Reference models:
A Healthcare Case Study
Invite

The Norwegian Healthcare Authority in the South Eastern Region (Helse Sør-Øst) is sponsoring the development of a Healthcare Reference Framework. This reference model is a prerequisite for healthcare reform in the region and uses best practices and learning gleaned from industry reference models, such as those developed by the Telecommunications, Natural Resources, Supply Chain Council and other industries.

The presentation will focus on the Healthcare vision and business motivation driving the development and adoption of industry reference models. The business case for increased South African participation will be presented.

Sarina Viljoen is collaborating with the Norwegian Helse Sør-Øst Healthcare Authority to develop this model, using her background as the forum director of The Open Group's Exploration Mining, Metals and Minerals forum (EMMMv).
Agenda

Background

Healthcare in Norway

Reference models
Norway

- Population: 5 Million
- Land boundaries: 2,542 km
  - Sweden
  - Finland
  - Russia
- Coastline: 83,281 km

- **Area of Norway**: 385,252 km²
  - (South Africa measures 1,221,037 km²)
Healthcare in Norway

Overview of the Norwegian health care system

Philosophy
- Equal and free access for all to high quality healthcare services

Financing
- Mostly publicly financed (~85%) and tax based
- Total public spending on healthcare is around USD 35 billion

Responsible authority
- Split between state (4 regional health authorities) and municipalities (431)
  - Primary care: Municipalities
  - Long-term care: Municipalities
  - Secondary (specialist) somatic care: State (health regions)
  - Psychiatry: State (health regions)

Population: ~4.9 million
14.6% over 65 years
~1.2% annual growth

Private player climate
- Very low share of private provision, except in primary care
- Most players operate as private providers within the public system
- General reluctance to further privatization of healthcare

Source: McKinsey analysis
Geography, cities and healthcare

- Geographic – 1 central governance (the directorate)/ 4 regional healthcare enterprises/ 50+ hospitals (secondary healthcare)
- 450+ municipalities (primary healthcare) / 3000+ GP offices
- Governing and decision making within the geography
  - Own resources
  - Right to decide
Healthcare reform

- The status quo: 20+ years resulted in no standard process used for reference purposes and many thousand applications and information islands that exists
  - Subsequent is also the lack of standardization and systematic work on the information structures itself...

- Regulations and privacy laws have clinical information belonging to the individual organizations and must be protected there
**Healthcare reform**

**Vision:** High quality health services equal to all, regardless of age, place of residence, ethnic background, gender or personal economy.

**Drivers:**
- Citizen response/ demand
- Political focus
- Patient safety
- Quality of care
- Alignment to best in class
Key figures 2011

The South-Eastern treats more patients than ever before.

Number of patients referred for treatment in mental health care levels off.

Several have outpatient and inpatient treatment, and the waiting time goes down.

Shorter waiting times in general medicine, TSB and mental health care.

Percentage of deadline violations of rights patients lose.

Almost no corridor patients in mental health care, but the increase in somatic improved.

Work on quality and patient safety.

Interaction reform is well underway, 175 agreements with municipalities / districts.

Research for 1.7 billion, Over 150 new.

Developing common regional release.

Large corporate citizen who buys for
### Select the Illness / Treatment
- Physical health
- Heart and blood vessel
- Narrowed blood vessels in the legs, bypass surgery
- The South-East

### Choose a Region
- Helse Nord
- Helse Mid-Norge
- Helse Vest
- Helse Sør-Øst

### Information
Before changing treatment center talk to your doctor or call a patient advisor on 800 41 004. Pasientrådgiverelefonen is open weekdays from 8:00 to 3:00 p.m.

Summary waiting times
How to choose or change

### Waiting Time vs Overall Quality of Hospital

<table>
<thead>
<tr>
<th>Treatment Place</th>
<th>Location</th>
<th>Report</th>
<th>Day / outpatient treatment</th>
<th>Admission</th>
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</table>
Developing a Reference model for Healthcare

- Enterprise Architecture focus since 2009/10
- Understanding the need for a common reference within Norway
- No context reference model work found.
Industry Reference frameworks

- Exploration, Mining, Metals and minerals (EMMMv)
- Information & Communications Technology (TMF with Frameworx)
- Supply Chain (SCORE)
- Retail (ARTS)
- Oil & Gas (PCATS)
- Financial Institution (CIM)
Information and Telecommunications Industry (tmforum - Frameworx)

Frameworx
- Frameworx Overview
- Frameworx Quick Start Library
- Business Process Framework (eTOM)
- Information Framework (SID)
- Application Framework (TAM)
- Integration Framework
- Business Metrics

Frameworx Implementation Support
- Frameworx Implementation Support
- Frameworx Conformance Certification
- Business Benchmarking
- Business Metrics Automation Certification
- Training & Certification

Best Practices
- Procurement
- Revenue Assurance
- Service Level Agreement Management
- Software Enabled Services Management
- IPsphere

Frameworkx 11.5
Suite of standards that enable successful business transformation

Latest Downloads
Select the standard you would like to download.
- Application Framework (TAM) 4.5
- Business Process Framework (eTOM) 9.0
- Business Process Framework (eTOM) 11.5 beta
- Information Framework (SID) 9.5
- Integration Framework 2.5
- Integration Framework 11.5 beta
- Revenue Assurance Solution Suite 3.0
- Revenue Assurance Solution Suite 3.5 beta
- Business Performance Measurement System (BPMS 5.5.0)
The Association for Retail Technology Standards (ARTS) of the National Retail Federation is an international membership organization dedicated to reducing the costs of technology through standards. Since 1993, ARTS has been delivering application standards exclusively to the retail industry. ARTS has four standards: The Standard Relational Data Model, UnifiedPOS, XML, and the Standard RFPs (in partnership with NRF). Membership is open to all members of the international technology community -- retailers from all industry segments, application developers and hardware companies.
The intent of industry frameworks

