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Digitalization of India: Smart Villages towards Smart India

Dr. K.Priyadarsini,
Prof. Dr.N.Vijayaratnam,
**Lecturer, Department of Commerce, SS&N Degree College, Narasaraopet.*
*** Professor, Department of commerce & Business Administration, AcharyaNagarjuna University, Nagarjuna Nagar, Guntur.*

Abstract: The soul of India lives in its villages," declared M. K. Gandhi at the beginning of 20th century. "If the facilities available in the cities are not made available to rural population, the Governments will not have done their duties"-Dr. A.P.J.AbdulKalam, Former President of India. The life in Indian villages is simple and isolated; although they are connected now a day with cell phones and digital television transmission, yet they are cut off from the main stream of urban areas due to poor road connectivity and market for their agricultural commodities. The health, educational and civil facilities are also either absent or not up to the mark. Making such villages as 'Smart Villages' is surely a noble program announced by Government". But no one in villages has seen what exactly, in the Indian conditions, smart village means. The objective of this paper is to discuss about components of Digital India and its nine pillars, adaption of 'look at Villages' policy and the smart villages driving towards smart India and the prerequisites of a smart villages cluster.

Digital India is an initiative of the Government of India to ensure that government services are made available to citizens electronically by improving online infrastructure and by increasing internet connectivity. It was launched on **1 July 2015** by Prime Minister NarendraModi. The initiative includes plans to connect rural areas with high-speed internet networks.

Digital India has three core components.

1. *The creation of digital infrastructure*
2. *Delivery of services digitally*
3. *Digital literacy*

NINE PILLARS OF DIGITAL INDIA

The Government of India hopes to achieve growth on multiple fronts with the Digital India Programme. Specifically, the government aims to target nine 'Pillars of the Digital India' that they identify as being.

1. *Broadband Highways*
2. *Universal Access to Mobile Connectivity*
3. *Public Internet Access Programme*
4. *E-Governance: Reforming Government through Technology*
5. *E-Kranti – Electronic Delivery of services*
6. *Information for all*
7. *Electronics Manufacturing*
8. *IT for jobs*
9. *Early Harvest programmes*

1. Broadband Highways

- This covers three sub components, namely Broadband for All Rural, Broadband for All Urban and National Information Infrastructure.
- Under Broadband for All Rural, 250 thousand village Panchayats would be covered by December, 2016. DoT will be the Nodal Department and the project cost is estimated to be approximately Rs. 32,000 Cr.
- Under Broadband for All Urban, Virtual Network Operators would be leveraged for service delivery and communication infrastructure in new urban development and buildings would be mandated.
- National Information Infrastructure would integrate the networks like SWAN, NKN and NOFN along with cloud enabled National and State Data Centres.

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2. Universal Access to Mobile Connectivity

- The initiative is to focus on network penetration and fill the gaps in connectivity in the country.
- All together 42,300 uncovered villages will be covered for providing universal mobile connectivity in the country.
- DoT will be the nodal department and project cost will be around Rs 16,000 Cr during FY 2014-18.

3. Public Internet Access Programme

- The two sub components of Public Internet Access Programme are Common Service Centres and Post Offices as multi-service centres.
- Common Service Centres would be strengthened and its number would be increased from approximately 135,000 operational at present to 250,000 i.e. one CSC in each Gram Panchayat. DeitY would be the nodal department to implement the scheme.
- A total of 150,000 Post Offices are proposed to be converted into multi service centres. Department of Posts would be the nodal department to implement this scheme.

4. E-Governance: Reforming Government through Technology

Government Business Process Re-engineering using IT to improve transactions is the most critical for transformation across government and therefore needs to be implemented by all ministries/ departments.

The guiding principles for reforming government through technology are:

- Form simplification and field reduction – Forms should be made simple and user friendly and only minimum and necessary information should be collected.
- Online applications, tracking of their status and interface between departments should be provided.
- Use of online repositories e.g. school certificates, voter ID cards, etc. should be mandated so that citizens are not required to submit these documents in physical form.
- Integration of services and platforms, e.g. UIDAI, Payment Gateway, Mobile Platform, Electronic Data Interchange (EDI) etc. should be mandated to facilitate integrated and interoperable service delivery to citizens and businesses.

