

Chapter 24

The Potential of Crowdsourcing in the Health Care Industry

Kaushik Ghosh

Lamar University, USA

Kabir C. Sen

Lamar University, USA

ABSTRACT

Crowdsourcing has immense potential in the health care industry as it can tap into a vast global pool of knowledge to solve a wide variety of health care problems. This chapter first categorizes the different problems in the health care industry. It then describes some existing health care services and also discusses the future challenges that a typical crowdsourcing service could face. The chapter emphasizes the potential of crowdsourcing to disrupt old ideas and introduce new ones as well as to make a significant improvement in the social quality for different population groups.

INTRODUCTION

The twenty first century has seen the advent of technical advances in storage, transmission and analysis of information. This has had a profound impact on the field of medicine. However, notwithstanding these advances, various obstacles remain in the world regarding the improvement of human lives through the provision of better health care. The obstacles emanate from the demand (i.e., the problem) as well as the supply (i.e., the solution) side. In some cases, the nature of the problems might not have been correctly identified. In others, a solution to a problem could be known only to a small niche of the global population. Thus, from the demand perspective, the variety of health care issues can range from the quest for a cure for a rare illness to the inability to successfully implement verifiable preventive measures for a disease that affects particular pockets of the global population. Alternatively, from the supply perspective, the approach to a host of health issues might vary because of fundamental differences in both medical philosophies and organizational policies.

In many instances, effective solutions to health care problems are lacking because of inadequate global knowledge about the particular disease. Alternatively, in other cases, a solution might exist but

DOI: 10.4018/978-1-5225-0920-2.ch024

the relevant knowledge about it might only be available to selected pockets of the global medical community. Sometimes, the barriers to the transfer of knowledge might have their root causes in ignorance or prejudice about the initiator of the cure or solution. However, the advent of information technology has now provided an opportunity for individuals located at different geographical locations to collaborate on solutions to various problems. These crowdsourcing projects now have the potential to extract the “wisdom of crowds” for tackling problems which previously could not be solved by a group of experts (Surowiecki 2014). Anecdotal evidence suggests that crowdsourcing has achieved some success in providing solutions for a rare medical disease (Arnold 2014). This chapter discusses crowdsourcing’s potential to solve medical problems by designing a framework to evaluate its promises and also suggest recommended future paths of actions.

The chapter consists of five sections. The first section builds on a phrase used by former US Defense Secretary, Mr. Donald Rumsfeld, in the context of Iraq, to devise a classification scheme for all possible medical issues likely to be faced by health care professionals. This categorization provides a convenient way to evaluate the myriad health care problems affecting the global population. The next section summarizes the relevant dimensions that differentiate the various medical approaches to health care problems. These are rooted in either different medical philosophies, governmental approaches, ingredients used, etc. The third section compares some existing popular medical crowdsourcing sites. The fourth section discusses the various challenges facing the dissemination of knowledge in the health care industry. The section suggests solutions for overcoming these problems related to these knowledge-based deficiencies. The recommendations include expanding the crowd and building appropriate algorithms that effectively identify the most efficient medical solutions. The final section concludes the chapter with a discussion of crowdsourcing’s potential to evolve beyond the initial stages and be a force for positive changes for the quality of life around the world as well as an engine for disruptive innovation.

A CLASSIFICATION OF HEALTH CARE INDUSTRY CHALLENGES

In February 2002, the then US Defense Secretary, Donald Rumsfeld (2002) used the terms the “known knowns,” the “known unknowns” and the “unknown unknowns” when discussing the situation in Iraq. Later, philosopher Slavoj Zizek (2004) added another term, the “unknown knowns” as a fourth classification. While, both Rumsfeld and Zizek used the terms to discuss the US involvement in Iraq, this classification scheme is used as a springboard in our chapter to classify the myriad problems facing the global health care industry. These four classes allow us to evaluate the different types of challenges facing the health care industry and help evaluate how modern methods of knowledge sharing in crowdsourcing can provide solutions to these problems.

1. **The “Known Knowns”:** “Known knowns” describe situations in which the solutions to a common health problem or issue might already be known. However, the applications of the solution to different situations might come up against myriad obstacles. Examples include the presence of malaria in geographic areas, which are adjacent to places from which the disease has been eradicated. Similarly, while one government can provide better health care to its citizens, another with more investments might be lagging behind on most measures. In some instances, an effective solution is available (hence the term “known knowns”), but unfortunately the results cannot be easily duplicated for different regions or populations. Sometimes, the answers might lie in adjusting the

8 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/the-potential-of-crowdsourcing-in-the-health-care-industry/163843

Related Content

A New Hybrid Algorithm based on Watershed Method, Confidence Connected Thresholding and Region Merging as Preprocessing for Statistical Classification of General Medical Images

Gerald Zwettler and Werner Backfrieder (2013). *International Journal of Privacy and Health Information Management* (pp. 38-56).

www.irma-international.org/article/a-new-hybrid-algorithm-based-on-watershed-method-confidence-connected-thresholding-and-region-merging-as-preprocessing-for-statistical-classification-of-general-medical-images/102629

From Non-Invasive Hemodynamic Measurements towards Patient-Specific Cardiovascular Diagnosis

Stefan Bernhard, Kristine Al Zoukhrani and Christof Schütte (2012). *Quality Assurance in Healthcare Service Delivery, Nursing and Personalized Medicine: Technologies and Processes* (pp. 1-25).

www.irma-international.org/chapter/non-invasive-hemodynamic-measurements-towards/58724

Designing Pervasive Healthcare Applications in the Home

Toshiyo Tamura, Isao Mizukura, Yutaka Kimura and Haruyuki Tatsumi (2010). *Pervasive and Smart Technologies for Healthcare: Ubiquitous Methodologies and Tools* (pp. 282-294).

www.irma-international.org/chapter/designing-pervasive-healthcare-applications-home/42384

Evaluation of Human Action: Foucault's Power/Knowledge Corollary

Nilmini Wickramasinghe (2010). *Redesigning Innovative Healthcare Operation and the Role of Knowledge Management* (pp. 106-124).

www.irma-international.org/chapter/evaluation-human-action/36520

Detection of Antibiotic Constituent in *Aspergillus flavus* Using Quantum Convolutional Neural Network

Sannidhan M. S., Jason Elroy Martis, Ramesh Sunder Nayak, Sunil Kumar Aithal and Sudeepa K. B. (2023). *International Journal of E-Health and Medical Communications* (pp. 1-26).

www.irma-international.org/article/detection-of-antibiotic-constituent-in-aspergillus-flavus-using-quantum-convolutional-neural-network/321150