



The Semantic Desktop: The Intimate Supplement to Memory

- Recent Work-



Andreas Dengel

Agenda



- ▶ Some words about ...
 - ... what is a semantic desktop
 - ... how to build a semantic desktop
 - ... how to integrate paper documents
 - ... more user observation

- ▶ Summary and next steps





What is a Semantic Desktop?



Our definition of the Semantic Desktop

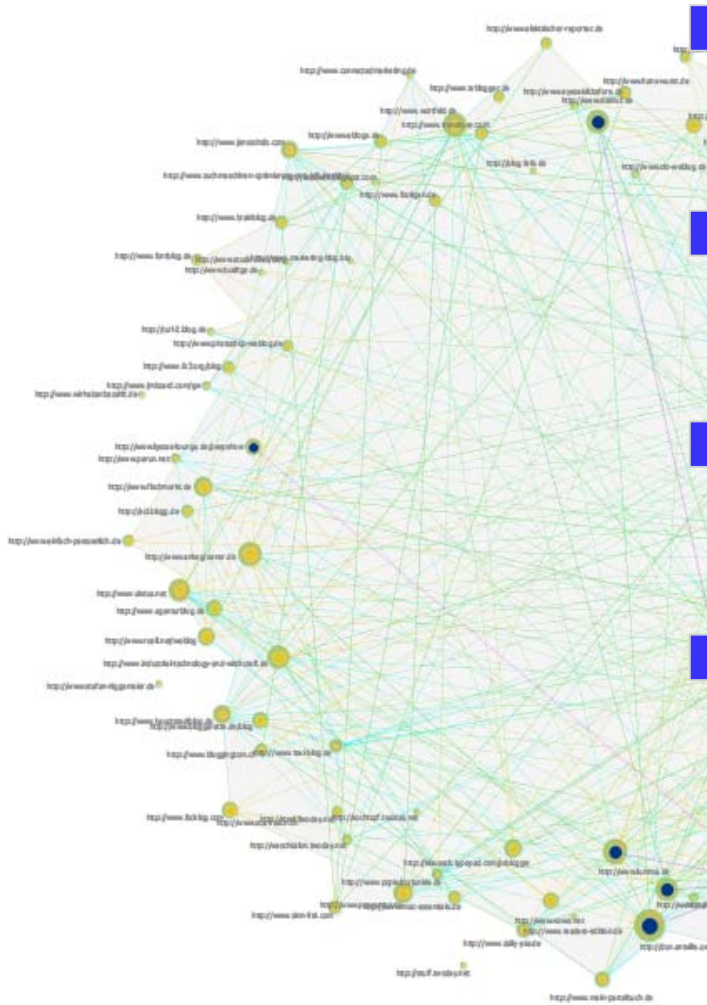


■ *A Semantic Desktop is a device in which an individual stores all her digital information like documents, multimedia and messages. These are interpreted as Semantic Web resources, each is identified by a Uniform Resource Identifier (URI) and all data is accessible and queryable as RDF graph. Resources from the web can be stored and authored content can be shared with others. Ontologies allow the user to express personal mental models and form the semantic glue interconnecting information and systems. Applications respect this and store, read and communicate via ontologies and Semantic Web protocols. The Semantic Desktop is an enlarged supplement to the user's memory.*

L. Sauer mann, A. Bernardi and A. Dengel, *Overview and Outlook on the Semantic Desktop*, Proceedings International Semantic Web Conference, Galway, Ireland (Nov. 2005), pp. 1-19.



Starting Point



It is the primary means of the information society to collect information of any kind

Nearly everything we find in the Web is input by a human being through a computer

Available documents are only fully understood by human beings

Researchers attempt to transform the Web of links into the Web of meaning in which documents are described by a standardized vocabulary providing machine understandable semantics

But ...



**... how can we build
an appropriate vocabulary
as a means to build an ontology
to be shared with others?**

Finding the right vocabulary reveals some problems



This also hold for documents

Depending on who reads a text (message),

... at what time

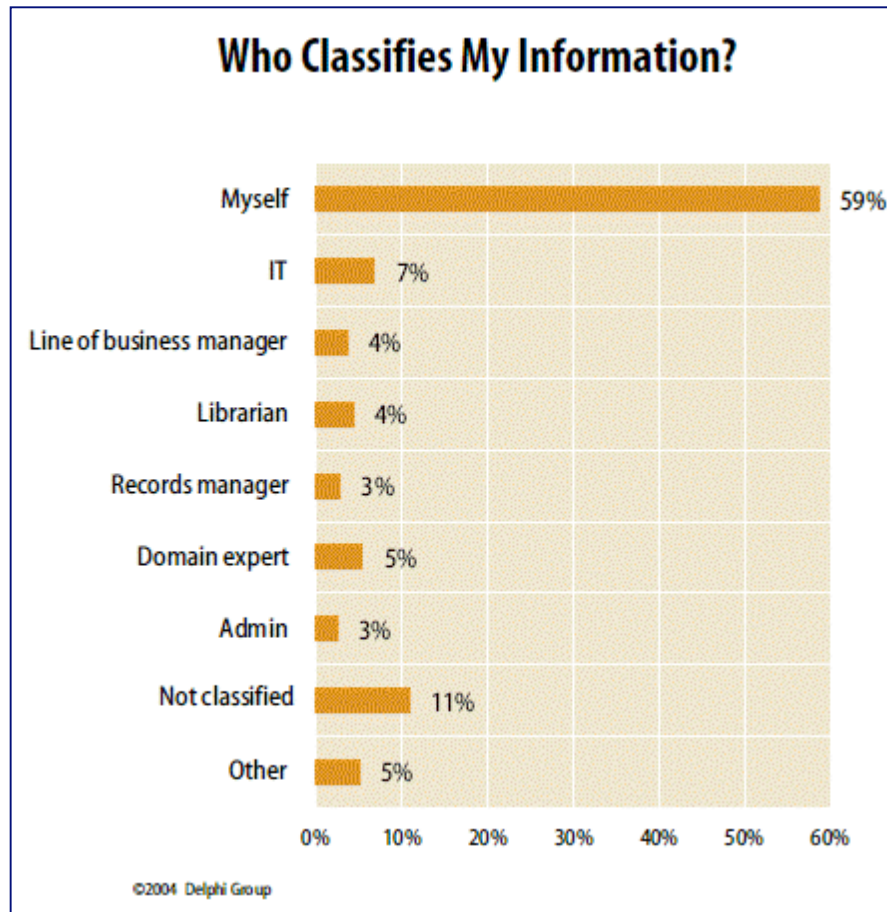
... in which aspects he/she is interested in,

... an which actual tasks he/she is working, and

... what expertise and experience is available,

it may be seen as valuable information, as a bootless statement or even as an annoyance

Daily practice requires different approaches



Respective usability of a vocabulary strongly depend on the users document categorization results

There is only few support in document categorization

Users tend to prefer their own way to organizing their information with respect to their individual needs

Source: Information Intelligence: Content Classification and the Enterprise Taxonomy Practice, Delphi Group Report, June 2004 (<http://www.delphigroup.com>)

Some theses about knowledge evolution



The bondage for formal organization of information inhibits creativity and limits the options of self-organization

A document is like a node in a net, a system of hyper-links to books, texts, pictures, etc.

- Instead of a static objects, it is variable and relative depending on who reads it at what time and in which situation

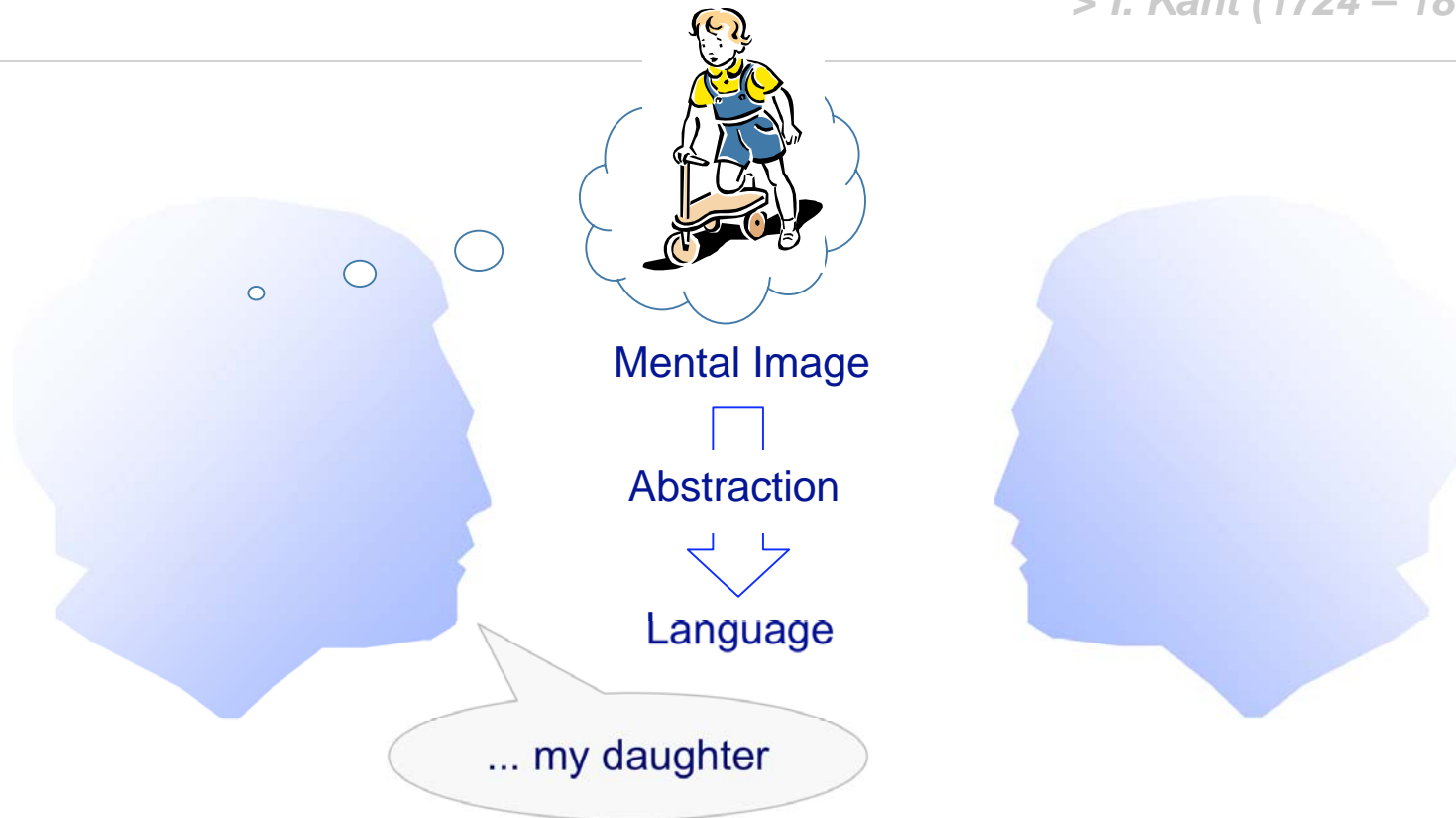
Individual trains of thoughts lead to multi-dimensional perspective organizations of contents and thus to a dematerialization of the classical archive

- Structure and context of information and thus categorization are liable to an accelerating change

Subjectivity of terms ...



