



IAS PARLIAMENT

Information is a Blessing

A Shankar IAS Academy Initiative

GIST OF YOJANA

DECEMBER 2018

Shankar IAS Academy™

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YOJANA – DECEMBER 2018

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1. TOWARDS AN INCLUSIVE AND EMPOWERED NATION

What is Digital India Program?

- It aims to empower the poor and the underprivileged by using technology that is affordable, developmental and inclusive.
- Under it various initiative have been undertaken towards
 1. Providing digital identity
 2. Creating digital infrastructure
 3. Enabling digital delivery of services
 4. Promoting employment and entrepreneurial activity

What are the initiatives taken under Digital India ?

Digital identity

- It is the key to unlock the growth and potential of digital India Program.
- Aadhaar provides a digital identity to supplement the physical identity of individual for delivery of various social welfare program and enabled portability.

Digital Infrastructure

- **Bharath Net** aims to connect all the 2.50 lakhs Gram panchayats in the country and provide 100 Mbps connectivity to all gram panchayats (GPs).
- **National Knowledge network** is a state of the art network to promote collaboration and exchange of knowledge

among educational and research institutions.

- Some of the NKN enabled applications are: virtual classrooms, Collaborative research groups, NPTEL etc.,
- **GI cloud (Megharaj)** is a cloud computing initiative that aims to accelerate delivery of e services in the country while optimizing ICT spending of the government.

Digital India for Better Governance

- **JAM trinity** is mainly helping the poor to receive the benefits directly into their banks
- Digital Payments such as **BHIM UPI and Rupay debit cards** are set to transform the economy.
- **Digital Delivery of services:** Soil Health Cards, e-NAM, e-Visa, e-Courts, National Judicial Data Grid are the applications which provide the services at the doorstep of the citizens.

Digital India for employment, Entrepreneurship and empowerment

- India BPO Promotion scheme and North east Promotion schme have been launched under Digital India Program.
- It aims to create employment opportunities for local youth and secure balanced regional growth of Information Technology and IT enabled services sector in each state.



Digital India for Make in India

- Promotion of Electronics Manufacturing: The Phased manufacturing Program for mobile phones was launched with the goal of widening and deepening the mobile handsets and components manufacturing ecosystem in India.
- Under Electronics Manufacturing cluster (EMU) scheme, Ministry of electronics and information technology (MeitY) has accorded approval to 23 projects across 15 states.

2. REGULATING THE DIGITAL REVOLUTION

- Digital Revolution is driving the socio economic and technological growth of the human race.
- It is driven by various factors such as
- availability of the high speed internet
- innovative products and services
- the need for efficient management and distribution of resources both by the Government as well as private entities

What is the extent of digitalization in the country?

- Telecom Regulatory Authority of India has noted the following in its consultation paper “Privacy, Security and Ownership of data in the telecom sector”.
- The ecosystem used for delivery of digital services consists of multiple entities.
- They are Telephone Service providers (TSP), Personal devices, Machine to machine devices, Communication

Networks, Over the top services, operating systems etc.,

- It is estimated that the global volume of digital data created annually was 4.4 zeta bytes in 2013 and this would reach 44 zeta bytes by 2020. (1 zeta byte = 1024 Giga byte)

What are the challenges faced in the regulatory environment?

- A major portion of the applications and services that are being developed are based on mobile connectivity.
- Now the regulators have the responsibility of
 1. maintaining a balance between encouraging innovation
 2. protecting consumers
 3. creating an environment for orderly growth of industry
 4. addressing the unintended consequences of disruptions.

Business Challenges

- These could be pacing problems.
- A slow pace of regulations may become irrelevant very soon while a regulation released early may discourage innovation

Technological Challenges

- These are issues related to data, digital privacy and security, data ownership AI based challenges etc.,

What can be the approach of the regulator?

- Regulators should be **adaptive**.



- It would foster innovation. Provide a platform for the industry to grow, enhance user satisfaction, provide consumer protection and help the government to regulate.
- **Impact assessment of regulation** on the technologies may be studied before issuing the regulations.
- **Collaborative regulations:** Service and Products may require regulation by multiple regulatory bodies and hence collaborative approach would have to be adopted.
- Also a regulator has to be aware of the current state of regulations world over.

What are the steps taken by TRAI?

- TRAI has issued recommendations regarding the emerging technologies to the government of India.
- It has launched various apps like
 1. Myspeed app for data speed measurement
 2. Mycall app to report voice call quality
 3. Do Not disturb App for crowd sourcing of data about offending messages and calls.

What will be the role of TRAI in the future?

- It is not only confined to regulating the digital revolution in the telecom leaders in India but also be a front runner in adaptively regulating emerging technologies.

3. SECURING DIGITAL INDIA

- Digitalization paves the way for automation and creation of next generation factories, supply chains, products and services.
- A three-pronged approach of opportunities, capabilities and risks will help in understanding the process and impact of digitalization

What are the concerns of the Digital space?

