



Managing Data in MediaWiki

@JeroenDeDauw

- 1) SMW Project
- 2) Freelance MediaWiki developer
- 3) Working for the Wikimedia Foundation

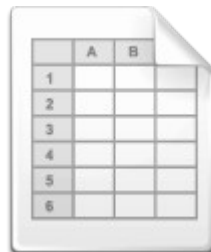
FOSDEM 2012

Based on slides by Markus Krötzsch, <http://korrekt.org>

SMW – Semantic MediaWiki

MediaWiki for collaborating on

- Text
- Rich text and media
- Data



SMW – Semantic MediaWiki

MediaWiki for collaborating on

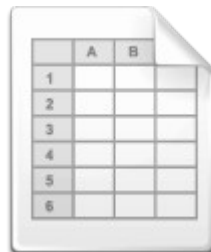
- Text



- Rich text and media



- Data



That's where
SMW comes in

Part I: What SMW Does

Organising Data in SMW



Basic idea:

Assign property-value pairs to wiki
pages

Organising Data in SMW



Basic idea:

Assign property-value pairs to wiki pages

Page	Property	Value
Brussels	Population	1,089,538
FOSDEM 2012	Starts at	February 4th 2012
Jeroen	Lives in	Gent

Why?



- 1) Searching & querying data in the wiki
- 2) Sharing data with other sites & apps

Example: AIFB Web Portal



- <http://www.aifb.kit.edu/>
- Topic: People, Events, Publications

A screenshot of the AIFB Web Portal homepage. The page features a header with the KIT logo and the AIFB name. A navigation menu is on the left, and the main content area includes a welcome message, a list of professors, and news items. A sidebar on the right contains sections for 'Neuigkeiten', 'Veranstaltungen', and 'Shortcuts'. The footer contains the text 'KIT - Universität des Landes Baden-Württemberg und nationales Forschungszentrum in der Helmholtz-Gemeinschaft' and 'NACH OBEN'.

- ▀ Einstellungen
- ▀ Spezialseiten
- ▀ Bearbeiten
- ▀ Versionen/Autoren
- ▀ Löschen
- ▀ Verschieben
- ▀ Aktualisieren

AIFB

Latest News

2009-11-20

[2nd trend congress net economy in Karlsruhe](#)

[more...](#)



Events

2009-11-18

[Large-Scale Pattern-Based Information Extraction from the World Wide Web](#)

2009-11-12

[Inaugural Event KIT Focus COMMputation](#)

[more...](#)



[Faculty of Economics and Business Engineering](#)

Shortcuts

[Theses](#)
[Contact](#)
[Verein AIK](#)
[Intern](#)

▸ Home

▸ Teaching and Exams

▾ People

Professors
 Administration
 Scientific Staff
 Honorary Professors
Lecturers
 Guests and External Staff
 Technics
 Trainees
 Student Assistants
 Former Members

▸ Research Groups

▸ Publications

Events

▸ Projects

▸ Cooperations

Jobs

Contact



Dipl.-Inf. Denny Vrandeic

Research Associate

[vCard](#)

Phone: +49 721 608 6592

Telefax: +49 721 608 6580

Email: [denny\(at\)aifb.uni-karlsruhe.de](mailto:denny(at)aifb.uni-karlsruhe.de)

Research Group: [Knowledge Management](#)

Room: [262](#) (11.40)

Publications

[Publications](#)

Talks

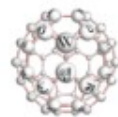
[Talks](#)

Active Projects



Active

<http://www.active-project.eu>



SMW

<http://semantic-mediawiki.org>



STI2

<http://www.sti2.org>

Activities

- ▀ Einstellungen
- ▀ Spezialseiten
- ▀ mit Formular bearbeiten
- ▀ Bearbeiten
- ▀ Versionen/Autoren
- ▀ Löschen
- ▀ Verschieben
- ▀ Aktualisieren

AIFB

- Home
- Lehre und Prüfung

Personen

- Professoren
- Organisation
- Wissenschaftl. Mitarbeiter**
- Honorarprofessoren
- Lehrbeauftragte
- Gäste und Externe
- Technik
- Auszubildende
- Hilfskräfte
- Ehemalige

