eHealth

“The Future Service Model for Home & Community Health Care”

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Learn from previous lack of standardization?

Info. Interaction: Differ INFRASTRUCTURE (Public Governance) from SERVICES (Business)

Public Interaction needs “open” XML-protocols and not many parallel Infrastructures!

- Internet/Intranet/Bus-protocols
- Internet Banking
- Public Health network
- Public Emergency Network
- Smart Grid (Energy Network)
- Broadcasting Networks
- Military Networks
- etc

Or make new mistakes?

Info-Interaction Reform Require 5 Aspects to consider!

1. Common National Communication Infrastructures
2. Shared Data
3. Abstract Common and Open Service Models handling Information exchange
4. Traditional SW programs/Platforms
5. Executing legislated public services and buying Equipment

Need a split between 1,2 and 3 (Public Governance) and 4 and 5 (Business)
Interoperability in the Infrastructure Layers

Common “Traffic Rules” (red arrows) a must to achieve Interaction, Integration and Reusability

HYBRID SYSTEM ARCHITECTURE: Define INFRASTRUCTURE & TRAFFIC RULES before implementing SERVICE SOLUTIONS

Multi functional User Interfaces:
- Mobil, PDA/Pad, LapTop, PC, Touch Screen etc

Flexible and Open
User Interface:
OS independency (Cross Platform based)
Self Service & Self Management!
With main Focus on Strengthening the Frontline Services

OASIS TGF Change in Thinking: Citizens from passive CLIENTS to active OWNERS of the legislated Public Services

- Integrated Service Planning & Reporting (ISR)
- Work Description (Procedures based on Best Practice) / Reporting / Inspection
- Access Control by mobile phone SIM-card (Digital Signature)

Public Governance transforms from eGov to tGov through OASIS TGF:
Major Reductions in Bureaucratic and Unnecessary Public GOVERNANCE layers to Strengthen the Frontline Service Executor’s ability to act by help of SELF-MANAGEMENT and increase the Service Quality Assurance and Supervision by help of the Frontline’s Hand Hold Organizers as Smart Phones and Tablets

To days “Silo” organization:
Service Channels organized through Frontline Services:

National “Best Practice” Procedure Register:

The Actors in the new FRONTLINE-services: (Autonomic Interaction)
Semantic Interoperability Standards Stack

(OASIS CAM, BCM, SAML, ebSOA, BPEL .................)

EPR-eFolder Templates:
Organizing and Orchestrating Loosely coupled applications (ebXML, WS)

“Object” =

Source: OASIS BCM Lubash Pyramid
OASIS CAM/BCM Model driven architecture in Real Time:

The new way of doing SW Engineering by the users in real time

Super Structure:
Service management/Practitioners:

Needs
Requirements
Procurement
Installation
Implementation/Use
Adoption, integration

DYNAMIC and INTERACTIVE CAM Template Models

CAM TEMPLATE Register:
CAM TEMPLATE = f(WS,ebXML)

CAM TEMPLATE Rule Engine

SOA (Service Oriented Architecture)
TOA (Technology & Platform Oriented Architecture)

Shared & Persistent DATA in Legacy & Expert systems

CATALOG services
exposing
Loosely coupled applications
WS & ebXML
EPR-eFolder Service Access has 4 main Role groups

1: Service Receiver: Citizens
2: Service Practitioners: Adm. og Service employees
3: Service manager: CAM Template constructor
4: Portal & System Developer: Portal & Legacy system programming

Access Super Structure Portal:
Service Management organized by User driven Template-Folders

Spesification:
Missing Application in Sub-systems(models)

Legacy/ Expert Systems
With different business logic
EPR-eFolder Service Management
(eFolder Container with Work folder & TEMPLATE Steering cards)

Access Service Portal:

Role

Single Sign-On portal:

Templates:

Content card (Document card)

Workflow card (Procedure card)

Task card (Service card)

Template functions

Demo
The EPR-eDevice Standard ©

(A standard handled by OASIS BCM-EPR SC and EPR-forum)

Services in Your Hand

Body Sensors

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Home Application Areas - Application Groups – Network EPR-eDevices

Service Practitioners:

- Work Instructions & Reporting:
  - Smartphone as Work Organizer & Control unit (Self Management)

- Health Condition Monitoring:
  - Body and Environmental sensors and Self service and Self Diagnostic

- Meal preparation & Environmental control:
  - Stove
  - Other Kitchen equipment

- Energy with Environmental control:
  - Lighting system
  - Dishwasher
  - Washing&Drying machines
  - Ventilation
  - Heat pump
  - Heater

- Social Network:
  - Interactive TV
  - Game, Video, Music, Radio

- Entertainment & Social activities:
  - IP cameras

- Security & Environmental control:
  - Access control
  - Smoke detectors
  - Motion detectors

Appl. Groups:

0x General
1x Audio/Video
2x Lighting
3x Communication
4x HVAC
5x Utility
6x Security
7x Appliance
8x Convenience
9x Food
10x Health

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Service Receiver:

- NANO-based Health condition sensors:
  - From Blood
  - Waste water from Sink
  - Waste water from WC

Appl. Groups:

( Functional Profiles)

0. General
1. Audio/Video
2. Lighting
3. Communication
4. HVAC
5. Utility
6. Security
7. Appliance
8. Convenience
9. Food
10. Health

x = sub groups

Application Practitioners:

