

## Implementing Wikis in Knowledge and Information Centers: An Overview

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**Abstract:** Somewhere around 1994 a man named Ward Cunningham began development of a new program called WikiWikiWeb. Ward intended his program to be an unstructured database that could be easily added to, viewed, and updated. His idea was to make creating and sharing as easy as possible. Luckily for us, Ward believed in sharing his concepts and ideas. This paper explores how wikis can be implemented in knowledge and information centres to manage knowledge and why they should be used in this environment. The paper begins with a definition of wikis, followed by a description of how they work and a brief discussion of the different types of wikis and its advantages and disadvantages. Then, the paper covers knowledge management and the systems that support knowledge management, specifically collaborative and conversational technologies. Then how wikis can be used to support knowledge management in library & information services with some examples of wikis as both private and public knowledge repositories and as collaborative workspaces. The paper concludes with a brief discussion of a complementary technology that can enhance the effectiveness of wikis as a knowledge management tool.

**Keywords:** Wiki, knowledge management, information centres

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### INTRODUCTION

Named after the Hawaiian term for “quick,” wikis are interactive Web sites to which users can contribute. In a wiki, any user with a Web browser can add entirely new pages or add new content to existing pages, as well as change or delete existing information. Users can also edit the organization of the wiki, in addition to the content, and need not know HTML or have Web design skills since Web-based forms provide the simple editing interface. The software that runs a wiki is called a wiki engine and there are many free open source wiki engines available to run wikis (e.g., MediaWiki), as well as online wiki providers who will host a wiki for you, (e.g., Seedwiki). Although some wikis are intended for the public, like Wikipedia (<http://www.wikipedia.org>) [1] or Library Success: A Best Practices Wiki (<http://www.libsuccess.org>), this technology is now being adopted by organizations as a collaborative tool for managing knowledge among its employees. A wiki can be used in multiple ways as a conversational knowledge management system to support the goals of many organizations, including libraries.

### WHAT IS Wiki?

The first wiki was created by Ward Cunningham in 1994 when Cunningham wanted a quick way to publish information collaboratively on the Web. The original WikiWikiWeb site (<http://c2.com/cgi/wiki>) created by Cunningham still exists and is actively maintained by users. According to

Leuf, Cunningham called the wiki “the simplest online database that could possibly work” [3].

A wiki is a web site that is generally editable by anyone with a computer, a web browser, and an internet connection. Wikis use a quick and easy syntax to allow users to apply formatting to text and create links between pages [4]. This simple formatting syntax means that authors no longer need to learn the complexities of HTML to create content on the web. The main strength of a wiki is that it gives people the ability to work collaboratively on the same document. The only software you need is an Internet browser. Consequently, wikis are used for a variety of purposes. If you make a mistake, it's easy to revert back to an earlier version of the document.

### WHY USE A Wiki? [5]

A wiki is a repository that stores unstructured data; a website that people can use to store information, including files. It can be used effectively for a single user or for large teams of people. For a single user, a wiki can be used quite well as a scratch pad. In this way a wiki provides a wide variety of features that make it much more powerful than a pad of paper. Features ranging from search to subscription to content versioning make wikis more like scratch pads on steroids.

More commonly, wikis are used for small teams to collaborate on projects. The wiki serves as a shared repository for documents, ideas, comments,

notes, to-do lists, and any other content the project needs to maintain. The wiki provides a complete history of the content and can be easily expanded or shared with new project members. The wiki is accessed completely through a web browser so there is never a need for special software to participate.

Wikis can also be powerful as enterprise-wide tools. An enterprise wiki can store anything from a global phone book to employee profiles to information on HR benefits. A true enterprise-wide wiki will likely be segregated into multiple spaces with a few large global spaces. A space can be thought of as a logical partition for information. For example, an enterprise wiki might have a space for Marketing, HR, IT, Operations and Professionals Services. Space are meant to categorize information at a macro level and are not intended to limit collaboration (although some wiki products provide space-level security features).

