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E-governance and Digital India Empowering Indian Citizens Through Technology

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Foreword

The seeds of a digitally connected India were sown in the early 90s and 2000s with a number of diverse but disjoint e-governance programmes. However, these resulted in limited impact on citizens. In 2014, the UN placed India at the 118th slot globally (out of 182 countries) in the e-government rankings.

With an unprecedented mandate and a clear vision, the current government is pushing ahead the Digital India initiative, which has the potential to transform the lives of citizens across the length and breadth of the country. Digital India differs from previous efforts as it provides a combined vision and a comprehensive execution plan, bringing together various departments as well as existing and new programs that are monitored and influenced centrally by the government.

Technology is key to the vision of a Digital India. Social Media, Mobility, Analytics and Cloud are the foundations that will enable the Digital India visions of providing “governance and services on demand” and “digitally empowering citizens” and support the social inclusion schemes being launched by the government.

Along with the public sector, the private sector will play a significant role in fulfilling the vision of Digital India by providing the last mile access, location specific Wi-Fi access (e.g., schools, universities, public Wi-Fi) and development of applications that provide cloud-based services on demand to citizens, like branchless banking, remote health, remote education, skill development and e-justice. The Digital India initiative will, over the next few years, extend the reach of government services and essential schemes to the remotest parts of the country, providing citizens on-demand, cloud-based services and creating millions of jobs.

Despite the increased focus and pace, execution remains the most significant challenge for the government. Providing “infrastructure as a utility to every citizen” is one of the key visions of the programme. However, the flagship digital infrastructure project, National Optical Fibre Network (NOFN) driven by BBNL has been delayed by several years. At the current pace the NOFN programme, which aims to provide high-speed fibre connectivity (100 Mbps) to 250,000 gram panchayats, is expected to be complete in the 2018/19 timeframe. As on date only ~1% of the target (~2,500) gram panchayats have been connected. On the wireless front, as of 2015 approximately 45,000 villages remain unconnected.

This paper provides a comprehensive review of the flagship programmes launched and monitored under the Digital India initiative, identifies the progress to date, implementation gaps and challenges faced. Additionally, some key areas to focus for closing the gap have been discussed.



Hemant Joshi

Message from ASSOCHAM

ASSOCHAM welcomes the Digital India programme being launched recently by the Hon'ble Prime Minister as a flagship programme with a vision to transform India into a digitally empowered society and knowledge economy.

As citizens become more aware of their right, they have become more demanding in terms of better and quicker services from Government. Effective public service today is more about transparency, efficiency and accountability.

E-governance initiatives in India have traditionally being confronted with the dual challenges of automating government departments and taking online services to the common man. But now e-governance has moved beyond government departments just having a portal. It is no longer confined to merely streamlining and automating processes. It is about transforming the way governments work and reinventing people's participation in the democratic process. It is about empowering both the government and the citizen. Technology will be the enabler for the citizen to transcend the boundaries of departments and ministries, and provide a single platform for interaction with its citizens, thus promoting participatory governance and increased transparency and revolutionizing public service delivery.

ASSOCHAM's initiative in creating awareness about the concept and practice of e-governance is almost more than a decade, where efforts have been made to invite participation not only from the Centre but also from state governments on one side and ensuring participation from industry leaders on the other, on a common platform.

The 11th e-Governance National Summit with the theme 'Inclusive Growth Through Digital Empowerment' is another step in that direction. We sincerely hope that all the stakeholders will immensely gain from the deliberations at this national summit and achieve the objective of creating a 'Digital India'.

I convey my good wishes for the success of the 11th National Summit on e-Governance and Digital India.



With best regards,

D. S. Rawat,
Secretary General,
ASSOCHAM

Message from ASSOCHAM

Aimed at creating a digitally converged society, the Digital India programme provides the greatest opportunity that we have ever had to make rapid and solid advances in social and economic development. Creating a digital society will be key in the competitiveness of nations in the upcoming years. Digital Society is broader than 'digital economy.' A digital society integrates all social spheres and lends a competitive edge to the overall economy.

This is the decade of broadband – and we all recognize the vital importance of broadband as a social and economic development tool, and as a critical component of smart society. The Digital India programme is aimed at further bridging the divide between digital “haves” and “have-nots”. It is an opportune time for both the industry and the government to form a synergistic partnership towards bolstering India’s socioeconomic development through digital empowerment. The initiatives of e-health, e-education and a wide variety of citizen services, can be delivered to rural citizens subject to conducive and progressive policy initiatives by the government and with the participation of the entire ecosystem. However, the need of the hour is to adopt a grassroots approach starting from the State-level with key enablers being awareness building and imbibing the benefits of e-services especially for the underserved parts of the country.

The 11th National Summit on e-Governance and Digital India is aimed at providing a fillip to the Digital India campaign by tackling grassroots issues in from of addressing digital infra bottlenecks, service delivery mechanism and capacity building. After all, Digital India can only be achieved when it reaches the States and its people to create multitudes of jobs and unleash untapped sectors such as rural-BPOs and a wide variety of government-to-citizen services in form of e-education, mobile finance and m-health amongst others.

The wide spectrum of participants will provide a one-of-a-kind deliberation with the focus of creating a Digital India. I wish 11th National Summit on e-Governance and Digital India a grand success.

With Best Regards,



Umang Das,

Chairman, ASSOCHAM National Council on e-Governance & Digital India

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India's National Economic Agenda and the Role of Digital Technologies

India's economic agenda, as laid out by the present government, largely focuses on economic revival and inclusive growth. It aims to carry these out by financially empowering citizens, focusing on industrial development and reducing subsidies through the use of digital technologies. The agenda has the following action points: poverty elimination, containing food inflation, agricultural reforms, co-operation between Centre and states, transparent and time-bound delivery of government services, e-governance and governance enabled through mobile devices, ease of doing business, job creation and development of infrastructure.

