the government towards achieving this target is The National Skill Development Corporation (NSDC) a distinctive, Public Private Partnership (PPP) model in India, under the Ministry of Skill Development andand Entrepreneurship (MSDE). It aims to promote skill development by catalysing the creation of large, quality and for-profit vocational institutions.

1. India Surging Ahead Economic Diplomacy Division, Ministry of External Affairs, 2017
2. DISE School Education Statistics, 2015-16
3. Education statistics at a glance, MHRD, Dec 2016
4. DISE School Education Statistics, 2015-16
5. AISHE, MHRD, 2015-16
6. World Bank, Country Summary of Higher Education
7. www.ugc.ac.in
8. KPMG Analysis of AISHE Report, 2015-16
9. Narendra Modi wants to train 400 million people to avert demographic mess; Livemint; Jul 09, 2015

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Despite the plethora of initiatives taken and their successes, the education and skilling system continues to face a number of challenges given its vast and fragmented nature. The developments made have not been uniform; vast inter-state disparities exist across parameters right from availability of institutions and student enrollments to faculty availability and learning outcome levels. Poor transition rates at secondary and higher secondary levels, outdated curriculum and pedagogy leading to poor learning outcomes, shortage of teachers, inadequate measures taken towards teacher professional development, inadequate incentivisation of teachers and poor accountability and governance structures, are some of the challenges in school education.

The higher education system too has its fair share of challenges marked by poor transition rates, vast inter-state disparity in availability of institutions as well as enrolment, dearth of faculty, lack of qualified faculty, inadequate industry linkages and outdated curricula disconnected with industry/local needs.

Over the years, reforms and measures in the education system have predominantly focused on improving access. However going forward, the narrative has to shift from access to quality, and initiatives taken to this effect in order to realise the vision of creation of a new India by 2022. This section of the report seeks to highlight a few measures to strengthen the education and skilling ecosystem for it to transcend to the next level of development, characterised by quality and equitable education.

K-12 education

Redesigning curriculum

A strong education system promotes socio-economic equality and prevents discrimination in the quality of education imparted throughout the country. One way of ensuring this is by having uniform norms for development of curriculum and syllabus. This can promote an atmosphere of fair competition among students and raise the overall education standards of the nation.

While on the one hand it may be argued that curriculum has to be rooted as per states' local needs, this need not necessarily apply to all subjects. Science and Mathematics for instance, can follow a standardised curriculum and syllabus across the nation. Such a move will help remove inherent disadvantages that a student may face owing to their state of origin, ethnicity, economic or social background. A case in point being the recent discussion following the proposal to introduce National Entrance cum Eligibility Test (NEET) for admission into medical and dental colleges, wherein a few states raised concerns that their students, in its present form, are at an inherent disadvantage owing to mismatch between the state board and NEET syllabus (based on National Council of Educational Research and Training (NCERT) syllabus).

Reforms also need to be made to ensure that school curriculum is in sync with changing needs of the world. States such as Andhra Pradesh and Tamil Nadu have adopted practices such as integrating STEM (Science, Technology, Engineering & Mathematics) in school education, imparting children a blend of skills viz. vocational skills, life skills/soft skills, computational thinking, digital literacy and advanced computer skills. These application-oriented subjects can help do away with learning by rote and prepare children better for the future.

The state of physical education in schools is another worrying trend. Research[10] indicates that physical activity in schools has significantly decreased. Data also suggests that most schools lack basic amenities such as playgrounds and sporting equipment. There seems to be a lacuna between the educational policies of the state that foster physical well-being and the actual implementation of the same. Going forward, states need to place a greater thrust on the importance of physical education in creating a physically fit nation.

Reforms in learning outcomes

Breaking the input trap

In the K-12 education system in India, the most complex problems are often reduced to easily identifiable, input-driven indicators and solutions – more textbooks, more classrooms, and more teachers. While such measures have helped improve access to school education, in most cases these measures have not translated into an improvement in outcomes. Going forward, there needs to be a shift towards the measurement of outcome based, rather than input-driven indicators in the teaching-learning process.

Improving learning outcomes: uniform definition; varied approach

The Annual Status of Education Report (ASER) 2016 survey shows that the overall learning levels among Indian students is quite poor. Grade V children who can read a Grade II level text stands at 47.8 per cent. Children fare no better in mathematics wherein Grade VIII children who can do simple division is as low as 43.2 per cent[11].

While overall learning levels remain low across the country, states such as Rajasthan, Madhya Pradesh, Uttar Pradesh, Bihar and Jharkhand fare particularly poorly in both reading and arithmetic. In arithmetic, less than 20 per cent students belonging to these states are able to perform subtraction at Grade III. Similarly in English, less than 30 per cent students in Grade III are able to read Grade I level text6.

An effort towards improvement in learning outcomes should begin with clearly defining outcomes that every student should aspire to achieve. Further, such outcomes should be defined at a national level and should establish a common purpose for educators, drive policies and programmes for implementation. Currently, there is no uniform definition to measure learning outcomes at each class level, and having such a definition will clear the ambiguity associated with measuring outcomes and allow us to assess how well our education system is performing. While outcomes are defined as national level, states shall then be given the autonomy to tailor their approach to learning outcome improvements based on local context and need.

10. Report titled "Longitudinal trends in physical activity patterns in selected urban South Indian school children"
11. ASER 2016 Survey

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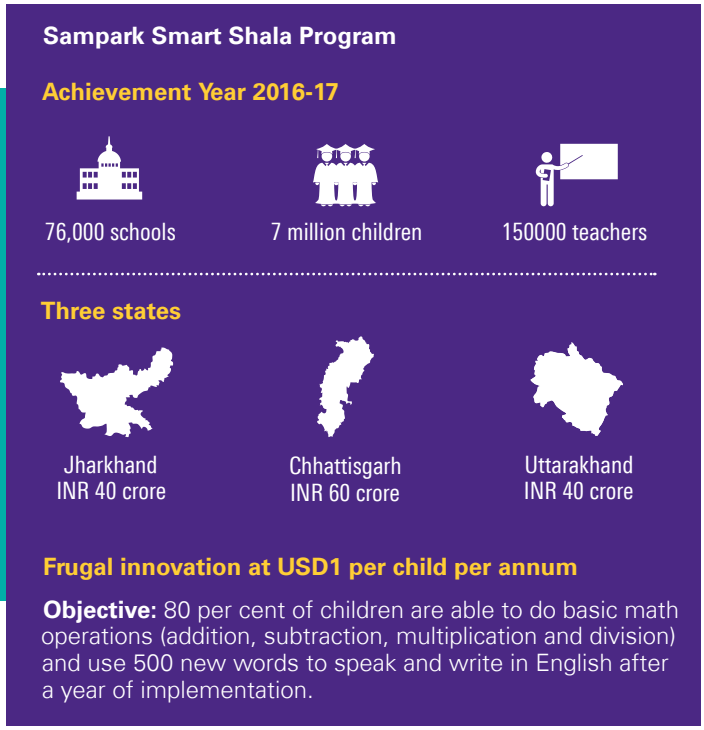
Figure 3: Sampark Smart Shala Program – an initiative for learning outcome improvement[12]

Sampark Smart Shala Program (SSSP) is a frugal innovation by Sampark Foundation with social change via learning outcome improvement as its central idea. Primary objective of this initiative is to ensure 80 per cent of children are able to do basic mathematical operations (addition, subtraction, multiplication and division) and use 500 new words to speak and write in English after a year of implementation.

SSSP for Mathematics and English uses three new innovations – 1) 3D teaching learning aids, 2) Audio lessons with music and songs using a voice mascot for greater appeal 3) Stories and games to make learning fun. This combined with rigorous monitoring in collaboration with state governments makes the program a success. This approach has not only helped in creating excitement around learning but has also found worldwide acceptance.



