



A PLATFORM
FOR BUILDING
SEMANTIC SOCIAL
MEDIA
APPLICATIONS

WWW.KIWI-COMMUNITY.EU

KiWi

A PLATFORM FOR BUILDING SEMANTIC SOCIAL MEDIA APPLICATIONS

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INTRODUCTION

KiWi is a platform for building Semantic Social Media applications incorporating many innovative technologies that have matured through the research we have carried out in the project. After almost three years of research and development, it is now time to release what we have worked on to the public. We hope that you will find our system worthwhile – maybe you even consider building your own Social Media application on top of it?

This booklet, accompanying the KiWi 1.0 release, aims to summarize the key features offered by the platform and provide you with background information. But more importantly, this booklet also aims to tell you a bit about the people behind KiWi, the people who have worked almost three years on making the release happen. After all, software is not only for the people, it is also from people!

Each of the persons you will find here has his own view and visions regarding the platform. I hope you will enjoy reading what they think!

Salzburg, 1st October 2010
Sebastian Schaffert

KiWi – A PLATFORM FOR BUILDING SEMANTIC MEDIA SOCIAL APPLICATIONS

FROM RESEARCH TO AN OPEN SOURCE PLATFORM...

KiWi began as a 36-month (March 2008-February 2011) research and development project part-funded under the European Union 7th Framework Programme.

The project's seven partners from research and industry – encouraged by the early results – committed the project to go beyond a research prototype to a version 1.0 release for Open Source access.

The version 1.0 release is launched under the banner of the KiWi Community.

KiWi is an Open Source development platform for building Semantic Social Media applications.

It offers features required for Social Media applications such as versioning, (semantic) tagging, rich text editing, easy linking, rating and commenting, as well as advanced “smart” services such

as recommendations, rule-based reasoning, information extraction, intelligent search and querying, a sophisticated social reputation system, vocabulary management, and rich visualisation.

JOIN THE KiWi COMMUNITY...

Our goal in launching KiWi as an Open Source community project is to provide a single development platform for developers to leverage the power of the core KiWi functionalities to build novel kinds of semantic social media applications.

KiWi is an Open Source project with the core software distributed under the New BSD software license.

To join the KiWi Community visit <http://www.kiwi-community.eu>

KiWi can be used both, as a platform for building custom Semantic Social Media applications, and as a Semantic Social Index, integrating content and data from a variety of different sources, e.g. Wikis, blogs and content management systems in an enterprise intranet. Third-party applications can access the KiWi System using simple-to-use web services.

“A LOOK UNDER THE HOOD OF KiWi”

KiWi is more than a *‘semantically spiced Wiki’*. It is a semantic social platform that breaks information boundaries by allowing users to connect content in new ways that go beyond the level of today’s user interfaces.

The KiWi platform provides **personalisation and adaptation** of content by making the context of the currently presented content explicit to the system in the form of appropriate annotations and tagging, and the current context of the user by allowing users to switch between different roles. There is also generic support for common tasks to make using the platform as easy as possible for the user. Different content views are not only used for the presentation of information, but also for interaction with the system.

Developers and advanced users can easily utilise “**Semantic Forms**” to enter content in a structured way. For example, an editor view for “portrait photos” provides a field with a link to an existing profile or to immediately enter information about the depicted person.

