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Influence of E-governance and digitalisation in empowering Indian healthcare sector: A comprehensive review

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Abstract

In the subsequent years of COVID-19, the healthcare sector has seen a significant innovation and advancement. It has grown leaps and bounds and seen a lot of changes. Due to its financial strength and competent management, the private sector of the Indian economy is playing a significant influence in this regard. The development of coalition networks from the bottom up is considered to have been fostered by the many forces of globalisation and ICT, particularly the internet, which connected the global and local processes and effectively muddled the traditional roles assigned to the actors in the network. The usage of Information and Communication Technology (ICT) in the public sector to improve its services and operations. It is considered as a solution to a plethora of problems in serving the constituencies in a faster and efficient manner. Furthermore, ICT offers an opportunity for improvement in public service delivery and most administrative best practices build upon the process redesign and convergence which is brought about by ICT. It enables transformational changes rather than a technical change. ICT enabled e-governance enables integration of government processes and communication with a real time status tracking feature. The research paper's comprehensive evidence collection is gathered from secondary sources, which were collected by reviewing, government department's websites and several research articles from journals, magazines and books. Further, attempts have been made to identify the various E-governance initiatives of Government of India in healthcare sector and its benefits to the stakeholders. The main objectives of the study is to. Ascertain the influence of E-Governance Initiatives in Health Care Sector in India, study the various E-Governance Initiatives of government in healthcare sector and also to identify the challenges of E-Governance by Healthcare sector. The present research paper tries to give few suggestions to the stakeholders like, To address the issues associated to digital usages, the authorities can create strategic alliances among various groups and also Applications for e-government may be used by central health agencies Government agencies can encourage collaborations between the public and corporate sectors, as well as between donors and civil society.

Keywords: ICT, MoHFW, E-Governance, healthcare sector, government of India

Introduction

The last decade has seen a massive explosion of Information and Communications Technology (ICT) and digitalisation all over the world. India is also gearing up towards to an era of digitalization. It intends to nurture digital ecosystems across all the sectors including health, education, agriculture, resources and financial services. The concept of E-governance is to involve IT in all the government processes. "E-Governance or electronic Governance is understood as the use of Information and Communications Technology (ICT) at all the level of Government in order to provide services to the citizens, interaction with business enterprises and communication and exchange of information between different agencies of the Government in a speedy, convenient, efficient and transparent manner" (Ministry of Electronics & Information Technology, Government of India 2015a). "E-Governance, in essence, is the application of Information and Communications Technology to government functioning in order to create 'Simple, Moral, Accountable, Responsive and Transparent (SMART)' governance"

Digitisation has the expertise to bring about radical improvements in every area of public health in India. Tele-health and online video consultations can take previously inaccessible expert care right to patients in the remotest regions. Telemedicine and tele-referrals can link primary, secondary and tertiary health facilities to disseminate latest medical knowledge to all. Data analytics can improve capacity planning and resource management in hospitals.

The E-hospital initiative of the Digital India programme has come up with an online registration system that connects hospitals based on Aadhaar. It facilitates services like online appointments, payments, access to diagnostic reports, information on blood availability. With 6 hospitals on board and over 48,000 registrations, E-hospital is fully functional. The website is designed to enable real-time tracking of data and registrations. When all hospitals are interconnected, a master patient database would be created leading to a pan-India exchange of patient details. Local pharmacy databases would present an accurate picture of medicine stocks.

The seeds of E-Governance in India were sown back in 1987 with the launch of national satellite based computer network (NICNET). Since then, several E-Governance projects have been initiated at both Centre and State level. Rapid computerisation in the 90s coupled with widespread tele-connectivity and internet proliferation in recent times has provided an impetus to various E-governance initiatives in India. Infrastructural growth in this sector severely lags behind its economic and sectorial growth. The ideal ratio of primary care centres is 74,150 per million people. However, the actual numbers are not even half of those. A majority of laboratories for testing drugs have inadequate facilities and are understaffed. Owing to the lack of access to basic healthcare services in remote regions, easily-curable diseases have turned into serious life-threatening conditions, creating an insurmountable burden of healthcare expenditure.

