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NITI Aayog

(National Institution for Transforming India),
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Ministry of Electronics & Information Technology

Government of India



Digital India
Power To Empower



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INAUGURAL SESSION

Modi government has delivered its promises

Mansukh L Mandaviya, union minister of state for road transport and highways, shipping, chemical & fertilizers said the incumbent government is here to change and transform the country and not just to make promises. “This government has delivered what it had promised to the people,” Mandaviya said.

He said previous governments did not create enough digital infrastructure which was done by the Narendra Modi led government. A few years back, broadband internet connectivity was restricted to merely 300-350 villages in the country and after this government came into power in 2014, the number rose to over 3 lakh villages. “Earlier, youth in many villages used to migrate to urban areas because there was no internet connectivity



which deprived them of modern education. Now, broadband internet connectivity has been provided to villages, resulting in introduction of smart classes within their village clusters. This is an example of Digital India,” the minister said.

He laid emphasis on the synergy of data of different government

department and organisations to benefit citizens. Mandaviya said around ₹4 lakh crore has been deposited directly to the beneficiaries’ bank accounts through the direct benefit transfer scheme last year. He said over 2,000 unauthorised pensioners were identified and removed from the Kolkata port after the beneficiaries’ accounts were linked with the DBT. He said this is how the Digital India initiative helped the Kolkata port to weed out unscrupulous elements.

He said the government has thrown open 4,000 Jan Aushadhi centres to provide medicines to poor people. People used to think that only branded medicines are good but it is not true; rather India is manufacturing generic medicines which are cheaper than the branded ones and equally good.

Digital technology boosts India’s economy

Amitabh Kant, CEO, NITI Aayog while recounting an experience, gave an example of nine years ago when he faced the challenge of increasing the earning of traditional fisherman in Kerala where he was posted. Kant said despite the fishermen brought new equipment and other things, they were able to earn a meagre profit and around 70 percent of the remaining money used to go to the middlemen.

He talked about how difficult it was to open a bank account during those days. “Chasing physical banks and contacting a bank manager was a herculean task,” he said. Kant said that he was surprised to see how one of the banks opened his account in just 55 seconds with a biometric-enabled handheld.

“A radical transformation is happening in India through Aadhaar and



digital process,” he said. The Niti Aayog CEO further said the process of digitisation is spread across the government in several ways. “One of the ways is the direct benefit transfer (DBT). Once, an administrator said only 15 paise out of a rupee reaches to the poor people but today we transfer benefits across 500 schemes through DBT to the beneficiaries and the government saves

₹90,000 crore,” he said. Earlier, there was a huge leakage during the transfer of money from the centre to the states to the districts and then down the local tehsil level. “Now money goes straight into the beneficiaries’ account using Aadhaar,” he said.

He further highlighted the centre’s push to digital payments post demonetisation and around ₹72,000 crore have been digitally transferred last year. Citing an example of a digital interface by the government, he said, “One of the key enablers in this is BHIM and we thought it will very successful imitative but soon we saw Google came up with Tez and now we have Samsung Pay, Whatsapp Payment also on cards. Many innovations are coming in like QR code, so we will be able to push a lot of digital payment using mobile.”

Aadhaar not merely an identity but a platform of innovation

A B Pandey, chief executive officer, Unique Identification Authority of India (UIDAI), said the government has issued Aadhaar cards to over 120 crore people in India.

Aadhaar is entirely an Indian technology. Today, Aadhaar is not merely an identity but it has become a platform of innovation, said Pandey. He further said that people must understand the kind of problem the government is trying to resolve. “Not long ago we faced the situation where majority of people seeking access to government services were confronted with an identity question”, he said, adding, “People were asked to produce some valid identity cards. Surprisingly, about ten years back, according to various estimates,



over 70 percent people did not have a credible identity proof.”

A few years back people having ration cards could not avail services in different states because their ration card was not acceptable in other states. This means that people did not have a valid

national ID. Aadhaar has given people a nationally accepted identity card, he said. Moreover, it is an online identity, which means people do not have to carry its physical copy with them. “This kind of identity platform on such a massive scale has not happened anywhere globally. It is completely non-duplicable as it is based on biometric. Whenever someone applies for an Aadhaar, his biometrics are matched with 1.20 billion people and only when his details are unmatched with others, the card is issued,” Pandey said.

