

## **Utilization of Online Clinic, AI, and Robot in the Digital Transformation of Telemedicine**

**Masatsugu Tsuji**

Faculty of Economics, Kobe International University, Japan, mtsuji@kobe-kui.ac.jp

### **Extended Abstract**

#### **Abstract**

New developments have been emerging in telemedicine in accordance with the development of ICTs. ICTs make it much easier to collect, accumulate, and share health and medical data among medical professionals and patients than ever before. Smartphones and sensors to measure and transmit health data by patients at home to clinic became available among patients and clinics. These are termed by online clinic and the new guideline in Japan on online clinic was issued in 2018, which was recognized as parts of implementing diagnosis, medical question, and dosage. Using online clinic, medical and health data of patients at home can be easily collected, utilized for treatment, and shared among not only medical institutions but also nursing homes and pharmacies. The utilization of health and medical data can be considered in the process of collecting, accumulating, sharing, analyzing, and applying for implementation. This paper aims to examine the followings: (i) how and in what purpose these data will be obtained and utilized; and (ii) what policies promote online clinic in the age of AI and digital transformation to solve problems such as an increase in medical expenditures related to chronic diseases, reduction of medical resources in less populated regions, overwork of medical staff, and so on. In the industry and business, the utilization of ICT such as cloud computing, big data, AI has been proceeding in a much wider and speedy way and creating new innovations aiming at Industry 4.0. Why medicine is lagged behind? When will Telemedicine 3.0 be realized?

#### **Introduction**

The persistent advancement of innovation that makes ready towards the extension of associations through the web and the development of the ability to process information has made more prominent prospects of the improvement of the worldwide wellbeing industry particularly telemedicine. Data sharing, information investigation, web of things, wearables, cloud innovation, and mechanical technology are right now ascending as a portion of the drivers for development for the following decade. With these perspectives directing towards the reactions to the huge measure of information utilized in medicinal services, the necessity of steady exactness in complex strategies, and expanding request in administration for human services, it becomes clear that the utilization of man-made brainpower (AI) has a significant job in the activity and execution of the innovation. There is a need to build up the productivity in allotting time and conveying human services needs and tasks via mechanizing medical clinic coordinations. Telemedicine is the use of moving clinical data in through intuitive computerized correspondence to perform counsels, clinical assessments and systems, and clinical expert coordinated efforts a ways off. It is regularly featured that the telemedicine is an "open and continually developing science as it joins new headways in innovation and reacts and adjusts to the changing wellbeing needs and settings of social orders". The primary destinations of telemedicine are overcoming any barrier of openness and correspondence in the clinical field diminishing deferrals and the cost coordinations. Remote innovation applied to sensors and application to contextual analyses identified with electronic patient records and home checking and has been creating during the previous decade, remembering reads for the cost-adequacy and acknowledgment of the clinical network to this innovation. It is principally settled to offer types of assistance utilizing data and correspondence advancements (ICT) to four fields to be specific teleradiology, which transmits computerized radiological pictures (for example X-beam pictures) starting with one area then onto the next, telepathology, which transmits digitized obsessive outcomes, teledermatology, which transmits clinical data concerning skin conditions, and telepsychiatry, for mental assessments as well as discussion by means of video and communication, which are all for conference and understanding through video and telepresence. Be that as it may, with the developing information in computerized reasoning and information examination can additionally grow its extension and capacities. It is the goal of telemedicine to build efficiency and arrange aptitude, information, and labor dependent on request and earnestness while giving. This paper will talk about the significance and both the current and conceivable future utilization of different ideas of AI to the destinations of telemedicine.

Every idea and application to be talked about will be ordered agreeing these goals to be specific patient checking, human services data innovation, savvy PC determination, reenactment and preparing frameworks, and data investigation and joint effort.

Improving quality existence of patients has consistently been the primary focal point of care suppliers and telehealth is one such imaginative revelation. It permits patients to have a quick recuperation and satisfy the neglected needs of patients. Telehealth was once thought as a modern arrangement, yet now it assumes a noteworthy job in the social insurance industry as individuals everywhere throughout the world search for quality, solace, and comfort. Probably the best part of telehealth is that it altogether diminishes travel time, particularly for patients living in remote zones. The unstable development of telehealth[5] is seen by the expanding utilization of wearable wellbeing following and patient wellbeing observing gadgets. For example, pulse is the most broadly utilized wearable gadgets among seniors, in certainty these gadgets are coordinated with telehealth projects to convey viable patient consideration. Telehealth has changed the current worldview of care by permitting improved human services access, for example, concentrated consideration and clinical administrations to remote patients.

### **Biography**

Professor Masatsugu Tsuji Ph.D Faculty of Economics, Kobe International University, and Professor Emeritus of Osaka University. Received B.A. from Kyoto University in 1965; M.A. from Osaka University in 1967; and Ph.D. in Economics from Stanford University, US. in 1976. He is currently professor of Kobe International University. His serves include visiting professors of Carnegie Mellon University, US and National Cheng Kung University, Taiwan; Board of Director, International Telecommunications Society; Editorial Board, Journal of International Society of Telemedicine and eHealth, and Smart Homecare Technology and TeleHealth; coordinator of e-Health Economics, ISfTeH. He has over 200 publications. Current research focuses on economic evaluation of telemedicine and e-Health using econometric methods, and the applications of ICT such as 5G mobile, AI and robot for innovation in medicine, telecommunications, and other industry. He has been consulting the Japanese Government and local governments for implementing telemedicine projects.