Why innovations of distributed ICT applications for health tend to fail?

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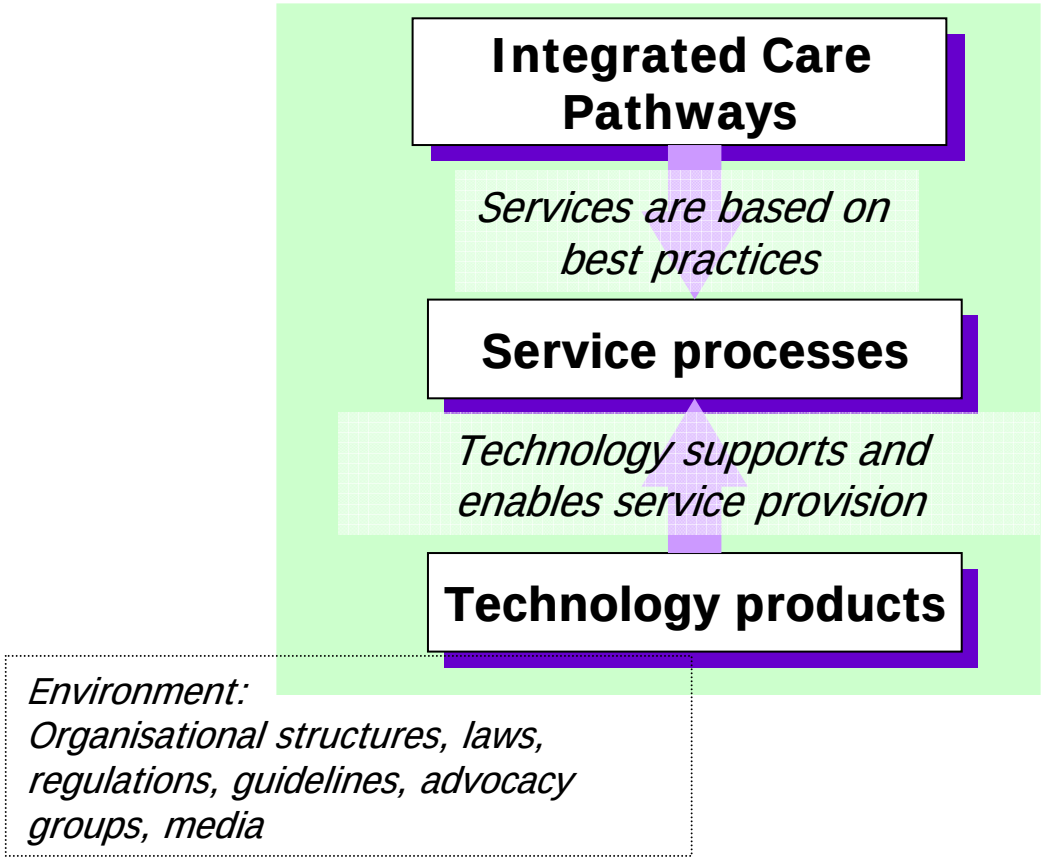


PERVASIVE HEALTH CARE @VTT

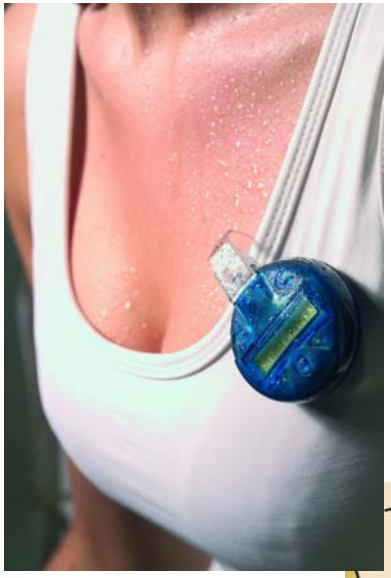
- **Healthcare is one of the most potent application areas for ICT**

