Improving Access to Knowledge about Health Informatics Standards:
Considerations for Health Information System Implementations In Low Income Countries

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ABSTRACT

The World Health Organization sponsored Health Metrics Network (http://www.who.int/healthmetrics/en/) has developed detailed criteria to support national and regional policies in the development of countries health information systems. Such systems should provide high quality data for health promotion and prevention, patient care delivery, monitoring and evaluation allowing informed policy decisions. The recently created Joint Initiative Council (JIC) of the International Health Informatics Standards Development Organisations (SDOs) is promoting harmonised approaches including endorsing a standards knowledge management tool (SKMT) portal supporting health informatics standards awareness and a harmonised glossary. Current standards development in the ISO 215 TC Health Informatics SDO includes detailed description of an eHealth enterprise architecture, consideration of maturity models and their relevance for low income countries. Linked to these eHealth architecture descriptions and in response to the challenge of enabling a bridge between standards developers and standards users, the SKMT portal has been incorporated into a Health Informatics Standards Knowledge Resource (HIS-KR). The HIS-KR has a wiki structure to support collaborative content development, as well as dynamic visual navigation tools and related educational tools. Users of HIS-KR can readily explore the association of architecture components to particular health information standards. Consideration is given to the costs of standards and those standards that can be obtained without costs are identified. A library of use case scenarios is being incorporated. The visual navigation tools associated with vetted frameworks should support both users and developers in better understanding of relationships between standards and identifying gaps in standards. The internationally endorsed HIS-KR therefore is a major opportunity to relate health information standard development to policies and implementations in different countries, recognising different capacities, priorities and maturity. It is continually updated including reference to standards in development as well as published, supporting a collaborative tool to bridge health information standards developers and users.

INTRODUCTION

Enabling a comprehensive understanding of health informatics standards is a current challenge for all national health IT initiatives. Health informatics standards have both national and global importance for quality health care. Of key importance therefore is to enable knowledge sharing about standards and to relate these to maturity and capacity of health information system development.

WHO Health Metrics Network

Established in 2005, the HMN is a global initiative to improve health information systems in low income countries. The HMN framework is shown in Figure 1.

eHealth Architecture

An eHealth enterprise architecture provides an organised approach to ensuring that investments in ICT technology and information systems meet overall priorities for effective operation and delivery of health care services and the information needed for their planning, development and continuous improvement. Business requirements of Health Information Systems can be mapped to components of an eHealth Architecture framework shown in Figure 2.

Indicators

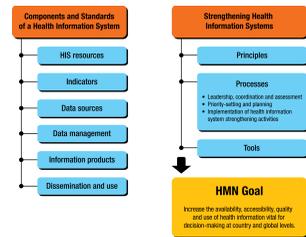The WHO Indicator and Measurement Registry (IMR) uses SDMX-HD to harmonise health indicator reporting.
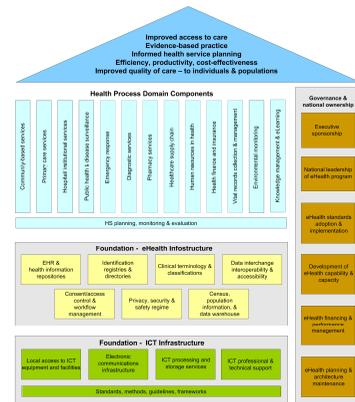

Figure 1 — The HMN Framework.

Figure 2 — Components of an eHealth Architecture framework.

RESULTS

In a collaboration between Health Informatics standards development organisations and the WHO, a web portal has been developed to enable communication about health informatics standards (Figure 3). The Health Informatics Standards Knowledge Resource (HIS-KR) has been developed to bridge standards developers and users. The aim is to support national and regional policies for integrated health information system implementations recognising different levels of maturity and capacity. The HIS-KR provides context interpretation, collaborative editing and feedback, and exploratory tools that link eHealth architecture specifications, system implementations and health informatics standards (Figure 4).

Figure 3 — The Hiwiki.org portal (http://www.hiwiki.org/).

•The users section gives access to knowledge about standards.
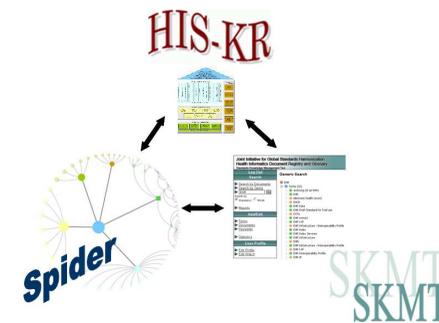•The developers section gives access to different wikis for the development of new documents.

Figure 4 — Relationship between the different resources.

•The HIS-KR wiki gives health information systems developers and users access to knowledge about standards.
•The SPIDER is a visual exploratory tool supporting HIS-KR and SKMT.
•The SKMT (Standards Knowledge Management Tool) is an internationally endorsed database of health information standards and glossary of terms.
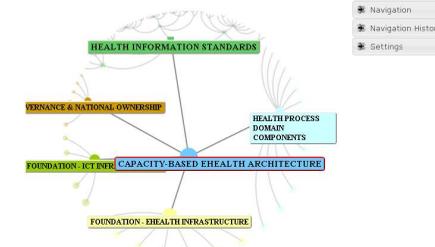

Figure 5 — Spider representation of the eHealth Architecture.

Figure 6 — Spider representation of the eHealth Architecture showing Identification registries and directory.

Figure 7 — Spider representation of health information standards linking to identifiers standards.

Figure 8 — Retrieval of the relevant document information in the SKMT.

CONCLUSION

The Health Informatics Standards – Knowledge Resource (HIS-KR) initiative provides a single portal for linking standards developers and standards users.

The HIS-KR successfully links two internationally developed ontologies of eHealth Architecture and Health Information Standards.

HIS-KR enables developers and users to rapidly find out whether relevant standards exist or where there are gaps in standards availability.

Different use cases are currently in development to facilitate correct utilisation of health information standards in different information system implementations and contexts.

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•eHealth Architecture: ISO/DTR 14639-2 Health informatics — Capacity-based ehealth architecture roadmap — Part 2: Architectural components and maturity model
•WHO Indicator and Measurement Registry [http://apps.who.int/gho/indicatorregistry/App_Main/browse_indicators.aspx]
•SDMX-HD [http://www.sdmx-hd.org/]
•HIwiki website [http://www.hiwiki.org/]
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