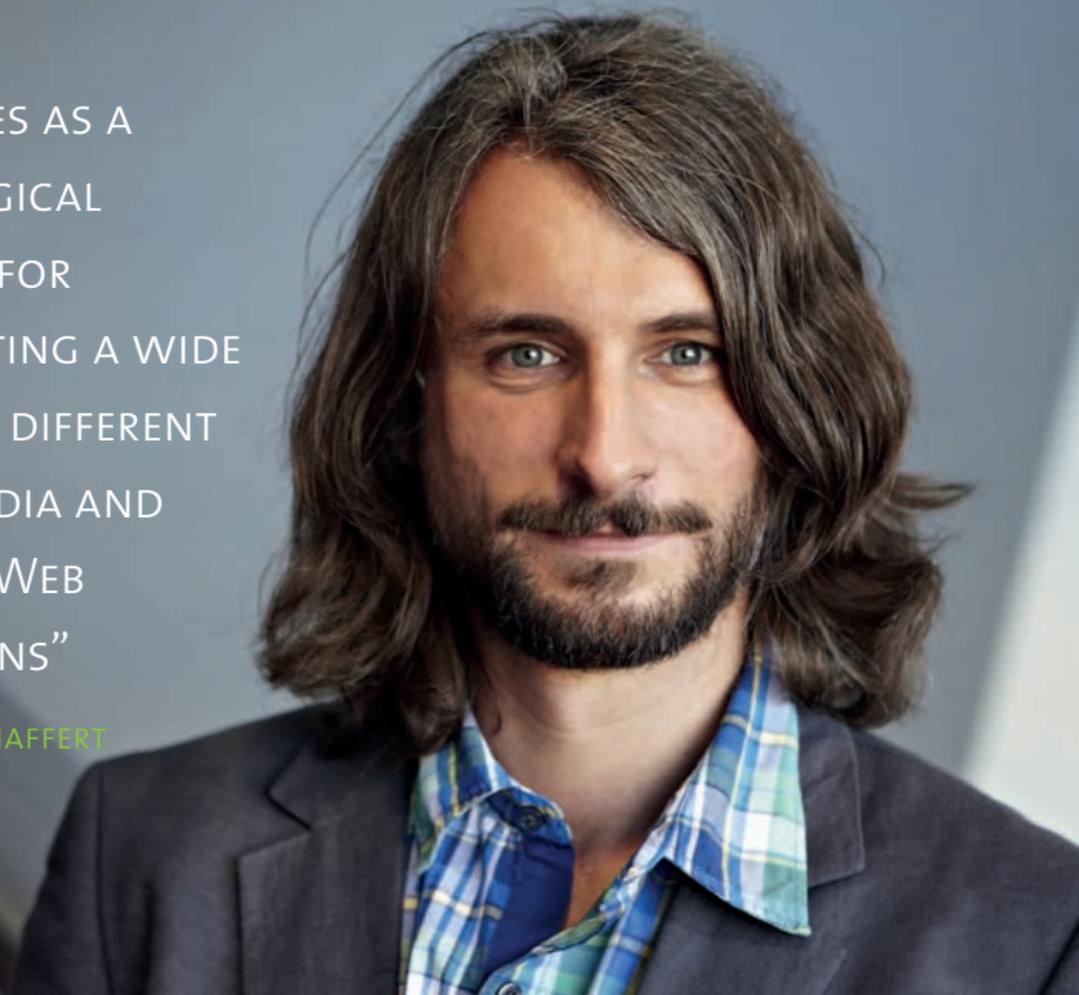
Information extraction supports the user in efficient searching and browsing as well as in **tag recommendation**. For example, the information extraction component in KiWi can automatically

detect that the user is entering “Paris” and ask whether he is referring to “Paris, capital of France” or “Paris, first name”, and tag the content appropriately. Furthermore, KiWi’s **rule-based reasoning system** makes it possible to derive implicit information from what is given explicitly. Such reasoning can be used to make recommendations, e.g. of the form “content tagged with jaguar, the animal, should also be tagged with *animal*”.

THE PEOPLE BEHIND KIWI

“KIWI SERVES AS A
TECHNOLOGICAL
PLATFORM FOR
IMPLEMENTING A WIDE
VARIETY OF DIFFERENT
SOCIAL MEDIA AND
SEMANTIC WEB
APPLICATIONS”

SEBASTIAN SCHAFFERT



SEBASTIAN SCHAFFERT

PROJECT MANAGER, SYSTEM ARCHITECT

Everything started with the idea to simply develop a, albeit sophisticated, Semantic Wiki. But we soon realised that the same ideas can be used in many different Social Media applications. KiWi therefore provides a good collection of many different services that can be used to build custom Social Media applications with advanced functionalities like semantic search, information integration, reasoning, information extraction and personalisation. We have already implemented some very interesting applications like the Semantic Wiki, TagIT, Ideator and ArtAround, and I am really looking forward to the applications still to come.



“FREE AS IN FREEDOM –
THAT’S KIWI’S PHILOSOPHY”

STEPHANIE STROKA

STEPHANIE STROKA

CORE DEVELOPER, RELEASE MANAGER

When we say “free software“, we do not just talk about the license. It’s our philosophy to provide software that can easily be extended and used by everyone. Developers can build their own applications based on their end-user’s needs. Users can contribute, not just with content, but also with semantics. The community provides the data structure, not (just) the database architect. The modular data model and services can be reused with your extensions. As free software, KiWi is the perfect platform for building your own semantic social media applications.