- To provide an “example”/ typical industry answer for the questions the organisation in the industry faces:

  - **What** information do we need
  - **How** does it all hang together
  - **Where** will it have an impact/ be used
  - **How** are we serving customers/ delivery products/ transforming inputs into outputs
  - **What** do we need to do
  - **When** does it need to be done
  - **Who** will do it
  - and **Why** are we doing it
Common themes in the reference frameworks

- They all seem to focus on the following elements
  - Business Process
  - Information/ Data
  - maybe Business Capability
  - invariably application and/ or service component included
  - ...and aspects of integration or flow
Objectives of Healthcare Reference Framework

- To **educate** on what we do, how and where we do it and why
- To **improve communication**; focusing the conversion
- To define **scope** and **context**; for planning and conversion
  - To support strategy development
- To create clear lines for roles and responsibilities
- To create **standards** for the concepts defined in the framework
- To allow for the **comparison** of things
- To enable **re-use** across programmes/ projects and organisations
- To support a common/ **balanced view** of applying our resources and effort
- To **better utilise** our data through understanding scope, context and positioning
- To **align** objectives of the various divisions of the organisation (IT, Business)
Use of the Business Process Framework

1.1. The Business Process Framework as a focus for enterprise mapping

Now, alongside this use of the Business Process Framework as the basis for defining process decomposition, it has also been commonly used as the default starting point for analyzing and mapping how the Business Process Framework process elements relate to the relevant area of application. For example, a company may look to map the Business Process Framework into its business and may therefore want to identify departmental roles and boundaries using the Business Process Framework as a tool in this.

It is an important, but possibly subtle, point that alignment with the Business Process Framework depends on adopting and using the individual process elements within the Business Process Framework but that this does not mandate that these must be kept in the arrangement shown in Figure 1. In other words, the key requirement for staying aligned with the Business Process Framework is aligning with individual process definitions (as set out in GB921D and the related model, etc) rather than...
Using the Framework to create a common understanding of my organisation and the scope of processes we perform
Reference framework vision

- Business Focus
- Information Focus
- Performance Focus
- Application Focus
Business reference model

**Objective:** To provide a common definition of the business elements that will enable the transformation of the structure, to achieve our defined strategy and deliver the desired outcomes (i.e. performance)

**Proposed Elements:** Business Area, Function, Process, Role
Information Map

**Objective:** To enable information sharing and reuse across the Healthcare sector in Norway via the standard description and discovery of common information and the promotion of uniform information management practices

**Elements:** Information categories, Information Elements, Information Owners
Existing standards for Healthcare (information exchange)
## Existing standards for Healthcare (information exchange)

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<thead>
<tr>
<th>ID</th>
<th>Krav</th>
<th>Innholdstandard</th>
<th>Format</th>
<th>Informasjon domene</th>
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<td>IP_13</td>
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<td>Altinn</td>
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</table>
Information Components per Enterprise Process area (subject area level)

**Discover**
- Organisation
- Location
- Survey Collection
- Sample Collection
- Mineral/Commodity
- Exploitation Option
- Geo-Technical Results
- Ore body
- Projected Mineral Reserves
- Environmental Impact
- Business Case
- Resource

**Establish**
- Rights
- Legal agreements
- Project
- Engineering Design
- Equipment/Machinery
- Infrastructure
- Mine Plan
- Facilities
- Mine Design
- Operational model
- Operational Performance
- Farm built documentation

**Exploit**
- Mine Schedule
- Workplace/bench
- Activity
- Maintenance schedule
- Measurement schedule
- Rock Valuation
- Rock Movement
- Blending recipe
- Product
- Material Movement
- Stockpile

**Beneficiate**
- Beneficiation Schedule
- Plant Performance
- Process quality indicator
- Environmental indicators
- Environmental indicators
- Consumables/materials
- Rock Movement
- Blending recipe
- Product
- Material Movement
- Stockpile

**Sell**
- Customer
- Order
- Marketing Collateral
- Demand Forecast
- Distribution Plan
- Environmental indicators
- Environmental indicators
- Market Intelligence
- Service
- Price
- Inventory
- Product
- Outbound logistics schedule
- Environmental indicators

**Rehabilitate**
- Site
- Rehabilitation Plan
- Success criteria
- Rehabilitation Design/model
- Environmental indicators
- Environmental indicators
- Site
- Environmental indicators
- Stakeholder message
- Stakeholder
- Logistics
- Regulation
- Supplier
- Employee
- Customer
- Record
- Asset
- Role
- Competence
- Site
- Environmental indicators
- Stakeholder message

**Illustrative**
Application reference model

**Objective:** To categorise and define a common definition of the application capability required, where the application is a combination of the process executed and the data delivered.

**Elements:** Application Categories, Application Functionality
Fig. 2. Detailed reference model of the Application.

Fig. 3. Industry modified model for Healthcare – domain level, 2010.
Performance reference model

**Objective:** To categorise and define a common model for defining the business metrics to be used for determining organisational performance.

**Elements:** Measurement Category, Measure
<table>
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<th>Location</th>
<th>Report</th>
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Performance Reference Model (PRM) has a four-level hierarchy (Measurement Area, Measurement Category, Generic Measurement Indicator, and Operational Measurement Indicator) as shown below.
Reference models

- Collaboration and co-opetition are the key words
- With South Africa debating national healthcare, a reference framework to enable the conversation and eventually interoperability will be fundamental
- Healthcare, hospital and medical aid organisations and their suppliers should start considering the extended enterprise in a new world with national health
- Consider joining a South African collaboration on the topic
- Contact me for more detail
Contact

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