

Technische Interoperabilität als Voraussetzung für eHealth

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eHealth Summit Austria
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> Technology is exciting.

Who am I?

- Electronics Engineer
- 15 yrs Med. University of Vienna, research
- Biosignal work
- Then standards, medical informatics



www.technikum-wien.at

- Program director Biomedical Engineering Sciences (Master)
- Key Research eHealth, Department of Biomedical Engineering
- Chair ONK 238, founding member IHE AT, HL7, ASSTeH, ProRec AT, ..

Innovation

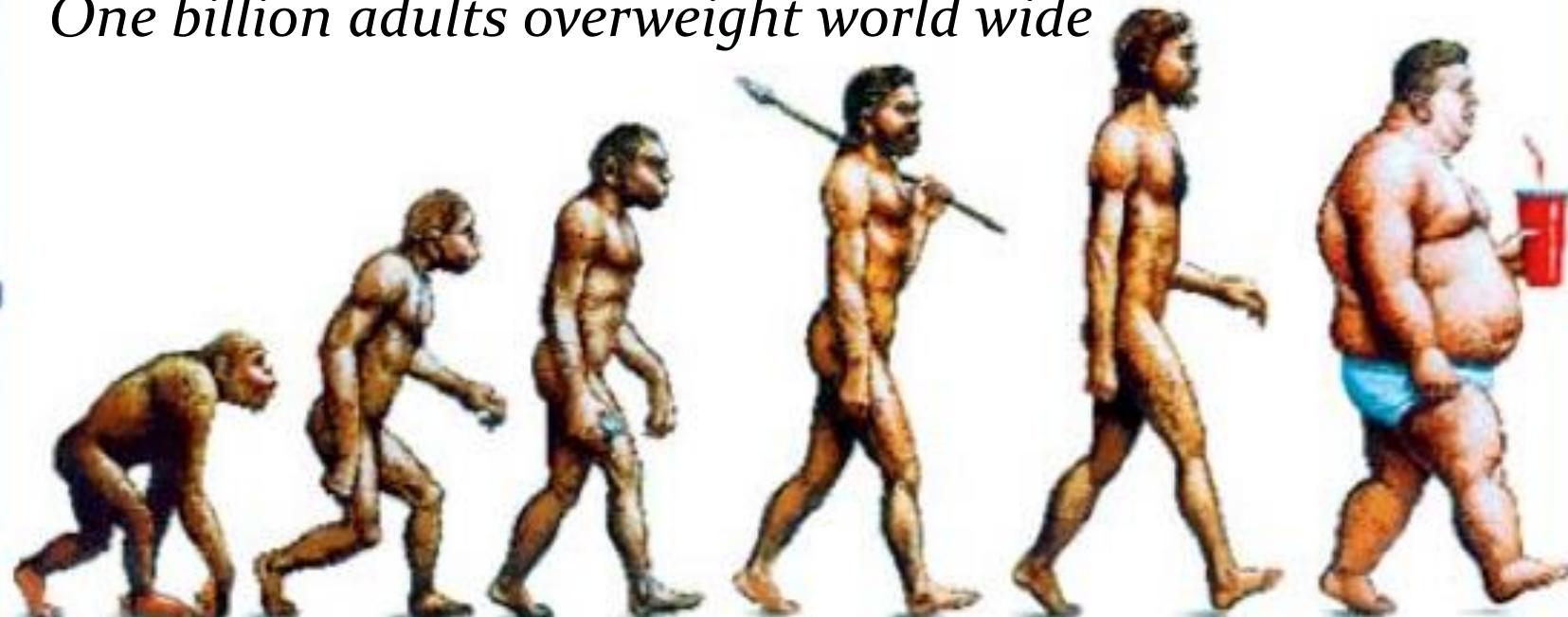
Bezeichnung in den Wirtschaftswissenschaften für die mit technischem, sozialem und wirtschaftlichem Wandel einhergehenden (komplexen) Neuerungen.