E-Kranti – Electronic Delivery of services

There are 31 Mission Mode Projects under different stages of e-governance project lifecycle. Further, 10 new MMPs have been added to e-Kranti by the Apex Committee on National e-Governance Plan (NeGP) headed by the Cabinet Secretary in its meeting held on 18th March 2014.

Technology for Education – e-Education

- All Schools will be connected with broadband. Free wifi will be provided in all secondary and higher secondary schools (coverage would be around 250,000 schools). A programme on digital literacy would be taken up at the national level. MOOCs –Massive Online Open Courses shall be developed and leveraged for e-Education.

Technology for Health – e-Healthcare

- E-Healthcare would cover online medical consultation, online medical records, online medicine supply, pan-India exchange for patient information. Pilots shall be undertaken in 2015 and full coverage would be provided in 3 years.

Technology for Farmers

- This would facilitate farmers to get real time price information, online ordering of inputs and online cash, loan and relief payment with mobile banking.

Technology for Security

- Mobile based emergency services and disaster related services would be provided to citizens on real time basis so as to take precautionary measures well in time and minimize loss of lives and properties.

Technology for Financial Inclusion

- Financial Inclusion shall be strengthened using Mobile Banking, Micro-ATM program and CSCs/ Post Offices.

Technology for Justice

- Interoperable Criminal Justice System shall be strengthened by leveraging e-Courts, e-Police, e-Jails and e-Prosecution.

Technology for Planning

- National GIS Mission Mode Project would be implemented to facilitate GIS based decision making for project planning, conceptualization, design and development.

Technology for Cyber Security

- National Cyber Security Co-ordination Center would be set up to ensure safe and secure cyber-space within the country.

Information for all

- **Open Data platform and online hosting of information & documents** would facilitate open and easy access to information for citizens.
- **Government shall pro-actively engage through social media** and web based platforms to inform citizens. **MyGov.in** has already been launched as a medium to exchange ideas/ suggestions with Government. It will facilitate 2-way communication between citizens and government.
- **Online messaging** to citizens on special occasions/programs would be facilitated through emails and SMSEs.

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- The above would largely utilise existing infrastructure and would need limited additional resource

Electronics Manufacturing

Target ***NET ZERO*** Imports is a striking demonstration of intent.

This ambitious goal requires coordinated action on many fronts

- Taxation, incentives
- Economies of scale, eliminate cost disadvantages
- Focus areas – Big Ticket Items FABS, Fab-less design, Set top boxes, VSATs, Mobiles, Consumer & Medical Electronics, Smart Energy meters, Smart cards, micro-ATMs
- Incubators, clusters
- Skill development
- Government procurement

IT for jobs

- 1 Cr students from smaller towns & villages will be trained for IT sector jobs over 5 years. DeitY would be the nodal department for this scheme.
- BPOs would be set up in every north-eastern state to facilitate ICT enabled growth in these states. DeitY would be the nodal department for this scheme.
- 3 lakh service delivery agents would be trained as part of skill development to run viable businesses delivering IT services. DeitY would be the nodal department for this scheme.
- 5 lakh rural workforce would be trained by the Telecom Service Providers (TSPs) to cater to their own needs. Department of Telecom (DoT) would be the nodal department for this scheme.

Early Harvest Programmes

IT Platform for Messages

- A Mass Messaging Application has been developed by DeitY that will cover elected representatives and all Government employees. 1.36 Cr mobiles and 22 Lakh emails are part of the database.

Government Greetings to be e-Greetings

- Basket of e-Greetings templates have been made available. Crowd sourcing of e-Greetings through MyGov platform has been ensured. E-Greetings portal has been made live on 14th August 2014.

Biometric attendance

- It will cover all Central Govt. Offices in Delhi and is already operational in DeitY and has been initiated in the Department of Urban Development. On-boarding has also started in other departments.

Wi-Fi in All Universities

- All universities on the National Knowledge Network (NKN) shall be covered under this scheme. Ministry of HRD is the nodal ministry for implementing this scheme.

