

# HealthFinland a semantic tool for Health Promotion

Health EU Portal 28.6.2007

Eija Hukka<sup>1</sup>, Kim Viljanen<sup>2</sup>, Osma Suominen<sup>2</sup>, Eero  
Hyvönen<sup>2</sup>

1: National Public Health Institute, [www.ktl.fi](http://www.ktl.fi)

2: Semantic Computing Research Group,  
Helsinki University of Technology & University of Helsinki,  
[www.seco.tkk.fi](http://www.seco.tkk.fi)

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- EU eEurope Action Plan
- Finland's eHealth Roadmap
- Funding: the Government Information Society Programme
- Responsible body: the Ministry of Social Affairs & Health
- Planning: National Public Health Institute
- Content Providers: Agencies and institutions under the Ministry of Social Affairs and Health, NGO's



- |   |   |
|---|---|
| <ul style="list-style-type: none"><li>•National Public Health Institute</li><li>•The Social Insurance Institution of Finland</li><li>•National Agency for Medicines</li><li>•Ministry of Social Affairs and Health</li><li>•Suomi.fi Portal</li><li>•the Finnish Innovation Fund</li><li>•Helsinki University of Technology</li></ul> | <ul style="list-style-type: none"><li>•The National Library of Health Sciences</li><li>•The Finnish Centre for Health Promotion</li><li>•The Finnish Medical Society Duodecim</li><li>the Government Information Society Programme</li><li>•Finnish Institute of Occupational Health</li><li>•UKK-institute for Health Promotion Research</li></ul> |
|---|---|

- The HealthFinland. Portal will provide the Finns with a comprehensive single entry-point to reliable and up-to-date health information and eHealth services
- Aims at improving synergies between all actors in the field of health promotion and health services

- **HealthFinland project: a national project for developing the citizens a National Health Promotion Portal in Finland**
- **FinnONTO:** creating a national infrastructure of ontologies, Semantic Web services and demonstration applications
- The main funders are:



