


# Chapter 7

## Reliability of Performance Factors for Evaluating Electronic Health Information Systems

**Margaret Nagwovuma**  
*Makerere University, Uganda*

**Agnes Nakakawa**  
*Makerere University, Uganda*

**Gilbert Maiga**  
*Makerere University, Uganda*

**Emmanuel Eilu**  
 <https://orcid.org/0000-0002-2482-0535>  
*Uganda Christian University, Uganda*

### ABSTRACT

*This chapter investigates the reliability of performance factors for evaluating electronic health information systems. The chapter posits that assessing information system functions performance like electronic health information systems (EHIS) has been an issue for information systems executives who continue to seek evidence for returns on information technology investments. Apparently, there is no fit-it-all standard performance evaluation approach designed for evaluating EHIS because choosing between indicators is dependent on values and objectives that informed the evaluation. In this chapter, different approaches for information systems performance evaluation and EHIS evaluation were assessed to establish factors that should be incorporated in performance evaluation. Findings reveal that net benefits, quality of system, quality of information, system use, quality of service, organisational factors, personnel factors, user satisfaction can be used as the measurements of the resilience of EHIS.*

DOI: 10.4018/978-1-7998-8915-1.ch007

## **INTRODUCTION**

The International Telecommunication Union (ITU) defines an electronic health system (eHealth) as a computerised medical record used to capture, store, and share information amongst healthcare providers within an organisation, supporting the delivery of healthcare services to patients. Over the decade, there has been a growing number of eHealth initiatives in developing countries, most of which are donor-funded. The presence of ICTs and technological innovations has given health services providers the means to diagnose, prevent disease, treat problems and illnesses, and facilitate the provision of health services. Benefits of eHealth include ease of access to health information, reduction in medical errors, efficiency in healthcare delivery, improvement and support for medical training and research facilitation, and improvement of management and supervision for health services. In addition, eHealth technologies can improve communication between health institutions, medication management and ordering and follow-up and detect patient care and progress. However, it is vital to show that the current growth for eHealth is driven by consumer preferences, technical capabilities, health system policy and economic considerations.

### **ICT in the Health Sector**

eHealth initiatives in developing countries support a wide range of ICT applications ranging from computer-based health systems to mobile health systems supported by e-infrastructures, internet and other worldwide systems of integrated advanced high-performance networking. According to the global survey on eHealth conducted by the WHO in 2015, 57 out of 125 (about 46%) of the low- and middle-income countries have a National Electronic Health (EHR) system (Silvestre, 2018). These EHR systems were set up to improve the quality and efficiency of healthcare in these countries (Schopf et al., 2019). A study by Moucheraud et al. (2017) on the sustainability of health information systems based on a qualitative study in Southern Africa acknowledges the significance of Health information systems in developing countries as central to strong health systems in Malawi, Zambia and Zimbabwe. The study points out the importance of these systems to improve on the following; disease surveillance, quality improvement, program management and strategic use of information. In this study, eHealth initiatives are referred to as Electronic Health Information Systems (EHIS). According to McHaney et al. (2019), these are “electronic systems used by healthcare facilities to collect, store, manage and share patient’s electronic health or medical records for patient care research and quality management”. (Khubone, Tlou, and Mashamba-Thompson, 2020) defines EHIS as

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