Wiki

Web Collaboration

Anja Ebersbach · Markus Glaser · Richard Heigl

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Foreword by Gunter Dueck

With 81 Figures, 47 Tables and CD-ROM

Springer

Anja Ebersbach
Ostengasse 10
93047 Regensburg
Germany
ebersbach@wiki-tools.de

Markus Glaser
Brunhuberstr. 14
93053 Regensburg
Germany
glaser@wiki-tools.de

Richard Heigl
Ostengasse 10
93047 Regensburg
Germany
heigl@wiki-tools.de

Translated from the German „WikiTools“ (© Springer-Verlag 2005, ISBN 3-540-22939-6) by Andrea Adelung.

Library of Congress Control Number: 2005930459

ISBN-10 3-540-25995-3 Springer Berlin Heidelberg New York
ISBN-13 978-3-540-25995-4 Springer Berlin Heidelberg New York

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springeronline.com

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Printed in Germany

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Cover design: KünkelLopka, Heidelberg
Typesetting: Camera ready by the authors
Production: LE-TeX Jelonek, Schmidt & Vöckler GbR, Leipzig
Printed on acid-free paper 33/3142/YL - 5 4 3 2 1 0

Foreword

A book about wikis!
That's what people need.
Because with wiki technology, lots of people can freely work together – they can even generate very large works in the intellectual realm. See for yourself:

Today, we still marvel at our massive church buildings, each constructed over a period of centuries, requiring an immense amount of labor and often bearing the cultural stamp of all of the epochs during which it was created. Someone just has to begin by placing stone upon stone and motivate the people nearby to help out a bit. In places where such enthusiastic fellow men and women lend a hand and donate materials, great things can emerge. And where they are absent? Either scant ruins remain, or the iron will of a pharaoh is required, an army of drivers, the sweat of a people and a mountain of gold. Great things can also be created in that way – take the Pyramids: a clear concept, no blending of styles, pure will.

Those are two very different paths. The one entails passionate people devotedly building something together for the common good; the other: a single will manages a variety of resources to achieve a set goal.

Wikis are tools with which lots of people with a minimum of organization, planning, money and time can create something together and communicate with each other from several scattered computers or over the Internet. Wikis are the technology for that first path of volunteers with a common idea.

This book introduces wikis and provides you with enough tools to create your own wiki; your own work platform. Yet the book will also invite you to join the animated discussion on what one can do with wikis and where it is better not to "abuse" them. It is the intriguing question of those two stimuli: enthusiasm and will.

Allow me to explain with an anecdote. Some time ago, I received a letter from a reader regarding my books. Someone wrote that he had inserted my name in the Internet lexicon 'Wikipedia'. He wrote that he initially only added a bit of preliminary data on me and would continue to work on it. I was mighty proud that I was now to be listed in an encyclopedia, and checked on the Internet right away under "Gunter Dueck", but I didn't find anything. I found strange messages indicating that there had been an article related to my name, but that it had been deleted. The reader I mentioned was angry, and he tried posting his article again, but it again was deleted. Days later, another "person" wrote something reasonable. That remained on the Internet for a few days, but disappeared again, ostensibly due to violation of copyright laws. Now wide awake, I then attempted to find the email address of the person deleting everything. I wrote: "Hey, why?" The answer: "The image most likely violates copyright, and the text presumably as well. I am one of the authorized persons assigned to quality and legal issues." I argued: "The picture of me was taken by my daughter Anne in our garden; I give it to everyone. And the text is taken from the cover of one of my books. I grant my permission to use that." Three hours later, "my" entry was back online again. Now I get nervous wondering if the article has been defaced or deleted. Do you understand what I mean? Anybody can do with me what he wants! If that is the case – is everything true that is listed in Wikipedia? Can I treat the information as being just as authentic as what I find in a book? Will anyone award me damages if, through a false entry in Wikipedia, I lose a bet or my reputation as a scientist? Questions abound regarding a variety that grows on its own power! Of course, you could also see it positively. "Wiki lives!" It changes, develops, grows – however, it needs to be weeded, and its garden protected from thieves (lexical vandalism).

Wikipedia is one of the truly colossal wiki projects. Ten thousand contributors are at work on a single intellectual monument. A number of masters run around and find out when someone has cheated. Controllers verify whether the building code is being followed. Anyone can participate whenever and however he or she likes. No time pressures, hardly any regulations, and no pay for the volunteer work – only a profound sense of accomplishment. "One stone of that pyramid is from me!" – That might be something a Wikipedia contributor might exclaim.

