

## **ROLE OF HEALTH INFORMATION TECHNOLOGY IN CHANGING THE HEALTHCARE INDUSTRY IN INDIA: AN EMPIRICAL STUDY**

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### **Abstract**

Innovation and use of the merging ICT or Information and Communication Technology have increased rapidly in development, including the healthcare industry. It is also believed that apt technologies might help expand and improve the quality and reach of information technology. However, decisions on which information and communications technologies (ICTs) should be implemented are often made without proof of their efficacy, information about their implications, or a comprehensive understanding of maximizing the advantages of their usage. At the same time, it is considered that ICT innovations in healthcare could succeed when the design is informed deeply through practice. Many failed ICT projects within the healthcare industry indicate restricted application of this kind of approach. There is a growing and large body of works exploring ICT issues in the developed world and explicitly focussing on developing nations in context emerging from India and Africa.

**Keywords: ICT, information technology, communication**

### **Introduction**

The needs of the healthcare industry cannot be fulfilled in most countries for a large majority of the world's population from within the prevailing structure of allocation of resources. There are various potential conflicts amongst the nations to make and observe global trade rules in healthcare services. However, the promotion of trade and the protection of healthcare should not be considered to be incompatible. A shared commitment to using global healthcare resources may be a solid and uniting force worldwide. A consensus is restricted through glaring disparities in regions on the reliability and quality of the basic infrastructure, healthcare resources, the difference in the exposure to the burden of diseases and diseases, the share of the global trade in the healthcare services, and insufficient awareness. The difference in the national regulations has dampened the enthusiasm and motivation for international convergence about healthcare trades, and it comes along with efficiencies, equity, and cost considerations (Sheikh, Sood, Bates, 2015).

IT or Information Communication Technology has the capability of entirely revolutionizing the healthcare industry. With options of the acceptable policy, IT helps promote the new thresholds of human connectivity. It is a potent tool for international convergence through the supply of goods and services across the border. First of all, IT helps in enabling opportunities of producing knowledge, which is the single factor for production which is not subject to the economic law of diminishing return, and for trading in it to get a direct financial advantage. Second, the global diffusion of new knowledge and the best practices help open different ways to improve the performance of the healthcare system. Various studies have been done that focus mainly on the issues and solutions of the healthcare industry. These studies suggest the difference. IT is capable of making in the healthcare industry.

One of the most significant features of IT is the capacity to enable trustworthy storage, retrieval, and the instant transfer of sounds, texts, images, and numbers as audio, visual, or data communication. It helps in substituting and supplementing in-person contact as well as transportation. Because of this, the spatially distant resource and needs easily connect and add some new links in the production capacity in different aspects of the healthcare development, administration, and delivery. When the production capacity can be recognized as an exchangeable and sharable resource for being accounted for, the IT processes and products acquire the currency (Cresswell and Sheikh, 2014).

### **Literature Review**

The increasing use of digital medical imaging in treatment and diagnosis and the desire to attain economies of scale across health networks drive this trend. It has promoted the development of CIS or Clinical Information

System or CPR or Computer-Based Patients Records that allow the nurses, physicians, social workers, dietitians, physical therapists, and other healthcare team members to share the patients directly with the help of this system. Sophisticated CPR systems may demand a wide range of advanced user-to-computer interfaces, including speech recognition, text to the voice, voice to the text conversion, scanning the barcode, direct digital system, and allocation programming interfacing (Zhang et al., 2017).

The other attributes may include the CD-based video record and playback. Broadcasting of microwave and the graphical interface of users using pen, voice, keyboard controls, and mouse. The CPR system may help improve the patient's care with the help of integration of the rules-based healthcare plans, which the healthcare team may use to establish and sustain the set of protocols for the diseases, medical issues, and medical procedures (Bidmon and Terlutter, 2015).

HIT, or Healthcare Information Technology, may be described as applying the information process, which includes the software and hardware necessary for storing, retrieving, sharing, and using healthcare-related information, knowledge, and data for decision making and communication (Lupton and Maslen, 2019).

The need was given to practical studies, meta-assessment, and randomized clinical primers. If such examinations were not perceived, various types of preliminary analyses or epidemiological audit plans, including; non-randomized controlled starters, semi test, earlier and afterward mulls over, approaching and survey accomplice studies, and case-control considered (Lwin et al., 2020).

This survey is expected to sum up the current accessible, logical proof on the effect of various wellbeing data advances on further developing patient security results. This survey may be helpful for clinicians and medical services strategy producers when settling on proof put together choices concerning acquisition and execution of such innovation to work on understanding wellbeing (Turkanović et al., 2018). This audit considered appraisals that were driven in the clinical thought settings both inpatient and neighborhood, with the intercession of any of the going with an electronic expert are requesting (CPOE), clinical choice assistance (CDS), E-guaranteeing, electronic sign-out, and hand-off devices, standardized name medicine affiliation (BCMA), shrewd siphons, robotized drug coordinating cupboards (ADC), electronic cure affiliation record (eMAR), patient information the pioneer's frameworks (PDMS), held wary things markers, patient electronic entries, telemedicine, electronic occasion revealing, and electronic clinical record (EMR). Our eventual central outcomes of interest showed limitation security, clinical fumbles, unfriendly occasions, cure bungles, problematic medication occasions, and mortality (Finney Rutten et al., 2019).

