



**... Auf dem Weg zur Elektronischen
Gesundheitsakte –
Ein Pilotprojekt zwischen Tirol und Wien**

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tilak

H I T T
health information technologies tirol

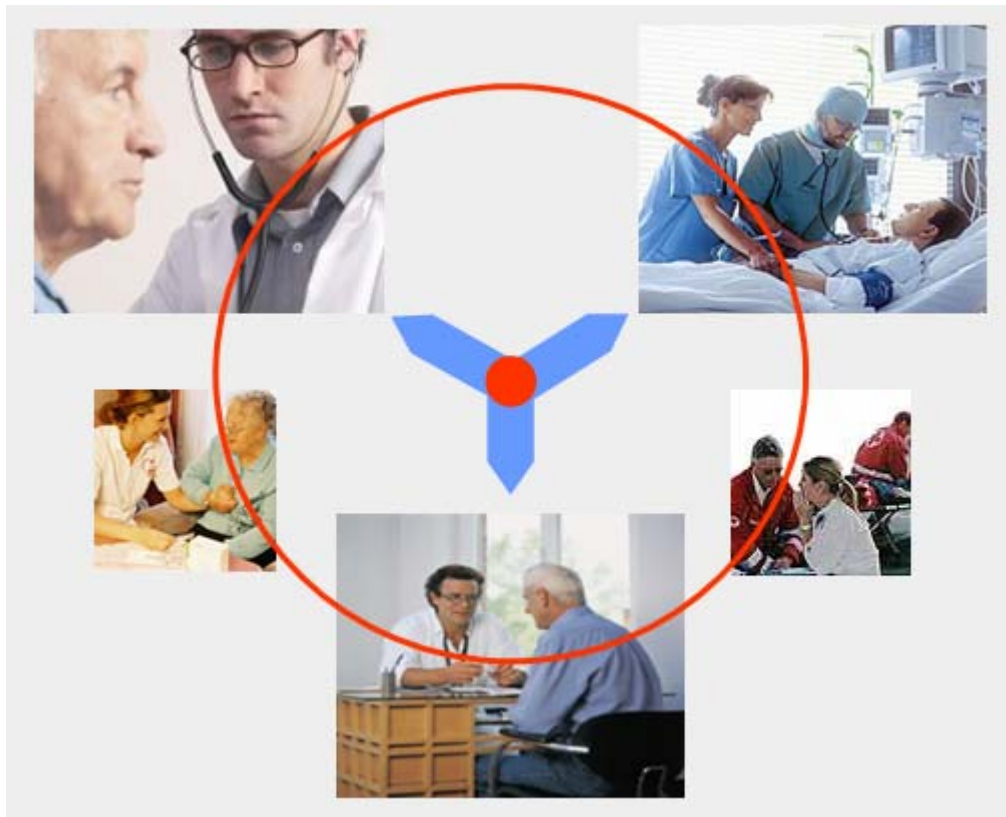


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Übersicht

- Einleitung
- health@net Ansatz
- Visionen, Anforderungen, Szenarien
- Projektstatus
- Diskussion