Wikis are exceptionally suitable for all such projects of several volunteers. Would you like to connect the parents of students of the Bammental grammar school? All of the members of a sports association? All of the astronomers of the world? All Linux freaks in

your company? Do you want to create something in a community with others? To maintain a community? Then you need a wiki! But which one?

The best one! As of today – I just checked – the German Wikipedia homepage reads: "We have just converted the software to MediaWiki 1.4. Please report any problems here…" This book also presents the wiki technology with the aid of the open source software MediaWiki, which you can download from the Internet. So, if you would like to use MediaWiki for your project, then you are in good hands – several volunteers are working on follow-up versions of "your" software – of that you can be sure! However, if you really want more, or if you perhaps even want it *all*, so to speak, then you'll enjoy the detailed description of the high-end software TWiki. This program can do much, much more – it can do it all, anything currently technically possible – it offers a cornucopia of supplementary functions, from presentation to drawing to calculating. And as such, up in the technical heights, where anything is possible – you'll have a bit more difficulty in the installation process, I believe, and will have to be more accomplished in its operation. What is the best wiki? "The standard!" call some, "Extreme wiki!" shout others. And, as usual, both sides are right.

So it's got to be a wiki? Well, that's no problem with this book! However, the book will also seriously discuss what a wiki cannot currently accomplish and what it should not even attempt. A wiki should not be "abused" for the "second path" of accomplishing things. The second path would be "finally" turning a community endeavor of spontaneous enthusiasts into "a real project." We need a plan! We have to organize who is going to do what! We keep lists on how much each person has accomplished! We check progress and define goals! We do everything efficiently and do not waste money! Does it always have to be the newest software? Can't we save more money?

Imagine if a company were building Wikipedia. Then there would be the equivalent of the pharaoh's will. A plan of necessary words would be generated. The words would be prioritized according to importance, experts present, and to the difficulty in writing new entries. Managers would fervently search for new sources where something could be copied or used more than once. They would set the pay for entries and monitor the rapidity of the work. The once volunteers would make sure they got everything done quickly – without paying attention to details – just quickly, according to plan, and the respective remuneration.

That would be the path of the "project" and of efficiency. A pyramid is built according to plan and schedule. It is made to be completely uniform and flawless – nothing about it is spontaneous! Nothing is voluntary. Everything bends to the central will: the project goal.

However, MediaWiki only invites volunteers to work on it! The wiki technology does not assign jobs or assess performance. It does not dole out punishment for insufficient output or errors. It does not organize workflow. So, if you create a wiki for yourself, you should know what a wiki will and will not be able to do. It can take a great deal of spontaneity and create something beautiful, common, or great. Yet it cannot truly be used as a tool to efficiently assert someone's will.

The authors of this book offer a fresh introduction to the topic. They are not afraid to take part in the discussion of the pros and cons of wikis. They discuss the current dialogue using several charming details. The book's style is inviting – it is very factually written, but somehow charming nonetheless. While reading it, I imagined the authors as the most passionately motivated of all wiki enthusiasts.
They write: a book about wikis!
And they are confident: That's what people need.

Gunter Dueck

The Authors

Anja Ebersbach studied Information Science, History and English. She has filled various teaching positions in the last four years at a variety of universities and technical colleges, and is active as a freelance IT trainer. She is currently working on her doctorate at the University of Konstanz.

Markus Glaser studied Information Science, English and Psychology and is employed as a freelance programmer and IT instructor. He is currently working as a scientific assistant at the library of the University of Regensburg and has just begun working on his doctorate at the University of Konstanz on Web-Based Collaborative Processes.

Richard Heigl studied History and German Philology. He completed his doctorate in Contemporary History at the University of Augsburg. He is a freelance instructor for communication training and software applications, and works as a consultant on organizational development with an emphasis on self-organization and cooperative learning.

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Preface

Why a book about wikis? About a year ago, Anja came back all excited from a conference on technology and social movements in Munich. There, she had taken part in a workshop on working and organizing with wikis. In the meantime, her excitement is also shared by lots of others. The popularity and renown of this small bit of software can primarily be attributed to the Internet encyclopedia Wikipedia. Yet a number of organizations have also discovered wikis as a simple and versatile tool for their work. For instance, the hackers of Berlin's Chaos Computer Club used it to organize their conference. We were drawn to wikis chiefly due to the opportunity to utilize wikis as organizational software for small groups. We wanted to find out more.