- The path to digitalization is resulting in massive volumes of data getting digitized.
- At the same time infrastructure and applications becoming exposed to internet and interconnected to each other.
- It opens new avenues but also engenders the cyber security risk.
- The Industry is taking a toll in the form of business risks, reputational damage, disruption of services and potentially public safety hazards.
- Cyber space is the fifth domain of warfare.
- The world economic forum risk report 2018 called our Cyber risk as one of the top three risks along with environment disaster.

What are the changing paradigms of Cyber Security?

- Organizations are focusing on building resilient system which can withstand attacks and replace disaster recovery as a concept.



- The national Security agencies are building deep capabilities towards a more holistic threat intelligence, mitigation and deterrence.
- The list of next generation cyber security strategy elements are as follows
 1. Security of recognition Technologies
 2. Extended perimeter security with a focus on supply chain
 3. The shift from detection to response
 4. Protecting machines
 5. Providing resiliency to e infra
Converging security disciplines

What are the measures to address the Cyber security concerns?

- Policy and regulatory response to drive sectors and entities to cyber security preparedness.
- Coordination and Collaboration for collective defense and quick response.
- Cyber security preparedness in India including large enterprises, Public sector units needs to be stepped up.

4. TRANSFORMATIVE IMPACT OF DIGITAL INDIA

- India's Digital Journey has been one of transformation and inclusion.
- The improvement in India's Position in UN E government index 2018 highlights that India's relative capabilities of utilizing ICT for governance have improved relatively faster than the entire Asia region.

What are the major impacts of Digital India?

Digital Developing Service

- **Common service Centers (CSCs)** are ICT enabled rural enterprises in the country.
- CSC provide plethora of services at the doorsteps of the citizens.
- Digilocker has enabled people to store share and verify their documents and certificates through clouds.
- **National Scholarships Portal** is a one-stop solution through which various services starting from student application, disbursement of various scholarships etc., to Students are enabled.
- It is taken as Mission Mode Project under National e-Governance Plan (NeGP)
- **Online Registration System (ORS)** and e-Hospital have facilitated Aadhar based online registration and appointment for patients, reducing tiring queues in hospitals.
- Jeevan Praman generates pensioner's Digital Life certificate at home, bank, CSC centre.
- Also UMANG app has been launched to bring the government services to the citizens in India.

Government e-Marketplace (GeM)

- It facilitates online procurement of common use Goods & Services required by various Government Departments or Organisations or PSUs.



- It aims to enhance transparency, efficiency and speed in public procurement

Job creation

- The skill set of the people have to be continuously improved and enhanced for adaption in the changing digital economy.
- The quest to promote digital literacy and future skilling is of utmost importance.
- Pradhan mantri Gramin Saksharta Abhiyan (PMGDISHA) aims to make 6 crore people digitally literate.
- The sustainability of the digital economy rests upon its resilience and security.
- The Cyber Swachhta Kendra is a Botnet clearing and aware analysis centre to provide alerts to users for preventing losses of financial and other data.

What is the future of Digital India?

- India is at a tipping point where robust foundation of Digital India is laid down.
- The increased access to information and services are enabling India to optimally harness digital technologies in the core economic and social sectors.
- It will lead to a \$1 trillion Digital economy while sustaining 55-60 million jobs.

5. DIGITAL INDIA- AT THE HEART OF POORNA SWARAJ

- Digital India providing information equality to everyone is the final realization of **Poorna Swaraj** for every Individual.

What are the fundamental blocks of Digital India?

- The 3 fundamental blocks are,

1. Digital Infrastructure as a Utility to Every Citizen
2. Governance & Services on Demand
3. Digital Empowerment of Citizens

- Universal affordable broadband at speeds of 10-50 Mbps for each person and hoe ensures the empowerment of citizens.
- Delivering service digitally dissolves friction while bringing transparency and trust.
- Every digital government service available as an Open API ensures uniformity of access.

How Digital India will help in tapping the country's potential?

- Innovation enterprises owned by Indians will be the primary source of Indian government revenue.
- It will fuel the social programs and defense.
- However the friction of doing business is the major hurdle in its way.
- Digital India can play a major role in creating a zero friction environment if its three blocks are implemented.
- It will help in creating Singularity enterprises from the \$1 billion unicorns.
- However majority of jobs will be generated by the micro and small enterprises.
- India houses approximately 160 million such enterprises.



- In a world where governance, marketing, supply chains and distribution are all digital, the friction in doing business is zero.

6. TECHNOLOGY AREAS FOR INDIAN LANGUAGES

What is Language Technology?

- Language technology comprises computational methods, computer programs and electronic devices that are specialized for analyzing, producing or modifying texts and speech.
- Therefore language technology defines the engineering branch of computational linguistics.

What are the Indian Language Technology areas?

Localization

- Electronic devices are enabled with Indian languages using the standards.
- For eg: A phone should already have the language of the region built into it.
- The customer should be able to add any other Indian Language later on demand, without having to change the handset.

