

FACTORS INFLUENCING THE IMPLEMENTATION OF E- HEALTH: A SYSTEMATIC REVIEW

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Master of Business Administration (MBA)

in

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by

Sunita Gureliya

Under the Supervision and Guidance of

Anoop Khanna

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DECLARATION BY STUDENT

I hereby declare that this dissertation titled “FACTORS IMPACTING THE IMPLEMENTATION OF E-HEALTH: SYSTEMATIC REVIEW” is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

(Signature)

Sunita Gureliya

Date

Internship Completion Letter

Internship Completion Letter

Date : 1st March to 19th July, 2022

Subject : Completion of Internship Letter

To Whomsoever It May Concern,

M16labs certifies that Ms Sunita Gureliya successfully completed the internship program at our organization as a Product and Inside Sales Intern.

During this time, Ms Sunita worked on the development of key health Information Technology projects.

By working on these projects, Ms Sunita acquired critical research skills.

Ms Sunita displayed professional traits during his internship period and managed to complete all assigned tasks as requested. She was hardworking, dedicated, and committed. It was a pleasure having her with us in this period.


Yours sincerely,
Anil JJ

Founder & CEO

Meta16labs Healthcare & Analytics Private Limited

Reg Off: Tech Precision Solutions No 8/2 Ulsoor Road, Bengaluru, Karnataka 560042

m16labs.com | metahos.com | contact@m16labs.com | 07941056988

ABSTRACT

This dissertation outlines the rationale, procedures, and findings of a comprehensive evaluation of the qualitative literature on the elements influencing public and patient participation in and engagement with digital health. A systematic review identifies, assesses, and synthesises the findings of all pertinent studies in order to provide an answer to a research issue.

The objective of this systematic review was to locate, critically evaluate, and synthesise existing qualitative research on the obstacles and opportunities that patients and the general public encounter when attempting to connect with and enrol in various forms of digital health initiatives. The assessment also sought to compile a list of enrollment and engagement tactics.

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Sincerely,

Sunita Gureliya

Place: Jaipur

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ABBREVIATIONS

IT	Information Technology
EHR	Electronic Health Records
DHI	Digital health interventions
ICT	Information and communication technologies
E-HEALTH	Electronic health
WHO	World health organization
ITU/WHO	International telecommunication union

CHAPTER 1: INTRODUCTION

Digital health Throughout the 20th century, information technology (IT) grew and advanced, and it began to be applied to healthcare in a variety of ways. In order to organise clinical regions and service departments inside a hospital more effectively, this initially started with computerised hospital administration systems. Afterwards, simple variations of clinical decision - making were developed and implemented in clinical environments to help medical professionals make smart choices and deliver better care. The trend toward using medical technology persisted as years went by. In order to increase the quality and safety of patient treatment, several kinds of computer programmes, such as order entry systems, Electronic Health Records (EHRs), and electronic prescription, were developed and put into use. Described as "an emerging sector at the junction of health informatics, public health, and business, referring to health services and information given digitally," the phrase "digital health" was coined to describe this trend. It was first known as ELECTRONIC HEALTH.

Despite the fact that in previous years the focus of digital health has shifted from the organizational use of ICT in healthcare settings or primary care settings to the individual use of technologies by patients and communities. This is a result of recent social and technological advancements. In many nations, public health and illness prevention are given top priority in an effort to lower the demand for and cost of healthcare while improving citizen outcomes. People are urged to take control of their own health care and, where practical, provide for themselves so that they can live independently. A variety of technologies that patients can utilise for self-care have been designed, developed, and made available as a result. Eg; online platforms for self-management, health apps, telehealth and telecare systems, and assistive living equipment. These may help persons with a variety of health and care needs lead independent lives and support the management of long-term diseases. Although there is conflicting evidence for the effectiveness of technology in enhancing health and other outcomes, It can facilitate communication and information sharing between patients and formal and unofficial caregivers. The public or citizens utilise wearables and other e-health goods and services to keep track of their food and exercise, such as health

applications. Although there isn't much proof of their efficacy, they can also be used to monitor a variety of characteristics to preserve a person's health and welfare.