Forschungsgruppen

Veröffentlichungen

Veranstaltungen

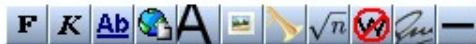
Projekte

Kooperationen

Stellenmarkt

Kontakt

Bearbeiten von Denny Vrandecic



```
{
  |Mitarbeiter
  |Vorname=Denny
  |Nachname=Vrandecic
  |Akademischer_Titel=Dipl.-Inf.
  |Kürzel=dvr
  |Forschungsgruppe=Wissensmanagement
  |Stellung=Wissenschaftlicher Mitarbeiter
  |Ehemaliger=False
  |Telefon=+49 721 608 6592
  |Fax=+49 721 608 6580
  |Email=denny(at)aifb.uni-karlsruhe.de
  |Raum=262
  |Bild=dvr.jpeg
  |Publikationen_anzeigen=True
  |Vorträge_anzeigen=True
  |Organisation=AIFB, KIT
}
```

Bitte beachte, dass alle Beiträge zu Aifbportal von anderen Mitwirkenden bearbeitet, geändert oder gelöscht werden können. Reiche hier keine Texte ein, falls du nicht willst, dass diese ohne Einschränkung geändert werden können.

Du bestätigst hiermit auch, dass du diese Texte selbst geschrieben hast oder diese von einer gemeinfreien Quelle kopiert hast (siehe [Aifbportal:Urheberrecht](#) für weitere Details). **ÜBERTRAGE OHNE GENEHMIGUNG KEINE URHEBERRECHTLICH GESCHÜTZTEN INHALTE!**

Zusammenfassung:

Neuigkeiten

20. November 2009

[2. Trendkongress net economy in Karlsruhe](#)

[mehr...](#)



Veranstaltungen

18. November 2009

[Large-Scale Pattern-Based Information Extraction from the World Wide Web](#)

12. November 2009

[Eröffungsveranstaltung KIT-Schwerpunkt COMMputation](#)

[mehr...](#)



Fakultät für
[Wirtschaftswissenschaften](#)

Shortcuts

[Abschlussarbeiten](#)

[Kontakt](#)

[Verein AIK](#)

[Intern](#)

- ▀ Einstellungen
- ▀ Spezialseiten
- ▀ mit Formular bearbeiten
- ▀ Bearbeiten
- ▀ Versionen/Autoren
- ▀ Löschen
- ▀ Verschieben
- ▀ Aktualisieren

AIFB

Neuigkeiten

20. November 2009

[2. Trendkongress net economy in Karlsruhe](#)
[mehr...](#)


Veranstaltungen

18. November 2009

[Large-Scale Pattern-Based Information Extraction from the World Wide Web](#)

12. November 2009

[Eröffnungsveranstaltung KIT-Schwerpunkt COMMputation](#)
[mehr...](#)


Fakultät für
Wirtschaftswissenschaften

Shortcuts

[Abschlussarbeiten](#)
[Kontakt](#)
[Verein AIK](#)
[Intern](#)

[Home](#)
[Lehre und Prüfung](#)
[Personen](#)

Professoren
 Organisation
**Wissenschaftl.
 Mitarbeiter**
 Honorarprofessoren
 Lehrbeauftragte
 Gäste und Externe
 Technik
 Auszubildende
 Hilfskräfte
 Ehemalige

[Forschungsgruppen](#)
[Veröffentlichungen](#)
[Veranstaltungen](#)
[Projekte](#)
[Kooperationen](#)
[Stellenmarkt](#)
[Kontakt](#)

Bearbeite Mitarbeiter: Denny Vrandecic

Vorname:
[Hilfe \(öffnet neue Seite\)](#)
Nachname:
[Hilfe \(öffnet neue Seite\)](#)
Akademischer Titel:
[Hilfe \(öffnet neue Seite\)](#)
Kürzel:
[Hilfe \(öffnet neue Seite\)](#)
Forschungsgruppe:
[Hilfe \(öffnet neue Seite\)](#)
Stellung:
[Hilfe \(öffnet neue Seite\)](#)
Ehemaliger:
[Hilfe \(öffnet neue Seite\)](#)
Telefon:
[Hilfe \(öffnet neue Seite\)](#)
Mobile:
[Hilfe \(öffnet neue Seite\)](#)
Fax:
[Hilfe \(öffnet neue Seite\)](#)
Email:
[Hilfe \(öffnet neue Seite\)](#)
Raum:
[Hilfe \(öffnet neue Seite\)](#)