Reforms in teaching

Teacher availability, a continuing challenge

Another key challenge facing the K-12 education system in India is the acute shortage of teachers. Exacerbating this problem is the dearth of quality faculty. Over 1 lakh government elementary and secondary schools in India are run by a single teacher[13]. Overall vacancy of government teachers at elementary level is 17.5 per cent and 14.8 per cent at the secondary levelper cent, which accounts for 1 million posts out of 6 million. There is vast disparity in teacher availability across states, with states such as Jharkhand and Uttar Pradesh having shortages as high as 70 and 50 per cent respectively[14]. Right to Education (RTE) guidelines specify student-teacher ratio of 30:1 for primary classes and 35:1 for upper primary classes, however the reality on the ground is far from this desired state. The reasons for shortage of teachers include lack of a regular recruitment schedule, non-sanctioning of posts, lack of effective teacher deployment, lack of specialist teacher availability in certain areas, and wide dispersion of schools which affects teacher distribution.

Making teaching an aspirational profession

To address the problem of shortage of teachers and to bring in quality teachers into the education system, it is important to promote teaching as an aspirational profession. In India, the eligibility to become a teacher has been set low. For admissions to B.Ed and D.Ed courses, candidates are required to have only 50 per cent marks in university degree and these courses provides limited practical exposure for aspiring teachers. It is important to bring in quality talent into the teaching profession. Countries like Singapore have focused on quality by selecting the top one third of secondary school graduating students only for teacher training and are also provided with practical exposure with on-the-job training with a stipend of 60 per cent of a regular teacher salary. A national campaign to get more people into teaching and to promote teaching as an aspirational career option can be rolled out.

A case in point is the national campaign run by the UK government called 'Your Future: Their Future' to recruit quality talent for teaching. In the initial years, the campaign, through extensive market research, focused on understanding motivations and inhibitions in choosing teaching as a career, and went on to highlight key messages targeting high potential segments. The UK was facing a huge shortage of teachers before the campaign, and by the end of 2005 they had eight applicants for each job opening.[15] 'Teach for India' has shown us that it is possible to engage high calibre college graduates in two-year teaching stints in low-income schools. The programme receives at least 22 applications for a single job posting.[16]

12. Sampark Foundation kicks off Sampark Smart Shala Training Program, Economic times, April 10, 2017
13. http://indpaedia.com/ind/index.php/School_education:_India
14. AWPandB-2016-17 and Information from state education departments
15. Press Release: National teacher recruitment drive gets underway, Department for Education and National College for Teaching, UK, October 27,2015
16. www.teachforindia.org

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Figure 4: Singapore's efforts towards making teaching an aspirational profession

- Interest in teaching is seeded early on through teaching internships
- Mandatory standardized training for all National Institute of Education Nayang Technological University (NIE-NTU).

- Salaries for new joinee teachers adjusted to that of occupational starting salaries for other professions every year in order to enhance attractiveness of the profession.
- Maintenance of school fund for recognizing and rewarding exceptional performers in the form of a bonus.

- Annual Assessment done every year after three years of teaching to check their fit for other related career paths – master teacher, specialist in curriculum research or school leadership, each with salary increments comparable to other paths.
- Master Teacher from NIE-NTU mentor every teacher for several years.

Teacher professional development in need of a revamp

The quality of education depends on the quality of teachers and the teacher education system. As in any profession, being abreast with latest changes is important for teachers to be able to deliver well. Continuous professional development in case of professions like doctor, lawyer and charted accountants is done through the right-to-practice or renewal of licence to practice. Teachers in India do not get a planned and continuous education. Each teacher requires 20 days of mandatory training every year according to Sarva Shiksha Abhiyan. While this has been established to a certain extent, it is far from satisfactory given the outdated mechanisms used in teacher training.

Figure 5: Connected Learning Initiative by Tata Trusts – improving student learnings through teacher professional development[17]

The Tata Institute of Social Sciences (TISS) in collaboration with Massachusetts Institute of Technology and state governments in a few states such as Rajasthan, Mizoram, Chhattisgarh and Telangana have launched the Connected Learning Initiative (CLIx).

Teacher professional development as a key enabler:

- CLIx provides opportunities for secondary school students in Grade 8 through Grade 11 from backward communities to get access to quality education
- It aims to provide sustainable quality learning experience at scale in Maths, English and Science as well as digital literacy through the CLIx platform, integrated with value education and skills relevant to the 21st century
- Recognising the crucial role played by a teacher, the initiative places strong emphasis on a teacher's professional development.

Continuous Professional Development of **4,400** teachers across four states

Pedagogical innovation and transformation aided by professional learning community

Teachers offered **certificate courses** from TISS using a blended learning approach

Develop teachers capacity for adaptation of technological resources to support the teaching-learning process

17. Annual Report, Tata Institute of Social Sciences, 2015-16

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Governance reforms

Technology adoption for administration

The review and monitoring mechanism of the school education system in India is presently cumbersome and lacks robustness. The education administration is characterised by a multitude of layers – Principal Secretary, Secretary, Directors, DEOs, DEEOs, BEOs, and BEEOs. A substantial portion of the departmental administrative tasks are carried out manually. This leads to inherent disadvantages such as absence of data-driven decision-making, inability to take timely corrective action, increased amount of teacher time spent on administrative tasks, increased costs, to name a few.

In this light, technology adoption is one way to bring in effective governance in schools. Building a strong digital architecture at the state, district, block and school levels will facilitate gathering a large amount of actionable data to monitor and track the effectiveness of implementation. It could help lift the administrative burden off teachers, thereby allowing them to focus on their core responsibility of teaching. Such a technology backbone can also help track student/school-level learning outcomes, upon which analytics capabilities can be built for targeted strategic interventions. In short, it could bring speed, efficiency, transparency and real-time visibility in the system.

Figure 6: Samarth – a review and monitoring mechanism to improve school education standards in a timely manner[18]

Background:

The Himachal Pradesh State government has taken up the challenge to institutionalise a robust review and monitoring mechanism with the objective of quickly identifying problems/challenges in schools, and thereafter, finding implementable solutions for them. The Samarth programme has been launched in 2017 in this regard.

Key aspects of the programme:

- Replacing the current lengthy review system with a comprehensive two-page OMR form, allowing immediate digitisation
- Once the first visit is made, further meetings are scheduled basis the digitised information at the state and district level
- The first visit covered 5,000 schools; assessments were based on five parameters viz. basic infrastructure, classrooms observations, school management, assessment results and funds utilization
- Allows sharing of leading practices between various stakeholders including teachers, and officers right from principal secretary to block level officers.

Haryana, the pilot state for the school vocationalisation programme, launched it across 40 schools in the year 2012. Today, the programme has expanded to 990 schools training 45,000 students between classes 9 to 12 across 12 sectors[19]. The first batch of students graduated from the programme in 2016. The Haryana government along with the National Skill Development Corporation (NSDC) has organised placement drives for students opting for placements after completing class 12.[20] More than 40 industry partners are roped in each year including large corporates. These companies have collectively recruited 300+ students each year.

Area of intervention	Key activities and initiatives
Standardisation, course, content	• Defining standard minimal learning outcomes at each level to address inter-state and inter-board disparities in learning outcome • States can work on improving the standard outcomes based on local/ regional needs • Standardised curriculum and course content for Science, Mathematics, and language subjects including English and Hindi • Updating the outdated content and curriculum, and alignment with competitive exams.
Teachers and pedagogy	• Improving the aspirational value of education as a career with a national and regional campaign • Defining progression structure for teachers to take up leadership roles and other roles in addition to teaching • Performance-based incentivisation and salary benchmarking in private schools for teachers.
Infrastructure	• Inclusion of physical and sports activities as part of school curriculum • Setting up a ratings framework for schools based on infrastructure, teaching quality, academic performance of students and other parameters • Technology adoption starting from schools management systems, consolidating up to district and state level for effective governance • Introduction of vocational education in schools should be encouraged.