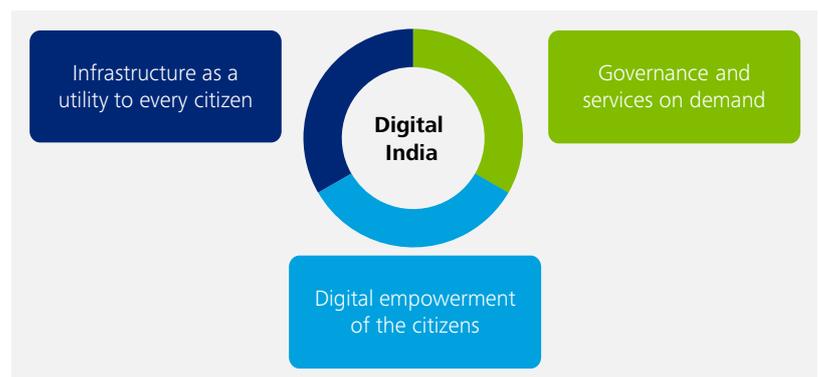
To enable these, several large-scale campaigns have been launched by the government. Flagship initiatives such as JAM (Jan-Dhan Yojana, Aadhar, mobile), DBT (Direct Benefit Transfer), PM's Bima Yojana, smart cities, etc. have received significant traction. Jan-Dhan has secured international acclaim by setting a world record for most number of bank accounts opened under a financial inclusion programme in a week¹. The reach of such schemes among the masses has been made possible through the use of technology-enabled channels.

Additionally, subsidy reforms have also been initiated with the aim of reducing the burden on the economy and ensuring that the benefit of subsidies reaches the right people. Under the PAHAL scheme, for instance, LPG subsidies will be directly transferred to the bank accounts of those who need them.

The impact of these schemes has been visible in a short span of time. The Aadhar programme is expected to achieve 1 billion enrolments by December 2015². The Jan-Dhan programme received 15 million enrolments on the opening day itself³, and reached 115 million enrolments by 17 Jan 2015⁴. This has been possible only through the use of technology-enabled automation for managing data and a centralized banking system, which has also reduced the cost of operations in rural areas. Given that over 700 million Indians have mobile connections, the next step is to enable citizens to transact with the government via online or mobile channels. It is, thus, vital that people and processes be brought onto a common, integrated technology and services platform.

The key enabler in this regard is technology. It is only through technology that documents, transaction logs, bank accounts and identities can be integrated and accessed seamlessly. To this end, the government has also initiated the Digital India programme, centred on three key vision areas:

Key vision areas





Infrastructure as a utility to every citizen

The initiative is aimed at providing connectivity through fixed-line broadband, mobile connectivity or Wi-Fi hotspots. Every citizen would be provided with a unique identity with lifelong validity that can be tied up with mobile number and bank account to enable digital banking. Access to Common Service Centre (CSC) would be improved and shareable cloud space on public cloud servers would be provided.

Governance and services on demand

The initiative plans to create seamless integration across multiple government departments and jurisdictions, and make services available on online and mobile platforms. Financial transactions would be made cashless and electronic, and entitlements would be available on the cloud. The ease of doing business in India would be improved.

Digital empowerment of citizens

The initiative would provide universal digital literacy to empower citizens to use digital platform/ devices. Universal access to digital resources would be provided, wherein all documents would be available in digital form

on the cloud. Government services would be provided in local languages and a platform would be made available to citizens for participative governance.

Having taken the right steps in the direction of introducing economic reforms, it is now vital for the government to focus on implementation and execution of its policies using technology. India lags behind the targets set up by the new government in achieving the ambitious dream of providing even the remotest villages with high-speed internet. Out of 1 million miles of fibre-optic cable to be laid, for instance, less than 31,000 miles have been laid out. The target date of 2013 for completion of the National Fibre Optic Network program has been extended to 2019⁵.

Technology is the most crucial enabler in India's economic growth and trends in the Information and Communication Technology (ICT) sector indicate demand is expected to grow fuelling growth firms in this sector. This will lead to more investment in development of capabilities and higher penetration of computer technology and mobile devices. It will be critical for India to use this growth in areas of governance and service delivery.

⁴ FM: Record Number of 11.50 Crore Bank Accounts Opened Under Pradhan Mantri Jan Dhan Yojana (PMJDY) as on 17th January 2015 against the original Target of 7.5 Crore by 26th January, 2015; PIB, <http://pib.nic.in/newsite/PrintRelease.aspx?relid=114810>

⁵ Why Modi's Digital India Remains a Pipe Dream, <http://blogs.wsj.com/indiarealtime/2015/08/20/why-modis-digital-india-remains-a-pipe-dream/>

Overview of Digital India

Digital India – Summary

One of the earlier programmes focused on digitization and e-governance was the National e-Governance Plan (NeGP) prepared by the government in 2006. Although the early years of the plan did not receive much traction, it laid down the foundation for building a technology-enabled knowledge economy. Significant progress has been made subsequently. For example, the Ministry of External Affairs set up an e-passport seva portal that provided an integrated interface for different steps of the passport application process. The upcoming wave of rapid growth in the economy would involve extensive adoption of technology in all areas of the economy. Digital India aims to empower citizens to avail services with more ease and to conveniently interact with the government. The initiative is expected to not only boost economic growth but also to improve the lives of the citizens.

Key pillars

The vision of Digital India would be supported by 9 key pillars that cover projects such as National Optical Fibre Network, National Knowledge Network, Smart Cities, etc.

Pillars of Digital India

S.No.	Pillar	Summary
1	Broadband Highway	<ul style="list-style-type: none">To provide high-speed broadband coverage highways connecting about 250,000 villages, various government departments, universities, etc.To provide an integrated information infrastructure with integration of State Wide Area Network (SWAN), National Knowledge Network (NKN) and National Optical Fibre Network (NOFN)
2	Universal access to mobile	<ul style="list-style-type: none">To provide mobile connectivity to about 42,300 villages
3	Public Internet Access Programme (PIAP)	<ul style="list-style-type: none">To make 250,000 CSCs operational at Gram Panchayat level for delivery of government servicesTo convert 150,000 post offices into multi-service centres
4	E-governance	<ul style="list-style-type: none">To use business process re-engineering to transform government processes and make them simple, automated and efficient
5	E-kranti	<ul style="list-style-type: none">To use technology for service delivery such as e-education, e-healthcare, technology for planning, farmers, security, financial inclusion, justice, etc.
6	Information for all	<ul style="list-style-type: none">To provide open access to government information and documents onlineTo provide two-way communication between citizens and the government through online platforms and social media
7	Electronics manufacturing	<ul style="list-style-type: none">To target net zero imports by 2020, through various actions in areas such as taxation/incentives, economies of scale, skill development, government procurement, etc.
8	IT for jobs	<ul style="list-style-type: none">To provide necessary skills and training that enable the youth to avail jobs in IT/ITes sector
9	Early harvest programmes	<ul style="list-style-type: none">To focus on execution of project within short timelines, such as IT platform for messages, e-greetings from the government, biometric attendance, Wi-Fi in all universities, etc.