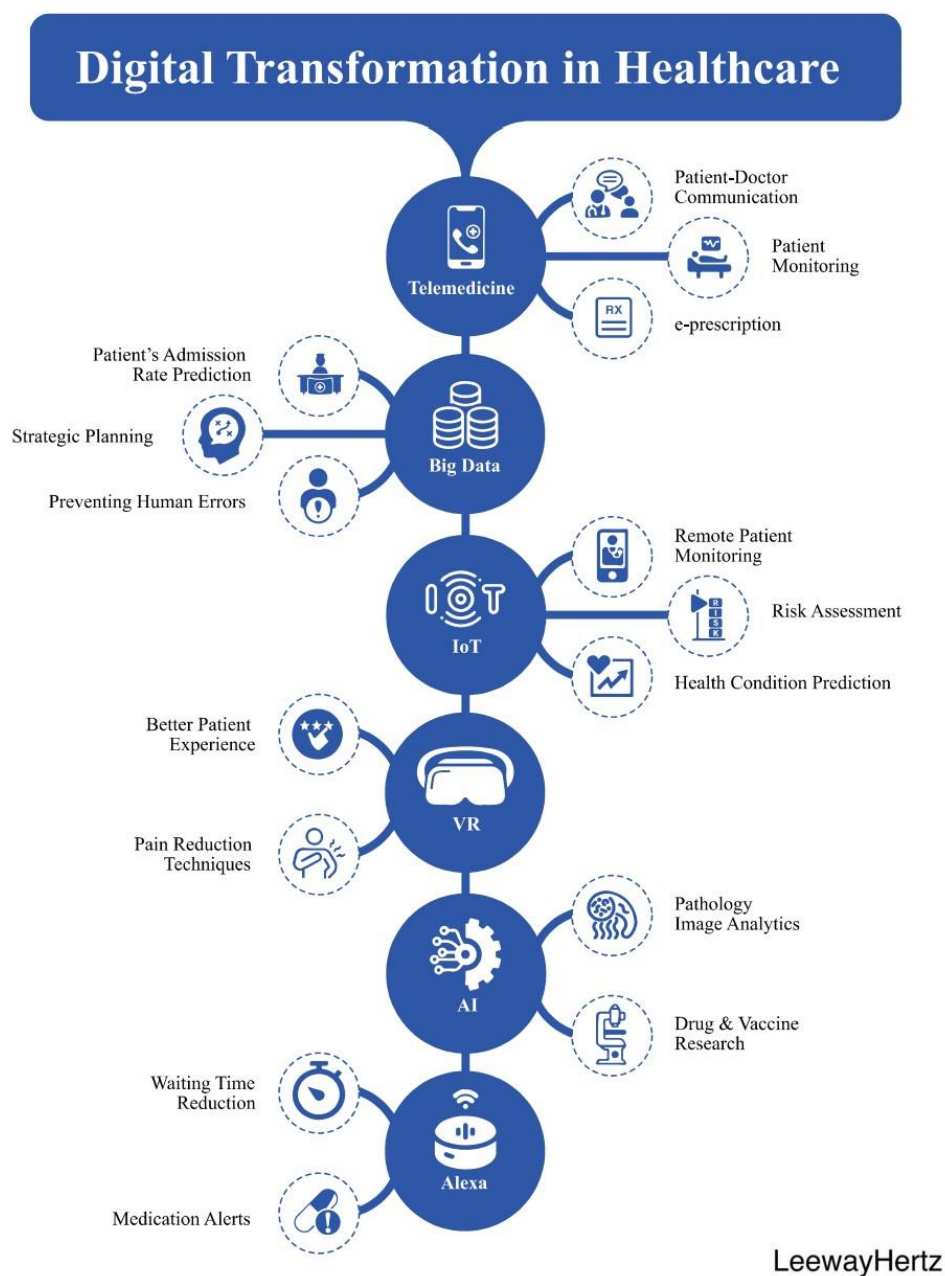


Figure 1.1: Digital transformation in healthcare

Since technology has been used in healthcare, it has been implemented in clinical settings with varying degrees of success and failure. Despite the enthusiasm of some policymakers, managers of health services, and health professionals for the adoption of new technology, various issues might arise as these technologies are implemented. For instance, obstacles that hampered the adoption of EHRs in primary care. This involves a variety of issues with how the technical system integrated with clinical workflows and

the caregiving process. The method of project management utilised to acquire and implement the IT system, as well as the calibre of training and support provided to EHR users, were particularly problematic. These obstacles show that integrating new technologies into healthcare might involve intricate organisational and human change procedures. This may result in the technology being dropped or drastically altered, which could lessen its potential impact on enhancing patient outcomes or service delivery.



Figure 1.2: Six enablers in national healthcare systems to assess their current baseline state.

CHAPTER 2: LITERATURE REVIEW

Title: Current eHealth Challenges and recent trends in eHealth applications On: FEBURARY 20221 By: Muhammad Mudassar Qureshi, Amjad Farooq, Muhammad Mazhar Qureshi	This report provides a thorough analysis of papers discussing eHealth's difficulties. These problems are divided into 10 groups by them. They categorise articles according to several criteria in the result section. Classifying eHealth issues according to key Stakeholders is one significant outcome. As a result, this categorisation may benefit several parties. Each participant will focus their efforts on the pertinent issue domain. Five difficulties, for instance, concern IT specialists. IT professionals may focus their efforts on those five problems as a result. They next briefly suggest potential answers to those five major problems. Additionally, they discussed examination of current eHealth apps.
Title: Influence of Factors on the Adoption and Use of ICT-Based eHealth Technology by Urban Corporate People On: January 7, 2020 By: Masuda Begum Sampa, Md. Nazmul Hossain, Md. Rakibul Hoque, Rafiqul Islam, Fumihiko Yokota, Mariko Nishikitani, Akira Fukuda, Ashir Ahmed	Despite the drawbacks of an exploratory study, this research offers the advantage of revealing the primary psychological drivers of eHealth technology usage among metropolitan corporate individuals for the first time. Based on the overall impact, it appears that improving the use of a PHC system requires first improving the perception of the system's utility, followed by idea to use and health awareness, both of which were also to have a on-set and favourable impact on use behaviour. Corporate individuals are literate and make money, thus social influence did not seem to be a

