



Exchange of structured health information in citizen services - B2C-projects

(Rakenteisen terveystiedon välitys kansalaispalvelussa – B2C-projektit)

Tekes/Finnwell interoperability seminar, 14.2. 2007

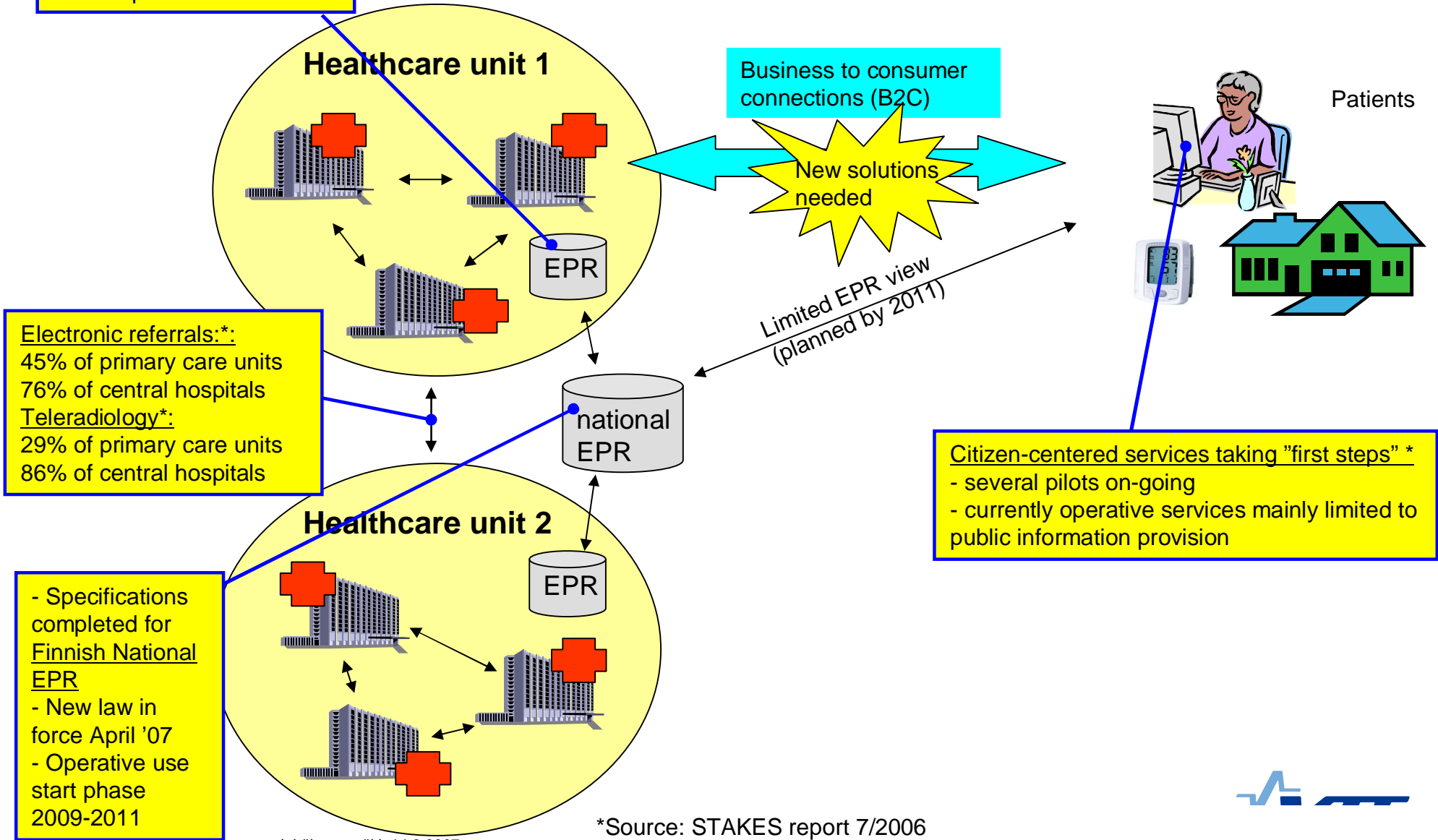
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VTT Technical Research Centre of Finland



Electronic Patient Record in Finnish health care*:
 96% of public units
 89% of private units

Health IT infrastructure



Electronic referrals*:
 45% of primary care units
 76% of central hospitals
Teleradiology*:
 29% of primary care units
 86% of central hospitals

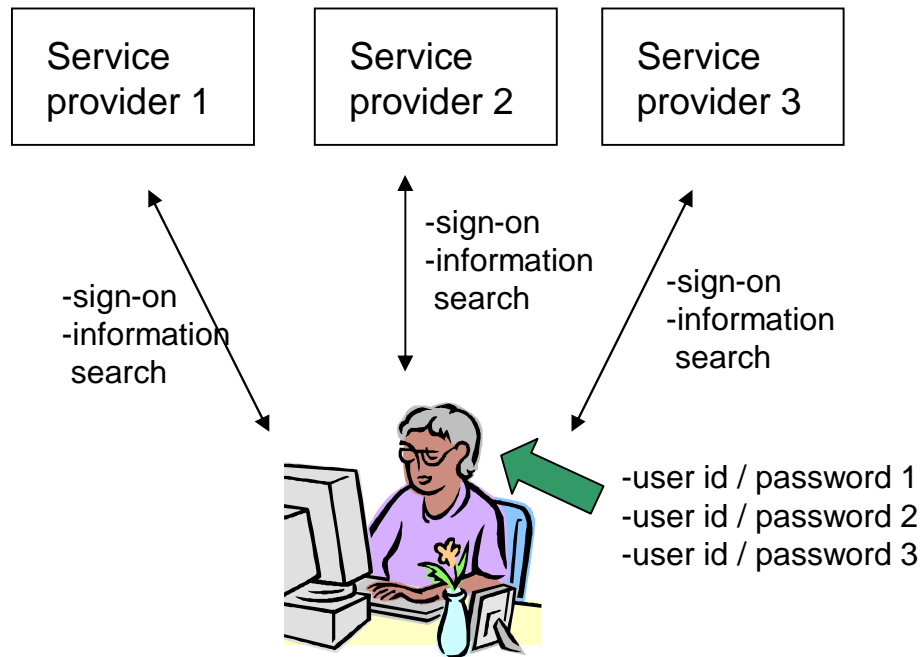
Citizen-centered services taking "first steps" *
 - several pilots on-going
 - currently operative services mainly limited to public information provision