Imaginations without terms are blind, terms without imaginations are empty
> I. Kant (1724 – 1804)



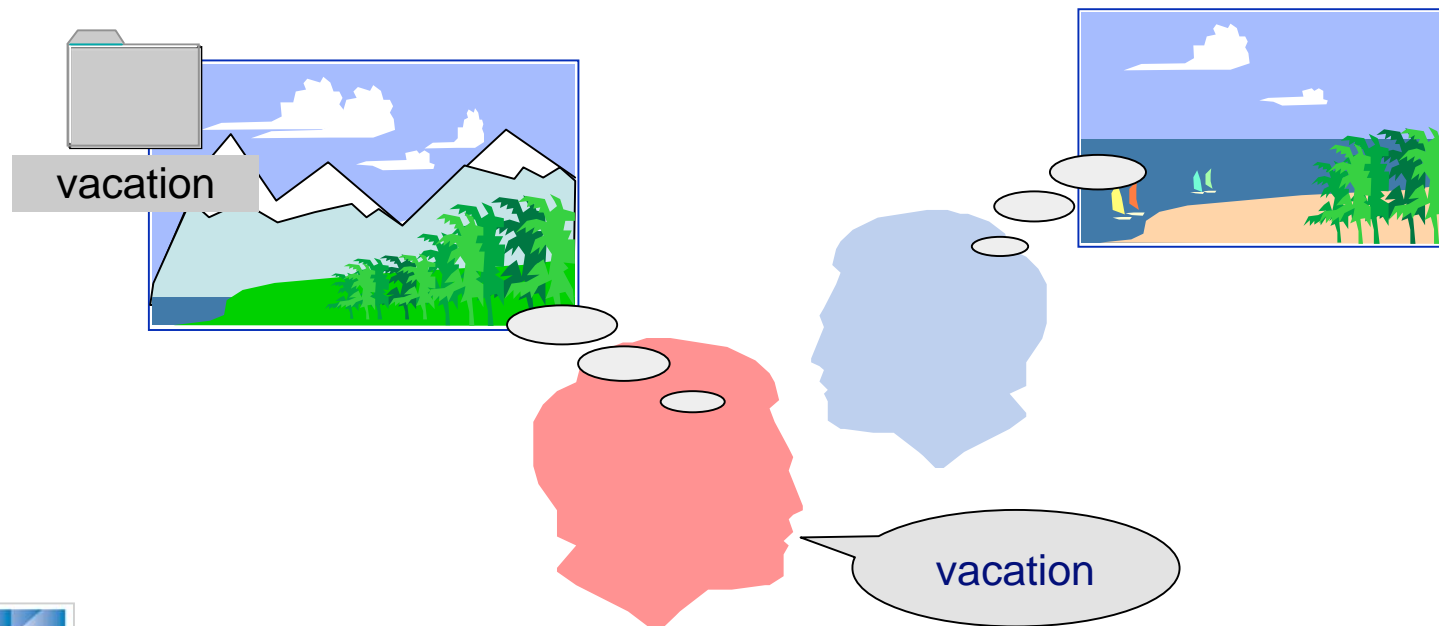
... is reflected within mental models

The perception of documents is subjective



In office environments people classify documents according to their preferences, i.e. they generate folders as categories and name them

- Resulting taxonomies correspond to subjective concepts of the world but ...
 - ... have no unique meaning

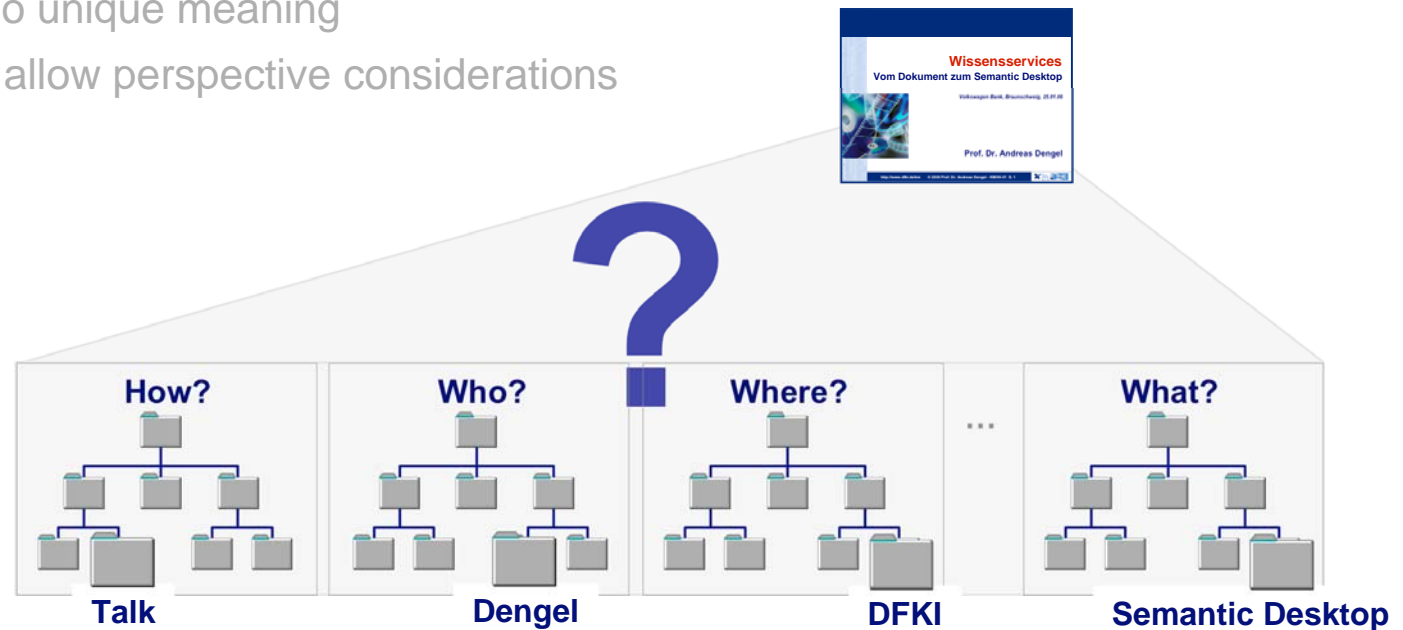


The perception of documents is subjective



In office environments people classify documents according to their preferences, i.e. they generate folders as categories and name them

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 - ... have no unique meaning
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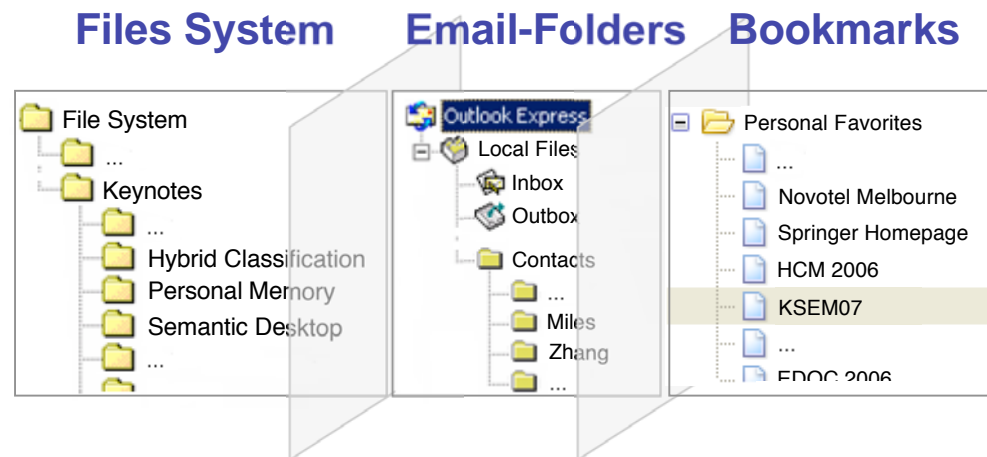


The perception of documents is subjective



In office environments people classify documents according to their preferences, i.e. they generate folders as categories and name them

- Resulting taxonomies correspond to subjective concepts of the world but ...
 - ... have no unique meaning
 - ... do not allow perspective considerations
 - ... are not integrative



Personal Memory



Categorizes documents into multi-perspective views (e.g. what, who, where, when, how)

Offers various types of individualized retrieval functions

A. Dengel, *Six Thousand Words about Multi-Perspective Personal Document Management*, Proceedings IEEE-EDM, Key Note Paper, Hong Kong, China (Oct. 2006), pp. 1-10.

There are obvious advantages in such an approach



Contents (text) of information objects, whether we consider a taxonomy, a folder or a document, may be related or compared in the same way



Communication between a user and her/his “Personal Memory” is driven by conceptualizations allowing to associate and to imagine in her/his own mental world



In combination with the perspective directories, the user gets an excellent orientation and access point to her/his information space



But ...