	factor in utilisation. They therefore disregard other people's opinions and rely their decisions only on their judgement.
Title: Factors affecting the adoption of e-health system in the Kingdom of Saudi Arabia On: October 2020 By: Fahad Alanezi	The report provides some insight into the Saudi government's efforts to provide its citizens with improved health-related services and how much funding is being given to the health department to address health-related concerns. To encourage improved and more easily available health services, the govt has also created an e-health system nationwide. The implementation of the e-health system, however, has not been as successful in the KSA as it has been in other nations. Human hurdles, infrastructural constraints, financial difficulties, insufficient government backing, a low degree of acceptance owing to privacy concerns, incorrect rules and authority, and inadequate accessibility to the new technology are some of the barriers that have hindered adoption.
Title: Understanding factors critical to the implementation of ehealth in chronic disease management: a realist review protocol On: June 2021 By: Nida Shahid , Valeria E Rac, Joanna Bielecki, Whitney Berta	This review seeks to give readers a better and thorough grasp of the elements necessary for the adoption of e-health treatments among adults in any type of care environment. Expanding the body of knowledge in areas where policy is relevant can be accomplished by describing costs of ehealth treatments as complex interferences. Due to the iterative nature of a realist review, they anticipate that any methodological issues

	will be mitigated through documentation and openness. Due to deficiency of highly rigorous appropriate evidence, their evaluation might be limited.
Title: Exploring the challenges of implementing e-health: a protocol for an update of a systematic review of reviews On: March 2015 By: Jamie Ross, Fiona Stevenson, Rosa Lau, Elizabeth Murray	This review analyses, summarises, and synthesises the current literature to offer the most recent results on the variables that affect the integration of e-health into everyday practise within healthcare settings. It looked at the obstacles and enablers discovered during earlier attempts to adopt e-health into practise and produced potential implementation methods for the future. The results of this systematic review provide a chance to evaluate whether factors influencing the implementation of e-health change or evolve over time, providing an update to a prior systematic study. Given the fast development and proliferation of e-health technologies, it would seem expected that different barriers to adoption would emerge over time. It is crucial to take this into account when developing strategies to put e-health into practise.

CHAPTER 3: METHODOLOGY

RESEARCH QUESTION:

What are the factors influencing implementation of e-health by studying qualitative literature that discovers the barriers and facilitators the public experience when engaging with and enrolling in DHIs.

OBJECTIVE:

To identify the factors and challenges occurring during implementation of e-health by conducting a systematic review of the qualitative literature that discovers the barriers and facilitators the public experience when engaging with and enrolling in DHIs.

METHODOLOGY:

Articles available on MEDLINE, PUBMED, RESEARCHGATE, and GOOGLE and published between 2010 and 2022 were screen and selected based on the selection criteria. Eligible 15 reviews/articles were founded on the operation of DHIs. Data from qualified reviews/articles was extracted after complying he studies in excel. A complete breakdown of barriers and facilitators to e-health implementation was produced at end as a result.

SEARCH APPROACH FOR SELECTING STUDIES:

E-health and implementation served as the foundation for the search approach.

The search strategy will combine free-text words and headings for medical subjects. E-health-related medical subject headings include:

Sr. No.	Items
1	Medical Informatics Applications,
2	Management Information Systems,
3	Decision Making Computer Assisted,
4	Diagnosis Computer Assisted,
5	Therapy Computer Assisted,
6	Medical Records Systems Computerized,
7	Medical Order Entry Systems,
8	Electronic Mail,
9	Videoconferencing,
10	Telemedicine,
11	Computer Communication Networks and
12	Internet.

TERMINOLOGY:

Despite the fact that the term "ehealth" has been in practice since the year 2000, there is no agreed-upon characterisation of the idea, which involves overlying categories relating to telemedicine, telehealth, and telemonitoring and varies by purpose, stakeholders, and contexts. The term and its definitions are still changing to reflect shifts in language usage and more complex conceptualizations, such as the distinction (or lack thereof) among telemedicine and telehealth. The word "telemedicine," which was first used in the 1970s, refers to the use of telecommunications technology to deliver medical care, clinical data, and education remotely. Since the end of the 1990s, "telehealth" has gained acceptance and is often used interchangeably with the former term telemedicine. It is now thought to be a more comprehensive phrase that encompasses patient-physician teleconsultations. As part of chronic care, it includes disease management and care coordination, telemonitoring, or monitoring patients remotely, is defined as permitting patients to have a bigger role in controlling their own health. The term "ehealth" refers to digital health interventions used to deliver care including an active intervention, such as remote monitoring and coordination between the patient and healthcare professionals. It is used interchangeably with and in location to digital health interventions, telemonitoring, remote monitoring, or telemedicine in this proposed review.