- Specifications completed for Finnish National EPR
 - New law in force April '07
 - Operative use start phase 2009-2011

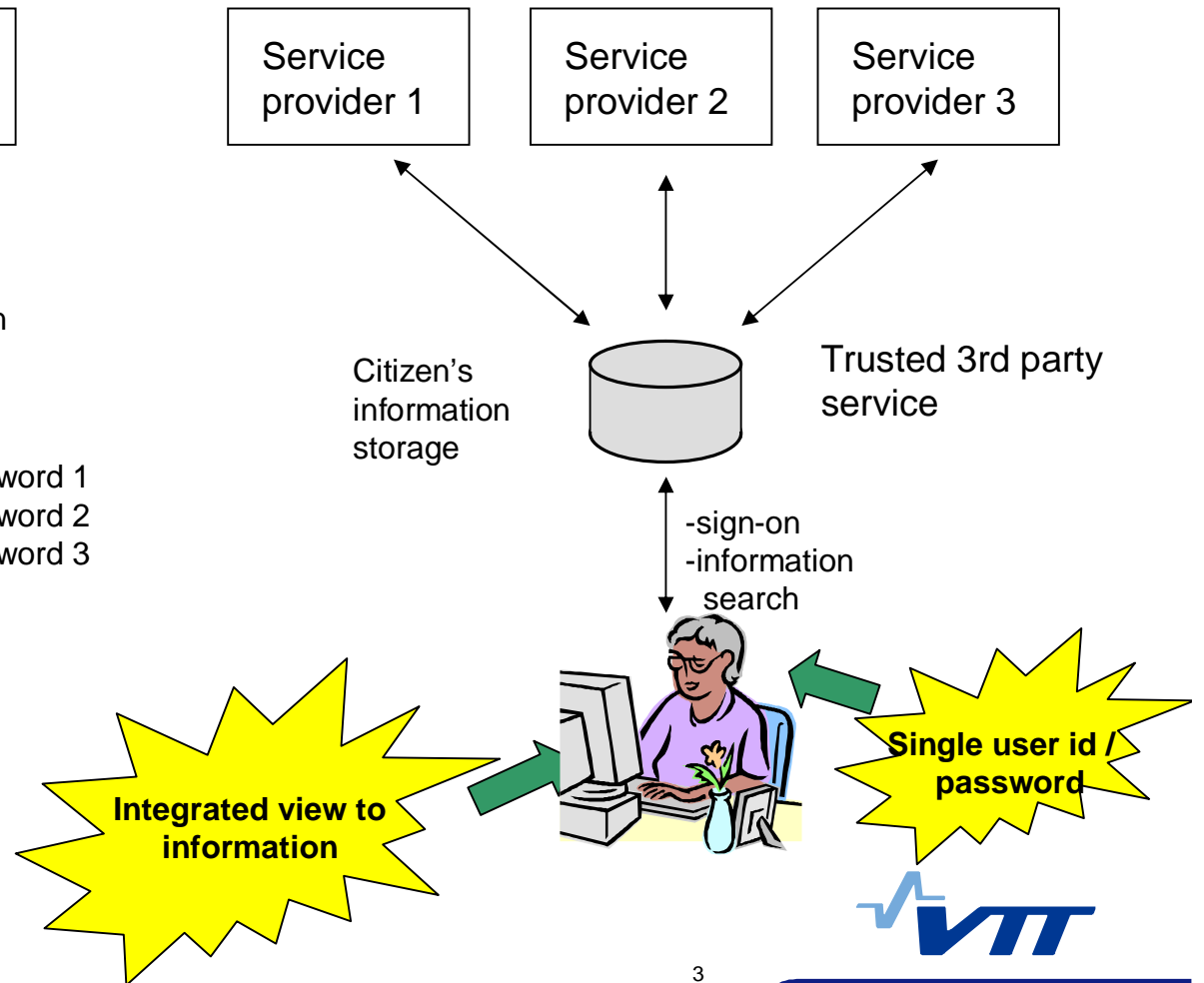


Approach to citizen services

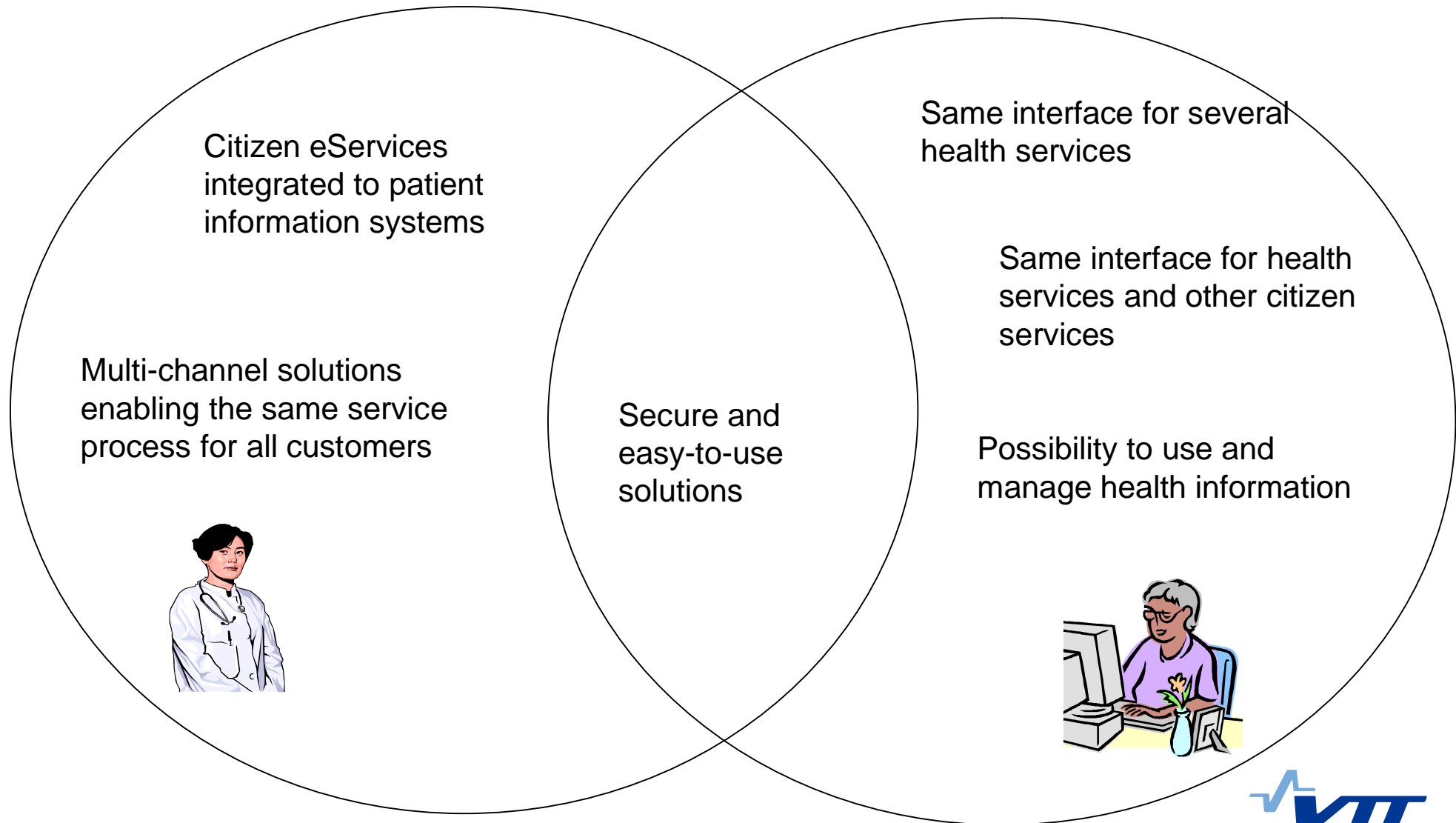