18. Samarth, Department of Elementary Education, government of Himachal Pradesh (http://himachal.nic.in/index1.php?lang=1anddpt_id=16andlevel=0andlinkid=4066andlid=13229)
19. MHRD Review meeting on Haryana State Implementation Strategies and Learning's, MHRD, Sep 16, 2013.
20. MHRD Review meeting on Haryana State Implementation Strategies and Learning's, MHRD, Sep 16, 2013.

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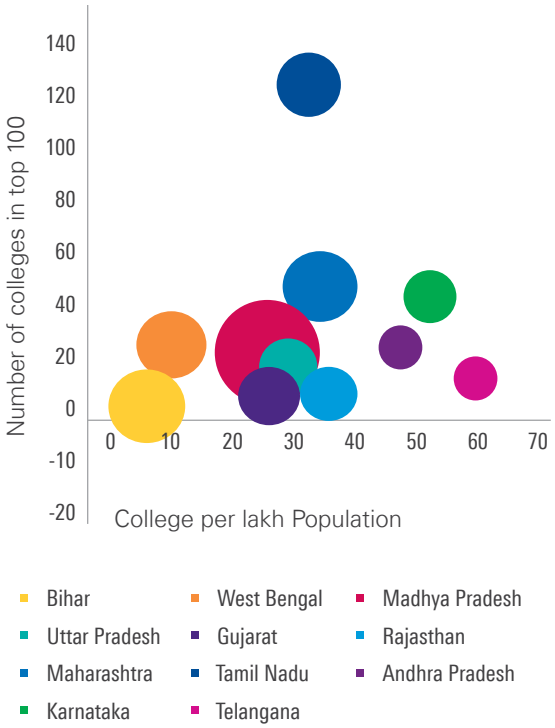
Higher education

Distribution of funds as per state's needs

Inter-state disparity in availability and quality of institutions

The Indian higher education landscape, as witnessed earlier, has grown tremendously in size over the last few decades. The growth, however, has not been uniform. There is a huge inter-state variation in availability of higher education institutions as shown below. The number of colleges per lakh eligible population (age group 18-23) varies from as low as seven in Bihar to 60 in Telangana, while the national average stands at 28[21]. Inter-state variances exist in terms of the quality of institutions as well, as indicated by NIRF rankings. Nearly 23 per cent of the top 100 colleges[21] (across six categories) in the NIRF rankings belong to the state of Tamil Nadu, whereas the more populous states such as Bihar (third most populous state, and the state with youngest population), Madhya Pradesh and Jharkhand see a meagre presence of quality institutions. More than half of the representation comes from just five states viz. Tamil Nadu, Maharashtra, Karnataka, Delhi and Kerala[22].

Figure 9: Availability mapped against quality of institutions[23]



As India continues on its growth journey, the higher education system, the crucial driver that it is, cannot afford to expand in an iniquitous manner. One way of addressing this is by ensuring that funding disbursement happens in a proportionate manner as per state needs. As evident from the analysis above, states such as Bihar and West Bengal although populous, lag in quantity as well as quality. It is important to invest significantly in higher education in these states to improve access and quality.

Encouraging private funding for higher education

To fuel the next phase of growth in higher education, it is important for policy makers to effectively source funds from the private sector. This involves setting up of more private universities, encouraging corporates to spend their CSR funds in higher education, creating a conducive regulatory environment for private investments in higher education.

Involvement of the private sector, by means of structured and strategic corporate social responsibility (CSR) programmes can help address the issues regarding lack of adequate funding in higher education. With a total annual spend on CSR of about INR19,000 to 22,000 crore from over 16,000 companies[24] (as per the Ministry of Corporate Affairs), state governments should actively encourage corporates to invest these funds in higher education. For example, Reliance Group supports higher education through scholarships[25]; Siemens has signed an agreement to set up 'Centers of Excellence for Skill Development' in higher education involving the Ministry of Industries and Mines, government of Gujarat, India and Siemens Industry Software India Pvt. Ltd.[26]

The setting up of Higher Education Financing Agency (HEFA) is a step in the right direction. HEFA was recently setup jointly by the Ministry of Human Resource Development (MHRD) and Canara Bank with an authorised capital of INR2,000 crore. HEFA could leverage the equity to raise upto INR20,000 crore for funding projects for infrastructure and development of world class labs in IITs/IIMs/NITs and such other institutions. HEFA can also actively mobilise CSR funds from PSUs/corporates, which can in turn be released for promoting research and innovation in these institutions on a grant basis.[27]

Another example of the central, state governments and industry working closely to mobilise funds for higher education can be seen in the setup of Indian Institutes of Information Technology (IIITs). IIITs have been established on a not-for-profit Public Private Partnership (N-PPP) basis. Joining forces to work with the IIITs are the Ministry of Human Resource Development (MHRD), governments of the respective states where each IIIT is established, and the industry. They are funded by the central government, state government and industry partners in the ratio of 50:35:15. Similarly, the government can seek greater intervention from industry players in the funding of such institutes.

Encouraging inter-state collaborations between countries

States are fast emerging as crucial stakeholders shaping our national foreign policy. Over the last several years, states have increased their engagement with the rest of the world, laying a strong foundation for state-level diplomacy. This has manifested in sister state and sister city relationships transpiring between Indian states and

21. AISHE 2015-16
22. NIRF Ranking 2017
23. KPMG Analysis of AISHE 2015-16 and NIRF Ranking 2017
24. CSR Data And Summary; Ministry of Corporate Affairs; 2014-15
25. Stanford University commends Mukesh Ambani; The Hindu; July 10, 2015
26. Press Release - Siemens to drive skill up-gradation across industries in India; Siemens India; Oct 30, 2013
27. Canara Bank signs MoU with HRD Ministry to start higher education financing agency; The Hindu; Feb 16, 2017
28. US-India Sister City Relationships; Asia Matters for America;
29. California's Sister State Relationships; Senate Office of International Relations, USA; 2001
30. Haryana, Minnesota ink pact; Times Of India; Oct 25, 2007

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their overseas counterparts. The United States and India share over 23 sister city and state relationships[28]. California has a sister state relationship with the state of Gujarat[29], and Minnesota with the state of Haryana.[30]

Going forward, higher education can lead the way in facilitating such partnerships. The intent of inter-university international collaborations in higher education is no longer questioned, given the results demonstrated in the recent past in various higher education institutions. Such a move being effected at the state level, is only likely to have an even greater impact on the ecosystem.

Further, this can then pave the way for partnerships in other related areas such as employability, entrepreneurship and innovation, to name a few. The recent memorandum of understanding signed between the Andhra Pradesh government and the state of California[31] is a welcome step in this direction. The proposed agreement allows for sharing leading practices in various fields such as IT, innovation, agriculture and education.

Industry linkages in higher education

About 56 per cent of student graduates from engineering colleges remain unemployed in 2015-16[32]. A major reason cited for this is a mismatch between what is taught in classrooms, and the knowledge, skills and behaviour businesses and organisations look for new recruits. Industry can play a key role across several stages of education delivery – right from designing the curriculum, to guiding/setting up infrastructure as per industry standards, and providing practical exposure through internships/ apprenticeships. There is a need to promote need-based and industry demand-driven higher education.

