



Information Society
Technologies



European Commission

eHealth Interoperability- proposed activities

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- **Definitions of interoperability**
- **Interoperability issues**
- **Benefits of interoperability**
- **Challenges**
- **eHealth Action plan interoperability issues**
- **Roadmap up to the 2007 Recommendation**
- **Specific topics**
- **Methodology**
- **Discussion**

Interoperability definitions (general)

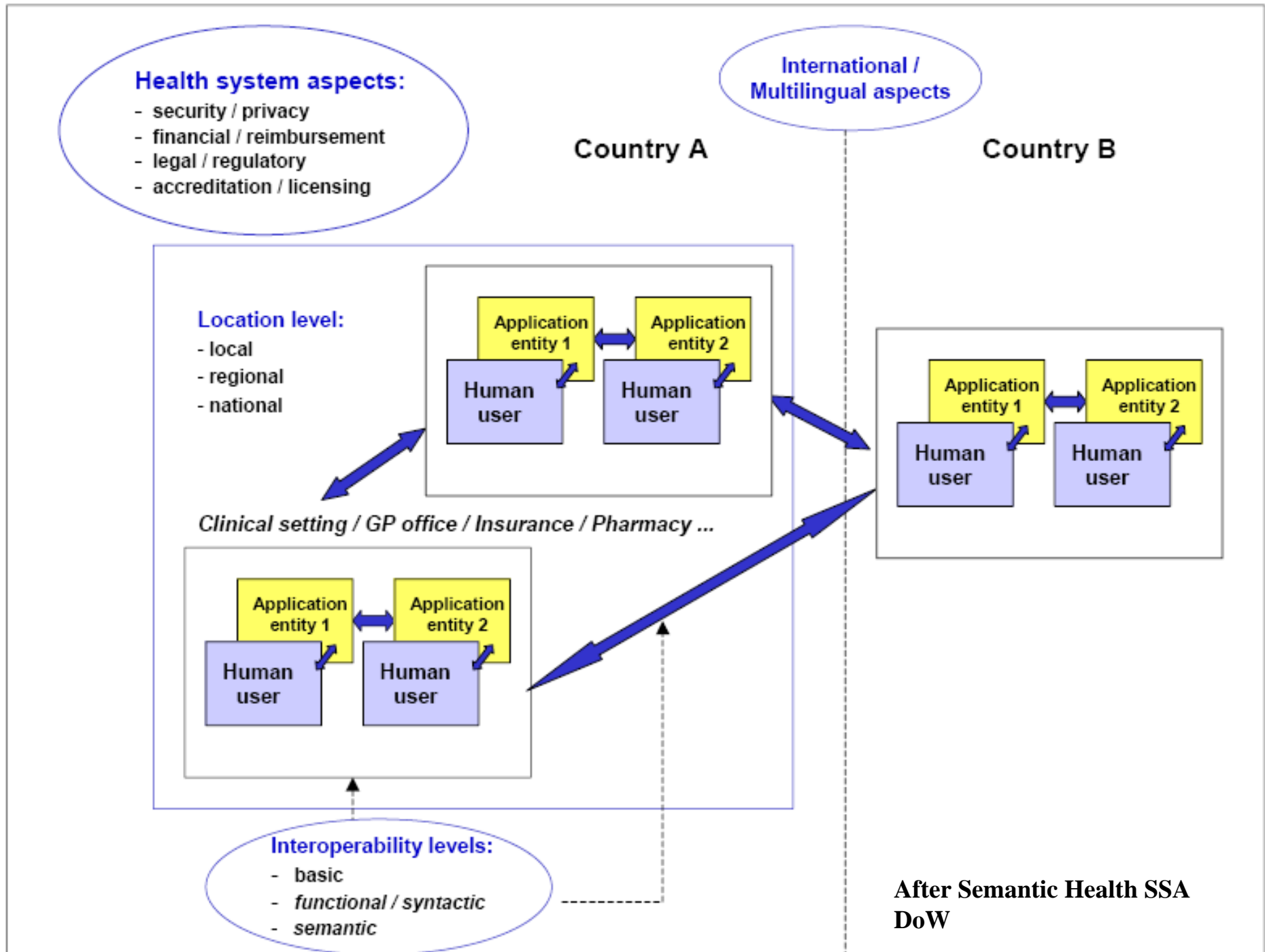
- **ISO 2002:12 Interoperability** refers to the ability of two or more systems (computers, communication devices, networks, software and other information technology components) to interact with one another and exchange information according to a prescribed method in order to achieve predictable results
- **CEN/ISSS 2005 : Interoperability** is a state which exists between two application entities when, with regard to a specific task, one application entity can accept data from the other and perform that task in an appropriate and satisfactory manner without the need for extra operator intervention.

