



AN INITIATIVE BY
VETRI IAS

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1. EMPOWERING CITIZENS THROUGH E-SERVICES

- ▶▶ The **Digital India Programme** was launched in 2015 for ensuring digital access, digital inclusion, bridging the digital divide and digital empowerment.
- ▶▶ It is leading to India's transformation into a knowledge based economy and digitally empowered society. It has ensured citizen participation and empowerment with the technology that is sustainable.
- ▶▶ India is among the top countries that have digital adoption momentum. Presently, digital transformation of India is on an exponential growth path and aiming towards a trillion dollar digital economy by 2025.
- ▶▶ Government is taking strategic steps to realize the trillion Dollar digital economy potential.

Strategic Steps Taken by Govt. to Realise Trillion-Dollar Economy Potential:

- ▶▶ Aadhaar has provided a cradle to grave digital identity. Aadhaar enabled **Digi Locker** is enabling paperless governance by providing public documents to citizens digitally and facilitating consent based data sharing for availing services.
- ▶▶ **Aadhaar Enabled payment system (AEPS)** facilitates banking services and digital payment.
- ▶▶ Aadhaar is the largest de-duplication mechanism for government schemes in the country.
- ▶▶ The coverage of Aadhaar (123crore), Jan Dhan Yojana (36 crore) and mobile connections (118 crore) has moulded the digital profile of India.
- ▶▶ Jan Dhan Yojana has provided financial inclusion to unbanked people and thereby, it has enabled banking, pension (PMSBY and PMJJBY) and insurance (Atal Pension Yojana) services to common citizens. Mobile has also accelerated the accessibility of government services in rural hinterland.
- ▶▶ **Digital delivery of services** has been strengthened with the help of Common Services Centres(CACs). It provides digital access to over 350 services especially in rural areas at an affordable cost.
- ▶▶ These centres have also led to empowerment of marginalized sections of the society by creating jobs for over 12 lakh people and by promoting rural entrepreneurs including women VLEs.
- ▶▶ CSCs have also undertaken **Stree Swabhiman** initiative to create awareness about menstrual health and have set up over 204 sanitary pad units.
- ▶▶ Digital India has resulted into a remarkable shift from project based approach to platform based approach.

Some of the important citizen centric initiatives of Digital India Programme are:

A. DIRECT BENEFIT TRANSFER

- ▶ Enables transfer of government benefits directly to the bank account of beneficiaries.
- ▶ Led to the integration of 440 schemes.
- ▶ The de-duplication and removal of ghost beneficiaries have been remarkable with DBT.

B. DIGI LOCKER

- ▶ Enables paperless governance by providing private space on public cloud to citizens for storing their public and private documents.
- ▶ 352+ crore documents are available at Digi Locker.

C. UMANG

- ▶ Provides one mobile app for availing government services through backend integration with several government applications and database.

D. E-HOSPITAL

- ▶ Facilitates automation in hospitals through 20+modules of Hospitals Management Information.
- ▶ 322 hospitals are integrated with e-hospital.

E. e-NAM

- ▶ Provides '**One Nation One Market**' for the agricultural produce in the country.
- ▶ Integrated 585 Agricultural Mandis across 16 states and 2 union territories.

F. SWAYAM

- ▶ A massive online open courses (MOOCs) platform, it offers more than 2000+programme categories.
- ▶ Allows credits to students on the completion of course. The credit is recognized by Universities.

G. National Scholarship Portal

- ▶ Provides facility of multiple scholarship schemes through a single online portal.
- ▶ 20 scholarship schemes stand integrated.

H. PMGDISHA

- ▶ **Pradhan Mantri Gramin Digital Saksharta Abhiyan** has been started with an aim to make at least one persons per family digitally literate.
- ▶ Target is to train 6 crore persons in rural areas.

I. India BPO Scheme

- ▶ A unique initiative to incentivize BPO employment in smaller towns (Tier 2/3 towns).
- ▶ It is facilitating **balanced regional growth** and creating job opportunities.

J. GeM

- ▶▶ An e-commerce platform for public procurement of common use goods and services.
- ▶▶ Small towns are participating in public procurement due to end-to-end automation.

K. Digital Payment

- ▶▶ Many innovative digital payment tools, namely **BHIM-UPI**, **BHIM-Aadhaar**, **BHARAT QR Code**, National Electronic Toll Collection etc., have been implemented.