The need was given to effective reviews, meta-assessment, and randomized clinical fundamentals. HIT is applying the information process, which includes software and hardware. HIT deals with the storage, retrieval, sharing, and use of healthcare-related information, knowledge, and data for decision-making and communication. HIT is also known as Healthcare Information Technology (HIT) (Lupton and Maslen, 2019).

Some studies have also been done which do not consider high-risk biases and studies which have been conducted in the non-clinical setup, cointervention along with healthcare information and communication technology interventions, which do not evaluate the safety outcomes of the patients, narrative or qualitative studies (Rifi et al., 2017).

The strategy for search has also been conducted for finding the published and unpublished content (Blackwood et al., 2019).

The clinical decision assistance offers information and patient-specific information about the healthcare professionals. The information intends to improve the decision of healthcare providers, and it is rationally also filtered and presented to healthcare professionals at the right time (Mohammed et al., 2019).

The clinical decision assistance includes a wide range of equipment and tools for improving decision-making and clinical workflow. Such tools include alerts, notifications, and reminders to the healthcare providers and patients, conditions specific order set, clinical guidelines, document templates, patient's specific clinical

summary, diagnostic assistance, and investigation, amongst the other tools. These studies state that the use of the on the screen reminders for the physicians results in minor to very modest improvements in the adherence of the process, medicines ordering, lab ordering, vaccination, and clinical outcomes (**Nowicki et al., 2018**).

Such issues regarding the effect of Information Technology in healthcare are assessed in these studies. These studies assess IT's role in designing the commodities following the genomic revolution that has transformed the development of drugs completely and affected different aspects of the cross-border supply of healthcare commodities. They also discuss the process and new ways to organize the work locally, globally, and nationally about the effect of the healthcare system once they look at improving the quality and pricing ratio through the cross-border supply of the services (**Bidmon et al., 2020**).

They also fix the most significant dimensions of IT, which impact by bringing the power of the information within the grasp of people, governments, and enterprises. They state the rationale about the options of policy and the potential for partnership, including a few conflicts which should be resolved with the help of new arrangements (**Bayu et al., 2017**).

They also present evidence about the vulnerabilities induced by and improved through the use of the Information and Communication system for which the proper policy safeguards should be designed. They also state the rationale behind the international governance in different respects regarding the unsolvability of some of the issues within the national policy framework (**Smail-Crevier et al., 2019**).

The cumulative effect of Information Technology, which is relevant to the perspectives and the priorities of the international and the national policymakers, service providers, consumers, and insurers, is assessed under the performance criteria. It stresses that the IT industry helps liberate trade in the healthcare sector from different conventional hackles (**Zhang et al., 2017**). It notes the potential benefits which may be reaped with international solutions and global safeguards. They also give recommendations that emphasize a need for extensive research for evaluating the outcomes or the policy and different policy choices (**Puspitasari and Firdauzy, 2019**).

IT has set out open entryways for updating linkages between local business areas and wares/imports, which is reflected in the arrangement of clinical consideration things and organizations. HIT is possible to define as the application of information process, which includes software and hardware, that deals with the storage, retrieval, sharing, and use of healthcare-related information, knowledge, and data for decision-making and communication. HIT is also known as Healthcare Information Technology (HIT) (**Lupton and Maslen, 2019**). The prospect of E-prosperity has little by little emerged to portray the merged use of electronic correspondence and information advancement to engage moves and instinct (**Montagni et al., 2018**).

### **Objectives of the Study:**

1. To find the reasons for the role of Health Information Technology in Changing the Healthcare Industry in India
2. To ascertain the significance of the reasons for the role of Health Information Technology in Changing the Healthcare Industry in India.

### **Research Methodology:**

The present study is descriptive in which the reasons for the role of Health Information Technology in Changing the Healthcare Industry in India have been studied. The sample size of the study is 140. The information was gathered using a structured questionnaire with a five-point scale, and the results were analyzed using the mean values and the t-test.

