eHealth and Interoperability: Opportunities and Challenges from an Industry Perspective

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  - European industry association for the radiological, electromedical and healthcare IT industry
- Chairman of the EU eHealth Industry Stakeholders Group
  - Continuation of the Users/Industry Stakeholders Group
- Member of the eHealth working group of the BRT
  - Brussels Round-Table on Telecommunication, an informal group of CEO’s communicating regularly with the Commissioner
- Vice-chair of the Continua Health Alliance EU Government Affairs Working Group
  - Interoperability profiles for home-health, wellness and disease management

Views expressed in this presentation are my responsibility.
Contents

• Stakeholders
• eHealth, where should be the focus?
• Barriers to eHealth solutions
• Relative value of Interoperability as an enabler
• Approach towards EHR
• Conclusions
Stakeholders: traditional model

Healthcare Authorities

- Payers
- Patient
- Healthcare providers

Industry

- Standards Consortia
- Standards Organisations

EU Commission
eHealth: all (health)care applications supported by ICT

(See also definition in eHealth lead market paper)

• Regional/National Health Information Networks and distributed EHR systems, incl. on-line services
• Telemedicine systems and services
• Clinical and Administrative Support Systems within hospitals and care centres and for GP’s: HIS, departmental clinical systems, Clinical Decisions Support systems, ....
• Use of ICT for special cure/care, e.g. patient monitoring, embedded SW in imaging systems, surgical planning, implanted devices, fall detection,....
• ICT to support public health, e.g. statistics on spreading of infectious diseases, registries, portals
eHealth: Focus

(See also definition in eHealth lead market paper)

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Why this focus?

• Greatest benefits of eHealth are in areas where medical information related to one patient is communicated across various institutions
  – GP, hospital, clinic, home health agency, patient at home
  – Patient centered healthcare: the information is following the patient, and not the other way around
  – e.g. disease management (Chronic Heart Failure, Diabetes, Asthma.

• Benefits for Stakeholders can have different forms:
  – Increase of quality of care (more and better information available)
  – Reduction of costs through more efficiency, better prevention, earlier diagnosis, improved rehabilitation, less hospital visits
  – Improved quality of life of patients/citizens through homecare instead of hospital care, earlier detection, better education about disease, improved rehabilitation
  – Improved accessibility to care
Examples: Disease Management, Elderly care

• Disease Management
  – Stakeholders: hospital, GP, call centre, rehab. centre, region, patient
  – Focusses on particular application, e.g. Chronic Heart Failure, where benefits are clear, complete care cycle is addressed
  – Opportunities with home monitoring of vital signs, remote education, remote consultation, interface with hospital/regional EHR,….

• Elderly Care
  – Stakeholders: GP, care centre, hospital, region, patient
  – Addresses challenge of aging society
  – Opportunities with home monitoring, remote consultation, remote education, …
Disease Management

- Vital sign monitoring (RPM)
- Medication reminders and compliance
- Trend analysis and alerts
- Email, chat, video
- Appointment scheduling

860 million chronic disease patients worldwide

- Chronic disease
- Post trauma
- Pre-op

Digital Home

Glucose Sensor
Pedometer
Blood-pressure Cuff
Medication Tracking
Personal Health System
Fitness equipment

Cell Phone
Pulse Ox
Weight

Implant

Internet

Family care givers
Disease management service
Healthcare provider
Personal Health Record
Disease Management: focus on the complete Care Cycle

- Requires communication of medical information
- Requires re-engineering responsibilities and processes
- And much more……

Is the lack of interoperability standards and profiles limiting the progress?
Many obstacles to deploy e-Health solutions (1)

• **Political**: Establish the Context:
  – Create vision and awareness of the need to change
  – From Cure to Care, from Sick-care to Health-care
  – Seed-funding for sustainable eHealth processes

• **Organisational**: Address complete Care Cycle
  – Otherwise the benefits do not become visible
  – New models of cooperation between the stakeholders in the Care Processes need to be found, incl. Cooperation between social care and health care

• **Workflow**: re-engineering healthcare processes
  – eHealth solutions often require changes in workflow but this should be done in a collaborative stakeholder exercise

• **Financial**: Design sustainable business models
  – Provide appropriate incentives and re-imbursement
  – Don’t forget the clinician, who often has the burden but limited benefit
Many obstacles to deploy e-Health solutions (2)

• **Technical**: Ensure the right technical infrastructure
  – Interoperability to ensure the continuity of care
  – Accessibility of information at the point of care by the professional
  – Accessibility of healthcare services by the citizen
  – Security and privacy facilities

• **Legal**: Provide an appropriate legal framework
  – Privacy and security
  – Cross border health services, communication of medical data
  – Legal base for telehealth
Many obstacles to deploy e-Health solutions (3)

- **Educational:**
  - Training to use IT solutions in an effective way

- **Emotional/Cultural:**
  - Adoption of new eHealth applications means practices often have to alter their beliefs, norms, and values which are embedded in a traditional organisation of a particular services provision in a particular place under long cultural roots.
Address Strategy First

1. eHealth Strategy
2. Business Models
3. Applications
4. Technology
Approach of EHR Vendor Association in USA
Order

1. Sustainable Business Case
2. Application Use Case
3. Integration Profiles
4. Interoperability Standards
   • Will be developed out of necessity!

What about EHR?
• EHR is not an application, it is an infrastructure for many applications
Two ways of development

- EHR info model
  - Cardiac application
  - Oncology application
  - Diabetes application

- Infra Structure
  - Cardiac application
  - Oncology application
  - Diabetes application
  - Synthesized EHR
Comparison

• EHR first
  – Difficult business case, need central funding
  – Requirements not clear, many different contexts for EHR-types
  – Feedback from experience too late
  – Advantage: consistent architecture

• EHR last
  – Business Case developed through applications
  – Requirements clear and focussed
  – Quick feedback on application experience
  – Disadvantage: may develop into inconsistent architecture

• Conclusion
  – We need a piece of both, but with emphasis on the clinical application
Some relevant Consortia dealing with interoperability

- **IHE:** Integrating the Healthcare Enterprise: Consortium of vendors and providers
  - Profiles for clinical use cases and infrastructure
  - Based on standards
  - Strong cooperation between healthcare-IT vendors and providers
  - Focussed on yearly improvements
  - Started 8 years ago

- **Continua:** Consortium of vendors and providers
  - addressing profiles and guidelines in home-care
  - Protocols on top of IT and telecom standards for patient care devices
  - Home IT architecture, interface with EHR
  - Started 2006
Conclusions

• Interoperability standards should be developed in the context of a real Business Model and a realistic Application Use Case
• Involve all Stakeholders, especially the healthcare provider and the clinicians
• Try to solve all barriers for a particular application. To solve only one does not help.
• Also for EHR developments, think in terms of applications.
• It is usually better to develop interoperability standards and profiles because they solve a real problem, than to have a solution for a problem that does not yet exist.
Background slides
National Healthcare-IT programs

- Almost every country is in the process of introducing country-wide standards or infrastructures for healthcare information interchange (different from the past)
  - CfH program UK
  - AORTA, Netherlands
  - DMP, France
  - Gesundheitskarte, Germany

- This has especially impact on:
  - Connections to national backbones
  - Continuity of care from home to care centres
  - Market approach: do we take advantage of these programs, or do we wait until things have settled
Roadmap Infrastructure Requirements