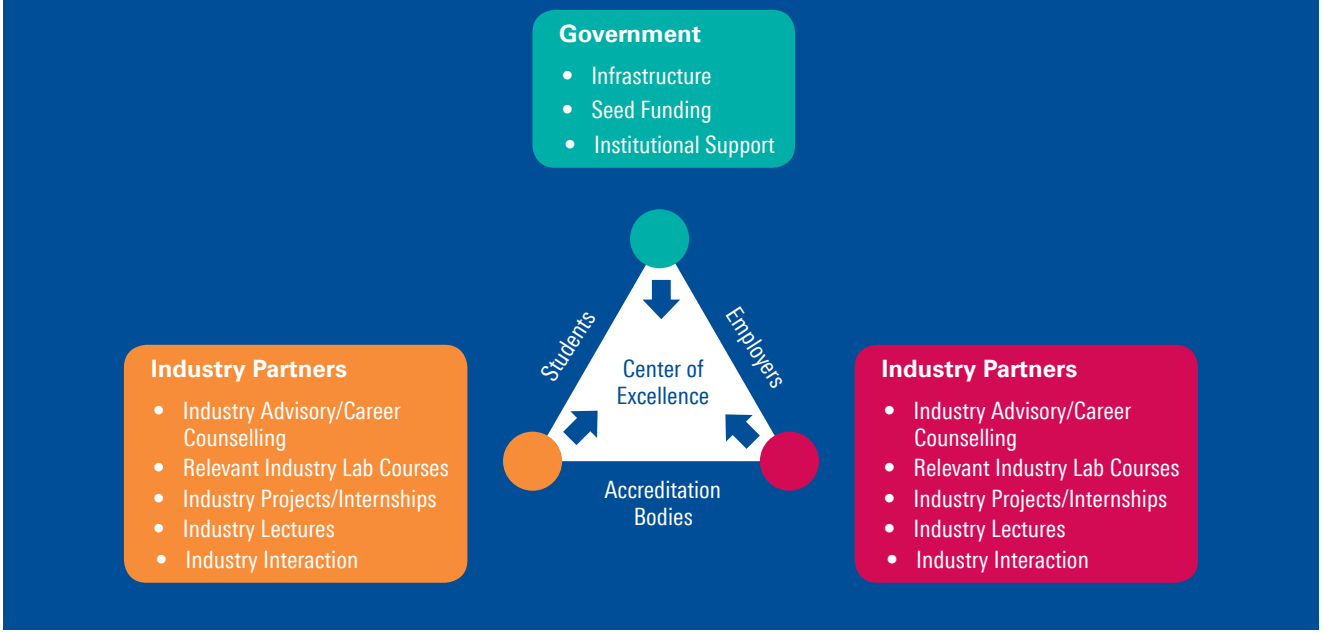
In a bid to improve employability of our graduates, the Ministry of HRD has made it mandatory for engineering students across the country to undergo three internships. States can use this as an opportunity to forge connects with various industry bodies. Similarly, industry bodies can play a critical role in building a Centre of Excellence (CoE) in higher education institutions, to carry out research and lead innovation. State governments can promote these moves by incentivising industries for taking such initiatives.

Figure 10: Promoting industry linkages in Andhra Pradesh[33]

The Andhra Pradesh State Skill Development Corporation (APSSDC), in collaboration with its industrial partner Siemens, in establishing six Centers of Excellences (CoE) with an investment of INR 3,500 crores in higher education and vocational education institutions in different parts of the state.

'CoEs' (advanced knowledge centres) could focus on enabling over 2.2 lakh students from engineering colleges and large polytechnics to be job-ready, catering to various sectors - automotive, aerospace andand defence, industrial machineries, and shipbuilding, to name a few.

With the objective of increasing employability of graduates, the CoE will act as (i) A knowledge centre (ii) Centre for research andand development (iii) Hub for industry interaction and (iv) Platform for educating and training students to be job-ready. They can also play a role in counselling students in making career choices.



31. Kii Announces Strategic Initiatives With The Government of Andhra Pradesh (India) To Accelerate IoT Adoption In The State; Telegraph India; July 26, 2016
32. Engineering students will have to undergo at least three mandatory internships; India Today; July 26, 2017
33. Skill Development Corporation to set up six Centres of Excellence; The Hindu; July 24, 2015

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Area of intervention	Key activities and initiatives
Inter-state disparity in availability and quality of higher education institutions	Ensure that funding disbursement happens in a proportionate manner as per state needs
Private sector participation	State governments should seek greater intervention from industry players in the funding of higher educational institutions
Industry linkages	Industry bodies can play a critical role in building CoEs in higher education institutions, to carry out research and lead innovation. State governments can promote them by incentivising industries for taking such initiatives.

Skilling India for a new India

With formal education degrees failing in its objective to make graduates employable there is a great deal of impetus on skilling from the government. Skill India continued to be one of the key government agenda during 2016-17 with short-term vocational education programmes in focus. Pradhan Mantri Kaushal Vikas Yojana, the flagship scheme of the Ministry of Skill Development and Entrepreneurship headed into its second year, the year also saw the launch of the Pradhan Mantri Kaushal Kendra' s modern Model Training Centers (MTCs)[34].

From the policy perspective, some of the key issues that need to be addressed in a maturing vocational education ecosystem are inclusivity, effectiveness, standardisation, perception, diversification, employment and job mobility. As far as the accessibility and effectiveness of the vocational education agenda is concerned, state skill development missions and state departments for higher education, technical education and school education need to work collaboratively to develop a self-sustainable infrastructure.

State skill missions: Key to effective outcomes

As far as the accessibility and effectiveness of the vocational education agenda is concerned, State Skill Development Missions (SSDM) and state departments for higher education, technical education and school education need to work collaboratively to develop a self-sustainable infrastructure.

The state SSDMs were set up with a vision to unify and implement various skilling initiatives throughout the state. However, only a few have had success in convergence of funds and rollout of various skill development initiatives across the state, while others have struggled due to a lack of funds. A lack of state level infrastructure in terms of IT infrastructure, assessment and certification bodies have led to increased dependency on central level bodies like National Skill Development Corporation (NSDC) and Sector Skill Councils (SSCs) to provide for necessary guidance and infrastructure. A mechanism needs to be put in place for funding of SSDMs, especially those who are still nascent or have struggled with funds. The state component of the Pradhan Mantri Kaushal Vikas Yojana provides funds to SSDMs for implementing the scheme at the state level but has its limitations in terms of usability.

While a substantial amount of success has been achieved in the development of standard outcomes associated with various short-term courses (job roles) through the National Skills Qualification Framework (NSQF) and alignment is underway, other standards norms associated with training infrastructure, assessments, and certifications vary from scheme to scheme. A regulatory framework and a standard norm across all skill development initiatives can not only normalise the outcomes but will ease up the process of becoming a private training provider, or an assessment agency.

Department of Technical Education, and Department of Higher Education across most of the states continue to run various initiatives for the modernisation of ITI's, and polytechnics, not all collaborate with SSDMs on the vocational education agenda. A special fund from state governments aimed at overall development of vocational education across states including schools, ITIs, polytechnics, and private training institutions providing short-term vocational programmes could help bring the departments together.

Nationalised standards

According to the directives of the Ministry of Skill Development and Entrepreneurship (MSDE), all the states have been notified to bring their skill development plans in the same platform, which may result in standard training outcomes and be easier to manage on a nationwide basis.

States initiatives with different curriculum structures and delivery methods may not be able to provide national level certification to the candidates, thus limiting their choices, career progression, migration, and job-mobility. Mapping of courses has been a primary challenge faced by SSDMs adopting to Qualification Pack-National Occupational Standards (QP-NOS) and Sector Skill Councils (SSCs) approved courses instead of MES (Modular Employability Scheme) course offered by NCVT.

Need for town gown relationships to create a locally engaged education and skilling ecosystem

Educational and training institutions serve perhaps their greatest purpose when they begin to support regional development. While on the one hand institutions move towards internationalisation and empower students to be globally relevant, it is also essential for them to stay rooted to local needs – economic, social and cultural needs.

A few such institutes are the Gems and Jewellery Training Institute in Gujarat (Jewelry hub), The Indian Diamond Institute, Surat (Diamond hub), Institute of Apparel Management, Haryana (Textiles hub), Central Institute of Plastics Engineering and Technology, Gujarat (Plastics hub), Indian Institute of Plantation Management, Assam

34. http://www.nsdcindia.org/pradhan-mantri-kaushal-kendra

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(Tea plantation hub), National Institute of Secondary Steel Technology, Chhattisgarh (Steel hub) and CSIR-Central Institute of Mining and Fuel Research, Jharkhand (Mining hub).

