



bouvet
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A Citizen's Portal for the city of Bergen

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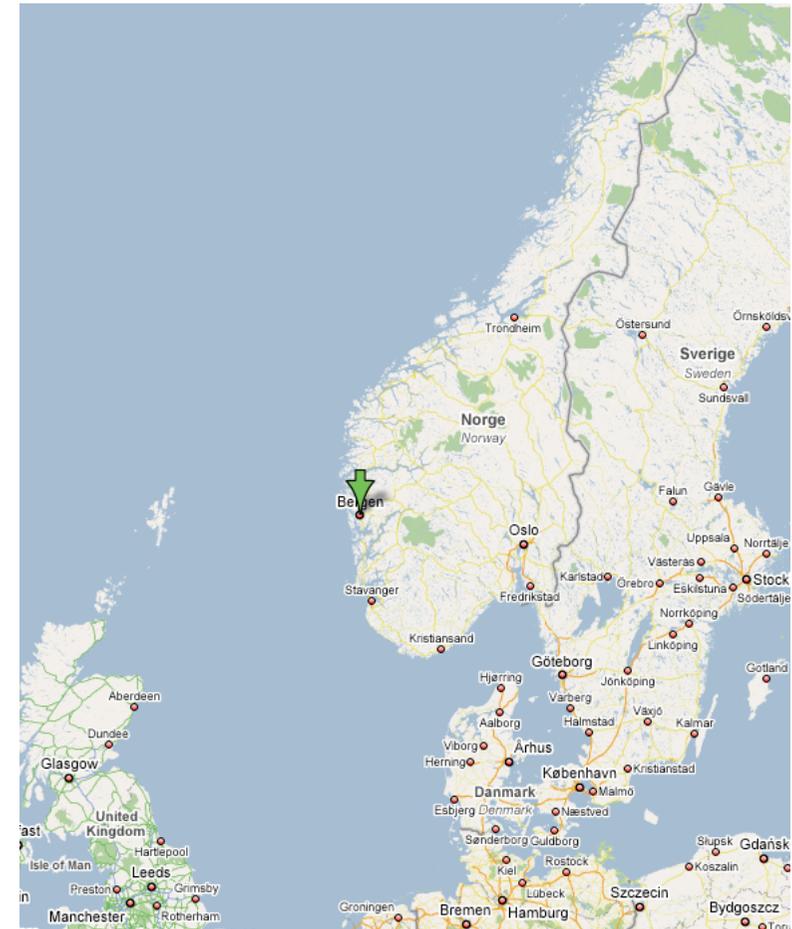
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TMRA 2007

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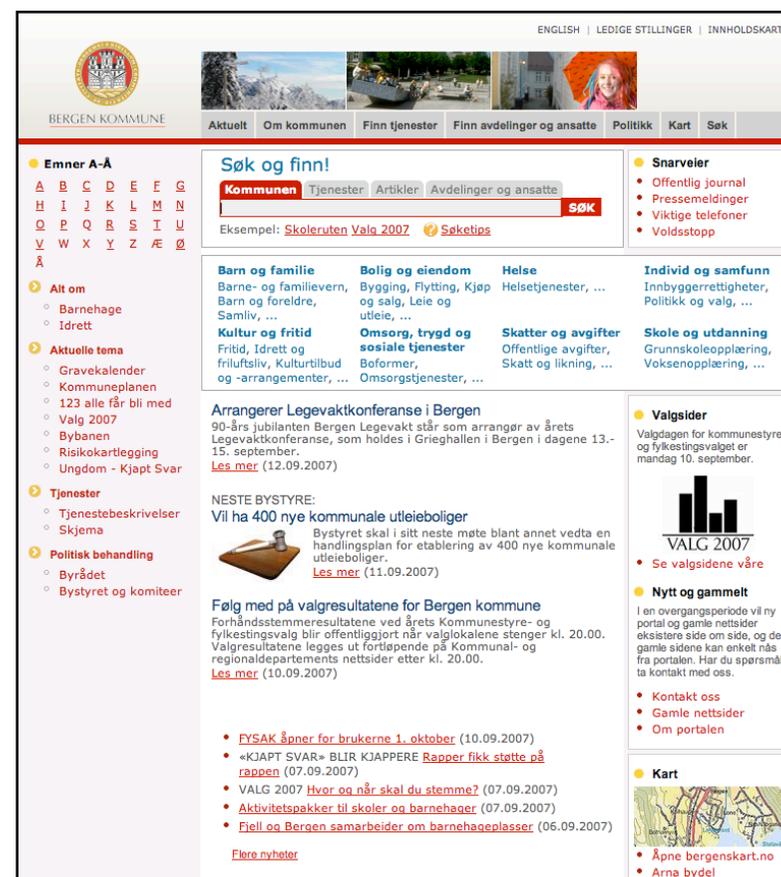
The City of Bergen

- **Second largest city in Norway**
 - 244,000 inhabitants
 - 18,000 administration employees
- **Located in western Norway**
 - long history of hanseatic connections
 - former Norwegian capital



The project

- **A new citizen's portal for the city administration**
 - strategic decision to make portal main interface for interaction with citizens
 - as many services as possible are to be moved online
- **Big project**
 - started in late 2004, to continue at least into 2008
 - ~5 million Euro spent by launch date
 - 1.7 million Euro budgeted for 2007
 - Topic Maps development is a fraction of this (less than 25%)
- **Many companies involved**
 - Bouvet/Ontopia
 - Avenir
 - KPMG
 - Karabin
 - Escenic



The screenshot shows the Bergen Kommune website interface. At the top, there is a navigation bar with links for 'Aktuelt', 'Om kommunen', 'Finn tjenester', 'Finn avdelinger og ansatte', 'Politikk', 'Kart', and 'Søk'. Below this is a search bar with the text 'Søk og finn!' and a search button labeled 'SØK'. The main content area is divided into several sections:

- Emner A-Å:** A list of letters for navigation: 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, Æ, Ø, Å.
- Alt om:** A list of categories: Barnehage, Idrett.
- Aktuelle tema:** A list of topics: Gravekalender, Kommuneplanen, 123 alle får bli med Valg 2007, Bybanen, Risikokartlegging, Ungdom - Kjapt Svar.
- Tjenester:** A list of services: Tjenestebeskrivelser, Skjema.
- Politisk behandling:** A list of political topics: Byrådet, Bystyret og komiteer.
- Snrveiler:** A list of guides: Offentlig journal, Pressemeldinger, Viktige telefoner, Voldsstopp.
- Valgsider:** A section for election information, including a bar chart for 'VALG 2007' and a link to 'Se valgsidene våre'.
- Nytt og gammelt:** A section for news and updates, including a link to 'Kontakt oss'.
- Kart:** A section for maps, including a link to 'Åpne bergenskart.no'.

