

IkeWiki

A Semantic Wiki for Collaborative Knowledge Management

ESWC 2008 Tutorial

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`http://www.kiwi-project.eu`

`http://planet.kiwi-project.eu`

Outline

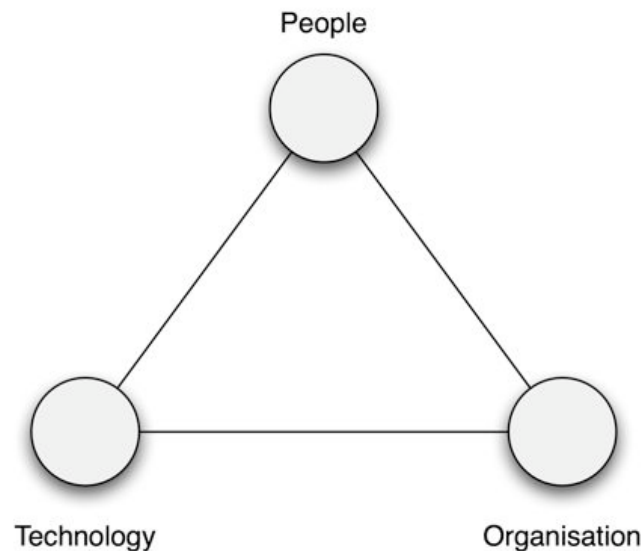
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KiWi Vision



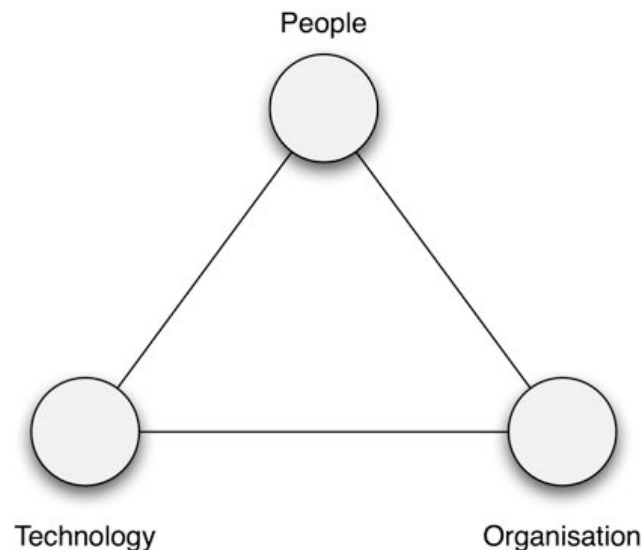
Knowledge Management

- | many different kinds of rich content
(text, images, audio, video, software, processes, ...)
- | user and domain specific workflows and processes
- | sharing of content and collaboration of users



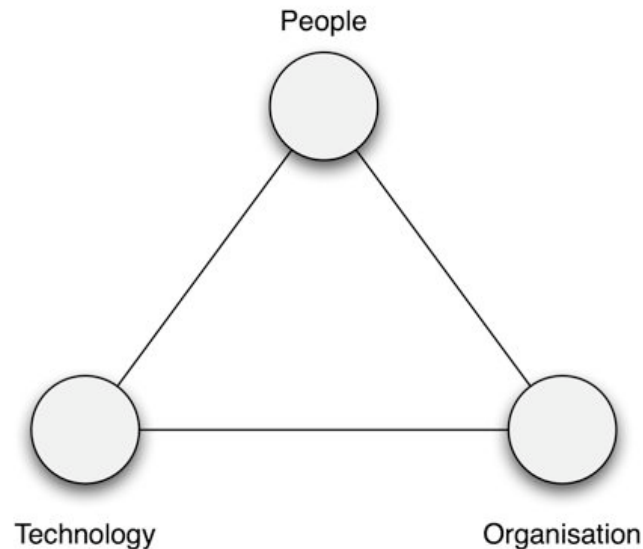
Knowledge Management (traditional)

