

## E-Health Implementation in Kenya : Current Position

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### ABSTRACT

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Health care systems face many challenges both in developed and developing countries like Kenya. EHealth, which is the application of ICT, has turned out to be a remedy for most of these problems. In this paper, the researcher looked at what E-health is and why EHealth in Kenya has trailed behind compared to other industries like banking and the education sector. The study was guided by Actor Network Theory (ANT). The researcher used literature review as a methodology for the study. The key EHealth solutions that have been adopted and implemented in Kenya were identified and the status of e-health in Kenya was also identified. The study also looked at the environment provided by Kenya for e-health. Some of the policies put in place for e-health implementation and challenges facing e-health in Kenya were also highlighted. And it was found out that EHealth is still at the infancy stage in the country.

**Keywords :** e-health, Information Communication Technology, implementation, adoption.

### I. INTRODUCTION

Information communication technology has the capability to change the way people work, the way people live. It can promote patient-centered healthcare at a reduced cost and it can change the way information is shared between health professionals and patients. The innovation taking place in information technology is transforming the health system. Kenya is one of the leading countries in Africa that is benefiting from innovation in IT. In this paper, the presentation is on the status of E-health implementation in Kenya.

Different researchers have defined E-health using different theories or models. Therefore, the term E-health has no single definition. E-health is defined as the cost-effective and secure use of information and communications technology (ICT) in support of health and health-related fields, including health services, health surveillance, and health-related literature, education, knowledge, and research [1]. The World Health Organization (WHO) defined E-health as the use of information communication technology (ICT) for health.

## II. RESEARCH PROBLEM

The cost effective and secure use of information technology in health care provides strength and opportunity to fast track the use of Ehealth in the country. However, from various studies, it shows that the rate at which Ehealth adoption and implementation is taking place is low. This therefore leads to the need to inspect current state of EHealth implementation in Kenya.

## III. METHODOLOGY

In this research the study employed the use of literature review, where by published articles and journals related to health were examined, paying attention to those literatures which are related to EHealth implementation process, both challenges and opportunities. Also documents like Kenya national ehealth policy 2016-2030 and Kenya National eHealth Strategy 2011-2017 were also examined.

## IV. Key E-health adopted and implemented in Kenya

Kenya has adopted numerous e-health services among them, mHealth (69%), Health information systems (13%), eLearning (11%), Telemedicine (7%). The first e-health project was adopted and implemented in Kenya in 2001[2] but majority of e-health projects were introduced in 2010 onwards. This cuts across various type of health facilities both private and public facilities with focus being placed on the public health facilities. With regard to mHealth, the study was looking to pinpoint challenges and prospects in MHealth implementation in developing countries and come up with ways to resolve them. Particularly the focus was the implementation process in Kenya. Barriers of Mhealth implementation was taken in consideration as the study was being conducted and solutions were suggested for the various challenges identified.

## V. E-health status in Kenya

Appreciations to the all-inclusive Kenya national e-health policy 2016-2030, where health care and ICT are gradually becoming more interconnected in the country. In this background, communication services and facilities include telemedicine, mobile-health, e-learning, telephone connections, Internet services, intercom or public address systems, local area networks, and computers with the essential equipment [3]. As per the Kenya National e-Health Policy 2016–2030, emphasis has been placed in five main areas; that's: telemedicine, health information systems, information for citizens, mobile health, and e-learning. However, with the frequent modifications in technology, they have stated that it is essential to reexamine the policy to align it with the current emerging technology and health issues [3]. They have also noted that ICT infrastructure is not accessible in all critical parts of the country. As per the policy, it is also eminent that ICT-associated issues are not well pronounced in the investment plans of the health sector in the country and that resources are inadequate for procurement and maintenance of ICT [3]. As per the Kenya National e-Health Policy 2016–2030, they have recommended some actions to be taken, including; all levels of care to be given improved ICT infrastructure; deploy and share out adequate resources for obtaining and maintaining ICT equipment and infrastructure; and health care to adopt technology that will enable patients to conduct some tests by themselves, send the results straight to a medical practitioner and receive a response via the Internet.

From the five listed areas of focus, Mhealth has taken the highest priority, and this favours users for Mhealth as a result of the large coverage of mobile networks in Kenya [4]. It's easier to set up a mobile network as compared to coming up with other ICT systems. The most common feature being used in Mhealth is mobile text messages (SMS), which is

mostly being used by clinicians and service providers [5]. The evaluation that has been done on the use of Mhealth has proved to be effective [6].