**Table1 Demographic profile of the respondents**

<b>Variables</b>	<b>Number of respondents</b>	<b>%age</b>
<b>Gender</b>		
Male	69	49%
Female	71	51%
<b>Total</b>	<b>140</b>	<b>100%</b>
<b>Technology has proved to be highly beneficial for the healthcare sector.</b>		
Yes	109	78%
No	31	22%
<b>Total</b>	<b>140</b>	<b>100%</b>
<b>Technological innovations have helped in</b>		
Providing better healthcare services	44	31%
Providing better healthcare infrastructure	41	29%
Reducing the time for treatments	36	26%
Providing better diagnostic services	19	14%
<b>Total</b>	<b>140</b>	<b>100%</b>
<b>Technological innovations in healthcare are beneficial for</b>		
Patients	79	56%
Healthcare professionals	61	44%
<b>Total</b>	<b>140</b>	<b>100%</b>

Table 1 presents the demographic profile of the respondents on the role of Health Information Technology in Changing the Healthcare Industry in India. There are 49% males and 51% females in the study. Among the respondents, 78% believe that technology has proved to be highly beneficial to the healthcare sector, and 22% believe that technology has not proved to be beneficial for the healthcare sector. Most respondents (31 %) believe that technological advancements have provided better healthcare services. In comparison, 29 % believe that it has aided in the provision of better healthcare infrastructure, 26 % believe that it has aided in reducing treatment time, and 14 % believe that it has aided in the provision of better diagnostic services, among other things. The %age of respondents who think that Technological innovations in healthcare are beneficial for patients is 56%, and 44% think it is beneficial for healthcare professionals.

**Table 2 Mean value of the role of Health Information Technology in Changing the Healthcare Industry in India.**

Sr. No.	Factors for the role of Health Information Technology in Changing the Healthcare Industry in India.	Mean Score
1.	Innovations in healthcare services have reduced the time for treatments to a great extent	4.11
2.	Technological innovations in the healthcare sector have helped in better diagnosis of the diseases	4.12
3.	Technology has helped patients located at far off places also get treatment	4.09
4.	Technological innovations also reduce the travel time for patients	4.05
5.	With advanced healthcare services, the chances of medical blunders have been reduced	4.08
6.	With technological improvements, patients get accurate information about healthcare services and professionals	4.15
7.	Healthcare innovations have given a new form to the healthcare sector in India	4.02
8.	IT is an integral part of the healthcare industry today	4.07
9.	Since healthcare is not available properly in most countries, innovations have made it possible for medical facilities to reach every part of the world	4.14
10.	Technological innovations have helped in reducing the cost of healthcare services	4.01

Table 2 shows the opinions of the respondents. It is observed that With technological improvements, patients get accurate information about healthcare services and professionals with the mean value of 4.15. It is followed by Since healthcare is not available properly in most of the countries, innovations have made it possible for medical facilities to reach every part of the world(4.14); technological innovations in the healthcare sector have helped in better diagnosis of the diseases (4.12), Innovations in healthcare services have reduced the time for treatments to a great extent(4.11). Further technology has helped patients located at far off places also get treatment (4.09); with advanced healthcare services, the chances of medical blunders have been reduced (4.08), IT is an integral part of the healthcare industry today(4.07), Technological innovations also reduce the travel time for patients (4.05). Healthcare innovations have given a new form to the healthcare sector in India (4.02) were also considered essential. Reasons like Technological innovations that have helped reduce healthcare services (4.01) were also considered necessary.

**Table 3**

<b>Sr. No.</b>	<b>Factors for the role of Health Information Technology in Changing the Healthcare Industry in India.</b>	<b>Mean Score</b>	<b>t-Value</b>	<b>Sig</b>
1.	Innovations in healthcare services have reduced the time for treatments to a great extent	4.11	7.552	0.000
2.	Technological innovations in the healthcare sector have helped in better diagnosis of the diseases	4.12	7.219	0.000
3.	Technology has helped patients located at far off places also get treatment	4.09	6.699	0.000
4.	Technological innovations also reduce the travel time for patients	4.05	5.334	0.000
5.	With advanced healthcare services, the chances of medical blunders have been reduced	4.08	5.903	0.000
6.	With technological improvements, patients get accurate information about healthcare services and professionals	4.15	7.461	0.000
7.	Healthcare innovations have given a new form to the healthcare sector in India	4.02	6.201	0.000
8.	IT is an integral part of the healthcare industry today	4.07	7.518	0.000
9.	Since healthcare is not available properly in most countries, innovations have made it possible for medical facilities to reach every part of the world	4.14	7.672	0.000
10.	Technological innovations have helped in reducing the cost of healthcare services	4.01	6.153	0.000

Table 3 shows the results of the t-test. It is found from the table that the significance value for all the statements is below 0.05; hence all the statements regarding the role of Health Information Technology in Changing the Healthcare Industry in India are significant.

**Conclusion**

The emerging healthcare innovations have completely transformed the healthcare sector in India in the past few years. Physician offices and hospitals have adopted the latest technologies to respond to the changing regulatory environments and improve the quality of healthcare for patients. Today's medical facilities are high-tech in operations that put cutting-edge innovations into the hands of experienced and qualified professionals. IT has become significant for the healthcare sector.

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