There are also several news items and articles visible, such as 'Arrangerer Legevaktkonferanse i Bergen' and 'Føl med på valgresultatene for Bergen kommune'.

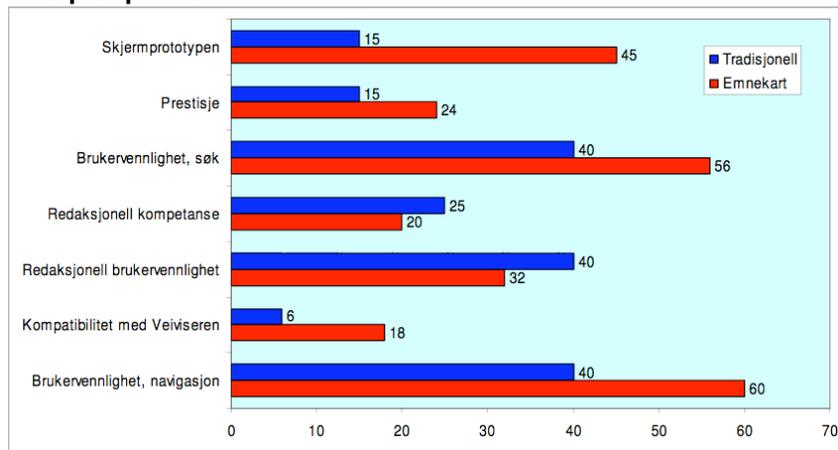
Customer goals

- **Portal must**
 - be easy for citizens to navigate,
 - have effective search, and
 - have flexible components for building pages
- **Content to be organized by subject**
 - not by internal organizational structure
- **Data integration a key point**
 - need to collect data from many sources
 - avoid manual entry of data where possible
 - must be flexible