Yet even the attempt to install a wiki was a puzzle. Information and documentation on the Net were few and far between. There was no manual. The only book on the subject, by Wiki creator Ward Cunningham, was very informative, but not sufficient for our purposes. We sensed that wikis could be used for much more than developing texts in a cooperative manner. However, the wiki world is a jungle rampant with political discussions and racing technological development. What was missing was a survival kit, a practical introduction that recommended paths through the jungle. You are now holding an initial cartography of that jungle. Have a look around the wilderness, and become familiar with its inhabitants. Design your environment by setting up your own camp and blazing new trails.

Who Needs this Book?

While writing this book, we envisioned readers who already have some computer experience and are considering whether to work with a wiki or even install one of their own. Undoubtedly, veteran wiki users will also consult this book, and we are sure that especially the second part of this book will be of interest to them.

The Content Concept

Among the multitude of wikis, we have selected two to present to you: the widespread and relatively simple MediaWiki, and TWiki, as a piece of ambitioned wiki software.

- **MediaWiki** is fairly easy to install, and user-friendly in its operation. However, it also offers a series of features, such as a user administration, and it can be employed as a simple but good communication and organizational tool for groups of the most varied of sizes. In short: It is the ideal introduction to wikis.

- **TWiki** is very challenging to install and, especially for technical applications, assumes a good deal of skill and knowledge. Using TWiki also takes some getting used to. Yet for complex projects, it is worth the effort, because it offers a great deal of design options.

The caveman on the cover of the German edition inspired us in putting together our practical examples. Among other projects, he and his clan use a wiki to organize a conference in the Neolithic Age. Admittedly, the combination of 21st-century technology and stone-aged humans is not always consistent, but we hope it is demonstrative and a bit amusing.

In the forefront of the wiki discussion are the social methods of communication that crop up as a result. To this extent, the book also attempts to be something more than a pure software manual. Some will be irritated by the political fifth section. The wiki communities, as the free software culture before them, have provoked extensive socio-political discussions that are conducted at conventions such as the *Wizards of OS* or the *Chaos Communication Congress*. So pour yourself a glass of wine, get comfortable, and enter into a debate of issues discussed there. Don't be shy to spin it out further. We look forward to your reactions, contributions and feedback, and wish to offer a platform for these debates.

At our Internet site, www.wiki-tools.org, you have the opportunity to submit amendments, questions, criticism and suggestions – including with regard to the technical side of wikis.

How to Use this Book

The book is conceived to be read from front to back. However, it is more realistic to expect readers to jump to "their" chapters. That is why, next to the section headings, we have also included an indication of how deep into the wiki software a respective chapter delves. Authors need less previous technical knowledge than wiki and web administrators.

- Beginners should start with sections One and Two. **The Wiki Concept** provides a general introduction to wikis. It treats all questions that crop up with one's first confrontation with wikis. What are wikis? How do they function technically? How do you explain the fascinating phenomenon that open systems do not end in chaos?

- In **Our First Wiki**, we introduce MediaWiki, the most well-known wiki clone. Here, we will introduce you to practical work with wikis and invite you to experiment. We'll show you how to install MediaWiki so you can get an idea of how it functions. For instance, you will see how formats or tables are generated, and lots more.

- Don't be discouraged by **TWiki, the Jack-of-all-trades**. Installing TWiki requires a good deal of experience, and is more aimed at future and current web administrators. Yet this section also contains an introduction to using TWiki, which is also of general interest.

- In **TWiki as a Project Kit**, we introduce TWiki as a tool for the management of self-organized projects. Here, we'll show you further useful plugins and add-ons, such as the practical EditTable plugin or a diagram tool. It is difficult to estimate the degree of preliminary knowledge required on a general basis. The installation of the plugin takes some getting used to. However, the function of already installed plugins is easier. On the whole, we wish to demonstrate that you can do a great deal more with wikis than "just" writing encyclopedias. They basically support also any other type of project.

- **Tools with a Future** intends to expand horizons. On the one hand, it deals with current technical developments and important wiki projects. On the other, we provide a short summary of the social debates taking place within the wiki community.

- A **Glossary** and an **Index** will help you find your way through the book.
- A **CD-ROM** is included in the book where you will find the software discussed.