“OPEN YOUR DATA TO THE
WEB OF HUMANS AND
MACHINES”

THOMAS KURZ



THOMAS KURZ

TAGIT, SEARCH, USER INTERFACE

Linking and sharing application data is a hot topic. KiWi follows the Linked Data principles by allowing other components on the Web to easily integrate with KiWi data via Mashups. KiWi can use data from the Linked Data Cloud to enrich its content with additional information like geo information, pictures, links, etc. KiWi can act both as a Linked Data server and/or client.

A young man with brown hair and sunglasses is sitting on a grassy area. He is wearing a white t-shirt with a graphic design and blue jeans. He is looking to the right with a slight smile. The background is a dense field of green grass.

“METADATA THAT
YOU ACTUALLY
WANT TO USE”

MAREK SCHMIDT

MAREK SCHMIDT

INFORMATION EXTRACTION

To use a semantic system effectively, the content needs to have good quality metadata. The problem, however, is that tagging is boring and tedious. KiWi actively helps the user with this by providing automatically generated suggestions. Metadata suggestions are automatically extracted by the KiWi system and constantly refined based on user feedback. Such automatic suggestions improve the quality of metadata and tagging, and add some excitement to the process!

“KIWI – A SOCIAL
SPACE FOR
COLLABORATIVE
KNOWLEDGE”

FRED DURAO



FRED DURAO

PERSONALISATION, RECOMMENDATION

KiWi is a collaborative knowledge space that can be edited by anybody who has been granted permission. With the simple to use approach, KiWi adoption is less about learning new technology and more about changing habits. Apart from the complexity of existing Web solutions, KiWi has instituted a new and democratic way of usage with simple text syntax for creating pages and cross-linking between internal pages on the fly. Further, along with the traditional Wiki-like features, KiWi constantly tracks user's activity with the aim of delivering information according to users' roles and preferences. The result is an intelligent system that supports structured content editing to improve content findability and use.

A man with short brown hair and a goatee, wearing a green t-shirt with a graphic design, stands in front of a large window. The background is slightly blurred, showing an indoor setting with a plant and architectural elements.

“THE KIWI WAY, OR
HOW TO ORGANIZE
YOUR COMPANY’S
COLLABORATION
WHILE BUILDING A
KNOWLEDGE BASE”

KARSTEN JAHN

KARSTEN JAHN

PROJECT KNOWLEDGE MANAGEMENT USE CASE

Collaboration is simple, they say. But deploying a system for collaboration knowledge management in a company is a difficult task and many have failed. An enterprise environment has many requirements that have to be met in order to provide not only a good working collaboration knowledge management tool, but one that is actually worth introducing. If the technology forces a company to leave or change its processes, then it does not stand a chance. KiWi offers a new approach to support collaboration within existing processes.

“ENRICHED METADATA
THAT YOU CAN
UNDERSTAND”

JAKUB KOTOWSKI



JAKUB KOTOWSKI

REASONING & EXPLANATION

KiWi strives to be simple and easily understandable in spite of its advanced features. Reasoning enriches metadata: more metadata is potentially more fun and hopefully less work – but only if you know why it's there. And KiWi can explain the reasons to you. Reasoning works mostly behind the scenes in an incremental way, allowing for a nimble responsive user interface which is also always ready to explain why a particular piece of metadata is there.

“BUILD QUERIES EASILY
WITH KWQL”

KLARA WEIAND



KLARA WEIAND

QUERYING

Keyword queries can only roughly approximate the user's query intent. The basic goal of my work is to bring Web querying and Web search together, to enable users to target searches much more precisely. The goal is to find ways that allow normal users to profit from all types of data structures without having to become experts in query languages first.

“IF YOU ARE
LOOKING TO
CREATE YOUR OWN
SOCIAL MEDIA
APPLICATION,
KIWI IS THE RIGHT
CHOICE”

ROLF SINT



ROLF SINT

APPLICATIONS, SERVICES

KiWi offers the tools and features that enable developers to create their own powerful semantic social media applications. There are so many innovative solutions to real world problems now possible with semantic social media applications, like a very effective search and navigation of content based on the semantic structure of KiWi, an integrated reputation mechanism or a highly flexible extension mechanism.