Gabler Wirtschaftslexikon Online, Springer-Verlag GmbH, Heidelberg, D, online (23.5.2014): <http://wirtschaftslexikon.gabler.de/Definition/innovation.html>

Evolution

The Economist 2003

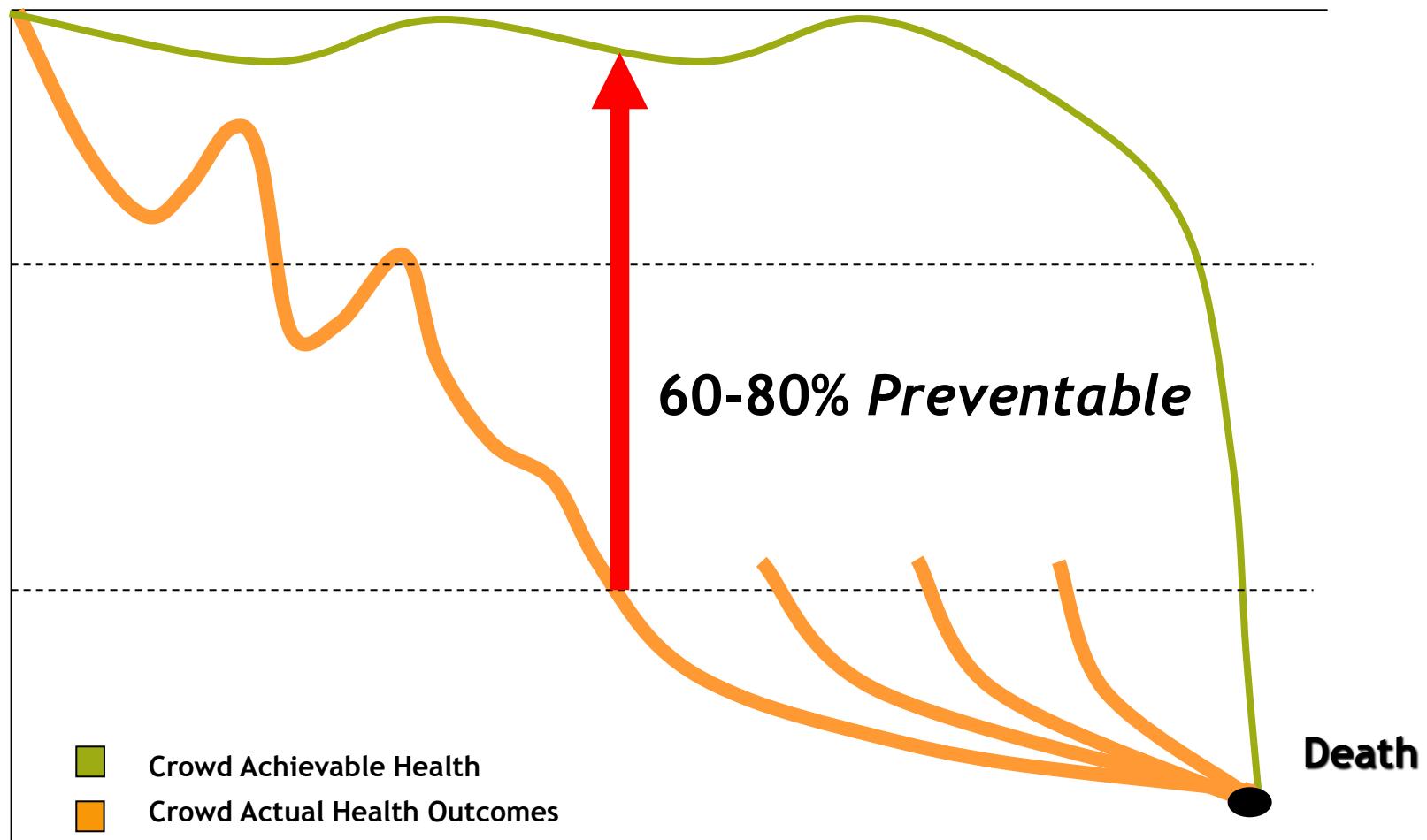
One billion adults overweight world wide



5-6 Million Years

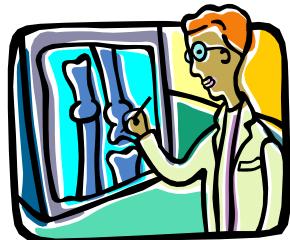
30-40 Years

Life as it is

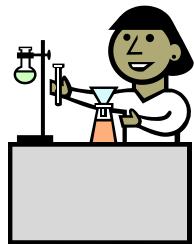


Some „power plants“ of healthcare

Radiology



Lab



Telemonitoring



IT Infrastructure

GPs, resident doctors



All of us,
friends, relatives, ...