- | „knowledge acquisition systems“
- | form-based, predefined processes, part of quality management, „make people replaceable“
- | people are aligned with technology and organisation



Knowledge Management (KiWi Way)

- | instead: technology and organisation should be aligned with people!
- | KiWi: Semantic CMS the Wiki-Way



Knowledge Management (Wikis)

- | Wikis are...
 - | simple to use (low technological barrier)
 - | flexible: from a short notice over documentation to collaborative authoring of documents
 - | do not impose a predefined workflow (no dictate of the system)
 - | adjust to the necessities of users
- | like a piece of paper!
 - | you can write on it, draw on it, connect things, ...
 - | workflows only by "social convention": there are rules, but it is possible to deviate from them if necessary (new situations, better solutions, ...)

Knowledge Management (Wikis)

- | **but:** Wikis are rather like an **empty** piece of paper
 - | well suited for creative and/or well-known tasks
 - | no support whatsoever for users
 - | nobody would fill his tax return on an empty piece of paper!
 - | forms and workflows have (originally) been developed as support!
- | with growing amount of content it becomes also increasingly difficult to find the necessary information

Semantic Web

- | adds formal, machine readable semantics to the Web
- | on a first glance:
 - | rigid structures, predefined processes
- | but on second glance:
 - | “open world”
 - | semi structured
 - | no pre-defined structures; evolving structures!
 - | structure is never really imposed, it is just used to support the user when it is there!

