Chapter 24
Open Source Software:
A Key Component of E-Health in Developing Nations

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ABSTRACT

The global burden of disease falls most heavily on people in developing countries. Few resources for healthcare, geographical and infrastructure issues, lack of trained staff, language and cultural diversity and political instability all affect the ability of health providers to support effective and efficient healthcare. Health information systems are a key aspect of improving healthcare, but existing systems are often expensive and unsuitable. Open source software appears to be a promising avenue for quickly and cheaply introducing health information systems that are appropriate for developing nations. This article describes some aspects of open source e-health software that are particularly relevant to developing nations, issues and problems that may arise and suggests some future areas for research and action. Suggestions for critical success factors are included. Much of the discussion will be related to a case study of a training and e-health project, currently running in the Himalayan kingdom of Bhutan.

ORGANIZATION OF THIS ARTICLE

This article is organized around a number of sections. The introduction outlines the rationale of the article and deals with some aspects of open source software (OSS) that make it attractive for software development in the health domain for low-income countries. The methodology section then introduces the framework of assessment that is being used. The majority of this article describes a case study of a project run by the authors in Bhutan in the obstetric domain. Critical success factors for such a project are then analyzed and some conclusions are drawn. The discussion covers some of the issues that have arisen from this experience, and articulates some lessons learned.

INTRODUCTION

This project deals with the intersection of a number of domains, as shown in Figure 1.

E-Health

E-health has become a popular term for the transformation of healthcare that has occurred through the use of electronic communications, in a conscious imitation of "e-business." E-health encompasses more than the traditional electronic health record. It involves the use of information and communications technologies in the widest sense, including telemedicine, Web-based health and mobile devices for healthcare. A definition has been proposed, after comprehensive analysis, in Pagliari et al. (2005):

E-health is an emerging field of medical informatics, referring to the organization and delivery of health services and information using the Internet and related technologies. In a broader sense, the term characterizes not only a technical development, but also a new way of working, an attitude, and a commitment for networked, global thinking, to improve healthcare locally, regionally, and worldwide by using information and communication technology.

This definition is actually adapted from a previous one in an editorial which discussed the scope of "e-health" (Eysenbach, 2001). The globalized and networked aspects are particularly important in our case study—the emphasis is on communication and collaboration rather than distance

Figure 1. Research domains
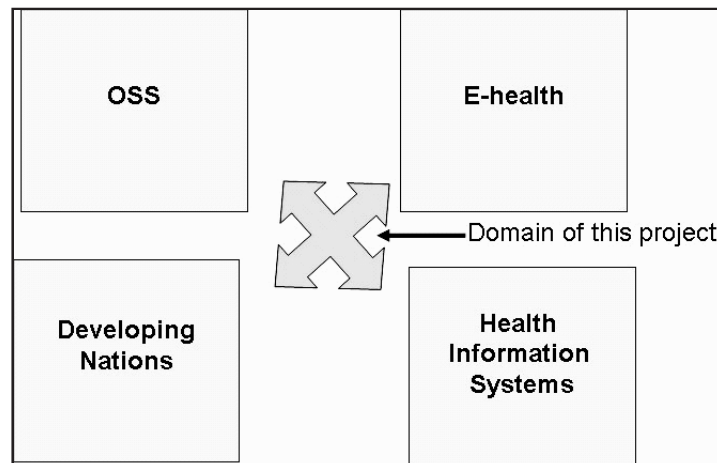
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