Conceptual View on Healthcare Digitalization: An Extended Thematic Analysis

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ABSTRACT

In this article, the authors focused on research in healthcare digitalization with conjunction to modern technologies, such as Big Data and analytics. To achieve a proper direction at start of the consequent research the authors used the mixed mode of quantitative and qualitative analysis by combination of literature investigation and extended thematic analysis. In the extended thematic analysis of the data corpus the processing of the fourteen steps activity helped to create mind mappings, to recognize the most relevant initial codes, such as “Service”, “ICT/IT”, and “Process”, and to depict the associative relationship of sub-codes to the initial codes for better visibility of results. The composition of forty logical textual sequences of healthcare digitalization themes in discussion confirmed the relevance of initial codes and representativeness to healthcare digitalization. The findings are a step towards enabling the healthcare services innovation, should contribute in higher quality of life, and bring business value to healthcare sector.

KEYWORDS

Analytics, Big Data, Digitalization, Healthcare, Medicine, Service

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INTRODUCTION

The recent rapid development in healthcare sector encourages researchers to study how the dynamic real-time data, Big Data, can be collected, processed and reused. All these activities are closely related and accelerated by using proper strategies in digital transformation, which constantly facilitates activities in research, development, implementation and proper usage of new technologies and services. The used technologies should be supported by proper frameworks, architectures and models. The flexible system architectures for healthcare applications and services should be the base in implementation of advanced information technologies.

The amount of collected data is visibly growing in healthcare sector where the lack of proper management of the collected information brings a lot of challenges in digitalization process, especially in handling of health data, which cannot be freely shared. This data documented the dimension of Big Data and its permanent growth in the healthcare sector brought new challenges in understanding contexts and predicting problems (Groves, Kayyali, Knott, & Van Kuiken, 2013). The Big Data Analytics in digital service innovation has opened a new era not only to improve the relevant services and options but as well as attracting more interest in connection with analytics of social data. The path of innovation in healthcare Big Data should consist of three phases: 1) the early detection of disease, diagnosis specification, proposed treatment, and prognosis, 2) the promotion of life and health, 3) the nursing (Gu, Li, Li, & Liang, 2017; Raghupathi & Raghupathi, 2014). Likewise, the Big Data in healthcare sector, typically huge amounts of data containing different data types, should use specific techniques to provide their classification, clustering, association, and regression. These techniques can be covered by Data Mining, which is one of the most motivating areas in research, and becomes increasingly popular in healthcare organizations (Wu, Zhu, Wu, & Ding, 2014). The related trends are causing extraordinary efforts of countries towards the digitization of healthcare systems, and as policy makers across the globe look to Information Technology (IT) as means of making healthcare systems safer, more affordable, and more accessible, a rare and remarkable opportunity has emerged for the Information Systems (IS) research community to leverage its in-depth knowledge to both advance theory and influence practice and policy (Agarwal, Gao, DesRoches, & Jha, 2010).

The healthcare data for e-health systems include the implementation of electronic medical record (EMR). As shown in the United States (US) from the 2011 the office-based physicians achieved already the usage of more than 50 percent and hospitals nearly 75 percent even basic EMRs. Furthermore, at that time more than 45 percent of US hospitals already participated in local or regional health-information exchanges (HIEs). This trend is highly dependent on the medical staff’s attitudes, internal processes, and perceptions of facilitators and barriers related to it (Groves et al., 2013; Pędziński et al., 2013).

The initial interest of authors to provide future research in area of healthcare digitalization, with focus to Big Data and analytics, started from literature investigation up to extended thematic analysis. The authors were inspired by conceptual framework of digital health innovation in paper of Iyawa et al. (Iyawa, Herselman, & Botha, 2016). This research was focused on components of digital health, but did not include
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