Knowledge Management + Wiki-Philosophy + Semantic Web

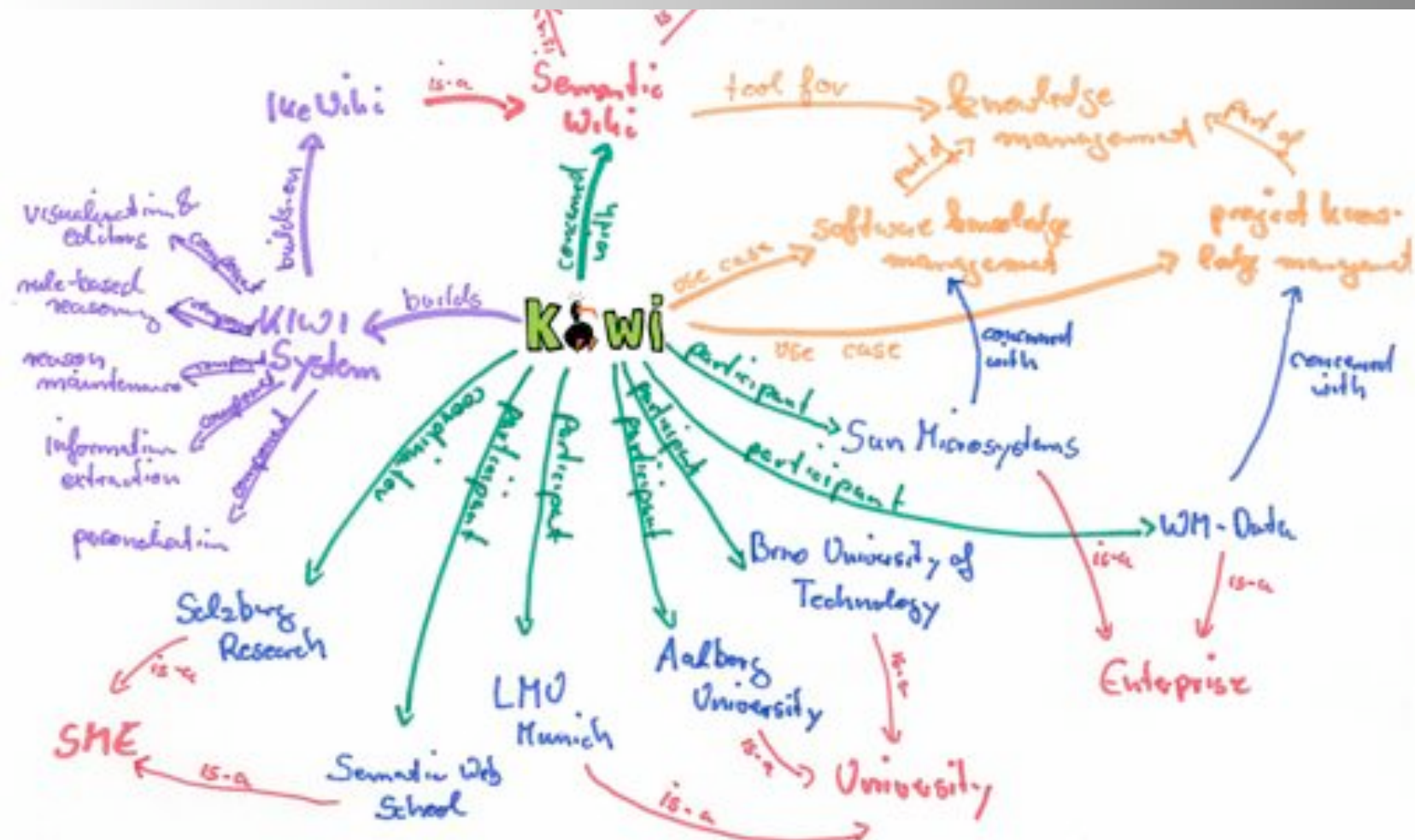
= KiWi

- | machine readable linking of content
- | adaption of presentation and input
 - | to personal preferences
 - | to user and content context
 - | to different kinds of content
- | examples:
 - | kinds of content: meeting minutes, resource plans, persons, tasks, reports, ideas, ...