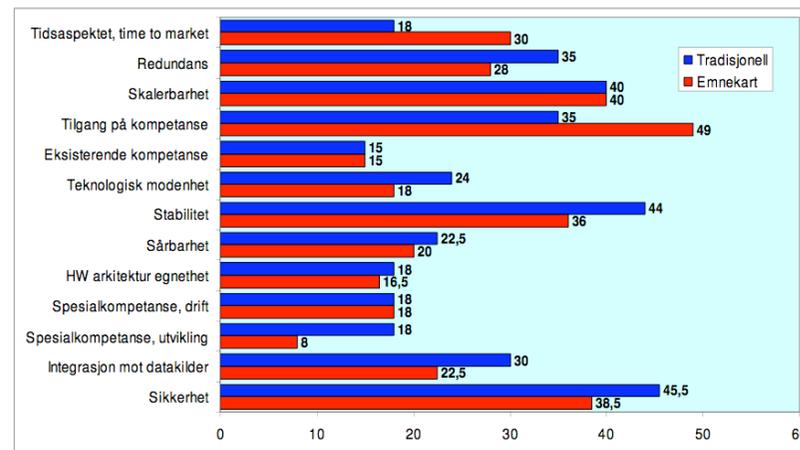


Decision to use Topic Maps

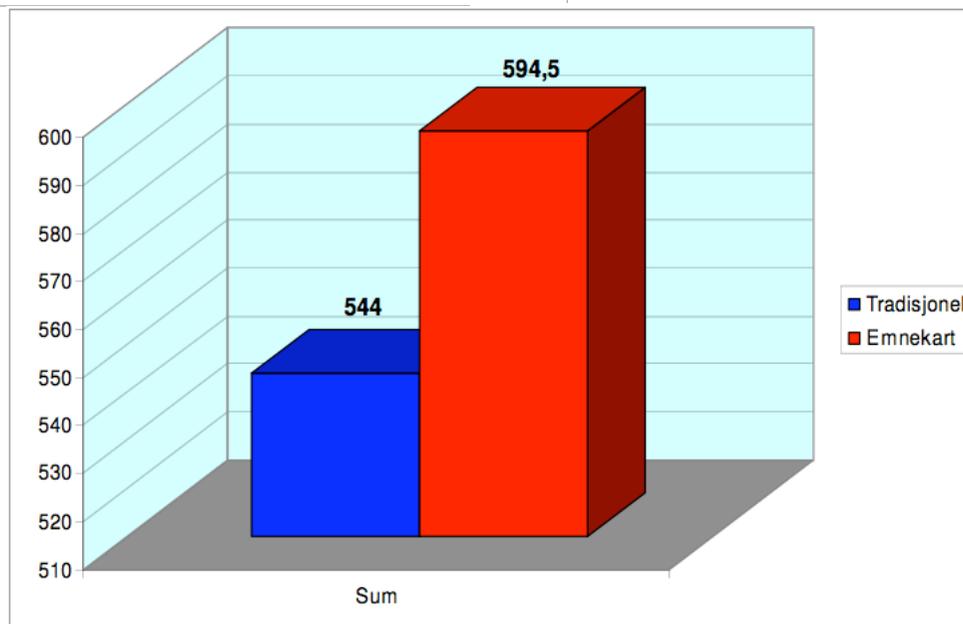
User perspective



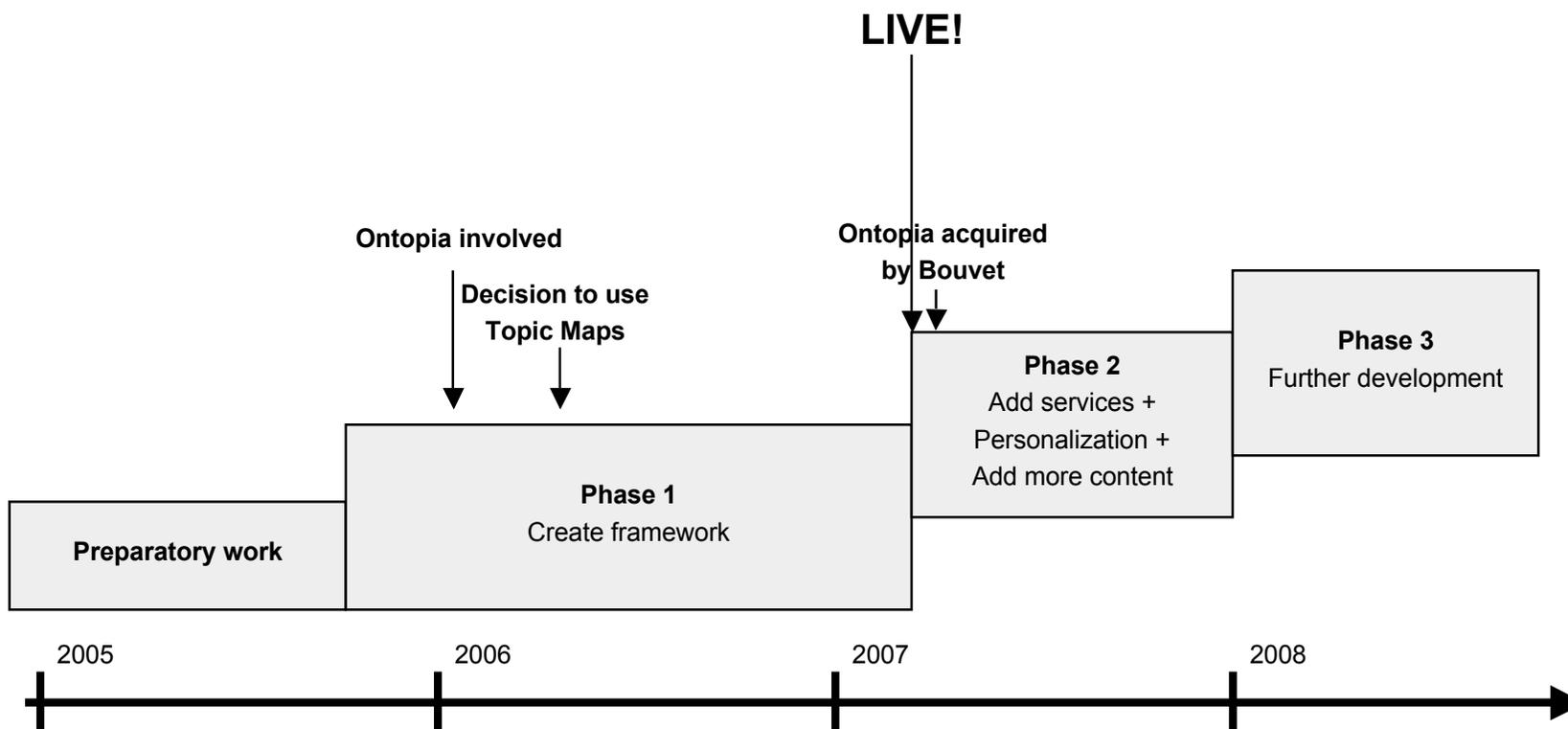
Technical considerations



Summary



Timeline



Phase 1

- **Create solution concept**
 - done by Ontopia and Bouvet, with assistance from customer
 - ontology,
 - data flow design,
 - administrative interface design
 - overall solution proposal
- **Update interaction design**
 - mainly Bouvet, with Ontopia, Avenir, and customer
- **Implement portal and data integration**
 - mainly Bouvet, with support from Ontopia, Avenir, and customer
- **Testing, content creation**
 - mainly Bergen, also Bouvet

