Interoperability between national health telematics platforms – a complementary view

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a.o.

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Interoperability - Next Steps

Interoperability

- Technical interoperability
- Functional interoperability
- Semantic interoperability

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Interoperability

Main Entry: **in·ter·op·er·a·bil·i·ty**
Function: *noun*
Date: 1977
: ability of a system (as a weapons system) to use the parts or equipment of another system

Source: Merriam-Webster web site

interoperability
: ability of two or more systems or components to exchange information and to use the information that has been exchanged.

Source: IEEE Standard Computer Dictionary: A Compilation of IEEE Standard Computer Glossaries, IEEE, 1990]

Semantic interoperability

Functional interoperability

Interoperability (cont.)

- Interoperability starts with
  - common interest between the players involved in a
  - common process based on
    - common reference models,
    - common terminology
  - supported by ICT based on
    - common specifications of the different RM-ODP views and implemented following a
    - common process

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Two Methodology Drivers

Create a structure for assuring semantic interoperability
- the data model and vocabulary specifications provide ways to define message element semantics
- the state transition and interaction models provide ways to define the dynamic aspect of message flows

Create a well defined process for constructing specifications.
- Since the process is documented and specific, we expect it can be assessed for quality and incrementally improved

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Architectural Paradigms for Future-Proof Health Information Systems

- Distribution
- Component-orientation (flexibility, scalability)
- Separation of platform-independent and platform-specific modelling →
- Separation of logical and technological views (portability)
- Specification of reference and domain models at meta-level
- Interoperability at service level (concepts, contexts, knowledge)
- Enterprise view driven design (user acceptance)
- Multi-tier architecture (user acceptance, performance, etc.)
- Appropriate multi-media GUI (illiteracy)
- Common terminology and ontology (semantic interoperability)
- Appropriate security and privacy services

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eHealth Standardization Focus Group

eHealth Europe

Strategic objectives

- Improving acces to clinical records
- Enabling patient mobility as well as cross boundary access to health services
- Reducing clinical errors as well as improving patient safety
- Improving access to high quality information for both patients and health professionals
- Improving efficiency of health services

Critical Applications

- EHR/EPR incl. EHR architecture
- Electronic exchange of health data incl. electronic transfer of prescriptions (ePrescriptions)
- ePrescribing with decision support
- Digital imaging and related services requests and result reporting
- Core Data Sets e.g. for health surveillances

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Infrastructures to underpin applications

- management of any principal's identification, in the patient's context including:
  - EU Health Insurance Card (enhanced by carrying medical data and providing cross-border access control facilities);
  - A common approach to patient identifiers;
  - Access control and authentication;
- protecting personal information (based on PKI and data cards (tokens) for professionals and citizens/patients);
- terminological systems for clinical records and medicines;
- EU Health Data Cards.

FG Main Recommendation

The Member States, with the Commission, should establish a permanent platform with a mandate, and the necessary resources to promote e-Health interoperability based on standards and to facilitate co-operation between Member States.

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Scope of the eHealth Interoperability Platform

- pursue the implementation of the recommendations made in this report, and monitor progress;
- establish a Europe-wide view on the requirements for standardisation and its implementation in specific domains, in collaboration with standards organisations, based on input from relevant stakeholders communities;

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Scope of the eHealth Interoperability Platform

- encourage and promote an environment for detailed specifications testing, and evaluation or certification, to achieve interoperability of systems based on standards;
- encourage inter-nation and inter-professional agreements;
- establish a means for tracking and promoting good practice, and foster pilot implementations in compliance with the aforementioned environment;

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Scope of the eHealth Interoperability Platform

- encourage the further development of the appropriate European legal and regulatory framework;
- promote the establishment of infrastructure services such as for the creation and maintenance of terminology systems and knowledge repositories.