 - | presentation/input: meeting minute editor, gantt diagram, user profile, report template, ...

KiWi and IkeWiki

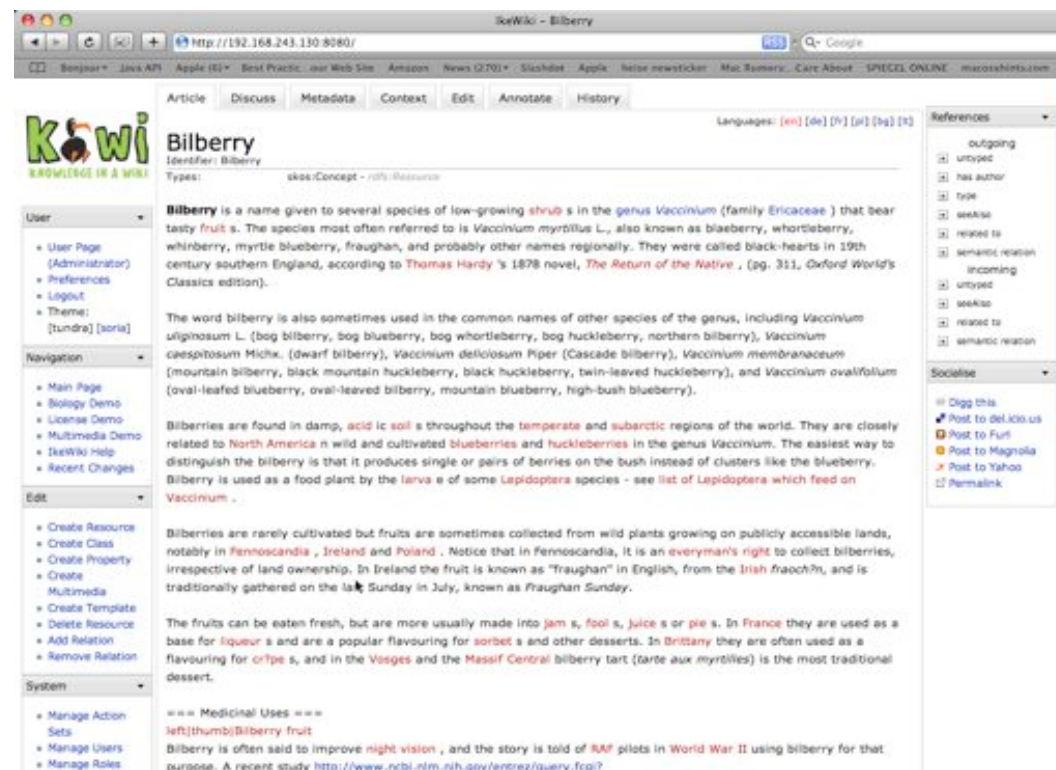
- | IkeWiki is the currently existing and running prototype on which KiWi is based
- | IkeWiki already allows to demonstrate some (but not all) of the envisioned properties of KiWi
- | first versions of KiWi use cases will use this prototype, so it is developed in parallel to the „new“ KiWi system

