Building a Business Collaboration Infrastructure for Health Care
Experiences from Switzerland

Dr. Peter Rohner
University of St. Gallen
Institute of Information Management
Competence Center Health Network Engineering (CC HNE)
Mueller-Friedberg-Strasse 8
CH-9000 St. Gallen, Switzerland
Agenda

- Healthcare in Switzerland
  - Competence Center Health Network Engineering (CC HNE)
  - Problems
  - Networkability
  - eHealth Collaboration Infrastructure (eHCI)
  - Investment Dilemma
  - National/Regional eHCI
  - Summary and Outlook
Healthcare in Switzerland
Structure

- 7.5 mio. inhabitants
- Federal / decentral structure:
  - Federal government (definition, regulation and controlling of health issues)
  - 26 provinces (execution with particular regulation, distinct organisations and infrastructures)
- Combination of public, subsidised private and fully private systems:
  - Public (state-owned): university hospitals, provincial hospitals
  - Subsidised private: (home) care services
  - Fully private: hospitals, specialized clinics, health centers, general practitioners, insurance companies (health insurance is mandatory), service providers
- Distinct structures and payment systems for inpatient and outpatient services („SwissDRG“ coming soon, „TARMED“)
Healthcare in Switzerland

Competition in Service Delivery

- "privatized"
- "socialized"

? ? ?

public private

cost investment

© 2008 IWI-HSG, CC HNE, Dr. Peter Rohner
Slide 4
Healthcare in Switzerland
Cost Development


Institute of Information Management
Healthcare in Switzerland
International Comparison (Cost as part of GDP)

Agenda

- Healthcare in Switzerland
- Competence Center Health Network Engineering (CC HNE)
- Problems
- Networkability
- eHealth Collaboration Infrastructure (eHCI)
- Investment Dilemma
- National/Regional eHCI
- Summary and Outlook
CC HNE
Organization and Purpose

- Part of the Institute of Information Management at the University of St. Gallen
- Small, very specialized team
- Exchange of best practice
- Management education
- Design research (create new and innovative artefacts that address relevant problems; .. together with the relevant partners; ... intensive evaluation phases)
- Our intention
  - We do not intend to change the Swiss healthcare system (directly)
  - we support our members in their own transformation (quality of outcome, efficiency of operation, cost control, competitiveness, …)
  - therefore we do change the system (indirectly) 😊
CC HNE
Serving the Swiss Hospitals

Kantonsspital Aarau
Kantonsspital Baden
Kantonsspital Winterthur
Kantonsspital St. Gallen
Universitätsspital Basel
Universitätsspital Bern
Insel Spital
INSEL SPITAL
Kantonsspital Schaffhausen
Kantonsspital Bern
Kantonsspital Zürich
UniversitätsSpital Zürich
Spital Region Oberrgau
Solothurner Spitäler AG
Schweizer Paraplegiker Zentrum

Serving the Swiss Hospitals

© 2008 IWI-HSG, CC HNE, Dr. Peter Rohner
Säde 9
CC HNE
Research areas

- Cooperation and Collaboration:
  - Primary Care (Hospital) - Secondary Care
  - Hospital - Hospital
  - Hospital - Insurance
  - Hospital - Supplier (SRM)

- Process Management (administrative and clinical):
  - PBB: Process Building Blocks (services in the organization layer; an FP6-EU-research-project)
  - Process-oriented patient identification (as a service and a centerpiece between the organization layer and IT layer)

- Business value of IT in healthcare (together with industry partners)
Agenda

- Healthcare in Switzerland
- Competence Center Health Network Engineering (CC HNE)

Problems

- Networkability
- eHealth Collaboration Infrastructure (eHCl)
- Investment Dilemma
- National/Regional eHCl
- Summary and Outlook
Problems
Goals

Quality
(Producing a steady outcome; safety)

Efficiency
(Doing the things right)

Effectiveness
(Doing the right things)
Problems
Effectiveness (of a Hospital)

- High degree of regulation:
  - Law
  - Politics
  - Service Agreements
  - ...

- No incentives for a patient-centric behaviour (e.g. reduction of waiting times, conjoint treatment planning, swift information) or patient experience

- ...