Our book is for male and female readers. However, for reasons of brevity, the pronouns used will not always expressly address both – but in our examples, both men and women work with wikis.

We Wish to Thank...

…first and foremost Christine Bühler, who, for years, has consistently been on the scene during critical phases of seminars, master's theses, articles and book projects of the most varied kinds. Radovan Kubani, our hopeful artist, who illustrated our book for us and has even more great ideas at www.rakuba.de. Gunter Dueck, not only for the foreword, but also for the corresponding stimulating discussion. Andrea Adelung from team interculturale for translating our book into excellent English. Our discussions in December 2004 with Jimmy Wales, the founder of Wikipedia, also provided us with valuable ideas and motivation.

For countless critical notes and concrete suggestions for improvement, we thank our volunteer editorial team: Andreas Schmal, who also supplied us with calories and Bytes. Andreas Legner helped out with corrections and constructive criticism, as did Thomas "Schnaks" Schnakenberg, who weathered out the final phase with us. Carsten Diederichs braved the installation instructions, among other tasks. Richard Hölzl supported us from Göttingen with long-distance diagnoses and the final chapter. Our thanks also to Benjamin Heitmann for his comments, and Dirk Brömmel, who stood by us with technical advice.

Regensburg, June 27, 2005

Anja Ebersbach
Markus Glaser
Richard Heigl

Typography

Various fonts are used in this book.

italics	Wiki pages and web titles and paths
bold	Buttons (and links functioning as such)
`Courier`	Entries and source code
[italics] `Courier`	This text is variable and must be customized by you.
Menu1 → Menu2	Steps through a menu tree
<key>	The corresponding key on the keyboard

Source code and entries are generally printed exactly as typed. However, please note the following symbols:

↵	The line is too long and for space reasons must be broken. The actual entry cannot have a break here.
·	A space. Is indicated where the number of spaces is of significance.

So that you won't get confused as to what type of source code is meant, you will find the corresponding symbol in the margin:

Wiki	Code of a wiki page
HTML	Source code in HTML
PHP	Source code in PHP
Perl	Source code in Perl
JS	Source code in JavaScript
CSS	Source code in CSS
CFG	Content of a configuration file
Shell	Entry at the console level

	URL
	SQL query
	Regular expression

Unless otherwise indicated, directories are written in Unix notation. Under Windows, slashes / must be replaced by backslashes \. If the path begins with a slash, it is an absolute path. Windows users must insert the corresponding drive letter in front.

I. The Wiki Concept

1 The Wiki Concept

Readers
Authors
WikiAdmins
WebAdmins

1.1 What is a Wiki?

Imagine you are surfing the Internet, and you stop at a site where you could and would like to add or modify something. For instance, you have a literary reference or link to add. Or you've noticed a typing error. Perhaps you even have a lengthy article that you'd like to display on a separate page. So, you just click on the "edit" button, change everything you wish, add a couple of ideas, confirm it, and the new page is online immediately! In a history, a listing of the saved, older versions of the page, you can view previous changes to the page as well as reverse your entries. If it all was a simple and transparent experience, you were dealing with a wiki. Wiki technology enables virtually anyone to completely edit pages without difficulty. Yet that's not all – anyone can contribute significantly to the structure of the site, simply by creating new links and adding new pages. This openness is the innovative and amazing aspect of wikis. The title of a book puts it in a nutshell: *The Wiki Way. Quick Collaboration on the Web*.

Tools

Wikis are downright fascinating tools. It has never been so easy to become a "correspondent" on the Internet, because the technical hurdles have been reduced to a minimum. People who hear about or use wikis for the first time often experience a bit of culture shock. "Anybody can come along and change my text!" is a popular reaction. The opportunities and consequences of free cooperation in the context of the typical work organization of our society inevitably lead to irritation, because we assume that a contribution from "others" will destroy our own work. We are simply not used to handing over control and responsibility – and to strangers at that. The Swedish data systems specialist Lars Aronsson writes:

"Most people, when they first learn about the wiki concept, assume that a website that can be edited by anybody would soon be rendered useless by destructive input. It sounds like offering free spray cans next to a grey concrete wall. The only likely outcome would be ugly graffiti and simple tagging, and any artistic efforts would not be long lived. Still, it seems to work very well."[1]

Excursion

You can't quite imagine it yet? Then let's take a short excursion, and try out whether or not it is really as easy and free as it sounds. Get on the Internet and go to the site http://www.wiki-tools.org. Click on "Php Wiki" in the left column. Now you are already on a wiki page. Click on *Sandbox*. In this sandbox, you are free to experiment at will. Click on **Edit**. Now, write over the existing text in the middle by typing your name or whatever else comes to mind. Then click on **Save** below the text field. Congratulations! You have just made your first entry in a wiki.