IkeWiki Interface



IkeWiki Interface

- | „normal“ wiki interface for viewing/editing „normal“ content
- | somewhat resembling Wikipedia/MediaWiki



IkeWiki Interface – What to do with Semantic Annotations?

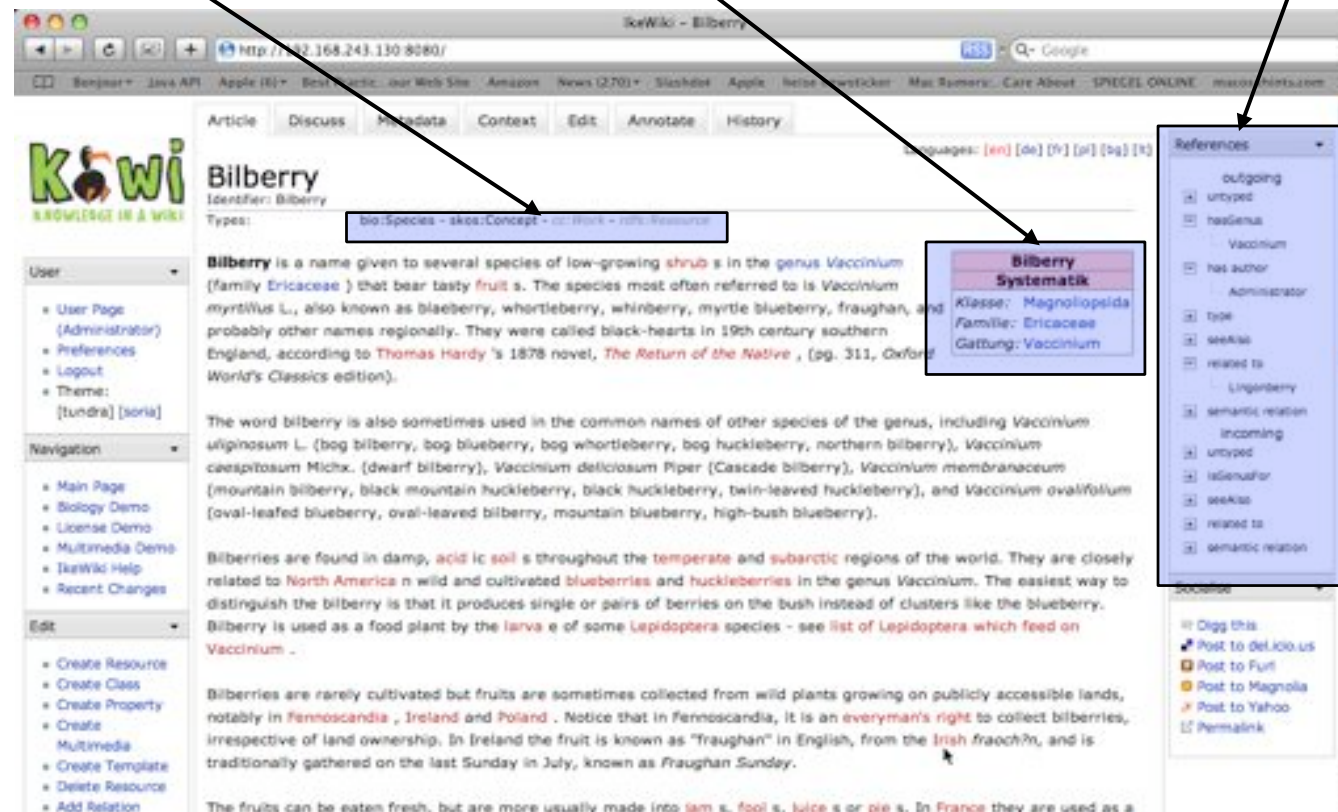
- | people will only use metadata when they see a benefit in it!
- | possible uses of metadata (for authors):
 - | support in editing (e.g. avoiding redundancy of data)
 - | interoperability and exchange between systems
- | possible uses of metadata (for users):
 - | improved search and navigation
 - | improved page presentation