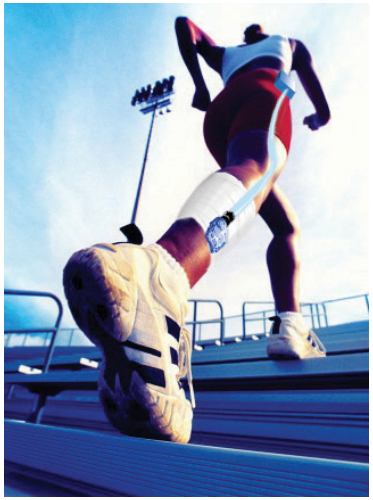
Pervasive healthcare is

- *application of pervasive computing technologies for healthcare, health, and wellness management*
- *making health care available everywhere, anytime – pervasively*

Pervasive healthcare addresses those technologies and concepts, which integrate healthcare more seamlessly to our everyday life, wherever we are.

- **VTT:**
  - Close collaboration with industry (Nokia, GE Healthcare, SMEs)
  - Application areas:
    - ***Lifestyle management, weight management***
    - ***Sport, fitness***
    - ***Independent living***
    - ***Healthcare***



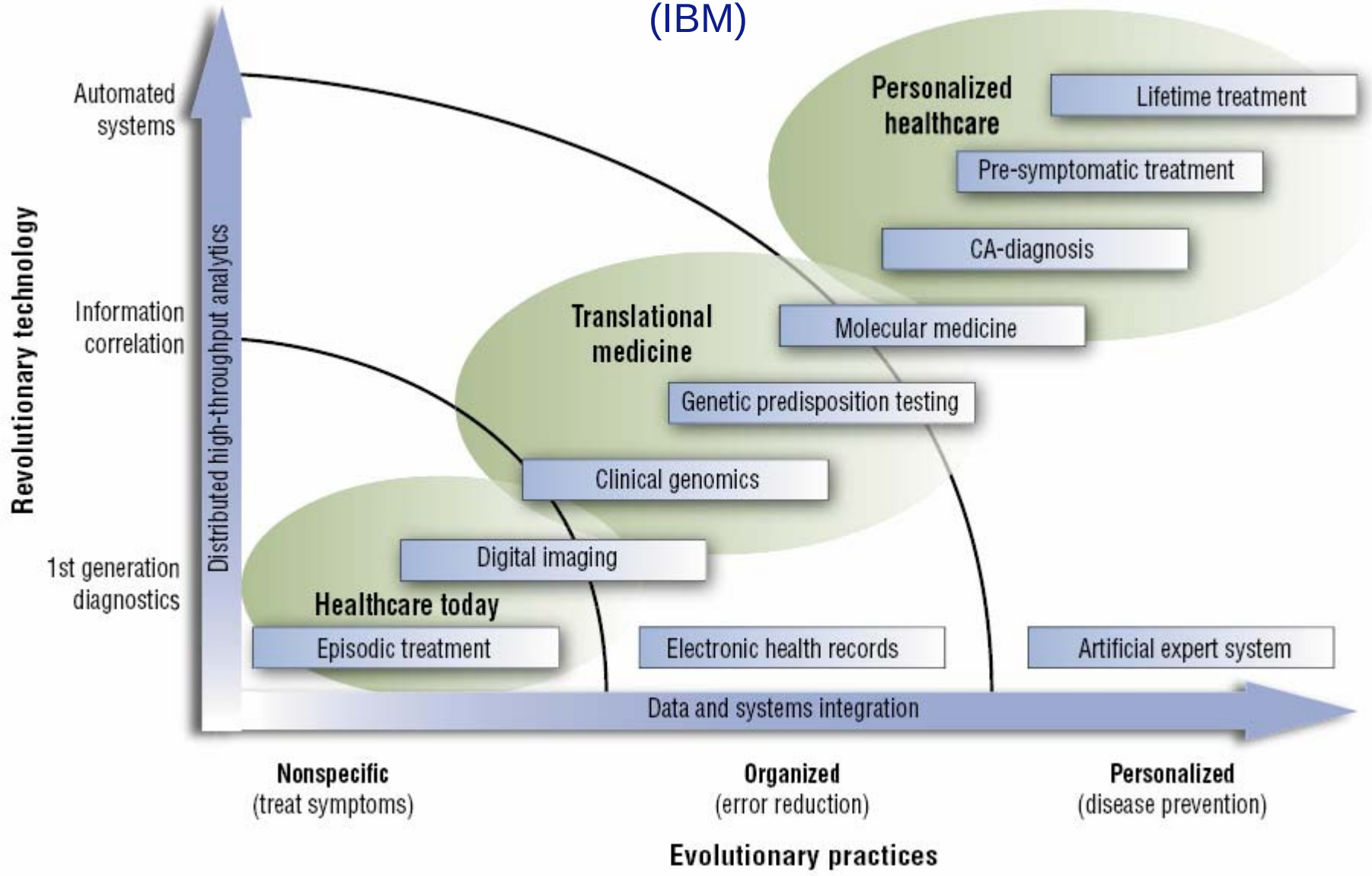


THE CONTEXT

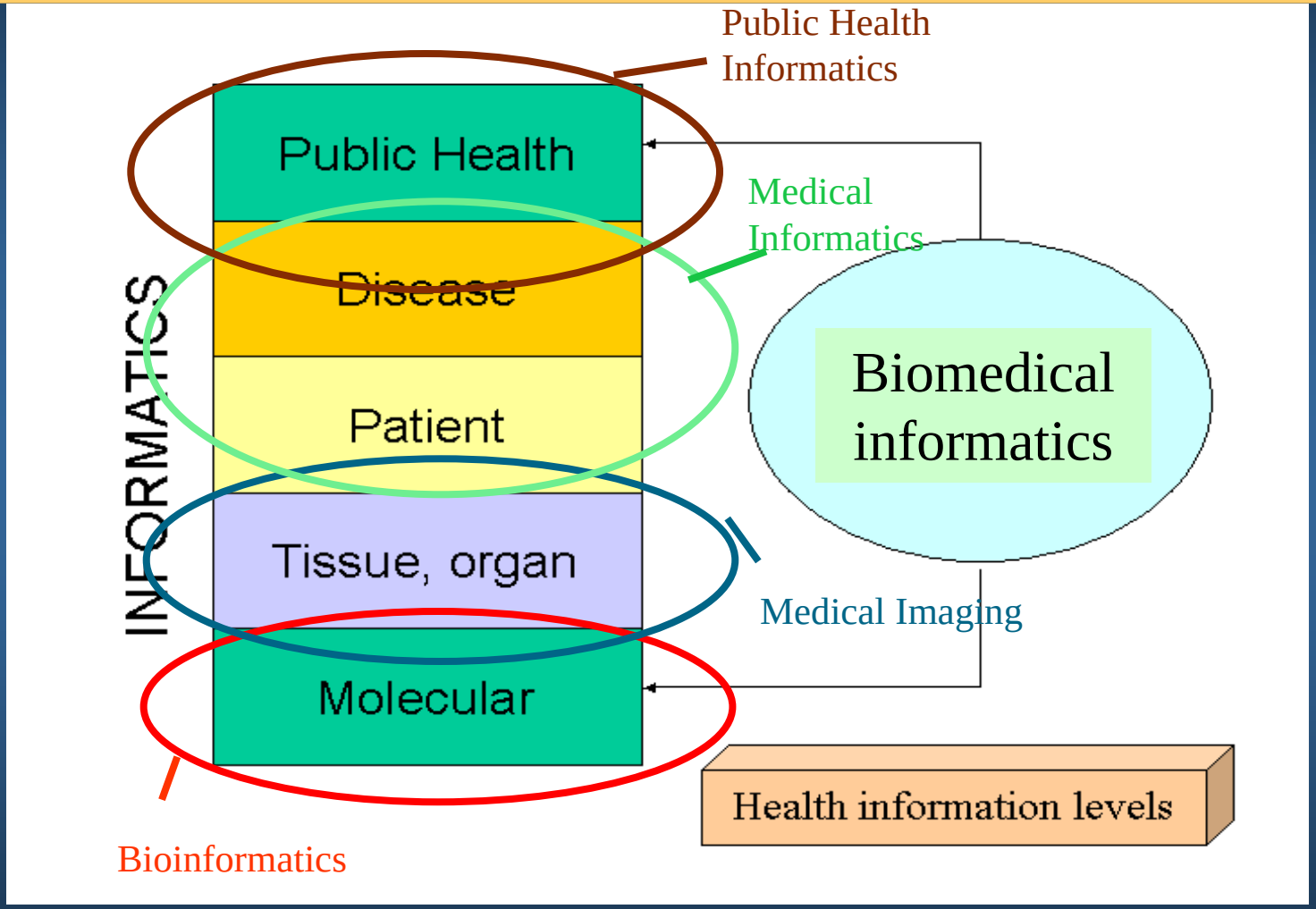
Expanding scope of health
ICT & technology