Definition

A wiki is web-based software that allows all viewers of a page to change the content by editing the page online in a browser. This makes the wiki a simple and easy-to-use platform for cooperative work on texts and hypertexts.

Note: Many wikis also correspond to the legal definition of open, free software. Most are subject to the GNU General Public License (GPL), which, among other things, prohibits a program to be converted into "proprietary" software. In this way, copyright laws prevent a program from being claimed as private property by a legal person for commercial purposes. Furthermore, the free use, distribution and editing of the program is ensured.

Origin

The first wiki, with the name WikiWikiWeb, was developed in 1995 by Ward Cunningham.[2] The software engineer from Portland, Oregon is considered to be a pioneer in the development of new methods, such as object-oriented programming, design patterns or extreme programming. Because he was dissatisfied with conventional word processing programs, Cunningham searched for a new documentation system that would better suit the needs of programmers. His goal was a relatively simple software that would enable collective work on software codes that could be published immediately. The new program would automatically document all editing steps to

[1] Aronsson 2002.
[2] Leuf/Cunningham 2004.

make changes easier to trace (document history). Ultimately, the first wiki server went online and has been in operation ever since.[3]

Connotation

"Wikiwiki" is a Hawaiian word that means "quick" or "hurry." The name stands for the programming characteristic of wiki software in which content can be made available in a quick and uncomplicated manner. As demonstrated below, there are a number of further developments of Cunningham's first Wiki, which we will discuss subsequently.

Note: When we refer to "wikis" below, we generally mean the concept, and less so any special implementation.

Functions

The use of wikis is dependent upon the goals of the community, the organization or the company that utilizes it. Although they were first intended for software development, they are now used in a variety of areas. Due to the further development of the wiki concept via various wiki clones,[4] wikis can integrate an increasing amount of functions.

Generally, we differentiate between two application options with wikis: They can be used as tools in a closed work group, or they can be directed at potentially everybody over the WWW. Wikis serve as knowledge management tools in planning and documentation. They can also be utilized as an open, web-based content management system (CMS) for the editing and management of a web presence or to supplement an existing CMS. You can use wikis as your internationally accessible notepad or as discussion forums for general and specialized discussions.

Areas of Application

In the meanwhile, the most varied of institutions have discovered the advantages of wikis. Groups within the so-called civil society, such as the Austria Social Forum or the Chaos Computer Club, use wikis as an organizational aid. Wikis are employed in the classrooms of Swiss schools. Yet even companies such as SAP, Web.de, Motorola or British Telecommunications employ a wiki clone as a decentralized intranet, since, in contrast to conventional groupware, it is considerably more user-friendly.

[3] http://c2.com/cgi/wiki

[4] For more on wiki clones, see Chapter 1.3.

Fig. 1.1

Growing significance

Wikis are becoming increasingly popular. Primarily due to the success of the free online encyclopedia Wikipedia (launched in 2001), wikis have become known to a wide audience.[5] At Wikipedia, the wiki concept is utilized to integrate and display encyclopedic knowledge "from the bottom up". In the German-language edition alone, over 160,000 articles were developed communally by the end of 2004. To date, however, the flagship of wiki technology remains the English language edition, for which, during the period from 2001 to the end of 2004, about 450,000 articles were written. Worldwide, 1.3 million articles have been published in over 200 languages. According to Jimmy Wales, the founder of Wikipedia, the site, with 400 million hits per month up to the end of 2004, was more popular than the websites of IBM or Geocities. Wiktionary[6] is an example of a wiki-based dictionary; Wikitravel[7] is an international travel guide. A

[5] Schwall 2004. Wikipedia is a successor project of Nupedia, also based on wikis.
[6] http://www.wiktionary.org
[7] http://www.wikitravel.org

few software instructional guides and aids (e.g. Wikitosh[8]) are based on wikis. Furthermore, wikis also serve as a professional information medium (e.g. Jurawiki[9]). Others have discovered wikis as an alternative form to forums and mailing lists.[10]

Potential

Basically, wikis are very young digital tools in which there is still great potential. Several further applications, such as learning systems or local news services, are conceivable. Wiki application opportunities for the self-organization of private or public organizations and businesses must be further discussed and tested. In addition, much more development of wiki software will also take place.