- ▀ Einstellungen
- ▀ Spezialseiten
- ▀ Bearbeiten
- ▀ Versionen/Autoren
- ▀ Löschen
- ▀ Verschieben
- ▀ Aktualisieren

AIFB

Neuigkeiten

20. November 2009

[2. Trendkongress net economy in Karlsruhe](#)

[mehr...](#)



Veranstaltungen

18. November 2009

[Large-Scale Pattern-Based Information Extraction from the World Wide Web](#)

12. November 2009

[Eröffnungsveranstaltung KIT-Schwerpunkt COMMPutation](#)

[mehr...](#)



[Fakultät für Wirtschaftswissenschaften](#)

Shortcuts

[Abschlussarbeiten](#)
[Kontakt](#)
[Verein AIK](#)
[Intern](#)

▸ Home

▸ Lehre und Prüfung

▾ **Personen**

Professoren
 Organisation
 Wissenschaftl. Mitarbeiter
 Honorarprofessoren
 Lehrbeauftragte
 Gäste und Externe
 Technik
 Auszubildende
 Hilfskräfte
 Ehemalige

▸ Forschungsgruppen

▸ Veröffentlichungen

Veranstaltungen

▸ Projekte

▸ Kooperationen

Stellenmarkt

Kontakt

Personen

Professoren



Andreas Oberweis

Email: [oberweis\(at\)aifb.uni-karlsruhe.de](mailto:oberweis(at)aifb.uni-karlsruhe.de)

Tel.: +49 721 608 4516

Raum: [1A-19](#)



Hartmut Schmeck

Email: [hartmut.schmeck\(at\)kit.edu](mailto:hartmut.schmeck(at)kit.edu)

Tel.: +49 721 608 4242

Raum: [2C-16](#)



Detlef Seese

Email: [detlef.seese\(at\)kit.edu](mailto:detlef.seese(at)kit.edu)

Tel.: +49 721 608 6037

Raum: [2C-01](#)



Wolffried Stucky

Email: [stucky\(at\)aifb.uni-karlsruhe.de](mailto:stucky(at)aifb.uni-karlsruhe.de)

Tel.: +49 721 608 3812

Raum: [2A-01](#)



Rudi Studer

Email: [studer\(at\)aifb.uni-karlsruhe.de](mailto:studer(at)aifb.uni-karlsruhe.de)

Tel.: +49 721 608 3923

Raum: [216](#)



Stefan Tai

Email: [tai\(at\)aifb.uni-karlsruhe.de](mailto:tai(at)aifb.uni-karlsruhe.de)

Example: Hackerspaces



- <http://www.hackerspaces.org/>
- Topic: Hackerspaces, events, projects

The screenshot shows the Hackerspaces website interface. At the top, there's a navigation bar with tabs for 'Page', 'Discussion', 'View source', and 'History'. A 'Log in / create account' link is visible in the top right. The main content area is titled 'Hackerspaces' and includes a paragraph describing the community, a 'Regular Events' section with a list of events like 'Call-in', 'Synchronous Hackathon', and 'Global Hackerspace Hackathon Challenges', and a 'Resources' section with links to a blog, feed aggregators, and various guides. On the left, a sidebar contains links for communication, active hackerspaces, and recent changes. Two images are displayed on the right: one of a hackerspace interior with a person and another of a group of people working at computers in a hackerspace.



