A HOLISTIC APPROACH TO EXPLORING THE DIVIDED STANDARDS LANDSCAPE IN E-HEALTH RESEARCH

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Outline

- **Research Motivation**

- **Research Method**

- **Findings**

- **Discussion and Future Work**

e-Health and Standards

- **ITU**
  - ITU-T Study Group 16, Question 28: Multimedia framework for e-health applications

- **EU**
  - eHealth Action Plan 2012-2020

- **South Korea**
  - Standards-R&D Roadmap for Smart Health

- **Interoperability**
  - among ICT technologies and systems
  - common information formats for data exchange
  - unified security structures

Source: L. DeNardis, "E-health standards and interoperability," ITU-T, Geneva, Switzerland, Apr. 2012.
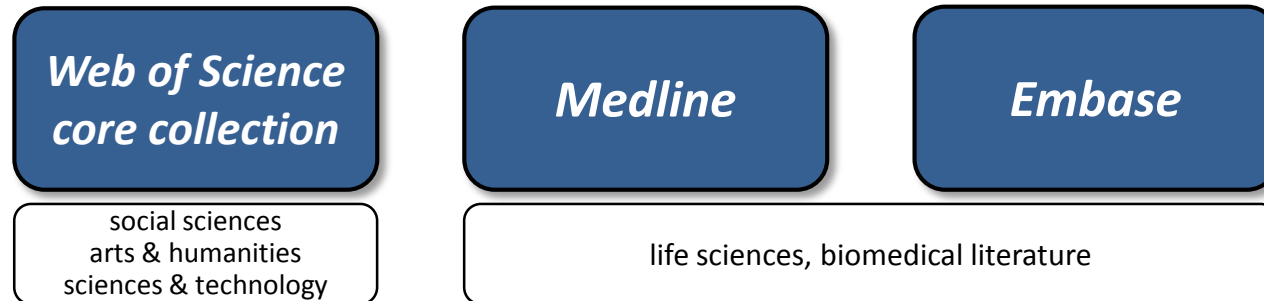
Research Purpose

- **Existing studies are…**
  - engineering-based or focus on technical issues and solutions
  - lacking systematic examination of e-Health studied by social scientists

- ***Divided standards landscape* in research**

- **Research purpose**
  - to identify and synthesize dispersed e-Health standards studies
  - to discover *the role and effect of standards in e-Health*

Research Method

- *Systematic review*
- **Database**

Web of Science core collection	Medline	Embase
social sciences arts & humanities sciences & technology	life sciences, biomedical literature	

- **Inclusion and exclusion criteria**
  - standards-related topic
  - "standards" not in a broader meaning

Topic 1. Standards for e-Health in developed and developing countries

Developed countries

- **North America**
  - U.S. SHARP program
  - Canada C-HOBIC project
- **Europe**
  - U.K. NHS Data Accreditation Programme
  - EC eStandards project

- adoption, harmonization of standards
- information exchange across networks

Developing countries

- **Africa**
  - the Millennium Villages Project (MVP)
  - Kenya standards and guidelines for EMR systems
- **China**
- **Saudi Arabia**

- centered on the development and adoption of standards

Topic 2. Types and effects of standards

Types of standards	**Effects of standards**

Types of standards

- **HL7**
  - CDA
  - FHIR
- **DICOM**
- **ISO**
- **IHE**
- **Data and device standards**

Effects of standards

- **Interoperability**
  - simplifying, speeding up patient data exchange
- **Security and privacy**
- **Quality of care and hospital performance**

- Health data standards and medical device standards created by different modes of standardization help ensure interoperability, usability, quality, security and privacy

Topic 3. Implementation of standards

Adoption of standards

- **Factors that affect adoption decisions of standards**
- **Organizational context**
  - barriers
  - facilitators
  - critical factors

• Implementation approaches tailored for different standards are needed to translate them into practice

Application in technical frameworks development

- **Proposal of frameworks**
  - HL7 CDA Release 2
  - IEEE 11073
  - CEN 13606
  - HL7 and IHE profiles

• Standards used globally are implemented in developing new, interoperable frameworks

Discussion and future work

- Standards in building e-Health projects and strategies

- e-Health standards and their effects on interoperability

- Adoption and application of e-Health standards

- Through further synthesis, we expect to derive practical implications that can facilitate e-Health interventions and policies based on standards.

THANK YOU

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