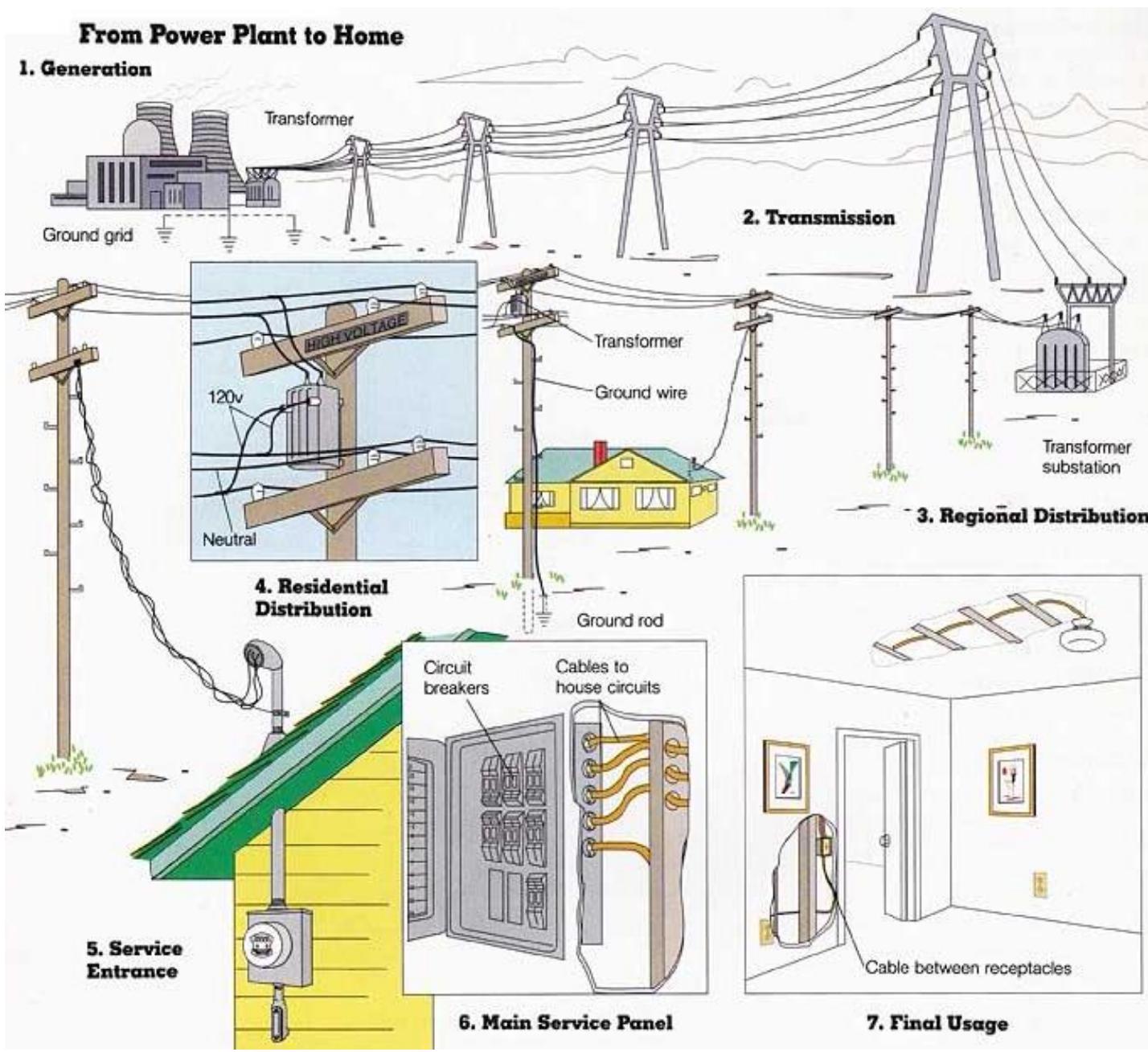
Edison light bulbs c. 1893



- Brush-Swan, U.S. base, Thomson-Houston, Perkins-Mather, Shaeffer, Edison screw

- Photographs from <http://www.sparkmuseum.com/lighting.htm>
- Concept from David Channin, MD, Guthrie Clinic
- Modified, slide and images, from Harry Solomon (Interoperability Architect, GE Healthcare) "The Standards Value Proposition"

But then: Behind the wall ...



- More standards, standards, standards, standards.
- Image source: Do-It-Yourself Resources: Supplies and Tips for Home Improvement and DIY: Basic Wiring Techniques.
- http://diy-resources.com/Basic-Wiring-Techniques_orth-0.html

Guidance from the expert