Source: DeitY on "Digital India, A programme to transform India into a digitally empowered society and knowledge economy"

A well-integrated plan touching upon all sections of the Indian society, if implemented properly, holds a lot of promise and will transform the way citizens connect with the government. It will be very critical for the Centre and state governments to ensure citizen awareness, monitor progress of implementation and ensure smooth and efficient functioning of government services.

Role of Public-Private Partnership

Public-Private Partnership (PPP) models have been fairly successful in development of infrastructure and effective implementation of large-scale transformational projects in India. As of 2015, 60% of airport traffic in India is being managed under the PPP model⁶. A total of 100 PPP highway projects had been completed by March 2014 and another 165 were ongoing⁷.

To fulfil the vision of Digital India for 1.2 billion people the role of PPP is vital. There is significant opportunity for the private sector to participate in the Digital India programme. However, this requires creation of a conducive environment for the private sector and especially new entrants. Out of 189 major economies reviewed by the World Bank, India ranks 142 in the ease of doing business index⁸. While the government has undertaken several initiatives to improve this, a lot more needs to be done.

The Delhi-Mumbai Industrial Development Corridor (DMIDC) project is one of the finest examples of successful implementation of the PPP model. However, several PPP projects in India have been stuck for a variety of reasons including delays in government clearances, unclear business models, absence of a land acquisitions policy, doubts about a sustainable policy and legal framework, etc.

Several states and cities have begun collaborating with private players to develop digital infrastructure and services. For instance, Bangalore Police recently launched kiosk-based locations to enable citizens to file FIRs without visiting the police station. Bangalore Police also developed 'e-challan' and automatic traffic monitoring systems jointly with IT providers and telecom service providers. The Haryana government's software wide area network and the common services centres are being developed under the PPP model. Several of the Centre's IT programmes are also being developed on PPP models.

Development of the 100 smart cities will require that a number of services will have to be provided digitally and over the internet. While the implementation of smart cities plan will happen through Special Purpose Vehicles (SPV), development of the digital footprint for a smart city will need to include a consortium of private players including:

- Platform and application developers
- Software developers
- IT and network infrastructure vendors
- Communication/connectivity providers
- Infrastructure developers

Private players are expected to bring in the execution efficiency and human resource expertise to execute the vision laid out by the government.

Namami Gange is another initiative where participation of private players is critical for the success of the program. The Centre has approved a budget of ₹ 200 billion⁹ (~\$3 Billion) and has taken a \$1 billion loan from the World Bank¹⁰. But it is estimated that the amount of investment required would be significantly more than the amount at hand. Therefore, the role of private sector players becomes crucial in bridging this gap. The central government has planned various interventions such as municipal sewage management, managing industrial discharge, etc. for the execution of the initiative. Each intervention will require participation from private players. Hence the central government plans to set up SPVs for operation, monitoring and maintenance for a period of at least 10 years. These private players will not only bring in the necessary investment but also the technology and expertise to manage and monitor the projects. For example, the government plans to hire vendors for real-time monitoring of pollution levels and effluent emission in rivers.

⁶ Airport, IBEF, <http://www.ibef.org/download/Airports-March-2014.pdf>

⁷ Highways, <http://pppinindia.com/sector-highways.php>

⁸ Doing Business 2015, World Bank Group, http://www.doingbusiness.org/Reports/Subnational-Reports/~/_media/gjawnb/doing%20business/documents/profiles/country/IND.pdf

⁹ Centre okays Rs. 20,000-crore budget for Namami Gange scheme, <http://www.thehindu.com/news/national/rs-20000crore-budget-for-namami-gange-scheme/article7201467.ece>

¹⁰ Now, bank on \$1 billion World Bank loan to clean-up Ganga, <http://www.dnaindia.com/india/report-now-bank-on-1-billion-world-bank-loan-to-clean-up-ganga-1555471>

Technology Drivers

Globally, technology has been the biggest enabler in bringing out massive transformation in both public and private sectors. Given the complexity of implementation at such a large scale and unprecedented scope of the project, it is critical to choose disruptive and emerging technologies, which have mass reach, can be customized and are ubiquitous in nature.

Considering the timelines involved, the implementation would need to be done in a lean and agile manner, apart from being cost effective and secure. Technologies such as cloud computing, mobility and analytics would be the most appropriate in enabling the vision and the pillars of the initiative. The technologies are detailed below.

Cloud Computing

Cloud computing enables the user to store and retrieve information irrespective of where she is located. The Indian government plans to use cloud for seamless integration between various departments and with citizens. It will provide a centralized data storage facility that will help in dissemination of information at a much faster pace. For example, the DigiLocker is a cloud service launched by the Indian government to provide its citizens with a shareable cloud space to store and share documents such as certificates, PAN card, voter ID, etc.

Mobility

Mobility enables availability of information on the go through devices such as smartphones, tablets, laptops, etc. It can be coupled with cloud to enable sharing of documents or information with other users. Citizens can communicate with the government regardless of their physical location. Diplomats or bureaucrats can gather information and take decisions on the move, which allows for faster and easier decision making.

Enterprise Mobile Strategy for the U.S. State Department

For example, Deloitte helped US Department of State in developing their mobile strategy that enabled access to information regardless of time or location. Further, Deloitte helped the department in making a transition to a mobile enabled workforce through the use of a mobile ecosystem.

Analytics

Analytics relies on collection of large amounts of data and drawing out actionable insights. Governments across the world are using the power of analytics to better serve citizens. For example, Deloitte partnered with the UK government to build an analytics engine in London that gathered information from camera sensors and created actionable insights that helped traffic managers to handle traffic in a timely manner.

The Indian government has a data repository called e-taal, which provides real-time transaction data of citizen with various departments and agencies of the government, and quick analysis of the information in graphical and tabular form. Moreover, the government is planning to undertake 'Project Insight' that will analyze transaction data of a citizen and correlate that with the income tax data to determine whether the individual is a tax evader or not¹¹.

Various other means of technology enablement, such as security of PII Data, ensure that the data remains safe throughout its life cycle.