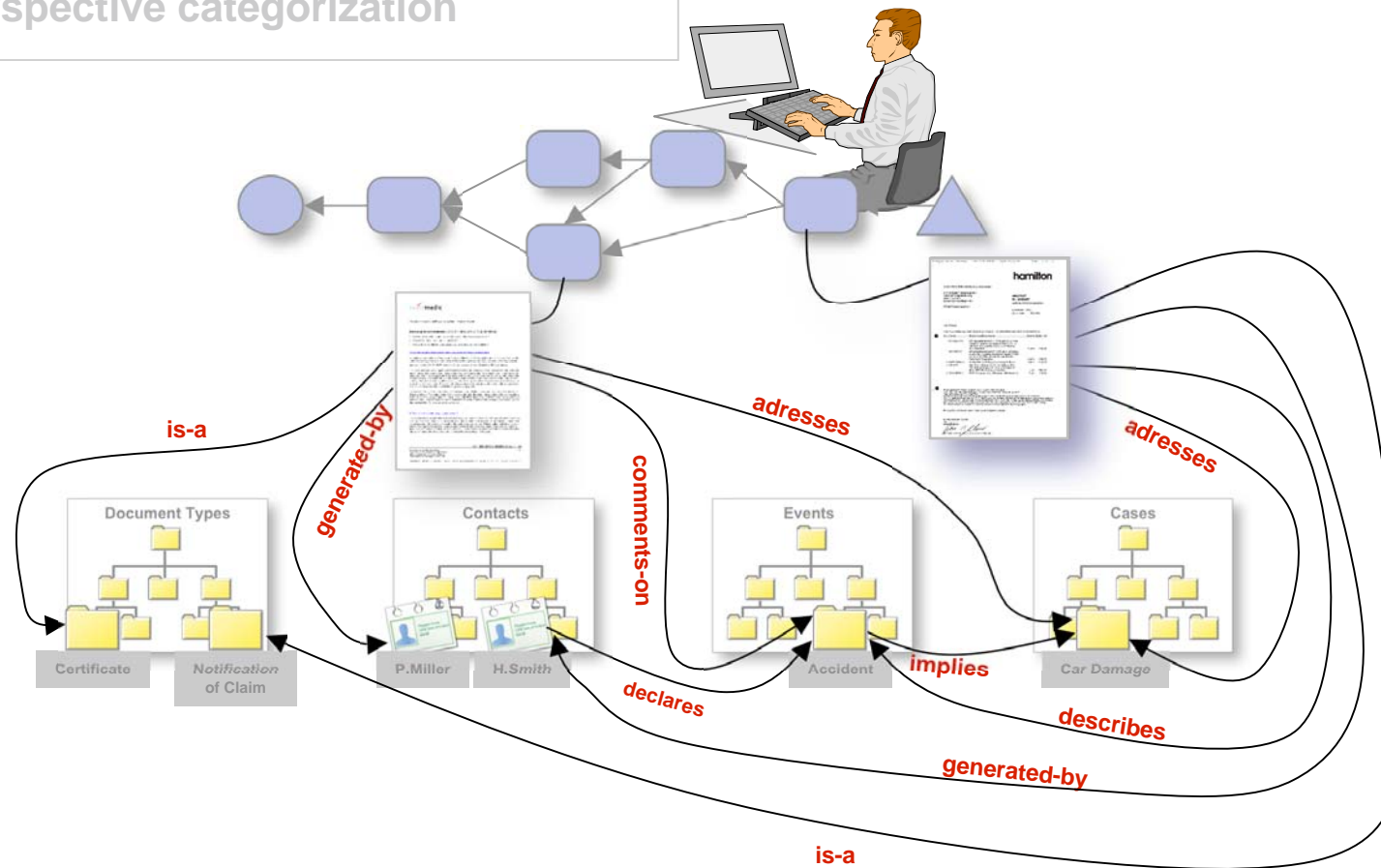
**... how can we profit from
the given implicit relationships
among information items (resources)?**

Generating semantic relations “on the fly”



Some predefined generic relations among folders generate semantics based on multi-perspective categorization

Example: Insurance-Workflow



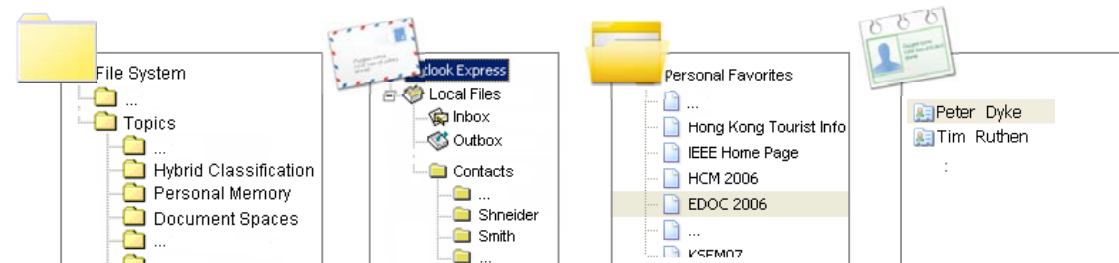
Bringing the Semantic Web to your desktop



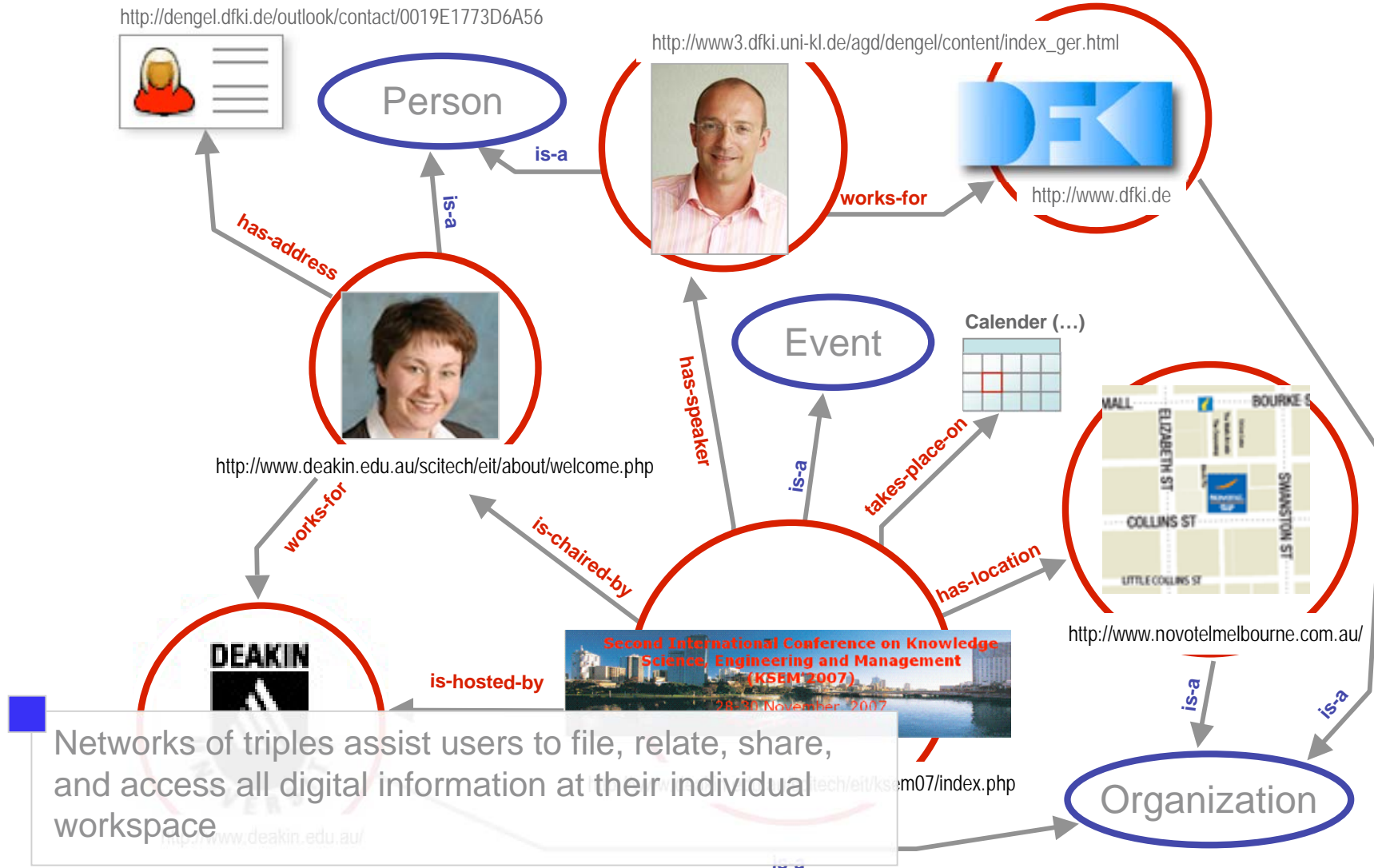
Each information item is a semantic web resource whether it is an email constituent (i.e. message, sender, recipient, attachment), an address (...), or a calendar event, ...