Interoperability definitions (functional)

- **IDABC/EIF 2004 Technical/semantic/organisational**
- **CEN/ISSS 2005 Functional/syntactic/semantic**
- **NAHIT (2005) 4 levels: non- electronic data, machine transportable data, machine “organisable data” and machine interpretable data – all technical**
- **TMA (2004) Political/social/organisational/technical**
- **Miller (2000) Technical/semantic/political-human/inter-community/legal/international**
- **ETSI (2005: 3) Inter-standard interoperability and conformity and interoperability tests as part of technical interoperability**

- **Organisational versus technical issues**
- **Stakeholder involvement is crucial**
- **Actors (human, machines, software)**
- **Need political commitment (see UK, Germany)**

Graph 1: e-health interoperability domain





Levels of Interoperability (LISI)

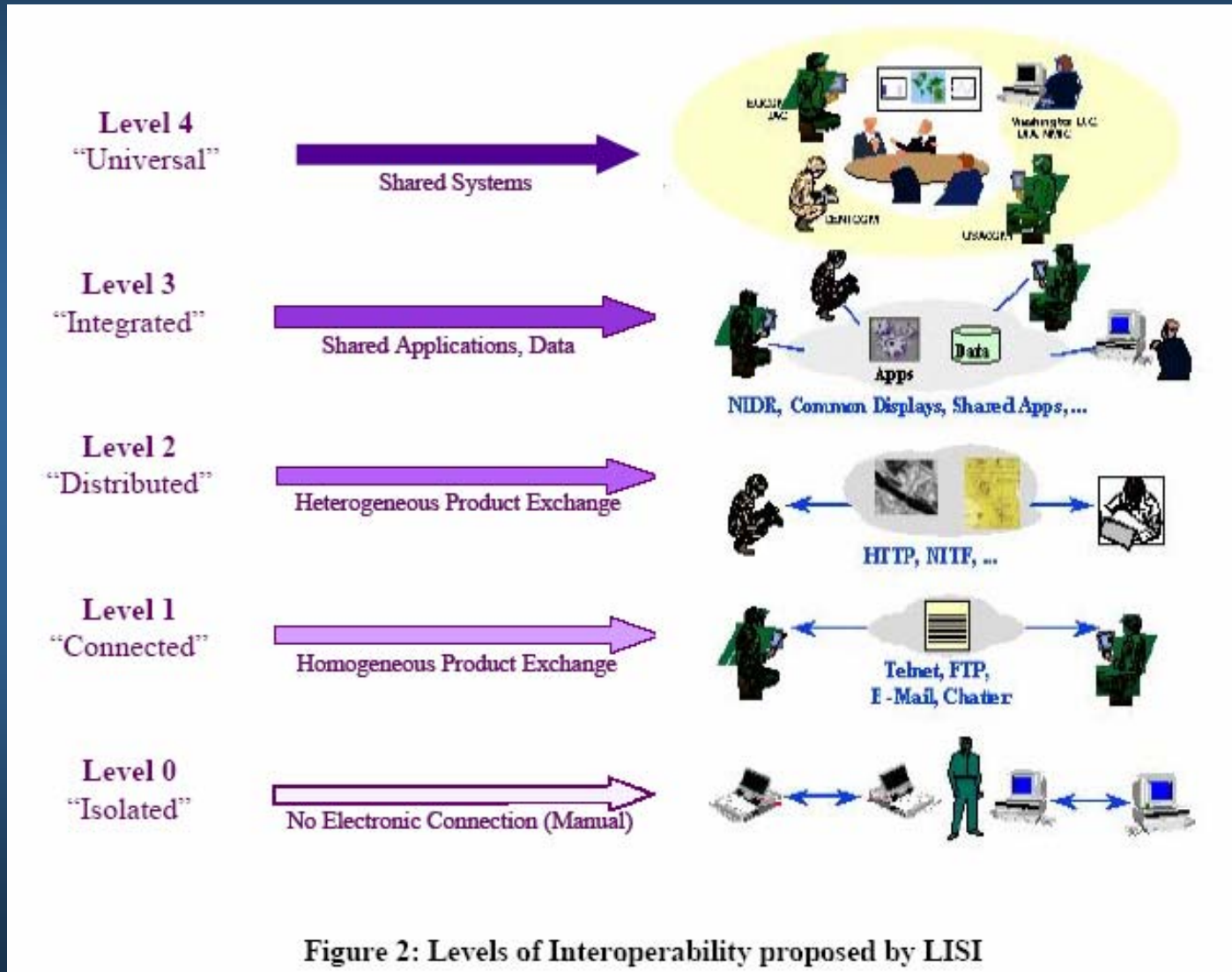


Figure 2: Levels of Interoperability proposed by LISI

- **Providers** could make better informed clinical decisions more efficiently, adverse events would be reduced and unnecessary procedures could be avoided;
- **Administrators** could make more efficient and effective use of resources;
- **Researchers** could more effectively analyse disease pathways and the effectiveness of various interventions to help inform health policy and practice;
- **Policy makers** and funders could more effectively direct their funding towards interventions that produce the most effective health outcomes; and
- **Patients** – particularly those with chronic diseases – would benefit from improved health outcomes, better access to their own health information, and less complex interactions with providers across the healthcare sector