EXPANDING SCOPE OF HEALTH

INFORMATION-BASED MEDICINE (IBM)



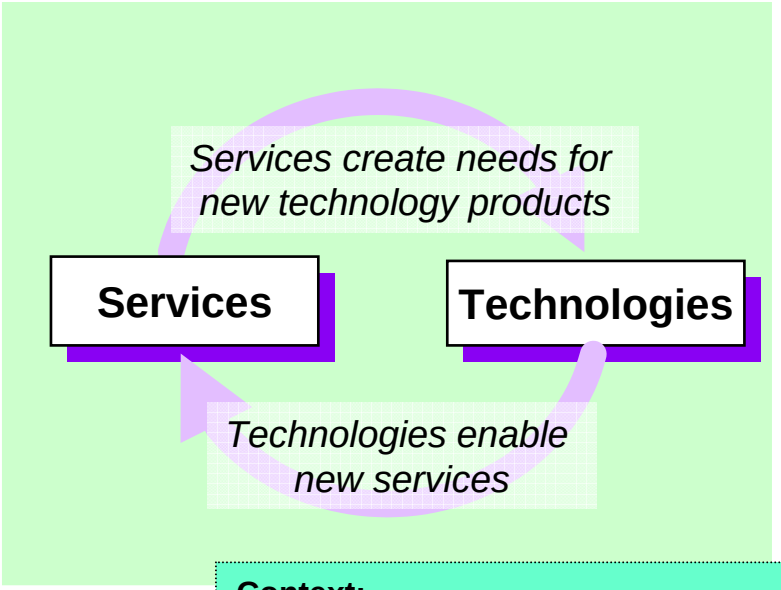
Integrating biomedical data for better health



Synthesis of all "Health Information levels"

INNOVATION CONTEXT

- ICT enables new ways to provide health services and to deliver customer centric services and to renew collaboration and sharing of responsibilities between care providers.
- **But** … the development and application of technologies and services is interactive



Context:
Medical knowledge, organisational structures, laws, regulations, guidelines, advocacy groups, media

INNOVATION CONTEXT

- Information and communication technologies (ICT) have been applied for health since late 80's:
  - Telemedicine → dot.com's → eHealth → uHealth, pHealth and wearable biomedical sensors and systems
  - Electronic Health Record, EHR → interoperability standards → IT investment programs to build the "highways" for an integrated EHR
- But most projects and products have failed in the market place. WHY?

- ***Can it be that the projects do not address the questions right or could it be that they are not addressing the right questions?***

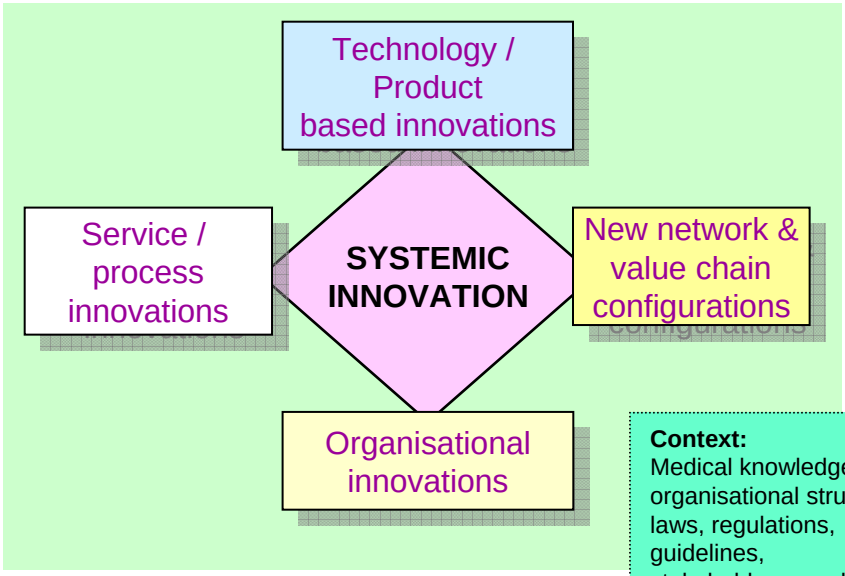
WHAT ARE THE RIGHT QUESTIONS ?