All resources are identified by a URI, such as

- `imap://leo@gnowsis.com/INBOX/;UID=3` for an email
- <file:///D:/EigeneDateien/Documents/Talks/Google.pdf> for a file
- http://www3.dfki.uni-kl.de/agd/dengel/content/index_ger.html for a web site



Buiding a Personal Information Model (PIMO)



Networks of triples assist users to file, relate, share, and access all digital information at their individual workspace

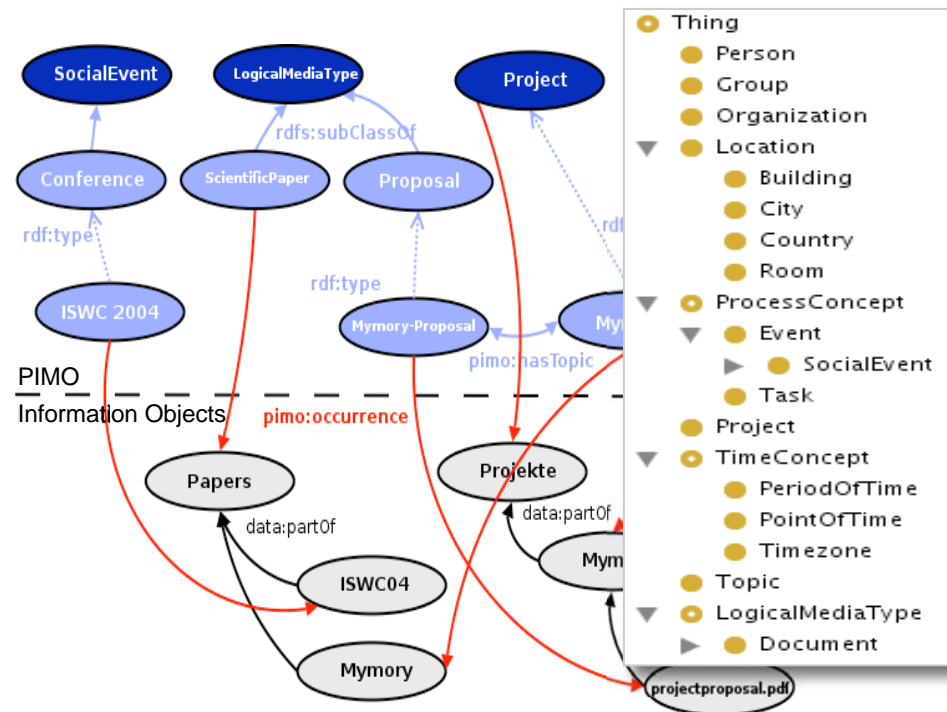
Personal Information Model (PIMO)



PIMO captures all relevant information items across applications using RDF for the data and RDF/S ontologies for the semantics)

The user may access shared categories, or create instances, classes, and properties (on the fly), and annotate the resources respectively

Smushing identifies the synonymous resources and aggregates the data
Promising approach! (see also <http://esw.w3.org/topic/RdfSmushing>)



L. Sauermann, L. v. Elst and A. Dengel, *PIMO - a Framework for Representing Personal Information Models*, Proceedings I-Media'07 and I-Semantics'07, Graz, Austria, J.UCS (Sep. 2007), pp. 270-277.

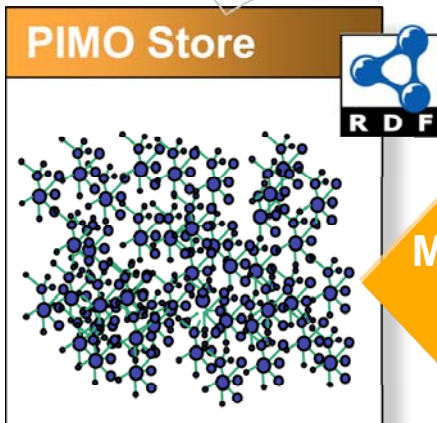
From data to PIMO



User Interface



read/write PIMO
and resources



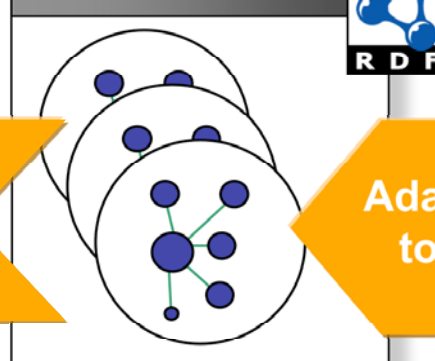
“Rebirth Engine”

- creating PIMO things from resources
- matching existing things
- ...

Aperture.sf.net

- crawling framework
- extensible
- separated service

RDF Database



Matching to
Ontology

Adapter
to RDF

Data

Person's files and
e-mails



The first Step: The Semantic Desktop



As a workplace the Semantic Desktop is individually adaptable and service oriented as well as capable to independently compile and process knowledge

PIMO



It is a means to manage all personal information across application borders based on Semantic Web standards

By **combining the PIMO with active user observation**, the Semantic Desktops acts like an information assistant offering context-aware services

Relevant documents and best-practice solutions are offered using multi-dimensional perspectives with regards to tasks, contexts and processes

L. Sauermann, A. Bernardi and A. Dengel, *Overview and Outlook on the Semantic Desktop*, Proceedings International Semantic Web Conference, Galway, Ireland (Nov. 2005), pp. 1-19.

A. Dengel, *Knowledge Technologies for the Social Semantic Desktop*, in: Z. Zhang and J. Siekmann (Eds.): Proc. KSEM 2007,, LNAI 4798, Springer Publ. (Nov. 2007), pp. 2-9.



**... what is the increased value of
the Semantic Desktop**

Context-aware services act like mental association



Actions of knowledge workers are observed and collected in order to understand contextual behavior, i.e. browsing and clicking, reading and writing, task related actions

Method is geared to human's short term memory, i.e. sensory signals are aggregated to more complex ones

Observations lead to individualized context-aware services

Sven Schwarz: *A Context Model for Personal Knowledge Management Applications*. In *Modeling and Retrieval of Context*, Second International Workshop, MRC 2005, Edinburgh, UK, July 31 - August 1, 2005

Context-aware services - ctd.



The screenshot shows the Thunderbird email client interface. The window title is "Inbox for Heiko.Maus@dfki.de - Thunderbird". The menu bar includes File, Edit, View, Go, Message, OpenPGP, Tools, and Help. The toolbar contains icons for Get Mail, Write, Address Book, Reply, Reply All, Forward, Delete, Junk, Print, Stop, Link, and Browse. The Folders pane on the left shows a hierarchy: HM (Inbox, Drafts, Templates, Sent, Trash, 1 Open), DFKI (Bereiche: AG WBS, CC Computational Culture, DFKI Bib, GL BR, ISG, IWI, Robotik, WM). The main pane shows a list of emails with columns for Subject, Sender, Recipient, and Date. The selected email is "Bewerbungsvortrag von Michael Elbers am 29.03." from Stefan Zinsmeister. The email content is as follows:

Subject: Bewerbungsvortrag von Michael Elbers am 29.03.
From: Stefan Zinsmeister <zinsmeis@dfki.uni-kl.de>
Date: 23.03.2006 12:02
To: km-ma@dfki.uni-kl.de

Hallo KM,

am kommenden Mittwoch, dem 29.03., kommt Michael Elbers aus Osnabrück zum Vorstellungsgespräch. Im Anschluss - voraussichtlich gegen 15:30 - wird er in 372 einen Vortrag halten. Die genaue Zeit wird kurzfristig bekannt gegeben. Abstract s. unten.

Gruss, Stefan

Abstract. Vortrag Michael Elbers

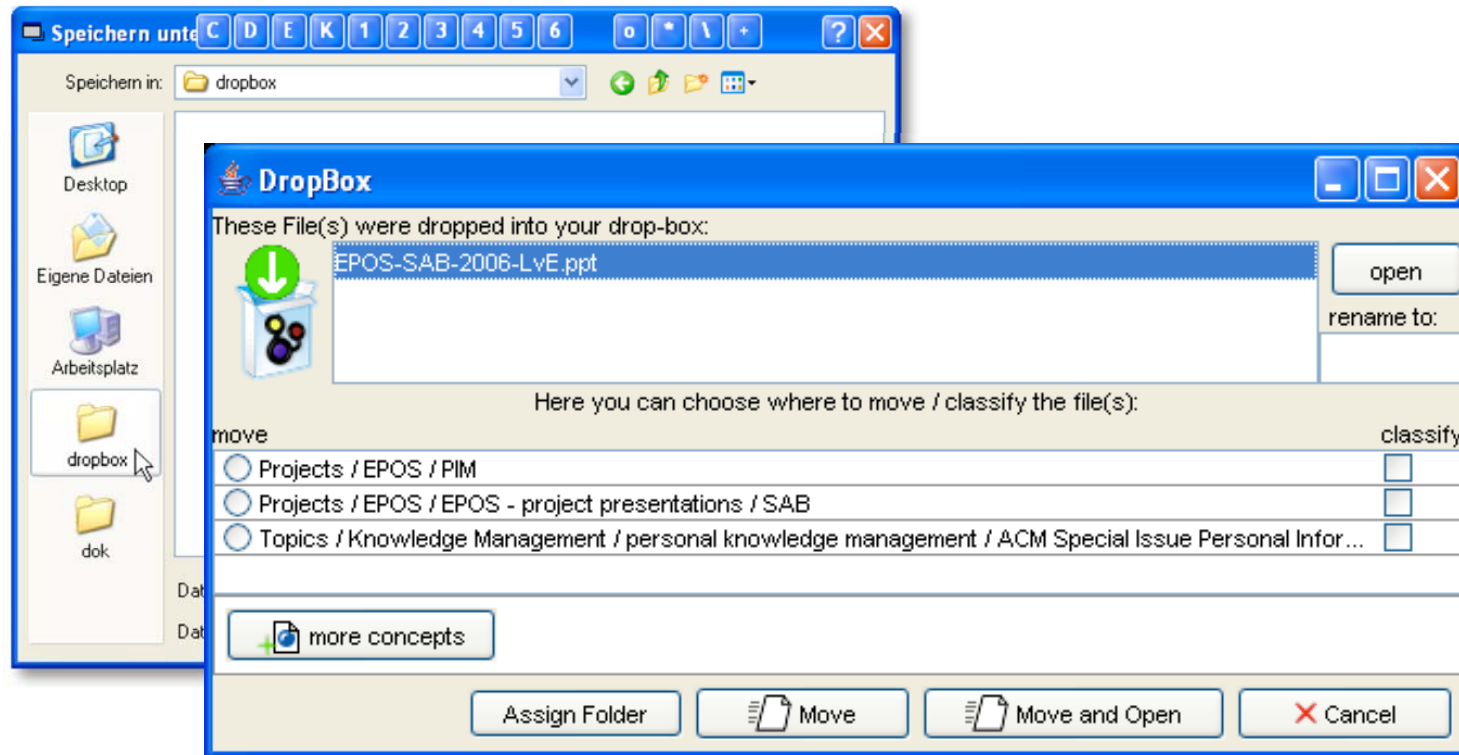
Mappingtechniken, wie Mind Mapping oder Concept Mapping, geben demWissensarbeiter intuitive, grafische Darstellungstechniken an die Hand, mit deren Hilfe er inhaltliche Zusammenhänge in komplex vernetzten Wissenssummen besser überblicken und diffuses Wissen schneller

At the bottom of the email pane, there are buttons for "move mail" and "open folder". The status bar at the bottom right shows "Unread: 0 Total: 6".



