The Core Governmental Perspectives of E-Health

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INTRODUCTION

Public healthcare is facing huge future challenges in order to deal with rising costs, growing demands of customers, information flow, demographic changes, and aging population. The healthcare service sector can be seen as an information intensive area during an era of innovation and information technology (cf. Bellamy & Taylor, 1998). According to McLaughlin, Rosen, Skinner, and Webster (1999), it is common to assume that technological interventions are almost inevitable and it is humans' duty, at least to some extent, to follow the suggested development. In the organizational level of public healthcare, high expectations about the technology and its new possibilities are introduced. Additionally, the customers can seek support and advice for their healthcare needs from thousands online connections at any time of a day (e.g., Silber, 2003). The European Commission (2004) states how "eHealth offers European citizens important opportunities for improved access to better health systems" (p. 22). This trend has implications to human beings and governments.

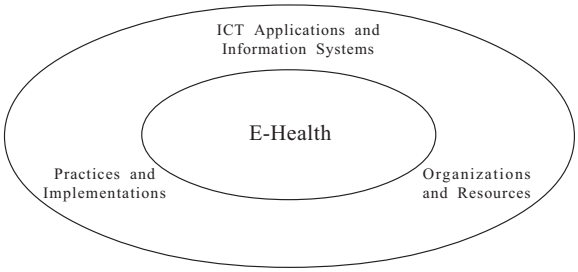
The electronic health services produced by the information and communication technology (ICT) belong to the era of e-government. The e-government can be seen as an electronic exchange of information and services between different actors (cf. Mälkiä, Anttiroiko, & Savolainen, 2004; Oliver & Sanders, 2004). The development of information society throughout the last decades has brought up possibilities to adapt, modify, and reorganize healthcare practices and services (e.g., Gallivan, 2001; Turner, Fraser, Muir Grau, & Toth, 2002). The ICT has been used as a tool to reorganize best organizational practices, information management, and government. The ICT has also given a possibility to produce tailored healthcare services and to gain improvements in cost-effectiveness, access, safety, and quality of public healthcare services (Bates et al., 2001; Whitten et al., 2002).

In the future, the healthcare organizations in public sectors will confront many challenges by means of the ICT implementation. This situation is considered here both as the function of healthcare organizations and as the supply of knowledge intensive public health services. The current viewpoint presumes a paradigm that is structured on the basis of specific conceptualization. The purpose of this article is to conceptualize the complex topic of e-health from the governmental viewpoint and to clarify the best organizational practices. Special notation is also given for human resources, information management and the ICT implementation. Finally, some future trends are shortly discussed.

BACKGROUND

Experts define e-health differently and the term has some overlapping conceptual views. The term "e-health" is derived from the term "electronic commerce" (i.e., e-commerce), which was introduced in the mid-1990s to reflect the growing commercial use of the Internet. The e-health (cf. Eysenbach, 2001; European Commission, 2004; Silber, 2003), when recognized as a governmental issue, refers to the use of ICT applications or information systems to improve or enable health and healthcare services. Now it also refers to the main organizational and resource based factors before, during, and after an introduction of ICT. Finally, the term refers to best practices and implementations produced or needed to confront and manage with the ICT-based healthcare. The e-health concerns customers, patients, professionals, but additionally the whole primary healthcare, home care, and organizations like hospitals. It engages the terms like telemedicine, telematics, telehealth, medical and health informatics, interactive health communication, and so forth. To conclude, the e-health as a governmental concept give good reason for to describe the abovementioned combination by the means of three conceptual dimensions.

Figure 1. E-health concept according to the core governmental dimensions



CONCEPTUAL DIMENSIONS OF THE E-HEALTH PARADIGM: THE GOVERNMENTAL PERSPECTIVE

In the first dimension, the e-health connection can be found by referring to ICT applications and information systems in healthcare and in supporting functions (cf. McGinnis, 1997; Turban, McLean, & Wetherbe, 1999). In many cases, this has included telemedicine and health informatics as patients have been informed, examined and treated over distance by using appropriate applications (e.g., Hailey, Roine, & Ohinmaa, 2002). The e-health is seen now through issues like information system, standardization, and system quality (e.g., digital referrals, data security, access, and privacy, etc.). Also, the usability or user-friendly orientation should be placed under a close scrutiny. Hence, the applications and systems require understanding about technology and its effect on organizational structures, processes, and actors.

Secondly, it is considered that by e-health it is possible to renew and to produce more effective healthcare practices and implementations. Now the e-health is studied typically in conjunction with key processes like the management of ICT applications and information (Plsek & Wilson, 2001; Tachakra, El Habashy, & Dawood, 2001; Walker & Whetton, 2002) and by the means of best practices or ICT implementations in healthcare (e.g., Paré & Elam, 1999). The introduction of technology may support or change operational practices in organizations. The operational aspect engages also electronic healthcare services as the e-health services are multileveled. Services represent, for example, the possibility of consumers to interact online, the possibilities for institution-to-institution data transmissions, and the possibilities for peer-to-peer communication of consumers. However, the overall question is about the best practices and implementations in order to successfully complete the e-health in service sector.

As third dimension, the organization and its various resources (e.g., economical and humanistic) have been under intensive study. For example, Parente and Dunbar (2001) found that hospitals with integrated information systems have higher total and operating financial margins than those without these systems. Whitten et al. (2002) did a systematic review and found no good evidence that telemedicine is cost-effective. Additionally, the e-health can be seen in terms of human resources. This is the case, for example, with the acceptance of ICT-based organizational solutions (Mathieson, Peacock, & Chin, 2001) and with the professional human resources (e.g., Syväjärvi, Stenvall, Harisalo, & Jurvansuu, 2005). The interest has also been in health services and in policy to provide a diverse range of services (e.g., Silber, 2003; Turner et al., 2002). Both customers and professionals can be seen as key actors, because they use applications and participate in electronic service interaction (e.g., Hailey et al., 2002).

Hence, the e-health from governmental perspective can be defined as health service and information delivered through different technologies. Applications of the ICT and information systems support health, healthcare, and health services. In case of current governmental perspective, the dimension of ICT applications and information systems concentrates mainly on technological system, standardization, and usability issues. The ICT applications can be seen as architectures to understand and plan information system components in the form of an organizational infrastructure. The most crucial questions are the standardization of information systems and their usability in organizational environment.

It seems worldwide that open technical standards to provide e-health are lacking. McGinnis (1997) studied health informatics and stated the critical importance of data exchange standards for communication between healthcare providers. The usability instead is traditionally defined (cf. Isomäki, 2002) by attributes like learnability, efficiency, memorability, errors and satisfaction. However, without neglecting the human factors like learning, sensation, and perception, memory, problem solving, and so forth. An optimal system should be easy to learn, it should be efficient to use, the system should be easy to remember, the error rate with the system should be low, and the system should be pleasant to use. Corresponding arguments of usability and human-centered design are also offered by ISO quality standards.

Second governmental dimension of e-health was about practices and implementations. E-health as practices and implementations emphasizes the need to combine knowledge and the use of ICT in various ways. In this article, the management as an organizational process has the viewpoint of ICT-based e-health. McLaughlin et al. (1999)