IkeWiki Interface – What to do with Semantic Annotations?

categories/types

context-dependent
presentation

navigation



The screenshot shows the IkeWiki interface for the article 'Bilberry'. The interface includes a top navigation bar with tabs like 'Article', 'Discuss', 'Metadata', 'Context', 'Edit', 'Annotate', and 'History'. The main content area shows the article text, which includes semantic annotations like 'shrub s' and 'fruit s'. A sidebar on the left contains user information and navigation links. A sidebar on the right contains a 'References' section with a list of outgoing links. A small box titled 'Bilberry Systematik' is overlaid on the article text, showing taxonomic information: 'Klasse: Magnoliopsida', 'Familie: Ericaceae', and 'Gattung: Vaccinium'.

IkeWiki Interface – How to do Semantic Annotations?

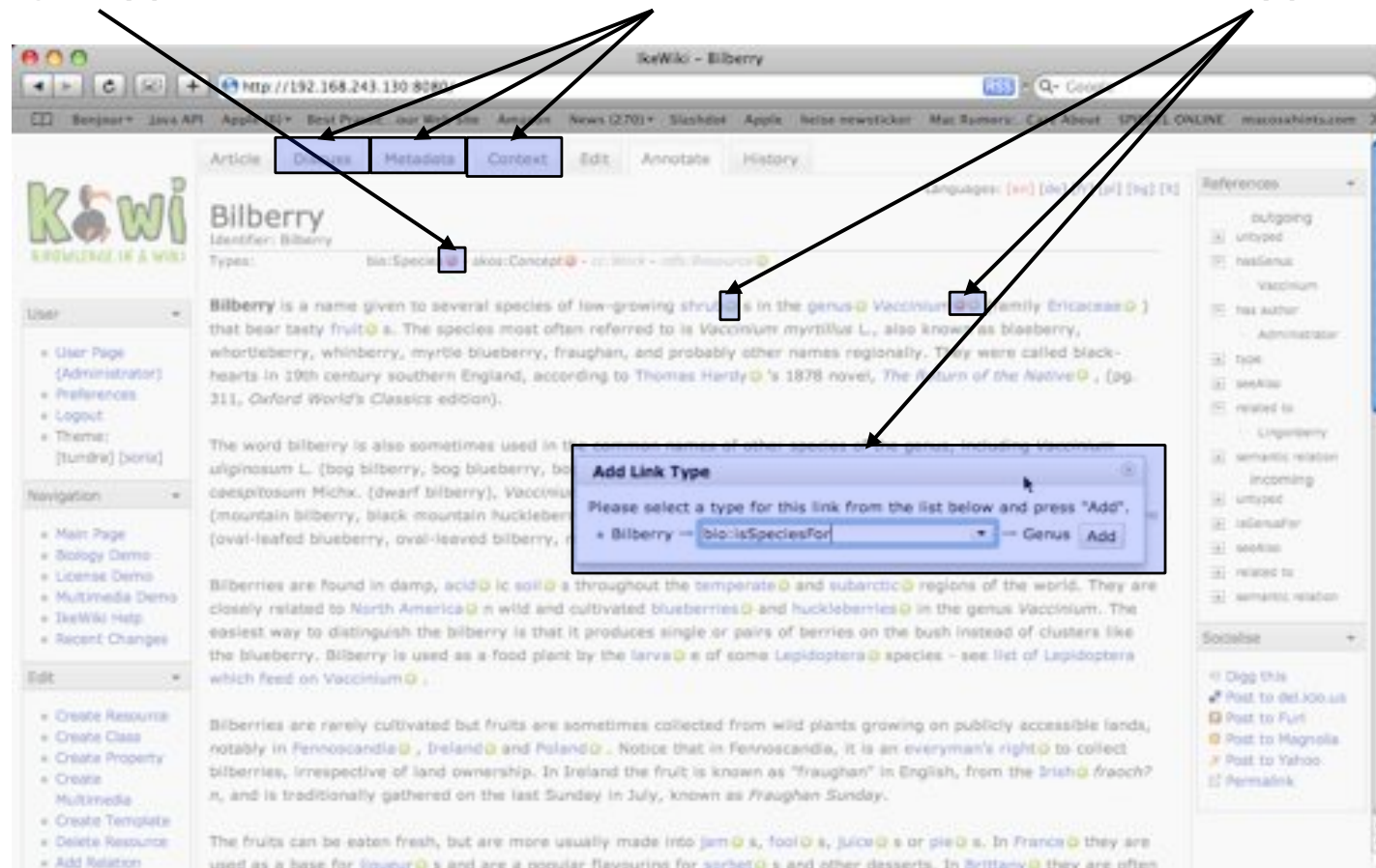
- | people will only use metadata if it is easy!
- | lower the technical barrier for metadata creation
 - | provide an easy to use interface for adding annotations (AJAX-based adding of link and page types)
 - | support the user by reasonable suggestions where possible (link and page type suggestions based on reasoning)
 - | support different levels of experience and hide unnecessary complexity (showing advanced features only to advanced users)
 - | allow domain experts and knowledge engineers to collaborate
 - | immediate exploitation of semantic annotations (instant reward)
 - | supporting different levels of formalisation (evolving knowledge models)