¹¹ Black money: 'Project Insight' to help Finance Ministry nab tax evaders, http://articles.economictimes.indiatimes.com/2015-07-28/news/64957817_1_tax-evaders-data-analytics-nab-tax





Overview of E-governance

E-governance Lessons from Around the World

E-governance capabilities of a nation are measured the world over by the UN e-government survey rankings. As of 2014¹², India's global rank was 118, out of 182, in these rankings.

The top 10 nations in the UN global e-government survey are as below:

EGDI global ranking

Rank	Country	EGDI Index
1	Republic of Korea	0.9462
2	Australia	0.9103
3	Singapore	0.9076
4	France	0.8938
5	Netherlands	0.8897
6	Japan	0.8874
7	United States of America	0.8748
8	United Kingdom of Great Britain and Northern Ireland	0.8695
9	New Zealand	0.8644
10	Finland	0.8449
⋮	⋮	⋮
⋮	⋮	⋮
⋮	⋮	⋮
118	India	0.3834

Source: UN e-Governance survey 2014

According to a research report¹³, in the United States of America, 90% of the citizens use websites as the primary method of interacting with the government and 75% prefer to complete government transactions online. E-governance is also seen as a mark of trust and transparency-- 67% people are more likely to trust the government when they are able to interact with it on the internet. Research¹⁴ also suggests that digitizing and changing government service delivery mechanisms to a digital form could help governments across the world save U.S.\$1trillion annually (cumulative).

It would be prudent to note some success stories in e-governance from the top-ranking nations, to get a better understanding of what it could mean to India.

Health and Human Services Eligibility Citizen Portal, Colorado, USA

Objectives: Reduce manual processes for data entry, enhance reach and accessibility to public service benefits for citizens.

Solution: Deloitte designed a user interface using UX-2014 design principles and set up an integrated Force.com web-based citizen portal that had features such as pre-screening for eligibility, online application, dashboard for viewing the status of applications and reporting.

Results: More than 700,000 citizens have used the web-based self-service portal. It received about 166,000 visits per month. About 27,000 applications per month were submitted. The online application developed was secure and dynamic.

Citizens' benefits: The solution helped citizens in determining their eligibility for welfare services before the application process. The seamless online portal made it easier and quicker to apply for these services. Further, the online dashboard helped citizens to know the status of their applications and healthcare services.

Mobile Application Creation, Department of Health and Ageing, Australia

Objective: To extend the Better Health Channel (BHC) portal into the mobile phone arena through a smartphone app.

Solution: Deloitte determined the functional requirements through workshops with various stakeholders and determined the usage behaviour of citizens in that segment. Deloitte's online practice designed and developed an intuitive app using native iOS functions, gestures and animations.

Results: The application provided extensive information on health conditions, treatments, medical procedures and first aid, and a location-based list of health care service providers. The information was indexed and specific information could be found through text-based search. The application also had a feature of emergency call for medical assistance and advice about contacts such as kids' helpline, nurse on call, poison information, etc.

Citizens' benefits: The BHC portal was one of the top medicine and health sites in Australia, and extension of the portal into a mobile application made it easier for the citizens to access a wide array of information. Further, it enabled citizens to get first aid in a short amount of time.

¹² United Nations: E-government survey, 2014

¹³ The Foresee E-Government Satisfaction Index, 2014

¹⁴ McKinsey Article – Public Sector Digitization: The Trillion Dollar Challenge, 2014

Application of Analytics, Land Transport Authority, Singapore

Objective: To provide an efficient, integrated and sustainable land transport network through enhanced planning and decision making based on facts or data.

Solution: A central data warehouse was created that stored 3 years' worth of transaction data of public transportation. Further, an analytics system was developed to fetch the transaction data and draw out insights.

Results: The new system stored 3 years' worth of data instead of the 3 months earlier. The implementation led to about 19% saving in costs and a 13% reduction in man-hours. Fetching and loading data took 67% less time, while querying time reduced by 99%¹⁵.

Citizens' benefits: The solution has streamlined journeys (consisting of one or more types of rides) for commuters through better planning and data-driven decision making. It has also helped in planning for new public transport routes that provide optimal benefit to citizens.

Single Page Access to Multiple Government Entities, France

Objective: To reduce inefficiencies caused by multiple portals of government entities.

Solution: The French government developed a website for their civil service, open to private citizens, businesses and professionals alike.

Results: Administrative information is clearly mentioned in three sections:

1. Citizens' rights and procedures, complete with over 2,500 data sheets and information on FAQs;
2. Service that help with administrative procedures such as application forms, calculators for various services, online delivery of services, helpline and messaging services and
3. A civil service directory including 11,000 national services, 70,000 local civil services and access to the main portals of the countries in the EU.

Citizens' benefits: The website has enabled easier access to administrative information online and provided a simpler interface to avail service online.

While most of the countries in the top 10 are developed nations, there are a few examples of developing nations ranking very high on the UN survey. Estonia is one of them.

¹⁵ Deloitte report on "Digital India: unleashing prosperity", 2015

E-governance in Estonia

Estonia is ranked 15th globally in the UN e-government index rankings, 2014. The United Nations, in 2013, declared Estonia as having the decade's best e-government content. Estonia introduced a public online system for filing taxes in 2000 which allows citizens to file taxes in 5 minutes. Citizens can store information on cloud-based public servers which can be accessed remotely. This allows citizens to store all sorts of personal information online, including medical information such as X-rays. It introduced a digital identification card in 2002¹⁶ which is an all-purpose identification document for its citizens, and allows them to vote, open a business, etc. This has enabled Estonia to eliminate paper-based transactions, saving them 2% of their annual GDP¹⁷. Savings of 2% of annual GDP for India would mean a saving of approximately ₹ 2,500 billion, which can then be utilized for public welfare, civic infrastructure and industrial growth, among other things.

Key reasons for success

The e-governance measures cited above were a success because of several existing factors, like

1. skilled workforce that was able to adopt these technologies faster;
2. affordability of these technologies, either due to high standard of living or due to cheap availability of devices;
3. effective execution on the ground and, at times, stringent policy measures – digital identification was made mandatory in Estonia.

