

Chapter 15

Public Representation of Ubiquitous ICT Applications in the Outpatient Health Sector

Stephanie Moser

University of Bern, Switzerland

Susanne Elisabeth Bruppacher

University of Freiburg Regina Mundi, Switzerland

Frederic de Simoni

University of Bern, Switzerland

ABSTRACT

ICT advances will bring a new generation of ubiquitous applications, opening up new possibilities for the health sector. However, the social impacts of this trend have largely remained unexplored. This study investigates the public representation of future ICT applications in the outpatient health sector in terms of their social acceptance. Mental models of ICT applications were elicited from inhabitants of Berlin, Germany, by means of qualitative interviews. The findings revealed that the interviewees felt ambivalent about anticipated changes; only if ICT use were to be voluntary and restricted to single applications and trustworthy institutions did they expect individual benefits. Concerns about data transmission to unauthorized third parties and widespread technological dissemination forcing compulsory participation led people to feel averse to such technology. Implications for potential implementation of future ICT applications in the outpatient health sector are discussed.

INTRODUCTION

Over the last few decades, advances in information and communication technologies (ICT) have been changing many aspects of modern society, including the health sector. New ICT applications, mostly subsumed under the term ‘e-health’, have

facilitated access to and exchange of health-related information. The diffusion of ICT into the health sector has led to, for example, changing operation processes, new forms of patient information-seeking behaviors, and changes in physician-patient relationships (Andreassen, Trondsen, Kummer-vold, Gammon, & Hjortdahl, 2006; Kivits, 2006;

DOI: 10.4018/978-1-4666-1954-8.ch015

Richardson, 2003; Tautz, 2002). Moreover, these changes have attracted growing scientific interest; since the turn of the millennium, the number of publications related to e-health has increased markedly (Ahern, 2007; Curry, 2007).

However, most of this research has concentrated on current ICT applications mainly based on the Internet. Only rarely has attention been paid to present and prospective technological changes, as well as to the social impacts that might accompany these changes. The enhanced power of microchips and storage devices allow ICT components to be smaller and cheaper (Mattern, 2005), and to be integrated into so-called 'smart' everyday objects. Such 'smart objects' can be identified, localized and linked to associated data records and broader sensor networks. Thereby, they are enabled to interactively explore their environment (e.g., collect and deliver environmental data such as temperature, location and speed) and to respond to other smart things or human beings. This vision of invisible, smart computers assisting individuals' everyday tasks almost anywhere and at any time, has been called 'ubiquitous computing' (Weiser, 1991).

Ubiquitous ICT offer both the in- and outpatient health sector a new application spectrum. In the outpatient health sector, i.e., in non-clinical and non-institutional care, this application spectrum ranges from smart consumer-goods packaging that might allow for diet monitoring, to clothes that might attend to physical training by recording bodily indicators such as duration and intensity, to portable devices that register bodily indicators, such as blood pressure, glucose level and substance use. Sensor networks may allow for these registered indicators to be automatically transmitted to a patient's electronic health record, with the option to generate warning signals to the patient (or directly to the corresponding medical service) if there is significant deviation from normal values. As a feature of 'smart homes', such ubiquitous ICT applications may compensate for handicaps and support convalescence or

aging (Brown, Hine, Sixsmith, & Garner, 2004; Dengler, Awad, & Dessler, 2007; IAF, 2006; The Royal Society, 2006).

Expected benefits from ubiquitous ICT applications in the outpatient health sector may be threefold. First, convenience and autonomy for those in need of care may increase, e.g., by enabling them to stay longer or come back earlier to their own home (Brown et al., 2004). Second, ubiquitous ICT may enhance efficiency in health administration and health care and thus help to reduce health costs (Hillestad et al., 2005; Tan, 2005). And third, ubiquitous ICT applications are assumed to include several features which may enhance individual preventive health behavior; they are accessible independently of time and location, and allow for a widespread dissemination of general information as well as for tailored and personalized information, feedback and interactivity (Curry, 2007; Evers, Prochaska, Driskell, Cummins, & Velicer, 2003; Fogg, 2003; Neuhauser & Kreps, 2003). Since modifiable risk factors such as smoking, alcohol or substance use, lack of physical activity, or inappropriate nutrition, are important causes of premature mortality (Mokdad, Marks, Stroup, & Gerberding, 2004), there is a growing interest in this third, preventive application of ubiquitous ICT to support and monitor health-related behavioral changes.

However, in order to establish efficient ubiquitous ICT services in the outpatient health sector, public acceptance is needed. First of all, general public agreement is needed in order to set up, convert and interconnect the health services on an electronic basis. And secondly, users have to be able and willing to apply the technology in the intended way. Public opposition could defer, or even prevent, ubiquitous ICT implementation, and incomplete or inaccurate use may obviate its potentials, or even create yet unknown risks (The Royal Society, 2006).

This study addresses the potential long-term impacts of ubiquitous ICT in the outpatient health sector from a user perspective. Its aim was to ex-

19 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/public-representation-ubiquitous-ict-applications/68282

Related Content

AI-Powered Thermal Imaging for Early Detection of Down Syndrome in Children

P. Vidhya and S. Silvia Priscila (2026). *AI in Health and Human-Centric Systems* (pp. 21-48).

www.irma-international.org/chapter/ai-powered-thermal-imaging-for-early-detection-of-down-syndrome-in-children/389276

An Adaptive User Interface for Genealogical Document Transcription

Enric Mayol (2011). *Handbook of Research on Technologies and Cultural Heritage: Applications and Environments* (pp. 306-324).

www.irma-international.org/chapter/adaptative-user-interface-genealogical-document/50276

Survival in the Digital Era: A Digital Competence-Based Multi-Case Study in the Canadian SME Clothing Industry

Dragos Vieru and Simon Bourdeau (2017). *International Journal of Social and Organizational Dynamics in IT* (pp. 17-34).

www.irma-international.org/article/survival-in-the-digital-era/186755

Human Capital and Business Performance: An Empirical Approach Using Structural Equation Modeling

Xhevrie Mamaqi and Jesus Miguel (2019). *Human Performance Technology: Concepts, Methodologies, Tools, and Applications* (pp. 617-629).

www.irma-international.org/chapter/human-capital-and-business-performance/226584

Exploring User Acceptance Determinants of COVID-19-Tracing Apps to Manage the Pandemic

Nicolai Krüger, Alina Behne, Jan Heinrich Beinke, Agnis Stibe and Frank Teuteberg (2022). *International Journal of Technology and Human Interaction* (pp. 1-27).

www.irma-international.org/article/exploring-user-acceptance-determinants-of-covid-19-tracing-apps-to-manage-the-pandemic/293197