SOSIAALI- JA TERVEYSMINISTERIÖ

suomi.fi



Sosiaali- ja terveysalan tutkimus- ja kehittämiskeskus



TERVEYDEN EDISTÄMISEN KESKUS  
CENTRET FÖR HÄLSÖFRÄMJÄNDE  
FINNISH CENTRE FOR HEALTH PROMOTION

DUODECIM



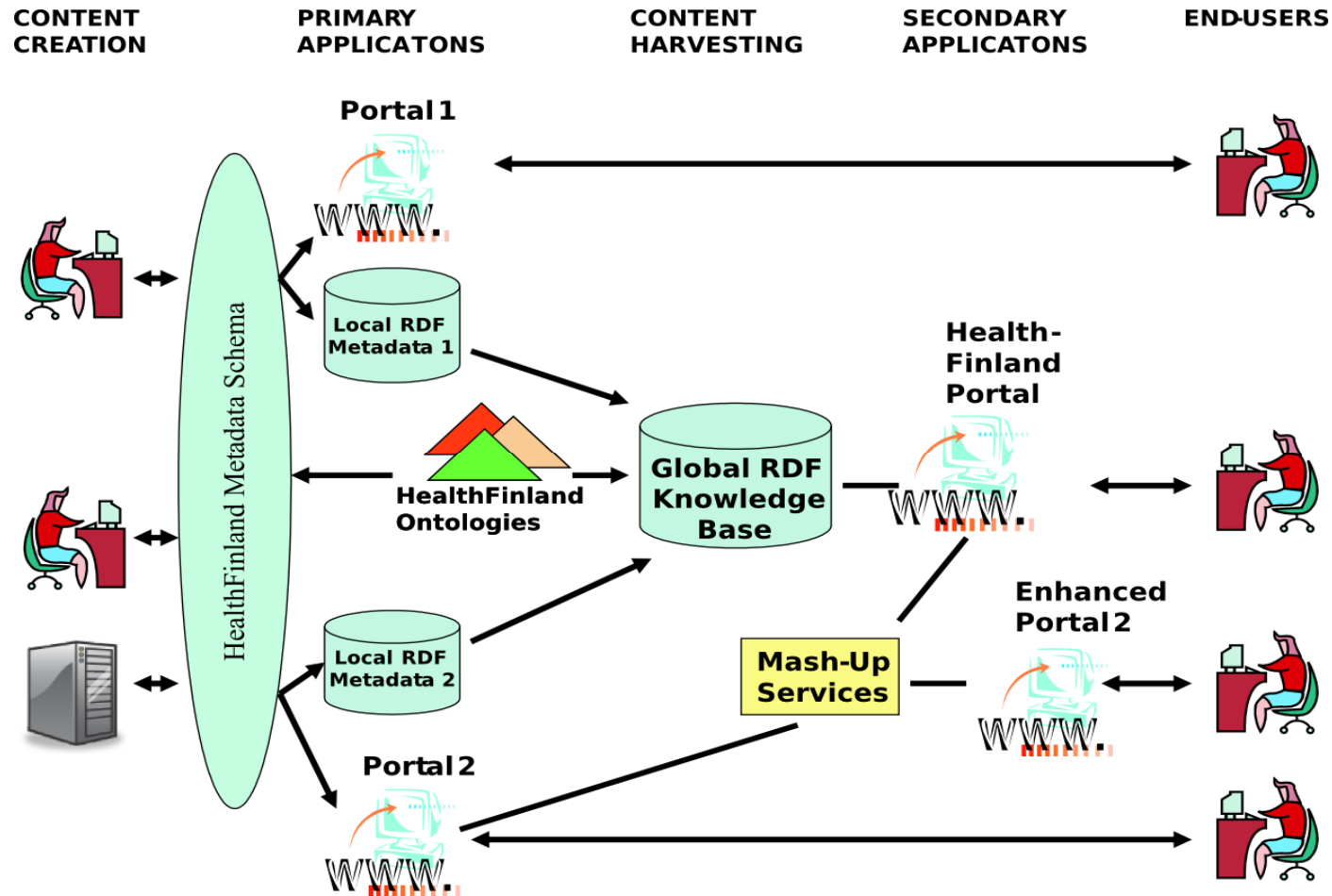
- **Content discovery requires prior knowledge**
  - How to find the right site or find the right keyword?
- **Outdated and missing linkage between web sites**
  - finding one relevant web page may not help finding relevant content
- **Content aggregation**
  - satisfying the user's needs often requires information from several sites
- **Trustworthiness of the content**
- **Matching end-user's expertise level**
  - e.g., terminology of medical doctors vs. laymen

- **Duplicated work:** re-creating vs. re-using content
- **Difficulty of reusing content** between web sites
- **Internal and external link maintenance is costly and tedious**
- **Indexing (annotating) the content is difficult and time consuming**
- **Quality control**

- **Two main ideas of semantic HealthFinland**
  - Metadata and shared ontologies
  - Automated content aggregation and the global metadata repository
- **The metadata schema is based on Dublin Core**
- **Core ontologies for describing the subject of each content item**
- **Tools to support metadata creation and using ontologies**
  - National ontology library service (ONKI)
  - Browser-based annotation editor (SAHA)
  - Automatic concept extraction from textual content (POKA)



# Distributed content creation & reuse



## Two major components:

1. A metadata schema
2. A set of ontological vocabularies (YSO, MeSH, TESA)
3. shared use of these ontologies ensures *the semantic interoperability* of the content

- **Semantic metadata repository**

- contains semantically consistent constantly updated metadata of top quality Finnish health related content
- access can be opened to the European Health Portal

- **Semantic floatlets**

- easy and light method to inject semantically relevant content and functionality from HealthFinland to any web page
- based on mash-up (JavaScript/AJAX) technologies
  - only one line of JavaScript is required to add the floatlet to a page
- similar to Google Ads, but based on **exact metadata**  
→ semantically relevant content to each web page

# EU Health Portal with HealthFinland floatlet - mock-up

Mental Health - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://ec.europa.eu/health-eu/health\_problems/m