Now:



Goal: :



Requirements for citizen service

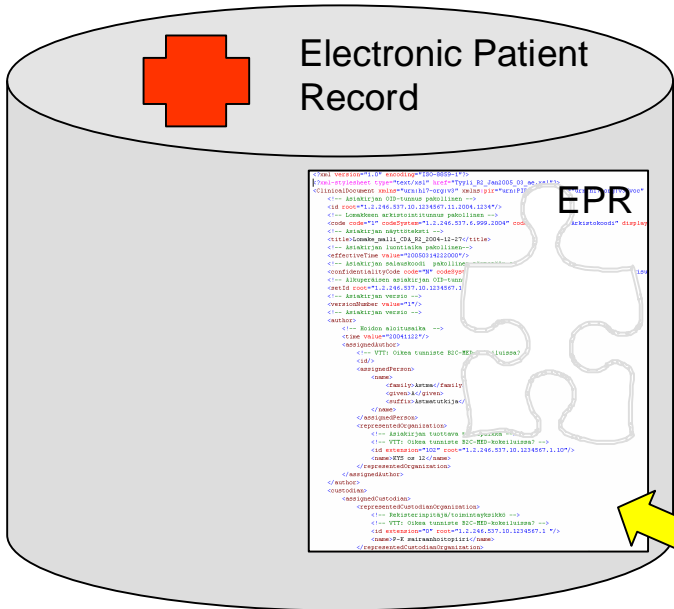


Importance of standard document structures

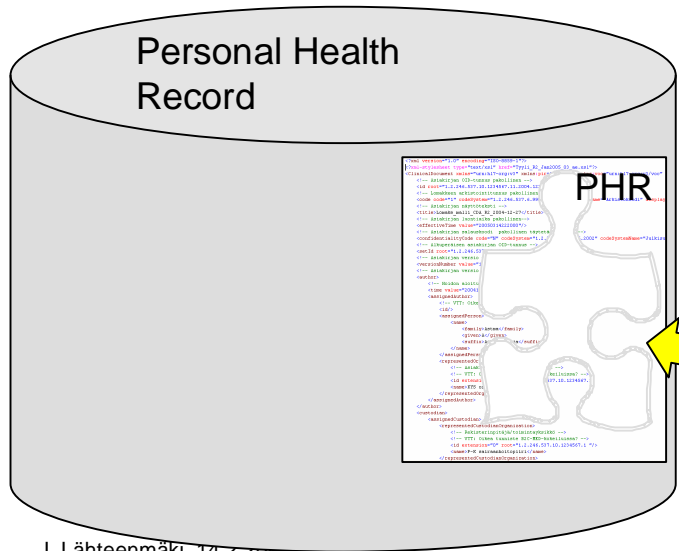
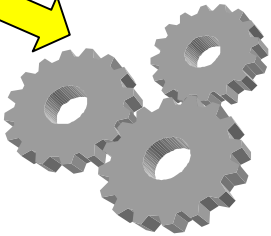


