

Telemedicine in Finland

The Finnish national patient record archive

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Goals

- Quality of treatment
 - Internal
 - The best knowledge available
 - Quality of treatment requires correct and valid information of a patient
- Effective procedures
 - External
 - Less specialist needed
 - To decrease costs everything else but the treatment itself must be as effective as possible

Telemedicine

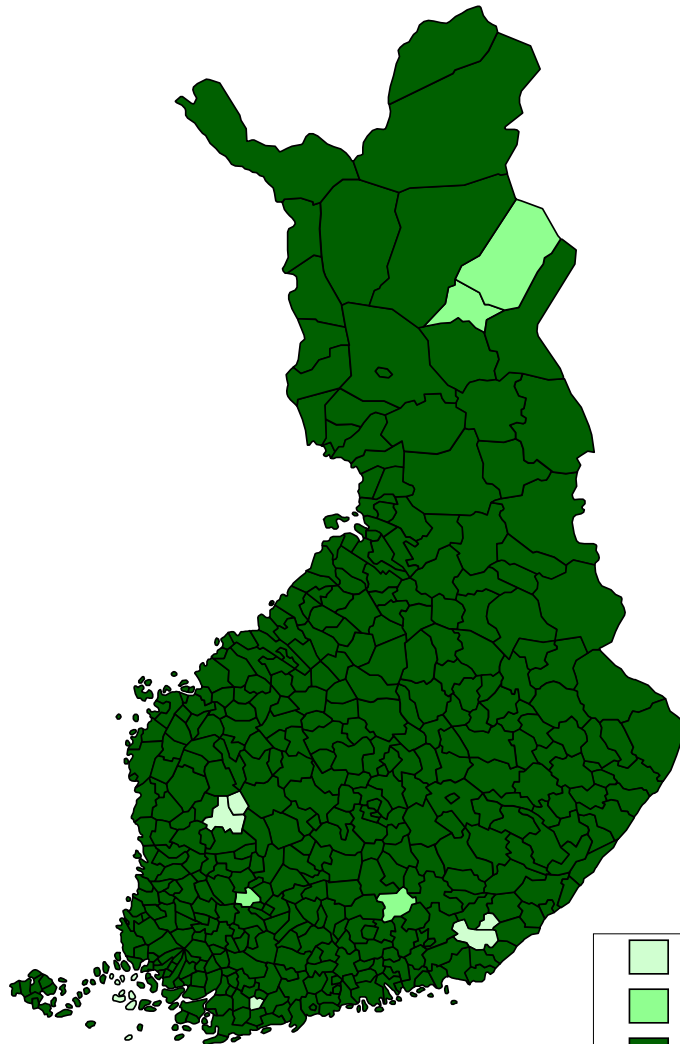
- Off-line consultation
 - P2p
 - C2p
- On-line consultations
 - P2p
 - C2p
 - Emergency
- Internet communities
 - Habbo hotel
- Technical infrastructure

Consultations between hospitals

- There are 5 university hospitals in Finland
- X-ray images are sent digitally for consultations to specialists
 - Normal operation for years
- Brain damage consultations
 - Pictures taken in a local hospital and sent to the Helsinki
 - A specialist can discuss with the local doctor and the patient using video conference system
 - Good experiences this far




The national patient record archive

EHR in primary health care centres



2005: 95,6 % of primary health care centres were using EHR and it was the main way of recording patient data in 99,4 % of them.

The usage is now catching the last small units. In 2003 93,6% of health care centres used EHR

	not in use, but planned	(9)
	piloting	(4)
	in use	(419)



National EHR project

- MSAH is coordinating the project
- Strategy was published in 2004
- National requirements defining 2003 - 06
- Supporting regional implementation by state subsidies 2004 - 07
- Building national IT services 2007 - 2010
- Legislation 2007
 - Using national archive is mandatory for public and private sector
 - Privacy needs taken into account