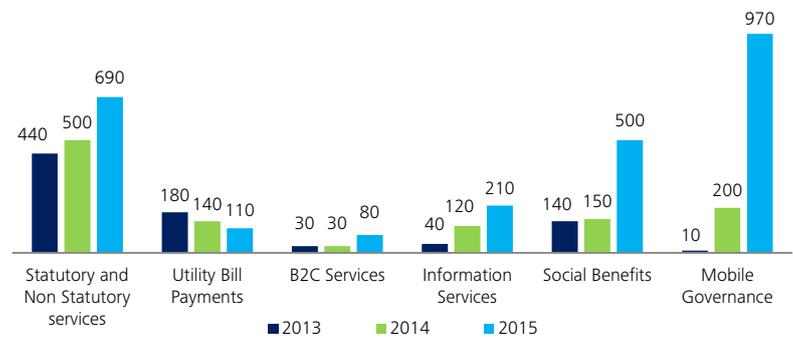
This allows the government to record citizens' data comprehensively, which allows success of measures targeted at particular groups of citizens

While it may not be possible to take steps like making particular system mandatory, the other factors play a major role in guaranteeing success of these initiatives. As citizens' awareness and skill levels increase, the demand and adoption of these technologies will increase too. Therefore, the supporting initiatives such as Make in India, Electronics Development Fund and Skill India, among others, will form the backbone of the success of the Digital India programme.

E-governance in India

India is seeing a dramatic growth in the number of online transactions involving citizens and the government. The number of such e-transactions has grown by more than 200% in 2 years: from 840 million in 2013 to 2580 million in 2015¹⁸. The number of transactions per service category is shown in the figure below.

Number of e-transactions in India
(in millions)

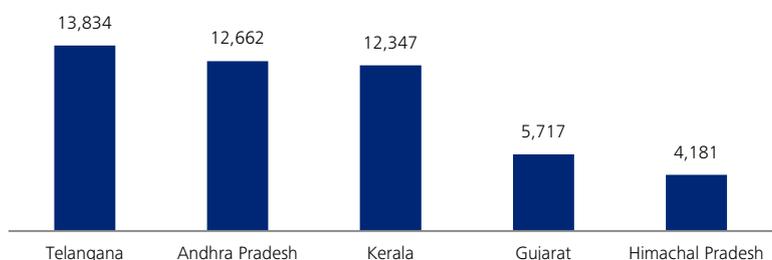


Source: etaal.gov.in

The number of e-transactions is seen to vary greatly across states. Telangana, Andhra Pradesh and Kerala lead the rest of the nation by a long way in carrying out transactions with the government online.

The list of the top 5 states based on the number of e-transactions carried out between Jan 1, 2015 and August 1, 2015, is given below.

Average number of e-transactions per '000 people
(Jan '15 - Aug '15)



Source: etaal.gov.in

¹⁶ The Estonian ID Card and Digital Signature Concept, http://www.id.ee/public/The_Estonian_ID_Card_and_Digital_Signature_Concept.pdf

¹⁷ Estonia: A Model for e-Government, <http://cacm.acm.org/magazines/2015/6/187320-estonia/fulltext>

¹⁸ Etaal - DeitY, <http://etaal.gov.in/etaal/>

While some states have been quick in implementing digitization of services, a large number of states fall well short of the numbers achieved by Telangana or Andhra Pradesh. Maharashtra, considered among the most literate and prosperous states of India, falls well short of these numbers, with less than 340 e-transactions per 1,000 people over the 8-month period. Punjab, another prosperous state, is even lower, at just over 130 e-transactions per 1,000 people. The national average is 2,329 e-transactions per 1,000 people over the given period. Only 6 states, however, are above the national average.

The rapid growth in e-transactions over a three-year time period, as shown above, proves that citizens are quick to adopt these technologies as and when they're made available. The onus, then, lies on the government to provide the relevant infrastructure and policies to enable effective digitization of the economy resulting in increase in efficacy of e-governance.

Partnerships with firms, public and private, having expertise in creating the relevant technology strategy and architecture are an efficient way to implement such changes. Governments abroad have often partnered with private firms, in conducting capability assessments to identify areas of concern and also implement the systems and architecture required to address these concerns. A possible approach would be to implement systemic changes at a granular level, say, in individual government departments, and integrating these to provide a unified, macro-level architecture.

At this juncture, it is prudent to gauge the status of government programmes regarding digitization of the economy and e-governance under the ambitious Digital India initiatives. A list of initiatives in this direction is as below:

Initiatives Taken by the Current Government and their Progress

The government has initiated several programmes that, together, will help realize its vision of a digitized nation. These programmes aim to create technology-enabled solutions and facilitate their adoption by

1. creating a platform through growth of infrastructure, such as laying optical fibre cables;
2. making devices available in an affordable manner by encouraging research, development and manufacturing of electronic devices;
3. incentivising their adoption by linking basic services and facilities like subsidies to these initiatives and

4. imparting relevant skills to ensure that citizens not only adopt these technologies, but also contribute to them, through skill development programmes.

Some of these schemes have already given encouraging results, while others are yet to see significant traction, as seen below.



Pradhan Mantri Jandhan Yojana (PMJDY)

This scheme has been launched with the aim of providing basic banking amenities to everyone, by providing accounts, debit cards and accidental insurance coverage worth ₹ 1 lakh. This is envisioned as a move to empower Indian citizens and head towards inclusive growth.

Progress: The scheme has been very successful, so far, with over 150 million bank accounts being opened. Over 100 million RuPay debit cards have also been issued¹⁹.

Technology intervention for success: Use of RuPay debit cards for transactions and extended reach into remote areas with handheld PoS devices will bring about rapid adoption of these cards.



Direct Benefit Transfer (DBT)

Under the DBT scheme, consumers will receive subsidies directly into their bank accounts, while the subsidized goods will be sold at market prices. This will reduce pilferage, adulteration and other malpractices, while ensuring that subsidies reach the people who need them.

Progress: Nearly 140 million beneficiaries have received over 229 billion in DBT till July 2015²⁰. The PAHAL initiative, which allows DBT in the case of LPG cylinders, has seen a lot of traction. Over 1.62 million people have voluntarily given up LPG subsidy under the "Give it Up" campaign of the government²¹.

Technology intervention for success: Linking of bank accounts with Aadhar for DBT will allow efficient tracking and monitoring of benefits transfer. It will also reduce leakages and duplication of beneficiaries.