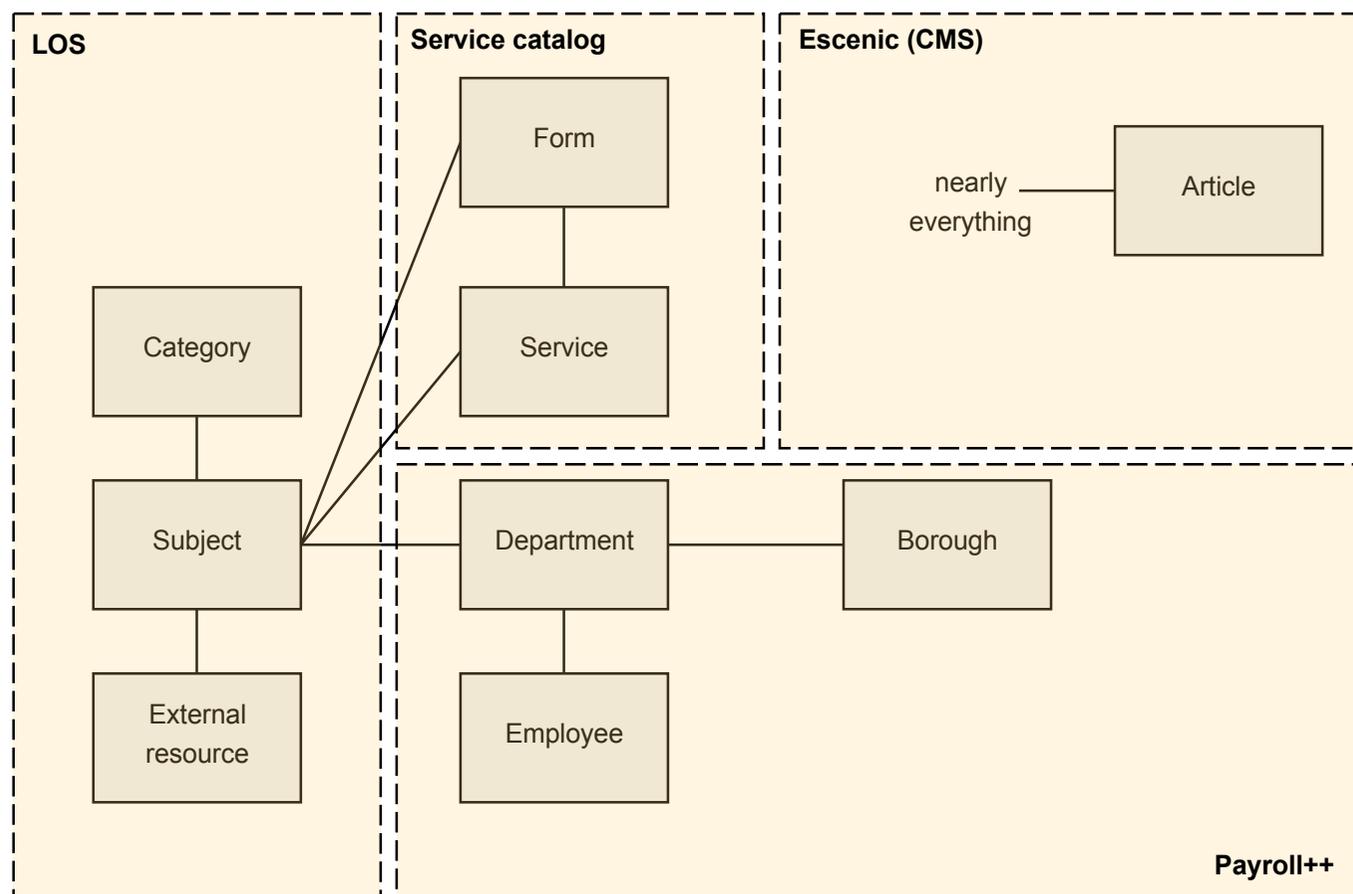
Phase 1, product development

- **Escenic**
 - integration of OKS with Escenic CMS
- **DB2TM**
 - new OKS module for RDBMS-to-TM conversions
 - also does data synchronization
- **Ontopoly**
 - user interface improvements to meet user requirements

Phase 2

- **Add services**
 - going to add more services into the portal
 - team of consultants reviewing administrative processes for suitability
 - major task to implement in the organization afterwards
- **Personalization**
 - each citizen to get an account in the system
 - used for authentication with services
 - users get personal page to review status of applications etc
- **Add content**
 - move content of organizational units from old solutions to the portal
 - training of editors and authors
 - process made more difficult by subject-based organization of content

Simplified original ontology



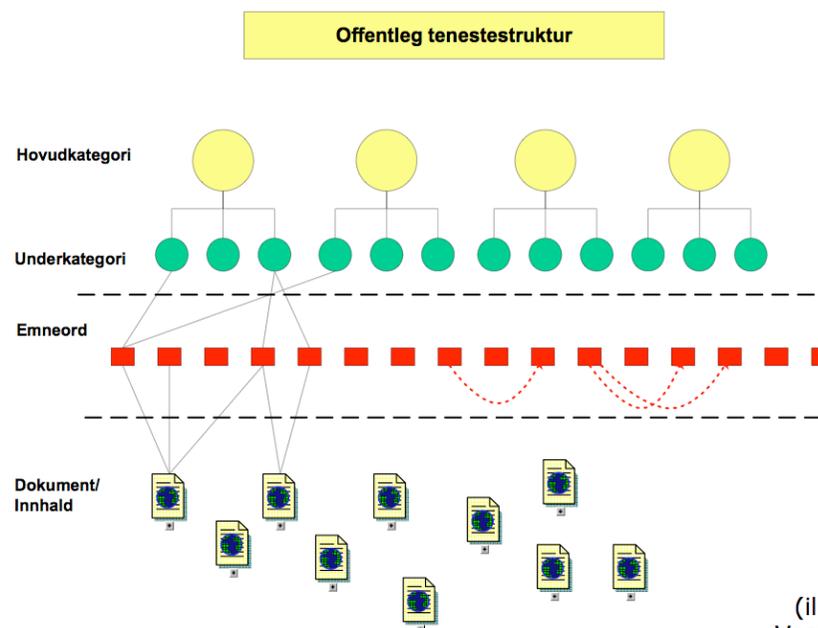
LOS

- **Common categorization for municipal administrations**

- long-running project with changing names (and owners)
- published as a PSI in XTM set by Norge.no (Norway.no)
- <http://www.norge.no/los/>