Other than institutions aiding economic development, there are also those that play a role in advancing the cause from a cultural context. The Tamil Nadu Music and Fine Arts University is a case in point. It was established with the objective of preserving, fostering, popularising traditional music, dance and fine art forms unique to India, and particularly to the state of Tamil Nadu. It is, therefore, in states' interests to set up more such institutions since they have the potential to cater to the economic/cultural needs of the respective district/state, at the same time providing employment opportunities for students graduating from the institutions.

Migration issues

Post-training placements and employments remain a major challenge due to limited job opportunities created in the organised sector, and low acceptability of short-term skilling programmes by the industry. Meanwhile, as per common norms notification released on 12 May 2016[35], placement of 70 per cent candidates is mandatory where at least 50 per cent of the candidates should be placed in waged employment. Most of the job opportunities are created in more urbanised areas and industrial clusters, and the candidates often end up getting job offers in other cities and even other states at times. If demographically analysed, it has been observed that most of the trainees come from not-so-affluent families and from rural areas, who find it difficult to migrate for employment.

The primary reasons observed include accommodation, food, security and accessibility issues.

Schemes like Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY) addresses these issues through the concept of migration support centres. The migration support centres are aimed at activities such as alumni support, accommodation assistance, counselling services, periodic get togethers and networking events with employers, local newsletters, co-ordination with local civil and police administration, etc. Some state skill missions are already in the process of aligning employment exchanges with migration support cells. The other option could be catalysing entrepreneurship and micro-entrepreneurship through soft loans and micro financing.

Developing an apprenticeship structure

The Apprentices Act, 1961 (Apprentices Act) was amended in December 2014, and subsequently amendments were also introduced in the Apprenticeship Rules, 1992 (Apprenticeship Rules) in June 2015.

Some of the significant changes due to the amendments are that any organisation with a strength of 40 or more employees has to engage 2.5 per cent to 10 per cent of the total strength of establishment as apprentices. Establishments can also now engage apprentices in optional trades which are not designated with the discretion of entry-level qualification and syllabus. The amendment allows for engaging apprentices from other states. For the purpose of providing apprenticeship training to the apprentices under them, the amendment permits several employers to join together either themselves or through an agency, approved by the apprenticeship adviser. Further, to advance the objective of the National Policy on Skill Development and Entrepreneurship 2015 of proactively working with industry including the MSME sector to facilitate a ten-fold increase in apprenticeship opportunities in the country by 2020, the government has launched a National Apprenticeship Promotion Scheme (NAPS) which provides for:

I. Sharing of 25 per cent of prescribed stipend subject to a maximum of INR1500 per month per apprentice to all apprentices with the employers

II. Sharing of cost of basic training with Basic Training Providers (BTP).

The main objective of the Scheme is to promote apprenticeship training and to increase the engagement of apprentices from the present 2.3 lakh to 50 lakh cumulatively by 2020.[36] The states could look to instill these policy changes by working with the local industries for participating in apprenticeship training. Such trainings can potentially lead to placements or employment in the industry or at least increase employability through industry exposure.

Perception and dignity of labour

One of the major tasks is to change the mindset towards vocational education in the country. There should be increased awareness about various initiatives by the government to integrate skill-based education with formal schooling among parents, teachers as well as students. There seems to be a need for social branding of the courses.

Labour laws have been in place to ensure freedom, safety and rights of the labour, more effort is required to restore the dignity of labour employed in blue collar jobs and other jobs that are often not perceived as aspirational. While provisioning for vocational skills in schools, and providing for vocational education as an alternate career path will help in establishing the importance of vocational education and manual labour jobs associated especially with short-term trainings, educating people on how they are contributing to society can further help the cause. Such modules should be included as part of the course curriculum or even in awareness and mobilisation campaigns.

35. http://www.nsdcindia.org/pradhan-mantri-kaushal-kendra

36. Guidelines for implementation of National Apprenticeship Promotion Scheme; Ministry of Skill Development; Jul 15, 2015

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Area of intervention	Potential actions and initiatives
State Skill Development Mission	• Mechanism for funding of State Skill Development Missions • A regulatory framework and a standard norm across all skill development initiatives should be set up that can not only normalise the outcomes but will ease up the process of becoming a private training provider, or an assessment agency • De-centralise State Skill Development Missions; to create nodal or local bodies such as District Project Management Units, or Sub divisional Project Management Units.
Migration, job creation and boost local economic activities	• Need for town gown relationships to create a locally engaged education and skilling ecosystem • Aligning employment exchanges with migration support cells.
Apprenticeship	• States should work on re-enforcement of changes made in the Apprenticeship Act, and leverage from NAPS.
Perception, dignity of labour	• Social branding of courses • Providing for vocational education as an alternate career path will help in establishing the importance of vocational education and work towards changing perceptions.

Entrepreneurship: The game changer

As the government strides towards making the youth employable with the right education, skilling and creation of job opportunities, it is also creating self-employment opportunities for the young Indian. There is a paradigm shift in the aspirations of the Indian youth today. They want to create and not only seek jobs. They are looking to start-up businesses.

Some of the statistics indicate just that. According to the National Association of Software and Services Companies (NASSCOM) India Startup Report 2015, 80,000 jobs were created by startups in India. It is the third largest (technology related) startup ecosystem globally and around three-four startups are born every day.[37] According to a survey conducted by Invest India (the official Investment Promotion and Facilitation Agency of the government of India), 68 per cent of the youth polled prefer to work for a startup than with a big corporate house in 2016.

The population in the country in the 15-24 age group has increased by 45.3 per cent between 1990 and 2015, according to data from the UN World Population Prospects. Jobs for this segment have failed to keep pace with the rise in population. Job placement firms expect the government's renewed push to manufacturing through its Make in India and Startup India programmes to start generating new employment opportunities. The government hopes to create 100 million new jobs by 2022. The objective is to make India a nation of job creators instead of job seekers.[38]

As a step in the direction of fostering entrepreneurship and promoting innovation by creating an ecosystem the government of India launched the Startup India initiative in January 2016. Spanning across matters such as 'simplification and handholding', 'funding support and incentives' and 'industry-academia partnership and incubation', 19 action items were announced under an action plan.

While the government of India is making fast-paced progress under Startup India, for India to become a startup nation, the role of the state governments is going to be very crucial. Major impediments encountered by entrepreneurs include matters related to funding, regulatory regime, mentorship and support infrastructure. While existing sources of funding are engaging constructively for growth, they are far from being adequate to keep pace with the exponential rate at which startups are expected to grow in India. Furthermore, aspects relating to the ease of doing business in India spanning across entry, compliance and exit are rudimentary and require major overhaul to be lucrative enough to attract entrepreneurs. Additionally, incubation support in terms of mentorship and infrastructure requires to be revamped holistically.

Some of the state governments too have made considerable progress and helped provide a conducive environment for startups to thrive. For example, Gujarat's Centre for Innovation Incubation and Entrepreneurship (CIIE) is the oldest incubator in the country and also the first accelerator in the country.[39] Gujarat Venture Finance Limited (GVFL) is the pioneer venture capital fund in the

37. India ranks 3rd in global startup ecosystems: Nasscom; Financial Express; Oct 13, 2015
38. Make in India: 100 million jobs to be created by 2022; Economic Times; Feb 16, 2016
39. Gujarat State Startup Initiatives; Government of Gujarat; 23 Jul, 2016

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country supported by the government of Gujarat. iCreate, a unique centre for innovation and incubation is being developed on a PPP basis to provide focused mentoring services to select startups.

Telangana houses the world class incubator 'T-hub', which has modern facilities. It will also partner with 20 global accelerators/incubators to build facilities through the PPP route. Kerala is the first and only state in the country to have 1 per cent of its annual budget ear-marked for entrepreneurship development activities.