Secure Email within Government

- Email would be the primary mode of communication.
- Phase-I up gradation for 10 lakh employees has been completed. In Phase II, infrastructure would be further upgraded to cover 50 lakh employees by March 2015 at a cost of Rs 98 Cr. Deity is the nodal department for this scheme.

Standardize Government Email Design

- Standardized templates for Government email are under preparation and would be ready by October 2014. This would be implemented by DeitY.

Public Wi-fi hotspots

- Cities with population of over 1 million and tourist centres would be provided with public wi-fi hotspots to promote digital cities. The scheme would be implemented by DoT and MoUD.

School Books to be eBooks

- All books shall be converted into eBooks. Min. of HRD/ DeitY would be the nodal agencies for this scheme.

SMS based weather information, disaster alerts

- SMS based weather information and disaster alerts would be provided. DeitY's Mobile Seva Platform is already ready and available for this purpose. MoES (IMD) / MHA (NDMA) would be the nodal organizations for implementing this scheme.

National Portal for Lost & Found children

- This would facilitate real time information gathering and sharing on the lost and found children and would go a long way to check crime and improve timely response.
- DeitY/ DoWCD would be the nodal departments for this project.

SMART VILLAGE

The policies of the present Government have been recognized and have come for appreciation even at the International level. The launch of Jan DhanYojana, land Reform Bills, Real Estate Bill and others have been welcome steps and may auger well for the countrymen sooner than later.

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These are all positive developments though the outcome and impact may be seen a little while later as all of these are in their nascent stage. The completion of one year by the Modi Government may not have resulted in clear visible tangible results but the euphoria of projected schemes of development like 'Make in India' has definitely brought India into Focus once again in the International arena. Seventy percent of population of India lives in villages and the youth belonging to this segment are passing through a dramatic psychological turmoil. The ratio of school dropouts at school or college level is quite high amongst the rural youth which is negatively impacting the education policy and targets of the Govt. All such youth with little education, no vocational skills and passing through utter poverty, find their way to nearest urban cities or large cities where they migrate to find some source of livelihood. This has two major negative impacts on the county and also on the youth of rural background. The cities face invasion by illiterate, uneducated, untrained youth who find themselves unfit thus create more problems for the cities resulting in law and order problem, unplanned excessive burden on each facility of a city, which is unable to cope up with such an influx. The young population of workable age is going to be highest in India across the globe and stay that way for at least two to three coming decades, it is the right time if the Government also looked at an idea of **"looking to villages"** to tap the rural youth and make them vocationally trained assets. In a recent statement the Prime Minister opined that India can supply young professionally trained manpower to all the countries of the world. This idea of the Prime Minister can be fulfilled with adaptation of **'look at villages'** policy. As per available statistics there are 676 districts in 29 states and 7 Union territories in India with a total number of 6,38,000 villages. 72.2% of population of our country lives in villages where as remaining 27.8% lived in about 5,480 towns and urban agglomerates.

The policy of "look to villages" should envisage creating and developing SMART VILLAGES across the country. This would need a shift of thought process of the authorities. On the lines that 100 cities being shortlisted to become SMART CITIES, each district may be divided in cluster of 10 to 15 villages (consisting of a specific number of population say 50-75,000). Each district could have 7to20 such clusters of villages depending on its size of population {One cluster of Villages should be picked up by local authorities with the help of public leaders} since it may seem impossible to take up one village at a time to make it a smart village, it would be more practical and convenient if a cluster of villages is formed in each district. All the clusters should be assigned to create a team of thinkers who would prepare a complete blue print of the requirement of the cluster including need to develop Infrastructure like roads, buildings, bridges, water, sewage, schools, colleges, hospitals and other facilities as per need based on local talent available, local vocations available, local raw materials/facilities available, service/vocational avenues available locally or in the district or within the state.

A plan for 50 years could be made and implemented as a five year plan spread over next 50 years. Each cluster of villages once finalizes its blue print it shall also mention the contribution that the local population can make available like funds, shramdan, infrastructure, trained/untrained manpower to make their cluster a fore runner to be selected to make it a **"Smart village cluster".** The Government should allocate funds for development of rural clusters as per their plans and take up this project along side of Smart cities projects. Foreign countries could also be involved in this process in due course. The idea of smart village in the present day context seems more plausible as there is a limit of growth of cities which is leading to creation of urban jungles, where the population ratio per km of land is way above the desired norms. To take baby steps initially would lead to a campaign at National level once the fruits of this effort start bearing fruits, which surely would be visible for all to see sooner than expected.