A portrait of Szabolcs Grünwald, a man with short brown hair, wearing an orange t-shirt with the text 'KIWI' on it. He is looking slightly to the left of the camera with a neutral expression. The background is a blurred green tree.

“KIWI IS AN OPEN
SEMANTIC WEB
TOOLBOX”

SZABOLCS GRÜNWALD

SZABOLCS GRÜNWALD

USER INTERFACE, WIDGETS, WEB SERVICES, BUILD ENVIRONMENT

KiWi is all you need to build Social and Semantic Web applications. And if something is missing, the KiWi architecture is flexible enough to add on your favourite extensions. I am excited to see what the KiWi Community will create next with the KiWi toolbox.



“JOIN THE KIWI
RANGERS ON A
QUEST TO THE
MYSTICAL LAND
OF SEMANTIC
SOFTWARE”

MIHAI RADULESCU KOBER

MIHAI RADULESCU KOBER

COMMUNITY EQUITY, BACKEND, INSTALLER

There are some existing semantic featured software out there, but what makes KiWi interesting is the opportunity to build Enterprise compliant applications using semantic tools/features in a very simple and intuitive way.

PUTTING THE USER IN THE CENTRE WITH “PERSPECTIVES”

Everyone is different, and software systems should take this into account. By “putting the user in the centre”, KiWi makes it possible to tailor the presentation and functionality of the platform to the information needs and experience of the user, and to make the use of the platform as easy as possible. In KiWi language this is called *Content Versatility*, meaning that the same content can be (re-) used in many different contexts. The simplest form of Content Versatility in KiWi is implemented as so-called *Perspectives*. A perspective is a certain viewpoint on some content: the photo can be seen as a photo, as a location, as a generic content item, as a list of the metadata properties associated with it, etc. Most perspectives consist of at least a view and edit definition specifying how the content is displayed and modified when taking the chosen perspective.

KiWi comes with a number of default perspectives:

- **Default**
the ordinary Wiki perspective on content items. Provides a page view and Wiki-style editor with all the KiWi editor functionalities.

- **Photo**
a perspective for displaying photos stored in the KiWi system. Provides a photo view and a photo editor that allows you to upload a new version and edit the photo description.
- **Location**
displays the geo-location of the content item on a map and allows to re-locate it using drag and drop on the map or entering the address.
- **Person**
allows displaying and editing the content item as a person, e.g. first/last name, photo, ...
- **Class**
displays the content item as a RDF class, showing additional class-related information like sub- and superclasses, instances, etc.
- **Property**
displays the content item as a RDF property, showing additional property-related information like range, domain, inverse, etc.
- **Concept**
similar to the class perspective but tailored towards SKOS concepts; allows displaying and editing SKOS properties like alternative labels, narrower/broader, etc.

- **Tag**
allows displaying and editing the content item as a tag; the tag can be associated with a SKOS thesaurus and the tagged content items can be displayed
- **Metadata**
allows displaying and editing of the RDF datatype and annotation properties associated with the content item
- **Equity**
rates content items based on the level of activity and over time.

Of course, this is just a selection. Developers can easily add additional perspectives tailored towards their application domains.

KiWi perspectives can be associated with a content item either manually by the user or automatically based on the type of the content item. For example, the photo perspective is automatically displayed for content items that are of type *kiwi:Image*, and the location perspective is automatically associated with content items that are of type *geo:Point*.

KiWi IS BUILT AROUND THE IDEA OF “CONTENT VERSATILITY”

The principle is that every piece of information is a combination of human-readable content and associated metadata, and that the same piece of information can be presented to the user in many different forms: as a Wiki page, as a blog post, as a comment to a blog, as a photo, or even in a bubble in a map-based application. The decision how information is displayed is taken based on the metadata of the content, and the context of the content and the user (e.g. metadata, user preference, different applications). Metadata is represented using RDF and thus does not require a-priori schema definitions, so the data model of the system can be extended even at runtime.

A BUNDLE OF SEMANTIC TECHNOLOGIES FOR TODAY'S KNOWLEDGE WORKER

KiWi serves as a platform for implementing and integrating many different kinds of semantic social software services. This new kind of semantically enhanced social software platform allows users to share and integrate knowledge more easily, naturally and tightly, and allows them to adapt content and functionalities according to their personal requirements. At the heart of KiWi are the 18 core functionalities that enable social software developers to easily build and adapt new services as they are required, e.g. within enterprises or on public social software sites:

- **Content and Metadata Indexing**

The KiWi System allows indexing of the unstructured content as well as the associated metadata of textual and multimedia content for the purpose of searching. The content indexed by KiWi can be stored either in the KiWi system itself or come from external sources using Web Service calls.