Adjustable concepts given in the PIMO classify incoming emails in order to allow for an automated multi-dimensional semantic filing

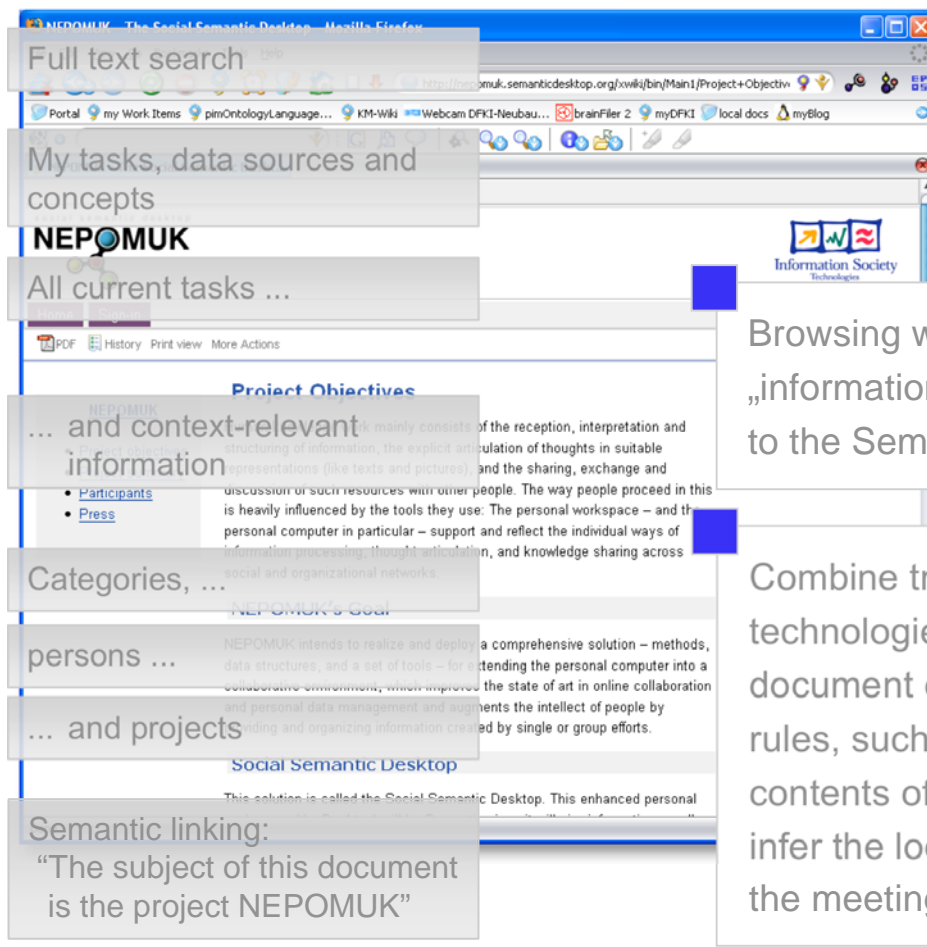
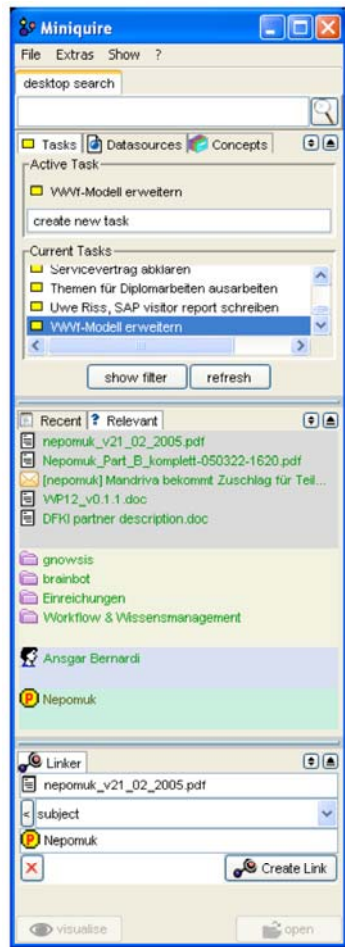
Context-aware services - ctd.



The „Save-as“ function offers recommendations for filing and the subsequent conceptualization of documents

L. Sauermann, A. Dengel, L. van Elst, A. Lauer, H. Maus and S. Schwarz, *Personalization in the EPOS Project*, Proceedings Proceedings of the Semantic Web Personalization Workshop at the ESWC 2006 Conference

Context-aware services - ctd.



Full text search

My tasks, data sources and concepts

NEPOMUK
All current tasks ...

Project Objectives
... and context-relevant information

Categories, ...

persons ...

... and projects

Semantic linking:
"The subject of this document is the project NEPOMUK"

Browsing web sites creates an „information-push“ from the PIMO to the Semantic Desktop

Combine traditional IR technologies, i.e. query expansion, document classification, ... with rules, such as “Extract the contents of an invitation e-mail and infer the location and attendees of the meeting”

H. Holz, H. Maus, A. Bernardi, O. Rostanin, *From Lightweight Proactive Information Delivery to Business Process Oriented Knowledge Management*, Journal of Universal Knowledge Management, JUKM, No. 5 (2005), pp. 101-127
 Man Luo: *Semantic Meeting Annotation*. Diploma Thesis, (DFKI 2006).



Context-aware services - ctd.



Kaukoluwiki

Navigation menu for Kaukoluwiki including: Main page, About, Recent Changes, Wikitourlette, First pages, Unusual pages, Undefined pages, Page Index.

Main content area showing 'Your trail: NEPOMUK > Projects' and a search bar.

DocuTag Semantic Tag Recommendations

Recommended Entities

Token: Entity: 0.5

across

Project

- epos
- nepomuk**
- aperture
- gnowsis

Person

- thomas roth-berghofer
- malte kiesel
- ansgar bernardi**
- dominik heim
- sven schwarz
- michael sintek
- benjamin adrian

NEPOMUK

Leo Sauermann

Keywords

Knowns

NEPOMUK NEPOMUK aims at empowering individual knowledge workers to better exploit their personal information space and to maintain fruitful communication and exchange within social networks across organizational boundaries. NEPOMUK brings together researchers, industrial software developers, and representative industrial users, to develop a comprehensive solution for extending the personal desktop into a collaboration environment which supports both the personal information management and the sharing and exchange across social and organizational relations. This solution is called the Social Semantic Desktop. It will comprise a set of technical and methodological solutions for Supporting the knowledge life cycle, in particular the generation and exchange of personal thoughts via structured articulation in extended web-based semantic tools, goal-oriented organization by work process model integration, and sharing, exchange and alignment of meta-data the management of all relevant information in the personal workspace via cross-media and cross-application linking and browsing of information items based on standard semantic web data structures, together with un-intrusive metadata generation support, knowledge communication within social networks and distributed search and storage to build, maintain, and employ interworkspace relations in large scale distributed scenarios. NEPOMUK realizes an open-source framework which allows integration of third-party components via pluggable adaptors. The core components and approaches will be actively promoted in open development communities in order to reach an early large-scale uptake and feedback. ... interfaces and data structures will be submitted to the appropriate committees like OASIS or W3C. The technical work packages ... semantic desktop comprise tools for knowledge articulation and ... and data structures of the personal semantic web, and ... process support. The workpackages covering the ...

Extracted Tokens and Symbols

0.5

across (-) activities (-) ansgar (-) ansgar bernardi (-) application (-) application-specific (-) architecture (-) articulation (-) benjamin (-) benjamin horak (-) branch-specific (-) collaboration (-) communication (-) community (-) components (-) comprise (-) consulting (-) cross-application (-) dfki (-) different (-) dissemination (-) distribution (-) employ (-) exchange (-) exploitation (-) generation (-) gnowsis (-) implementations (-) information (-) integration (-) interfaces (-) interworkspace (-) introducing (-) knowledge (-) large-scale (-) leo (-) leo sauermann (-) linking (-) maintain (-) management (-) metadata (-) microsoft (-) nepomuk (-) networks (-) office (-) open (-) open-source (-) organization (-) organizational (-) particular (-) process (-) project (-) promoted (-) reference (-) relations (-) relevant (-) representative

topicalizer

tagthe.net



Wordnet

Web 2.0

Input:	Documents
Output:	Ranked list of 'Things' occurring in the document
Computation:	Choreography of Web 2.0 Services
Vocabularies:	RDFS, SKOS, PIMO language
RDF Store:	Gnows/Sesame2

Adaptive semantic search via *gnowsis*



PERSONS	PROJECTS	CONCEPTS	EVENTS
Vito Giannella Bertin Klein	Business Register Interoperability Throughout Europe	Proposals/BRITE Proposals/BRITE/contributions Proposals/BRITE/admin My eMail/DFKI/Anträge/BRITE Personen/Vito Giannella	Telephone conference with Vito Giannella

jump to: [Project \(1\)](#) [Event \(1\)](#) [Person \(2\)](#) [Concept \(5\)](#) [Document \(5\)](#) [TaskInstance \(1\)](#) [Email \(119\)](#)

Person ↑

[Vito Giannella](#)
<http://maus.dfki.de/outlook/contact/000000009139E75763340547A88B051EDD95F73484022000>

[Bertin Klein](#)
http://km.dfki.de/default#metamodel_Instance_10000
 manager of project

Project ↑

[Business Register Interoperability Throughout Europe](#)
<http://km.dfki.de/instances/org#BusinessRegisterInteroperabilityThro>

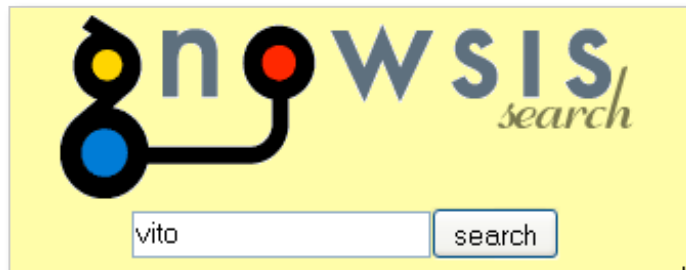
type
[org:User](#)
<http://km.dfki.de/model/org#>
[Person](#)
<http://xmlns.com/foaf/0.1/Pe>



Exploit semantic links to search intelligent through all office information

Context-aware and personalized to offer a better understanding of user needs


Semantically described search results to meet the user's mental models



L. Sauermann, G.A. Grimnes, M. Kiesel, C. Fluit, D. Heim, D. Nadeem, B. Horak and A. Dengel, *Semantic Desktop 2.0: The Gnowsiss Experience*, Proceedings 5th Int'l Semantic Web Conference, Athens, GA, USA LNCS 4273, Springer Publ. (Nov. 2006), pp. 887-900.