People from the disadvantaged group have benefitted immensely with Aadhaar as it has empowered them to avail benefits of government welfare schemes.

Digital empowers development, decision making and governance

Ashutosh Sharma, secretary, department of science & technology, ministry of science & technology, talked about different aspects of the digital world. He highlighted how digital technology has empowered development, decision making and governance in the country.

He said that the industry 4.0 is based on digital, cyber, physical and biological system.

Sharma said that decision making could be autonomous which may pose many challenges. “We are looking at an age where our business is going to be transacted by intelligent machines rather than humans. We are looking at cyber physical systems which mean that they help a cyber or digital layer that permeates all our physical system



and machines,” he said.

Artificial intelligence, robotics, machine learning, contextual learning, deep learning, advance manufacturing and service permeates all human activities like diagnostics, health, agriculture and smart cities.

Talking about knowledge systems, he

said that it is interesting because digital or cyber system get into knowledge system. About 15 percent entries in Wikipedia is not updated by humans as they are written by pods like chat pods.

He also talked about how the department of science and technology is going to prepare for the future of cyber physical system and create capacity and capability to deal with the ongoing revolution before the onslaught becomes strong. Security of critical infrastructure is a big issue. “The department is launching a national programme called Cyber Physical System which means that we have machines which are empowered with communications, computing and decision making ability,” he said.

Digital platforms for transforming governance

Anurag Dua, partner and leader, Digital Government Solutions, PwC, said that digital technology has completely transformed the way people and government work in today's era. A lot of new initiatives have been taken by the government in the recent years for digital transformation and many new technologies have come up like artificial intelligence, block chain and drones at a rapid pace in the country.

Dua outlined various challenges and risks that stakeholders need to mitigate. "We encounter with legal issues, data privacy and cyber security almost on a daily basis. There are two important aspects which include citizens seeking internet experience and the way the

governance is delivered to them. Reaching out to the last mile in the society is what needed," he said.

Prakash Kumar, CEO, Goods and Service Tax Network (GSTN), said that the organisation went on to a platform design opened to multiple stakeholders and then integration was done. When GSTN was started in 2015, integration of the states and the centre was a daunting task. "We worked on a few principles like scalability, reliability and data privacy", he said.

The government created a separate strategy for GSTN, which had technical manpower sourced from the market. Kumar said that GSTN had a good number of experts and they were given good remuneration to ensure they stay with the organisation for a longer period.

Lav Agarwal, joint secretary, ministry of health and family welfare, said that the next wave of revolution is health, which will not only come from a doctor alone but rather it will be a combination of engineers and doctors.

Agarwal said that this will happen by using IT as a tool to optimise the limited specialised healthcare facilities and healthcare providers available in the country. A country like India has varieties of healthcare systems like single doctor system, multi super-speciality hospitals and government-run public healthcare. The private sector hospitals have their own hospital management software whereby they collect data of individuals. Similarly, public sector hospitals also collect such data of patients but most of this data is in silos, he said.



L-R: BVL Narayana; Punit Shukla; GV Anand Bhushan; Lav Agarwal; Prakash Kumar; NK Verma; S Suresh Kumar; Anurag Dua; Venkatesh Krishnamoorthy; Diptiman Das

Agarwal stressed upon the need of integrating the data collected by private and government healthcare institutions.

Agarwal said India is relatively fortunate to have a high IT literacy which exists in most of the parts the country. “The only thing is that we need to create standards to collect the data”, he said. He advocated for the need of privacy and confidentiality and its regulation to prevent data going to unscrupulous elements.

S Suresh Kumar, additional CEO, GeM, spoke about how people a few decades back had a negative connotation about public procurement system. People used to think that the government’s public procurement system is prone to inefficiencies, corruption and adhocism. Kumar admitted that in the last 70 years there was not much progress in the public procurement landscape except for e-tendering or e-procurement platforms, which were introduced ten years back and even they could not go beyond the translation of manual processes into an electronic platform.

Two years ago a revolutionary thing happened after e-marketplace was launched. This was something which could not have been imagined a few years back. He said that since it is a transformative and revolutionary change, it will take some time to get adjusted.