Back ground of E-Governance and Digitalisation

The origin of E-Governance and digitalisation in India epochs back in 1970's with the initiation of in-house applications in the government areas like elections, census, defence and monitoring of economic situation of the country (Drishti - The Vision Foundation 2019). One of the early steps towards E-Governance in India was the establishment of the Department of Electronics in the CSD Working Paper Series: Towards a New Indian Model of Information and Communications Technology-Led Growth and Development E-Governance in healthcare sector in India Page 10 year 1970 (Drishti -The Vision Foundation 2019) ^[2]. Subsequent to this, the National Informatics Centre was established in the year 1977 (Drishti- The Vision Foundation 2019) ^[2]. By 1980 most of the Indian government offices were equipped with computers (Kumar, Kumar, and Kumar 2014) ^[4]. In the year 1987, Government of India took the first remarkable step towards E-Governance by launching the National Satellite-based computer network NICNET (Drishti -The Vision Foundation 2019) ^[2].

Succeeding to this, District Information System program was launched by the National Informatics Centre. Railways office automation also began prior to 1990(International Telecommunication Union (ITU) 2018). By 1990, the extent of NICNET expanded from state headquarters to district headquarters (Kumar, Kumar, and Kumar 2014) ^[4]. Between, 1990-2006, various state and individual department level E-initiatives were taken (International Telecommunication Union (ITU) 2018). In 1998, National task Force on IT was constituted (Suri and Sushil 2017) ^[11]. In the year 2000, Ministry of Information Technology was established under the GoI (Kumar, Kumar, and Kumar 2014) ^[4]. In Feb 2002, subsequent to the constitution of High Power committee related to promotion of IT, the

Department of Administrative Reforms and Public Grievances (DARPG) put forward 12 point 'Minimum Agenda for E-Governance' to be implemented by all government departments (Suri and Sushil 2017) ^[11]. Finally in the year 2006, Government of India (GoI) approved National E-Governance Plan (NeGP) (Ministry of Electronics & Information Technology, Government of India 2018). The vision of NeGP is to "Make all Government services accessible to the common man in his locality, through Common Service Delivery Outlets and ensure efficiency, transparency & reliability of such services at affordable costs to realise the basic needs of the common man" (Ministry of Electronics & Information Technology, Government of India 2018). National E-Governance Plan comprises of 31 Mission Mode Projects (MMPs), each of which focus on specific area like agriculture, health, education.

The National Portal of India is one of the MMPs under NeGP, provides single window access to information and services provided by the government organisations (Ministry of Electronics & Information Technology, Government of India 2020b). Under National E-Governance Plan, National E-Governance Services Delivery Gateway (NSDG) was made operational in April, 2008 (Ministry of Electronics & Information Technology, Government of India 2015c). In July 2011, Government of India started using mobile platform for the delivery of public services (Ministry of Communications, Government of India 2015). National Policy on Information Technology (IT) was approved by the GoI in the year 2012(Ministry of Communications, Government of India 2012).

In the year 2015, Prime Minister Shri Narendra Modi launched Digital India Programme (Ministry of Electronics & Information Technology, Government of India 2020a). "Digital India is a flagship programme of the Government of India with a vision to transform India into a digitally empowered society and knowledge economy" (Ministry of Electronics & Information Technology, Government of India 2020a). "E-Governance: Reforming Government through Technology" is one of the nine pillars of Digital India Programme (Ministry of Electronics & Information Technology, Government of India).

Objectives of the study

The present research paper aims to explain the following objectives

1. To ascertain the influence of E-Governance Initiatives in Health Care Sector in India
2. To study the various E-Governance Initiatives of government in healthcare sector
3. To identify the challenges of E-Governance by Healthcare sector

Research methodology

The current research paper is descriptive in nature and altogether based on secondary data sources. To make this research paper effective, many national and international journals, research articles, newspaper information, relevant healthcare organisations websites and PhD thesis were consulted. The purpose of this study is to identify the influence of E-Governance Initiatives in Health Care Sector in India, and to recommend a few governmental solutions to improve E-governance practices in India.

Data analysis and interpretation

Influence of E-governance and digitalisation initiatives in health care sector

The management of the public health system and the provision of healthcare services have both been enhanced by information and communication technology (ICT). Therefore, MoHFW is supporting e-health, also known as digital health, which is the use of ICT to "reach services to citizens" and "citizen empowerment through information dissemination" in order to significantly improve the provision of public healthcare. To improve the efficiency in health care delivery, extend health care to rural areas and provide better quality at low cost certain E-Health initiatives using ICT were undertaken by MOHFW across the country. The influence of such initiatives are:

- To address the health human resource gap by efficient & optimum utilization of the existing human resource,
- To improve patient safety by access to medical records & reducing healthcare cost,
- To monitor geographically dispersed tasks & effective MIS for meaningful field level interactions,
- To Ensure the availability of services on wider scale,
- To assist in evidence based planning & decision making,
- To improve efficiency in imparting training & capacity

building.

