

New Age Technology

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Governance is fundamental and technology is instrumental. There is a natural complementarity between good governance and technology. The Indian E-Governance evolution reflects the fact that good governance is not lost amidst the growing technological disruptions but instead has been strengthened by it. E-Kranti and Digital India have been instrumental in leveraging latest technologies such as blockchain, AI, Machine Learning which have improved public service delivery and made doing business in India much easier while making the government more accountable and transparent.

Massive digitisation and modern day data capture and analytics tools have empowered the governments across the globe with, hitherto, unprecedented and powerful insights to deliver high quality public services and manage them in real time. India has pole-vaulted herself to emerge as a torch-bearer in e-governance and technology has been instrumental in this journey. Be it the famous JAM (Jan Dhan-Aadhaar-Mobile) trinity or the Common Services Centres (CSCs) or e-file systems or real-time monitoring of schemes, the Indian e-governance paradigm is based on the solid foundations of good governance. As the Digital India program captures that e-governance is instrumental while good governance is fundamental, this spirit has been the backbone of the Indian technological transformation of governance. This article

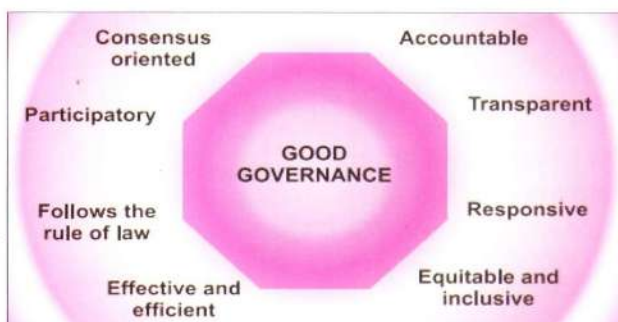
captures the foundations of good governance and what do they mean for e-governance with case studies in the field of education. The article also captures the evolution of e-governance in India, its transformation and the integration of new-age technologies in governance and the catalytic role being played by the Government of India.

Good Governance to E-Governance

As per the second Administrative Reforms Commission, good governance aims at providing an environment in which all citizens irrespective of class, caste and gender can develop to their full potential. In addition, good governance also aims at providing public services effectively, efficiently and equitably to the citizens. The 4 pillars on which the edifice of good governance rests, in essence are: a) Ethos (of service to the citizen), b) Ethics (honesty,



integrity and transparency), c) Equity (treating all citizens alike with empathy for the weaker sections), and d) Efficiency (speedy and effective delivery of service without harassment).



Source: Second ARC Fig. Attributes of Good Governance

Citizens are thus at the core of good governance. Essentially, the role of the government has been gravitating towards an enabler in line with the principle of 'minimum government and maximum governance'. The Government of India has taken several efforts over the years to minimising the interface with the government and maximise the transparent, efficient, timely and accountable delivery of public services such as healthcare facilities, pensions, education, mid-day meals, rations, land records etc.

Technology in governance is a natural choice as it mimics nearly all the principles of good governance – it brings transparency, minimises interface between government and public, is unbiased and can accelerate service delivery while fixing accountability. The World Bank has been at the forefront of pushing the principles of good governance as well as e-governance. As per the World Bank, "E-Government refers to the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/ or cost reductions."

The above definition captures the rationale, means, scope and possible impact of e-governance on the society, businesses and the transformation in government operations.

Scope of E-Governance

The scope of the e-governance span the relationships between government-to-government agencies, government-to-business, government-to-citizen and government-to-employees as discussed below.

- Government-to-Government (G2G) :** E-Governance aims to transform the practices within the government as well. Be it intra or inter ministries/department or central or state, information flow and decision making process have often found to be slow and marred with red-tapism. Such practices result in unfair practices and rent seeking attitude within the officials and are a major source of corruption. A simple e-governance solution of electronic files or popularly known as e-files has improved the efficiency in the system. Earlier, a pensioner used to wander from one department or officer to other but would not find a solution to her problem (something which was quite pervasive across public services and well captured in the satirical television show Office Office). E-file ensures that every movement of file is time-stamped and it also creates a log of delays and time taken to take decisions and hence is used by government officials to keep track of inefficiencies and malpractices within various departments. The system has also helped in faster information flows within the department and between various departments and thus pushing efficiency while creating an onus on each link of the department through the use of timestamps. Such small and incremental improvements has resulted in better working of government offices. Another example is that of an Aadhar linked biometric attendance which is linked to the salary and performance reports of employees and thus ensuring high professional standards within the employees. Various other innovations have been introduced to transform government practices and day-to-day operations.