problem: complex communication



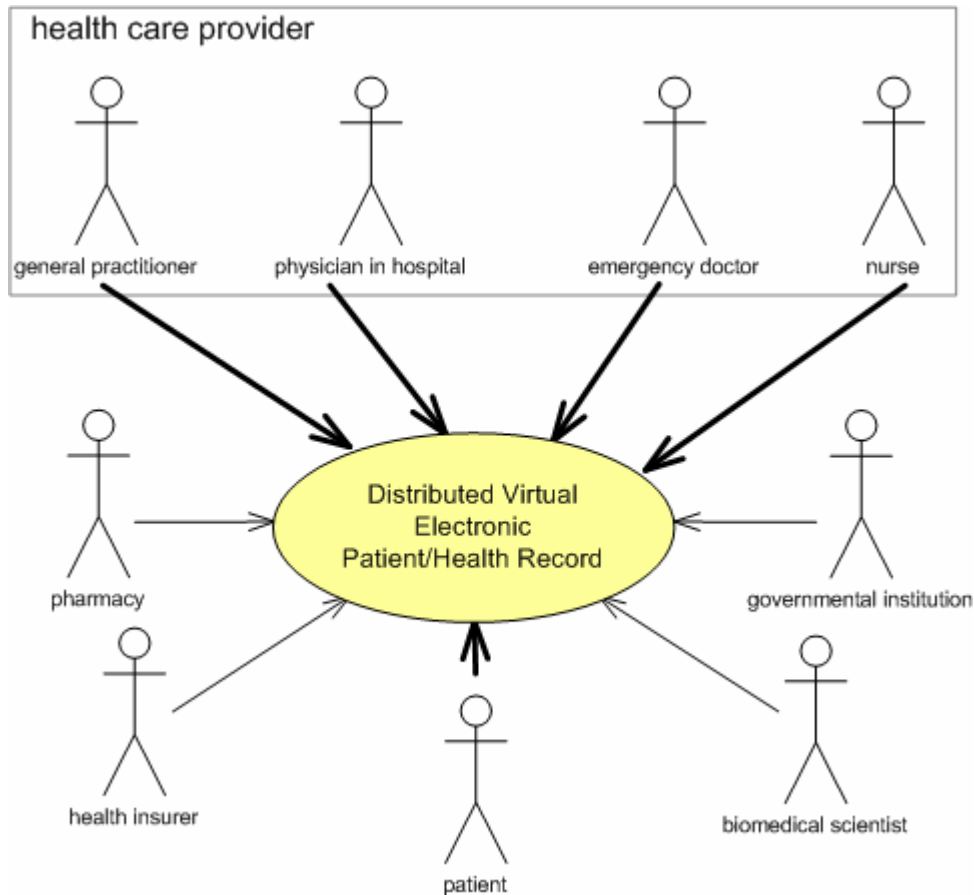
- patient mobility requires **communication** between healthcare providers
- two communication options:
 - **directed** communication (**provider** oriented)
 - **non-directed** communication (**customer** centered)

vision: customer centered communication
between health care provider

„... change of this provider-oriented, directional transmission of reports and findings towards a more **customer-centered** provision of reports and findings would support **cross-institutional information-processing**, and would therefore also improve the quality and efficiency of the health system and increase the safety of medical treatment and compliance ...”

[Ball M. *et al*, 2002]

solution: virtual cross-institutional Electronic Patient Record



- distributed customer centered model (vs. provider oriented)
- information resides at producing health care institution, but is shared with other actors
- high potential for quality improvement and financial savings
- socio-technical integration of all actors necessary

health@net: partners and key data

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MEDIZINISCHE UNIVERSITÄT
INNSBRUCK



partners

- 2 major hospital holdings in Austria (KAV and TILAK)
 - 40.000 staff members
 - 500.000 in-patients p.a.
- 3 Universities in Western Austria (UMIT, I-MED, LFU)
- excellence center (HITT)

key data

- project start/end: 2002 ... 2009
- project staff member: 17

objectives



- creation of a **cross-institutional health care network** (Shared Electronic Patient/Health Record)
- **secure communication** between health care actors (hospitals, laboratories, pharmacies, etc)
- **electronic transmission** of medical results
- communication platform between **inpatient and outpatient domain**
- access to medical data by **citizens/patients**

visions & scenarios 2014



Citizens expect ...

- guarantee of the highest possible degree of data privacy protection and security
- access to one's own health record and control over access rights
- medical contents should be adapted for patients
- possibility to add personal entries and to keep medical diaries

visions & scenarios 2014



Doctors expect ...

- prompt access to treatment relevant information (medical history)
- adapted visualization of information and emergency data set (i.e. list of medication and latest diagnoses)
- emergency access without explicit consent of the patient (but with documentation in his medical file - the patient must later be notified of this)
- electronic transfer of charges to the health insurers
- electronic prescriptions and confirmation whether a medication was picked up or not