- Service Receiver:
- Social Network:
- Work Instructions & Reporting:

Home Application Areas - Application Groups – Network EPR-eDevices
EPR-eDevice Modeling OBJECTS/Components (Symbols)
(Model elements made by OASIS Template eDevice Dictionary)
EPR-eDevice product model example: **Thermostat**

**EPR-eDevice product: Thermostat functional model** (mirrored SW block diagram)

**01** Universal
- Global House keeping information
  - DeviceID, address, CX-list (00,40,41,42,63) etc
  - OB-list (01,02) etc

**02** Environmental Zone
- Define Environmental Sensor objects
  - OB-list (02,14,0A,05,07,02) etc
  - 09 MultiPosControl
    - Zone Mode
  - 0A MultiPosSensor
    - Zone Status

**03** Environmental Sensor
- Measuring Temperature & Humidity Values
  - OB-list (02,08,08)
  - 08 Analog Sensor
    - Inside Temperature, °C
    - Inside Humidity, %RH

**04** Environmental Status
- Status picked from Environmental Sensor
  - OB-list (02,07,07)
  - 07 Analog Control
    - Current Zone Temp, °C

**05** Security Partition Control
- Security Partition Status Vector and battery
  - OB-list (02,25,0A)
  - 15 ListMemory
    - Partition Status Vector from CX:62
  - 0A MultiPosSensor
    - Battery Status
XML-based OASIS CAM TEMPLATE modeling.

OASIS CAM-editor http://www.cameditor.org

EPR-forum starts Education in Templating Methodology at BI from medio 2013:

CAM-dictionaries:
- EPR eDevice Templating
- EPR eFolder Templating
Interoperable EPR-eDevice Application Areas:

Smart Homes/BUILDINGS/Greenhouses & Smart Grid

**CareTech® portal:** Care Flat for Nurse Education. HiBu Science Lab in Drammen, Norway

**GymTech® portal:** Member handling, Body Condition monitoring & Scenario Controlled Smart Building

**Smart Greenhouses:** (FoodeOn®) Real Time Hydroponic agriculture controlled system

**Smart Grid:** The new Vehicle in Smart Grid optimization (www.vsg.no)
“My Home is my CASTLE”
Welfare technology integrated in Home services will be an important contribution to Care services and how to Delay or Prevent disabilities in the future!

EPR-forum Interaction project: «The Welfare & Health Care Challenges»
http://omsorgsteknologi.no

“Services in Your hand”
with real “Open” standards:
OASIS TGF/BCM/CAM – EPR SC and EPR-forum

Together with Quality:
- PREVENTION (Diet, Exercise)
- DIAGNOSIS (Nano-technology)
- TREATMENT (Medication, Best Practice)
- PROCEDURES (Work processes, Best Practice)
- ENVIRONMENTAL CONTROL (Deviation control)

with SCENARIO COMPOSING
EPR-eFolder/EPR-eDevice Access structure

INTERNET / INTRANET

WEB Browsers: Thin Clients (OS independent Client User Interface GUI)

Web Access Portal:
(Web services technology)
- UDDI (XML Device and Scenario Catalogs)
- WSDL (Peer = XML Device/Scenario models)
- SOAP /XMMP (XML message protocols)

SOA Front Office
Portal + UDDI catalog
(WSDL/TEMPLATE-models of eDevices + Scenarios)

PROCESS - SERVER
Home server Interface

PROCESS NET
Bus controlled eDevices:
- Ethernet
- Firewire
- USB
- Bluetooth
- CAN
- X10
- DALI
- KNX/EIB
- RFID
- Zigbee
- Lon
- SCP/CEBus
- PowerBus
- MOD bus
- MDB
- etc

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EPR-eFolder/EPR-eDevice Wireless Network sensors

INTERNET/INTRANET

WEB Browsers: Thin Clients (OS independent Client User Interface GUI)

- Bluetooth
- RFID
- Zigbee
- IR
- etc

PROCESS NET

Bus controlled eDevices:

- Bluetooth
- RFID
- Zigbee
- IR
- etc

Process
Server

4G Interface

Web Access Portal:
(Web services technology)
- UDDI (XML Device and Scenario Catalogs)
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EPR-eFolder Service Receiver & Service Practitioners

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Steering cards:
(CAM Templates)

Demo 4G mobile Smart Phone

User Interface:
EPR-eFolder Scenario OASIS BCM/CAM Template Examples:
(Scenario adaption/composing)

TEMPLATES examples specified by Health care Practitioners for individual people with Dementia:

**APPS:**
- Tracing a person:
- Fall/movement of a person:
- Medication:
- Access control:
- Condition Monitoring:
- Tracking an object:
- Social Security:

"Scenario Composing” Driven by Health care practitioners!
Interaction between Working processes & Routines as response on Deviation Handling by ENVIRONMENTAL TECHNOLOGY
Thank’s for Attention!

www.tGov.no

Read more at EPR-forum Interaction project «The Welfare & Health Care Challenges»

http://omsorgsteknologi.no/

Services in your Hand

Possibility to control the system over the Internet
Infrared devices control
Light control
Motion detectors
Air conditioning control
Touch screen
Irrigation control
Legend
Sensors
Activation controls
Controls
Ventilation control
Smoke detectors
Switch control
Window opening & closing control
Gate & garage door control
Plug control
Window shading control

Body Sensors