- **RDF and Ontology Support**

All metadata in KiWi is represented using the standardised RDF data model

and format and can be queried and reused in other applications supporting RDF. KiWi comes with a number of core ontologies that are directly supported and used by the system, e.g. Dublin Core, SIOC, FOAF, HGTags, SCOT, and Geo.

- **Semantic Search**

The KiWi core system offers a powerful semantic search engine that allows searching over content and metadata alike. The search engine offers the traditional, keyword based search as well as “faceted browsing”, guiding the user through a refinement of the search results. The search engine can be used either directly or as a Web Service.

- **Transactions and Versioning**

All updates (content as well as metadata) to the KiWi Core System are wrapped in transactions and can be undone at any later time. A KiWi transaction covers all work performed within a “unit of work”, e.g. changing the textual description of a content item, filling a form, or updating the position of a point on a map.

- **Activity Logging**

Every activity performed by a user in relation to content stored in KiWi is logged. The logging data is used on the one hand for calculating community equity values of information, and on the other hand for building user models

for personalisation. Also, activity information can be displayed in a user's Dashboard to identify the "things that are happening" in a user's universe.

- **Community Equity**

KiWi implements Sun's Community Equity system that allows to determine the social value of content indexed by the KiWi system. Content that has a high level of social interactivity (e.g. read very often, updated very frequently, commented a lot, rated very high) has a high community equity value. Community Equity is based on a sophisticated mathematical model that takes into account that the "value" of an activity decreases over time depending on the type of content and activity.

- **Semantic Tagging**

The KiWi system offers a tagging service for all content indexed by the system. The tagging functionality can be used either directly in KiWi or integrated in the systems where the content originates using web services or widgets. KiWi uses semantic tagging instead of purely keyword-based tagging, i.e. tags can be disambiguated and connected e.g. in a SKOS thesaurus. Tagging metadata is represented using the HGTags and SCOT ontologies.

- **Commenting**

Similar to tagging, KiWi offers a commenting functionality for all content indexed by

the system that can be used either directly or integrated into other applications using widgets or web services. Comment metadata is represented using the SIOC ontology.

- **Perspective**

A content item may represent several different concepts, e.g. an event might be a calendar event as well as a geo-located point. KiWi supports this by associating different “perspectives“ with a content item, e.g. a normal Wiki view, a location view using a map component, and a calendar view. Perspectives usually consist of view, editing, and search preview descriptions and may make use of Semantic Forms.

- **Content Annotation (RDFa)**

KiWi allows the annotation of unstructured content using the RDFa format. KiWi supports RDFa for displaying content in the browser, and offers a special RDFa editor that allows marking up and annotating of the content in the KiWi system.

- **Semantic Forms (JSF+RDFa)**

Advanced users can develop custom tailored forms for editing content and metadata in the KiWi system. These “Semantic Forms“ also use the RDFa format, but extend it to be used in forms.

- **Vocabulary Management**

For updating SKOS thesauruses, the KiWi system offers a vocabulary management tool that allows associating concepts with each other and creating new sub-concepts. The vocabulary management tool also recognises “free” tags and can convert them into “semantic” tags by turning them into thesaurus concepts.

- **Metadata Editing**

In addition to the “user-friendly” ways of adding metadata (tagging, annotation, information extraction, vocabulary manager), the KiWi system also offers the possibility to directly edit the metadata associated with content in the system so that advanced users can change the metadata as desired.

- **Rule-based Reasoning**

In addition to the ordinary RDF support, KiWi contains a rule-based reasoner that can reason over the RDF metadata contained in the index. KiWi already contains a set of simple rules for RDFS reasoning, which can be extended by developers by arbitrary functionalities, e.g. for implementing specific support for a certain schema.

- **Information Extraction**

The KiWi core system offers several methods for advanced information extraction from

the textual content indexed by the KiWi system. Information extraction is on the one hand used as a base for tag recommendations and for recommendations of related content, and on the other hand for semi-automatic annotation of the content in the editor.