### WIKIPLATFORMS [6]

The largest and most talked about Wiki on the Internet is Wikipedia is, for the most part, editable by anyone in the world with a computer and an internet connection and, as of Nov 2008, contained over 10,000,000 articles in more than 250 languages. Two and a half million pages in English! There are also more

than 250,000 articles in German, French, Polish, and Japanese; and more than 100,000 articles in Spanish, Italian, Dutch, Portugese, Russian, Swedish, and Chinese. While Wikipedia's mission is to create an encyclopedic resource of knowledge, wikis can be used for a variety of purposes and are quickly becoming the defacto technology for collaborative group work online. They can be great social tools for classrooms, teams, community groups, or can even be configured to provide easily updatable web sites for organizations. The following wikis display a range of different applications of wiki technology:

The wiki software that runs a wiki is frequently called a wiki engine. Wiki engines are usually installed on a server, so running a wiki engine requires more advanced computer skills than those of basic computer users [7]. Most wiki engines are open source and are written in a variety of programming languages. According to Clyde, "one of the advantages of using a wiki engine on one's own server is that the wiki software can be reconfigured or even recoded to meet local needs" (p. 54). Some popular wiki engines include MediaWiki (<http://www.mediawiki.org>) (see Figure 1), PmWiki (<http://www.pmwiki.org>), MoinMoinWiki (<http://moinmoin.wikiwikiweb.de>) and TWiki (<http://twiki.org>) [9].



Figure 1: Example of MediaWiki software in use at <http://instructionwiki.org>.

Tonkin includes two comparison charts of wiki software features. Another comparison table can be found in Wikipedia. The WikiMatrix Web site (<http://www.wikimatrix.org>) [9] also features an interactive wiki feature comparison chart. People interested in using a wiki, but who do not have the skills or desire to set up their own server, can choose from a variety of hosted wikis, or wiki farms. Wiki farms run a wiki engine on their own servers as a service. This option works well for people interested in testing out the wiki concept or for people who don't want to manage a wiki on their own server. Some wiki farms include Seedwiki (<http://www.seedwiki.com>), PBWiki

(<http://www.pbwiki.com>) (see Figure 2), XWiki (<http://www.xwiki.com>), JotSpot (<http://www.jot.com>), Deki Wiki from <http://sourceforge.net/projects/dediwiki> and Socialtext (<http://www.socialtext.com>). JotSpot is unique since it includes a variety of ready-to-use application templates that can be installed. Some examples include an event calendar, company directory, call log application, blog application, and polling application, among many others. Socialtext is a commercial product aimed at businesses and organizations. Some of these hosted wikis have free versions; all have various fee-based services from which to select [9].



Figure 2: Example of PBWiki at <http://angelakille.pbwiki.com>.

## ADVANTAGES & DISADVANTAGES OF Wiki [4]

### i).Advantages:

- anyone can edit
- easy to use and learn
- Wikis are instantaneous so there is no need to wait for a publisher to create a new edition or update information
- people located in different parts of the world can work on the same document
- the wiki software keeps track of every edit made and it's a simple process to revert back to a previous version of an article
- widens access to the power of web publishing to non-technical users
- the wiki has no predetermined structure - consequently it is a flexible tool which can be used for a wide range of applications
- there are a wide range of open source software wiki's to choose from so licensing costs shouldn't be a barrier to installing an institutional wiki

### ii).Disadvantages:

- Anyone can edit so this may be too open for some applications, for example confidential documentation. However it is possible to regulate user access.
- Open to SPAM and Vandalism if not managed properly. There are easy ways to restore a page however, and on WikiEducator you must be logged in to edit pages so this reduces vandalism by automated spam bots.
- Requires Internet connectivity to collaborate, but technologies to

produce print versions of articles are improving.

- The flexibility of a wiki's structure can mean that information becomes disorganized. As a wiki grows, the community plans and administers the structure collaboratively.
- The usual guidelines for healthy computer use apply.

## INSTALLING A Wiki

There are a number of options for setting up a wiki:

- Using a hosted wiki provider
- Installing a wiki on server
- Running the wiki as a virtual appliance

Using a hosted wiki provider makes the installation and maintenance of the software as painless as possible. However, in an Enterprise 2.0 environment, maintaining corporate knowledge outside the internal network may not be acceptable to many organizations. If your organization allows for hosted wikis, check out one of the many hosted wiki providers such as [www.wikis.com](http://www.wikis.com), [www.wikispaces.com](http://www.wikispaces.com), or [www.pbwiki.com](http://www.pbwiki.com).

Hosted offers do come with caveats. Can you get your data out in a reusable format? Or, if you can get it out, are you going to end up with a wad of unusable wikitext? What happens if the vendors goes under? This does happen. For instance, blogging pioneer Dave Winer closed down weblogs.com, his hosted blogging service, unexpectedly leaving thousands of bloggers without access to their content. Users not prepared for these events can end up in a very unfortunate position.

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**Installing a WiKi on a Server:** Installing wiki software on a server will require you to gather a few items.