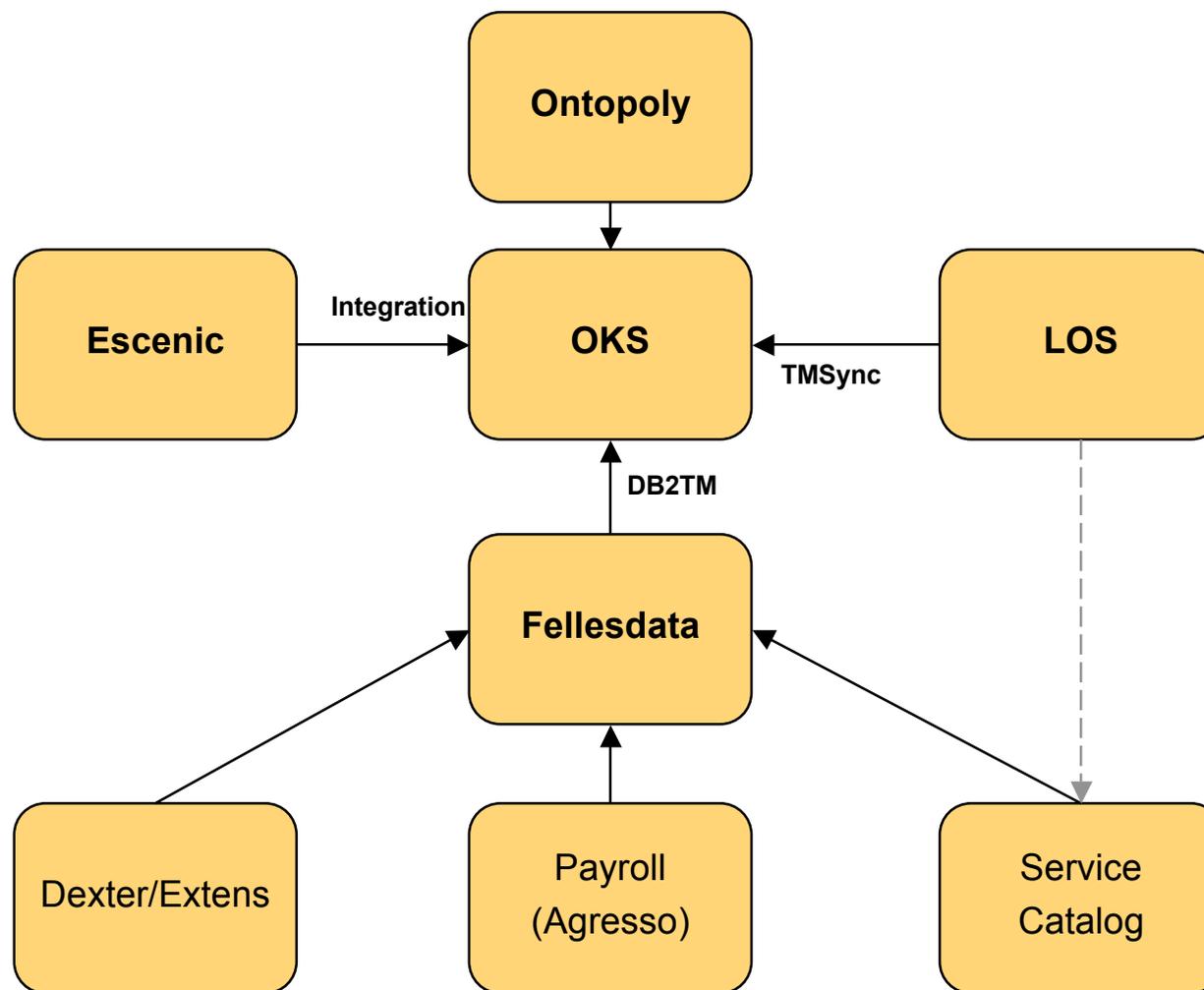
- **Contents**

- a taxonomy of keywords
- a set of categorized resources
- a set of organizations
- a hierarchy of geographical locations

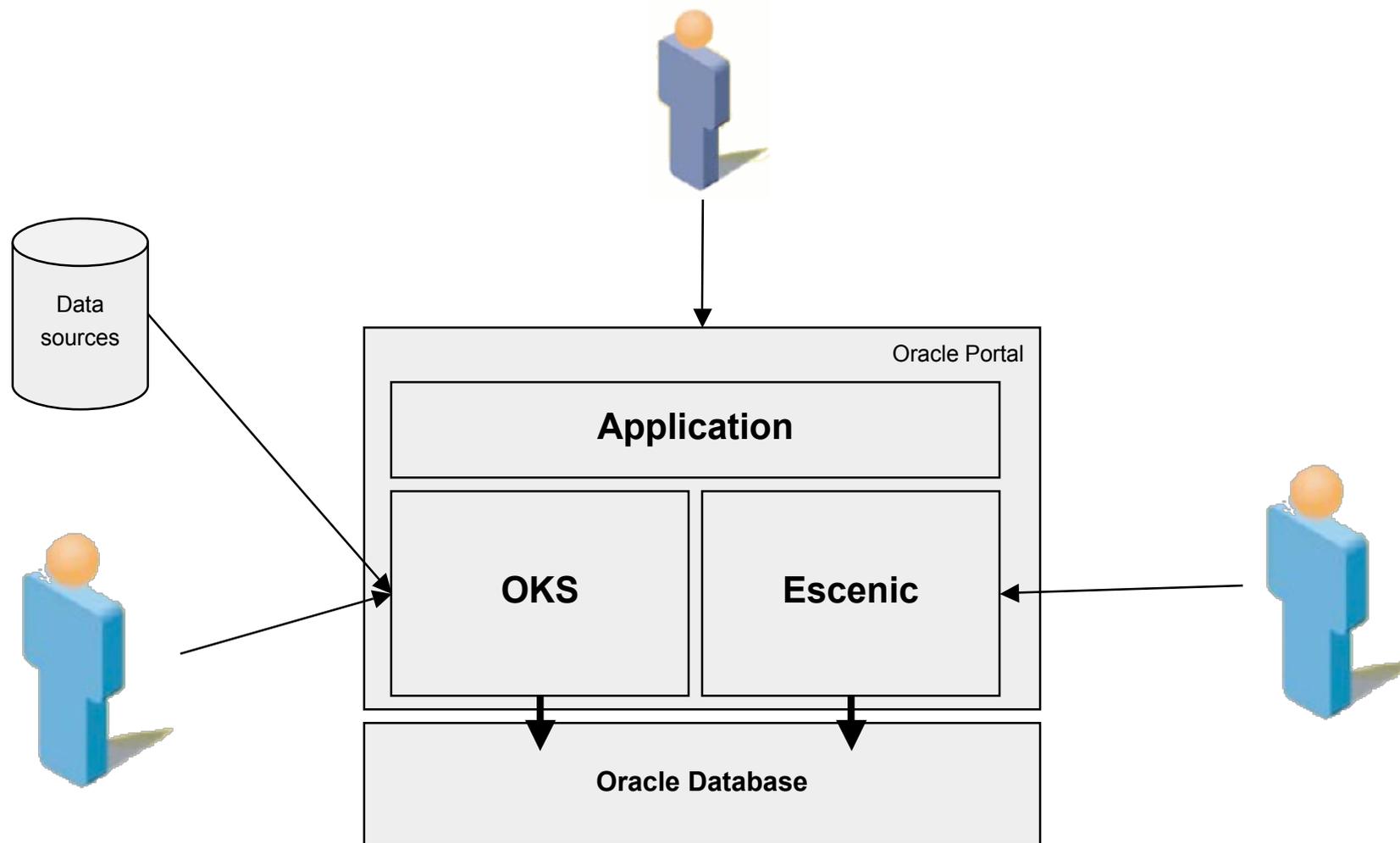


(ill. Svein Ølnes, Vestlandsforskning)