NK Verma, managing director, ONGC Videsh Ltd, said that the oil and gas industry has always been at the forefront of embracing digital technology and artificial intelligence tools like image analysis and virtualisation systems have been used right from the 1980s.

Verma said that the primary objective to use these tools was to supplement human intelligence and provide a capability to analyse data effectively. The oil and gas sector has never been threatened by the use of cutting-edge tools, which is the common fear at present as many stakeholders think digital technology, artificial intelligence and analytics will affect humans.

“Digital developments are going to enhance the human capabilities but we

have to learn the new ways of adopting latest technologies”, Verma said. Talking about the challenges involved in carrying out operations in the sub-surface, he said, “We are dealing with the sub-surface, which is multi kilometres below the surface, where we see only a few pieces of rocks and fluids and based on this information we invest millions of dollars. Risk mitigation and analysis is the primary focus of the sector.”

Diptiman Das, chairman and managing director, EdCIL (India) Ltd said said only 50,000 overseas students come to India. The country has the third largest network of higher education, yet it ranks 26th in terms of getting foreign students for higher studies. With an objective to grow this number to two lakh, the centre through EdCIL has launched a scheme and the latter is studying all the best practices of the world. “We are trying to bring technology and have created a portal where most of the counseling is done. Now foreign students are able to apply through this portal. Around 80 top notch universities have been incorporated in the portal where foreign students can apply,” Das said.

BVL Narayana, director (passenger services), CRIS, said the Indian Railways’ PSU, CRIS, touches everyone’s lives. The railways have been known for digitisation of its ticketing system but there are things beyond this subject.

He said that the railways have digitised all of its systems and only two are left, which includes hospital management system and personnel management system. The Indian Railways will be the first organisation to become a 100 percent digital department in the next two years, Narayana said. The most visible customer-centric initiative is the digital ticketing system. The railways have become 85 percent digital in terms of receiving and disbursing payments, he added.

Punit Shukla, expert, NITI Aayog, explained how the centre has been at the forefront of adopting technology at a faster pace. He said that the government has been a fast mover as compared to other private service

providers in promoting digital payments. The government has innovated a lot in terms of service delivery as well as building infrastructure platforms, which can later be utilised by the third party service providers to offer innovative solutions.

Shukla said a lot of innovations happened in the recent times. “Just after demonetisation, Niti Aayog was given the mandate of carrying out communication campaigns for the entire India to sensitise people about digital payments and also about precautions which people need to take while doing digital transactions,” he said.

Venkatesh Krishnamoorthy, Country Manager India, BSA | The Software Alliance, said that Cloud Computing is a fundamental building block for deploying emerging technologies like Artificial Intelligence (AI) and Machine Learning (ML).

Recently, BSA launched the 2018 BSA Global Cloud Computing Scorecard, which highlighted that India still lags in adoption of cloud technology. “We have identified seven parameters based on which 24 countries were ranked on their preparedness for the adoption and growth of cloud computing services. India’s ranking in 2018 is 20th because of its poor performance in policy areas of Data Privacy, IT Readiness and Broadband deployment. However, the Indian Government is working to address these policy issues,” Venkatesh said.

GV Anand Bhushan, partner and head, Shardul Amarchand Mangaldas, said the minute one talks about technology, everyone starts thinking about data privacy. He also talked about apprehensions around Aadhaar. He said that the media portrays a different impression about privacy. The privacy rights are recognised in the IT Act, 2011 and the government has been very responsive in acknowledging privacy rights and a commission has been set up and the draft bill will come up in next 6-12 months, Bhushan said. He said even the European data privacy Act in the GDPR principles is coming into effect in 2018.

Digital has changed almost everything



Neeta Verma, director general, National Informatics Centre (NIC), said that the way in which digital technologies are influencing people's lives today has never happened before. The society in general is witnessing

transformation driven by digital technologies, innovations and disruption.

Digital technology is also driving the existing brick and mortar organisations to undergo transformation. Digital transformation is not only impacting the government and private sector but is also affecting every single person. "If you look at your own life, the way you will do things in a few years and the way you do things now are completely different," she said.