¹⁹ Pradhan Mantri Jandhan Yojana, <http://www.pmjdy.gov.in/>

²⁰ Supreme Court to rule on Aadhaar privacy issue on Tuesday, <http://www.livemint.com/Politics/lbFihlioHUaBOLhQfEINm/Aadhar-SC-reserves-order-on-reference-to-a-larger-bench.html>

²¹ PM Modi's 'Give It Up' campaign on LPG subsidy saves Rs 140 crore for government, <http://www.ibnlive.com/news/politics/pm-modis-give-it-up-campaign-on-lpg-subsidy-saves-rs-140-crore-for-government-1024823.html>

JAM Trinity

The Jan-Dhan-Aadhar-Mobile trinity aims to integrate the three identification numbers to allow citizens to avail several government benefits. It is supposed to be a game-changing reform that will allow transfer of benefits in a targeted, leakage-proof and cashless manner.

Progress: The initiative was announced only in February 2015. The judiciary, however, has questioned the move since it requires the use of Aadhar, which cannot be made mandatory. This has stalled progress on this front.

Technology intervention for success: Use of other identification, such as voter IDs which have a higher penetration than Aadhar cards, could be used as alternate means of authentication to enable a quicker rollout of this scheme, reducing its dependence on the Aadhar card.

Smart Cities

The government aims to create 100 smart cities by 2022 outfitted with high-tech communication capabilities and civic infrastructure across the country. For instance, Surat, one of the cities chosen for the smart city programme, is being fitted with a network of CCTV cameras to monitor crime. In all, a total sum of ₹ 480 billion over 5 years for the development of smart cities has been laid out by the central government²².

Progress: A list of 98 cities has been released by the government. Foreign nations and global development agencies such as the World Bank, Asian Development Bank and KfW Development Bank (Germany), among others, have shown interest in providing financial aid. Similarly, nations have shown interest in sharing knowledge and expertise with local bodies and the government. France has evinced interest in Nagpur and Puducherry, the United States has expressed interest in Ajmer, Vizag and Allahabad. Singapore, Germany and Spain have also shown interest in providing expertise to help with the initiative.

The implementation plan is under development, with emphasis being laid on public-private partnerships (PPPs). The government has finalized outlay of capital

for special purpose vehicles (SPVs) involving private firms and urban local bodies (ULBs). Finally, consulting firms in the technology, strategy and infrastructure domains have been shortlisted for planning and execution, based on regional presence and expertise. For instance, Deloitte has been shortlisted to aid with the planning and implementation strategy in West Bengal, Bihar, Odisha and Andaman and Nicobar.

Technology intervention for success: Extensive use of technology for authentication of citizens, monitoring of traffic, education, health, crime, energy and waste management etc. will be of vital importance. Electronic delivery of government services and e-platform for citizens will help their participation in governance, and enable micro-management of minor issues.

Digi Locker

The service was launched as an important facility to store crucial documents like Voter ID card, Pan card, BPL card, driving license, education certificates, etc. in the cloud. The 10 MB personal storage space is linked to the Aadhar number of the user.

Progress: The Digi Locker scheme has nearly 940,000 users, who have uploaded nearly 700,000 documents as of August, 2015²³.

Technology intervention for success: It will be vital to ensure safety and privacy of data by using high-end encryption technology and data compartmentalization to reduce risk of theft or misuse. Also important will be ensuring that departments of the government adopt this service, as it will help eliminate unnecessary paperwork and hasten processes.

E-Sign Framework

Once rolled out, this initiative will enable users to digitally sign a document online using Aadhaar. It is currently in pre-production testing phase. E-signatures are not legally valid yet.

Technology intervention for success: As with the Digi Locker, privacy and security will be of prime importance. Also important will be rapid integration with government departments and procedures.

²³ Smart City: Mission Statement and Guidelines, <http://smartcities.gov.in/writereaddata/SmartCityGuidelines.pdf>

²⁴ DigiLocker, <https://digilocker.gov.in/>



National Optical Fibre Network (NOFN)

Under this initiative, a high-speed digital highway will connect all 250,000 gram panchayats of the country. This is the world's largest rural broadband project using optical fibre²⁴.

Progress: The Bharat Broadband Network Limited has been set up for the establishment and management of the NOFN programme. Initially planned to be completed by 2016, the NOFN programme has seen slow progress. Currently, slightly above 1% of the gram panchayats have been covered under the Bharat Broadband project. The deadline has been extended to 2019.



Wi-Fi Hotspots

Following on the footsteps of the NOFN, this programme aims to develop high speed BSNL Wi-Fi hotspots throughout the country to improve digital connectivity across India.

Progress: Free public Wi-Fi has been made available at several locations in major cities, albeit for a short span of time. Railway and metro stations in cities such as Mumbai and Delhi have similar free Wi-Fi facilities as well. However, the success of the project on the national scale depends on the success of the NOFN project.

Technology intervention for success: It will be important to use high-speed, high-intensity routers at these public access points to enable effective implementation of this project. The Electronics Development Fund, along with the push on making India a zero-net import country for electronics manufacturing under the Digital India campaign, will enable this to take place in a cost-effective manner.



Skill India Initiative

Launched in July 2015, the Skill India initiative aims to impart training in different areas to 400 million people in India by the year 2022. This will be essential to the success of the Digital India programme, one of the major challenges of which is a lack of skilled workforce.

Progress: Under the Pradhan Mantri Kaushal Vikas Yojana (PMKVY), 50,000 youth in 100 job roles across 25 sectors will be trained at special centres. SMS campaigns to reach out to 400 million youth are being rolled out²⁵. Through an initiative known as Recognition of Prior Learning, the government aims to identify and certify youth for the skills they already possess. Loans ranging from ₹ 5,000 to ₹ 150,000 will be made available to youth for skill development over the next 5 years²⁶.

Technology intervention for success: Equipping training centres with high speed Wi-Fi and video facilities will enable greater outreach and quicker scalability of the project. Development of mobile applications for training will also be immensely useful.



E-Hospital

This is another initiative by the government under the Digital India program and is being managed by the Department of Electronics and Information Technology. It features an online registration system which links various hospitals across the country for registrations and appointments based on Aadhar. Under this initiative, people can use services like online registration, payment of fees and appointment, online diagnostic reports, checking on the availability of blood online, etc.

Progress: 6 hospitals are on board. The website – ors.gov.in – is fully functional and has received over 48,000 registrations so far. The website, updated regularly, also features a dashboard which allows real-time tracking of data and registrations²⁷.

Technology intervention for success: Efficient database management will be crucial to allow patients to access these facilities in other hospitals. Analytics on appointments and other queries can be used for capacity planning, which will allow hospitals to manage resources better.

