A TOGAF based interoperable health information system needs assessment for practitioner–patient interaction

Prosper Tafadzwa Denhere, Ephias Ruhode, Munyaradzi Zhou

Abstract

eHealth systems have been created in most developing countries to facilitate the functioning of healthcare operations and as such various healthcare applications are existing as fragmented silo systems. Such autonomous standalone systems do not communicate through a network thereby making it a challenge to share healthcare data. Therefore, to re-engineer health information systems (HISs) to develop interoperable adaptive enterprise architecture (EA) systems for healthcare, the study aimed to discover and capture healthcare interoperability functional imperatives through understanding the expectations of healthcare practitioners and patients on post-development of an interoperable HIS. Therefore, the study's aim was to determine the HISs interoperability perceived functional expectations by both patients and practitioners in fulfilling their healthcare receipt and provision needs in an integrated healthcare environment, respectively. The Open Group Architecture Framework (TOGAF) was used as the main study framework to guide the classification of the expectations from the HIS by patients and practitioners deriving the needs from the four domains which are, business architecture (BA), application architecture (AA), data architecture (DA), and technical architecture. The study used interviews and questionnaire surveys to collect qualitative and quantitative data respectively. The study used purposive sampling to select interview participants. A total of 19 interviews were conducted with healthcare practitioners. Questionnaires were collected from 71 healthcare practitioners and 143 patients and analyzed quantitatively respectively to understand the most significant needs anticipated in an interoperable HIS. The research targeted age groups of at least 20 years and above. The study discovered that patients and practitioners expect the interoperable healthcare environment to support the acquisition of disease knowledge through healthcare surveillance synergies; create healthcare awareness through coordinated digital interactions; augmentation of healthcare

intelligence for patient-care through the healthcare knowledgebase; allow treatment collaboration by various healthcare practitioners in the healthcare ecosystem and mostly achieving a guaranteed healthcare system security and assurance environment.