The government has adopted cutting-edge technologies to simplify its working. Talking about how documents related to questions, answers and bills in the Lok Sabha and the Rajya Sabha

have been digitised, she said that when the session began on July 18, Wi-Fi access was given to both the houses. She termed the move as a stepping stone in the history in an effort to go completely paperless. The NIC has done some experiments with Himachal Pradesh government to make it paperless and the state government is striving to launch a paperless tool, eVidhaan, she said.

Today, around 16,000 sub-district and district courts are using latest software and all of them are interlinked. Earlier, much of the time was wasted in transferring files, but now the courts are digitally transferring documents, she said.

Making Cyber Surakshit Bharat



Muktesh Chander, DGP, Goa, said that India is facing a lot of cybersecurity challenges. Citing the SophosLabs report, he said that India ranked among the top five countries at the risk for cyber attacks in 2016. Further, India ranks 4th among the top 10 countries for outgoing malicious internet activity. "If you see the cybercrime stats by the NCRB only 12,000 crimes (in 2016) were reported, but this is not a real picture. We should not be complacent about this fact," he said. India has been losing hefty amounts due to cyber frauds. "Annual cost of cybercrime suffered by Indians is around Rs 34,110 core (NCRB 2011). Cyber crimes have

cost India a whopping Rs 24,630 core in 2013 alone," he said quoting from a Delhi HC commissioned report.

Citing an example he explained how cyber attacks in the financial sector are resulting in huge losses. "Hackers stole \$81 million from Bangladesh's central bank account in New York via SWIFT. A watershed event for the banking industry. 11,000 banks relying on SWIFT system need to upgrade cybersecurity", he said.

Elaborating on the WannaCry ransomware attack in 2017, he said attempt was made on more than 48,000 systems in India including 120-odd computers connected with GSWAN, government-run hospitals in Ganjam district of Odisha, customer care centres of West Bengal electricity distribution company, Andhra Pradesh Police, Maharashtra Police and many other government systems.

"We still have a concept of having chief security officers, but we may not need them anymore. We need chief information security officers as physical security plays an important part in

information security," he said.

Sharing the future roadmap, he said that all secured systems must be declared under the section 70. "We still don't have a national cybersecurity operation centre to track live threats, analyse them and send alerts to organisations. Also, compliance evaluation metrics are not available. We have a cyber security policy (2013) but we do not have cyber security standards," he said.

Purushottam Sharma, ADGP, Madhya Pradesh, shared his experiences while working as the chairman of national automated finger identification system. He also talked about his journey from CCIS to CCTNS. "Tracking of criminals is the most important part of CCTNS project and the most effective way of tracking a criminal is a fingerprint," he said. He mentioned a few examples where fingerprints helped the police in solving some complicated cases in Madhya Pradesh. Talking about lack of interoperability across various police departments in different states, he said, "I came up with a suggestion to

have NIST system and made it compulsory in the whole country by bringing out model RFP and circulated standard specifications. I strongly believe in data security and asked all the authorities to have a secure database. All the government system should come under the protected system.” Talking about OTP-based cybercrimes, he said that there is a need to secure the database and train the police officials accordingly.

Sanjay Sahay, ADGP, Karnataka, said that guaranteeing security has remained an uphill task for governments. “The transition from one mode of civilization to the other has always been painful, no matter how good is the planning,” he said. Digital India is fast becoming a reality. Smart cities will have a complete digital backbone and banking is also going digital. Similarly government procurement and services are also going digital. “At the backend of these services, a robust government digital infrastructure is a must,” he said.

Talking about the SingHealth cyber-attack, whereby data of millions of patients was stolen, including the PM of Singapore, he said that there is a need for a whole new cyber security regime. “Security as a design element is the goal. It should become mandatory for all critical information infrastructures to be declared as protected systems”, he added.

He also emphasized that the cyber security audit should be legally mandated. “Security is a mindset issue. Israel has proved it to the world. Certain things in cyber security which are not felt and seen, might sound like a ghost story, even to the potential victim. To make a transformational change, highest quality cybersecurity professionals, have to be in the vanguard. Only cyber secure digital infrastructure can propel peace, ease & prosperity,” he said.