Some of the steps that can be taken by states to boost entrepreneurial activity are:

Area	Area of intervention	Potential actions and initiatives
Startup policy	Notifying a startup policy	Notification of a startup policy focusing on boosting innovation, entrepreneurship and creating new jobs and at what stage of implementation they are in.
Simplification and handholding	Ease of registration as a startup	States should ensure that the process of registration of a startup as a firm is simplified and they have a single window clearance for the registration of startups
	Ease of recognition as a startup	States should devise an online system for recognition of startups by the government and provide incentives such as tax breaks, access to funding, mentorship, etc.
	Ease of compliances under various laws	Startups recognised by the government should be given exemptions from compliances under various laws, such as, labour laws, tax laws, environments laws, etc. This may also include self-certification and inspection-free regime
	Facilitation for setting up of incubators	States must ensure that it encourages more and more incubators to be set up and it is well spread in tier 2 and tier 3 cities
	Dedicated startup cell/ helpline	A dedicated startup cell or hub should act as a one-stop-shop for all the queries that startups may have regarding processes. It should also help them in developing their ideas, products, incubation, pitching for funds and go-to-market strategy
	Dedicated startup portal/ mobile App	These should act as a platform for easy accessibility and information dissemination for startups, incubators, investors and also help them interact with each other. They should also host all online learning and development modules that could help startups in setting up or running their venture.
Funding support	Initiatives to increase access to funds for Startups and formulating a credit guarantee scheme	Dedicated funds should be set up to fund innovative startups. Besides, to catalyse availability of credit to innovators, states have to set up credit guarantee funds for startups.
Industry-academia partnership	Partnerships with industry and educational Institutes to set up incubators and support for vocational training institutes	States should partner with companies to help set up incubators under Corporate Social Responsibility initiatives. Industry should also be encouraged to support vocational training institutes which in turn can help hone the entrepreneurial skills of the candidates and help them start their own ventures.

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Area	Area of intervention	Potential actions and initiatives
Fest/events	Organising startup fests/events	The states should also conduct at least one festival or event focussed on startups, which could act as a meeting ground between: • Investors and startups - Startups can pitch for funds and investors can also choose the startups they want to invest in • Industry and Startups – Industry can also come and choose a product that can help them in their business through the product pitches that startups make and startups can get direct market linkage • Besides, these events can also have a competition organised for startups to look for innovative solutions to problems that the government, industry and common citizens are facing • Collaboration with international startup festivals should be done to gather knowledge on leading practices and learn from their success stories

The central government is driving policy changes to help create a new India that is not only educated but skilled at doing jobs and also entrepreneurial in nature where they seek not to only have jobs but also create jobs. But such ambitions can only be shaped with proactive participation from state governments who can not only leverage central government legislations but also create unique ones to help foster learning, skill and innovation among the youth.

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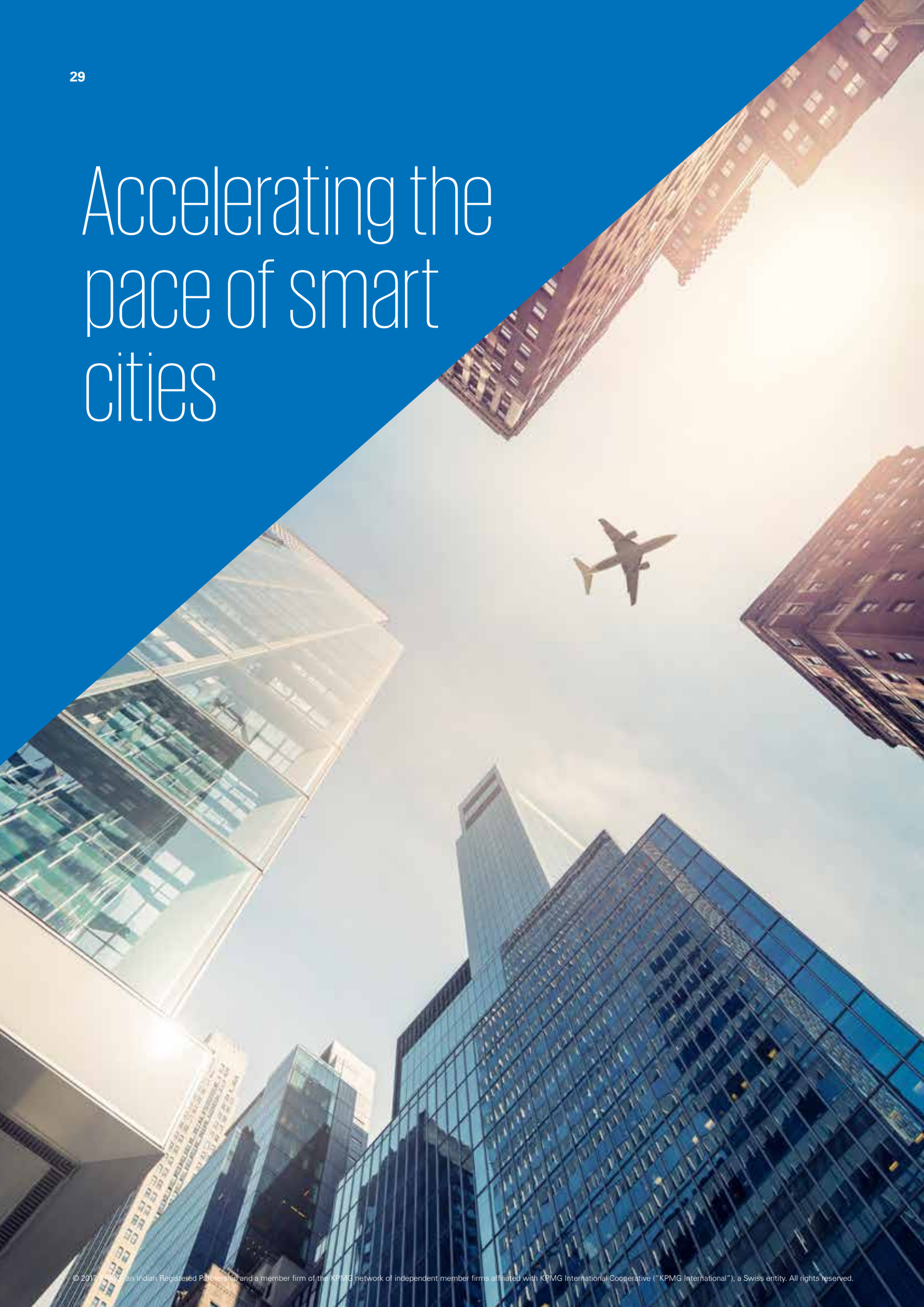
Accelerating the pace of smart cities



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Theme introduction - A global outlook with a local approach

The world is seeing unprecedented growth and demographic shifts. Innovative solutions are changing urban environments and the way we live. By 2050, it is expected that two-thirds of the world's population will live in cities and for the first time in human history, there will be more elderly people than young children. Therefore, building sustainable cities and managing urban resources effectively is becoming a very important task in the 21st century.

The use of digital technologies like the Internet of Things represents a huge opportunity to overcome such urban challenges. A smart city is an urban area that has become more efficient, more environmentally friendly, more sustainable and more socially inclusive by leveraging such technologies. The World Bank projects that by 2050, India's urban population will nearly double to 857 million - more than twice the population of the United States. Over the next 15 years alone, the country will have to build between 7.5 billion and 9.7 billion square feet of residential and commercial space each year to keep pace. This exponential growth demands for smart infrastructure for sewage, water and electricity and brings in the concept of smart cities. Smart cities will accommodate rapid urbanisation, focus on the primary needs and tap new opportunities to improve the quality of life for residents today and in the future.

Common traits of successful smart city initiatives

What does it take to build a smart city? There are several approaches and no one size fits all. Still, both successful smart city projects and successful evolutions towards smart cities share some common traits – the smart city leading practices.