SYSTEMATIC REVIEW SELECTION CRITERIA

INCLUSION CRITERIA

1. English language
2. Published between 2010-2022
3. Systematic reviews: where appropriate works had been found via a structured exploration of bibliographic and additional databases, where open methodological standards had been applied to weed out publications that did not adhere to a specific standard, and where the results had been presented with precision.
4. Narrative reviews: with the intention of summarising, debating, and criticising results, appropriate literature had been purposefully selected among field of study, and theoretical or topical criteria had been applied to include works on the grounds of kind, relevance, and perceived significance.

EXCLUSION CRITERIA

1. Non-English language.
2. Published before 2010
3. Secondary analyses of existing datasets for the purposes of presenting cumulative results from personal research programs.
4. Discussions of literature that are part of critiques or contributions to theory development.
5. Summaries of books for informational or analytical purposes.
6. Editorial debates that make the case for a certain area of study or strategy

STRENGTHS AND LIMITATIONS:

STRENGTH:

- The study generates a thorough overview of the field of e-health implementation, and it will not be limited to any specific healthcare setting or health condition.
- The findings provide some suggestions on how to deal with the obstacles that the general public encounter when interacting with and enrolling in DHIs.

- Additionally, a comprehensive table of identifiers was created, and knowledge gaps were found to encourage further study that would improve our comprehension of participation and enrolment in DHIs. These could aid in overcoming some of the difficulties encountered during the preliminary stages of implementation so that people can rapidly and effortlessly sign up for digital health goods and services. Others who could benefit include health professionals, managers of health services, investigators, policy manufacturers, private companies, and others.

LIMITATIONS:

- The inclusion of only English-language articles ran the risk of leaving out pertinent research on other dialects.
- The search was restricted to a specified time period, which might have left out some studies that could have been helpful.
- Although the evaluation did highlight a variety of digital health goods and services, newer technologies like augmented and virtual reality are on the horizon, which could limit the assessment's conclusions.

CHAPTER 4: DISCUSSION

After complete analysis of reviews, following were the factors obtained that were impacting the implementation of e-health:

Global themes	Local themes	Theme derivation/source of information
Internal factors	ICT infrastructure and e-health technologies	A description of information relating to technology
	ICT skills and knowledge	A description of information relating to ICT and skills
	Technical support	A description of information relating to IT department
	Security concerns	A description of information relating to privacy of patient information
	Doctor–patient relationship	A description of information relating to interaction between doctor and patients
	Lack of basic medical facilities	A description of information relating to medical equipment
	Demographic factors such as age	A description of information relating to old and young medical doctors
	Resistance to change	A description of information relating to change in work process and procedures
	Health policy	A description of information pointing to policy issues
External factors	Funding	A description of information pointing to money, funds and budget
	Bureaucracy	A description of information relating to systems authority

Table 4.1: Factors obtained during the analysis.

INTERNAL FACTORS-

ICT infrastructure and e-health technologies:

One of the important segments that needs the use of ICT to enhance the value of healthcare distribution to all populations is the health sector. The use of e-health in particular depends on a variety of technologies and ICT infrastructure. Unfortunately, many hospitals around the world lack the necessary e-health technologies. The administrative and purchasing tasks are intended for the current ICT tools. Many medical professionals bemoaned the inadequate infrastructure needed to deploy e-health. E-health utilises various technologies, much like any additional electronic system. Infrastructure for e-Health has a relevant impact on e-Health adoption. Infrastructure for e-Health is thought to be a major aspect. With a developing nation as the backdrop, this becomes even more important. Hospitals in these nations lack key technologies, computer systems, and utilities that might enhance healthcare delivery (Shahid, N., Rac, V., Bielecki, J. and Berta, W., 2021). Clinicians typically lack the ICT

infrastructure that procurement departments do. Infrastructure for e-Health has a relevant impact on e-Health adoption. The majority of the time, purchasing departments have better ICT infrastructure than medical professionals. Pen and paper, easy database systems, and human remembrance continue to be the main ICTs utilised in many public hospitals to manage healthcare. When considering how to improve the nation's healthcare system, the usage of such flawed technologies should be taken into account. As a result, a number of parts should be made available to enable the implementation of e-health systems in hospitals.