Let us briefly summarize:

Non-linear hypertext structure

Firstly, the WikiWikiWeb server technology enables the creation of associative hypertexts with non-linear navigation structures: Typically, each page contains a series of cross-links to other pages. The reader decides which page he or she will view next. In cases where larger wikis employ hierarchical navigation structures, these structures still play a secondary role.

Easy and extensive access

Secondly, using wikis, the technical hurdles and prior knowledge required for communication in and design of the mass medium of the WWW are reduced to a minimum. It is characteristic of wiki technology to allow externally generated texts to be edited "on the fly." The entry and formatting of a text is usually done using a few simple rules. For instance, sequential lines are formatted into lists by placing a star or dash in front of them. Also, pages within a wiki can be linked very easily by writing a sequence of words together without a space and with each word capitalized (called WikiWord or CamelCase, e.g. HomePage) or by placing a text in brackets.

No client software

Thirdly, regular users (clients) require no additional software, but rather can navigate, read, or alter content within wikis using conventional browsers.[11] Similarly, no applets or plugins must be loaded by users. Regular users also do not require extensive training courses. Cunningham was right when he described the wiki as "the simplest online database that could possibly work."

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[8] http://wikitosh.com

[9] http://www.jurawiki.de

[10] see e. g. *WikiUserTypes*, www.twiki.org/cgi-bin/view/Codev/WikiUserTypes, 4/20/ 04

[11] This means that, in contrast to comparable systems, wiki technology does not differentiate between "back end" and "front end."

Social processes in the foreground

Fourthly, the simplicity of the software is the condition under which a number of communities and projects have been able to develop.[12] Not only is the technology of wikis interesting, but also the "wiki philosophy" and the debates on social perspectives linked to its use. For Internet projects based on the wiki concept, the discussion of purely "technical" problems can generally take a back seat to work processes, content-related issues and the social connections of the project. One could say that the wiki concept undoubtedly marks a new level in Internet technology and its usage.

Simple usage and technical hurdles

If wikis are tools that are so easy to use, why would one need a 400-page book? Let us point out a differentiation here. As a normal wiki user, you require hardly any previous knowledge. If you would like to install and maintain a wiki as an administrator, problems may arise for which more detailed explanations are needed. Between these two poles, plugins, for instance, offer a series of new possibilities that we would like to present. In addition: As easy as wikis generally are to use, the self-organizational processes that make wikis so fascinating can be very tricky.

The fundamental principle of the wiki technology, however, is still simple. Let us have a closer look at the technical side of wikis.

1.2 The Technology of Wikis

Readers

Wiki-Software is installed as a script on a server. The server produces small documents, so-called wiki pages or articles, that can be accessed via a browser. The content of the wiki page itself is written as simple text and then stored in a file or database. When a wiki-based Internet page is accessed, the browser first sends a query to the server that administers the data sets containing the wiki software. This data, which is in the form of simple text, must now be formatted for display in the browser.

To do this, the wiki script translates the file text (wiki code) or data set into HTML and embeds it in the web page (template) to be sent back to the browser. For example, the wiki script can be a PHP script that reads the raw page data from a MySQL database. This raw data is checked line for line, and the specific format commands

[12] The relationship between project and community varies. For example, at Wikipedia, a community has developed around a free encyclopedia project. On the other hand, the MeatballWiki is only a community without a central project.

contained in it are replaced by the corresponding HTML codes.[13] Subsequently, the page thus created is integrated in the layout template. Every wiki page has its own, distinct name indicating the subject of the page. In addition, there is usually a navigation menu and a few page-specific links of the displayed page. The most important of these links is the "Edit" link.

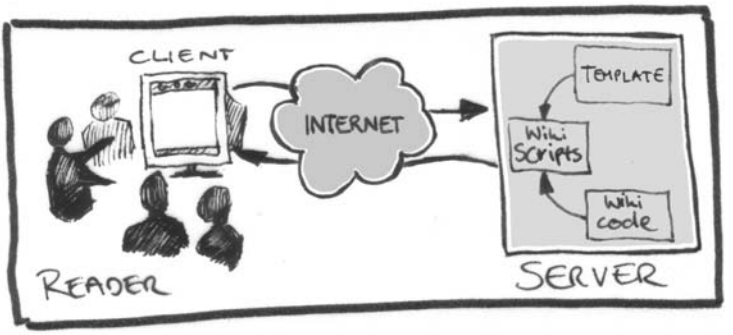


Fig. 1.2

Authors

If this page is then to be edited, the **Edit** button is used. This sends another query to the server. The same page is loaded again, only this time the contents are not converted to HTML format, but rather displayed in "raw form" in a large text field in an HTML form. The user can edit the text in this form and send a new version, which immediately replaces the old version in the database. When the page is accessed again, the new version is displayed.