Hackerspaces

Communication

Active hackerspaces

ALL hackerspaces

> add a hackerspace

List of events

> add an event

List of projects

> add a project

Recent changes

Go

Search

What links here

Related changes

Special pages

Printable version

Permanent link

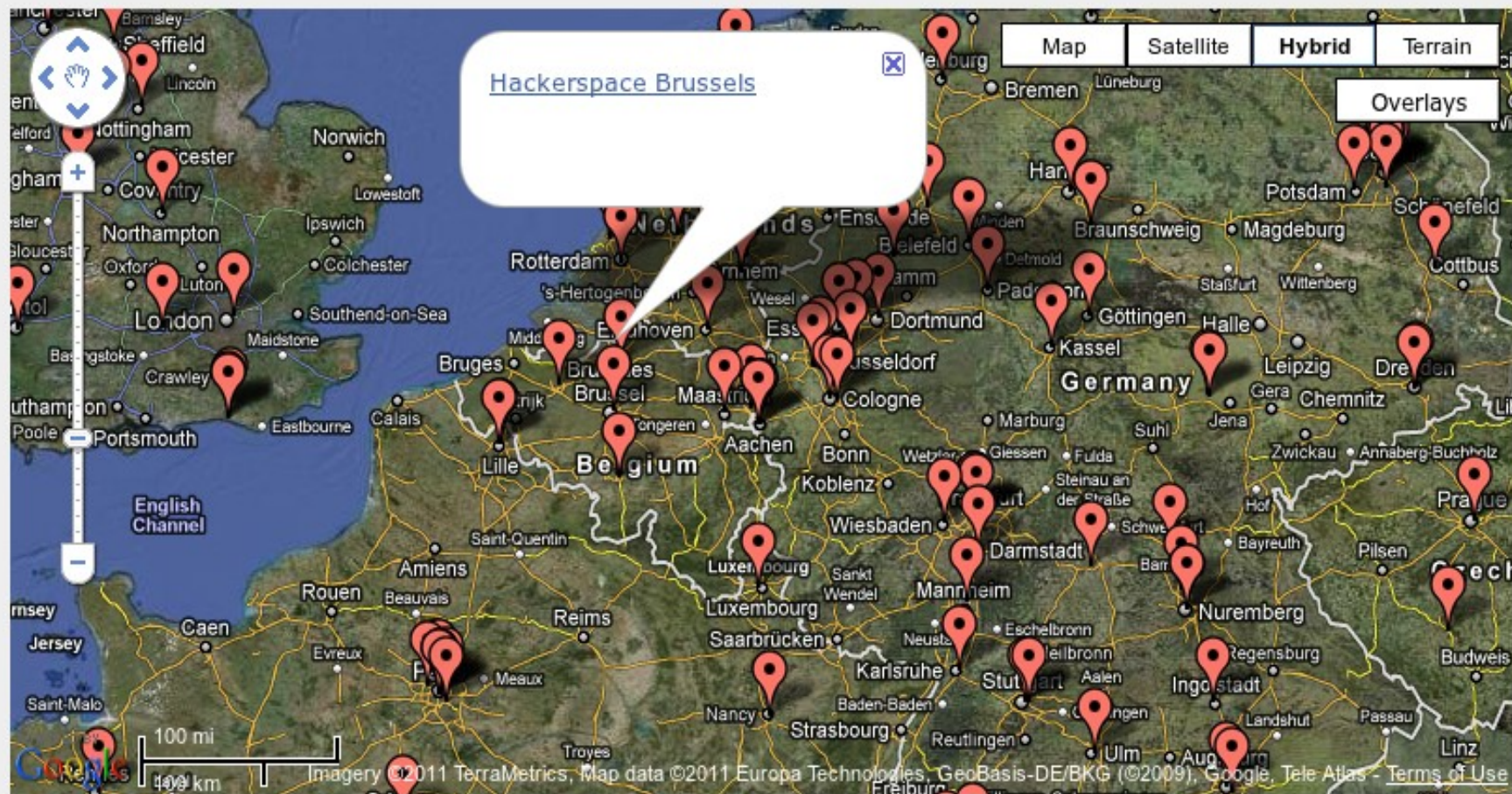
Browse properties

List of Hacker Spaces

This is a comprehensive, user-maintained list of all active hackerspaces throughout the world.

We have also a [list of planned Hacker Spaces](#), as well as a [list of ALL hackerspaces](#) around the globe - including those still in t

This page is cached due to its long rendering time. If you want to flush the cache, [Click Here](#)



Example: OpenEI



- <http://en.openei.org/>
- Topic: Energy information, open data

OpenEI | OPENENERGYINFO Login | Sign Up

Wiki Datasets Linked Data

Browse Page Actions View Get Involved Help

Page Discussion Edit History

Clean Energy Economy
CLEAN
coordinated low emissions assistance network
Incentives and Policies
International Clean Energy Analysis
Latinoamérica
LEDS
low emission development strategies
Renewable Energy News
U.S. OpenLabs
Browse by Region

Energy Information, Data, and other Resources

buildings geothermal smart grid solar utilities wind oil and gas

Latest News

- 5 December 2011 2011 Venture Capital funding in solar to...
- 8 November 2011 Solar Tools Navigator App on OpenEI...
- 1 November 2011 The New Data.gov...
- 26 October 2011 MOU between REEEP and NREL...