**Health-EU**  
The Public Health Portal of the European Union

European Commission > Health-EU > Health Problems > Mental Health

Site map | About this site | Subscribe | Index | FAQ | Language Policy

Search

Advanced Search

**MY HEALTH**

**MY LIFESTYLE**

**MY ENVIRONMENT**

**HEALTH PROBLEMS**

**HIV/AIDS**

**INFLUENZA**

**OTHER INFECTIOUS DISEASES**

**MENTAL HEALTH**

**CANCER**

**RARE DISEASES**

**CARDIOVASCULAR DISEASES**

**OTHER NON-COMMUNICABLE DISEASES**

## Mental Health



Mental health is an everyday issue which can affect families, schools, workplaces and leisure activities. Good mental health contributes to the social, human and economic capital of society. Mental ill health can drastically reduce the quality of life of affected individuals and their families. This is not only a challenge for the health sector. It is among the top three reasons for absence from work and a leading reason for people taking early retirement or a disablement pension. It also imposes significant costs on society and the economic, education, social, criminal and justice systems. The most common mental disorders in the EU are anxiety and depression, but there are significant inequalities between and within Member States and initiatives are usually fragmented.

For these reasons, the protection and promotion of good mental health are high on the agenda of the European Union which is now considering a strategy on mental health. The Green paper - "Promoting the mental health of the population. Towards a strategy on mental health for the EU" - issued in October 2005, says that such a strategy could add value by creating a framework for exchange and cooperation between Member States, stakeholders in the relevant sectors, and the research community. It could increase coherence of actions, and serve as interface with policy and research. The main objectives of the EU strategy on mental health could be: preventive action, care and treatment, addressing stigma and discrimination against people with mental disorders, improving information and knowledge. As an example, actions identified as crucial are: improving parenting skills, encouraging a participative work-place culture, supporting

**Links to...**

**Member States**

**Non Government Organisations**

**International Organisations**

**HealthFinland**

Mental Health and Sleep

- > Sleep and sleep disorders
- > Depression
- > Self-destruction
- > Feelgins

Life event

- > Ageing

People group

- > men
- > women
- > children
- > young people
- > adults
- > elderly

**Floatlet**

- dynamically added to the page
- links to HealthFinland

- The HealthFinland demonstrates how distributed content can be combined to a semantically consistent and interlinked portal
- The same approach could be used on the European level to create a semantic European Health Portal
- HealthFinland's metadata repository would be Finland's input to the semantic European Health Portal
- Other countries would need their own repositories
- Floatlets can be used to injecting semantically relevant content to, e.g., the European Health Portal

- **Web resources:**
  - <http://www.seco.tkk.fi/applications/tervesuomi/>
  - <http://www.tervesuomi.fi/>
- **Publications available at: <http://www.seco.tkk.fi/publications/>**
  - Eero Hyvönen, Kim Viljanen and Osma Suominen: **HealthFinland - Finnish Health Information on the Semantic Web**. May, 2007. Submitted for review.
  - Eetu Mäkelä, Kim Viljanen, Olli Alm, Jouni Tuominen, Onni Valkeapää, Tomi Kauppinen, Jussi Kurki, Reetta Sinkkilä, Teppo Käsälä, Robin Lindroos, Osma Suominen, Tuukka Ruotsalo and Eero Hyvönen: **Enabling the Semantic Web with Ready-to-Use Mash-Up Components**. May, 2007. Submitted for review.
  - Osma Suominen, Kim Viljanen and Eero Hyvönen: **User-centric Faceted Search for Semantic Portals**. Proceedings of the European Semantic Web Conference ESWC 2007, Innsbruck, Austria, Springer, June 4-5, 2007.
  - Eero Hyvönen, Kim Viljanen, Eetu Mäkelä, Tomi Kauppinen, Tuukka Ruotsalo, Onni Valkeapää, Katri Seppälä, Osma Suominen, Olli Alm, Robin Lindroos, Teppo Käsälä, Riikka Henriksson, Matias Frosterus, Jouni Tuominen, Reetta Sinkkilä and Jussi Kurki: **Elements of a National Semantic Web Infrastructure-Case Study Finland on the Semantic Web**. May, 2007. Submitted for review.

Backup slides:

**The HealthFinland portal screenshots**







Terveystietoon.fi on väylä luotettavaan ja monipuoliseen terveystietoon. Sisällöstä vastaavat terveysalan tutkimus- ja asiantuntijalaitokset, viranomaiset ja alan järjestöt.

[Lue lisää...](#)

## Aihealueet

### Food and nutrition

Diet and eating habits, Foodstuffs, Nutrients...

### Exercise

Everyday exercise, Fitness and physical activity, Leisure time exercise...