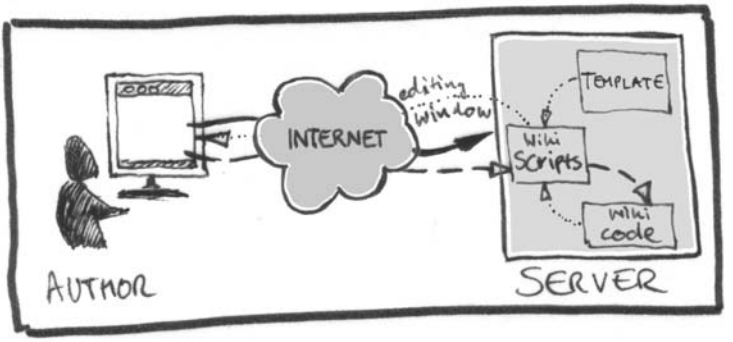


Fig. 1.3

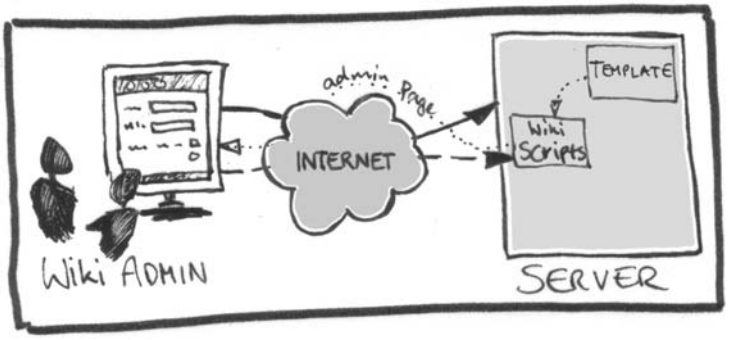
[13] In this step, all URLs are then clickable, and in place of all URLs that end in gif, .jpg or .png, in other words those displaying images, the corresponding image tags are set (the images themselves are subsequently loaded by the browser).

Visitors do not need to know any programming language or HTML in order to use wikis. Wiki pages are written in simple ASCII format, just like emails. There is a series of conventions that you should become familiar with sooner or later, but they are generally easier to learn and more "intuitive" than HTML. For instance, a blank line separates paragraphs. When this page is saved, the system translates the blank line to HTML, that is, it adds a <p> at the respective spot. The wiki link syntax, which we describe in more detail below, is also important.

Wiki Admins

The primary task of wiki administrators is to maintain wiki content and ensure the smooth operation of working in a wiki. They have more extensive rights than regular participants; for example, they can delete pages or block individual user access. To do this, wiki admins usually have their own interface or special pages in the wiki to which only admins have access.

Fig. 1.4



Web admins

Yet even a wiki cannot exist without some technology. On this level, the web admin is in charge of software installations, maintenance and updates. In contrast to the other groups mentioned, web admins have direct access to files without needing to detour through the wiki interface.

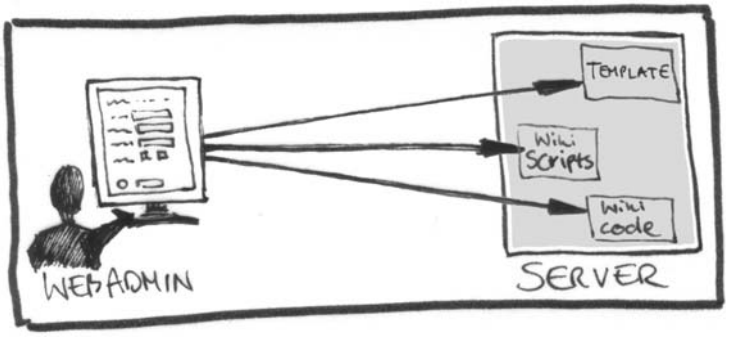



Fig. 1.5