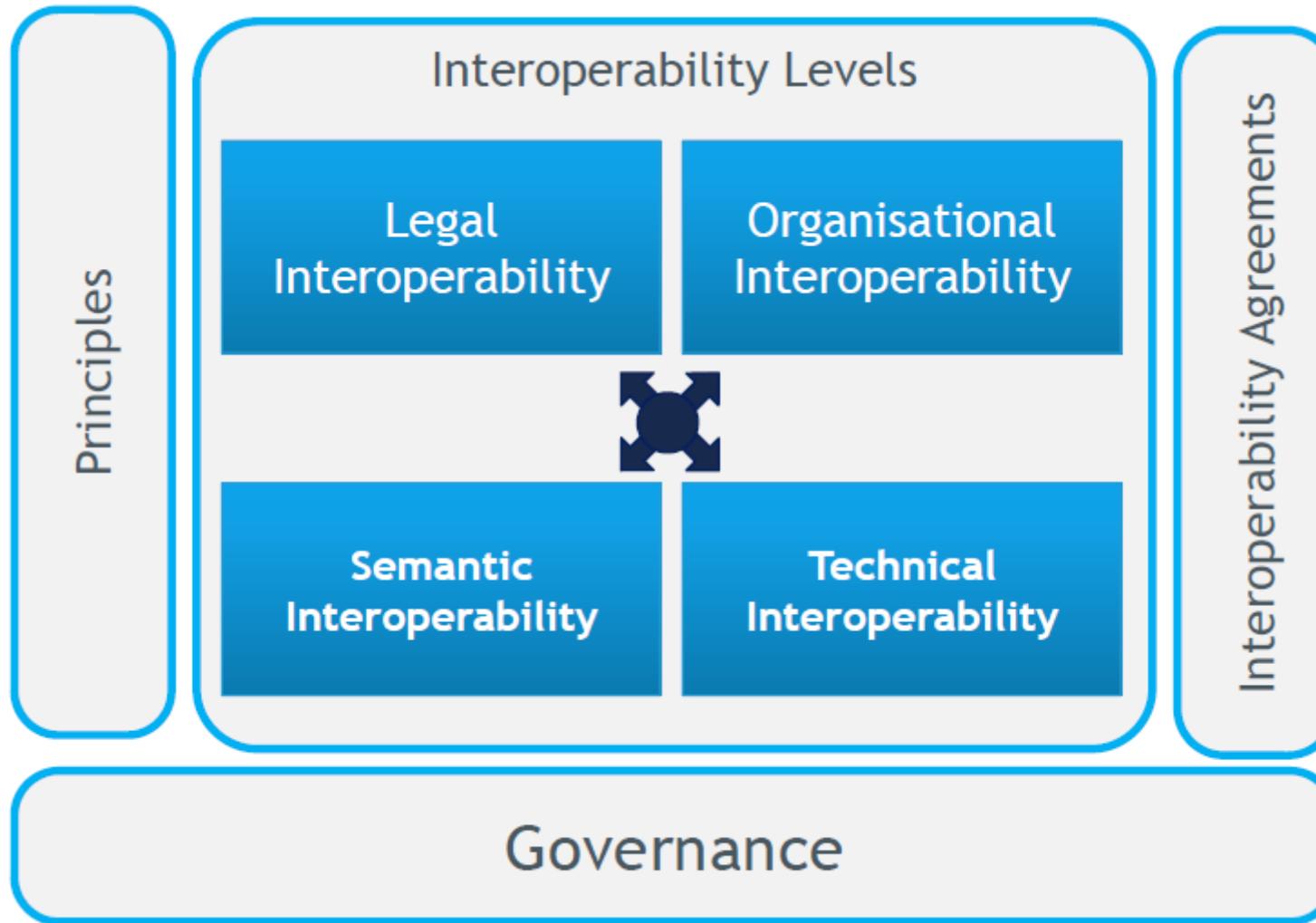
- The need to **develop national and international biomedical-networking infrastructures** that use existing and future technologies for communication, data exchange, and information retrieval.
- The need for **credible international standards for communications, data, and knowledge exchange** that will allow both commercial and academic developers of medical information systems to know what to do in order to assure the integration of their products with other developing systems
- Shortliffe E.H.: The adolescence of AI in Medicine:
Will the field come of age in the 90s? Artificial Intell.Med. 5, 1993, 93-105.