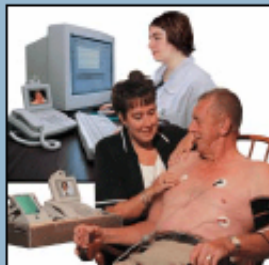
- **In US net savings from national implementation of fully standardised interoperability between providers and five other types of organisations could yield \$77.8 billion annually, or approximately 5% of the \$1.7 trillion spent on U.S. health care in 2003.**
- **In Australia the net savings foreseen after the implementation of the programme HealthConnect could be 500 mil. \$**
- **In Canada, Canada Health Infoway is expected to induce saving as high as 5 bill. \$ annually**



The Benefits of Electronic Health Records and *Infoway's* Priorities

Infoway Electronic Health Record

Demographics
Diagnostic Images
Laboratory Results
Drug Profile
Clinical Reports
Immunizations
Telehealth



Benefits = \$30 million per year¹

- Medical Transportation Savings = \$30 m/yr

Access

- Availability of Services
- Ability to Access Services
- Consumer Participation

Benefits = \$3.4 billion per year²

- Inpatient ADE = \$1.6 b/yr
- Ambulatory ADE = \$1.4 b/yr
- Post Discharge ADE = \$0.4 b/yr

Quality

- Safety
- Effectiveness
- Appropriateness

Benefits = \$1.6 billion per year^{2,3}

- Diagnostic Imaging Efficiencies = \$1.1 b/yr
- Laboratory Test Efficiencies = \$0.5 b/yr

Productivity

- Efficiency
- Care Coordination

Sources

1. Health Canada – Telehealth Evaluation
2. Booz Allen Hamilton – EHR ROI Model
3. Courtyard Group – DI ROI Model

RFI response - Interoperability Consortium (1)



- **Deliver clinical value.**
- **Be secure.**
- **Be part of a comprehensive transformation agenda.**
- **Rely on an open standard-based architecture.**
- **Develop a sustainable economic model**
- **Be designed holistically.**
- **Start as simply as possible**
- **Neutralize first mover disadvantage.**
- **Plan for needed accompanying services.**
- **Be accompanied by a rationalization of the existing regulatory framework on privacy and liability.**
- **Rely on transparent data collection channels.**
- **Incorporate the public sector.**
- **Rely on an adaptive, modular architecture.**

Challenges in achieving interoperability

- **Lack of market accepted EU standards in eHealth**
- **Weakness of sustainability of standard development**
- **Lack of a patient/practitioner identifier**
- **Different languages**
- **Legacy systems**
- **Different speed of investments in EU countries**
- **Different levels of political commitment**
- **Lack of evaluation of the economic impact of ICT for health and continuous monitoring of implementation**
- **Lack of certification and accreditation mechanisms**
- **Lack of harmonized legislation at EU level concerning ICT for health**
- **Lack of financial incentives at EU level**

e-Health action plan: main areas of activity

- **National/regional roadmaps (MS, 2005)**
- **Common approaches for patient identifier (EC+MS, 2006)**
- **Interoperability standards for EHR and messaging (EC+MS,2006)**
 - TMA Bridge, I2Health, Semantic Health, RIDE, Semantic Mining...
- **Boosting investments in eHealth (MS, 2007)**
- **Conformity testing and accreditation (MS 2007)**
- **Deployment of health information networks (MS, 2004-2008)**
- **Legal framework, certification of qualifications (EC+MS,2009)**

Roadmap up to the 2007 Recommendation

- **To recommend a set of guidelines on eHealth interoperability and assess what aspects of interoperability are the most urgent to establish (e.g., covering issues like Electronic Health Records, health messaging and patient identifiers);**
- **To develop and therefore set mechanisms for assessing good practice in eHealth interoperability;**
- **To assess rapid international (US, Canada, Australia, and so on) developments in eHealth interoperability in order to strengthen the competitiveness of EU industry in the eHealth field;**
- **To reinforce appropriate liaison or confederation by/with industrial players and public-private partnerships;**
- **To propose possible legislative or regulatory approaches to eHealth interoperability including aspects relating to data privacy and security.**

- **Long and difficult process for interoperability of all mentioned applications (10 years)**
- **Stakeholders participation is essential**
- **Political commitment is necessary**
- **Demonstration activities are compulsory**
- **Collaboration with other fields (eGov, IDA, eBusiness, eLearning) can be beneficial**
- **Starting with 1-3 main applications can be feasible**