ICT skills and knowledge:

In addition to being expensive to build, e-Health infrastructure calls on ICT expertise and knowledge for effective use of e-projects. ICT-skilled medical professionals will probably promote e-health adoption and utilisation in primary care. This is due to the fact that physicians who possess ICT knowledge and abilities are able to recognise the potential advantages of e-health in the workplace. The low acceptance of e-health in public hospitals can be attributed to the medical physicians' inadequate ICT knowledge and abilities in the health sector. They might therefore be unable to accept the usage of e-health technologies. Consequently, preparing and educating medical personnel to use e-health effectively is crucial for acceptance and operation success. ICT should be taught in medical schools, and newly graduated doctors should participate in e-health training seminars as part of their in-service education. Additionally, the application of e-health is complicated due to the dearth of ICT knowledge and abilities among medical professionals. Knowledge and abilities in information and communication technologies are crucial for minimising technological complexity. We can draw the conclusion that it's crucial to make sure that potential users of an innovation have the necessary knowledge and abilities before promoting it to the target population.

Technical support:

The technical assistance of an IT specialist is also necessary for the implementation of an IT project. For the system to function and be maintained, technical support is essential. Another element that supports the deployment of e-health systems is technical help from IT departments. It appears that the technological assistance is necessary for the operation of e-health systems. Hospitals should have ICT infrastructure in place, and IT staff members should be knowledgeable in medical technologies.

Security concerns:

ICTs are frequently exposed to security and privacy breaches, which has a detrimental effect on their uptake in the health industry. This is so that users of e-health may be certain that information will not be disclosed without their consent when technology is used in healthcare (Bakker, A., Riper, H. and Olf, M., 2020.). One of the fundamental moral principles in the medical industry is the protection of patient information. The acceptance of e-health has been cited as being influenced by issues with data privacy, confidentiality, and security.

The stakeholders' expectations are that the confidentiality of e-health data should be comparable to that of systems using paper records. The transition to electronic platforms raises some concerns about patient data security and privacy. The two topics that receive the most discussion in ICT ethics are privacy and security. Patients and providers must therefore have confidence that the material being communicated is secure and confidential in order to fully grasp the budding of e-health. Therefore, if not properly addressed, alarms about the security and privacy of e-health systems could undermine the potential success of e-health and prevent clinicians from using it more widely in public hospitals.

Healthcare provider–patient relationship:

One of the most intricate personal connections in healthcare is that between a doctor and a patient. The clinicians who took part in this survey stated that using e-health systems can either enhance or detract from the doctor-patient connection. Some doctors see e-health as a method to enhance patient-doctor communication by making it more accessible. A fundamental element of healthcare has always been and still is the doctor-patient interaction. Doctors are also worried about how using e-health tools might change how they interact with their patients (Bakker, A., Riper, H. and Olf, M., 2020.). Tools for e-Health have the potential to change who controls medical data. The influence of using e-health for health information has evolved into a method of changing the responsibilities of patients. E-health tools frequently give patients more control over their healthcare.

insufficient basic medical facilities:

The use of e-health has also been constrained by the lack of reachable elementary medical services. The majority of hospitals around the world have voiced complaints

about the lack of accessible basic medical equipment for use in patient care. Without the right tools for patient care, e-health systems will still be ineffective.

Demographic factors:

Age is a demographic characteristic that contributes to the digital divide by virtue of the correlation between age and the adoption and use of technology. Age plays a significant role in how people acquire and use technology. Younger doctors are more adept at using technology than their more experienced counterparts.

Resistance to change:

Technology adoption has the potential to significantly alter work processes, interactions, and procedures. Employees will, however, probably reject the change if they don't like it. In order for doctors to use ICT in their work processes, they must get over some obstacles, like change resistance.

EXTERNAL FACTORS-

Health strategy/plan:

A good health strategy is necessary to build a reliable e-health system. There are numerous issues with health policies in some nations that prevent the acceptance of e-health systems. As a result, the introduction of e-health systems at all stages of healthcare may be hindered by the lack of a clearly defined health policy.

This data suggests that some governments lack a well-defined strategy to encourage the use of e-health technologies in public hospitals. The plan required to direct e-health expansion and technical distribution in public hospitals is restricted, despite the fact that some nations have an e-health plan that was created with provision of WHO based on the ITU/WHO toolkit. Whereas e-health deployment is organised, there isn't a clear, well-coordinated process in place. At the administrative and health professional stages, the deployment of e-health systems may be hampered by a lack of or inadequacy of laws and rules, as well as liability issues (Shahid, N., Rac, V., Bielecki, J. and Berta, W., 2021). Since it cannot be implemented in a vacuum, careful policy consideration is required to encourage e-health development in the public segment. Public hospitals should therefore be required by health policy to deploy e-health systems.