Data flow



Conceptual architecture



The portal



[ENGLISH](#) | [LEDIGE STILLINGER](#) | [INNHOOLDKART](#)





BERGEN KOMMUNE

Aktuelt
Om kommunen
Finn tjenester
Finn avdelinger og ansatte
Politikk
Kart
Søk

Emner A-Å

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 Æ Ø
Å

Alt om

- Barnehage
- Idrett

Aktuelle tema

- Gravekalender
- Kommuneplanen
- 123 alle får bli med
- Valg 2007
- Bybanen
- Risikokartlegging
- Ungdom - Kjøpt Svar

Tjenester

- Tjenestebeskrivelser
- Skjema

Politisk behandling

- Byrådet
- Bystyret og komiteer

Søk og finn!

Kommunen
Tjenester
Artikler
Avdelinger og ansatte

SØK

Eksempel: [Skoleruten Valg 2007](#) [Søketips](#)

<p>Barn og familie</p> <p>Barne- og familievern, Barn og foreldre, Samliv, ...</p> <p>Kultur og fritid</p> <p>Fritid, Idrett og friluftsliv, Kulturtilbud og -arrangementer, ...</p>	<p>Bolig og eiendom</p> <p>Bygging, Flytting, Kjøp og salg, Leie og utleie, ...</p> <p>Omsorg, trygd og sosiale tjenester</p> <p>Boformer, Omsorgstjenester, ...</p>	<p>Helse</p> <p>Helsetjenester, ...</p> <p>Skatter og avgifter</p> <p>Offentlige avgifter, Skatt og likning, ...</p>	<p>Individ og samfunn</p> <p>Innbyggjerrettigheter, Politikk og valg, ...</p> <p>Skole og utdanning</p> <p>Grunnskoleopplæring, Voksenopplæring, ...</p>
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Arrangerer Legevaktkonferanse i Bergen

90-års jubilenten Bergen Legevakt står som arrangør av årets Legevaktkonferanse, som holdes i Grieghallen i Bergen i dagene 13.-15. september.

[Les mer](#) (12.09.2007)

NESTE BYSTYRE:

Vil ha 400 nye kommunale utleieboliger



Bystyret skal i sitt neste møte blant annet vedta en handlingsplan for etablering av 400 nye kommunale utleieboliger.

[Les mer](#) (11.09.2007)

Følg med på valgresultatene for Bergen kommune

Forhåndsstemmeresultatene ved årets Kommunestyre- og fylkestingsvalg blir offentliggjort når valglokalene stenger kl. 20.00. Valgresultatene legges ut fortløpende på Kommunal- og regionaldepartementets nettsider etter kl. 20.00.

[Les mer](#) (10.09.2007)

Snarveier

- Offentlig journal
- Pressemeldinger
- Viktige telefoner
- Voldsstopp

Valgsider

Valgdagen for kommunestyre- og fylkestingsvalget er mandag 10. september.



VALG 2007

- [Se valgsidene våre](#)

Nytt og gammelt

I en overgangsperiode vil ny portal og gamle nettsider eksistere side om side, og de gamle sidene kan enkelt nås fra portalen. Har du spørsmål, ta kontakt med oss.

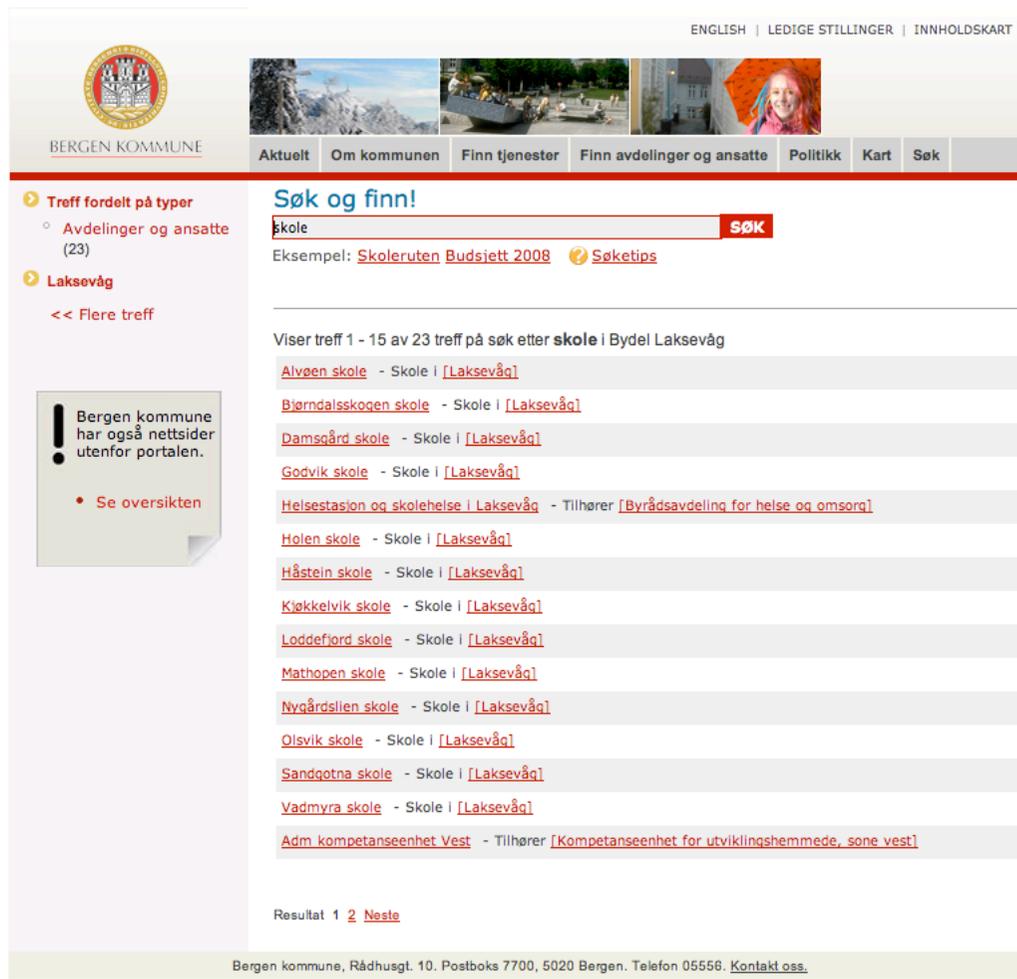
- [Kontakt oss](#)