- Who are the developers
  - *An evolving dynamic actor network*
- What is the solution that is needed
  - *ICT + service(-s) + structural changes + incentives / barriers*
- Is it a better “mouse trap”
  - *Proof of value*
- Business plan
  - *Positioning in the value production network and integration with existing processes*

SYSTEMIC INNOVATION

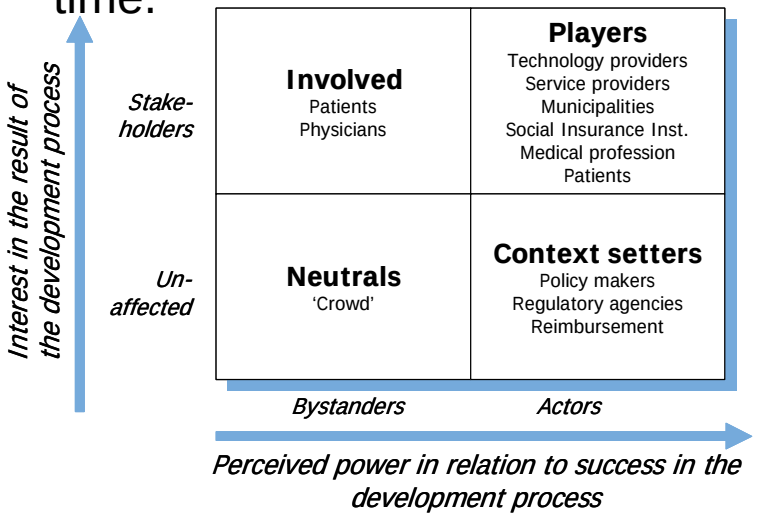
- ”Introduction of something new”
- “Innovation is the implementation of a new or significantly improved idea, good, service, process or practice which is intended to be useful.
  - product innovation, process innovation, organizational innovation, and marketing innovation.

  (en.wikipedia.org)
- Diffusion of I
- Disruptive I
- Radical I
- Systemic I



DYNAMIC ACTOR NETWORKS

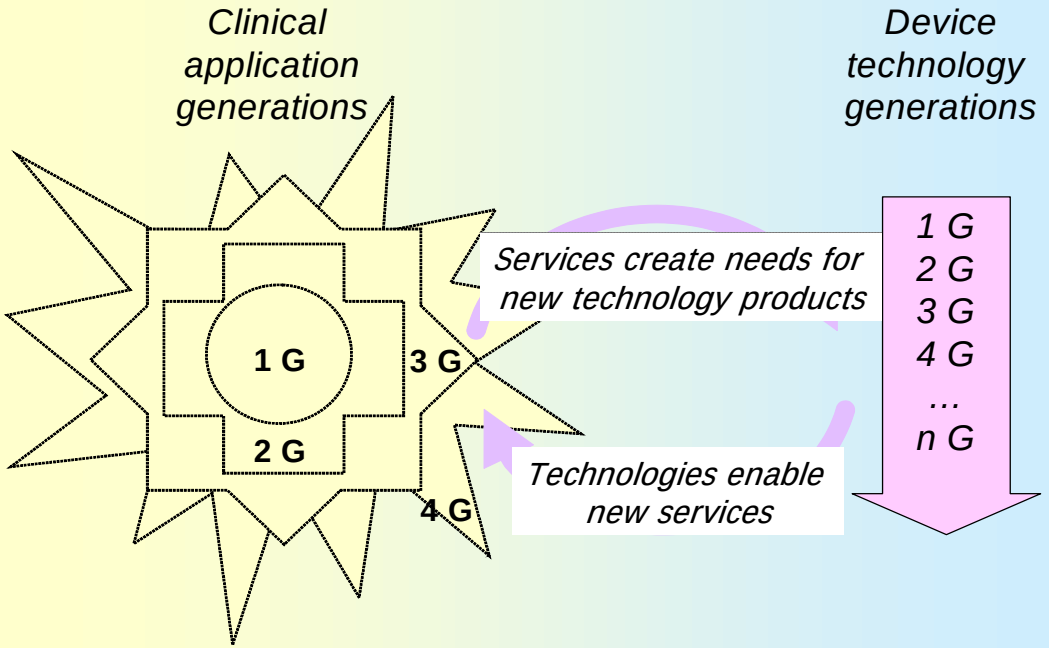
- Systemic innovations require actor networks, mutual adjustments and time.