Collaborative citizen engagement initiatives by the public, government-sponsored and private partners such as vendors. This is beneficial as such and shouldn't come as a surprise if we compare, for instance, with the role of employee engagement in business. It also shouldn't come as a surprise that resident engagement is easier in projects in areas such as smart lighting and smart parking. In other words: in cases where citizen benefits are highest and clearest.

Scalability is another important smart city best practice. Smart city infrastructure needs to be scalable so it can meet future needs. This is exactly the same in serious Internet of Things (IoT) deployments and many digital transformation initiatives is or should be taken into account when technological choices are made.

Smart city infrastructure (and applications) also need to be secure and there needs to be an IoT security, compliance and governance policy to make sure that government and private data are protected. Again, this should be a no-brainer but we all know it's often not. Trust is key in any citizen and government initiative.

Last but not least **selecting the right technology partners,** namely those that can help achieve all the above and offer the innovation capacity, ability to invest and real-world experience, along with the kind of open systems that seem preferred and avoid vendor lock-in is also key.

The **creation of a good partner ecosystem** is always important but in government and smart cities it's even more so, given the sensitivity, complexity and mixed public and private environments, whereby so many parties and government agencies need to be involved and citizen-oriented actions need to be taken (engagement and buy-in, security for trust, etc.)

In the initial burst of enthusiasm, Information andand Communications Technologies (ICT) led- 'smartization' of cities was much talked about. International models such as Masdar (Abu Dhabi, UAE), Songdo (Incheon, S. Korea), and similar global models were mentioned. Cities that were cited included Seoul, Singapore, Yokohama, Barcelona, London, New York, etc. However, most global cities have reached maturity, unlike Indian cities that are likely to have very high population growth rates over the next three decades. Thankfully, the tech focus was replaced by a focus on people, and doing what is right for urban Indian residents. Here, examples from fast urbanising areas over the last few decades, such as Korea, China and Singapore were more relevant.

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Smart Cities – The Indian Chapter

a. Urban transformation in India

India's urban population has grown from **290 million** in 2001 to **377 million** in 2011 accounting for over **31.16 per cent** of the country's population[1]. It is projected to add 404 million people to its urban population between 2014 and 2050. The annual growth in urban population in India between 2010 and 2015 was 1.1 per cent – the highest among the major economies, according to the UN World Urbanization Prospects report 2014.

Few such challenges faced in the transformation are listed below:

Few such challenges faced in the transformation are listed below:

- Changes in strategic directions brought on by new leadership: Cities are challenged to change their transformation agenda when commitments and progress under the old leadership come to a halt
- Budget shortfalls due to increased service costs: Cities are seeking ways of circumvent unilateral budget cuts across all departments
- Increasing demands for improved service delivery: The increasing populace puts pressure on cities to improve efficiency, effectiveness and quality
- Increasing demands for greater public accountability/ transparency: With citizens being more participative in governance, there arises the need for improved performance reporting
- Changes in legislation: Change in legislation can demand new accounting requirements, making the environment greener, reducing carbon footprint all leading to increased costs
- Addressing the gap in existing infrastructure to make it smart: Cities have to address the existing gap associated with our infrastructure, in order to make it smart, energy-efficient, safe, secure and sustainable.
- Demand for new, innovative technology solutions: Switching to innovative technology such as web sites, social networking solutions, e-ggovernment, mobile computing, etc. also entails costs

b. Making 100 Smart Cities: How are we doing so far?

In an effort to creating sustainable cities that are growing in line with urbanization, the Ministry of Housing and Urban Affairs launched the Smart Cities on 25 June 2015. The objective of the smart cities mission is to promote cities that provide core infrastructure and give a decent quality of life to its citizens, a clean and sustainable environment and application of 'smart' solutions.

The key components of the smart cities mission are city improvement (retrofitting), city renewal (redevelopment) and city extension (Greenfield development) plus a pan-city initiative in which smart solutions are applied covering larger parts of the city. Development of well-planned and fully serviced new areas (Greenfield) could be encouraged around cities in order to accommodate the rapidly expanding population in urban areas. Application of smart solutions can enable cities to use technology to improve infrastructure and services.

- **Retrofitting** of existing planned areas
- **Redevelopment** of urban sprawls
- **Green-Field** development of new townships
- **Pan-City** development including *E-Governance, Smart City Plan*

Source: SMARTNET; Ministry of Housing and Urban Affairs; August 2017

The Mission is being operated as a Centrally Sponsored Scheme (CSS) and the central government proposes to give financial support to the Mission to the extent of INR48,000 crore over five years i.e. on an average INR100 crore per city per year. An equal amount, on a matching basis, may have to be contributed by the State/ULB.

The selection process of Smart Cities is based on the idea of competitive and co-operative federalism and follows a challenge process to select cities in two stages. Each aspiring city competes for selection as a smart city in what is called a 'city challenge'. The following are the number of cities and projects approved through the competition.

Round	Total winning proposals	Total urban population impacted	Total cost of projects (INR crore)
Round 1	20	3,73,08,257	48,064
Fast-track	13	94,56,915	29,795
Round 2	27	2,55,06,844	53,903
Round 3	30	2,36,83,030	57,493
Total	90	9,59,55,046	1,89,255

As on date, of the 2,653 projects, 79 are completed, work has commenced in 198 projects, and tender is issued in 188 projects.

1. Census of India

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Building sustainable cities – Smart and stakeholder centric

a. Convergence – Role of schemes

Difficulty in dealing with the pressures urban populations put on infrastructure, basic services, land, housing and the environment lie at the heart of the relative lack of livability of cities. Hence, comprehensively addressing the problem of stressed urban infrastructure, thereby providing integrated solutions, is the methodology adopted by the Ministry of Housing and Urban Affairs, through its various schemes. The flagships schemes of the Ministry are:

- Swachh Bharat Mission (Urban)
- Housing for All
- AMRUT
- HRIDAY
- Urban Transport.

Convergence at the Planning Stage

Comprehensive development occurs in areas by integrating the physical, institutional, social and economic infrastructure. Many of the aforementioned schemes converge on this goal of integration of infrastructure although the paths are different. At the planning stage itself, cities sought convergence in the Smart City Proposal (SCP) with AMRUT, Swachh Bharat Mission (SBM), National Heritage City Development and Augmentation Yojana (HRIDAY), Digital India, Skill Development, Housing for All, and other programmes connected to social infrastructure such as health, education and culture.

Similarly, migrants make up a sizeable chunk of India's urban population, the last recorded at 35 per cent by the National Sample Survey Organisation in 2007-08. Affordable housing is at the heart of building inclusive cities. The 'Housing for All' project aims at providing a home to every poor urban household by 2022, which will converge with the idea of making a city smart in every aspect.

Convergence at implementation phase

While convergence at the planning stage is an important step, following it through during implementation is equally important, in order to ensure that the convergence planned out is carried through. While doing so, the following questions must be answered.

- What type of convergence (fund, institutional technical expertise and social mobilisation) has been attempted?
- Whether Panchayat Raj Institutions (PRIs) or local bodies, in particular, have been involved in the planning and implementation of convergence initiatives?
- What is the scope for achieving multi-sectoral collaboration taking into account regional diversity to make a significant contribution to project sustainability and maximisation of benefits?
- What institutional arrangement would ensure the identification of convergence projects by the community for wider acceptance and ownership?
- How to address the various factors (capacity, commitment) hindering the convergence planning to achieve synergy and the best possible use of resources?

An administrative setup that facilitates convergence at the city, state and central level can help ensure the aforementioned schemes converge with each other.

b. Role of stakeholders

Citizens:

Every citizen has a crucial role in all smart city initiatives. Smart city is not a trend, it is a radical shift in societal mindset. One of the most popular and most effective tools to promote investment attraction to public projects is the public-private partnership (PPP). These are basically contracts between the government and the private sector, in which a governmental authority allows the private sector to invest in and operate a public service. It is now raising the concept of PPPPs, or public-private-people partnerships, which go deeper into the idea of citizen-centred approaches. People become active stakeholders in the process of planning, developing, testing, implementing and evaluating urban policies.