Search for “school”

The screenshot shows the Bergen Kommune website search interface. At the top, there are navigation links for 'ENGLISH', 'LEDIGE STILLINGER', and 'INNHOLDSKART'. Below this is a header with the Bergen Kommune logo and several images. A navigation bar contains links for 'Aktuelt', 'Om kommunen', 'Finn tjenester', 'Finn avdelinger og ansatte', 'Politikk', 'Kart', and 'Søk'. The search results page is titled 'Søk og finn!' and shows a search for 'skole' with 332 results. The results are listed in a table with columns for the search term and a description. The results include various school-related topics such as 'Kulturskolen: Søknadsskjema kulturskole - papir', 'Skoletilhørighet', 'Henvisningsskjema PPT for barnehagebarn', 'Henvisningsskjema til PPT for skolebarn', 'AIG skademeldingsskjema', 'RTV-skjema til Folketrygden', 'Elevenes skolemiljø', 'Folkehøgskole', 'Forsikring - barnehage og skole', 'Friskole', 'Fritak fra opplæringsplikt i grunnskolen', 'Grunnskole', 'Grunnskoleopplæring', 'Grunnskoleopplæring for voksne', and 'Grunnskoleopplæring - retten til gratis opplæring'. The results are numbered 1 through 10, with a 'Neste' link for the next page. On the left side, there are filters for 'Treff fordelt på typer' (Articles, Tjenester, Avdelinger og ansatte), 'Treff fordelt på kategorier' (Arbeid, Barn og familie, Bolig og eiendom, Forbrukerspørsmål, Helse, Individ og samfunn, Kultur og fritid, Natur og miljø, Næring, Omsorg, trygd og sosiale tjenester, Skole og utdanning, Trafikk og samferdsel), and 'Treff fordelt på bydeler' (Arna, Bergenhus, Fana, Fyllingsdalen, Laksevåg, Ytrebygda, Årstad, Åsane). At the bottom left, there is a notice about the website being part of the Bergen kommune nettsider utenfor portalen, with a link to 'Se oversikten'.

- Search results on the right
 - with descriptions
- Filters on the left
 - by topic type
 - by taxonomy category (LOS)
 - by borough
- Tunable search
 - promote/demote by topic type
 - also by individual topic
 - this just implemented

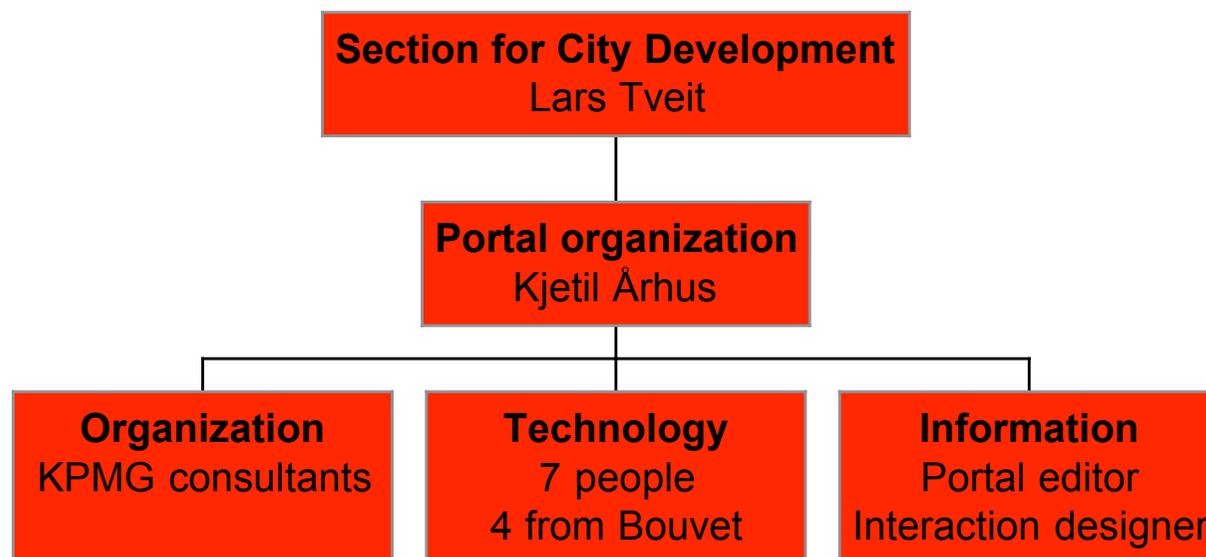
Filtered by “Laksevåg” borough



The screenshot shows the Bergen Kommune website with a search filter for 'Laksevåg'. The search results list 15 schools in the borough, including Alvøen skole, Børndalsskogen skole, Damsgård skole, Godvik skole, Helsestasjon og skolehelse i Laksevåg, Hølen skole, Håstein skole, Kjøkkelvik skole, Loddefjord skole, Mathopen skole, Nygårdslien skole, Olsvik skole, Sandgotna skole, Vadmyra skole, and Adm. kompetansenhet Vest.