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HL7 / CDA R2
diast: 83
syst: 119
h-rate: 57
    
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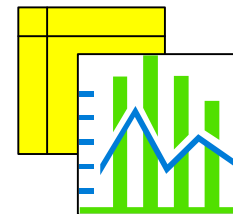


Healthcare processes



Personal information management
Proactive health

CDA =
Clinical
Document
Architecture



Finnwell projects for personal B2C services

- years 2004-2005: **B2C-MED -project** (Diacor, Doctorex, Elisa, Fujitsu, HUS, Medivire, Mehiläinen, Nokia, Suomen Posti, Suomen Terveystalo, Suunto, VTT)
 - Development and testing of functionalities and datamodels for CDA-based citizen communications
- years 2005-2006: **B2C-HEALTH -project** (Diacor, Doctorex, Elisa, Fujitsu, HUS, IBM, Medikro, Mehiläinen, Nokia, Suomen Posti / Itella, Suunto, TietoEnator, Valuecode, Väestörekisterikeskus, VTT)
 - Integration of citizen communications in a patient information system
 - Further development of CDA-based information model ("care message").
 - User pilots
- years 2006-2007: **B2C-PRO -project** (Elisa, Fujitsu, Itella, HUS, PKSSK, VTT)
 - Integration of citizen communications in healthcare processes
 - Continued pilots:
 - Jorvi hospital pilot for ambulatory surgery (Itella / Netposti to be used)
 - Joensuu central hospital pilot for infertility care (VTT / PIR to be used)
 - Mobile authentication
 - Review of citizen services in USA

B2C-HEALTH project pilots*

Use case	Description	Participating customers ¹	Participating personnel	Documents sent (to/from customer)	Replies to inquiry (customers/personnel)
Jorvi / Internal diseases	Delivery of laboratory results and instructions to the patient.	4 (0+4+0)	2	6/3	1/2
Jorvi / Ambulatory Surgery	Collection of information by forms and exchange of messages with the patient.	9 (4+4+1)	1	11/8	1/1
Jorvi / Surgery	Delivery of epicrisis to the patient.	4 (2+2+0)	1	6/- ³	2/1
Joensuu / Infertility	Messaging between the patient and the doctor.	5 (4+1+0)	1	18/8	2/1
Mehiläinen Turku Clinic	Delivery of epicrisis to the patient.	1 (0+1+0)	2	1/- ³	-/2
Personal trainer service (exercise group)	Monitoring and commenting exercise results by a personal trainer.	10 (7+0+3)	1	96/69	8/1
Diabetes instrument delivery	Sending referrals between healthcare units.	4 (0+4+0) ⁴	4	29/- ³	4/4
Other test persons	Generic testing of the document service functions.	5 (4+0+1)	1	-/- ²	2/1
total:		42 (21+16+5)	13	167/88	20/13

¹ Total amount of active customers (PIR Case users + browser interface users + users for both PIR Case and the browser)

² No data available

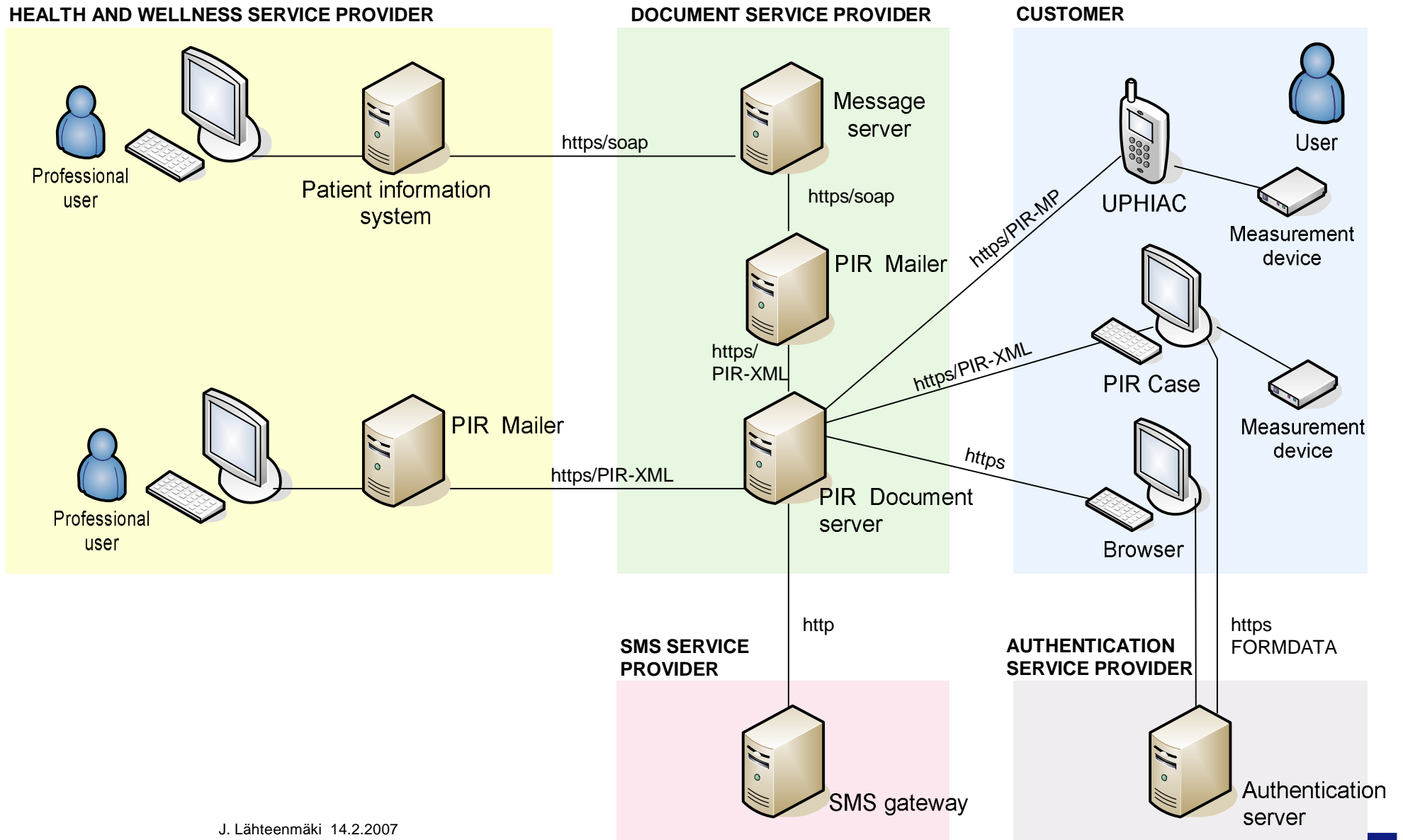
³ Only documents from the service provider to the customer were included in the use case