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Further Recommendations

The Focus Group makes 15 further recommendations focussing primarily on what needs to be done to enable the priority application and infrastructure elements which it identified.
Most of the recommendation are directed at Member States and seek coordinated action. The proposed eHealth Interoperability Platform should assist such coordination and address all of the Focus Group recommendations to determine how it might assist their realisation. An early challenge should be the creation of a comprehensive "Roadmap" to achieve interoperability.

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Issues of Further Recommendations

- Improving access to records
- Reducing medication-related errors, and e-prescribing
- Safety of health informatics products
- Improving access to quality health information - Metadata for knowledge resources
- Efficiency of healthcare processes - Workflow models and clinical pathways

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Issues of Further Recommendations

- Electronic transfer of prescriptions
- Information exchange to support inter-working and the mobile citizen
- Case-mix groupers based on diagnoses and procedures
- Quality indicators
- Improving availability of standards
- Commission's support to European standardisation
- Towards an international multilingual reference terminology
- Security services
- Health cards

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For further information look at

www.cenehealth.org

or contact the FG Chair

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International Health Telematics Initiatives

Newer Framework for the US Health Telematics Initiatives

1998: National Health Information Infrastructure
2002: Connecting For Health initiative
2003: Consolidated Health Informatics initiative
2003: Medicare Prescription Drug Improvement and Modernization Act
2004: President's Executive Order 13335 → Interoperable EHR
2004: Challenge of Interoperability

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Recent US Initiatives for Health Telematics

- Appointment of a National Health Telematics Co-ordinator
- VHA New Generation Health Record System → Core of a new generation Health Information System Architecture
- HealthePeople Project (US bIT4health)
- Massive Inclusion of industry at the sides of both industry and providers
- Binding standards and methodology

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Main Objectives

- Avoiding medical errors
- Improving resources vectoring
- Accelerating knowledge diffusion
- Reducing variability in healthcare delivery and access
- Improving costumer empowerment
- Strengthening of data privacy and protection
- Promoting public health and preparedness

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Required NHII Structures – Primary Recommendations (US Example)

- National strategy for defining basis services and transactions incl. implementation guidelines and suitable processes
- Consortium of stakeholders, supervision rules and a business model for supporting objectives, priority and implementation of initiatives
- Integration profiles
- Library of knowledge resources incl. means for creation and distribution as well as tools

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Required NHII Structures – Recommendation for Guaranteeing

- Process of assignment and maintenance of unique identifiers for patients, providers, healthcare establishments and other healthcare entities
- EHR, CCR, terminology, coding schemes
- Conformance tests and certification
- National clearance committee
- Data security and privacy infrastructure

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eHealth Solutions – Examples from Italy

- Regional Authorities within the Italian National Health Service act under auspice of the Ministry for Health, the Ministry for Innovations and the Ministry for Economics
- Programme "New Health Information System" for healthcare surveillance and control
- Steering Committee for the EHR involving the Ministry for Health, Regional Authorities, Italian Affiliates of HL7, PRORE, IHE, etc.
- Key elements:
- Electronic Health Card
  - ePrescription
  - Distribution of the EHIC since November 1st 2004 to be finished by April 2005

The Netherlands

- Central institutions for QS and process optimisation
- NIKTIZ (National Institute for Information and Communication Technologies in Healthcare) for supporting the establishment of a health telematics platform
- Country-wide implementation of a specialised EHR – medication file – with the perspective towards a comprehensive EHR
- HL7 Version 3 as national standardised methodology for achieving semantically interoperable communication and co-operation (similar to UK)
- Massive involvement of industry