E-Governance: Ease of Doing Business Case Study

In the World Bank's Doing Business Report of 2014 (DBR 2015), India stood at a grim 142nd position amongst 190 economies. In a short span of six years India ranked 63 in the World Bank's Doing Business Report 2020, a meteoric rise of 79 ranks from 142 in 2014. In addition to many regulatory reforms, lots of digital interfaces were also created to improve the experiences of businesses in doing business in India. Some of the reforms are:

- Introduction of SPICe+ and AGILE PRO form by Ministry of Corporate Affairs (MCA) saves time and effort required for a nascent Company Incorporation. This form combines various services like PAN/TAN/Director Identification Number/GSTN etc.
- Online Single Window System: An Online Single Window System for all construction permits - Online Building Permission System
- NoCs and other certificates are issued through Online Building Permission System
- All inspections of various agencies like Fire, Water, Sewerage are carried out jointly on the same day
- E-Courts Service Portal: Dedicated Commercial Courts have been established in Delhi and Mumbai dealing exclusively with commercial cases. Adoption of technology for case management by lawyers and judicial officers is leading to speedier dispute resolution.

- **Government-to-Citizens (G2C)** : This is the most widely used e-governance interaction where the government has created an interface using technology between the government and citizens which enables the citizens to benefit from efficient delivery of a large range of public services. Social pension schemes, scholarships, benefits of pregnancy schemes, subsidy for gas cylinders, uniform money, textbook money etc are transferred directly into the accounts of the beneficiaries and thus eliminating any middle man. The JAM trinity has further strengthened the public service delivery with digital means.
- **Government to Employees (G2E)** : Government is by far the biggest employer and like any organisation, it has to interact with its employees on a regular basis. This interaction is a two-way process between the organisation and the employee. Use of ICT tools helps in making these interactions fast and efficient on the one hand and increase satisfaction levels of employees on the other.
- **Government to Business (G2B)** : Government has put many policies and check and balances for hassle free operations of businesses. From

licence Raj to the policies of liberalisation, privatisation and globalisation, the government improved many processes and policies. But, the real change came with the IT boom. And, government implemented many technological solutions to ease the burden on businesses and allow them to thrive and add value to the economy and create jobs. But in the recent years the thrust on G2B has grown manifold and Indian has consistently improved its global rankings in 'Ease of Doing Business'. A major reason for such a transformation is e-governance.

Government Initiatives and Roadmap for e-Governance

The e-governance agenda of the government got momentum after the formulation of the National e-Governance Plan by the Government of India. The Government approved the National e-Governance Plan (NeGP), comprising of 27 Mission Mode Projects and 8 components, on May 18, 2006. In order to promote e-Governance in a holistic manner, various policy initiatives and projects have been undertaken to develop core and support infrastructure. The major core infrastructure components are State Data

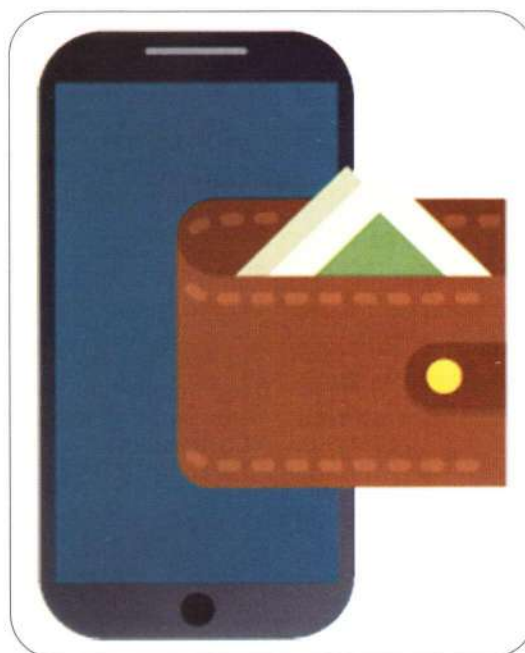
Centres (SDCs), State Wide Area Networks (S.W.A.N), Common Services Centres (CSCs) and middleware gateways i.e National e-Governance Service Delivery Gateway (NSDG), State e-Governance Service Delivery Gateway (SSDG), and Mobile e-Governance Service Delivery Gateway (MSDG). The important support components include Core policies and guidelines on Security, HR, Citizen Engagement, Social Media as well as Standards related to Metadata, Interoperability, Enterprise Architecture, Information Security etc.