Policy initiatives like the Electronics Development Fund, which will become operational later this month, will allow venture capitalists to fund research and manufacturing in electronics, giving a much-needed boost to entrepreneurs eyeing the electronics manufacturing sector.

²⁴ Bharat Broadband Network Limited, <http://www.bbnl.nic.in/content/faq/what-are-the-major-highlights-of-national-optical-fiber-project.php>

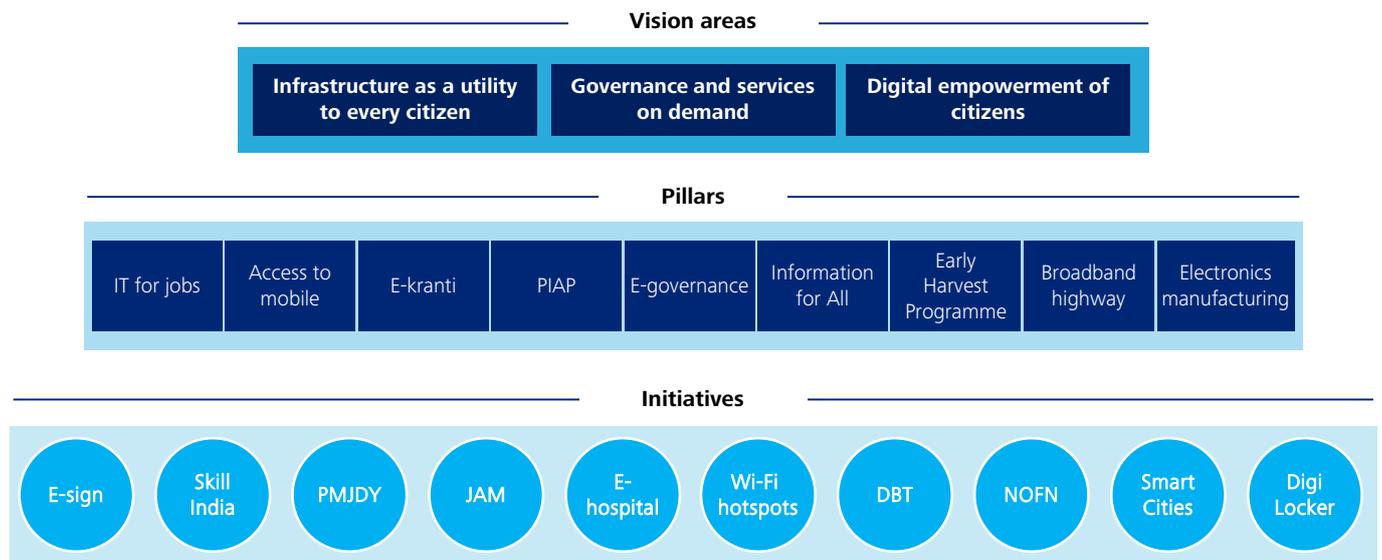
²⁵ Prime Minister Launches SKILL INDIA on the Occasion of World Youth Skills Day, <http://pib.nic.in/newsite/PrintRelease.aspx?relid=123296>

²⁶ PM Modi Launches Skill India Initiative That Aims to Train 40 Crore People, <http://www.ndtv.com/india-news/pm-modi-launches-skill-india-initiative-that-aims-to-train-40-crore-people-781897>

²⁷ Online Registration System – DeitY, <http://ors.gov.in/copp/>

Building blocks of Digital India

The schematic diagram below represents how the initiatives tie in with the nine pillars of the DigitalIndia programme, as discussed earlier



These initiatives are almost revolutionary in the manner in which they will change governance, and finally bring to life the vision of inclusive growth. Most of the initiatives have met with success, at least in the initial phase. Their success in the future will depend on how the policymakers, the executive and the citizens, alike, cope with the numerous challenges that present themselves at various stages.

Challenges in Digital India

Key challenges

An initiative of this scale has never been conceived before and, apart from little availability of skilled manpower, execution has been a challenge. Hence, the vision cannot be realized without tackling such looming challenges. Some of the challenges are detailed below.

NOFN Infrastructure Setup

The effort to connect about 250,000 villages through an optical fibre network has seen significant delays in the past. Just about 1% of those villages are connected to the internet through NOFN²⁸. Providing last-mile connectivity would be a challenge in the future since it is unaffordable for most Indians.

Adoption of Internet

Apart from infrastructure installation, adoption of the internet remains a concern. Internet penetration has remained close to 15% in India while in China it is nearly 46%²⁹. Moreover, people in poor areas would find it difficult to afford internet through broadband or mobile. Low literacy level, lack of content with regional relevance, lack of appropriate access devices would also hinder the adoption.

Data Speed

Data speed is another area where India faces a big hurdle. India is ranked 20th in mobile data speeds, with an average speed of 0.099 mbps. In comparison, Canada, the top ranked nation, has average data speed of over 4.5 mbps³⁰.

Security

With cybercrime on the rise, the idea of putting information of about a billion citizens online seems like a risky move. Hence highest levels of security measures and protocols would need to be taken to ensure a safe environment for the citizens.

Coordination and Standardization

Various government departments such as DeitY, DoT, Law, Finance, etc. would be involved in creating systems and operational standards for a seamless integration. Such involvement would require significant levels of coordination to ensure proper flow of information.

Private Sector Participation

In order to meet the expected timelines, participation of private sector players becomes quite crucial. Whereas, private sector players have shown limited involvement, this needs to be boosted quite rapidly.

Manpower

Skilled manpower is, perhaps, the biggest challenge of all. India has nearly 475 million people engaged in labour, out of which about 93% are engaged in unorganized labour³¹. Skilled manpower is essential for the development and effective adoption of new technologies. Creating a system to train and provide gainful employment to so many people is an immense challenge.

Lastly, the fact that a project of this scale has never been completed in India before is, in itself, a major challenge. Effective execution is critical for success and several ambitious projects proposed by earlier governments have not been completed. The reasons behind these are numerous, but corruption, bureaucracy and apathy are some major reasons that ambitious projects have fallen apart in the past. The current government has shown vision and intent in conceptualizing the Digital India programme, and has proactively pursued policies that will enable such initiatives to fall in place.

