

## **Introduction to the Learning Health Systems, Big Data and Socio-Technical Change Minitrack**

Charles Friedman

Karlsruhe Institute of Technology (KIT)  
Karlsruhe Service Research Institute (KSRI)  
hansjoerg.fromm@kit.edu

Kevin Sullivan

Karlsruhe Institute of Technology (KIT)  
Corporate Services and Systems Group (CSSI)  
thomas.setzer@kit.edu

Healthcare systems around the world are, at long last, becoming digital systems—probably the last economic sector to undergo this transformation. In the United States, approximately 50% of office practices now have at least basic electronic health record systems; and the same is true for over 80% of hospitals. Some nations, most notably in Northern Europe, have had almost completely digital health systems for decade. Other nations vary in their progress, but the trending around the world is uniform and positive.

The consequences of the widespread availability of healthcare data in digital form are profound and game-changing. These changes bring into the realm of possibility learning health systems that can routinely and efficiently study themselves, learn from their experiences, change practice accordingly, and in this way, continuously improve. This process is dependent on the agile analytics made increasingly possible using “Big Data” methods; but it is also a profoundly human process, dependent for its success on the willingness of humans to trust the system sufficiently to change their practice in response to the guidance it generates.

The collection of papers in this mini-track addresses the full range of these challenges.

- \* Examples of and methods to achieve learning health systems are addressed in three works first-authored by DeAlmeida, Flynn and Keung.

- \* What and how we can learn from Big Data are the foci of four papers first-authored by Ben-Ari, Marungo, Shi, Uddin

- \* The human behavioral dimensions of change and trust are addressed by two papers first-authored by Kumar and Lim.

We were pleased to see both the high quality and great diversity of the papers submitted to this mini-track and look forward to the continued development within HICSS of a science of learning systems in health.