⁴ Customers are members of personnel (B2B use case)

*Results accepted for publication in ICHIT 2007: Berlin: 21-23.11.2007




Architecture



User interfaces

PIR Mailer

Document Conversation Customers Settings Help



Customer: 


Type	Title	Customer	Created	Sent/Received	At customer	C...
Lomake	bloodpressure-form.xml	-> Test user	29.01.2007 12:59	29.01.2007 13:00	29.01.2007 13:00	
Lomake	bloodpressure-form_1.xml	<- Test user	29.01.2007 13:00	29.01.2007 13:00		
Lomake	bloodpressure-form_3.xml	<- Test user	29.01.2007 13:00			
Lomake	bloodpressure-form_2.xml	<- Test user	29.01.2007 13:00			
Lomake	bloodpressure-form_5.xml	<- Test user	29.01.2007 13:00			
Lomake	bloodpressure-form_4.xml	<- Test user	29.01.2007 13:00			
Lomake	bloodpressure-form_6.xml	<- Test user	31.01.2007 06:00			

PIR Case

Document Conversation Services Data storage Settings Help

Show:

Type	Title	Service point	Date/Status
 Terveys	knee-xray	<- VTT Test1	05.02.2007 /Received:
 Lomake	bloodpressure-form	<- VTT Test1	05.02.2007 /Received:



Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address

Google

|| [Services](#) || [Outgoing](#) || **Incoming** || [Log out](#) ||

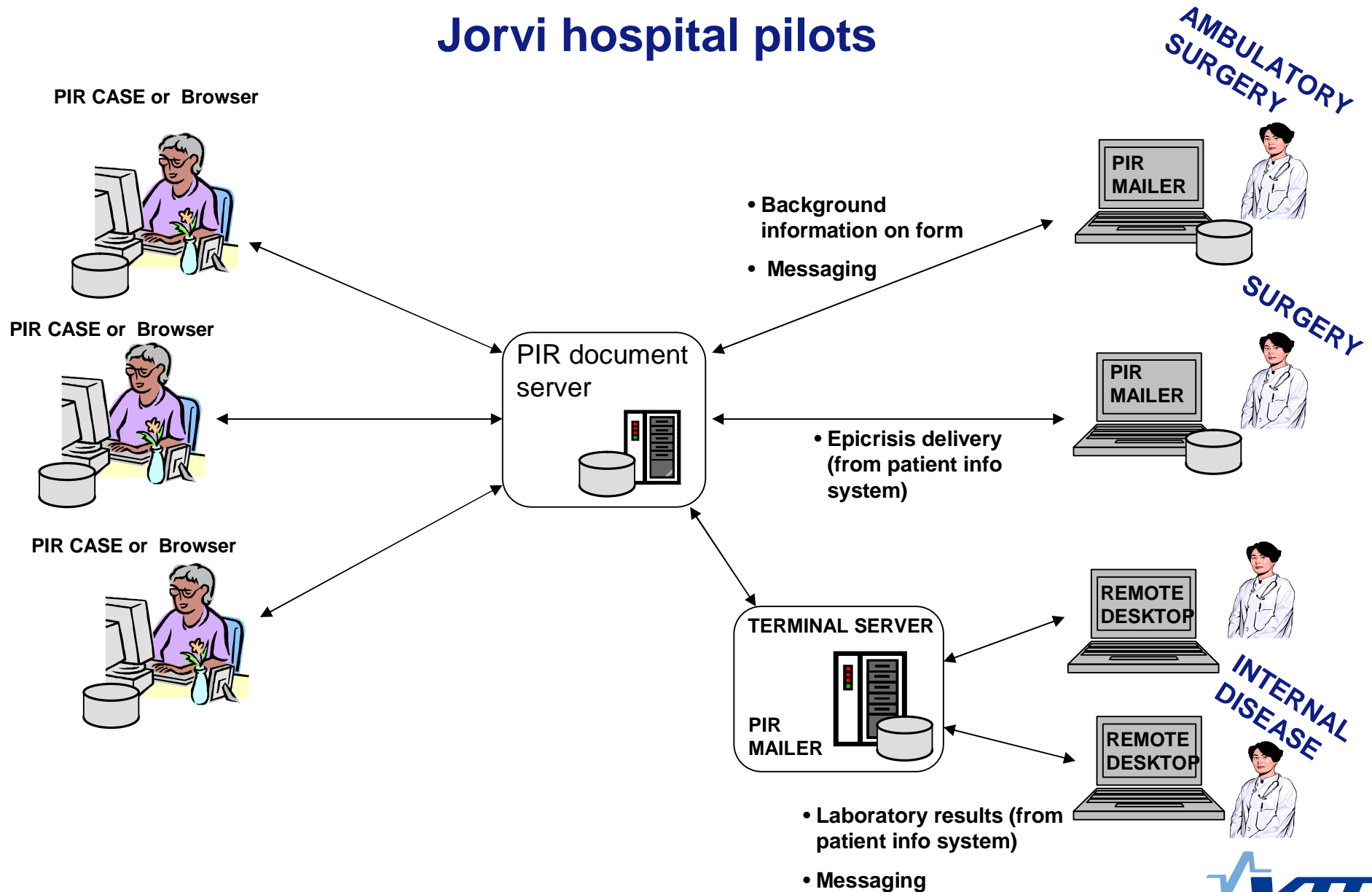
CUSTOMER: **Test User2**

INCOMING DOCUMENTS

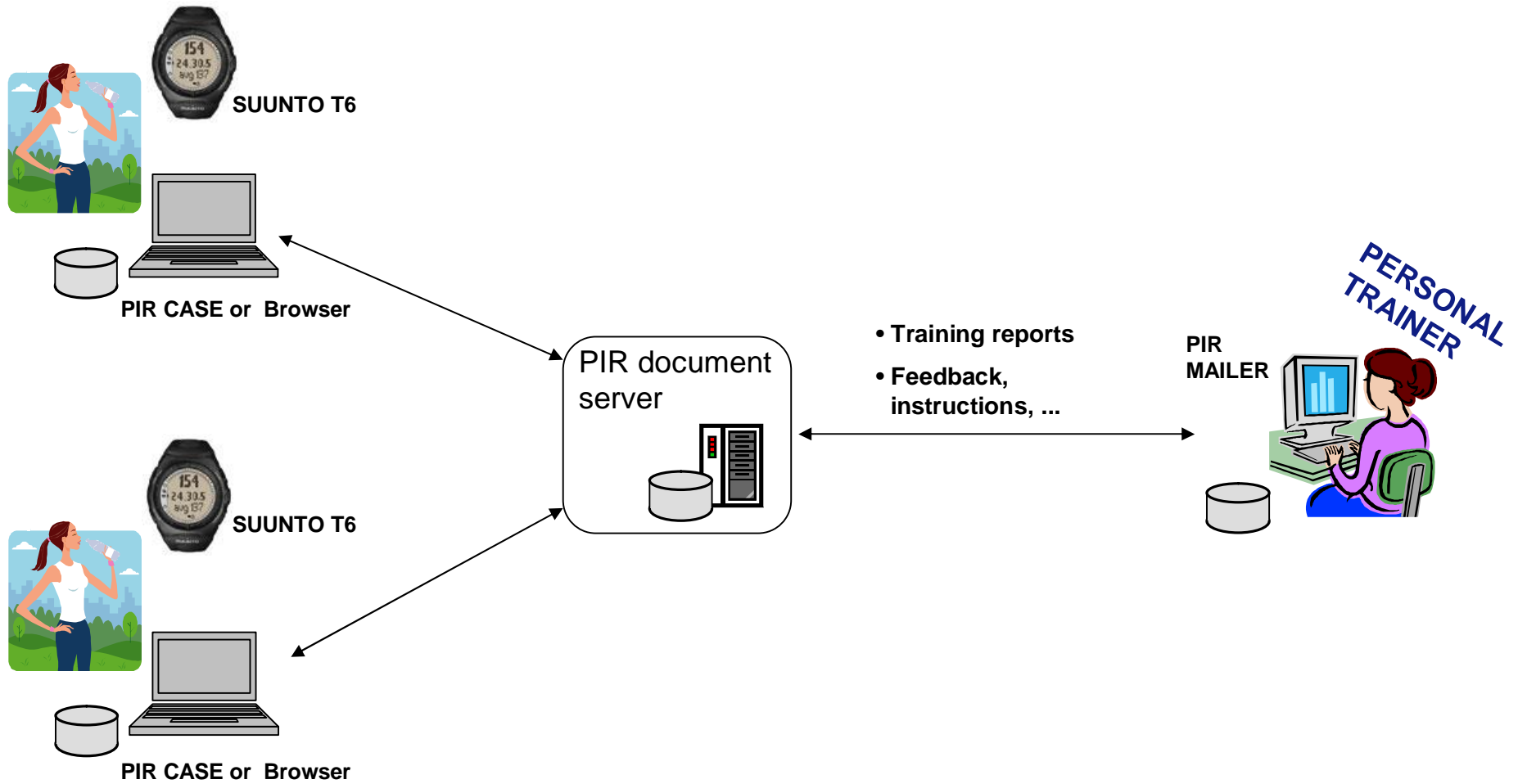
Type	Document	Service point	Time	Comment
Terveys	knee-xray_1	<=VTT Test1	5.2.2007 15:43:32/Received	<input type="button" value="Remove"/>
Lomake	bloodpressure-form_1	<=VTT Test1	5.2.2007 15:43:32/Received	<input type="button" value="Remove"/>