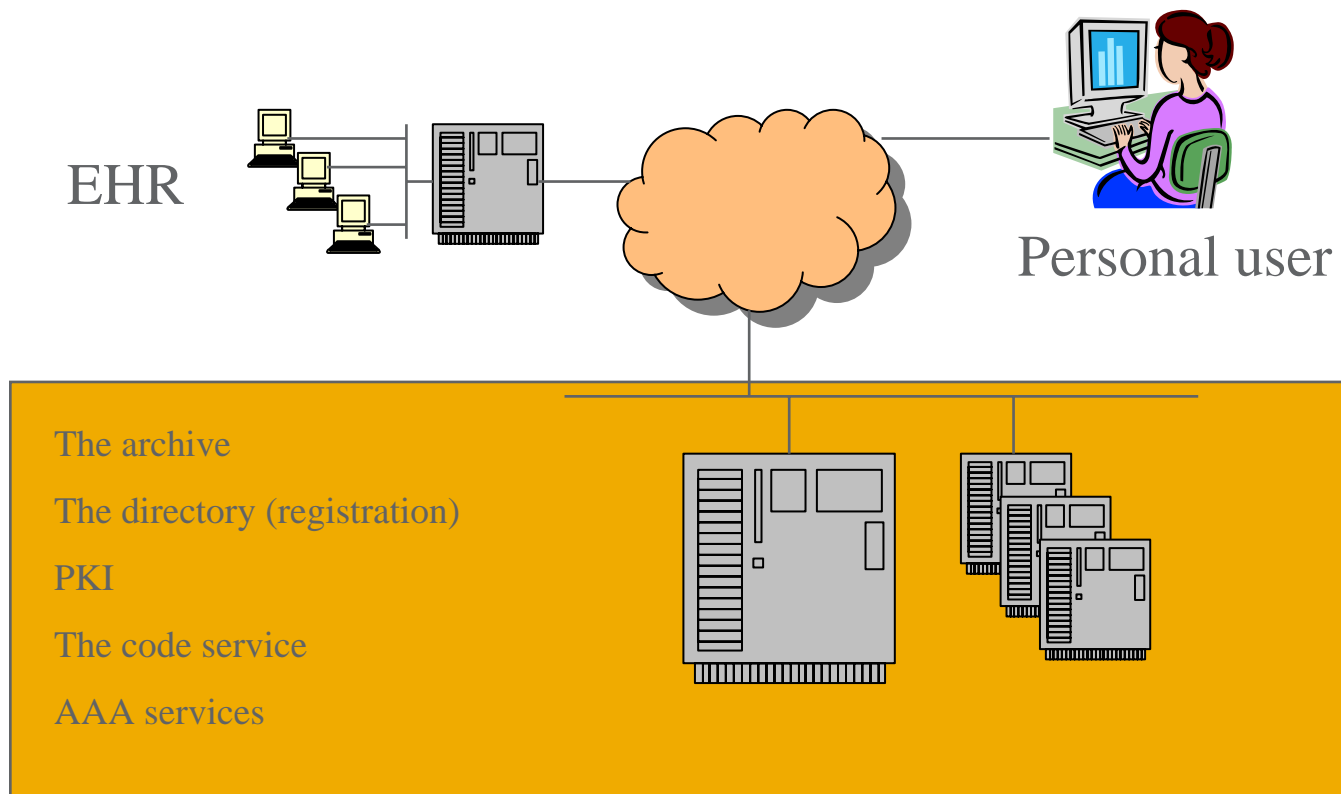
Challenges in the beginning of the project

- Paper-based journals were still widely used in hospitals
- EHR-systems differed between organizations
 - Data transfer was expensive and difficult
 - Lack of common standards for interoperability or data security
 - Lack of national IT architecture
- Patient data was usually recorded in an unstructured way (text) and could not be used effectively
- Municipalities are free to decide how to implement health care services in the frameworks given by law
 - Ineffective investments
- Legislation too general for the digital world