- To provide health care services in remote & inaccessible areas through telemedicine,

E-Governance initiatives of government in healthcare

Initiatives at the federal level, The National Health Policy, which the Indian Parliament authorised in 1983 and later amended in 2002, was the first to promote the idea of introducing electronic communication in the health sector. The National Health Policy 2017 further emphasized the influence of digital technology in the delivery of healthcare services (Ministry of Health and Family Welfare, Government of India 2017).

The policy recommended the use of "Aadhaar" as a unique identification number for the beneficiaries, use of smartphones and National Optical fibre network for building the National health Information Architecture. In the year 2015, the MoHFW, GoI proposed setting up of the National E-Health Authority (NeHA) with the vision to make use of information and communication technologies (ICT) in the delivery of high quality health care services to the citizens of India (Ministry of Health & Family Welfare, Government of India 2017a). MoHFW has started numerous E-Governance initiatives in health care sector in India under the division called E-Health division.

Table 1: Summaries of the National-level e-Governance Initiatives in healthcare in India.

Initiatives by Government of India	Narration
Office Automation	
E-Office	MoHFW, GoI has started implementation of E- Office which includes creation of E-files, E-sign to improve the efficiency of the government processes (Ministry of Health & Family Welfare 2018)
Video Conference facility	MoHFW, GoI has started video conferencing facility in the offices (Ministry of Health & Family Welfare 2018)
Digital Payments	Under Digital India Program, digitization of payments has been initiated in the health care sector (Ministry of Health & Family Welfare 2018)
Online Services	
Government Services Portal of India	Single window access to 40 Health services provided by GoI (Ministry of Electronics & Information Technology, Government of India 2005)
National Health Portal	Web based portal that acts as a single point of access to authentic health related information for citizens of India (Ministry of Health and Family Welfare, Government of India 2016d)
E-Hospital	Hospital Management System for delivery of services like patient care, diagnostics etc. in Government Hospitals in India (Ministry of Health and Family Welfare, Government of India 2019b)

Online registration system	Aadhaar based online registration system for booking an OPD appointment ,availing services like online diagnostic reports, enquire availability of blood in any government hospital in India(Ministry of Electronics & Information Technology, Government of India 2015d)
Central Government Health Services (CGHS)portal	Web application implemented in all the wellness centers across the nation since 2007 for the delivery of Central Government Health Services(CGHS)(Ministry of Health and Family Welfare, Government of India 2015c)
Food Safety and Standards Authority of India	GoI website for providing services like issuance of license, product approval etc. to food business operators (Ministry of Health and Family Welfare, Government of India2020a)
National Organ & Tissue Transplant Organization	GoI web portal for registration and retrieval for organ/ tissue transplantation (Ministry of Health and Family Welfare, Government of India 2019b)
Central Drugs Standards Control Organisation, “SUGAM”	Single window access to various stakeholders like Pharmaceutical Industry, Citizens, Regulators etc. for applications and approvals of drugs, vaccines, cosmetic products, medical devices, clinical trials and ethics committee (Ministry of Health and Family Welfare, Government of India 2019b)
Mera Aspataal	GoI initiative to capture patient feedback for the services received at the hospital (Ministry of Health and Family Welfare, Government of India 2020b)
‘HumDo’ Website	GoI website providing information related to family planning and guidance on family planning methods (Ministry of Health and Family Welfare, Government of India 2017)
PMSMA portal	Web and android based system with help desk to facilitate Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA) Program by (MoHFW),Government of India under which free of cost ANC care is given to pregnant women on 9 th of each month (Ministry of Health and Family Welfare, Government of India2018)
Online Medical Counseling &Admission Project	Online Counseling service by GoI for admission in to Under Graduate and Postgraduate Medical colleges (Ministry of Health and Family Welfare, Government of India2015c)
Ayushman Bharat- Pradhan Mantri Jan Arogya Yojna Portal	GoI portal providing information and services related to Pradhan MantriJan Arogya Yojna (National Health Authority ,Government of India 2018)