L. Jeevan Pramaan

- ▶▶ Facilities pensioners to submit their life certificate digitally from anywhere, anytime basis.

M. Courts Mission Mode Project

- ▶▶ Promotes automation in Courts including Supreme Court, High Court, District Courts.
- ▶▶ **National Judicial Data Grid** is also implemented which analyses the data gathered from all integrated courts and shows all India figures through dashboard.

N. My Gov

- ▶▶ **Facilitates participatory governance** in the country by providing a common digital platform where citizens can share their views on government programmes and schemes.



2. TOWARDS A NATIONAL DIGITAL HEALTH ECOSYSTEM

What is the need for National Digital Health Blueprint (NDHB)?

- ▶ **The National Health Policy 2017** had defined the vision of 'health and wellbeing for all at all ages'.
- ▶ Continuum of Care is a concept strongly advocated by the Policy.
- ▶ These lofty ideals are sought to be achieved by refactoring the existing schemes and introducing several new schemes including some digital initiatives.
- ▶ Citizen centricity, quality of care, better access, universal health coverage, and inclusiveness are some of the key principles on which the Policy is founded.
- ▶ All these aspirations can be realised principally by leveraging the power of the digital technologies.

What are the Objectives of NDHB?

- ▶ Establishing and managing the core digital health data and the infrastructure required for its seamless exchange.
- ▶ Promoting the adoption of open standards by all the actors in the National Digital Health Ecosystem, for developing several digital health systems that span across the sector from wellness to disease management.
- ▶ Creating a system of Personal Health Records, based on international standards.

Following the best principles of cooperative federalism:

- a) Promoting Health Data Analytics and Medical Research.
- b) Enhancing the efficiency and effectiveness of Governance at all levels.
- c) Ensuring Quality of Healthcare.
- d) Leveraging the Information Systems already existing in the health sector.

What are the Building Blocks of NDHB ?

- ▶ While the Blueprint has identified 23 Building Blocks, a few of the critical capabilities of NDHE are:
- ▶ **Identification** : Unique identification of Persons, Facilities, Diseases and Devices is a key requirement and challenge as well in NDHE.
- ▶ The Blueprint handles this requirement through 2 Building Blocks, namely, **Personal Health Identifier (PHI)**, and **Health Master Directories & Registries**.
- ▶ **Citizen to be in Control**: The need for maintaining the confidentiality, security and privacy of the health records cannot be over-emphasized.
- ▶ **Service Access/ Delivery**: Omnichannel access/ delivery are an important capability required in NDHE.

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- ▶▶ This is achieved by a combination of Web (India Health Portal), Mobile (My Health App) and Call Centers besides Social Media Platforms.
 - ▶▶ **Interoperability:** The most important contribution of the Blueprint is its advocacy of Interoperability.
 - ▶▶ Two Building Blocks, namely, the **Health Information Exchange** and the **National Health Informatics Standards** enable and promote the interoperability of various building blocks.



3. DIGITAL INFRASTRUCTURE: CORE OF GOVERNANCE

- ▶ **National Informatics Centre**, an attached office of ministry of electronics &IT, has been closely working with government in provisioning state of the art infrastructure.

Key components of Digital Infrastructure for Government are:

A. PAN INDIA NETWORK

1. **NICNET** - the pan India communication network for exclusive use of government. NICNET is at the base of all government communications right from Government to Government, Government to Citizen as well as Government to Business communication.
2. **NATIONAL KNOWLEDGE NETWORK (NKN):**
 - provides multigigabit nationwide network connected through 10G backbone.
 - It also extends high-speed connectivity to leading research and academic institutions of the Country.
 - NKN is steadily evolving as the national education research network (NREN) of India.

B. Data Centres: A Host to e-Governance Applications:

- ▶ Realizing the importance of Data Centres, National Informatics Centre (NIC) has established large data centres at Delhi, Hyderabad, Bhubaneswar and Pune. Mini data centers are also operational in all NIC state centres to cater to the state level.
- ▶ Hosting support is being provided from Data Centers and National Cloud for approximately 10,000 various critical e-governance projects, viz. E-procurement, Public Financial Monitoring System (CPSMS), e-Lekha, e-panchayat, Aadhaar Enabled Biometric Attendance System (AEBAS), etc.