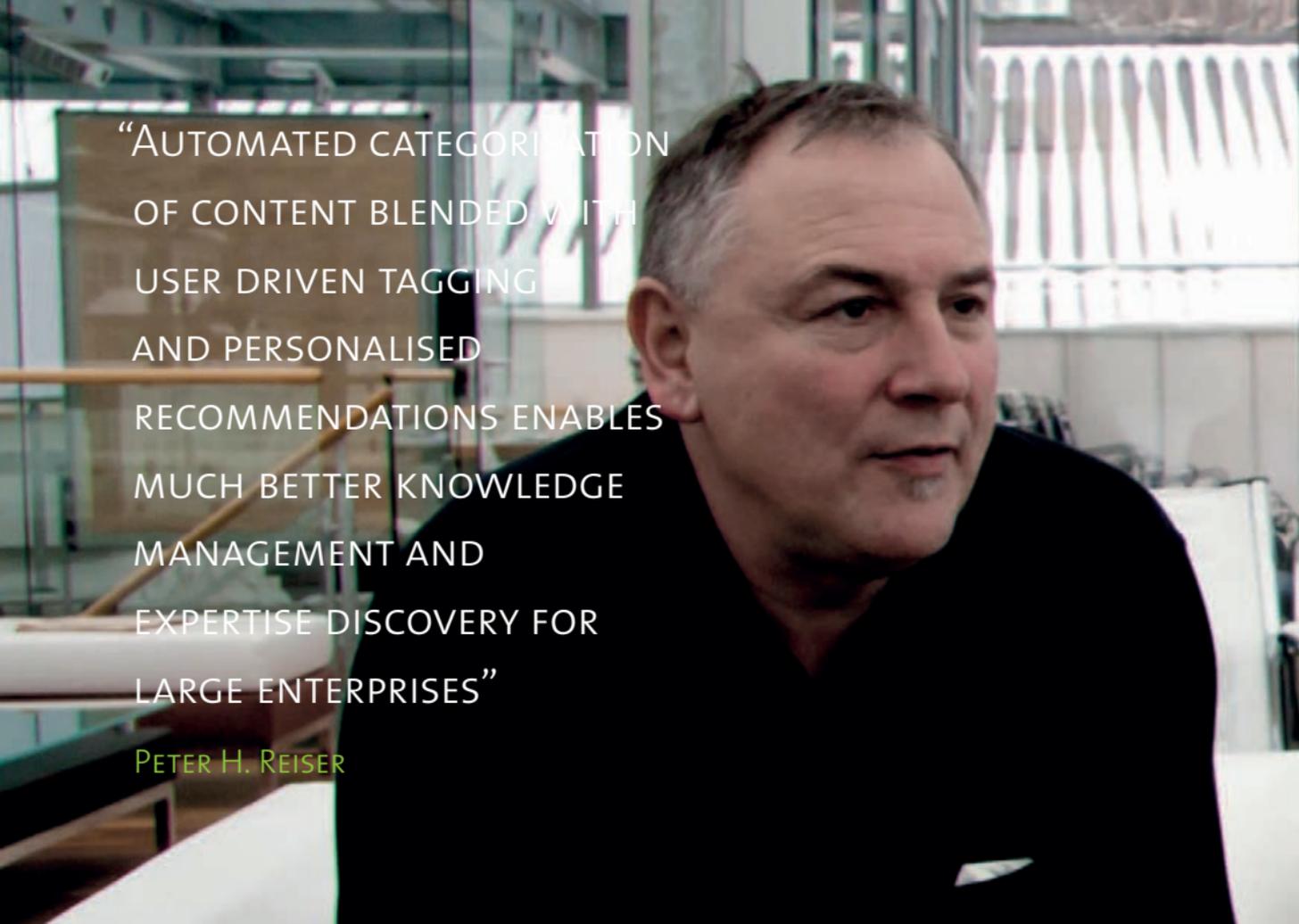
- **Recommendations and Personalisation**

In addition to the recommendations based on information extraction, the KiWi system also offers personalised recommendations and personalised search results based on the user model of the logged in user. Recommendations are then calculated based on the tagging activity performed by the user. Recommendations are also available as Web Services.

- **Advanced Structured Querying**

Beyond the simple semantic search described above, the KiWi system also offers advanced structured querying using a variety of formalisms, e.g. SPARQL. A particularly salient feature of KiWi is the query language KWQL that combines the simplicity of search with the power of structured querying. KWQL queries can be used as alternative to the normal search and can also be constructed using a visual editor.