Mobile Applications and Services	
Swasth Bharat (Disease, Lifestyle, First Aid)	Android based mobile application that provide reliable information related to disease conditions ,symptoms ,available treatment options, public health alerts, healthy life style, first aid etc.(Ministry of Health and Family Welfare, Government of India2016h)
NHP Indradhanush :Vaccine Tracker	GoI android based mobile application to help parents register and track immunizations of the children under 16 years of age(Ministry of Health and Family Welfare, GovernmentofIndia2016g)
National Health Portal Directory Services	Mobile application providing information related to hospitals and blood bank across India (Ministry of Health and Family Welfare, Government India 2016f)
TBM issued Call Initiative	Mobile health service by GoI for providing counseling and treatment to Tuberculosis (TB) patients (Ministry of Health and Family Welfare, Government of India2016b)
Kilkari	GoI mobile initiative that delivers free weekly 72 messages related to pregnancy care, delivery and child care to pregnant women from 2 nd trimester until when childis1 year of age (Ministry of Health and Family Welfare, Government of India2016b)
M-Cessation mobile app	GoI android based mobile application to help people quit to back off or life (Ministry of Health and Family Welfare, Government of India2016b)
No More Tension Mobile app	“Stress Reliever Application” launched by MoHFW, GoI for providing information related to stress and its management techniques (Ministry of Health and Family Welfare, Government of India 2016i)
Mera Aspatal Mobile App	GoI mobile app to capture patient feedback for the services received at the hospital (Ministry of Health and Family Welfare, Government of India 2020b)
PMSMA App	Pradhan Mantri Surakshit Matritva Abhiyan mobile app provides opportunity to medical practioners who are in voluntary sector or in private sector or are retired to provide free ANC care to the pregnant women at Government healthcare facilities on 9 th of every month (Ministry of Health and Family Welfare, Government of India 2016j)
National Health Helpline(Doctor on Call)	MoHFW initiative to provide free on call health care consultation to patients across India by a qualified doctor(Ministry of Health &Family Welfare2018)
M Diabetes	Mobile initiative by MoHFW in collaboration with the WHO and other partners for the prevention and care of diabetes (Ministry of Health and Family Welfare, Government of India2015a)

Health Information Dissemination	
NHP Health Information Kiosks	Health information Kiosks are being established in hospitals (so far done in 17 hospitals) for the purpose of disseminating authentic and reliable health related information to the citizens (Ministry of Health & Family Welfare 2018)
NHP VoiceWeb	National Health Portal developed a 24x7 Toll free Voice Web service for sharing authentic health information with the citizens (Ministry of Health and Family Welfare, Government of India 2016c)
Campaigns organized on Social Media (Twitter, YouTube)	For instance : Intensified Diarrhoea Control Fortnight, National Breast-feeding Week, National Nutrition Week etc. (Ministry of Health and Family Welfare, Government of India 2015c)
Process Automation	
Hospital Information System (HIS)	HIS helps in automation of hospital processes like patient registration, diagnostics, drugs, treatment, discharge, follow up etc. It is functional in Public health facilities up to CHC level (Ministry of Health and Family Welfare, Government of India 2019 b)
Drugs and Vaccines Distribution Management System (DVDMS) ('e-Aushidhi')	DVDMS helps in automation of purchase, inventory management and supply of drugs, surgical items and sutures to warehouses of DH, CHC, PHC (Ministry of Health and Family Welfare, Government of India 2019 b)
e-RaktKosh	Online system for connecting and streamlining the work flow of all the licensed blood banks across the nation (Ministry of Health and Family Welfare, Government of India 2019 b)
Personal Health Record Management System (PHRMS)	PHRMS provides a platform for patients to upload their health data for the purpose of storage, easy access and sharing with doctors for seeking medical advice (Centre for Development of Advanced Computing (C-DAC) 2019)
ANMonLine (ANMOL)	ANMOL is a tablet based application used by ANMs to enter data related to the RCH Programme (Ministry of Health and Family Welfare, Government of India 2019 b)
Service Delivery and Tracking	
E-HMIS	Electronic-Health Management Information System (E-HMIS) is a web based portal functioning across the nation to monitor programs under National Health Mission (Ministry of Health and Family Welfare, Government of India 2019 b)
Nikshay	Web based portal by GoI for tracking TB patients and monitoring National TB Programme (Ministry of Health and Family Welfare, Government of India 2019 b)