C. Command and Control Centre

- ▶ There was a need to setup a specialized center to provide nationwide view for ICT infrastructure for effective monitoring and management and also to ensure availability of all critical services.
- ▶ Command and Control Centre have been set up at NIC Headquarters which has increased the agility of NIC's ICT infrastructure.

D. National Cloud (MeghRaj)

- ▶ Govt of India initiated a Government Cloud initiative titled "**MeghRaj**" in 2014. Setting up a secured cloud infrastructure has reduced considerable amount of time in provisioning of digital infrastructure.
- ▶ Various Government initiatives and schemes, such as Swatch Bharat Mission, My-Gov, e-Hospital, National Scholarship, e-Transport etc., have been successfully launched due to a robust and agile cloud infrastructure.

E. Geospatial Technology

- ▶ Geographical Information System (GIS) have improved the accessibility of various e-Governance services by offering location based access.
- ▶ Bharat Maps is a multi-layered GIS platform/web services comprising of seamless country wide bases maps aligned as per the global geo spatial standards.
- ▶ **GIS is helping MGNREGA** workers to get information about availability of works in the near locations, work site location information, real time transparent attendance and payments information.
- ▶ At the same time, it is benefiting the citizens by enabling geo portal for MGNREGA assets, which will enhance the concurrent social audit by citizens and facilitates feedback information on current status of work, quality validation, etc.

F. Direct Benefit Transfer (DBT)

- ▶ **Public Finance Management System (PFMS)** electronically interfaces with all banks and given a holistic view of the overall flow of funds in the Government, thereby eliminating delay and increasing transparency.
- ▶ With the advent of technology and Direct Benefit Transfer (DBT) coming up a paradigm shift has been experienced in the way benefits are transferred to the citizens.

G. Email Services:

- ▶ As part of the mandate under the Digital India Programme, the Government provided a secure email service to all for official communication.
- ▶ Further, to improve citizen engagement, SMS Service was launched encoring real time updates to users.

H. Video Conferencing:

- ▶ NIC has been offering Video Conferencing services since 1995 for connecting and bringing administration close to each other. Video Conferencing is now extensively used at all levels of government.

I. Cyber Security

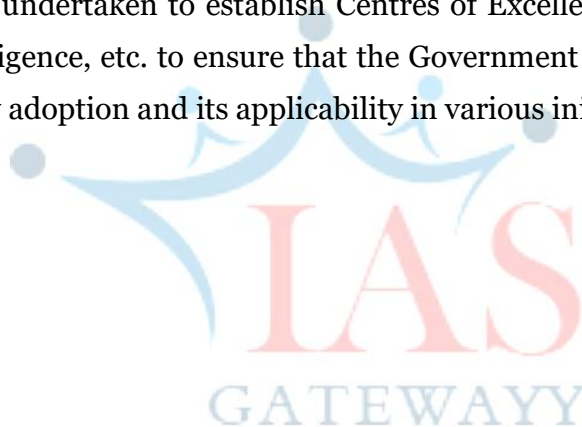
- ▶ To address ever increasing threat of cyber-attacks in terms of their magnitude as well as their sophistication, Computer Emergency Response Team (**NIC-CERT**) group has been constituted.
- ▶ Its objective is to analyzing, monitoring and responding to cyber threats on critical government cyber infrastructure, like websites, emails and various services.
- ▶ NIC-CERT works in close guidance of CERT-In, which is the national nodal agency for responding to computer security incidents as and when they occur.

J. Digital Platforms

- ▶▶ Availability of cloud infrastructure in Government has given rise to launch of number of digital platforms at National level (One Nation One Platform).
- ▶▶ New citizen focused initiatives like mobile-based traffic enforcement solution through e-challan, mobile extension for service in the form of Parivahan app are innovations emerging from such platforms.
- ▶▶ **e-Way Bill system** has been a key lever in the success of Good and service tax(GST) implementation.
- ▶▶ For rural development, the government has harnessed technology for implementing various ICT application in various programs.

Way Forward

- ▶▶ In line with the approach of embracing new technologies areas such as Artificial Intelligence, 5G, Edge computing, etc., have been identified.
- ▶▶ Initiatives have been undertaken to establish Centres of Excellence for Data Analytics, Block Chain, Artificial Intelligence, etc. to ensure that the Government infrastructure is future ready in terms of technology adoption and its applicability in various initiatives.