Though we have remarkable growth in mobile phone use in Kenya, it does not translate into eHealth accessibility in the country, mostly in remote and semi-arid regions of Kenya. In marginalized areas of Kenya, we have very few e-health projects being implemented [7].

## VI. Supporting background for ehealth in Kenya

Kenya has made a lot of progress in terms of coming up with policies that are key to providing an environment for e-health in the country. Kenya's National eHealth Policy 2016- 2030 and Health Information System Policy 2010-2030, for example, are used to enforce security devices for assembling, storing, and distributing health data [11] [12].

Kenya has provided the highest attainable standards of health care as per the Kenya Constitution 2010 and Vision 2030. The ministry of health has also developed Kenya's health policy 2014-2030 with one of the objectives being designing, developing, and installing ICT infrastructure and software for the administration and delivery of important healthcare [8]. According to Kenya policy 2014-2030, e-health in Kenya is still in its infancy due to economic and technical challenges such as the high cost of e-health systems, the majority of users' lack of ICT knowledge, the country's weak regulatory systems, and the fear of destroying patient secrecy and disclosure [8]. However, the ministry has prioritized the need to come up with and operationalize a comprehensive national EHealth policy that openly outlines the strategic course of ICT use in the health sector [8]. Also, Kenya has provided an alternative source of electrical power, for example, solar and geothermal. The government also has a national ICT policy that promotes the use of ICT in the public, and the Kenya Health Act 2015 recognizes eHealth as a mode of service delivery.

## VII. Ehealth strategy application in Kenya

The Kenyan government has developed an eHealth strategy that is reasonable, well-organized, and able to withstand universal health coverage. The adopted strategy involved different stakeholders. It's facilitating a partnership with the private sector to provide quality healthcare and specialized services. The strategy is making use of the already available national ICT infrastructure and the good policy and legal environment to harness ICT for improved health delivery [9]. The application of the e-health strategy is anticipated to change processes in the sector and assist the country in becoming a center for accessing particular health services and achieve universal coverage by 2030[9].

## VIII. Protection of data policies in Kenya

Kenya has passed all-inclusive data protection legislation, the Data Protection Act of 2019, which was approved by the President of the Republic of Kenya on November 8, 2019. The Act brings into play all-inclusive laws that protect the personal information of individuals [10].

With the increased internet penetration, it's easier for data to cross borders because of the increased use of social media and several digital information platforms. So, it's important to ensure that data is protected, processed and used for the right purpose [10]. Below are some of the policies or strategies enacted in Kenya.

POLICY/STRATEGY/RULE	ROLE/PURPOSE
The Constitution of Kenya, 2010	It has right to information
Kenya National eHealth Policy 2016 – 2030	Adopt user-friendly eHealth platforms for clinical and public health
Health Information System Policy 2010-2030	Enforce security mechanisms for collection, storage

	and dissemination of health data
Health Sector Strategic Plan for Health Information Systems 2009-2014	Data must be handled with confidentiality and security that they deserve
Policy/strategy Key Functions Kenya Health Policy 2014-2030	Develop appropriate system that are available, cheap, suitable to the community
Health Sector ICT Standards and Guidelines- Ministry of Health June 2013	Adhere to cloud computing guidelines-build secure infrastructures offering confidential data protection
Kenya National eHealth Strategy 2011-2017	Protect patient confidentiality and restrict access to authorized persons
Kenya Standards and Guidelines on mHealth Systems April 2017	mHealth platforms have to conform to security, confidentiality and non-repudiation

### IX. Challenges of EHealth in Kenya

EHealth provides a solution to problems in the healthcare sector, though it comes with numerous challenges that hold back successful implementation

of most eHealth systems in Kenya. Some of the limitations include poor infrastructure, low literacy, inadequate technical expertise, unreliable power supply, limited funding, and lack of government involvement in most eHealth projects. up-front investment in e-health systems, Training in eHealth skills is not integrated into medical schools. The strength of Internet connectivity varies widely in Kenya. Taking care of all stakeholders' needs in the system risks overloading it. The projects are heavily donor funded. There may be a need to find ways to blend private and public resources for sustainability.

### X. Conclusion

Just like other developing countries, Kenya is also experiencing technological growth, and gallantly it has moved to adopt and implement EHealth. The adoption of eHealth has impacted how data is generated, processed, stored, and distributed. Its positive effects have been felt, but in Kenya its implementation is still at an infancy stage. The adoption of eHealth in Kenya, if well implemented, will improve health care in Kenya.

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