Funding:

For instance, due to the Ministry of Finance's inadequate budgetary allocation to the health sector, the Ministry of Health in Zimbabwe struggled to fund the purchase of new technology for healthcare facilities (Furusa, S. and Coleman, A., 2018). Due to underfunding, most hospitals must operate within strict financial restrictions. Hospitals are therefore expected to operate on a small IT budget. This suggests that e-health adoption is influenced by the funding of the healthcare industry. Even in rich nations, the adoption of e-health is significantly connected with higher funding, and emerging nations should experience the same relationship. Arguments are made that it is challenging to devote a large sum of money for the purchase of the necessary ICT resources for the health sector due to the poor support of the health sector by the government in various countries. It is expensive to adopt computerised health infrastructure, so many developing nations must receive more money in the health sector. In certain underdeveloped nations, the health sector is underfunded, making it challenging to set aside significant sums of money for the purchase of the necessary ICT tools. Therefore, increased e-health system and service deployment may come from better funding.

Bureaucracy:

The authority structures in the health industry are relatively rigid and not very adaptable. The ministry itself decides how e-health will be used in hospitals. Hospitals, particularly district and central hospitals, have no business implementing e-health schemes at their level. Therefore, there is a deficiency of initiative on the part of the ministry regarding the delivery of medical services via e-health.

Therefore, a strict regulation in the healthcare industry prevents public hospitals from using new technology. For instance, Zimbabwe has strict laws and rules governing the modification of policies in government agencies (Furusa, S. and Coleman, A., 2018). Public hospitals are therefore not an exception.

Rwanda, India, and Ethiopia illustrate the importance of strong political will and strategic partnerships between the private and public sectors for digital-healthcare success—regardless of archetype.

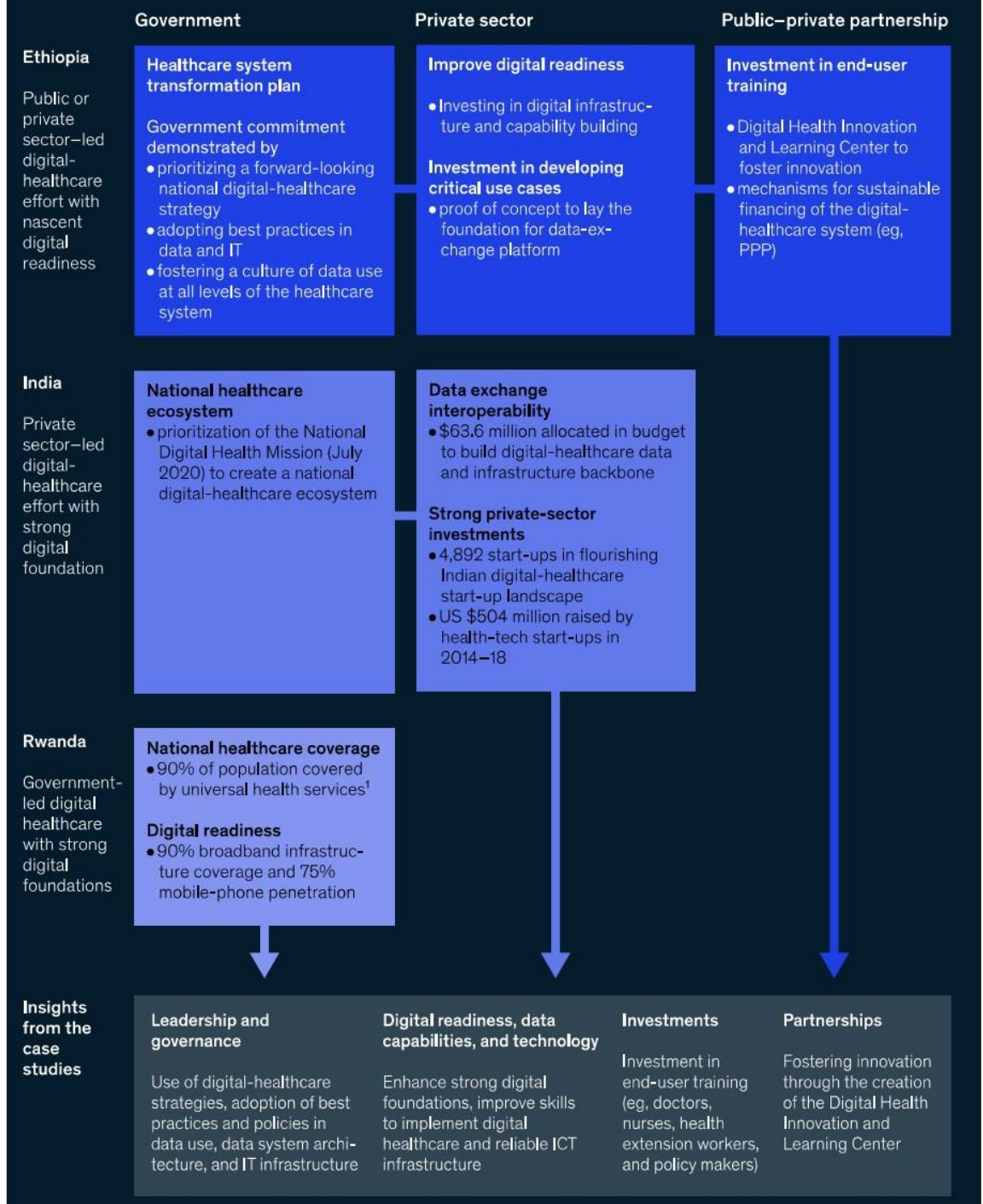


FIGURE 4.1: Example of strategic partnership between private and public sectors

CHAPTER 5: RESULT

Issues affecting enrolment and participation in digital health Four main categories and several subcategories relating to barriers and facilitators to involvement with and registration in DHIs were identified from the analysis of papers/articles that were included in the review.