4. EMPOWERING CITIZENS THROUGH e-SERVICES

What is Digital India Program?

- ▶ Digital India is a program to transform India into digitally empowered society and knowledge economy.
- ▶ It would also bring in public accountability through mandated delivery of government's services electronically, a Unique ID and e - Pramaan based on authentic and standard based interoperable and integrated government applications and data basis.

What are the achievements and status of Digital India Program ?

- ▶ **Aadhaar enabled Digilocker** is enabling paperless governance by providing public documents to citizens digitally and facilitating consent-based data sharing for availing services.
- ▶ Aadhaar enabled eSign provides ease of authentication for digital transactions and thereby, eliminates the need for physical presence.
- ▶ Aadhaar is the largest de-duplication mechanism for government schemes in the country.
- ▶ DI impact on Direct Benefit Transfer (DBT) scheme alone has led to the integration of 440 schemes.
- ▶ **Digital delivery of services** has been strengthened with the help of Common Services Centres (CSCs), in rural areas at an affordable cost.
- ▶ These centres led to empowerment of marginalized sections of the society by creating jobs and by promoting rural entrepreneurs including women VLEs.
- ▶ CSCs have also undertaken **Stree Swabhinan** initiative to create awareness about menstrual health and have set up over 204 sanitary pad units.
- ▶ **Digital Service Standard (DSS)** has been notified, which lays down the desirable quality of digital services for an enhanced citizen experience that needs to be achieved by all government entities.
- ▶ A National Software Products Mission is planned to implement **National Policy on Software Products - 2019** that inter-alia includes nurturing 10,000 technology startups in software product industry and up skilling of 1,000,000 IT professionals.
- ▶ **National Program on AI** has been designed with priority mission areas, namely Healthcare, Agriculture, Education, Smart Cities, Transportation, Cyber Security, Energy, Finance and Indian Languages. This program will be implemented in a hub and spoke model.

5. E-SERVICES FOR THE DIFFERENTLY ABLED

- ▶ Digital transformation has facilitated ease of accessing products and services for all citizens whereas citizens with disability are empowered to access various products/services with ease.
- ▶ World is home to billion people with disability and more than 100million citizens with disability reside in India.

Assistive Technology:

- ▶ Citizens with disability use assistive technology to access various mode of ICT channels. Blind or visually impaired citizen would use screen reader which would provide audio output of operating system.
- ▶ **Non-visual display access (NVDA)**, an open source screen reading software, is now available in 7 India languages.

Government Initiatives:

- ▶ Government of India has launched an **Accessible India Campaign** with an objective of achieving complete accessible physical infrastructure, transport system and ICT echo system. **DAISY Forum** of India is a consortium of Not for Profit organizations from India who are involved in production and distribution of books and reading material in accessible formats for persons who cannot read normal print. DAISY forum of India (DFI) in collaboration with Government of India has launched **Sugamya Pustakalaya**, an online library of digital books in accessible format for print impaired citizens. Marrakesh VIP Treaty facilitate Access to Published Worked to Visually Impaired Persons and persons with Print Disabilities.
- ▶ Ministry of Urban Development has issued a notification mandating that all cities within Smart City Mission project have to ensure that their ICT is digitally accessible, enabling citizens with disability to avail Government services with ease.
- ▶ **Revised Person With Disability Act (RPWD) 2016** further stresses on digital inclusion within digital India.
- ▶ **Section 42 of this Act** requires the appropriate government to ensure that all content in audio, print and electronic formats are accessible.

Conclusion:

- ▶ Access to web, mobile apps etc. are the basic rights of every citizen and inclusive e-Services facilitate citizens with disability to avail these rights and bridge the growing digital divide.
- ▶ Instead of creating dedicated solutions for citizens with disability within the cyber space, the aim should be to create a Universal Design offering access to all, including citizens with disability.

6. DIGITAL EMPOWERMENT THROUGH 'MAXIMUM GOVERNANCE, MINIMUM GOVERNMENT'

What are the steps taken by GOI to promote maximum Governance with minimum Intervention?

