

EHR System Development Experiences and Proposal of an Industry Structure Based on openEHR Archetypes

KANO Sadahiko
Waseda University

Abstract

The openEHR architecture is flexible, adaptable, and powerful enough to enable separation of the clinical knowledge from the IT software technologies. Electronic health records (EHR) software developers can easily implement EHR systems within 10 months by adapting existing archetypes (condensed clinical knowledge) which are available from the Internet. A few systems were prototyped using openEHR architecture at the Graduate School of Global Information and Telecommunication Studies of Waseda University proven successful with validation from the professionals of each domain applications. These prototype systems include:

- EHR system for recording the Yearly Metabolic Health Check in Japan
- EHR system for Emergency Medical Service in Indonesia
- EHR system for Tuberculosis Data Collection in Cambodia
- EHR system for Maternal and Child Health Center in Cambodia

Developing EHR systems based on the use of the archetypes (openEHR and ISO13606) is a promising solution for the currently fragmented EHR systems which are: a) extremely expensive to be widely used in small to medium hospitals and clinics, and b) no interoperability among clinical institutions.

With the positive and effective outcome of using openEHR in various applications, this paper will explore and propose a new industry structure for EHR system development as follow:

- Healthcare Experts
 - Health Service Providers – provide healthcare to patients (e.g., hospitals, clinics, pharmacies, laboratories, health research institutions, etc.)
 - Healthcare Specialists – specialize identification and definition of open source standardized archetypes
- IT Software Experts
 - EHR System Integrators – specialize EHR system and integrate customized software package
 - Application Domain Specialists – specialize healthcare specific services (e.g., cardiology, neurosurgery, primary care, billing, health insurance, etc.)

The layered industry structure will enable division of responsibility and provide interface between healthcare experts and IT software technologists. With the open source standardized archetypes, the proposed approach will lead to an industry EHR eco-system in which participants can cooperate and compete and yet provide others to enjoy the advancement of medical and health sciences to promote quality of life through better healthcare environment for each country.