Anand Pande, CISO, GSTN, said that GSTN is not only handling critical data of financial importance of the nation, but also the PII data of the taxpayers. “Security and privacy of all associated stakeholders are important for us and it is embedded in the key principles of GSTN system,” he said. “To monitor the information that goes out of the GSTN



L-R: Sanjay Sahay; Anand Pandey; Rahul Aggarwal; Purushottam Sharma; Golok Kumar Simli

network we have a security operation centre, which is operating from Chennai,” he said. There are a lot of attacks on the network connected to internet everyday. “So far we could restrict all those attacks before they could perforate to the next level. So by deploying and maintaining such a huge, complex, critical national important system, we are following some principles driven by industry standards ISO 27001, 22301, 20000. We refer to various guidelines to perform everyday activities,” he said.

The GSTN has created its own cybersecurity or integrated manual system under which all the systems perform. “Information security needs identification of information, protection of information and continuous monitoring,” he said. He also shared various security initiatives of GSTN such as security governance, overall management and fraud management.

Rahul Aggarwal, partner, cyber security, PwC, said that the company has studied frameworks of 60 different countries to understand how they have strengthened their cybersecurity and how they have structured their programmes. Highlighting four broad areas to secure the country, he said, “The first thing is how can we protect critical infrastructure. Second is to create a secure business ecosystem in the country. Third is to have a secure society. and the fourth point is to build capacity and technology in the country.” These four pillars are considered by the governments across the globe to

structure their programme, whereby each programme is multi-year, multi-stakeholder and multi-million dollar.

He further added to while talking about critical infrastructure that how to have a legal framework in place and also highlighted the need for a better enforcement for which we need to build the technology law enforcement agency. On the society part, he said we need to figure out how can start awareness program in schools, how can ask and enforce ISPs to create awareness.

Golok Kumar Simli, Principal Consultant & CTO, Passport Seva, Ministry of External Affairs, Govt of India, talked about Cyber Surakshit Bharat (Cyber Safe India). Highlighting some preliminary cyber security framework points, he said, “First is the infrastructure that you are going to create, which is the digital infrastructure. Today, everything is being driven by data centres whether it is traditional data centre or cloud-based. One of your jobs is to protect the digital infrastructure,” he said.

The biggest risk today is information, as it is always there to be exploited. One cannot lock it or keep it in a room. The information is flowing at the speed of light. “Many times I have seen people not doing risk assessment of the data that they are going to collect, harvest or exploit. It is important to know the data and the preliminary assessment of data in order to secure it,” he said. He also raised questions about the outdated IT act and cyber law (2013) and their relevance in today’s scenario.

Empowering India Digitally



L-R: Satyajit R Vagvala; Aman Ladia; Sarvesh Singhal; R K Bahuguna

Aman Ladia, FinTech Advisor, The Partnerships Consulting, shared his insights on blockchain and information exchange – secure cross-domain data transfer using an amalgamation of blockchain and traditional technologies.

Emphasising the importance of data in the 21st century, Ladia said that the importance of personal information is like the oil of the current century. He discussed difficulties in securing data stored in traditional databases and how an attacker can modify database entries to do harm. It usually goes unnoticed, he said.

He further talked about the core concept behind blockchain and linked it with a real-world example of trade carried out between parties that do not trust each other.

He gave a series of examples, from land records and police evidence to subsidies, where blockchain can be applied. He highlighted the security profiles of each system.

Sarvesh Singhal, special secretary, IT and e-governance, Jharkhand; CEO, JAP-IT, said that knowledge which is used in a positive way becomes an opportunity. But if it is used negatively, it becomes a challenge. “E-governance

becomes the tool to deliver citizen-centric services. Jharkhand is the state where the first statewide area network was rolled out in 2006-07. In Jharkhand, all of the land data has been digitised, consisting of 53,000 terrestrial maps and record of rights and it was integrated with terrestrial maps. All registry offices have become online and because of this the state has secured 4th rank in the ease of doing business. Jharkhand tops in e-governance,” he said.

Every department has brought its own policies like startup policy, IT/ITES, ESDM policy, BPO policy, industrial policy, education policy and labour policy.

Presently, Jharkhand is the first state in labour improvement infrastructures in compliance to the labour information system which has helped it in bagging the first award in India for labour reforms. “In Jharkhand, there are over 4,000 panchayats which are going to be connected with Bharatnet project,” he revealed.