### Weight control

Body mass index, Body weight, Slimming...

### Sexuality

Birth control, Sexually transmitted diseases...

### Family and children

Delivery, Family problems, Pregnancy...

### Intoxicants

Alcohol, Drugs, Smoking...

### Catastrophes

Chemical accidents...

### Epidemics and infectious diseases

Bacteria, Epidemic prevention, Vaccines...

### Mental health and sleep

Depression, Self-destruction, Sleep and sleep disorders...

### Violence and crises

Marginalisation, Violence...

### Conditions and symptoms

Conditions, Symptoms, Treatment methods...

### Accidents and first aid

Poisoning, Stings, Wounds and injuries...

### Finding help

Elderly care, Health centres, Pharmacies...

### Environment

Air, Harmful substances, Residential environment...

### Occupational health

koulutus, toimintakyky, työ...

## Suurimmat aiheet

Air Pollutants Nutrition Older people Patients People with psychiatric disorders Women Young adults adults bipolar disorder children **depression** epidemiology fatness mental disorders mood nurse-patient relationship publications **research** risk factors **schizophrenia** siblings suicide **suicide attempts** young people

## Hakemisto

[O-9](#) [A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#)  
[H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#)  
[Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#)  
[Y](#) [Z](#) [Å](#) [Ä](#) [Ö](#)

## Uutiset

- **Kanasanterveyslaitosten kansainvälinen järjestö perustettu**  
 3.2.2006  
 Maailman kansanterveyslaitosten pääjohtajat kokoontuivat 29.1.-1.2.2006 Rio de Janeirossa.
- **Veroale ei lisännyt eläkeikäisten alkoholinkäyttöä**  
 2.2.2006  
 KTL:n tutkimus ei havainnut merkittävää alkoholinkäytön lisääntymistä vuosina 2003-2005.
- **Wallenberg-säätiö panostaa pohjoismaiseen tautigenetiikkaan**  
 2.2.2006  
 Nordic Centre of Excellence in Disease Genetics pohjoismaisen geenitutkimuksen huippuyksikkö.
- **Väitös 10.2: Kuntoilu, lihavuus ja sydäntautien vaaratekijät**  
 30.1.2006  
 Väittelijänä liikuntatieteiden maisteri Katja Borodulin.
- **200 000 suomalaisella piilodiabetes**  
 19.1.2006  
 Tyypin 2 diabetes ja sen esiasteet oletettuakin yleisempiä.

[Lisää uutisia...](#)

[Uutiset RSS-virtana](#)  
[Mikä on RSS?](#)



Sijainti: Mental health and sleep

Food and nutrition	6
Exercise	3
Weight control	4
Sexuality	
Family and children	6
Intoxicants	4
Catastrophes	
Epidemics and infectious diseases	7
Mental health and sleep	49
Motivation	
Mental health care	
Sleep and sleep disorders	3
Grief	
Depression	16
Self-destruction	15
Stress	
Feelings	1
Violence and crises	
Conditions and symptoms	46
Accidents and first aid	1
Finding help	7
Environment	10
Occupational health	6
Elämäntilanne	
ageing	1

## Mental health and sleep

Hakutulokset

49 kpl

Sivut

1 2 3 4 5 &gt;

Tyyppi	Julkaisija	Vuosi	Yleisö	
<input type="text" value="mikä tahansa"/>	<input type="text" value="mikä tahansa"/>	<input type="text" value="mikä tahansa"/>	<input type="text" value="mikä tahansa"/>	<input type="button" value="Rajaa hakua"/>



### Long-term psychosocial effects of persistent chronic illness. A follow-up study of Finnish adolescents aged 16 to 32 years

Adolescents reporting persistent chronic illness at ages 16, 22, and 32 years (n = 296, limiting in daily life n = 52, non-limiting n = 244) were compared with those without any chronic illness (n = 401) in their life situation, psychosocial well-being...

[mental welfare](#), [research](#), [sickness](#), [young people](#)

[Kansanterveyslaitos](#)

2.6.2004 → (asiantuntijat), (maallikot)



### Predictors of mental distress in early adulthood: a five-year follow-up of 709 high-school students

Mental health risk factors in adolescence were examined as predictors of mental distress in early adulthood. A cohort of 709 Finnish adolescents was studied in 1990 (mean age 16.8) and in 1995.