The main categories were-

1) Personal intervention and motivation

The outcomes of the review's analysis first revealed a category called personal agency and motivation. According to some articles, people who are personally driven to recover their health and who desire more options and control over the development likely to participate in and enrol in DHIs. Some people believed that using technology to stay active and motivate weight loss would help them stay healthy and avoid disease. Others signed up for a DHI because it gave them greater elasticity in terms of when and when they could receive health information and healthcare services. In some situations, this helped people feel less anxious. On the other hand, for other people, a barrier was their ignorance of DHIs or a lack of comprehension of how technology may assist them with their health. Some people choose not to interact with technology because they perceived it as disruptive to daily life or as just having amusement value. Poor enthusiasm to appreciate and expand personal health using digital methods, which some people believed was not their duty but rather something that their healthcare professional should handle, made this problem even worse.

According to a study, some people did not sign up for the technology because they thought DHIs were depressing and could serve as a continual notice if people did not achieve their health goals. Another difficulty was that many people already employed alternate methods of managing their health, such as keeping track of physiological indicators and lifestyle choices on paper-based systems or soliciting help from close relatives, friends, peers, or medical experts. The short rates of enrollment and involvement in DHIs were influenced by all of

these factors.

Personal agency and motivation	Barrier	Facilitator
Motivation	Lack of motivation to understand or improve health	Motivation to understand and improve health
Awareness and understanding	Unaware of or lacks understanding of how a DHI could be helpful	Ability to understand a DHI and personal health data
Personal agency (choice and control)	Alternative ways of documenting health information and managing illness	Ability to choose time and location of DHI, Ability to control electronic personal health data

Table 5.1: Personal intervention and motivation

2) Personal life and values

The next area to have an impact on how well patients and the general public interact with and enrol in DHIs was personal life and values. According to the studies, those who felt the technology was applicable, could be customised to meet their unique needs, or was simple to integrate into their daily lives chose to sign up for it. If a person was digitally literate or already familiar with the technology, it was also simpler for them to register for DHIs because they had the knowledge and abilities to participate (Shahid, N., Rac, V., Bielecki, J. and Berta, W., 2021). Additionally, some people appreciated the seclusion that online health services offered because it made them feel more comfortable and allowed them to evade the awkwardness and stigmatisation they occasionally encountered in the actual world (Saner, H., 2013). According to a second study, those who have demanding jobs, busy personal lives, or who are responsible for taking care of family members prefer not to participate in DHIs because they lack the time, energy, or inclination to do so. Some participants were particularly concerned about the safety of private health information since it could be negotiated in an online setting. This could imply that private information could be accidentally or unkindly given to loved ones, friends, coworkers, or employers, or exploited by governmental or commercial entities to violate the moralities of citizens. Limited connectivity to computers and the Internet was another obstacle to registering for a DHI. In other situations, this occurred as a result of the high costs associated with buying the necessary gear, software, and Internet services, as people lacked access to affordable technology (Alanezi, F., 2020). Poor digital literacy skills were a significant barrier to participation in and enrollment in DHIs, as those with little to no experience using technology found it difficult to

participate. In a small number of situations, this issue was made worse by the fact that some individuals struggled to interact with DHIs because they did not speak English as their first language.

Personal life and values	Barrier	Facilitator
Personal lifestyle	Busy lifestyles with competing priorities	DHI fits with personal lifestyle
Skills and equipment	Poor digital literacy, Lack of access to equipment and the Internet, Cost of DHI	Good digital literacy, Has or can afford computer equipment or mobile devices and network connectivity
Security and privacy	Concern over the security and privacy of DHI information or interaction	Values the privacy and anonymity of DHI information or interaction