²⁸ In 'Digital India,' a 15-Minute Wait for Email, <http://www.wsj.com/articles/in-india-rural-internet-rollout-remains-a-pipe-dream-1440063074>

²⁹ Online Registration System – DeitY, <http://ors.gov.in/copp/>

³⁰ India trails at No. 20 in mobile data speeds ranking, <http://www.livemint.com/Consumer/bla6p5ChYVFValPTS90MLJ/India-trails-at-No-20-in-mobile-data-speeds-ranking.html>

³¹ Govt plans census of unorganized sector workers, <http://www.livemint.com/Politics/Fh4gLoQI7X7ZZI84Jqu8jL/Govt-plans-census-of-unorganized-sector-workers.html>

Concluding Remarks

To realize the vision of promoting inclusive growth through empowerment of citizens, it is important to reach out to citizens in the remotest of locations and make them part of India's growth story.

Globally, technology has been the greatest enabler in causing disruptive change. India's story is no different, and the use of digital technologies to educate and empower citizens is being seen as a game-changer. Given India's vast expanse and differences in demographics across the nation, there is also a vast difference in the level of adoption among the citizenry.

To ensure success of its initiatives in the digital space, the government will have to take steps across multiple functional areas, some of which are outlined below:

- 1. Regulatory framework:** The government should focus on putting in place regulations that ensure smooth adoption of digital services. Regulations around net neutrality, use of cash cards/ wallet services, etc. should be instituted along with the initiatives of Digital India. Regulatory clarity will build trust about government services among citizens and encourage them to opt for these services.
- 2. Effective implementation:** There are two key imperatives to be considered for effective implementation.
 - **Skill enhancement:** The government should focus on skill enhancement of its workforce through training programmes or hiring of private sector experts. The government can collaborate with the private sector through PPP model, consulting assignment, etc.
 - **Planning and implementation:** The government, along with system integrators developing various platforms, should adopt agile implementation practices. The platforms developed should be 'future-proof' i.e. upgradable and scalable in a cost-effective manner.
- 3. Budget constraints:** The government should tap into the available pool of resources such as manpower, budgets, private sector fund, etc. in an optimal manner and should put monitoring mechanisms in place to ensure right allocation of resources at the right places. Banking institutions should be more liberal in their credit appraisal process for funding these initiatives.
- 4. Bridge digital divide:** There are two key imperatives for bridging the digital divide:
 - **Capability enhancement of citizens:** To enable citizens to reap the benefits of Digital India initiatives, the government should disseminate information through multiple channels and train citizens on use of technology devices and various interfaces (e.g. web portals, app, etc.).
 - **Design of digital services:** The governments should design easy-to-use intuitive interfaces. The private sector expertise can be leveraged in this aspect. Service providers (e.g. government agencies, universities, etc.) should design simple process flows such that a user can do the transactions with minimal human intervention
- 5. Security and privacy:** The government and system integrators should ensure application of state-of-the-art security protocols (e.g. 256-bit AES encryption, etc.). Relevant privacy policies should be instituted by the government so that the information is not misused by people who have access to it.





START UP

DUCT

GOALS

STRATEGY

NS

50%

NEW MARKETS

Business Plan

BUSINESS PLAN

About ASSOCHAM

The Knowledge Architect of Corporate India

Evolution of Value Creator

ASSOCHAM initiated its endeavour of value creation for Indian industry in 1920. Having in its fold more than 400 Chambers and Trade Associations, and serving more than 4,50,000 members from all over India. It has witnessed upswings as well as upheavals of Indian Economy, and contributed significantly by playing a catalytic role in shaping up the Trade, Commerce and Industrial environment of the country.

Today, ASSOCHAM has emerged as the fountainhead of Knowledge for Indian industry, which is all set to redefine the dynamics of growth and development in the technology driven cyber age of 'Knowledge Based Economy'.

ASSOCHAM is seen as a forceful, proactive, forward looking institution equipping itself to meet the aspirations of corporate India in the new world of business. ASSOCHAM is working towards creating a conducive environment of India business to compete globally.

ASSOCHAM derives its strength from its Promoter Chambers and other Industry/Regional Chambers/Associations spread all over the country.

Vision

Empower Indian enterprise by inculcating knowledge that will be the catalyst of growth in the barrierless technology driven global market and help them upscale, align and emerge as formidable player in respective business segments.

Mission

As a representative organ of Corporate India, ASSOCHAM articulates the genuine, legitimate needs and interests of its members. Its mission is to impact the policy and legislative environment so as to foster balanced economic, industrial and social development. We believe education, IT, BT, Health, Corporate Social responsibility and environment to be the critical success factors.

Members – Our Strength

ASSOCHAM represents the interests of more than 4,50,000 direct and indirect members across the country. Through its heterogeneous membership, ASSOCHAM combines the entrepreneurial spirit and business acumen of owners with management skills and expertise of professionals to set itself apart as a Chamber with a difference.

Currently, ASSOCHAM has more than 100 National Councils covering the entire gamut of economic activities in India. It has been especially acknowledged as a significant voice of Indian industry in the field of Corporate Social Responsibility, Environment & Safety, HR & Labour Affairs, Corporate Governance, Information Technology, Biotechnology, Telecom, Banking & Finance, Company Law, Corporate Finance, Economic and International Affairs, Mergers & Acquisitions, Tourism, Civil Aviation, Infrastructure, Energy & Power, Education, Legal Reforms, Real Estate and Rural Development, Competency Building & Skill Development to mention a few.

Insight into 'New Business Models'

ASSOCHAM has been a significant contributory factor in the emergence of new-age Indian Corporates, characterized by a new mindset and global ambition for dominating the international business. The Chamber has addressed itself to the key areas like India as Investment Destination, Achieving International Competitiveness, Promoting International Trade, Corporate Strategies for Enhancing Stakeholders Value, Government Policies in sustaining India's Development, Infrastructure Development for enhancing India's Competitiveness, Building Indian MNCs, Role of Financial Sector the Catalyst for India's Transformation.

ASSOCHAM derives its strengths from the following Promoter Chambers: Bombay Chamber of Commerce & Industry, Mumbai; Cochin Chambers of Commerce & Industry, Cochin; Indian Merchant's Chamber, Mumbai; The Madras Chamber of Commerce and Industry, Chennai; PHD Chamber of Commerce and Industry, New Delhi and has over 4 Lakh Direct / Indirect members.

Together, we can make a significant difference to the burden that our nation carries and bring in a bright, new tomorrow for our nation.

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