Standards and Systems Interoperability: Definitions

Standardization is the process of agreeing on standards, which represent the common language that allows the exchange of data between disparate data systems. The goals of standardization are to achieve comparability, compatibility, and interoperability between independent systems, to ensure compatibility of data for comparative statistical purposes, and to reduce duplication of effort and redundancies.

Standard is a definition, set of rules or guidelines, format, or document that establishes uniform technical specifications, criteria, methods, processes, or practices that have been approved by a recognized standard development organization, or have been accepted by the industry as *de facto* standards, or *de jure* standards, i.e., formal legal requirements. *De facto* standards have become standards because a large number of organizations have agreed to use them. They have not been formally approved as standards, but they are standards nonetheless.

Standards Development Organizations (SDOs) develop and maintain standards. In the US, SDOs are accredited by the American National Standards Institute (ANSI).

Standards are Technical Documents, specifications, integration profiles, content profiles, implementation guides, technical reports, and other.

HIT Standards Categories	Examples
Data Standards	Vocabularies and terminologies (e.g. ICD, SNOMED, LOINC)
Information Content Standards	Reference information models (RIMs), templates, datasets
Information Exchange Standards	Message-based, structured document-based, e-mail-based standards, IT standards
Identifiers Standards	National Provider Identifier (NPI)
Privacy and Security Standards	Access control, consent directives, other
Functional Standards	Procedures, work processes (workflow, dataflow), checklists, use cases
Business Standards	Guidelines, best practices

Source: Health Information Technology Standards Panel (HITSP), 2005. URL: http://www.hitsp.org

Resources

Orlova A. *An Overview of Health IT Standards.* JAHIMA. 2015. 86(3):38-40

Orlova A. *Health Information Technology Standards and Systems Interoperability Course. Lecture 2: HIT Standards and HIT Standardization.* Johns Hopkins School of Public Health (JHSPH) Opencourseware. Johns Hopkins University. URL: http://ocw.jhsph.edu/index.cfm/go/viewCourse/course/InfStandards/coursePage/index/

Standards and Systems Interoperability: Definitions

Interoperability. AHIMA supports the definition of interoperability developed in 2007 by Health Level Seven (HL7), standards development organization (SDO), as follows:

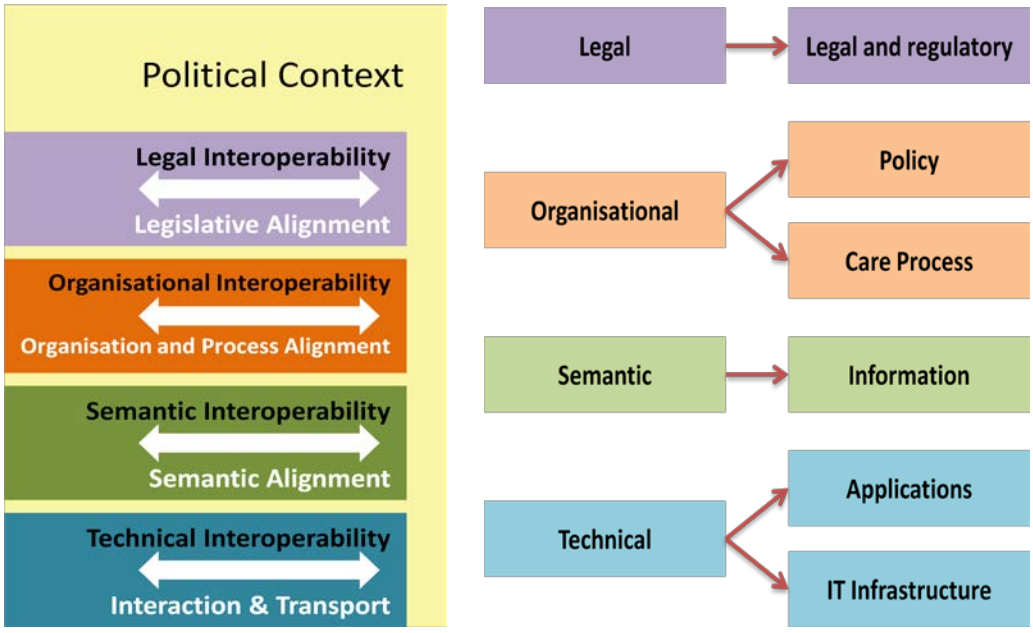
> **Interoperability** means the ability to <capture, manage*>, communicate and exchange data accurately, effectively, securely, and consistently with different information technology systems, software applications, and networks in various settings, and exchange data such that clinical or operational purpose and meaning of the data are preserved and unaltered.

HL7. Coming to Terms: Scoping Interoperability for Healthcare. White Paper. 2007.
URL: https://www.hln.com/assets/pdf/Coming-to-Terms-February-2007.pdf
*Added by AHIMA to the HL7 definition

HL7's approach to interoperability is based on the following three interoperability components:

1. **Semantic** interoperability—shared content
2. **Technical** interoperability—shared information exchange infrastructure
3. **Functional** interoperability (legal and organizational)—shared rules of information exchanges, i.e., business rules and information governance ("*the rules of the road*").

European Union (EU) Interoperability Framework



Resources

eHealth Network (eHN). *Refined eHealth European Interoperability Framework*. 2015. URL: http://ec.europa.eu/health/ehealth/docs/ev_20151123_co03_en.pdf
Orlova A. *Achieving Health Information Systems Interoperability*. JAHIMA. 2015. 86(6):50-52

Standards and Systems Interoperability: Definitions

Interoperability Standards are special products of standards harmonization activities — a meta-standard (standard about standards), an assembly of standards, interoperability specifications, interoperability guidelines, reference standards portfolio, etc.— that define how individual standards have to work together to enable interoperability between information systems for a specific healthcare domain (care coordination, radiology, laboratory, pharmacy, data reporting, population health, etc.). Interoperability standards are harmonized and intergrated individual standards constrained to meet healthcare and business needs for sharing information between organizations and systems.

The term, **interoperability standards**, was introduced in 2005 by the Health Information Technology Standards Panel (HITSP, http://www.hitsp.org). During 2005-2010 HITSP developed various interoperability specifications for the US National Use Cases created by the American Health Information Community (AHIC).

Standards Categories by Interoperability Components

HIT Standards Categories	Examples
Semantic Interoperability	
Data Standards	Vocabularies and terminologies (e.g. ICD, SNOMED, LOINC)
Information Content Standards	Reference information models (RIMs), templates, datasets
Technical Interoperability	
Information Exchange Standards	Message-based, structured document-based, e-mail-based standards, IT standards
Identifiers Standards	National Provider Identifier (NPI)
Privacy and Security Standards	Access control, consent directives, other
Functional Interoperability (Organizational and Legal)	
Functional Standards	Procedures, work processes (workflow, dataflow), checklists, use cases
Business Standards	Guidelines, best practices

True interoperability cannot be achieved without ALL these standards to be harmonized to work together.

Resources

Orlova A. *The Standardization of Standards*. JAHIMA. 2015. 86(5):50-53