IkeWiki Interface – How to do Semantic Annotations?

page types

advanced features

link types

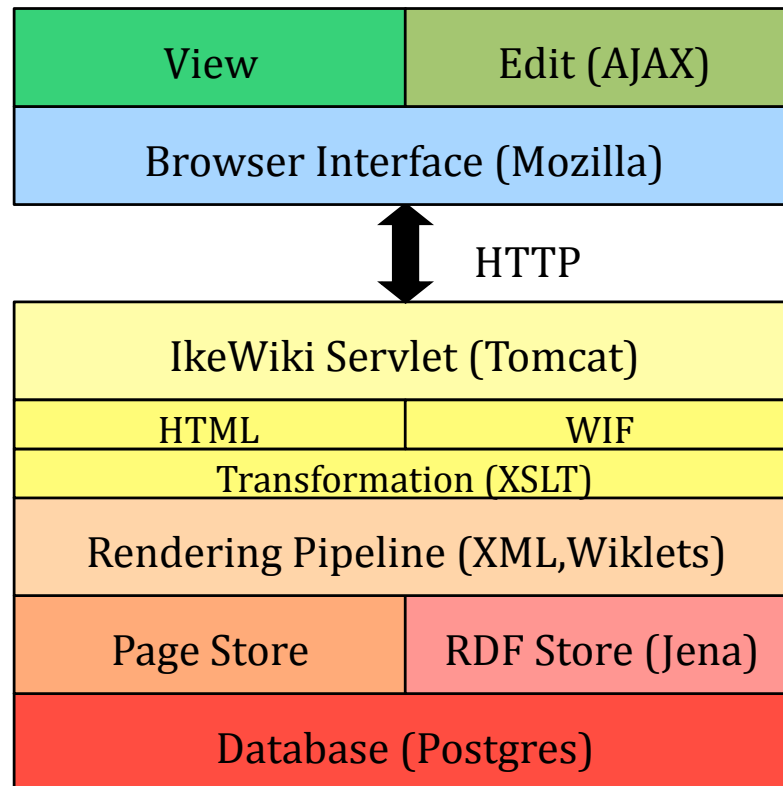


The screenshot shows the IkeWiki interface for the article "Bilberry". The interface includes a left sidebar with navigation links, a main article content area, and a right sidebar with references and social media links. Annotations are shown as small colored boxes (blue, green, orange) placed over specific words in the text. A modal window titled "Add Link Type" is open, showing a dropdown menu with "bilberry" selected and "block:SpeciesFor" chosen, with an "Add" button next to it. Arrows from the text labels point to these annotations and the modal window.

IkeWiki Architecture



IkeWiki Architecture



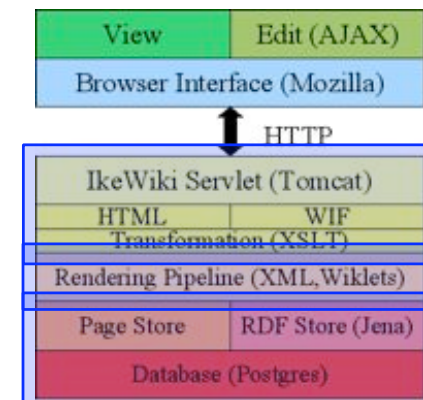
- | Page Store: XML content
- | RDF Store: RDF metadata
- | Rendering Pipeline: combination of content and metadata
- | transformation into HTML and other formats
- | AJAX editing and viewing in Mozilla/Firefox



IkeWiki Architecture

Storing Content and Metadata

- | page content and metadata stored separately
 - | *page content*: PostgreSQL database
 - | *metadata*: Jena RDF memory model with OWL-DL reasoning, backed by a database model for persistent storage
- | rendering pipeline combines page content with metadata
 - | „wiklets“ enrich page content with information from the knowledge model
- | XSLT transformation transforms „enriched“ page content to different formats
 - | HTML for presentation
 - | HTML for tooltip
 - | XML/WIF for exchange



Perspectives



What KiWi will add ...

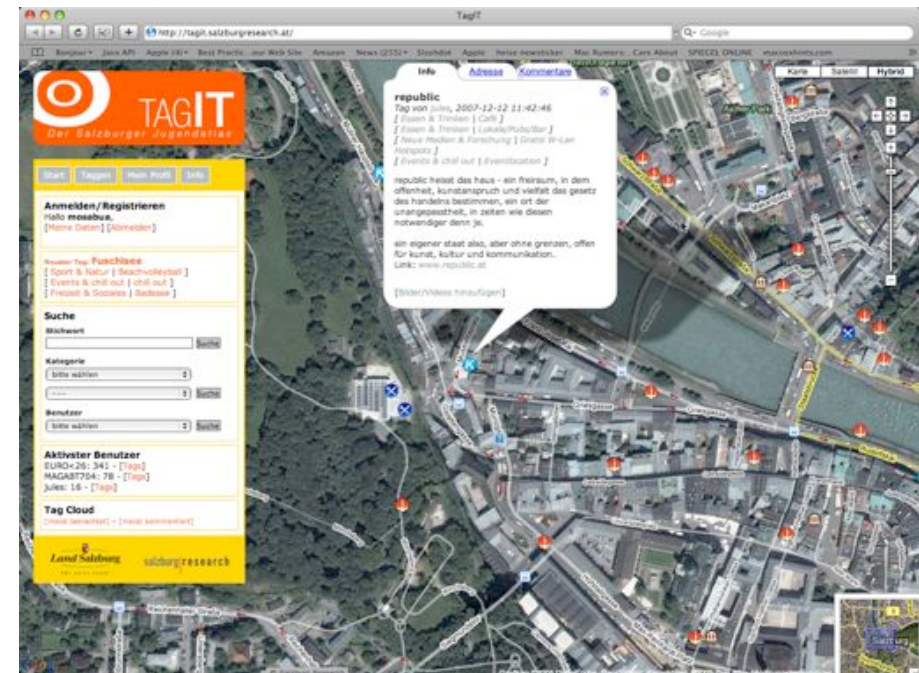
- | KIWI - Knowledge in a Wiki
 - | knowledge management supported by Semantic Wikis
 - | research on enabling technologies to be integrated:
 - | rule-based reasoning
 - | reason maintenance
 - | information extraction
 - | personalisation
 - | two use cases:
 - | software knowledge management
 - | project knowledge management
- | EU FP7 research project
 - | started in March 2008
 - | duration 36 months
- | Partners: Salzburg Research, University of Aalborg, University of Munich, Technical University of Brno, Sun Microsystems, Semantic Web School, WM-data