Creating e-content in Indian languages

- Creating by original writing: In long term contents are to be developed in original languages.
- Creating through translation: e-content in Indian languages can be created in short term through translation.

Automatic Machine translation

- It translates a given text in one language to another, instantly.
- The translation can be done in two ways,
 - English language to /from Indian Languages
 - Among Indian Languages
- Machine Translation systems for Indian languages are available and produce good quality translation.

Speech processing

- There are two parts to this technology
 - Text to speech (TTS)
 - Speech to text (ASR) systems
- The TTS allows a computer to read out a given text file in an Indian language.
- This system is helpful for the visually challenged and an illiterate person.
- While ASR allows the computer to listen to the spoken language and convert it into a text file.
- It is a helpful tool in virtual assistant systems.

Optical Character recognition

- It takes a printed book and converts it into text form.
- It takes a scanned image of a page, recognizes the characters, and converts it into text form.

Online Hand writing recognition (OHWR)

- It is important for stylus based input for mobile devices.



- A stylus is an instrument designed to be used with graphics tablets or devices that use touch screen input.

7. DIGITAL SIGNATURE

What is e-Sign?

- Digital Signature or e-Sign is an online electronic signature service.
- It is a part of the government of India's flagship program- Digital India.
- Its objective is to offer on-line service to citizens for instant signing of their documents securely in a legally acceptable form.
- A digital signature takes the concept of traditional paper based signing and turns it into an 'electronic fingerprint'.
- This fingerprint or coded message is unique to both the document and the signer and binds them together.
- The Information Technology Act 2000 provides the required legal sanctity to digital signatures.
- Citizens with Aadhaar ID will be able to upload their documents to e-sign service to obtain them digitally signed.
- Public Key Infrastructure is used to securely sign the user document and establish the trust.

What are the benefits of e-Sign Service?

- **Secure online service:** C-DAC plays the role of Certifying Authority and has placed necessary security measure to ensure security of the whole signing process.

- **No physical verification required:** e Sign provides ease of service online based on Aadhaar based e-Authentication
- **Multiple ways to authenticate:** It provides authentication based on multiple ways such as One Time Password (OTP) or Biometric.
- **Privacy is preserved:** It ensures the privacy of the signer by just requiring the hash of the document instead of the complete document.

8. DIGITAL LIBRARY IN INDIA- A PARADIGM SHIFT

Digital technology and internet connectivity lead the evolution of the traditional library to digital library.

What is Digital Library?

- It is a library in which collections are stored in digital format and accessible by computers.
- The content may be stored locally or accessed remotely.
- The concept of digital library in India began in the mid 1990s with the **spread of Information technology, the internet and the support of the central government.**

What are the initiatives in this regard?

Digital Library of India

- It is a collection of freely accessible rare books collected from various libraries in India.
- It was started in early 2000 with the vision to archive all the significant



literary, artistic and scientific works of mankind.

- It preserves them digitally and makes available freely over Internet for education and future purposes.
- It was initiated by the Office of the Principal Scientific Advisor to the Government of India.
- Subsequently it was taken over and funded by the Department of Electronics and Information Technology (DeITy).

Information and Library Network (INFLIBNET)

- It is an autonomous Inter-University Centre of the University Grants Commission (UGC) of India.
- It is a major National Program initiated in March 1991 with its Head Quarters at Gujarat University Campus, Ahmadabad.
- It is involved in modernizing university libraries in India and connecting them as well as information centers in the country.
- It is set out to be a major player in promoting scholarly communication among academicians and researchers in India.

Shodh Ganga

- It is a repository of Indian theses.
- It provides a platform for research students to deposit their Ph.D. theses and make it available to the entire scholarly community in open access.

- The repository has the ability to capture, index, store, disseminate and preserve ETDs submitted by the researchers

ShodhGangotri

- Under this initiative research scholars in universities are requested to deposit electronic version of approved synopsis submitted by research scholars to the universities.
- It would reveal the trends and directions of research being conducted in Indian universities and would avoid duplication of research.
- Synopsis in "ShodhGangotri" would later be mapped to full-text theses in "ShodhGanga".

National Library and Information Services Infrastructure for Scholarly Content (N-LIST)

- It is jointly executed by the e-ShodhSindhu Consortium, INFLIBNET Centre and the INDEST-AICTE Consortium.
- It provides access to e-resources to students, researchers and faculty from colleges and other beneficiary institutions through server(s) installed at the INFLIBNET Centre.
- It provides subscription and access to e-Shodh sindhu e resources.

e-ShodhSindhu

- It is formed by merging the 3 consortia initiatives, namely UGC-INFONET Digital Library Consortium, NLIST and INDEST-AICTE Consortium.



- It will continue to provide current as well as archival access.
- It aims to develop a formidable collection of e-journals, e-journal archives and e-books on perpetual access basis.

What are the benefits digital libraries?

- It provides an effective means to distribute learning resources to students and other users.
- The digitalization of information will fuel the growth and development in education and research.

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