Prerequisites of smart villages:

The following criteria and more such requisitions as per need should be made prerequisites of a smart villages cluster:-

1. Smart Security.
2. Smart traffic control (traffic signal)/only one way roads without crossings etc.
3. Smart & effective emergency response systems.
4. Zero tolerance on crime.
5. Smart policing.
6. Usage of technology like CCTV/speed monitors/smart surveillance systems.
7. Speed cameras for detecting speeding vehicles.
8. High resolution cameras for detecting stolen vehicles.
9. Equal-distribution of facilities across all corners of cluster.
10. Smart Sewage treatment facilities.
11. Smart rain harvesting/rain water drainage system.
12. Smart and efficient public transport system.
13. Adequate & latest firefighting systems.
14. Disaster management trained officials (only Disaster Management trained officials from paramilitary/NCC be deployed).
15. Renewable energy/Solar Energy systems should be installed.
16. Vehicle emissions should be controlled/private vehicle holding to be controlled by law.
17. Make adequate green areas/parks/sanctuaries/water bodies mandatory for each cluster.
18. No beggars (All beggars should be provided residential areas (boarding/ lodging) by Government and provided vocational training to sustain life independently).

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19. Smart garbage collection/recycling system should be put in place.Different color coded dustbins should be promoted.
20. Provision for seniors' citizen homes should be made.
21. Smart E- Governance should be put in place.
22. Smart collection of all kind of bills like electricity, gas, water, fares, tolls, property tax etc. should be put in place.
23. Smart/Automated hazard detection, weather forecast, calamities should be put in place
24. Public address system in any emergencies should be put in place.
25. Smart electricity grids compatible with renewable energy systems should be put in place.
26. 'No vehicle' areas should be earmarked.
27. Cycling only zones should be developed.
28. Adequate leisure activities should be developed and provided to public.
29. Latest and affordable medical facilities should be made available.

Every year one or two clusters of villages could be short listed for development of smart and safe cluster of villages. A homogenous project made for next 50 years could start as a small step in paving way in easing burden of villagers drain to cities. A time may come, if the project succeeds that the reverse drain (from cities to villages) eventually takes place in due course of time. The whole state shall gain and non-ending process of all states can be chalked out and developed in a dedicated time frame over next decades.

The 14components are envisaged as desirable components in each cluster:

(i) Skill development training linked to economic activities
(ii)Agro Processing, Agri Services, Storage and Warehousing.
(iii) Fully equipped mobile health unit.
(iv)Upgrading school/higher education facilities.
(v) Sanitation
(vi) Provision of piped water supply.
(vii) Solid and liquid waste management.
(viii) Village streets and drains.
(ix) Street lights
(x) Intervillage road connectivity.
(xi) Public transport.
(xii) LPG Shyama Prasad MukherjiRurban Mission ctions
(xiii) Digital Literacy.
(xiv) Citizen Service Centres- for electronic delivery of citizen centric services/egram connectivity. Components pertaining to agriculture and allied activities would be required to be given special emphasis while developing these clusters.

CONCLUSION:

The thing required for making a city smart is the same thing applied to the villages. Indian villages need to be more focused on basic things such as health care, sanity and education. Sanitation & water supply is another important issue. As we know the villages and the villagers have farming-agriculture as their primary source of income. So having villages reap the benefits of irrigation is really very important. Building toilets for every house or anything equivalent.
A village containing all the three facilities above can be easily converted to a smart village. The biggest barrier that would come in between is to deal with the mentality of the villagers and make them understand the real need of modernization. This is the first technical way to initiate this process. Further interventions are required to make a village digital and this can be achieved through Internet facility in village panchayat, schools, colleges, community centres etc. and if possible wi fi facility to whole village. Digital literacy programme Accessible information centre for farmers. Etc. So, let a village development plan be made by villagers only and we stand with them to make more number of Smart villages in the country

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