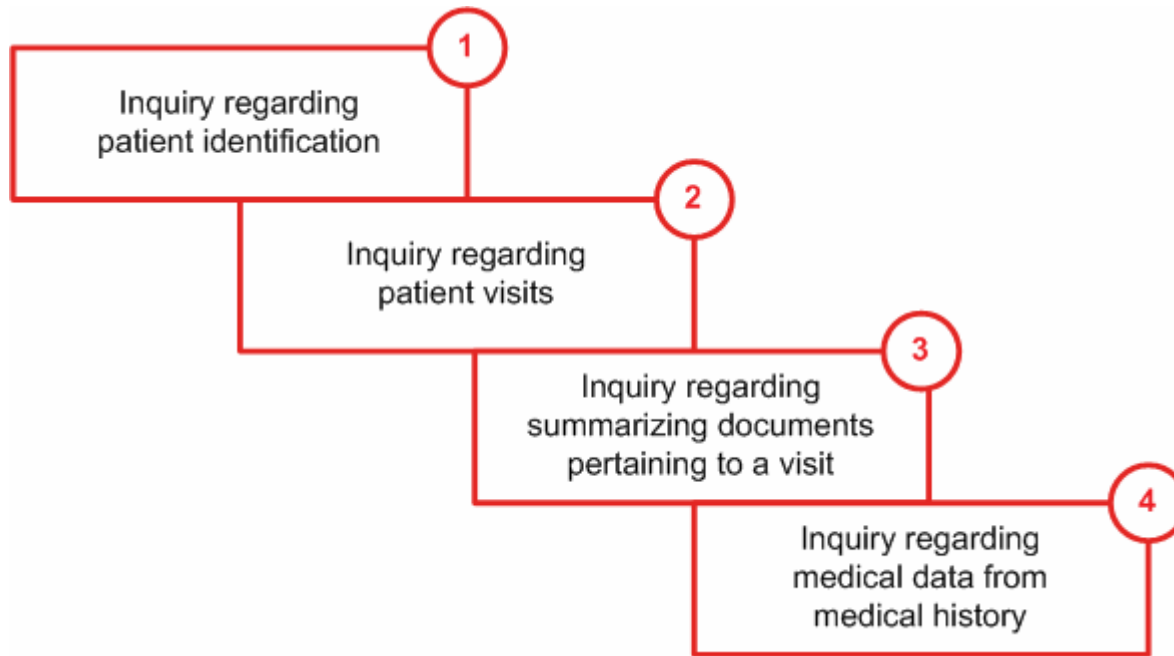
overall requirements

- guarantee of **highest possible data security**, high scalability / extensibility and high availability, avoidance of a „single point of failure“ or a „single point of attack“
- consideration/integration of **existing infrastructure** and request of **distributed data storage**, **cost-saving operation** (no additional data processing centers)
- avoidance of **information flood** for medical professionals
- rebutting doubts regarding the „**transparent patient**“ or also the „**transparent doctor**“
- strong request for an **Open Source** solution

challenge

- non-existence of an **established common master-patient-index** in Austria
- non-existence of **generally accepted common standards** (neither on a communication level nor in content)

process of a cross-institutional communication (4-Step Model)

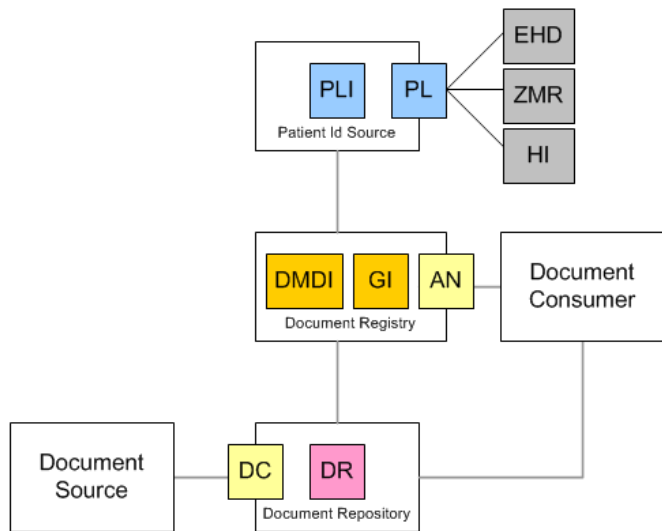


Through fully- or partially automated sequential step-by-step-handling of these four levels a cross-institutional medical inquiry can be realized, under preservation of data protection regulations.

system architecture / main services

basic concept for document sharing

- provider manages his own document repository and document index
- in case of search for patient data: automatic search in all relevant indices
- index gives description and link to document (independent of physical location)