Internet

Jorvi hospital pilots

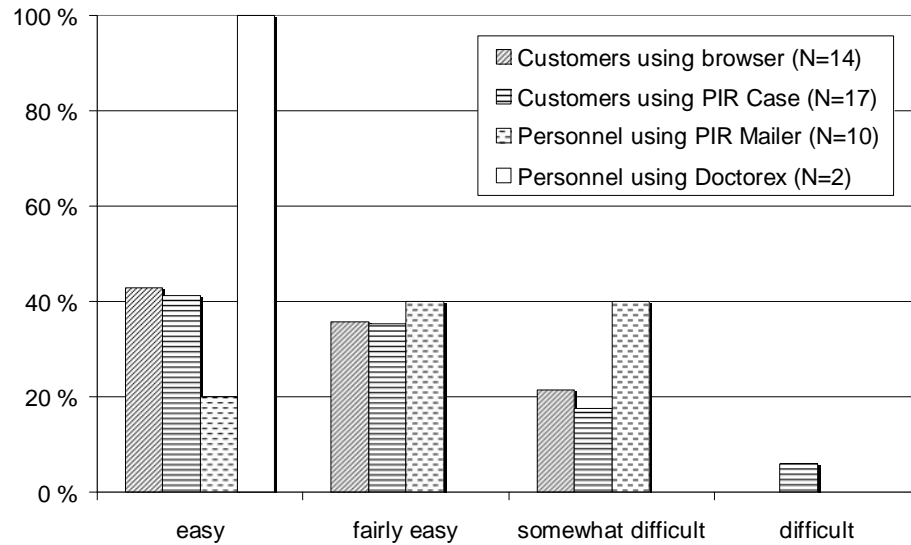


Messaging with personal trainer

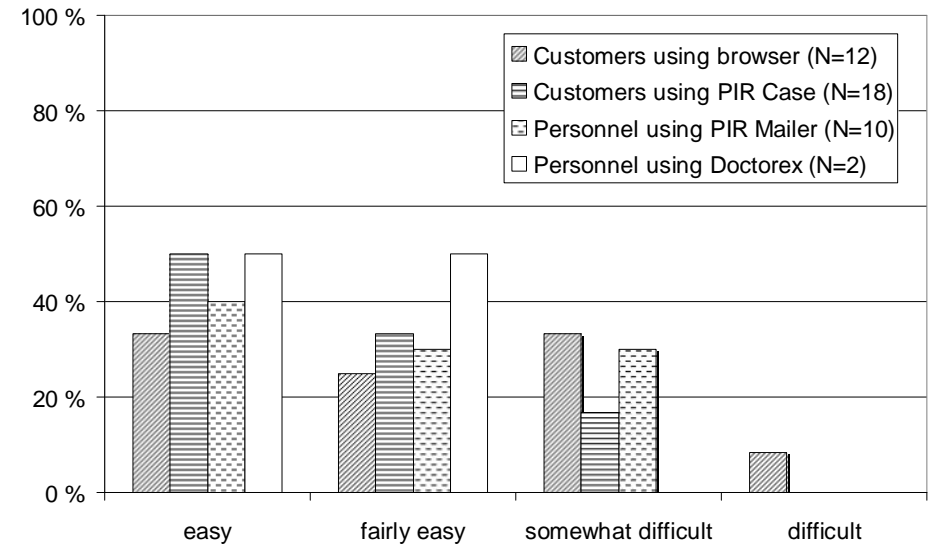


Service usability

Service start phase (authentication etc.)