- Search here filtered by borough
- Now shows
 - schools in the borough
 - some units in the borough

Portal organization



In addition, ~45 editors and authors in the various units are responsible for content in various parts of the portal.

The Escenic CMS

- **Norwegian product**
 - has 95% of the media market in Norway
 - good international presence: The Times, de Telegraaf, The Independent, ...
- **Java-based**
 - both web interface and desktop interface
 - Bergen uses only the web interface
- **The integration**
 - articles and sections from the CMS represented as topics in the topic map
 - Ontopoly editor integrated into the web interface
 - authors/editors write articles in Escenic
 - then add associations into the topic map, also (seemingly) in Escenic
 - full-text search from the topic map also uses text in the CMS



Performance

- **Traffic**

– Requests February - May 2007:	21,691,054
– Average requests/day:	189,000
– Average requests/second:	2.2

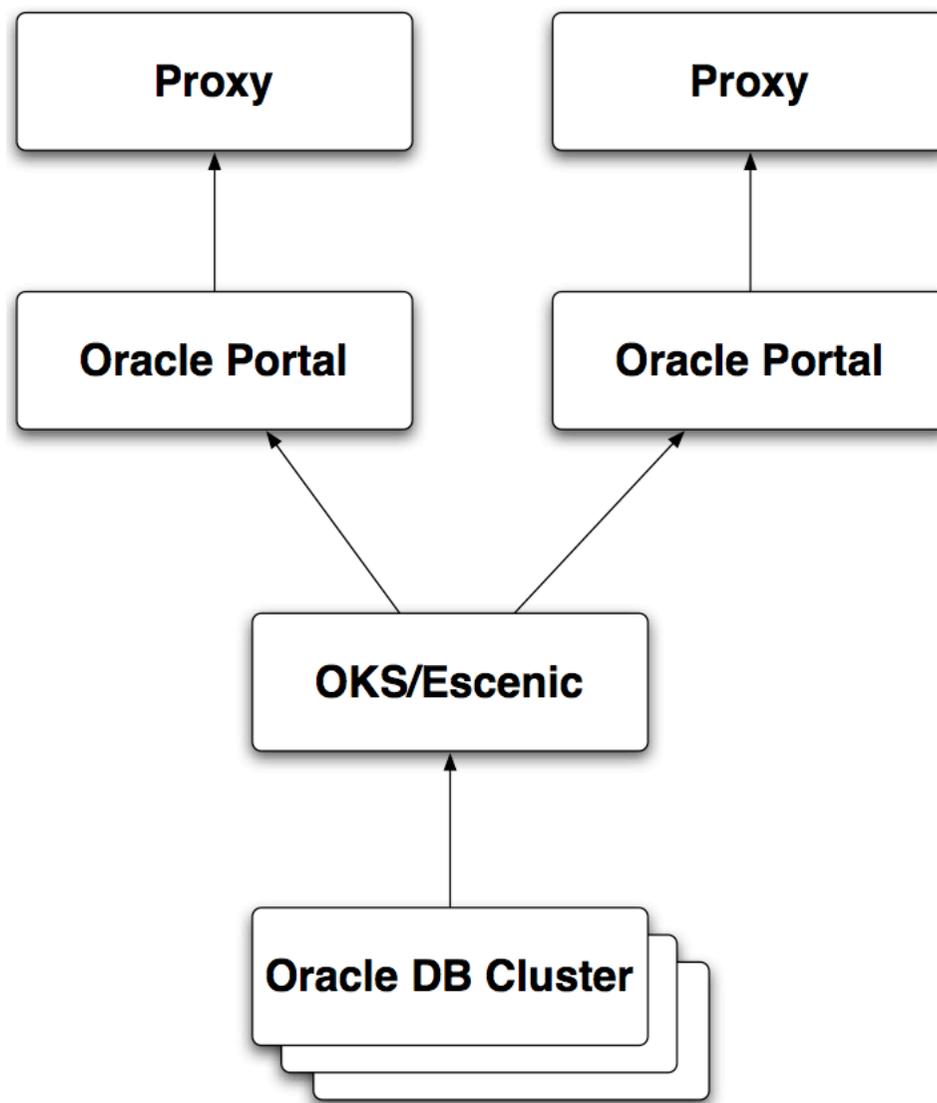
- **Data size**

– Topics	7182
– Associations	16311
– Occurrences	16859
– Articles	1140

- **Time to service requests**

– 0 seconds	55 %
– 0.01 seconds - 0.1 seconds	28 %
– 0.1 seconds - 1 seconds	12 %

Technical architecture



Good parts

- **Met the customer's goals**
 - easy to find information etc
 - flexible solution for portal design, data integration etc
 - data integration really works
- **Developers liked it**
 - more intuitive way of working with data
 - “fun to work with Topic Maps”
- **Editors like the system**
 - great deal of control over presentation
 - good “toolbox”
 - can tune search and other aspects

Not so good parts

- **Feeling of being “First people on the moon”**
 - steep learning curve
 - little information on the web
- **Immature technology**
 - some components developed for the project
 - tools don’t support everything
- **Interaction design problems**
 - interaction design developed before TMs considered
 - not enough time set aside to rework interaction design
- **Missing content**
 - content in portal not the content users seek
 - big project to solve this

Lessons learned

- **Editors need finer distinctions than users do**
 - “everything about” vs “interest area” vs “theme” vs “subject”
 - important to the editors
 - incomprehensible to the users!
- **Maintaining the user’s perspective is very hard**
 - who knows what the users really want and need?
 - search logs are crucial
- **Training of editors/authors is key**
 - most people don’t understand categorization
- **Information design is more than interaction design and ontology**
 - it’s also a question of how content is broken up and presented