© 2008 IWI-HSG, CC HNE, Dr. Peter Rohner
Slide 13
Problems
Efficiency and Cost

- The Whole System
  - Ageing of the society; chronic/degenerative diseases
  - Density of supply
  - Growing number of doctors
  - Technological advancements
  - Rising expectations

- Hospitals
  - Many incentives for expansion
  - Relationship between cost and price (in spite of DRG)
  - ...

Source: Institut für Sozial- und Präventivmedizin der Universität Zürich
Problems
Quality of Outcome (incl. Patient Safety)

- Some Examples (...):
  - Blood Transfusion Errors
  - Wrong Side Surgeries
  - Medication Errors
  - ...

- CIRS

- Opposition against transparency [in an industrialized and competitive environment, it’s the customer who judges the quality, in healthcare it’s the „supplier“…]

- ...

© 2008 IWI-HSG, CC HNE, Dr. Peter Rohner
Slide 15
Problems
Health Care Compared to Competitive Industries

Health Care

- **Outcome (Patient)**
- Monolithic structures with a low degree of (external) division of labour
- Limited competition (in the state-owned sector)
- Hierarchies, administrative agreements
- Costs (plans)
- Better/more outcome leads to higher costs

Machine Works (Ex.)

- **Output (Customer)**
- Very high degree of division of labour between the actor (industrialization)
- Intensive competition
- "Coopetition" (**networking** and **standards**)
- Prices (market)
- More output leads to diminishing costs
Problems
Transformation Will Take Place

- The Rapidity … of Transformation [Greenwood, Hinnings 1996]:
  - „Highly regulated sectos withstand change …“,
  - „If there is a disruption strong enough…, change will be radical and happening fast“
Problems
Transformation Path (Rather Internally)

- The Evolving World of Health Care Organizations [Scott et al 2003]: Reduction of government-owned hospitals,
  - Competitiveness:
    * Running a hospital as a business
Problems
The Swiss Hospital Agenda: Competitiveness

- SWOT
- Strategie
- Marketing
- Markenpolitik
- Geschäfts- management
- Klinische Pfade
- Kostenmanagement
- Fallmanagement
- Patientenzufriedenheit
- Qualitatsmanagement
- Kooperationen (Zulieferer, Spitälere, Krankenkassen, Hersteller, Service Provider)
- Qualitatsmanagement

- Outcome-Transparenz
- Organisationsstruktur
- Management
- Mitarbeiterentwicklung
- Zielvereinbarungen
- Benchmarking/Assessment
- Risikomanagement
- Manager E-Health

Physicians do typically not have any management education
Problems
Transformation Path (Also Externally)

- The Evolving World of Health Care Organizations [Scott et al 2003]: Reduction of government-owned hospitals,
  - Competitiveness:
    - Running a hospital as a business [see you consultant]
  - Interconnection of the actors [research topics]:
    - Higher level of Specialization
    - Increase of cooperation between healthcare service providers
    - Advance of collaboration between healthcare service providers and other actors
    - Integration of different partners into delivery systems, „combined with insurance and financial function …“
  - …
Agenda

- Healthcare in Switzerland
- Competence Center Health Network Engineering (CC HNE)
- Problems
- Networkability
  - eHealth Collaboration Infrastructure (eHCI)
  - Investment Dilemma
  - National/Regional eHCI
  - Summary and Outlook
Networkability is the ability of every single actor to team up with other players (in the health care sector)

- rapidly
- and with low setup costs for the joint delivery of services
Networkability
A Complex Task: Some **Business** Engineering Needed…
… leading to a higher IT-adoption rate

Source: Based on [Winter2003]
Networkability
Teaming Up…

Hospital

Strategy Layer

Organisation Layer

Integration Layer

Software Layer

Cooperation Strategy

Collaborative Processes

Compatible Applications

Common Interfaces
Networkability
Factors (Objects) Influencing Networkability

Strategy Layer

- ICT Strategy
- Corp. Strategy
- Clear Role, Position
- Will to cooperate
- Incen-
tives
- Corp. Dvpmnt.