Table 5.2: Personal life and values barriers and facilitators

3) Engagement and enrolment approach

The third important aspect that affected engagement and enrolment was the sort of approach active to inform patients and the general public about a DHI and persuade them to join up. Individuals were more likely to cooperate and roll for a technology when they had personal references from their family members, friends, or peers or obtained aid from them directly, but those who were deficient in support were obtained to be unsuccessful to do so. The right audiences seemed to be more successfully reached, and they were persuaded to join, by engagement and enrolment methods that aggressively indorsed technology and were customised to the individual, where possible. In one instance, a medical expert oversaw the procedure and selected the patients who should be enrolled in a telehealth programme. Another study found that 159 individuals who were university employees only enrolled in a DHI to assist their colleagues who were studying the technology. Unfortunately, because DHIs were not widely advertised and promoted, many people were not aware of them and were not aware that the technology could be used for backing their medical needs. Insufficient use of public health education in the engagement strategies may have left individuals with a limited awareness of what a DHI could do. People didn't seem to be very interested in or motivated to join up for a technology as a result, which appeared to result in low levels of engagement (Saner, H., 2013). Another challenge was the recruitment strategy, since some employed tough terminology and were unclear as to why the technology was important for people and how to sign up. Some individuals considered the technology must only be of limited benefit if their doctor or nurse did not endorse or

practise it, and as a result they would not enrol in certain DHIs because they were deficient in the endorsement of reputable physicians or healthcare organisations. However, if medical practitioners or organisations connected to the field of medicine did endorse the technology, this seemed to comfort users that it was worthwhile to join up for.

Engagement and enrolment approach	Barrier	Facilitator
Recruitment strategy	Difficulty understanding the recruitment message	Active promotion and engagement strategies, Health professional acts as a gatekeeper
Direct support	Lack of support from family members, friends or peers	Support from family members, friends or peers offline
Personal advice	Lack of advice and recommendations from trusted	Recommended by family members, friends or peers
Clinical endorsement	Lack of clinical endorsement and support for a DHI	Clinical accreditation and support for a DHI

Table 5.3: E&E approach barriers and facilitators

4) Quality of the DHI

The level of information and communication made possible by the technology is the final component that influences how patients, and the general public can participate in and enrol in DHIs. Some participants appeared to be motivated to enrol because using technology allowed them to swiftly and readily receive the social assistance, they needed to manage their disease. Others preferred digital goods or services because they offered a direct line of communication with their healthcare provider that was always available, and for this reason they joined a DHI. In one instance, participants stated that they enrolled for a DHI because of medical blunders they had suffered as a result of the health service's lack of technology (Saner, H., 2013). They believed that electronic technologies was a smart strategy to lessen errors and enhance the calibre of their medical services and information. Additionally, technology that was computerised and united with other programmes and gadgets tended to promote enrolment because users thought it was faster and simpler to use. Others, on the other hand, disliked how impersonal technology was and believed they would obtain poorer care via this type of electronic medium because it could not compensate for the subtleties of human connection. This was crucial for patients who appreciated their beneficial relationship with their clinician because they saw them as an important social support system, particularly when delicate health issues were tangled. As a result, they minded not to

enrol in DHIs and valued their therapeutic relationship with their clinician. Another component of quality that individuals considered was how usable a digital good or service was. Some people refused to utilise a technology if it was too deliberate or challenging to sign up for and use. Some people believed that, depending on the source, health information obtained online can be of poor value and untrustworthy (Alanezi, F., 2020). People wouldn't use some digital products and amenities without the advice of a certified health expert. When patients had virtual sessions with clinicians they had never met physically and were hesitant whether to trust the guidance given, the possibility of identity fraud was another worry. One study's participants saw rude or aggressive performance online, which prevented them from participating in and enrolling in the DHI, according to the study's findings.

Quality of digital health intervention	Barrier	Facilitator
Quality of digital health information	Poor quality information, Lack of trust in DHI information	Previous negative experience of health services without DHI
Quality of digital health interaction	Impersonal DHI (poor quality interaction), Lack of trust in DHI interaction, Digital health interaction can be abusive	Open, honest digital interaction with healthcare provider, Social support from peers online
Usability	Usability of the DHI, Complex registration process via technology	DHI is easy to enrol in and use (automated and integrated)

Table 5.4: Quality of the DHI barriers and facilitators

CHAPTER 6: CONCLUSION

E-health solutions are gradually taking the place of conventional healthcare delivery methods. E-health has to be implemented, and governments, medical professionals, and research organisations in developed and developing nations have noticed this. Many governments have started to create strategies that support the use of e-health at different levels of healthcare institutions. Yet, several underdeveloped nations' healthcare facilities are just beginning to explore the concept of e-health. Its application has not received enough attention. Healthcare professionals only use e-health partially or not at all, despite the joint efforts of funders, foreign partners, and the government to roll out e-health systems. E-health is in very poor and unacceptable condition in public healthcare facilities. In certain nations, central hospitals are the major focus of the e-health systems, leaving out other hospitals. As a result, its development in public hospitals can be considered infantile. This makes it essential to develop policies that encourage the adoption of e-health by public healthcare organisations. The study indicates that a range of influences affects how far an e-health system works.

These include, among other things, government regulations, ICT expertise and infrastructure, money, healthcare facilities, and IT technical assistance. The results also show that implementing e-health systems presents similar difficulties for physicians working in public institutions. If these aspects are taken into account, poor nations have a significant chance of implementing e-health. In the absence of this, they would keep falling overdue in the acceptance of e-health systems in community hospitals.

CHAPTER 7: REFERENCES

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