

# U-Healthcare Development with the use of IT Convergence Mobility

Regin Joy Conejar<sup>1</sup> and Haeng-Kon Kim<sup>1\*</sup>

<sup>1</sup>School of Information Technology, Catholic University of Daegu, Korea  
regin@cu.ac.kr, <sup>\*</sup>hangkon@cu.ac.kr

**Abstract.** IT-medical convergence technologies including u-health, which is the health management anytime and anywhere, life-care, which leads healthy life by management of daily life, point-of-care, which makes on-site diagnostic, genetic analysis, which predicts genetic diseases, IT based new diagnosis and treatment system and components of medical devices.

**Keywords:** IT Convergence, U-Healthcare, Medical management, Medical Convergence, Convergence Model

## 1. Introduction

U-Healthcare is expected to have ripple effects on economy and industry by reducing medical costs and socioeconomic costs as well as on society and policy by expanding public health services and preventive care management.

With an ICT (Information Communication Technology) paradigm shift toward ubiquitous technology, homes and cities we are living in are transforming into U-Home (Ubiquitous Home) and U-City (Ubiquitous City); and our surroundings and objects including administration, transportation, environment, education, culture, tourism, healthcare, and medicine are evolving with the aid of ubiquitous technology [1, 2]. This ubiquitous paradigm applied to various fields is introduced to the healthcare and medical sector in the name of U-Healthcare as well. The technologies related with information communication are progressing continuously. These technologies are converged with different industries rapidly in today. Therefore, we commonly call the modern society as “digital convergence”. Digital convergence includes three core factors such as mobile, smart, cloud. Smart is receiving spotlight as convergence is deepening.

## 2 Background of the Study

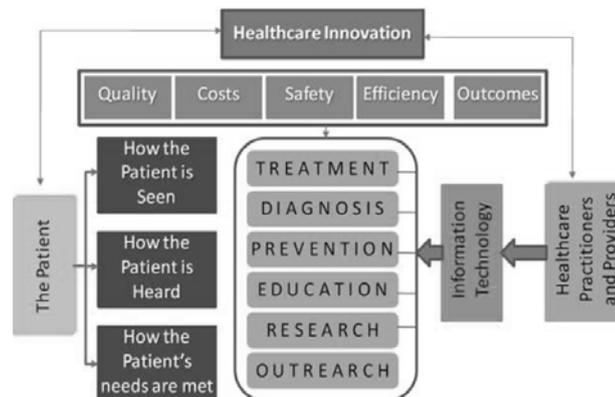
The medical industry will prosper the flower called smart healthcare due to sensing technology and fruits called smart grid will be made by power network and sensing of devices. In recent years, interests in health have been increased according to changes in

lifestyle and environment. Also, interest in U-Healthcare, which monitors one's health and provides specialized healthcare services whenever and whatever it is needed, has increased. U-Healthcare services provide medical and healthcare services continuously and generally for healthy life of customers.

## 2.1. Innovation in U-Healthcare

Innovation in healthcare continues to be a driving force in the quest to balance cost containment and health care quality. Healthcare innovation can be defined as the introduction of a new concept, idea, service, process, or product aimed at improving treatment, diagnosis, education, outreach, prevention and research, and with the long term goals of improving quality, safety, outcomes, efficiency and costs [5].

The conceptual framework for innovation in healthcare is as shown in Fig. 1. The healthcare organizations serve six distinct purposes – treatment, diagnosis, prevention, education, research and outreach. In serving these purposes, healthcare organizations must manage quality, costs, safety, efficiency and outcomes. At the very core of healthcare innovation are the needs of patients and the healthcare providers who deliver care. Healthcare innovation focuses mainly on three areas– a) how the patient is seen, b) how the patient is heard, and c) how the patient's needs are met.



**Fig. 1.** A Conceptual Framework for Innovation in Healthcare [5]

## 2.2. Healthcare Engineering

The use of systems-engineering tools leads to innovation in health care. These engineering-information technology based tools have been used in a wide variety of applications to achieve major improvements in the quality, efficiency, safety or customer-centeredness of processes, products, and services in various manufacturing and services' industries. However, the healthcare sector as a whole has been very slow

to embrace them, even though they have been shown to yield valuable returns to the growing number of health care organizations (Fone et al.,)

### 2.3. U-Healthcare Digital Convergence

Digital convergence is a certainty of future. Among hoards of other benefits that it offers one of the striking features of this technology is lower storage cost of digital data. Also, it offers enhanced quality of digital content and an assurance of quality improvements in future along with low cost and high bandwidth transmission of digital content between any two places.

In the age of digital convergence, integrated media will be useful to engage consumers with sufficient opportunities to strengthen their know-how of healthcare and create awareness about risk, cost and benefits of specific procedures.

## 3 A Conceptual Model for Smart IT Convergence Mobility for U-Healthcare

One of the key benefits of smart medical tools is fostering a sense of patient efficacy. For medical professionals, more data is useful when helping a patient make informed health care decisions. Using smart phone medical application that checks other symptoms provides physicians with a wealth of clinically useful information. This is why medical monitoring application is one of the most important technological tools to promote 'self-care' and prevention of disease.

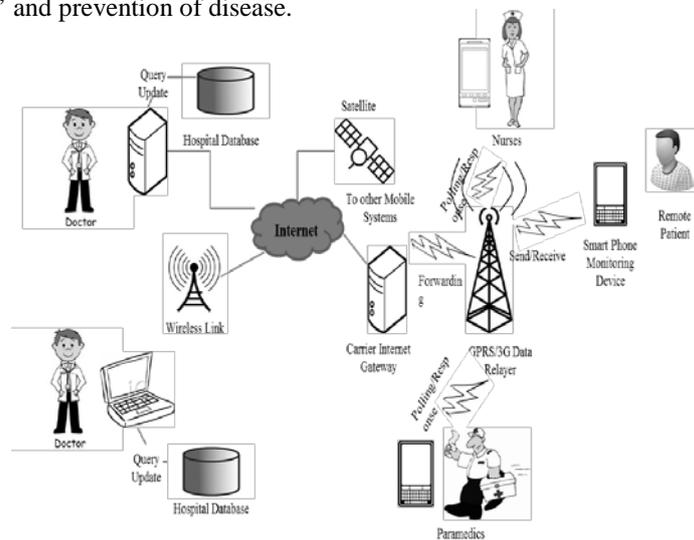


Fig. 2. IT Convergence Mobility for U-Healthcare

Smart mobile can perform actions such as communicating with other devices, storing information, and retrieving online documents shown in Fig 2. If we consider a typical mobile user for example, an agent might operate on their smart phone or PDA, monitor the user's behavior in an autonomous fashion, react to any perceived changes in the user's status, and proactively anticipate what the user's future behavior will be.

## 4 Conclusion

Advancements in ubiquitous technology ushers us into a new world. This study is expected to help ensure an excellent workforce and new technologies in the healthcare sector using smart phones, and to help reduce medical expenses by improving the health of citizens. Smart mobile have been rapidly penetrating into the everyday life with various applications. With the advancement of communication and computing technologies, the smart devices are evolving toward the convergence with other industry sector. Healthcare is one such beneficiaries by the IT convergence.

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