- ▶ To achieve this, the Digital India Programme of the Government is playing an important role in empowering citizens.
- ▶ The combination of Jan dhan bank accounts, mobile phones and digital identity through Aadhaar i.e. **JAM trinity** is helping the poor to get benefits directly into their bank account.
- ▶ DBT brings in efficiency, effectiveness, transparency and accountability in the Government system. Common Services Centers (CSCs), as Digital kiosks, are providing more than 350 types of services to citizens in rural areas.
- ▶ CSCs are a unique PPP model where micro-entrepreneurs are creating sustainable livelihoods and bringing about a digital revolution in the villages of India.
- ▶ The world's largest digital literacy programme, Pradhan Mantri Gramin Digital Saksharta Abhiyan (**PMGDISHA**), is bridging the digital divide and helping people to access benefits of the digital world.
- ▶ So far, 2.2 crore persons have been imparted digital literacy under the programme.
- ▶ MyGov is an example of the Government's commitment towards participative governance, bringing citizens and Government closer to one another by democratizing the decision making.
- ▶ The BPO movement for smaller towns is facilitating a balanced regional growth, and creating job opportunities in small towns.
- ▶ The experience of **UPI has transformed the digital payment ecosystem.**
- ▶ **Government e-Marketplace (GeM)** is attempting to increase the efficiency in public procurement by increasing transparency through an online platform for sourcing.
- ▶ This platform is acting as a single localized national market making GeM a truly digital tool of empowerment and entrepreneurship.
- ▶ To leverage Artificial Intelligence and related emerging technologies in the interest of citizens and businesses, a National Programme on 'Artificial Intelligence' has been envisaged, to be catalyzed by the establishment of National Centre on Artificial intelligence as a hub along with Centers of Excellence. **The National Policy on Electronics, 2019** aims to further promote domestic manufacturing and export. **The UMANG App** was launched which aims to bring government services on a single mobile app.
- ▶ **Digi Locker** serves as a platform to enable free of cost unlimited digital space offered to citizens to securely store and share their documents with service providers electronically after giving due permission.

7. ICT ENABLED FARM CENTRIC AGRICULTURE SERVICES

- ▶▶ Many national level programmes, viz Digital India, Make in India, Skill India, Startup India and Stand-up India have faced operational difficulties for its impact at farm level and farmer level, and that too at small and marginal farmers level.
- ▶▶ The Indian agriculture system is confronted with its own sheer complexity, inadequate factors of production, weather uncertainties, multiplicity of schemes and multiplicity of institutions, at farm level, and hence there is no size neutral solution possible.
- ▶▶ Digital network for farmers (DNF) - AGRISNET, AGMAKNET, FISHNET, APHNET, FETNET etc. was viewed as a strength, wealth and prosperity of farming household in India.

Bridging the Gaps in Human Resources Development

- ▶▶ In India, **54.6 percent** engaged in the agriculture sector and **over 50 per cent** of them are agriculture labourers.
- ▶▶ 90 per cent of current jobs in agriculture are skill based where only about 6 per cent of work force has received vocational training. There is thus a pronounced "skill gap" both in terms of quality and quantity.
- ▶▶ The existing farm extension system needs to broad-based problem oriented, to help farmers overcome their "point of no return" difficulties.
- ▶▶ ATMA and KVK are the two eyes of the present extension system which further require a "third eye" for problem resolution, may be ICT enabled Agriculture polytechnics for bridging the emerging gaps in development of human resources for farm level functionaries.
- ▶▶ E-Governance and agriculture informatics is the pathway for development 2.0 in food and agriculture in India. This requires an institutional approach by creating National Centre for IT in Agriculture (NCITA), State Centres for IT in agriculture (SCITAs), District Centres of IT in Agriculture (DCITs), and Block Centres for IT in agriculture (BCITA) to convert "agricultural information" into a "commodity" for use.
- ▶▶ The **National Digital Communication Policy 2018** , under its mission 2022, has envisaged:
 - **Connect India**- BharatNet, GramNet, NagarNet and Jan Wi-Fi infrastructure
 - **Propel India** through services based on 5G, AI, Blockchain, IOT, Cloud Computing and big data analytics
 - **Secure India** ensuring sovereignty, safety and security of digital communications.
- ▶▶ Digitalized Farm Centric Services: e-agriculture

Various studies have brought out challenges faced by the farming community with respect to :-