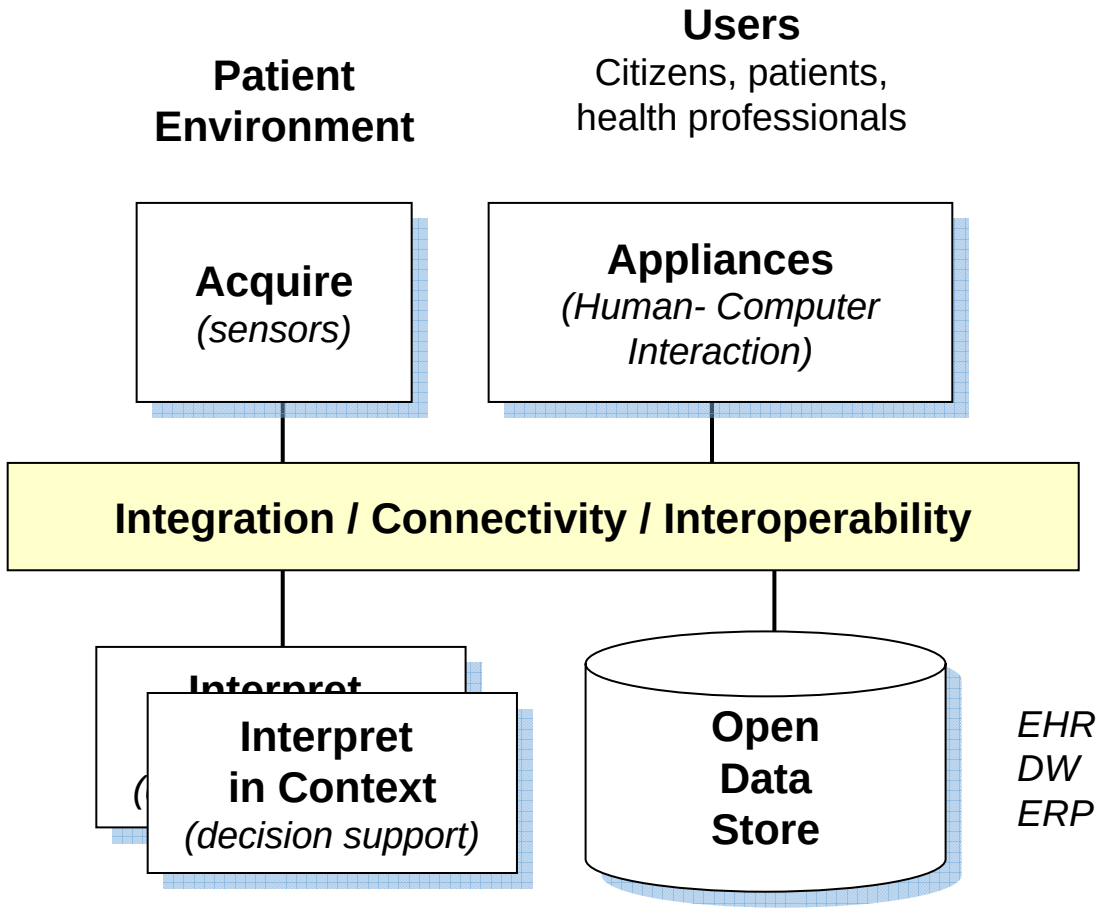
- The challenge is to mutually adjust the technology and the services (and if necessary the organization) so that a new better solution emerges.