WHAT OUR USERS ARE SAYING!

A middle-aged man with short, graying hair, wearing a dark jacket, is shown in profile, looking towards the right. He is in a workshop or studio setting, with a wooden ballet barre and various tools or equipment visible in the background. The lighting is bright, coming from windows on the right.

“AUTOMATED CATEGORIZATION
OF CONTENT BLENDED WITH
USER DRIVEN TAGGING
AND PERSONALISED
RECOMMENDATIONS ENABLES
MUCH BETTER KNOWLEDGE
MANAGEMENT AND
EXPERTISE DISCOVERY FOR
LARGE ENTERPRISES”

PETER H. REISER

PETER H. REISER

PRINCIPAL ARCHITECT, ORACLE INC.
SOCIAL ENTERPRISE 2.0

Our vision is to leverage semantic technologies to enable personalised, value driven and context aware knowledge sharing and dynamic expertise discovery for our global technical communities. Piloting the KiWi technologies with our existing communities and community content allows us to verify the expected improvement in the area of enterprise ontology and folksonomy management, collaborative content creation and tagging and enterprise search and personalised and context aware recommendations.

“KNOWLEDGE
CREATION, SHARING
AND MANAGEMENT
IS ESSENTIAL
FOR SOFTWARE
DEVELOPMENT”

KELD PEDERSEN



KELD PEDERSEN

LOGICA DENMARK

SOFTWARE QUALITY ASSURANCE, SOFTWARE PROCESS

IMPROVEMENT & PROJECT MANAGEMENT

Our vision has been to make personalised just-in-time knowledge available for software developers and project managers. By combining information about project participants and the tasks they are going to solve with a software engineering ontology used for tagging we can achieve this vision. KiWi is a platform for us to evaluate this vision.

A close-up portrait of Michael Schneider, a man with shoulder-length brown hair and a goatee, smiling warmly. He is wearing a dark suit jacket over a light blue button-down shirt. The background is a colorful, abstract pattern of red, yellow, and green.

“THE KIWI FRAMEWORK
IS A GOOD CHOICE
FOR DEVELOPING
SEMANTIC SOCIAL MEDIA
APPLICATIONS EVEN FOR
COMPLETELY DIFFERENT
DOMAINS”

MICHAEL SCHNEIDER

MICHAEL SCHNEIDER

ARTAROUND...THE ART NETWORK! (WWW.ARTAROUND.AT)

(A MEMBER OF THE KiWi OPEN SOURCE COMMUNITY)

Currently I am working on two applications: An Open Source community art platform for my startup company and a new e-learning platform in the course of my PhD thesis.

Even if these two applications are developed for completely different domains, they have a lot of things in common. For the technical implementation of these applications I was looking for a framework which offers several tools and components which can be reused in both applications and offer a high degree of extensibility. After checking out several applications I found KiWi to be the best choice with the functionality I needed. KiWi is the right choice and makes the development of innovative applications that much easier. Thanks KiWi!



“KIWI ADDS
SEMANTICS TO
YOUR ENTERPRISE
SOFTWARE STACK”

THOMAS SCHANDL

THOMAS SCHANDL

SEMANTIC WEB COMPANY

TECHNICAL CONSULTANT

Use KiWi to get a flexible semantic application framework that you can easily extend and integrate into your enterprise software architecture, in order to provide an uniform semantic layer for your systems. Starting with KiWi's Open Source software base you can build your own commercial extensions, just as we did with the integration of the thesaurus management server PoolParty.

JOIN THE KIWI COMMUNITY (GANG)!

KiWi started as a research idea that has resulted in a nifty bag of semantic technology tools and tricks. We believe we have some attractive and useful technology to share with a larger community. So, if you think that KiWi is of interest then please check out the software online at <http://www.kiwi-community.eu>, and get involved.

We need the help of a larger community of users and developers to match the technology to user needs to demonstrate the power of the underlying technology, and get metadata (semantics) working for users! If you share in this vision then get on board, we'd love to hear from you.

CONTACT

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PARTNERS



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The background is a vibrant green with a pattern of white lines and circles. The lines are of varying lengths and orientations, some horizontal, some diagonal, and some forming a stepped path. Two small white circles are positioned at the end of some of these lines. The overall effect is a modern, geometric, and abstract design.

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