Some running applications of IkeWiki ...

- | internal knowledge base at Salzburg Research KIS group
- | tutorials of the EU Leonardo da Vinci project MOSEP
("more self esteem through my e-portfolio")
<http://wiki.mosep.org/>
- | conference wiki „Social Skills durch Social Software“
<http://eportfolio.salzburgresearch.at/wiki/>
- | prototype for representing mathematical knowledge at
International University Bremen
<http://raspberry.eecs.iu-bremen.de:8081/IkeWiki/>
- | prototype of the QVIZ EU project
<http://www.qviz.eu>

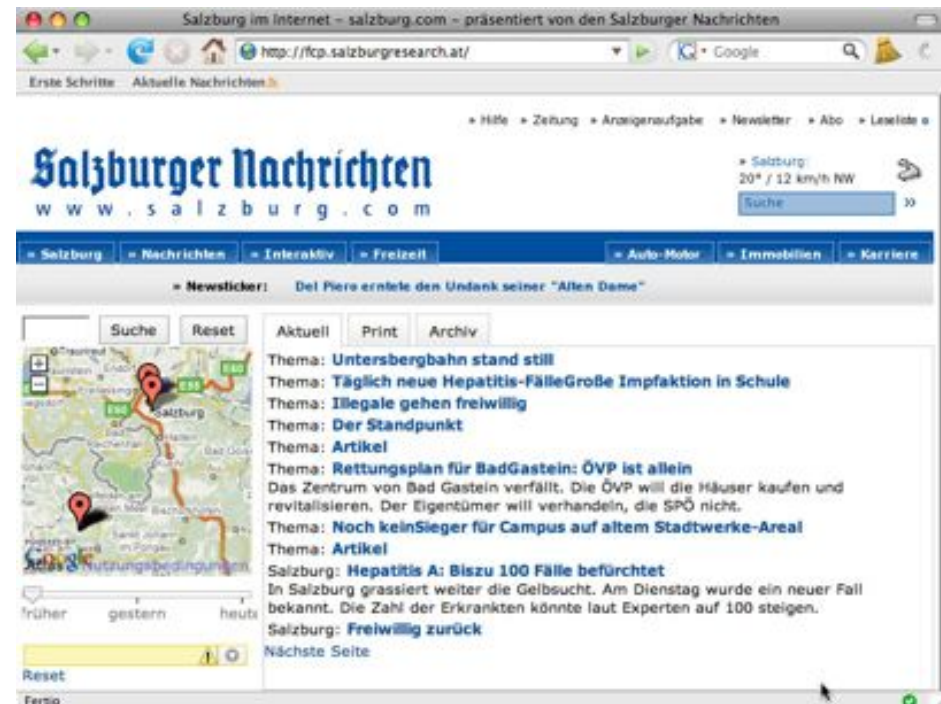
Envisioned Applications of KiWi: tagIT 2

- | tagIT: youth atlas of Salzburg
- | youths can „tag“ locations on a map, add descriptions, photos, comments, etc.
- | search by various different „navigation paths“:
map, full-text, topic, user, rating, ...



Envisioned Applications of KiWi: Citizen Journalism meets Professional News

- | Newspapers are nowadays investing much in building up „community platforms“
- | user generated content and professional content are converging
- | search & navigation
- | personalisation & recommendations
- | content integration



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