Example

MRI and CT technologies have evolved through several generations since their initial introduction to the marketplace 20-30 years ago. The repeated mutual adjustments have created a completely new field of diagnostic imaging.



NEW ICT ENABLES NEW SERVICES
New services require a balanced integration of the ICT components into end-to-end solutions



TWO ENDS OF THE INNOVATION CONTINUUM

Traditional → Direct impact on care

Industry, academia & opinion leaders in one clinical speciality (e.g. MRI, endoscopy)

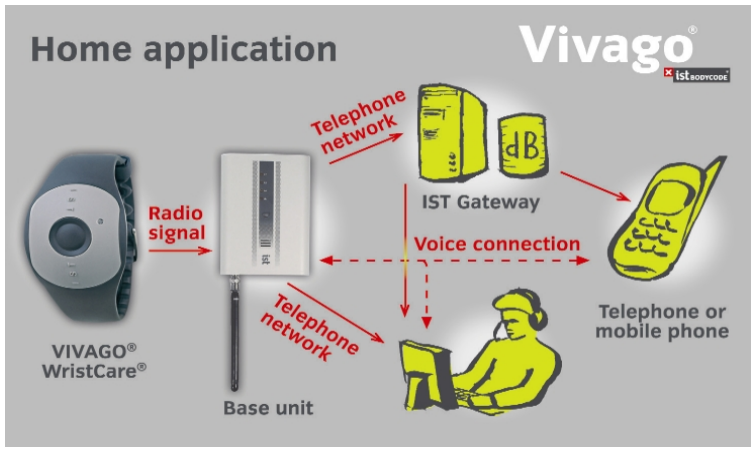
Systemic → Distributed, indirect impact on care

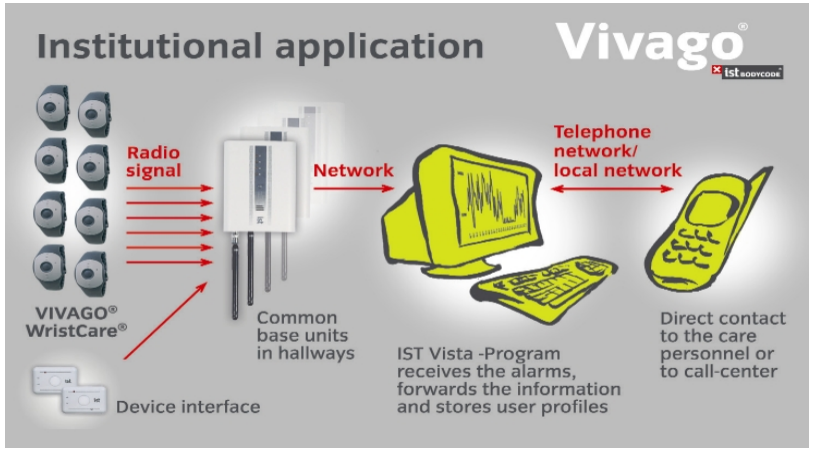
Involves several clinical specialities, Crosses org'l boundaries Supports teams, patients (e.g. eHealth)

CHARACTERIZING THE HEALTH SECTOR

- Tensions between management of operations and clinical activity
- Strategy vs. development projects:
  - How is the strategy formulated and updated?
  - Role of development projects
- ”Knowing-doing gap”
  - You learn by doing
- Language and values
- Managing expectations
  - Creating a shared vision / strategy