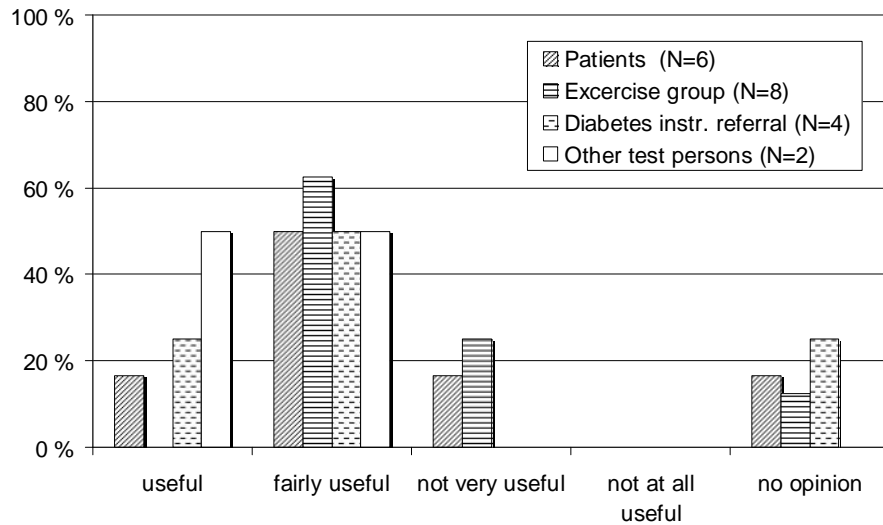


Actual use of the service

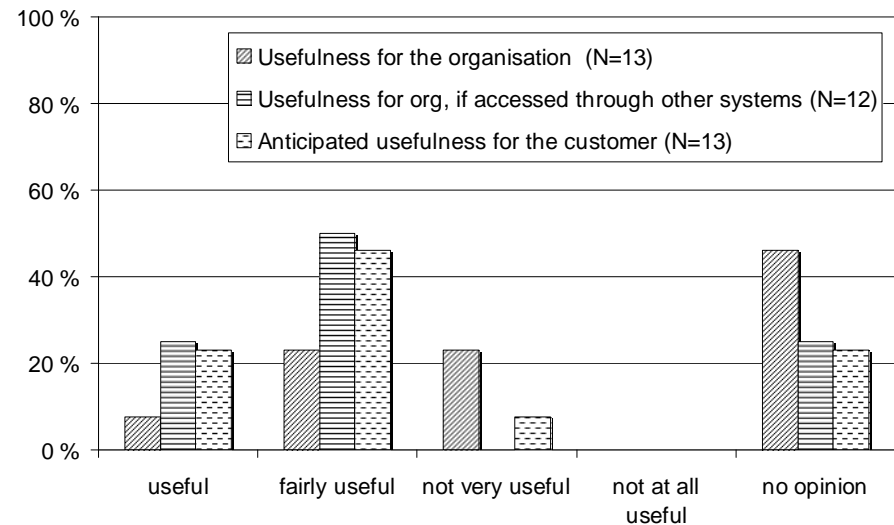


Service usefulness

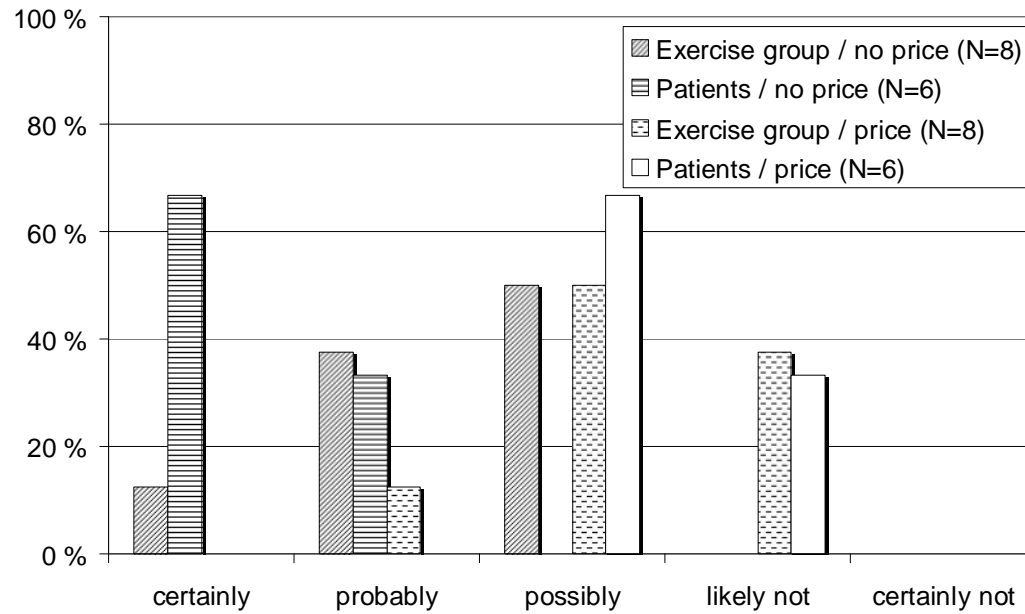
Customers



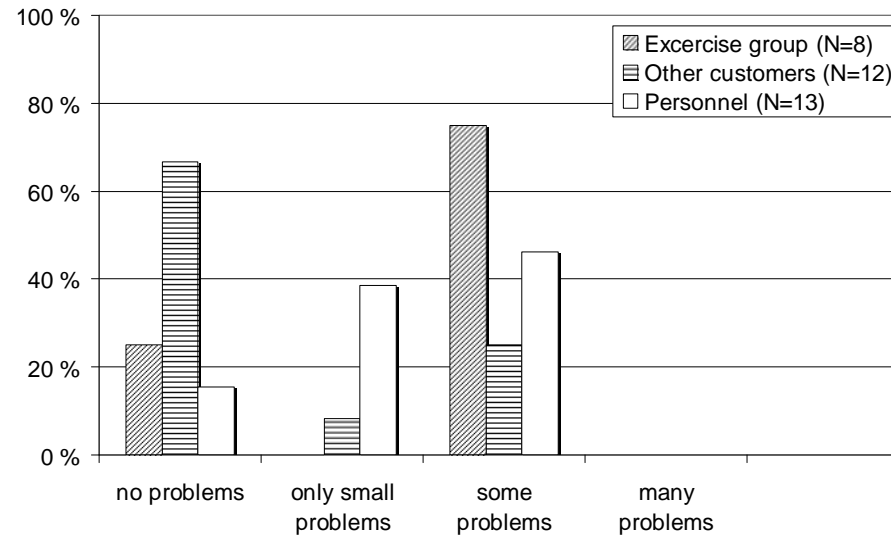
Personnel



Willingness to use



Technical problems



Summary of B2C-HEALTH results

- Still small amount of pilot participants à only indicative results!
- Clear need for citizen service:
 - 68% of customers are "sure" or "fairly sure" to use a similar operational service if free of charge
 - 75% of personnel considered the service "useful" or "fairly useful" for their organisation (if service is integrated to patient information system)
- Ease of use is stressed in feedback from both users and personnel
- Use of standard data models is:
 - Important for personnel due to the expressed need for interoperability between systems
 - Likely important for citizens due to improved personal information management (pilots during longer time periods would be needed to show this)

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- <http://dokumenttijakelu.fi>