Role of business/companies

The 'smart city' phenomenon represents real business opportunities for companies. While some companies still have a very technology-oriented view on smart cities, related dynamics and initiatives cover a large set of domains (such as mobility, energy, governance, education, etc.) and product or service offerings from many industries are essential to develop them successfully.

The chambers of commerce can play a role in informing and promoting this new way of collaborating, working and doing business. Globally, it is important for companies to be part of networks dedicated to sustainability and smart cities in order to keep informed, to share best practices and to identify potential business opportunities.

Companies should not hesitate in informing cities about their existing or future product or service offerings in the domain of smart cities. Cities could then become aware of existing offers or products/services that could be developed in partnership with other players for a smarter city. Companies could also motivate their own end-users, clients to develop 'smart city' projects in the urban space. Indeed, as mentioned before, the 'smart city' concept relies on co-creation and collaborations between cities, companies and also citizens. New business models could consequently appear.

Public funds, and especially local funds, are quite critical. Cities won't be able to finance all the 'smart city' projects. In this context, companies may contribute to the development of smart cities in stimulating or proposing projects based on innovative financing models. New kinds of collaborations with financial institutions or partners could be imagined to fund 'smart city' initiatives. Some interviewees even argue that the private sector

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can potentially finance and execute the projects thanks to their expertise to push smart initiatives. Due to the increasing importance of the phenomenon, it would be interesting for each company, following its size, to have a team or a person in charge of the concerns of the city of tomorrow.

Role of government

A smart city is the result of the efforts of many stakeholders, working together in partnerships of different shape and form. To be most effective, city government must make deliberate choices on the mix of roles through which it engages the city's challenges in the most effective way. Each role must be developed at a mature level.

- Strategist andand advocate: Sets out a clear direction for the city: what is our vision and ambition as smart city and how do we want to realise this? Furthermore, be an active advocate of the city as innovative hub for new business
- Director andand regulator: Create or change laws and regulations to allow new business models and disruptive entries, and simultaneously protect the interests of citizens and users of the city
- Connector andand protector: Secure modern transportation infrastructures, energy grids and digital networks. Set standards and take measures to make these vital infrastructures resilient and safe
- Innovator andand investor: Apply the principles of innovation in internal organisation and processes. Stimulate innovative solutions by acting as launching customer
- Steward: Create an environment in which new businesses and smart solutions can emerge and grow. For example, by providing 'open data' and by facilitating startups.
- Solution enabler: Build ecosystems by gathering parties that normally do not work together to deliver creative new solutions that neither of the parties could have realised on its own.

a. Role of governance

Sound governance and institutional structures are vital to the success of any reform agenda, especially in guiding future investments. For example, it is estimated that Indian cities will require capital investment of nearly USD588 billion from 2012 to 2031 to upgrade urban spaces in line with the ministry's prescribed standards. At the same time, an additional USD300 billion will be needed for operation and maintenance costs, helping support future urban agglomeration and national productivity. Although acquiring capital for this expansion is not anticipated to be a major stumbling block, political and organisational failures locally are expected to be more problematic. Locally, for instance, rampant corruption and administrative inefficiency are key bottlenecks that many less developed countries, including India, face. Administrative failures locally not only lead to extra costs and delays for projects in the short run, but they can also deter private investment in the long run.

b. Role of investments

The speed of urbanisation poses an unprecedented managerial and policy challenge. As the urban population and incomes increase, demand for every key service such as water, transportation, sewage treatment, low-income housing may increase five- to seven-fold in cities of every size and type.

Recent reports suggest that India spends USD17 per capita per year in urban infrastructure, whereas most benchmarks suggest a requirement of USD100. The investment required for building urban infrastructure in India, over the next 20 years, is estimated at approximately USD 1 trillion.

Under the smart cities mission, projects worth INR1,89,255 crore have been approved for the 90 selected cities. The commitment of promising 100 Smart Cities, comes with the challenge of paying for them. Consequently, one of the top priorities for ensuring successful implementation of Smart Cities is ensuring available investments.

Some factors influencing financing strategies

- Depending on the source of funding (revenue) for a particular service, various different parties shall be interested in providing financing (e.g. tax revenue may be used to finance municipal bonds)
- Depending on the type of service, various financing models can also be implemented (e.g. parking facilities may attract private sector investment due to quick returns)
- Timeliness of revenue stream in terms of potential for quick and high value returns shall impact financing sources
- Duration of financing shall impact the financing tools applicable
- Perceived risk that investors associate with a particular project also affects the type of financing scheme.

Exploring innovative financing schemes for Indian smart cities

1. Municipal bonds
2. Pooled Finance Development Fund (PFDF)
3. Sector specific bonds (REITs)
4. Public Private Partnerships
5. Land-use financing
6. Linked deposit programmes
7. Developer dedication requirements
8. Securitization and Structured Finance
9. Performance Contracts
10. Tax Increment Financing

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Indian cities already contribute more than 62 per cent to our national GDP. Urbanisation has, thus, emerged as a key policy and governance challenge in India in recent years. Larger cities are enhancing their participation in the global economy and smaller cities are absorbing most of the rural-urban migration and strengthening linkages to the rural economy. Given the unprecedented pace of urbanisation in India, it becomes vital to plan such growth in order to sustain it. The speed of urbanisation poses unprecedented challenges and India has begun a national discussion about how to handle the seismic shift in the make-up of the nation.

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About the PHD Chamber

PHD Chamber of Commerce & Industry, a leading Industry Chamber of India, ever since its inception in 1905, has been an active participant in the India Growth Story through its Advocacy Role for the Policy Makers and Regulators of the Country. Regular interactions, Seminars, Conference and Conclaves allow healthy and constructive discussions between the Government, Industry and International Agencies bringing out the Vitals for Growth. As a true representative of the Industry with a large membership base of 48000 direct and indirect members, PHD Chamber has forged ahead leveraging its legacy with the Industry knowledge across sectors (58 Industry verticals being covered through Expert Committees), a deep understanding of the Economy at large and the populace at the micro level.

At a Global level we have been working with the Embassies and High Commissions in India to bring in the International Best Practices and Business Opportunities.

Seven Thrust Areas

- Industrial Development
- Infrastructure
- Housing
- Health
- Education and Skill Development
- Agriculture and Agribusiness
- Digital India

About the Chief Secretaries' Conclave

'The Chief Secretaries' Conclave is a flagship event of the PHD Chamber of Commerce and Industry (PHDCCI) which has been working for the socio-economic development of Indian States with a motto, 'Strong States Make a Strong Nation.' The Conclave essentially carries forward the mission of 'Empowering States' to strengthen India's federal structure of governance.

It aims to support the prescient vision and mission-in-progress for 'Making New India' and PHDCCI's State Development Council's Initiative 'Making New India @2022' by helping ensure desirable outcomes in these crucial areas: ease of doing business, industrial development, education, skill development and employment growth, accelerating the pace of smart cities.

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Acknowledgements

We are grateful for the efforts of the following people and acknowledge their contributions:

Strategic Direction

- Nilaya Varma

Authors

- Narayanan Ramaswamy
- V Madhavan
- Debabrata Ghosh
- Rahul Jha
- Sidharth Abbi
- Joyeeta Ghosh
- Amit Saraf
- G Manigandan
- Abhishek Verma
- Shristi Singh
- Shivani Naik
- Mainak Guha
- Krishna Singh
- Sanleen Pal
- Poornima Kharbanda
- Tanay Karnatak
- Subadra Kalyanaraman
- Anudeep Naik
- Himalay Reddy
- Aryan Chouhan

Brand and Marketing Compliance

- Nisha Fernandes
- Rishabh Rane
- Viswanath Ramachandran

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