Recent Contributors

new this week:

- Redtuser (1)
- Cattttt (1)
- TriPowerSystems (1)

most active:

- 27 authors modified 246 articles
- STobin (225)
- Lhk0625 (33)
- Twong (32)

Recent Updates

...see recent updates (+)

Follow OpenEI on:

Facebook Twitter YouTube Blogger

Twitter:
[@OpenEnergyInfo](https://twitter.com/OpenEnergyInfo)

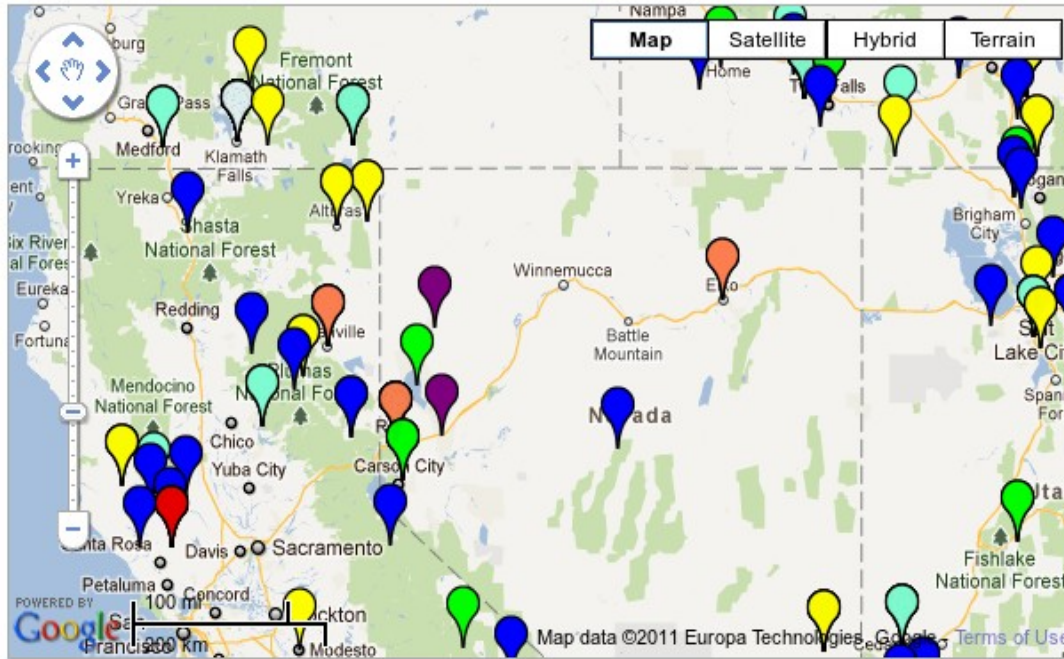
About

Open Energy Information (OpenEI) is a knowledge sharing online community dedicated to connecting people with the latest information and data on energy resources from around the world. By providing access to energy-

Feedback

We welcome your feedback on Open Energy Information and encourage you to provide additional content and ideas. Contact Us