One more Shortliffe slide: Governance !!!

- „I do believe that **we must accept the impossibility** of viewing the introduction of decision support tools **as a grass-roots activity** that emerges from the research lab, (...) and then grows by some kind of mass effect to encompass an entire medical community.
- (...) will be realized when the **infrastructure** for introducing computational tools in medicine **has been put in place by visionary leaders**,
- who understand the importance of networking, integration, shared access to patient data bases, and the use of standards for data-exchange, communications and knowledge-sharing.“

Generic European Interoperability Framework (EIF): Structure



eHealth EIF eHealth European Interoperability Framework European Commission – ISA
Work Programme Vision on eHealth EIF. A study prepared for the European Commission,
DG Connect. Specific contract N° 60 Framework contract N° DI/06691-00, Version 1.2,
14/02/2013

- eHealth EIF:
Usecases /
Profiles I
- IHE (*)
- Continua (+)

Nr	Level	Use case	Profiles
1	Cross-border	epSOS project : e-Prescription and e-Dispensation for cross-border information sharing for citizens travelling in Europe	<ul style="list-style-type: none"> • IT Infrastructure: XCPD*, XCA*, CT*, ATNA*, BPPC*, XUA* • Pharmacy: PRE*, DIS*
2a	Cross-border	epSOS project : patient summaries for cross-border information sharing for citizens travelling in Europe	<ul style="list-style-type: none"> • IT Infrastructure: XCPD*, XCA*, CT*, ATNA*, BPPC*, XUA* • Patient Care Coordination: XPHR*
2b	Cross-border	epSOS project - patient having access to his or her patient summary.	<ul style="list-style-type: none"> • IT Infrastructure: XCPD*, XCA*, CT*, ATNA*, BPPC*, XUA* • Patient Care Coordination: XPHR*
3	National/Regional	Request and results (imaging results, diagnostic examinations) sharing workflow for radiology in inter-hospital setting on national/regional scale	<ul style="list-style-type: none"> • IT Infrastructure: PIX*, PDQ*, XDS*, CT*, ATNA*, BPPC*, XUA* • Radiology: XDS-I*
4	National/Regional	Request and results (laboratory reports, test results) sharing workflow for laboratory in inter-hospital setting on national/regional scale	<ul style="list-style-type: none"> • IT Infrastructure: PIX*, PDQ*, XDS*, CT*, ATNA*, BPPC*, XUA* • Laboratory: XD-LAB*
5a	National/Regional	Cross-Enterprise Sharing of Medical Summaries: Ambulatory Specialist Referral	<ul style="list-style-type: none"> • IT Infrastructure: PIX*, PDQ*, XDS*, CT*, ATNA*, BPPC*, XUA* • Patient Care Coordination: XDS-MS, XPHR*
5b	National/Regional	Cross-Enterprise Sharing of Medical Summaries: Acute Care Discharge to Ambulatory Care Environment	<ul style="list-style-type: none"> • IT Infrastructure: PIX*, PDQ*, XDS*, CT*, ATNA*, BPPC*, XUA* • Patient Care Coordination: XDS-MS, XPHR*
6	Intra-Hospital	Request and results (imaging diagnostics tests) distribution workflow for radiology in intra-hospital setting	<ul style="list-style-type: none"> • IT infrastructure: CT*, ATNA*, PDQ*, PAM*, SVS* • Radiology: SWF*

