

# Wikis as Tools for Collaboration

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## INTRODUCTION

Tim Berners-Lee, the inventor of the World Wide Web, envisioned it as a place where “people can communicate ... by sharing their knowledge in a pool ... putting their ideas in, as well as taking them out” (Berners-Lee, 1999). For much of its first decade, the Web was, however, primarily a place where the majority of people took ideas out rather than putting them in. This has changed. Many “social software” services now exist on the Web to facilitate social interaction, collaboration and information exchange. This article introduces wikis, jointly edited Web sites and Intranet resources that are accessed through web browsers. After a brief overview of wiki history, we explain wiki technology and philosophy, provide an overview of how wikis are being used for collaboration, and consider some of the issues associated with management of wikis before considering the future of wikis.

In 1995, an American computer programmer, Ward Cunningham, developed some software to help colleagues quickly and easily share computer programming patterns across the Web. He called the software WikiWikiWeb, after the “Wiki Wiki” shuttle bus service at Honolulu International Airport (Cunningham, 2003). As interest in wikis increased, other programmers developed wiki software, most of it (like WikiWikiWeb) open source. Although wiki software was relatively simple by industry standards, some technical knowledge was required to install, maintain and extend the “wiki engines.” Contributors needed to learn and use a markup language to edit pages, and even if the markup languages were often simpler than HTML, non-technical users did not find these early wikis compelling.

In the early years of the twenty-first century, a number of developments led to more widespread use of wikis. Wiki technology became simpler to install and use, open source software was improved, and commercial enterprise-grade wiki software was released. The not insignificant issues associated with attracting and

managing a community of people who use a wiki to share their knowledge were discussed in forums such as *MeatballWiki* (<http://www.usemod.com/cgi-bin/mb.pl?action=browse&id=MeatballWiki&oldid=FrontPage>). The public’s attention was drawn to wikis following the launch, in January 2001, of the publicly written Web-based encyclopedia, *Wikipedia* ([www.wikipedia.org](http://www.wikipedia.org)). And wiki hosting services and application service providers (ASPs) were established to enable individuals and organizations to develop wikis without the need to install and maintain wiki software themselves.

By July 2006, nearly 3,000 wikis were indexed at the wiki indexing site [www.wikiindex.org](http://www.wikiindex.org), popular wiki hosting services such as *Wikia* ([www.wikia.org](http://www.wikia.org)) and *seedwiki* ([www.seedwiki.org](http://www.seedwiki.org)) hosted thousands of wikis between them, and *Wikipedia* had more than four and a half million pages in over 100 languages. Moreover, wikis were increasingly being used in less public ways, to support and enable collaboration in institutions ranging from businesses to the public service and not-for-profit organizations.

## THE NATURE OF WIKIS

Wiki software allows users to collaboratively edit pages for the Web or intranets. The pages created with wiki software are called “wiki pages” and sites that contain wiki pages are called wiki sites, or simply “wikis.”

Technically, wikis consist of four basic elements:

- Content
- A template which defines the layout of the wiki pages
- Wiki engine, the software that handles all the business logic of the wiki
- Wiki page, the page that is created by the wiki engine as it displays the content in a browser

Figure 1. How wikis work (Adapted from Klobas &amp; Marlia, 2006)

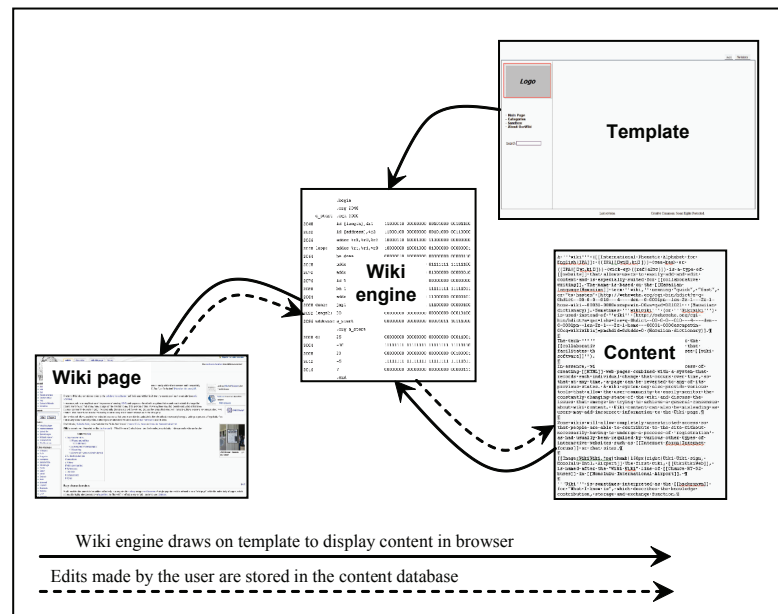


Figure 1 shows how these elements work together.

Wikis consist of pages accessible from a Web browser. They are edited by opening an editing screen in the browser and using either a simple markup language or, increasingly, a rich text editor to edit the text. Links to pages internal or external to the wiki site can be added using simple conventions. These conventions allow a link to be created to a page that does not yet exist; the wiki engine flags such links for future editing. Unless the wiki managers decide otherwise, the content is updated in real time, and once an author saves and closes their changes on the editing screen, the changes are immediately visible online.

Almost all wikis keep track of changes. Older versions of a page can be viewed and, if necessary, restored. Most wikis include a page where recent changes are listed. This feature helps members of the wiki community to keep up to date with changes in content, and can help newcomers get a quick feel for the current concerns of the wiki community. Increasingly, wiki software is integrated with news aggregators like RSS or e-mail notification to alert users to changes without their having to enter the wiki itself.

Another important feature of wikis is the simple permissions structure. Typically, there are three levels of permission: reader, editor, and administrator. Reading permissions may be open to anyone on the World

Wide Web or limited to specific, registered individuals. When reading permissions are limited, the wiki is known as a “private wiki.”

Various wikis offer support for non-Latin character sets, different media and file types, mathematical notation, style sheets, conflict handling, spam handling, and facilities for merging, exporting and backing up. The different features available in different wiki engines can be seen at the wiki engine comparison site, *WikiMatrix* ([www.wikimatrix.org](http://www.wikimatrix.org)).

Wiki features are based on design principles established by Ward Cunningham. These principles address human as well as technical goals, for example (in the terms used by Wagner, 2004), wikis are:

- **Open:** If any page is found to be incomplete or poorly organized, any reader can edit it as he/she sees fit
- **Organic:** The structure and content of the site evolve over time
- **Universal:** Any writer is automatically an editor and organizer
- **Observable:** Activity within the site can be watched and revised by any visitor to the site
- **Tolerant:** Interpretable (even if undesirable) behavior is preferred to error messages

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