- a) citizen charter,
 - b) Investment & Risk management,
 - c) Technology solution - Authentication, Accessibility, availability and affordability,
 - d) Capacity building & competency development, and
 - e) Information security issues.
- ▶▶ It was also highlighted the need for Agri Start-ups in
- a) Farm management services,
 - b) e-commerce services, and
 - c) Government Schemes O & M which are spread across the entire Agri value system.
- ▶▶ In order to boost farmer's income, India requires to adopt strategic intervention of ICT in Farming System Life Cycle, through a robust National Level Farmers Database.
- ▶▶ Digitalization in Farming system aims at farm as 'economic unit', household (farmer) as "social unit," and land as "environmental unit".
- ▶▶ The convergence of various sectoral programmes / schemes of agricultural and rural development is essential at village level.
- ▶▶ Both agricultural and rural development officers, working at block level, are not yet professionally trained to operationalise "Integrated Land use Planning for Sustainable Agricultural and Rural Development" at grassroots level.
- ▶▶ The ministry of finance has made the mandatory use of Public Finance Management System (PFMS) for all center sector schemes, so as to ensure that the benefits of the various government schemes reach to the last mile.

Way Forward:

- a) Setting up of a National Centre for IT in Agriculture (NCITA).
- b) Operationalization of the DFI-2022 (Doubling Farmers' Income by 2022) Digital Technology Mission mode project, Creation of National Database on 13 crore farmers.
- c) Strengthening the operational Digital Network for Farmers (DNF) - AGRISNET, AGMARKNET, HORTNET, APHNET, FISHNET, FERTNET etc.
- d) Steps to operationalize NeGP-AMMP projects which have been in cold storage for a long time.
- e) Steps to dedicate BharatNet for farmers.
- f) Creation of a farmer welfare portal in 22 constitutionally recognized language, for proactively dealing with their grievances redressed.
- g) Agricultural informatics programmer at M. TECH, B. TECH and P.G. Level to attract rural youth into S&T based farming methods.

8. DIGITAL INFRASTRUCTURE: CORE OF GOVERNANCE

What is Digital Infrastructure?

- ▶ The Digital Infrastructure is defined as the ability to store and exchange data through a centralized communication system.

What are the key components of Digital Infrastructure for Government?

- ▶ National Informatics Centre (NIC NET): National Informatics Centre (NIC) was established in 1976, and has since emerged as a "prime builder" of eGovernment / e-Governance applications up to the grassroots level as well as a promoter of digital opportunities for sustainable development.
- ▶ NIC, through its ICT Network, "NICNET", has institutional linkages with all the Ministries /Departments of the Central Government, 35 State Governments/Union Territories, and about 625 District administrations of India.
- ▶ NIC's PAN-India connectivity and reach is one of its key strengths and this coupled with its enhanced ability to detect and prevent attacks would collectively upscale the Government's ability to protect its data.
- ▶ **National Knowledge Network (NKN):**NKN will provide nation-wide ultra-highspeed backbone/data-network highway.
- ▶ Various other networks in the country can take advantage of this ultra-highspeed backbone, with national and international reach to create independent and closed user groups.
- ▶ The participating institutions can connect to the NKN at speeds of 10 Gbps or to the distribution layer through a last mile connectivity bandwidth.
- ▶ The cloud-enabled National Data Centre will provide benefits like on-demand access to ICT (Information and Communication Technology) infrastructure for easy availability and quick deployment of applications and standardized platforms of deployment.
- ▶ It offer round-the-clock operations with secure hosting for various e-governance applications of Central and State Governments and has ability to support 35,000 virtual servers.
- ▶ **MeghRaj:** This will ensure optimum utilization of the infrastructure and speed up the development and deployment of eGov applications.
- ▶ The architectural vision of GI Cloud encompasses a set of discrete cloud computing environments spread across multiple locations, built on existing or new (augmented) infrastructure, following a set of common protocols, guidelines and standards issued by the Government of India.
- ▶ NIC-CERT has been setup with the objective of creating a comprehensive framework that integrates world class security components and inbuilt threat intelligence for detection, prevention and incident response.

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- ▶ NIC / DeitY has created Multi-Layer GIS Platform named "Bharat Maps" which depicts core foundation data as "NICMAPS", an integrated base map service.

The E-way Bill System has been introduced nation-wide for inter-State movement of goods with effect from 1st April, 2018.