Adaptive semantic search via *gnowsis* - ctd.





search field: cost reduction search

search options: search peers search only peers

[help](#)

PERSONS

no results have been found for searchword "costreduction"

PROJECTS

Kunde1

CONCEPTS

sales/CSM/Countries/Deutschland/Projekte/Kunde

Deutschland/Projekte/Kunde

Transport

EVENTS

no results have been found for searchword "costreduction"

overview of instances and basic classes of search results

jump to: **Project (1)** **Concept (2)** **Document (3)** **CustomerRequirement (1)**

Project

Kunde1

Concept

Document

CustomerRequirement

type and items related to concrete search result

type: Project

http://km.dfki.de/default/#Kunde1

BeinhaltetPortfolio

PortfolioHelpdesk

PortfolioPortal

hasCustomerRequirement

HatMitarbeiter

HatSiebert

PersAccountManager

PersProposalManager

PersSalesManager

PersSmits

HatProjektleiter

PersProposalManager

found concepts

sales/CSM/um:brainfrier:buch:Pierre:Category:209

projektartefahrung, mitbewerber, healthcare, health, card, improving, sector, kb, date, description, location, item, services, siemens, management, project

sales/CSM/Countries/Deutschland/Projekte/Kunde_Automobil

um:brainfrier:buch:Pierre:Category:241

blood, patient, clinic, rfid, patients, searbruecken, chip, created, description, kb, business, services, location, item

sales/CSM/Countries/Deutschland/Projekte/Kunde_Transport

um:brainfrier:buch:Pierre:Category:271

topics, focal, giving, guarantee, helpdesks, untitled, costreduction, centralising, bestad, extremely, adapted, emphasis, reductions, optimize, optimization, rapid, rol, flexibility, structures, successfully, transport, dynamic, data, size, created, description, kb, services, location, item, mana

possibility to browse found item or link it to another resource

projecttransport.doc

um:brainfrier:buch:Pierre:Document:1395

Untitled Customer Transport Costreduction centralising HelpDesks Business Topics stand for focal topics where the emphasis is on process

topics, focal, business, giving, guarantee, helpdesks, untitled, costreduction, centralising, te extremely, optimize, adapted, emphasis, optimization, reductions, rapid, rol, flexibility, successfully, structures, dynamic, face, transport, efficiency, effectiveness, strategies, high increased, continuous, today, situation, stand, relationships, transfer, clear, create, offer, customers

projectplan.doc

um:brainfrier:buch:Pierre:Document:1391

Untitled Customer 1 Costreduction centralising HelpDesks Siemens Business Services has many years of know-how in the major IT application areas

healthcare, health, card, processes, business, improving, sector, partial, solutions, telematics, concerned, prospects, infrastructures, imposed, helpdesks, represent, untitled, costreduction, centralising, cutting, profitability, demands, respect, process, parties, designing, innovative, show, great, efficiency, entre, challenge, care, needed, single, maintenance

projectautomotive.doc

um:brainfrier:buch:Pierre:Document:1394

Untitled Customer Automotive Costreduction centralising HelpDesks Searbruecken Clinic adds stocks of stored blood to its RFID pilot pr

blood, patient, clinic, rfid, patients, searbruecken, chip, bracelet, hospital, equipped, siemens, transfusions, medication, tablet, pdas, rpdac, treatments, admitted, data, protected, pcs, stored, supplies

instances found in ontologies, e.g. Customer Requirement

CostReduction

http://km.dfki.de/default/#CostReduction

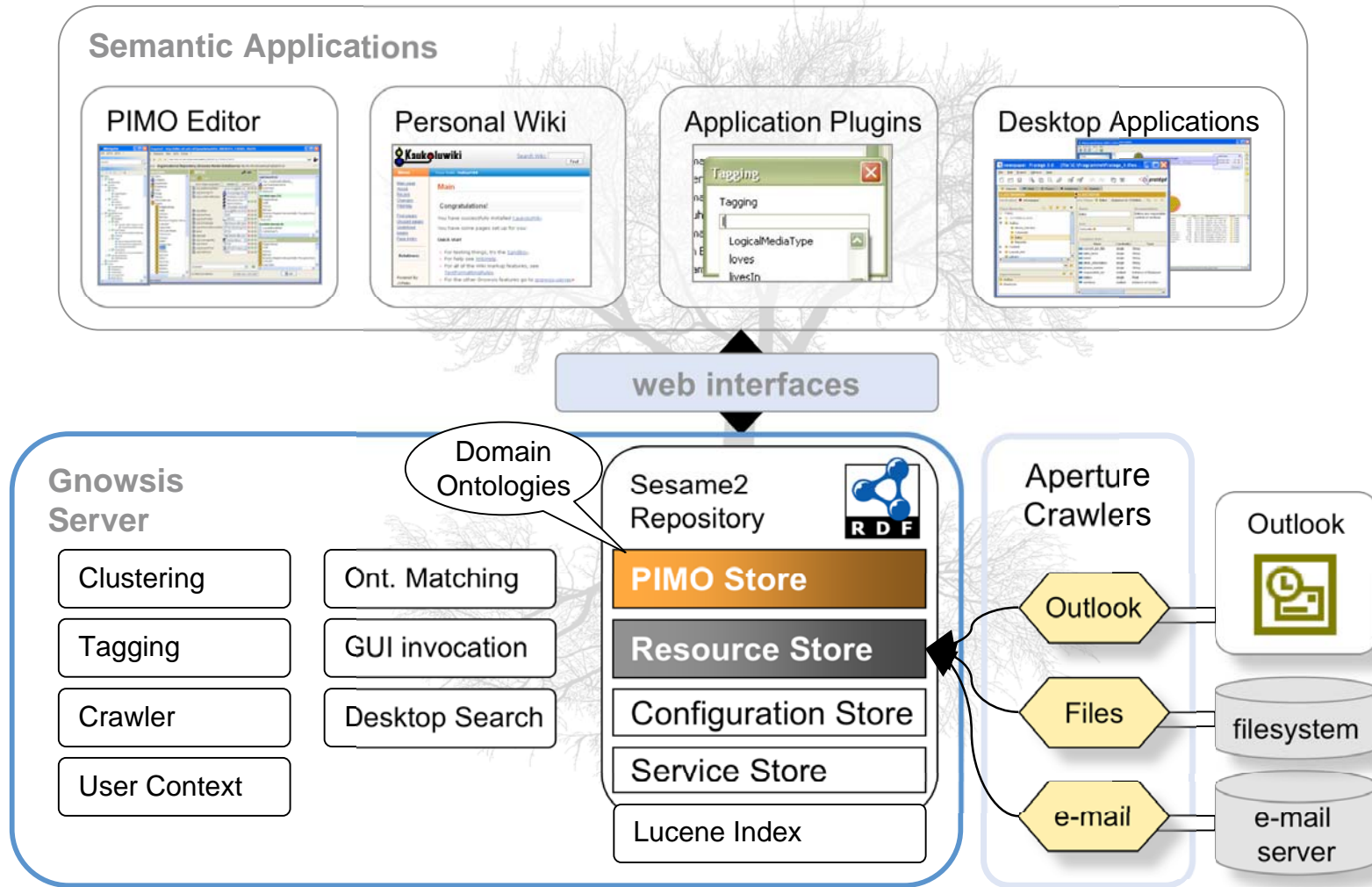
rule based retrieval of related instances in format ontology

Personalized search in the PIMO via the expansion of customized SPARQL rules

```
# found a project? -> also show members
(?hit retrieve:item ?project),
(?project rdf:type org:Project) ->
querySparql('CONSTRUCT {
?project org:containsMember ?m.
}')

```

Semantic Desktop System Architecture



Manual annotation complements the automatic means



Annotation is embedded into existing software applications in order to lower the entry barrier

Users may also add relations and text annotations by browsing and searching in their PIMO



**... and how can we bridge the gap
to Gutenberg's world?
(find resources within documents)**

Semantic Annotation of Paper-Based Information



Single Click Entry Tag Tool
using SCE Version 1.1 (Build 3261)

Header (used for the URI): Lab opens for Banking Intelligence Services

Text: DFKI and Volkswagen Financial Services AG established the Banking Intelligence Services (BIS) Lab at the end of June 2006 in Kaiserslautern. Banking Intelligence Services lab employs a staff of four researchers and puts the latest developments in office automation and software technology into practical applications. Besides Volkswagen Financial Services, also joining the team as a technology partner is the Institut für Technologie und Arbeit (ITA), directed by Prof. Klaus J. Zink, on the campus of the Technical university of Kaiserslautern. The opening remarks by Prof. Andreas Dengel, underscored the importance of cooperation between the business and research sectors, especially in the development of an intelligent assistance system for knowledge intensive office work. He added, ?The establishment of the Banking intelligence Services Lab at DFKI, confirms a successful strategy of actively integrating global companies in the development

Testtags: 1: research (Topic) 2: Banking (Domain) 3: BIS (Project) 4: Kaiserslautern (City) 5: DFKI (ResearchInstitute) 6: Tag 6 7: Tag 7 8: Tag 8 9: Tag 9 10: Tag 10 11: Tag 11 12: Tag 12 13: Tag 13 14: Tag 14 15: Tag 15 16: Tag 16

Kaukoluwiki Search Wiki: Find!