While these initiatives formed the backbone of the new age E-governance, the real thrust came with the ambitious Digital India Mission in 2015. Considering the shortcomings in National e-Governance Plan that included lack of integration amongst Government applications and databases, low degree of government process re-engineering, scope for leveraging emerging technologies like mobile and cloud etc., the Government of India approved e-Kranti programme in 2015 with the vision of “Transforming e-Governance for Transforming Governance”. The portfolio of Mission Mode Projects has increased, from 31 to 44 MMPs. Many new social sector projects namely Women and Child Development, Social Benefits, Financial Inclusion, Urban Governance eBhasha etc., have been added as new MMPs under e-Kranti. Thrust areas of e-Kranti outlined in Digital India

- Technology for Education – e-Education - All schools will be connected to 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. Massive Online Open Courses (MOOCs) 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, etc.

- 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 a real-time basis so as to take precautionary measures well in time and minimise 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 several related applications, i.e. 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 Centre would be set up to ensure safe and secure cyber-space within the country.

New Age Analytics, AI and Machine Learning in E-Governance

The E-governance in India has evolved with new technologies. Many smart dashboards have been created across the departments which are

powered by analytics and show real time data on many government schemes, present comparative statistics between states and districts. And, all these data points are out in the public domain for public scrutiny. As a result it gives power in the hands of the citizens to hold the government accountable. For instance, the Champions of Change Dashboard developed by NITI Aayog ranks all 112 Aspirational Districts in India across several developmental indicators (Education, Health, Agriculture, Skills, Water Resources etc). Based on the performance on these indicators, the districts are ranked. This dynamic ranking of the districts is visible to the Chief Ministers, Department Heads and the District Collectors as well as the elected officials and the common public. This information empowers the elective officials to hold the executives accountable and thus improves public service delivery.

Similarly, many innovations in the field of real time and transparent inspections for providing recognition to colleges and universities has been started. For instance, All India Council of Technical Education (AICTE) has started a live real time video conferencing based inspection mechanism where everything is recorded and time stamped. There is complete objectivity and transparency because of this new system of inspection. Hence, the ills of corruption and collusion between corrupt officials and bogus institutions have been curtailed. With the advent of 5G technology such experiences will further improve and become more robust. And, even random inspections could be carried out any time to ensure that the educational institutions maintain high quality throughout the year.

Another G2C innovations in the education sector is the career platforms built by the Government of India for career readiness through training in demand technologies and areas. These platforms are built using the power of artificial intelligence. They recommend courses to the student based on the interests and existing knowledge and skills of the students i.e. these platforms adapt themselves according to the students' levels and personalise the learning for students. Another interesting innovation which is worth mentioning is from school education. The Government of Andhra Pradesh in collaboration with Microsoft has deployed a combination of artificial intelligence and machine learning to predict the possible drop-outs in schools. The algorithm

helps in identifying students who are likely to drop-outs and immediate interventions in the form of governmental support, counselling, academic support etc are offered to stop the drop-outs.

Other technologies such as Blockchain has been successfully utilised in the states of Telangana and Tamil Nadu for digitising land records. Land records are controversial issues and often it is found that with collusion between field officials and adversaries lead to long court cases and disputes. Blockchain as a technology solves this problem easily. Blockchain is a shared, immutable ledger that facilitates the process of recording transactions and tracking assets in a business network. An asset can be tangible (a house, car, cash, land) or intangible (intellectual property, patents, copyrights, branding). Since the ledger is immutable there are no chances of disputes as no one can alter the records in an unlawful way.

The National Informatics centre, Government of India has set up Centre of Excellence (CoE) in Blockchain Technology with an objective to promote its use and facilitate rapid adoption & on-boarding of Blockchain based solutions. The CoE will foster stronger collaboration between the government, public and private sectors to ensure that the latest technological tools and frameworks are available for use in different dimensions of governance.

Conclusion

The latest Indian Mobile Congress displayed the growing prowess of India's digital capabilities and the future that it holds for e-governance. With high speed and low latency 5G facilities, AR/VR, real time recognition systems and IOT etc will become seamless and grow in leaps and bounds. These has transformative implications for healthcare, education, reducing crime and making buildings/homes energy efficient. E-Governance is at an inflection point in India and with new disruptive technologies, right usage could propel Indian economy and services for citizens and businesses. At the same time there is also a need to put in place proper governing principles for these technologies ensuring that they are equitable, accessible and fair. With such checks in places, India would become a major force to reckon with in digital governance for social impact.

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