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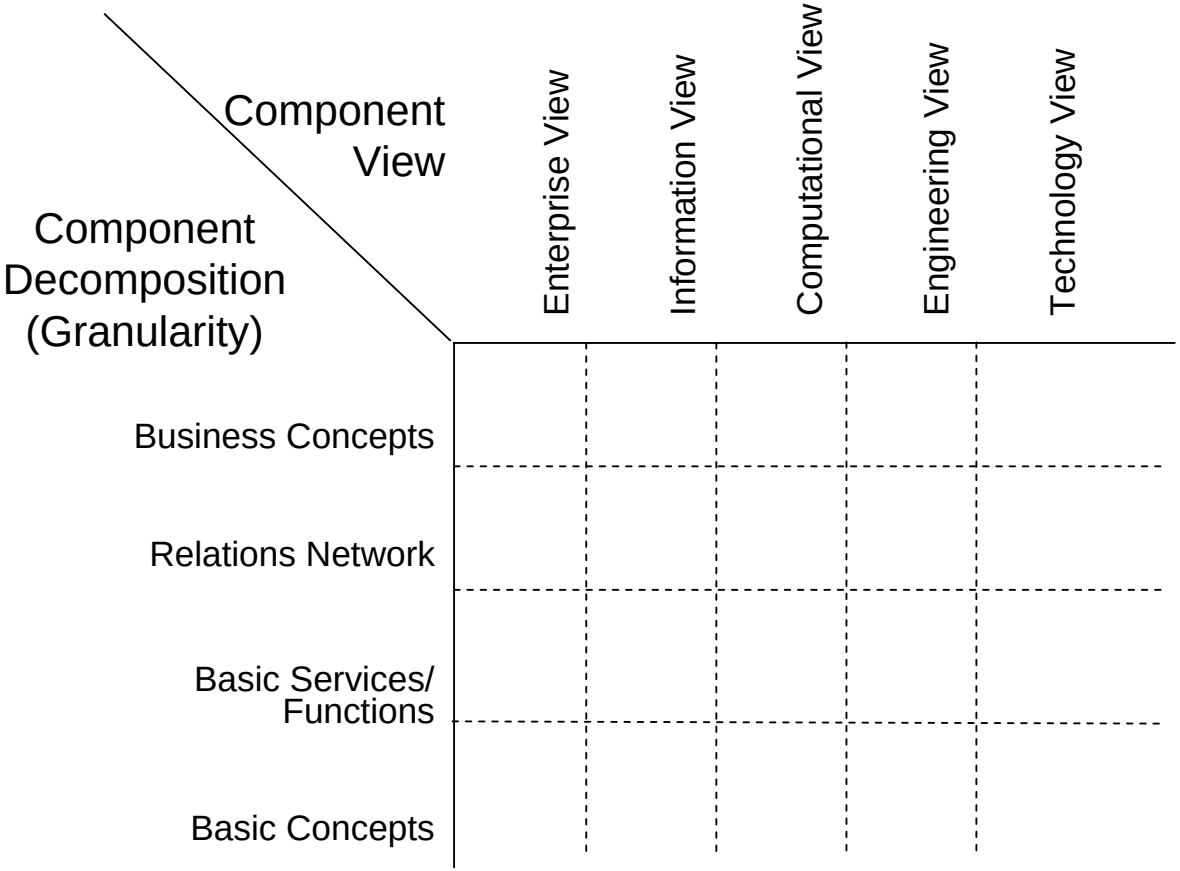

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Country	USA	Denmark	UK	Canada	The Netherlands	Finland	Australia	Germany eGK	Germany bIT4health
Prioritised EHR/PHR/EHR extract	X	X	X	X	X	X	X		x
Technology independence	X	X	X	X	X	X	X		o
HL7 Version 3 and HDF	X		X	X	X	X	x		X
Security tokens	X		x	X		X	X	X	X
Networked e-prescription	X	X	X	X	X	X	X		o
Knowledge bases	X	X	X	x	X	X	X		X
Unified terminology / ontology	X	x	X	X	x	x	X		X
Model driven architecture	X	X	X	x	x	X	X		X
Inclusion of intern. competence	X	X	X	X	X	X	X		
Governmental Co-ordinator	X		X	x		X	X		
Domin. of competence vs. politics	X	X	X	X	X	X	X		
National institute	X	X	X	X	X	X	x		
National strategy project	X	x	X	X	x	x	x	X	X
Governmental budget	X	X	X	X	X	X	x		

Questions?

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