Lab opens for Banking Intelligence Services

Edit | Info | Open Enquire

Lab opens for Banking Intelligence Services

DFKI, and Volkswagen Financial Services AG established the Banking Intelligence Services (BIS) Lab at the end of June 2006 in Kaiserslautern. Banking Intelligence Services lab employs a staff of four researchers and puts the latest developments in office automation and software technology into practical applications.

Besides Volkswagen Financial Services, also joining the team as a technology partner is the Institut für Technologie und Arbeit (ITA), directed by Prof. Klaus J. Zink, on the campus of the Technical university of Kaiserslautern. The opening remarks by Prof. Andreas Dengel, underscored the importance of cooperation between the business and research sectors, especially in the development of an intelligent assistance system for knowledge intensive office work. He added, ?The establishment of the Banking intelligence Services Lab at DFKI, confirms a successful strategy of actively integrating global companies in the development



Combination of table camera (sceye), OCR (single click entry), and Semantic Desktop

Annotation of paper documents with concepts from the PIMO

H. Maus and A. Dengel, *Semantic Annotation of paper-based Information*, Proceedings CBDAR 2008, Curitiba, Brasil (Sep. 2007), pp. 158-160.

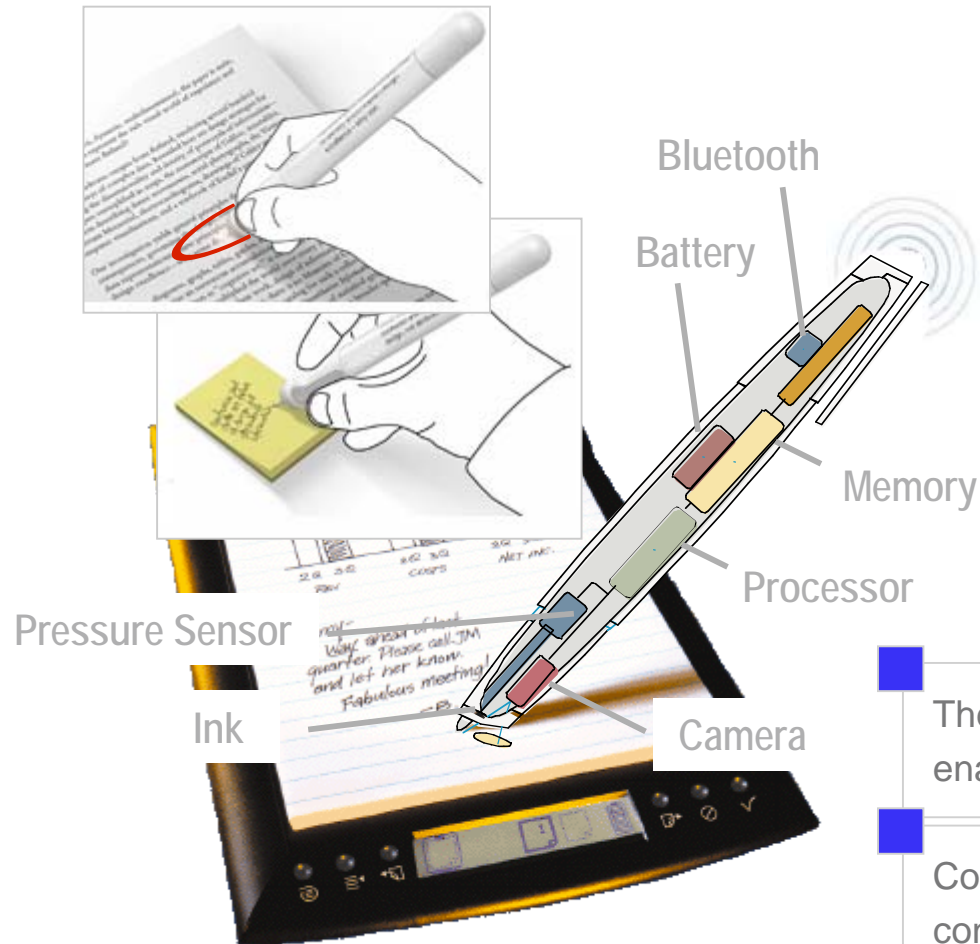
M. Kiesel and L. Saueremann, *Towards Semantic Desktop Wikis*, UPGRADE special issue on "The Semantic Web", Volume VI, pp. 30-34



In cooperation with: sceye Océ Entry

© andreas.dengel@dfki.de - 2007

Pen-based Knowledge Extraction



The consideration of gestures and handwriting enables intuitive document processing

Content is semantically linked to existing contacts, topics, events and other relevant documents



**... but is there also a chance
to learn more from user observation?**

Attention-based Document Processing



Eye-Tracking enables the observation of users interacting with the screen

Reading attention associates a document's content with individual information models (supporting document search and content assessment)



Electroencephalograph (EEG) is a tool used for gauging and recording brain waves. In 1929, Hans Berger, the German psychiatrist, published the results of his experiments using the electroencephalograph in recording human brain waves.

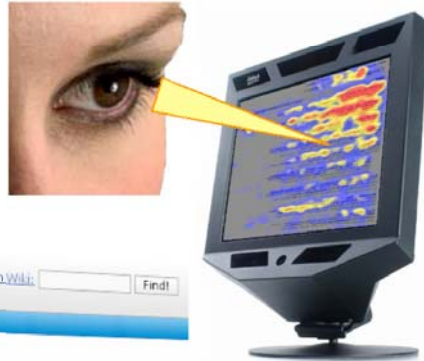
Reset

Four major brain waves exist: alpha has a frequency that ranges from 8 to 14 cycles per second (cps) and is found in the occipital part of the brain. Beta waves cover 14 to 30 cps. Delta waves include frequencies that are below 5 cps. Theta waves cover the range between 5 and 8 cps. Alpha waves are more active during relaxation and light sleep. Nonetheless, their function is altered by deep mental activities. Beta waves, on the other hand, appear during mental concentration periods.

In 1935, the findings of collaborators Frederic Gibbs, William Lennox, and Hallowell Davis from Harvard on the use of EEG in epilepsy was published. Since EEG poses no pain or side effects, it is broadly included as a medium for identifying brain irregularities. The EEG is instrumental in discovering a host of brain wave abnormalities. Persons who suffer from grand mal epilepsy have arch-shaped brain waves. Brain waves respond to physiological and chemical stimuli. For instance, the use of drugs will result in low-amplitude, high frequency brain waves. When we are asleep, the waves' pattern changes a few times. Dreaming frequently happens when the brain waves have high frequency but low amplitude.

G. Buscher, A. Dengel and L. van Elst, *High Level Eye Movement Measures for Relevance Assessments of Information Items*, submitted to CHI 2008, Florence, Italy (Apr. 2007).

Exploiting Attention Data within Semantic Wikis



Menu

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Proposals

Dynamic documents

SchemoProposal

Preface

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Keep track of attention and context information in your personal workspace

Query and construct documents based on attention and context information



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Proposals

Dynamic documents

Selection Criteria

- Recently viewed documents
- Proposal context
- Related to project Schemo

Schemo Goals

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RieGen Learnings

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DyNamic Ideas

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**... and what are
the chances of this approach?**

Summary



The traditional Web has recently undergone an orthogonal shift into a Web of People/Web 2.0

Focus is set on folksonomies, collective intelligence, and the wisdom of trusted communities which influences office work as well

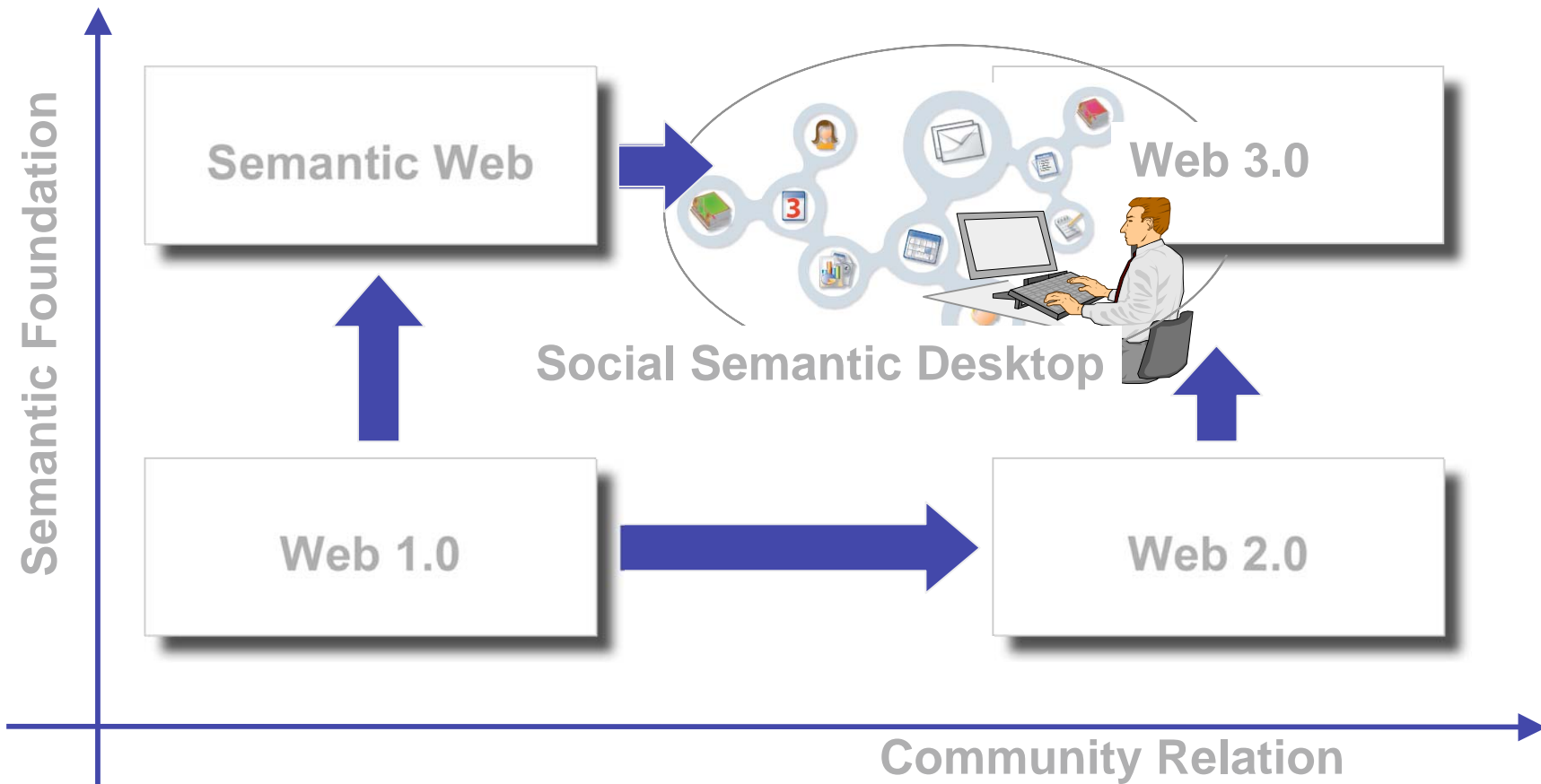
The Semantic Desktop is a driving paradigm for desktop computing using Semantic Web standards but integrating native office applications and data