PROOF, EVIDENCE OF VALUE
Example: IST Vivago





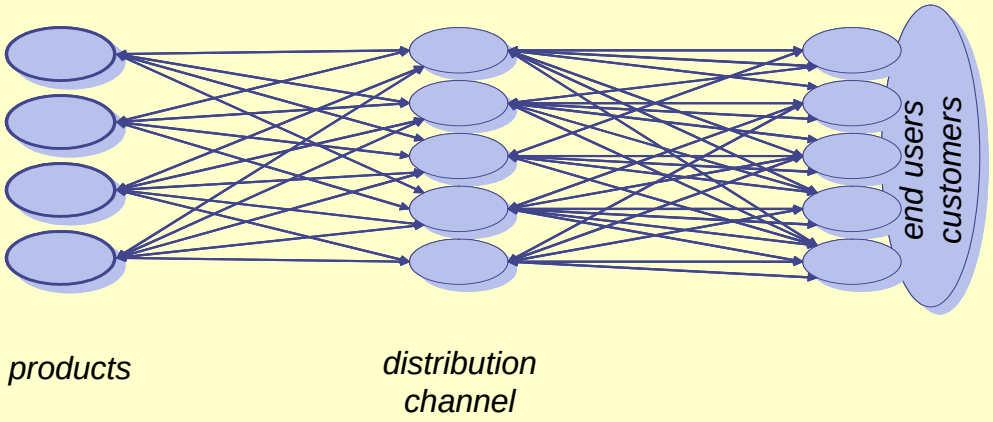
- Care providers in elderly care have little or no tradition in active telemonitoring.
- Elderly care services are organized so that telecare (i.e. alarms) and telehealth (i.e. health telemonitoring) are provided by two separate organizations.
- The proof of value becomes dependent in a complex manner in the ability of the two service providers to integrate their services.

PLACE IN VALUE NETWORK
”Globally local”

- **A local market** due to e.g. legislation, regulations and standards incl. best practices.
- **Sizable investments** are needed from companies to enter new markets.
- Consequently, **a company has to position itself in the value network** (box on the right) by building partnerships with other network members.
- A company must be **”globally local”** to survive in the market place.

Generic operating models of healthcare technology companies

Product centric
Customer centric
Systems integrator
Solution centric

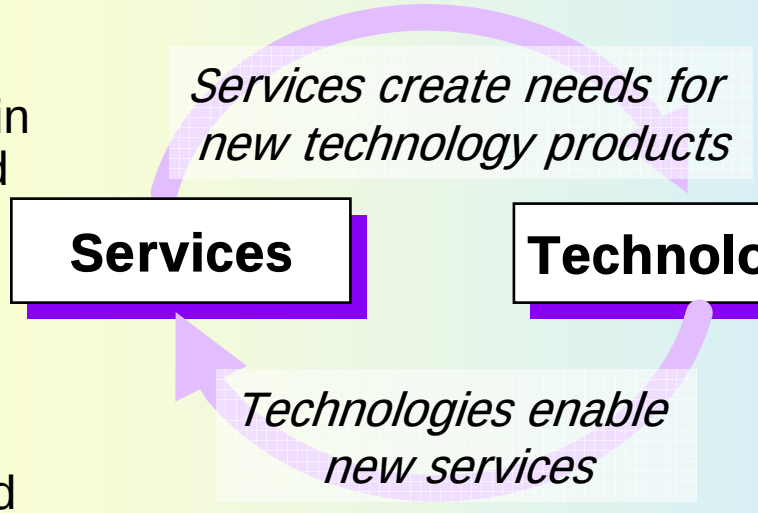


MAKING HEALTH IT HAPPEN

SERVICES BUSINESS PLAN

- Positioning of the product in solution provision chain of service and technology providers
- Producing evidence of value of the product to end users and payers

ACTOR NETWORK



TECHNOLOGY

- Sensors & Information appliances
- Making sense of the collected data in context
- Making patient data available ubiquitously

SUMMARY
USING THE FRAMEWORK

1 Selecting the partners for the actor network.

2 Creating an open environment for ideas to be exchanged.

3 Understanding the limits set by the resources and business expectations.

4 Getting the proof that the new solution has value.

- This may take a long time and be quite expensive as the product and services are mutually adjusting.

5 Having the commitment of the health service provider to develop its services and to carry out process and structural changes when necessary.

6 For a SME being able sustain the wait period.