Mother and Child Tracking System(MCTS)	Web based portal by for tracking pregnant women and children under 5 years of age (Ministry of Health and Family Welfare, Government of India 2019 b)
Establishments	armed forces (Ministry of Health and Family Welfare, Government of India 2015 b)
Capacity Building	
Mobile Academy	GoI Mobile initiative to provide free audio courses to train ASHAs on healthcare service delivery particularly intended to improve the knowledge base and communication skills (Ministry of Health and Family Welfare, Government of India 2019)
Training Management Information System (TMIS)	This system helps in the building capacities of health care professionals (Ministry of Health and Family Welfare ,Government of India 2019)
NDLM (National digital Literacy Mission) –DISHA	Under this initiative IT training will be provided to 52.5 lakh persons, which includes ASHA, Anganawadi workers and authorized ration dealers across the nation (National Institute of Electronics & Information Technology 2015)
Online Consultation-Telemedicine	
National Medical College Network(NMCN)	NMCN is being established to link all the medical colleges of the nation for the purpose of establishing E-classrooms, providing Tele-education, Continuous Medical Education (CME) and building capacities (Ministry of Health and Family Welfare, Government of India 2019)
National Telemedicine Network(NTN)	NTN is being established across the nation connecting health facilities in rural areas (SC, PHC, CHC) with the district hospitals and medical college for providing Tele medicine services (Ministry of Health and Family Welfare, Government of India 2019)
SATCOM based Telemedicine Nodes	Telemedicine nodes are being established at the pilgrimage places for the purpose of providing specialty consultation, screening of diseases and providing preventive care to the devotees (Ministry of Health and Family Welfare, Government of India 2019)
Ayushman Bharat –Health and Wellness Centre(HWC)portal	Web portal launched by MoHFW to monitor the delivery of comprehensive primary healthcare (CPHC) services through the health and wellness centers across the nation (Ministry of Health and Family Welfare, Government of India 2019 a)

CPHCNCD Solution	MoHFW, GoI under the Ayushman Bharat Comprehensive Primary Healthcare (CPHC) program is undertaking a population-based Non-communicable diseases (NCDs) program which aims to screen all individuals above 30 at population level for five non-communicable diseases: hypertension, diabetes, oral, breast and cervical cancers. CPHCNCD Solution helps digitize all the paper records related to the screening conducted for women and men above 30 years of age (Ministry of Health and Family Welfare, Government of India 2018 a)
Surveillance and Monitoring	
Integrated Disease Surveillance Programme (IDSP) Portal	Web based portal by GoI for disease surveillance in the country under National Health Mission (Ministry of Health and Family Welfare, Government of India 2009)
Central Dashboard	Central dash board is being developed to help monitor key indicators related to various existing and upcoming National health programs (Ministry of Health and Family Welfare, Government of India 2019)
Regulations and Standards	
National Identification Number (NIN) to Health Facilities	Web portal for registration of health facilities in India and assigning the maunique permanent National Identification Number (NIN) (Ministry of Health and Family Welfare, Government of India 2016 e)
Metadata & Data Standards (MDDS)	Health domain MDDS (Metadata & Data Standards) have been developed for bringing interoperability between various health IT applications (Ministry of Health and Family Welfare, Government of India 2019)
HER Standards	EHR (Electronic Health Record) Standards notified in the year 2016 by GoI include 35 set of standards for clinical terminology, E-prescription, data encryption, coding etc. (Vikaspedia 2019)
Online Registry of Clinical	Web portal for registration of all types of clinical establishments except for

Source: Ministry of Health and Family Welfare, Government of India 2022

Key Success Drivers for E-Governance

India's abilities to overcome the obstacles and take benefits of new opportunities are essential for the success of E-Government in general and in the health sector in particular. The following elements affect the development of e-health:

1. Technological Innovations: Technological advances like mobile, cloud computing and IoT will prove conducive to more effective delivery of E-Health. With rapid adoption of smartphones (over 300 million users and counting) it would not be long before we see a mobile in every hand. Last year, the government launched four mobile health services, namely, M-

Cessation, Kilkari, TB Missed Call initiative and Mobile Academy. They are expected to take health services closer to those who need them the most.

