

## Introduction to IT Architectures and Implementations in Healthcare Environments Minitrack

Radmila Juric  
ALMAIS Consultancy, UK  
[rju@usn.no](mailto:rju@usn.no)

Sang Suh  
Texas A&M University  
Commerce, US  
[sang.suh@tamuc.edu](mailto:sang.suh@tamuc.edu)

Ying-Chyi Chou  
Tunghai University, Taiwan  
[cchou@thu.edu.tw](mailto:cchou@thu.edu.tw)

The minitrack on IT Architectures and Implementation in Healthcare Environments has attracted a variety of papers, but we have selected only two.

The selected papers are rather different but they both show architectures and software implementations in two different healthcare settings. The first one focuses on digital innovation and co-creation of novel digital services in a specific setting of 27 hospitals in Norway. The second promotes possibilities of implementing novel computational models for polypharmacology which could address numerous problems in drug discoveries and repurposing.

The paper entitled “Institutionalization of Digital Innovation Practices in Large and Complex User Organizations”, comes from Norway and examines the complex organizational structure of its hospitals, with centralized IT services, which therefore might not push forward digital innovation in their environments. The authors collected information and data from 27 hospitals and, as an illustration, explored 70 different trajectories for digital remote care, which are expected to have an impact on digital innovation. The results show that interplay among key mechanisms, such as idealistic entrepreneurship, organizational anchoring, and remote infrastructure, does have a positive impact on these healthcare environments, because it increased the pace of innovation, improved the innovations’ scalability, and made hospitals robust in implementing digital innovation practices. Their interesting case studies helped to find these key mechanisms for institutionalizing digital innovation, but at the same time contributed towards a model of productive scalable innovations. The case studies show how entrepreneurship of new organizational structures in healthcare delivery unfolds over time and how institutionalized practices can empower employees to innovate.

The paper entitled “Semantic Computational Models for Polypharmacology: Applications in Drug Repurposing” is a collaborative work of authors with different research backgrounds in biomedicine, translational informatics and computer science, which explores software technologies for creating potentially new computational models for polypharmacology. The purpose is to address problems related to drug discoveries, with relation to potential drug repurposing. The proposal uses software technologies which enable reasoning through first order logic, in order to understand if drugs can be repurposed by exploiting their unintended therapeutical targets. However, the novelty, in terms of computational polypharmacology, is in trying to come closer to the ideal polypharmacological world of finding, developing, and approving multitargeted drugs and using them in drug repurposing. The implemented prototype shows numerous possibilities of using the proposed conceptual model, but they all have the joint goal of moving away from the *one-drug-one-target* philosophy, which has been advocated by polypharmacology.