[Young adults](#), [mental welfare](#), [research](#), [risk factors](#)

[Kansanterveyslaitos](#)

1.6.2004 → (asiantuntijat), (maallikot)



### Current comorbidity of psychiatric disorders among DSM-IV major depressive disorder patients in psychiatric care in the Vantaa Depression Study

While numerous studies have documented the high comorbidity of major depressive disorder (MDD) with individual mental disorders, no published study has



## muilla kielillä

- [Masentunut herää aamuyöstä](#)
- [Mielenterveys ja alkoholitutkimusosaston julkaisut](#)
- [Pääkirjoitus: Kansallinen univaje](#)

## ruotsiksi

- [Affektiva störningar](#)
- [Höglkonsumtion av alkohol](#)
- [Mentala störningar](#)

Weight control	4
Sexuality	
Family and children	6
Intoxicants	4
Catastrophes	
Epidemics and infectious diseases	7
Mental health and sleep	49
Motivation	
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Conditions and symptoms	46
Accidents and first aid	1
Finding help	7
Environment	10
Occupational health	6

Elämäntilanne	
ageing	1

Ihmisyhmä	
men	2
women	2
babies	
children	2
young people	7
adults	14
elderly	5
alcoholics	1
cohabitees	1
twins	1
Patients	3
spouses	1
siblings	4
parents	2

Tyyppi	Julkaisija	Vuosi	Yleisö	
mikä tahansa	mikä tahansa	mikä tahansa	mikä tahansa	Rajaa hakua



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[mental welfare](#), [research](#), [sickness](#), [young people](#)  
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While numerous studies have documented the high comorbidity of major depressive disorder (MDD) with individual mental disorders, no published study has reported overall current comorbidity with all Axis I and II disorders among psychiatric patients...

[People with psychiatric disorders](#), [mental disorders](#), [research](#)  
[Kansanterveyslaitos](#)

2.6.2004 → (asiantuntijat), (maallikot)



### Elderly suicide attempters with depression are often diagnosed only after the attempt

No previous study has comprehensively investigated the pattern of health care contacts among elderly subjects attempting suicide. The present study compared elderly suicide attempters with younger attempters, before and after attempted suicide, in terms..

[Older people](#), [adults](#), [depression](#), [mental disorders](#), [nurse-patient](#)



- Masentunut herää aamuyöstä
- Mielenterveys ja alkoholitutkimusosaston julkaisu
- Pääkirjoitus: Kansallinen univaje

#### ruotsiksi

- Affektiva störningar
- Högkonsumtion av alkohol
- Mentala störningar



Sijainti: Mental health and sleep &gt; Age group &gt; elderly

Food and nutrition	3
Exercise	2
Weight control	3
Sexuality	
Family and children	
Intoxicants	1
Catastrophes	
Epidemics and infectious diseases	2
Mental health and sleep	5
Motivation	
Mental health care	
Sleep and sleep disorders	
Grief	
Depression	2
Self-destruction	2
Stress	
Feelings	
Violence and crises	
Conditions and symptoms	6
Accidents and first aid	
Finding help	2
Environment	4
Occupational health	1

Elämäntilanne	
ageing	1

Ihmisyhmä

## Mental health and sleep ja elderly

Hakutulokset

5 kpl Sivut 1

Tyyppi	Julkaisija	Vuosi	Yleisö	
mikä tahansa	mikä tahansa	mikä tahansa	mikä tahansa	Rajaa hakua



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Older people, adults, depression, mental disorders, nurse-patient relationship, research, suicide attempts

Kansanterveyslaitos

2.6.2004 → (asiantuntijat), (maallikot)



### Increasing age does not decrease risk of schizophrenia up to age 40

It is well established that at the population level the age-specific incidence of schizophrenia is highest in the early 20s and decreases with age. We present new findings showing that this is not the case when we assume that only part of...

ageing, falling ill, research, risks, schizophrenia

Kansanterveyslaitos

2.6.2004 → (asiantuntijat)



### Nursing home suicides-a psychological autopsy study

Older adults comprise a fifth of all suicides. Elders are the fastest growing part of the population, thus the number of persons needing nursing home care will increase dramatically in the near future. Little



## muilla kielillä

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- Högkonsumtion av alkohol

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