2. Attitude of Medical Professionals: The extent of success of digital health initiatives is related to their acceptance by doctors and medical staff. Currently, there is little awareness about the importance of electronic management of health data. Very few hospitals maintain EMRs as doctors consider it cumbersome to update the data in the system. The existing resistance to usage of technology can be dissipated through communication and training.

Medical staff needs to be convinced that technology will assist and not replace them. Computer-aided teaching techniques should be adopted for medical and nursing courses.

3. **Public Awareness:** A significant barrier to the widespread adoption of E-health services, according to experts is a lack of knowledge and understanding of the use of ICT in healthcare. Despite some hospitals provide diagnostic findings online, the majority of patients still pick up the reports in person. The failure of E-health programmes is hampered by a number of problems, including poor literacy rates, a lack of locally relevant material, and a scarcity of suitable access devices.
4. **Infrastructure, Internet and Data Speed:** The citizens of the country will have access to healthcare technologies only when the necessary infrastructure is in place. With barely 1% of the villages linked, the government's ambition to connect 250,000 villages to the National Optical Fibre Network (NOFN) by 2016 has utterly failed to achieve the deadline. Due to the high cost of last-mile connectivity for the majority of Indians, this problem will persist in the years to come. Internet penetration in India is close to 28 per cent, leaving a majority of the public outside the reach of E-health facilities. It is still unclear, whether broadband or mobile service is affordable for low-income groups. Nearly half of all mobile users rely on 2G connections, even if 48% of those who do use the internet still utilise narrow band.
5. **Participation of Private Sector:** The private sector has a key influence to play in the success of E-Governance in healthcare. Earlier this year, Global Healthcare announced its alliance with CSC E-Governance Services India Ltd., the nodal autonomous agency of Ministry of IT, through which it is offering video consultation services to 84 crore people in remote areas. HP is working on automating 19 public hospitals and 14 medical colleges in Maharashtra.

CMC is providing handheld mobile computing devices to Primary Health Centres. Docplexus recently tied up with the National Center for Disease Control (NCDC) and Indian Public Health Agency (IPHA) as their knowledge partners. Through this collaboration, NCDC and IPHA have connected to a community of over 2, 25,000 doctors from 92 specialties and 1,500 cities for furthering their public health agenda. Participation of private players is crucial to provide last mile access, location specific access and cloud-based services relating to delivery of remote health.

Suggestions for Effective Adoption of E-Governance and Digitalisation in Healthcare Sector

- a) Government bodies must first identify and examine local realities and work to establish E-governance efforts through regional languages in order to enhance, practise, and implement the projects in India's needy regions.
- b) Government officials can encourage an approach that prioritizes the needs of the citizens first while implementing e-government procedures.
- c) The state government must be able to mechanise efficiently to train, develop, and promote the capacities of the parties concerned.

- d) To address the issues associated to digital usages, the authorities can create strategic alliances among various groups and also Applications for e-government may be used by central health agencies
- e) Government agencies can encourage collaborations between the public and corporate sectors, as well as between donors and civil society.
- f) Government agencies can educate the general public about the welfares of e-government programmes.

Conclusion

A lot of attempts have being made by the Indian government to offer services to its populations through E-Government as the use of information technology is expanding quickly. Even though the Indian government spends a lot of money on E-Government programmes, not all of India benefits from them. Though, E-governance is empowering Health Professionals for better information management, patient monitoring, medical education, and communication. Web-based libraries, online continuous medical education courses, KOL webinars, surgical videos, all equip the medical community to provide the best possible care. Online CME programmes and KOL interviews conducted by Docplexus, India's largest online network of doctors, makes gaining latest medical knowledge highly convenient for its members. But this will be successful only, when Interoperability, portability, integration e-Health requires joint effort of various government departments such as Department of Electronics and IT (DeitY), Department of Telecommunications (DoT) and Law, among others co-ordinate and function together. It is necessary to put in place systems and interoperable standards that allow seamless integration across departments, eliminating data duplication. Along with the aforementioned, it is also crucial that various government departments ought to educate the general public about the numerous programmes and E-Governance Initiatives in Healthcare. The need of the hour is the effective transformation of the government services, it is possible only with grass-root level changes in the way services are perceived and delivered. It also needs integration within departments for interoperable standards to avoid the duplication of data and metadata and thereby promoting the integrated view rather than a departmental view of information.

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