- eHealth EIF: Usecases / Profiles II
- IHE (*)
- Continua (+)

Nr	Level	Use case	Profiles
7	Intra-Hospital	Request and results (clinical laboratory tests) sharing workflow for laboratory in intra-hospital setting	<ul style="list-style-type: none"> • IT infrastructure: PAM*, PDQ*, CT*, ATNA*, SVS* • Laboratory: LTW*, LCSD*
8	Citizens at home and on the move.	Involvement of patient in documentation of his/her specific chronic disease and making it available via PC or web based applications to healthcare provider (e.g., diabetes, cardiac diseases, COPD, hypertension)	<ul style="list-style-type: none"> • IT Infrastructure: PIX*, PDQ*, XDS*, XDR*, XDM*, CT*, ATNA*, BPPC*, XUA* • Patient Care Device: HRN+, WAN+, DEC*/RTM*, LAN+ or PAN+
9	Citizens at home and on the move.	Involvement of patient in documentation of his/her specific chronic disease and making it available via mobile monitoring devices and mobile phones to healthcare provider (e.g., diabetes, cardiac diseases, COPD, hypertension)	<ul style="list-style-type: none"> • IT Infrastructure: PIX*, PDQ*, XDS*, XDR*, XDM*, CT*, ATNA*, BPPC*, XUA* • Patient Care Device: HRN+, WAN+, DEC*/RTM*, LAN+ or PAN+
10	Citizens at home and on the move.	For ever-present care outside conventional care facilities, involving the interoperability necessary from sensor devices to monitor activity, e.g. of elderly people	<ul style="list-style-type: none"> • IT Infrastructure: PIX*, PDQ*, XDS*, XDR*, XDM*, CT*, ATNA*, BPPC*, XUA* • Patient Care Device: HRN+, WAN+, DEC*/RTM*, LAN+ or PAN+

■ eHealth EIF eHealth European Interoperability Framework
European Commission – ISA Work Programme First proposal
technical layer. A study prepared for the European Commission DG Connect. Specific contract N° 60, Framework contract N° DI/06691-00 Version 1.2, 14/02/2013

Shortliffe's Prophecy becomes true! Once in a lifetime! Right at home in Austria!



- ELGA building blocks (IHE Affinity Domains) are available as products and are being installed
- Structure medical reports are available as CDA documents
 - Implementation is under way
- Access rights are decided and will be implemented in IT
 - The law is here!



Organising the „Interoperalympics“

- Athletes
- Motivation



- Regional sports clubs
 - training grounds, trainers
 - local, formal competitions
 - attending cross border events



- EU / Global organisations



- Common sets of rules
 - Discussed, harmonised widely
 - The same rules everywhere
-
- Hosts for the events
 - Competition facilities

MISSING



Soccer World Championships

- Small regional football clubs
- National football clubs
- National football team
- Qualification
- Brasil 2014



IHE / Continua



- Connectathons / PlugFests
- IHE / Continua Certified

Let us cooperate in the system change

- Administration

- Laws, contracts
 - Priorities, Goals, Environments
 - Ressources

- Medicine

- Core Competence
 - Background, Research
 - Processes



- Engineers, Industry

- IT, Applications
 - Devices
 - Innovation

- Education

- 2005: 20 „knowing“ Persons available in AT
 - 2013: 200
 - 2018: 25.000 ?

- Exciting!!



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