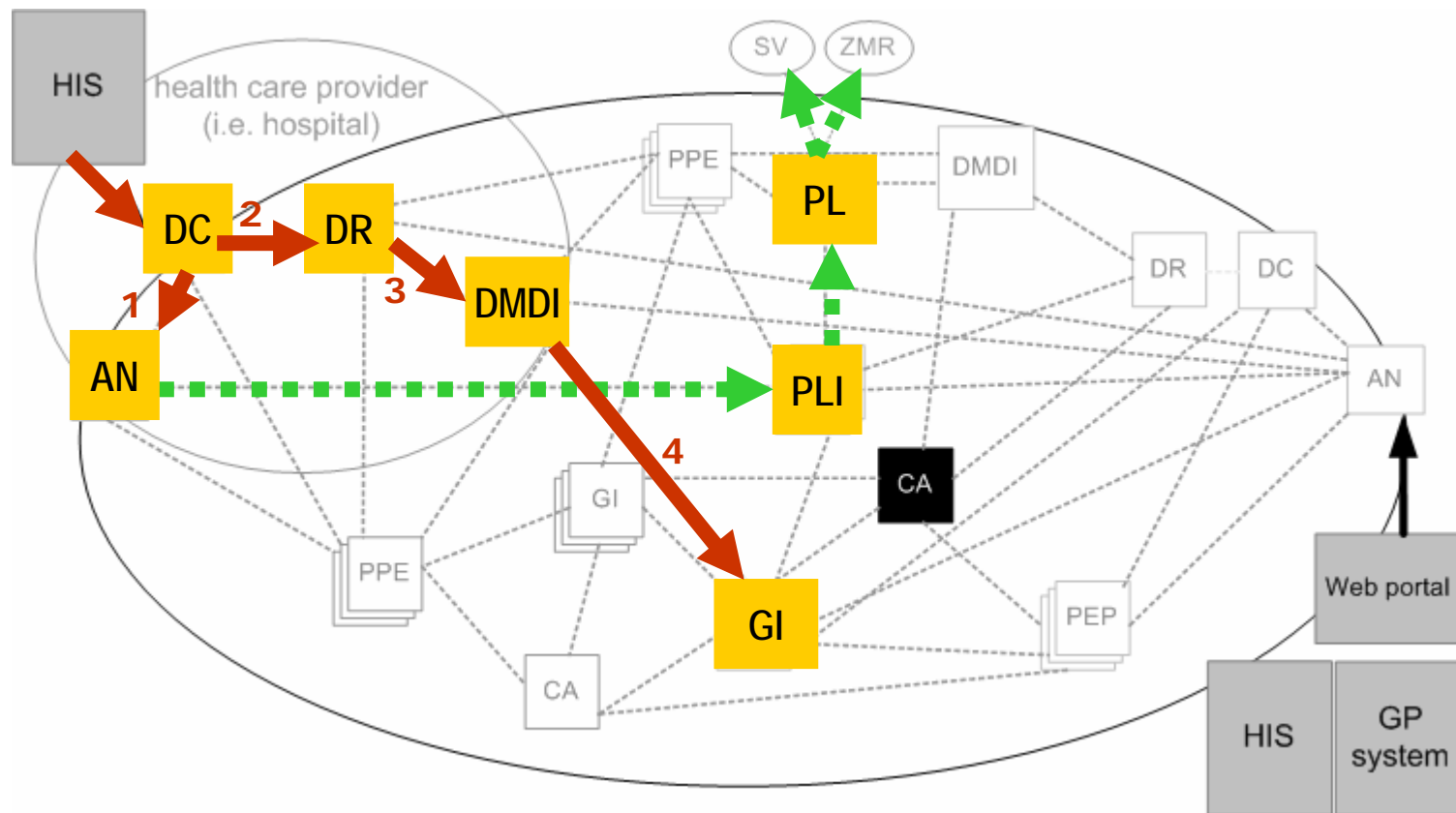


based on IHE-XDS

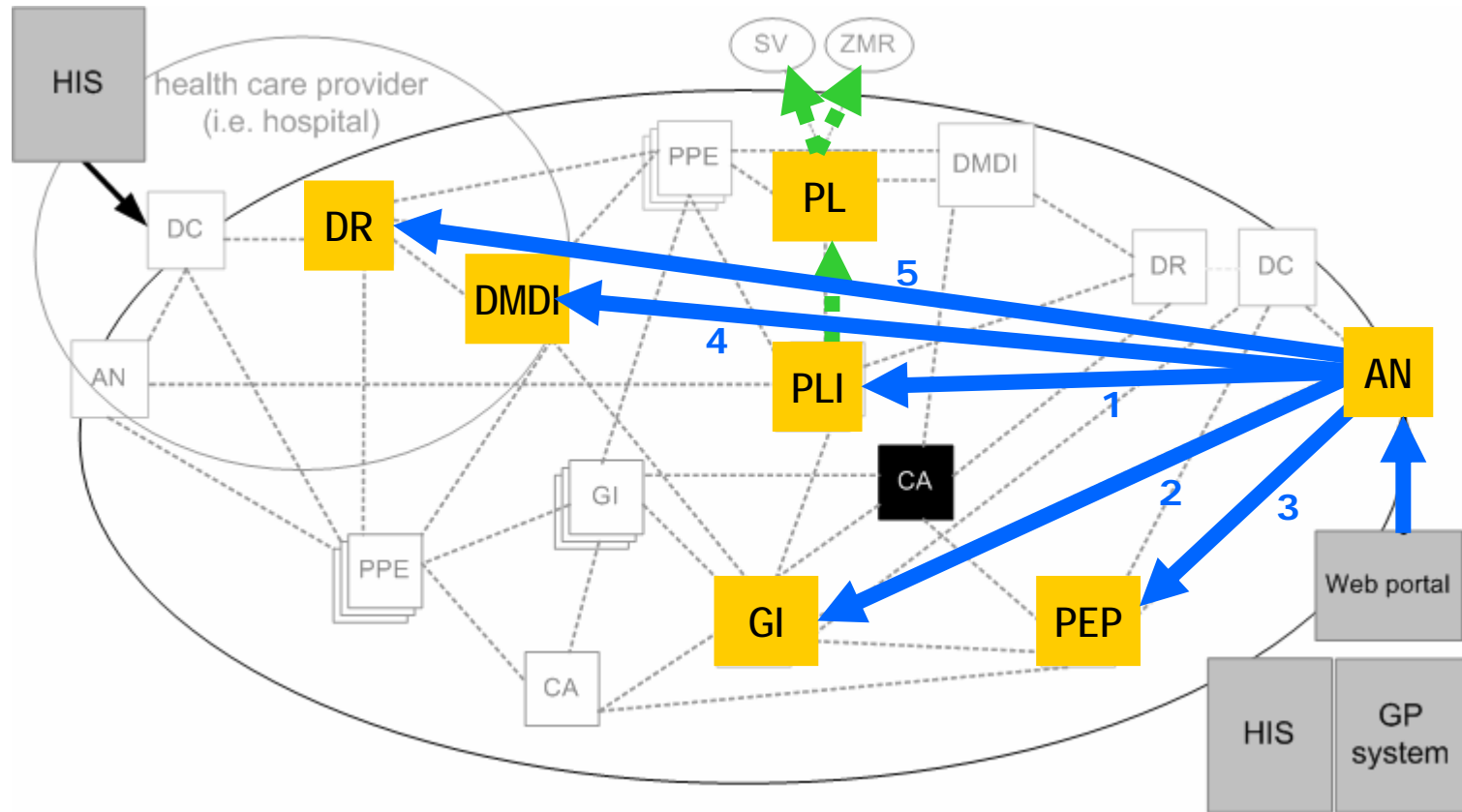
realization of basic concept

- usage of open source components
- web service technology, IHE XDS framework
- access by open interfaces