Low Temperature Direct Use Geothermal Facilities

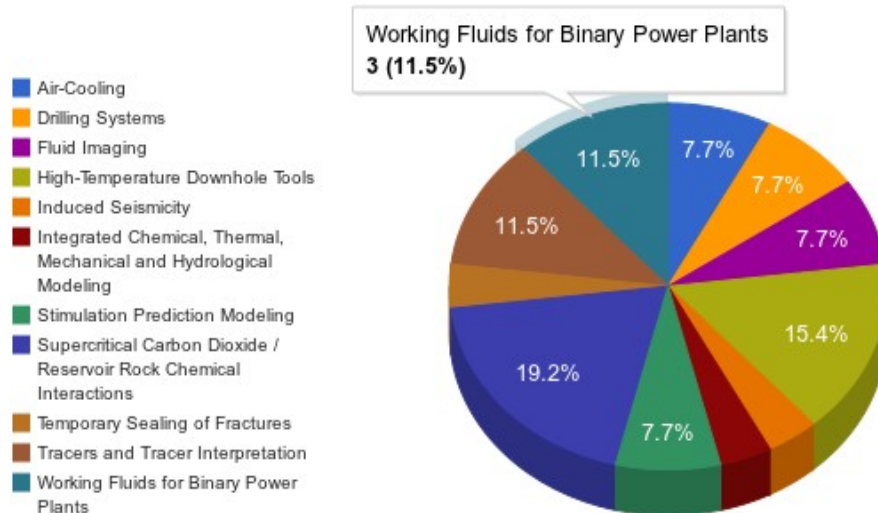


1. 4 UR Guest Ranch Pool & Spa Low Temperature Geothermal Facility
2. Ace Development Aquaculture Low Temperature Geothermal Facility
3. Agua Calientes Trailer Park Space Heating Low Temperature Geothermal Facility
4. Alive Polarity's Murrietta Hot Spring Pool & Spa Low Temperature Geothermal Facility
5. Americulture Aquaculture Low Temperature Geothermal Facility
6. Aa Drivers Agricultural Drving

CSV [↗](#)



Lab Call Projects by Technologies



Further Examples



- Free Software Directory
- OhInternet: memes
- SNPeDia: Human genome

SMW can be used to great effect on essentially any site with “infoboxes”

Part II: How SMW Works

Editing Data



Typical (but not the only) wiki syntax:
[[property::value]]

Wiki page	Wikitext
Brussels	[[Has population::1,089,538]]
FOSDEM 2012	[[Starts at::February 4 2012]]
Jeroen	[[Lives in::Gent]]

Properties



Properties in the wiki ...

- ... can be introduced as needed
- ... have their own wiki pages
- ... may be given a datatype

Examples: Capital of, Population,
Start date, Name, Homepage, ...

Datatypes



Datatypes in the wiki ...

- ... affect how data values are displayed
- ... influence searching and browsing
- ... are usually not user-defined

Examples: Number, Text, Page,
Date, URL, ...

Inline Queries



Basic idea:

Allow dynamic views on wiki data to be embedded into pages.

Inline Queries



Aspects of an inline query:

- 1) Which pages constitute the result?
- 2) Values for which properties are displayed per result?
- 3) How should all this be formatted?

Inline Queries



Example:

- 1) Show all countries in Africa
- 2) each with their population and area
- 3) within a table.

Inline Queries



User input:

- 1) SMW query language
- 2) Additional printout statements
- 3) Formatting parameters

Inline Queries






Example:

```
{ {#ask:  
  [[Category:Country]]  
    [[located in::Africa]]  
  | ?Population  
  | ?Area  
  | format=table  
}}
```

Inline Queries



List of African countries

	 Population	 Area
Algeria	32,854,000	2,381,740,000,000 m ²
Angola	15,941,000	1,246,700,000,000 m ²
Benin	8,439,000	112,620,000,000 m ²
Botswana	1,765,000	600,370,000,000 m ²
Burkina Faso	13,228,000	274,200,000,000 m ²
Burundi	7,548,000	27,830,000,000 m ²
Cameroon	16,322,000	475,440,000,000 m ²
Cape Verde	507,000	4,033,000,000 m ²
Central African Republic	4,038,000	622,984,000,000 m ²
Chad	9,719,000	1,284,000,000,000 m ²

Part III: The community

Beyond SMW Core



Active user community

- Some hundreds of sites known using it
- World-wide usage (20-50 languages)
- Public mailing lists, forum, bugtracker

Active developer community

- Various independent extensions
- Teams at several companies
- Integrated into MediaWiki community

SMWCon

The twice-yearly gathering of users, developers and enthusiasts

April 25-27 2012,
Carisbad, California



Fall 2012,
Somewhere in the EU

<http://semantic-mediawiki.org/wiki/SMWCon>



SMW: <http://semantic-mediawiki.org>

@SemanticMW

Copyright Markus Krötzsch & Jeroen De Dauw

Terms of Licensing

Creative Commons Attribution

<http://creativecommons.org/licenses/by/3.0/de/deed.en>

**All redistributions and reuses of this work
must include the following:**

**“Based on slides by Markus Krötzsch, <http://korrekt.org>
and Jeroen De Dauw, <http://jeroendedauw.com>”**

Image copyrights

Icons by <http://everaldo.com>, released under the terms of GPL