Specific topics identified as a priority by eHealth WG can be fully explored by the Stakeholders group such as:

- **Patient summary**
- **Patient/practitioner identifiers**
- **Emergency data set**

including confidentiality and privacy issues

- **The Spine is the name given to the national database of key information about a patient's health and care and it forms the core of the NHS Care Records Service.**

It includes:

- **NHS number**
- **date of birth**
- **name and address**
- **allergies**
- **adverse drug reactions**
- **major treatment that has been provided, is continuing, or has been completed.**

- **initiative run by The Swedish Association of Local Authorities and Federation of County Councils through Carelink –providing a National Patient Summary.**
- **objective :platform which enables care providers to be able to provide patient information nationally and, with the informed consent of the patient, use this information when necessary. This information will available to the patient.**
- **The National Patient Summary is expected to start as a pilot project in October 2005**

- **January 2003, a strategy to build a nation-wide interoperable electronic patient record system was published.**
- **Data structure and coding was decided in co-operation with various interest groups (professionals, administration, software enterprises).**
- **Clinical consensus was reached regarding data structure and every EPR system was to provide this data structure (a.k.a. "minimum data set")..**

- **The Web-EHR project is designed to enable data retrieval (“pull”) from other Patient Administrative Systems (PAS) and EHR systems over the Internet – both within the same county and across counties.**
- **The project aims at providing access to view pre-defined patient data in PAS and EHR systems “belonging” to other institutions – be they in the same county or in other counties.**
- **All data is available on the Danish eHealth Portal (sundhed.dk) and access is made through the use of a digital signature, and the viability of providing data access to General Practitioners is tested.**

- **The CCR, or Continuity of Care Record, is a standard specification being developed jointly by ASTM International, the Massachusetts Medical Society (MMS), the Health Information Management and Systems Society (HIMSS), and the American Academy of Family Physicians (AAFP).**
- **Intended to foster and improve continuity of patient care, to reduce medical errors, and to assure at least a minimum standard of health information transportability when a patient is referred or transferred to, or is otherwise seen by, another provider**

- **The topics can be explored by mixed ad-hoc subgroups with the support of the Standard Development organisations.**
- **The participation to such WGs could be optional.**
- **Drafting activities could be insured by the participants involved in research projects and studies.**



Interoperability activities – proposed organisation



CEN TC 251, ETSI, CENELEC, ISO
TC 215, CEN/ISSS

Patient
summary

Workshop

Patient
Practitioner
identifier

Stakeholder group

Emergency
data set

National competence Centres

Demonstration activities

Public consultation

- to set up the master indexes of citizens, patients, healthcare professionals and facilities;
- to distribute cards for access management (citizens and professionals)
- to enhance one or more current workflows which could be used as an interim source for electronic clinical documents to be shared in a lifelong EHR (e.g. claim attachments, prescriptions, referrals, diagnostic reports, DRG-related hospital discharge forms);
- to define and build the infrastructure to share clinical information among healthcare professionals (repositories for clinical documents and registries – lifelong EHR);
- to start populating the repositories with clinical documents already in electronic format or with simplified patient summaries from GP's EPR;

- **to integrate clinical information across multiple facilities for an episode of disease, according to a predefined clinical pathway;**
- **to deploy a disease network according to the needs of a re-organisation of care provision centred on a particular condition (e.g., a specific chronic condition);**
- **to integrate social and health services on specific target groups (e.g. frail elderly people).**



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Dissemination & Collaboration activities



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eHealth WG

**EU RTD
projects, studies**

**Other fields
eGov,
eBusiness,
eInclusion,
eTEN,
eLearning**

**eHealth
Stakeholders
SDOs, Users,
Industry**

**Workshops
eHealth Min. Conference
eHealth Conference
IST Conference
eHealth Observatory
Best practices portal
National Health Events
Presentations
Publications**

**Interoperability
projects
Semantic Health
RIDE,
Studies**

**International Collaboration:
WHO, ITU, ESA,
IMIA, HIMSS,
SNOMED, NSF, NLM,
International experts**

- Three meeting of the Stakeholder group are expected till the end of March 2006. In April-May 2006, the Commission will publish the **Commission staff working paper on interoperability**.
- A continuous **effort of collaboration** with the National competence Centres must be initiated and maintained by the eHWG and eHSG during 2006-2007
- **Further consultation** of relevant stakeholders through a public consultation as well as several meetings and 4 workshops funded through Specific Support Actions will allow the refinement of the **Recommendation on eHealth interoperability** to be issued beginning of 2007.

- **Developing further topics (ePrescribing, EHR interoperability including semantic, messaging)**
- **Harmonise legal framework**
- **Implementation of certification of applications**
- **Monitor implementation of Recommendation and the benefits (Impact studies, best practices portal)**
- **Support implementation (structural funds, CIP)**



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Discussion