Regulation

- Politics
- Law
- Public Admin.
- Service Agreements
- Interest Groups

Organisation Layer

- Project Portfolio Mgmt
- SLA
- Process Manage-
ment
- Process Goals (Perf. M.)
- Boards/
Comm.

Integration Layer

- Portals
- Data Exchange (EAI, ...)
- DMS (incl. PACS)
- WFMS
- Tech Services
- IT Architecture
- Portals

System Layer

- „CRM“
- SCM/SRM
- HIS, ...
- Op. Apps
- ICT-
Standards
- DWH/
MIS

Software Layer

- Public Health
- Research
- National E-Health-
Strategy

Adaptability

- Team Capabilities
- Communication Capability
- Customer Orientation
- Economic Orientation
- Patient-Centric Behaviour
Networkability
Evaluation of the Factors (Objects)
Networkability
Priority of the Factors

Incentivemanagement
Cooperation management
Performance management
Project portfolio management
Processmanagement
Committee work
ICT standards
ICT integration
Portals
Cooperation management
Analytic applications
Committee work
Processmanagement
ICT architecture
ICT strategy
Performance management
Operational applications
Project portfolio management

Influence on the Networkability of the Healthcare Sector

A of little importance
B moderately important
C important
D of little importance

Influence on the Networkability of the Hospital

Institute of Information Management
University of St. Gallen

© 2008 IWI-HSG, CC HNE, Dr. Peter Rohner
Slide 27
Agenda

- Healthcare in Switzerland
- Competence Center Health Network Engineering (CC HNE)
- Problems
- Networkability
- eHealth Collaboration Infrastructure (eHCI)
  - Investment Dilemma
  - National/Regional eHCI
  - Summary and Outlook
eHealth Collaboration Infrastructure

Teaming Up …

Cooperation Strategy

Collaborative Processes

Compatible Applications

Common Interfaces

Coop. Culture
eHealth Collaboration Infrastructure
Teaming Up: Hub and Spoke…

\[ \frac{n \times (n-1)}{2} \]

Integration System

© 2008 IWI-HSG, CC HNE, Dr. Peter Rohner
Slide 30
eHealth Collaboration Infrastructure
Teaming Up: Standards and Services

Hospital A

Service Provider B

Hospital C

Insurance D

eHealth Collaboration Infrastructure (Standards and Services)
eHealth Collaboration Infrastructure
Types of Cooperation and Collaboration

- Primary Care - Secondary Care (Hospital)
- Hospital - Hospital (e.g. Regionalization, Specialisation, Shared Services)
- Hospital (or Delivery System) - Insurance
- Hospital - Supplier or Service Provider (e.g. Ambulance, Blood Donation, Medical Equipment)
- Hospital - Government Agency
- … also over the border (Austria, France, Germany, Italy)
eHealth Collaboration Infrastructure
Different Combinations of Partners (Business Models)

- B2E (e.g. use of a HIS, PACS)
- B2B2E (e.g. resource and appointment management; typically with user interaction)
- B2B (e.g. logistics data, payment; typically without user interaction)
- B2C (e.g. HMO portal)
- B2B2C (e.g. EHR portal)
- B2C2B (e.g. EBPP with „Tiers Garant“)
eHealth Collaboration Infrastructure Services (1/2)

- EHR (…)
- Patient Relationship Management
- „Kostengutsprache“ (insurance states that it will pay the cost)
- Billing
- Financial Clearing
- Prescription
- Doctors Letter
- Resource Planning
eHealth Collaboration Infrastructure Services (2/2)

- Treatment Planning
- Diagnostic Support
- Telemedicine Support
- Knowledge Sharing
- Shared Commercial Services (e.g. Logistics, SRM/SCM, Finance)
- Catalog Services (e.g. Pharmaceutical Master Data)
- Identity Management (Health Professionals)
- Patient Identification (MPI, …)
- …
Agenda

- Healthcare in Switzerland
- Competence Center Health Network Engineering (CC HNE)
- Problems
- Networkability
- eHealth Collaboration Infrastructure (eHCl)