The Web became part of our thinking and part of our workspace, and the documents we generate at our workspace become part of the Web

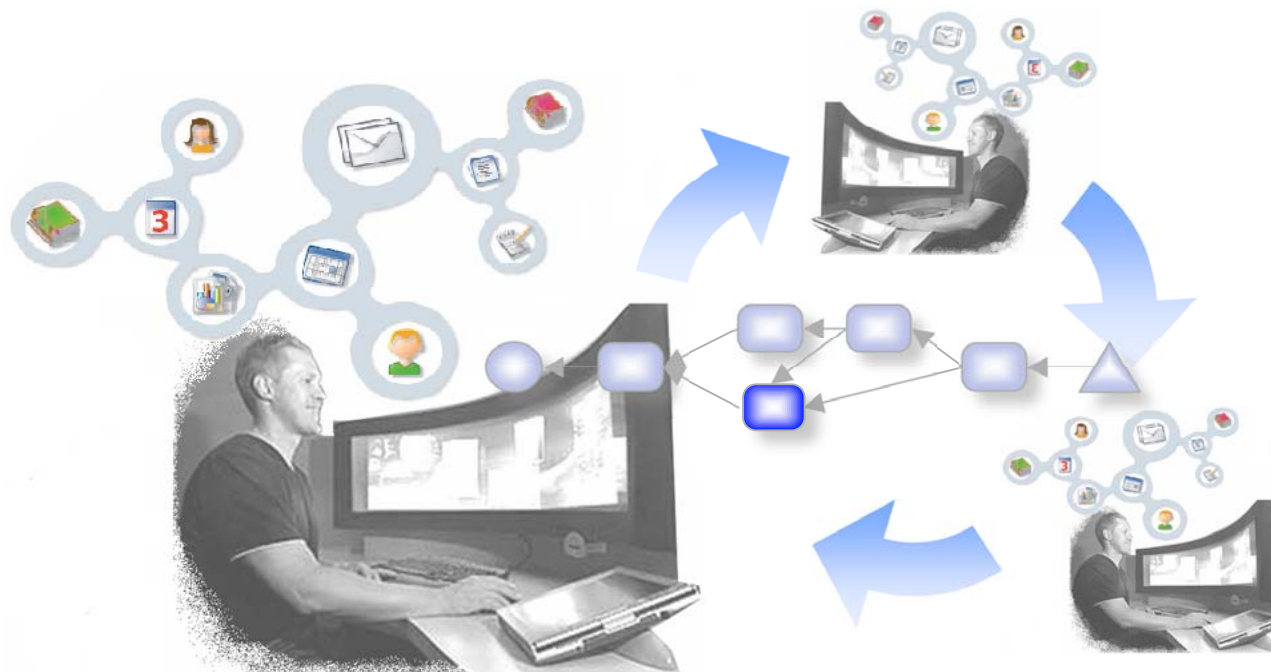
Friend networks allow people to link with their friends and to traverse the network via these profiles, as well as to give comments, votes, and recommendations on their content published

... towards the Social Semantic Desktop

Our strategy considers two major trends



The next step: The Social Semantic Desktop



Semantic explicit knowledge becomes processable by computers

Social entails the demand of exchanging and interlinking knowledge from and among different workspaces



NEPOMUK realizes the basis for manifold exploitation



Individual exploitation concentrates on uptake, adaptation, and commercialization by tool adaptors & consultation services, i.e. spin-offs

1

After first 18 months
(initial project results are available)



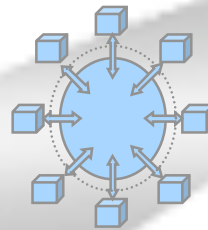
Exploit internally

- Internal exploitation
- Initial awareness via open source and scientific communities



2

After 2-3 years

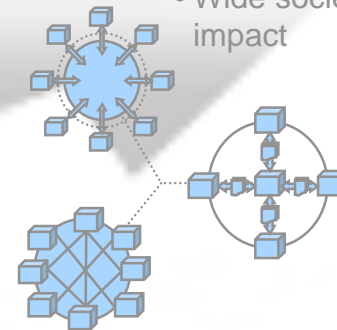


Exploit externally

- External application of project results by industrial partners
- Uptake in the scientific community
- Wide-scale awareness within open source community

3

After 3-5 years



- Commercial exploitation by dedicated spin-offs
- Specific product development
- Wide societal impact

Collective exploitation will focus on establishing & maintenance of a vivid scientific society

- Pursuing standardization and platform & prototype development
- Collective support of standardization efforts (e.g. W3C working group)

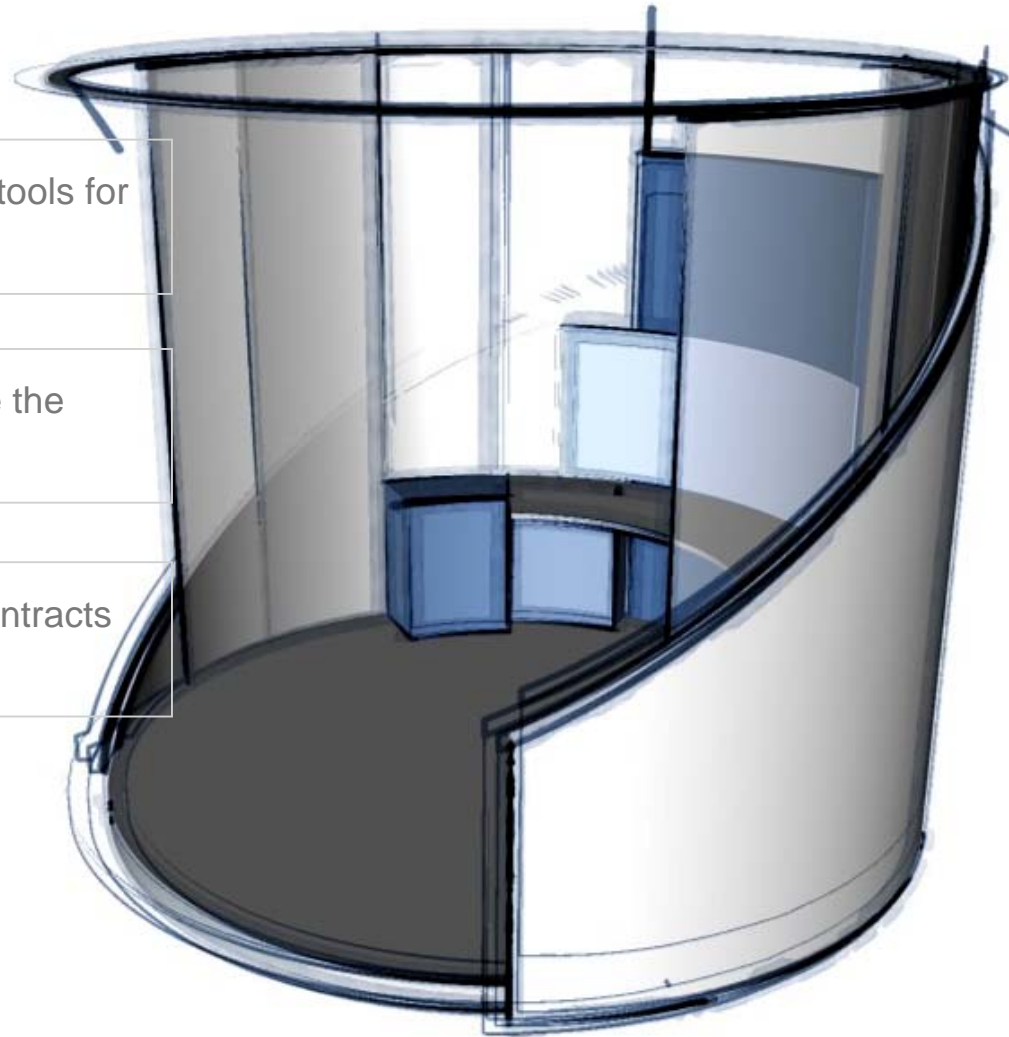
Future office workspace as an integrating platform*



- Combine recent trends in physical tools for knowledge work support

- Show case in order to demonstrate the value of the semantic desktop

- Attract potential partners to give contracts to order to share DFKI's vision



* will be available end of October 2007

Thanks to my group!



Ass Profs & Post Docs



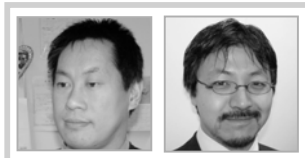
PhD Students



Software Engineers



Guests



Plus about 40 Master Students

Thanks to you for your attention!



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