transaction: provide and register document set

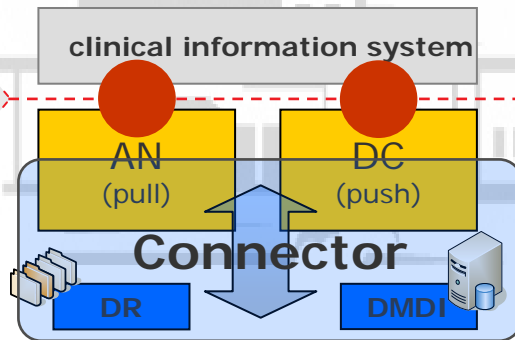


transaction: query documents



system architecture / interfaces

Healthcare institution



- submitDocument()
- registerDocument()
- HL7 Interface
- DICOM Interface

health@net

Austrian e-card Infrastructure, Internet

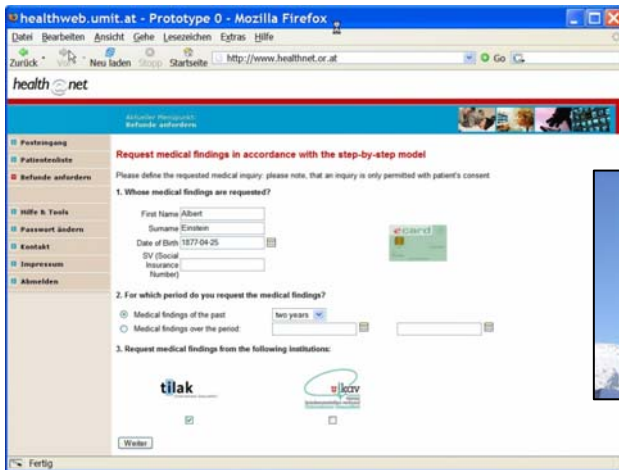
system architecture / security summary

- **Only indices** in SEHR (no patient demographic data)
- Medical information stored at “producer” site
- **NO central component**
- Encrypted communication, based on certificates

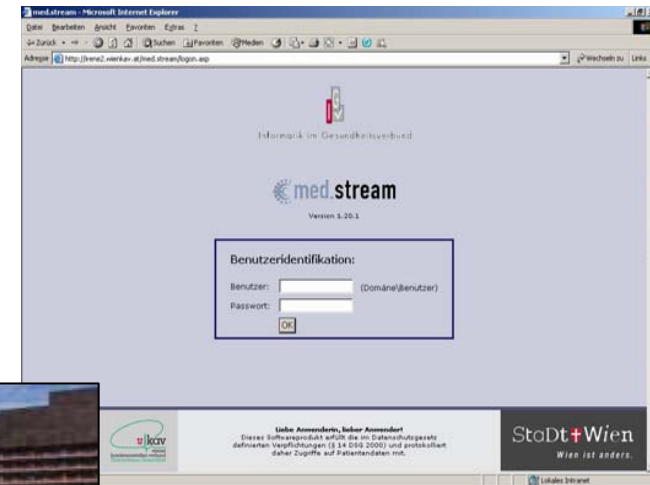
current state

- **first prototype finished** (TILAK/KAV), first release candidate by end of Q3/2006 (plan: code stabilization, testing, connection to other actors)
- conform with **Austrian eHealth Initiative** (EHI) and law
- based on existing and approved **web service** technology
- usage of secure **e-card / e-government** infrastructure
- **scalable** up to a nation wide (Europe wide?) secure healthcare network

web portal: current state (prototype for automatic request of medical findings)



TILAK



KAV

project outlook



How real are SEHRs worldwide?

- **USA:** National Health Information Network (NHIN)
- **Canada:** Canada Health Infoway Project with IHE consideration
- **Australia:** Service oriented Architecture based on openEHR
- **EU:** eHealth action plan, eHealth strategies in member states, discussion and implementations currently in nearly every country, examples:
 - Austria (E-Health Initiative recommends IHE-XDS, e-card, feasibility study, health@net approach)
 - Belgium, Denmark (Webservices)
 - Netherlands, UK, Ireland (HL7)
 - Norway, France, Germany (Webservices, IHE, ebXML)
 - Slovenia, Sweden (Edifact messages)

discussion

- realization of **Shared Electronic Patient (Health) Records** likely within next few years
- **tight cooperation** between stakeholders necessary
- stepwise strategy was useful for gaining knowledge and receiving quick results
- project partners comprises **all 3 universities of Western Austria** and **2 major hospital holding companies** (KAV and TILAK)
- health@net is **precursor** in Austria, has ambitions for Nation / Europe wide model project

thank you for your attention

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