

# Cloud Computing in Healthcare: A Space of Opportunities and Challenges

Anežka HUCÍKOVÁ<sup>a1</sup> and Ankica BABIC<sup>b</sup>

<sup>a</sup> *Dep. of Information Science and Media Studies, University of Bergen, Norway*

<sup>b</sup> *Dep. of Biomedical Engineering, Linköping University, Sweden*

**Keywords.** Cloud Technology, Opportunities, Challenges, Healthcare.

Cloud computing is a model of self-service on-demand network access enabling delivering computing resources and services. Contemporary research shows that around 50% of healthcare companies from large hospitals to ambulatory services across the US and Europe have already deployed cloud technology. Since the technology is simultaneously evolving, more healthcare companies are expected to move their enterprise communication to the cloud. There is a need for a more complex understanding of opportunities and challenges for technology providers and healthcare organizations. Secondary, the poster aims to suggest how such specific challenges can be dealt with.

A systematic literature review conducted in October 2015 considered 33 selected full text articles published from 2010 to 2015 and available in the MEDLINE database. The focus was to properly identify the pros and cons of cloud migration with the focus on healthcare. The results were summarized using qualitative analysis.

For both opportunities and challenges, several common categories such as management, security, technology, legal were identified. Further findings concerned the areas where the research on cloud computing has already undergone significant development (bioinformatics, genomics) or is expected to grow in the future (nursing).

In terms of opportunities, cloud technology offers, in comparison to conventional computing, more effective cost of new IT infrastructure and its maintenance, scalability and flexibility. A cloud solution is believed to reduce electronic health records (EHR) expenses, networking software and licensing fees and therefore encourages cloud deployment. Another opportunity can be seen in sharing big data within healthcare consortia or using cloud as a platform for e-Health applications.

Major challenges come with security and privacy concerns, vendors' compliance, data ownership, network latency and accessibility. Even though security concerns are expected to decline, deploying cloud still causes organizational concerns about rights management or data transfers. Potential users need to be instructed and trained on how to use cloud services to achieve maximum benefits and to work more effectively and flexible. Specifically designed learning and training tools (e-learning, customer immersion experience, workshops) can be used to overcome such personal obstacles.

---

<sup>1</sup> Corresponding Author.