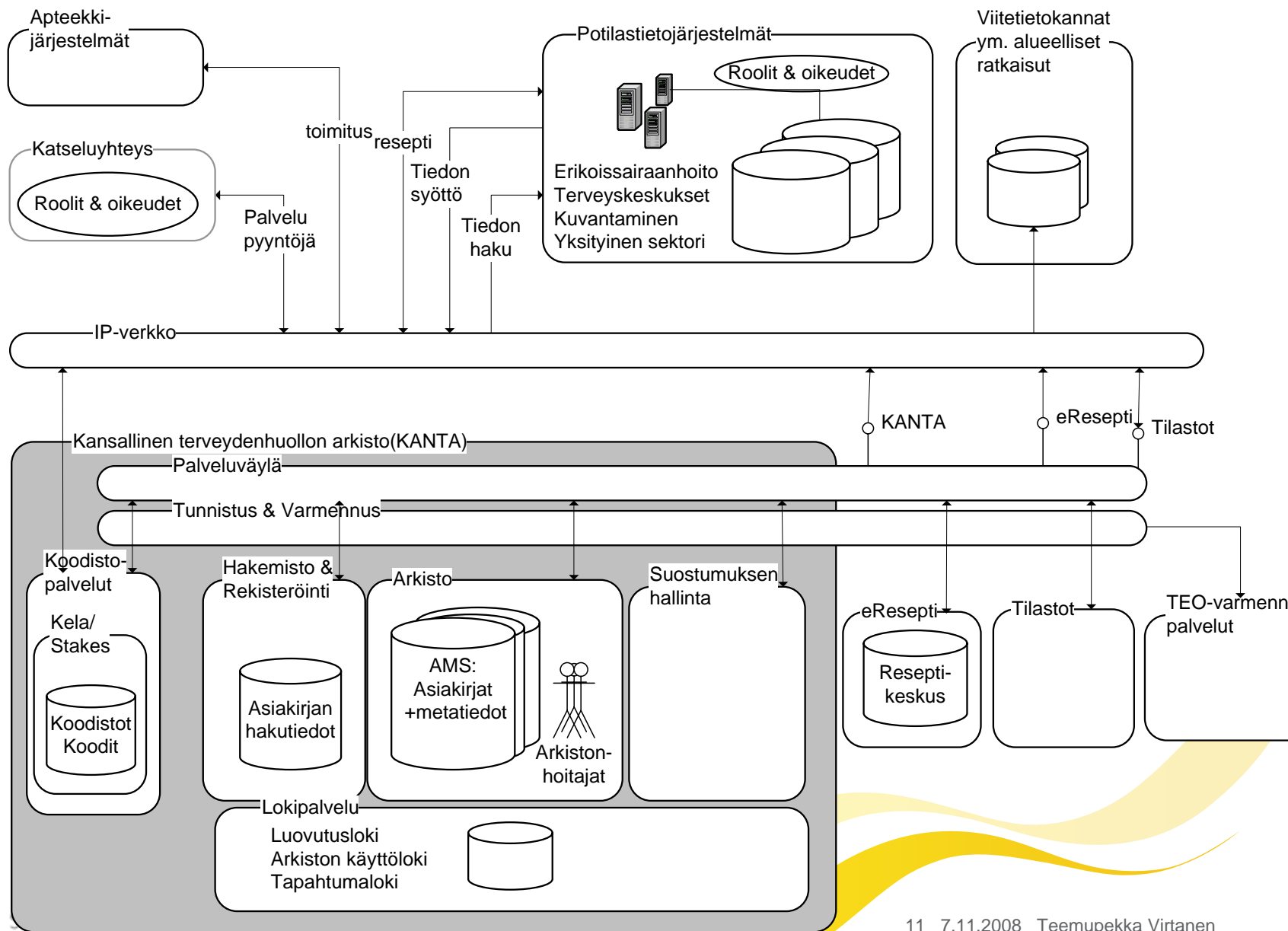
All EHRs must

- Use the nationally defined structural information that is based on nationally approved terms, classifications and codes updated by the national code server;
- Use the nationally defined set of standards (HL7/CDAR2, ISO/OID, Dicom etc.)
- Must follow the national recommendations on data security and data safety and use the national PKI service in verifying health professionals (National Authority for Medicolegal Affairs)
- Must communicate with the national IT architecture (data transferring and archiving will be based on the national digital EHR archive)
- Implementation into existing EHR-systems 2006 - >

The Architecture



The architecture



The EHR-systems

- In principle
 - Are the primary tool as before
 - Staff uses only EHRs
 - If the needed document is not in local system it is searched from the central archive
 - When a document is ready it is stored automatically into central archive
 - The new legislation causes no changes
- In reality
 - Working procedures are different and required user visible changes
 - The existing legislation is not totally followed and there must be changes in operation

The central archive

- Receives documents from EHR-systems
 - Check the content and add some meta information
 - Insert search information to the directory service and the actual content into the archive
- Deliver information to EHR-systems
 - Search information from the directory service
 - Check permissions and consents
 - Deliver information
 - Keep extensive log
- Gives a citizen possibility to check her own information using public portal

PKI services

- All the documents are electronically signed
- All the systems are mutually authenticated using electronic signatures
- All the medical staff have a smart card for authentication and signing
- Supplied by **National Authority for Medicolegal Affairs**

Experiences this far

- There is still discussion on the form of a patient record
- Changes in EHRs are a big task
 - Unify coding
 - Communication with the archive
- Consent management is difficult
 - A patient has right to decide how the information is used

eCitizen Services



Chronic diseases



*Bookings, registrations,
payments*



Interpretation of results

Digital service connections

Digital serviceconnection



Citizen and home



Service System

BASIC INFRASTRUCTURE

Documentation in standard form, Archiving, Legislation

The future

- The central archive is part of basic infrastructure making possible many kinds of new services
- There will be many kind of services using the information from the archive
 - A personal health record
 - A personal coaching
 - More detailed medical information
 - A personal time reservation for treatments
 - Secure communication between a patient and medical staff
- There are several pilots going on where these ideas are tested