RK Bahuguna, adviser/ICT, Gurugram Metropolitan Development Authority (GDMA) & former CMD, Railtel Corporation of India Ltd, said that in order to empower India digitally, one needs a robust connectivity network to provide services to people.

Connectivity is the fundamental or basic for any application, he said.

The cycle of spending money for research and development to improve quality of life continues in every era.

“Ultimately all the developments in technologies are happening to improve the quality of life,” he said.

Satyajit R Vagvala, general manager, National Institute for Smart Government, said the society is moving towards digital governance and the kind of technological innovations that are happening on a day-to-day basis, in the government and the corporate sector, wouldn’t have been possible a few years back.

“We don’t have a act or legal framework which is sufficient to address the persistent changes taking place in the technology today. Technology is much more dynamic for policy to respond so policymakers must respond quickly,” he said.

He further said that so far we never had concrete institutional arrangements for dealing with technologies. “We have IT departments and they do whatever they can. There is a lot of money available with them but how do you utilise that money is the big issue for many companies,” he added.

Industry Presentations

IoT solutions to revolutionise Dairy



Kunwar Abhishek Singh, Stellapps, talked about how their solutions are revolutionising dairies in India. “Our innovative applications and mechanisation

tools leverage the Internet of Things (IoT), big data, cloud, mobility and data analytics to improve agri-supply chain parameters, including milk production, milk procurement, cold chain, animal insurance and farmer payments. Our SmartMoo IoT router and in-premise IoT controller acquire data via sensors that are embedded in milking systems, animal wearables, milk chilling equipment & milk procurement peripherals, and transmit the same to the Stellapps SmartMoo Big Data Cloud Service Delivery Platform where the SmartMoo suite of applications analyse and crunch the received data before disseminating the analytics & data science outcome to various stakeholders over low-end and smart mobile devices. The patent-pending hardware and software are designed to scale horizontally across other industry verticals,” he said.

Epson offers eco-friendly, cost-effective printers



Amit Sehgal, senior manager – corporate sales, Epson India, talked about taking control of running costs of a particular organisation and the way

people perceive the organisation, the group efficiency and the way it impacts the environment.

“For office printing devices the cost should be really low and it should be able to print pages in high volumes. It should be agile and can be fitted into tight space. Besides, it should be easy to handle,” he said.

“For those who need a printing device at low cost for a big office which can print high volume, eliminate physical and takes less time, we are having a solution for this. We offer a device which uses 70 percent less power compared to its competitors, prints as low as 30 paise per page in black and white and 75 paise per page in colour, uninterrupted printing up to 75,000 pages with just one ink change and it successfully reduce the e-waste”, Sehgal said.

Empowering financial inclusion



Thyagarajan Shadri, president, Banking Relations, Electronic Payment and Services (EPS), said that EPS is a payment system company which specialises

in enabling and empowering financial inclusion. The core expertise of EPS is the initiative of enabling ATM infrastructure for the banks. “We forayed into the financial inclusion in 2012”, he said.

Last year the government had set a target of 2,500 cr digital transactions; this year it is 3,000 cr. He said that there are challenges in turning it into reality; the first being creation of a digital acceptance infrastructure, and not much of it has been created. So the challenge is to address the digital acceptance infrastructure and going forward is what required for creating a bigger infrastructure.

It is time to look at the domestic brands created by the government and efforts should be made to make RuPay stronger compared to international payment gateways.

Need to have services in regional languages



Vivekananda Pani, co-founder & CTO, Reverie Language Technologies, emphasised on introducing services in regional languages. He said about 30

percent of the population will actually be using digital government services and they would not be able to use them

unless they are not in the regional language.

According to reports, research and studies, 60 percent of Indians cannot use online government services as they are not well versed with English. He said 54 percent of Indians felt limited content and platform localisation. Localisation is the key for digital inclusiveness, he said.

The objective of providing services in local language is to widen the reach of different citizen-centric services and

give a better experience.

“True language experience includes real time conversions, search and discovery, user interaction and aesthetic display. Key pillars of localisation for effective governance are content localisation, data localisation, portal localisation, APP conversion and citizen engagement,” he said.

He said in portal and applications, interaction is affected as English input is unusable for the user who does not understand the language.