- Investment Dilemma
- National/Regional eHCl
- Summary and Outlook
Investment Dilemma
Complexity
Investment Dilemma
Value of an IT Solution for a Single Player

- Differentiation
Investment Dilemma
Value of an IT Solution for a Network of Players

- Networking
Investment Dilemma
What has to come first?
Agenda

- Healthcare in Switzerland
- Competence Center Health Network Engineering (CC HNE)
- Problems
- Networkability
- eHealth Collaboration Infrastructure (eHCl)
- Investment Dilemma
- National/Regional eHCl
- Summary and Outlook
National/Regional eHCl
Swiss Landscape (of RHIOs): Specialization and …

- Centris (full service provider for insurance companies)
- H-Net (data exchange between insurances and hospitals (mainly administrative data) and between hospitals (mainly radiology pictures))
- HIN (trusted mail between hospitals and general practitioners)
- Medidata (data exchange between insurances and hospitals (mainly administrative data))
- More then a dozen trust centers for general practitioners
- One service center for most independent Swiss pharmacies
- Some provincial pilots („eKOGU“, „MediSwiss“)
- …
National/Regional eHCl
Swiss Landscape (of RHIOs): … and Dependency

- Most of the service providers are owned by a large insurance company, an association or a group of specific actors etc. and are therefore **not mutually trustworthy**
- **no service provider supports all** business models or supplies the full spectrum of services
- the **service providers are not linked** (the actors have to be connected to multiple service providers [!])
- the **roles** (exclusive service provider or a shared service provider or a service integrator) are continuously changing
- the services which are provided are concentrated on the **system layer** (for data exchange); the ability to manage processes and to foster certain business models is lacking
National/Regional eHCl
Looking for a Shared Service Provider (Intermediary)
National/Regional eHCl
Questions (1/2)

- Who defines the role of an intermediary?
  - The federal government („Bund“)?
  - The conference of the regional health secretaries („GDK“)?
  - Actors‘ associations?
  - The „market“?

- Who should act as the intermediary?
  - One of the existing Swiss RHIOs by extending its services?
  - Some of the existing Swiss RHIOs by integrating one another?
  - A new Service Provider (from the healthcare industry, from the IT industry, from the „Service Public“, from abroad)?

- How can this intermediary be financed?
  - Through a „Public Private Partnership“?
  - By transaction fees?
  - By a tertiary use of clinical data?
  - …?
National/Regional eHCI
Questions (2/2)

- Who should/can/wants/will be forced to take the lead?
  – The federal government („Bund“)?
  – The conference of the regional health secretaries („GDK“)?
  – Actors‘ associations?
  – The „market“?
National/Regional eHCI
„Good Governance and Regulation“

- „privatized“
- „socialized“

- investment
- cost

- public
- private

Questions:
- ?
- ?
- ?
- ?
National/Regional eHCI
„Good Governance and Regulation“

- Strategy Layer
- Organisation Layer
- Integration Layer
- Software Layer

Cooperation Strategy

Collaborative Processes

Compatible Applications

Common Interfaces

Federal Definition

NO Government Interference

Standards Body

Institute of Information Management

University of St. Gallen

© 2008 IWI-HSG, CC HNE, Dr. Peter Rohner
Slide 48
National/Regional eHCl
„Good Governance and Regulation“
Agenda

- Healthcare in Switzerland
- Competence Center Health Network Engineering (CC HNE)
- Problems
- Networkability
- eHealth Collaboration Infrastructure (eHCl)
- Investment Dilemma
- National/Regional eHCl

Summary and Outlook
Summary

- To overcome the problems (mainly quality and cost) a shift towards “privatization” and consumer-driven healthcare is needed
- Hospitals have to become competitive (DGRs are only a forerunner)
- Networkability is the key to the “industrialization” of healthcare
- The development of competitiveness (internally) and networkability (externally) go hand in hand
- An eHealth Collaboration Infrastructure (eHCI) is needed
- Government regulation and private initiatives should be combined to solve the investment dilemma
Outlook

- CC HNE Trip to the U.S. & Canada in early 2009
- Let’s get in touch!
- Please e-mail or call
Thank you for your attention
See you in the U.S. or Canada in early 2009