- First, you'll need hardware to run the wiki.
- Second you'll need to locate and download the software and software dependencies required for installation.
- Third, you'll need the knowledge and capacity to configure and integrate the software pieces.
- Finally most wikis require a database to store the wiki content. (Some wikis are designed to store content in flat files, but more commonly the content is stored in a MySQL database).

### **WIKIS IN LIBRARY & INFORMATION CENTRES**

According to Gandhi, "Library Professionals have long recognized the need to capture, codify, record, and 'fix' the collective knowledge of their colleagues in some sort of explicit knowledge artifact [10]. This recognition stems from the fact that Library Professionals have an incredible amount of tacit knowledge regarding library & information centres, community, and online resources. Gandhi states that Library Professionals need knowledge management systems to capture their communal knowledge. Knowledge management systems are needed in library services because they can help to the users (a) systematically collect and organize explicit and tacit knowledge, (b) increase efficiency in locating answers to frequently answered questions, (c) improve decisions regarding sources to consult, (d) improve knowledge sharing, (e) acquire more in-depth knowledge of the library and its resources, (f) better understand the types of questions asked at the reference desk, (g) improve collection development, and (h) improve patron access to information (Gandhi, 2004). Overall, successful knowledge management in library services can help "establish internal benchmarks, identify and record best practices, and create an environment of continuous learning" [10].

Early attempts to capture the knowledge of Library Professionals included ready reference files and index cards, typically arranged alphabetically or by subject, that contained frequently asked questions in them. Eventually these early systems were computerized to add keyword access to their contents. These automated systems then migrated online, sometimes as static Web pages and other times as more interactive online databases. Again, the advantage to recording the answers to difficult or frequently asked questions is that reference librarians are recording their explicit knowledge about particular sources, as well as tacit knowledge that they have internalized, while creating knowledge artifacts that can be organized, managed, and reused [10]. Wikis can help reference

librarians fill this knowledge management need. In the next three sections, I have outlined some ways wikis can be used in library reference services as a tool to successfully manage knowledge.

### **WIKIS AS INTERNAL KNOWLEDGE REPOSITORIES**

As stated before, wikis function extremely well as collaborative knowledge repositories [11-14]. When used in the context of library reference services, knowledge repositories can take a variety of forms when wikis are used as a knowledge base used internally for reference librarians. Since wikis can be installed behind firewalls or password protected, they can be set up as an internal, private tool.

Wiki could be used as a ready reference database for frequently asked questions. The advantage to this type of wiki is the ability for anyone to easily add new content at any time or revise content on the fly. Since a wiki is a Web-based tool, it is also readily accessible. Another use for a wiki as a knowledge repository would be as a peer resource guide. For example, subject library professionals or Library Professionals with other specialties could contribute information and tips on library resources for other Library Professionals. An advantage of having this take place in a wiki is the ease with which librarians can keep the content current. In addition, Library Professionals may discover new tricks or tips they want to share about a resource and it would be very simple for them to add that information to an existing wiki page. In this way, Library Professionals could create new knowledge by building on existing knowledge in the wiki.

Another way to use a wiki as an internal knowledge base would be to organize it around a particular function. For example, many reference departments also provide library instruction, both in academic classrooms and in the library. All of the Library Professionals who teach library instruction classes could contribute to a library instruction wiki specifically tailored for their community of users. This type of wiki could include handouts and tutorials used, teaching techniques and tips, class specific information, and anything else librarians might find useful. An example of a library instruction wiki can be found at the Oregon Library Instruction Wiki (<http://instructionwiki.org>). This wiki is a resource for anyone, but a similar wiki organized around a specific function like this one could be used within an organization as an internal tool as well.

Wikis could also be used as collaborative knowledge repositories for the public in the library services environment [10, 13]. The Library Professionals at Butler University have created a wiki called "WikiRef" ([http://www.seedwiki.com/wiki/butler\\_wikiref](http://www.seedwiki.com/wiki/butler_wikiref)) that is intended to be a collaborative review of reference

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resources available through Butler University Libraries. Most libraries publish their subject guides as static Webpages. Providing that information in a wiki open to the public can add more functionality to that type of resource.

Finally, wikis can be used as collaborative workspaces to help manage knowledge for specific projects or teams in library reference services [11-15]. The wiki could be set up as a private wiki accessible only by a group of team members or it could be set up as publicly readable but editable only by members of the group. The MIT Engineering and Science Libraries B-Team have created a project-specific wiki (<http://www.seedwiki.com/wiki/b-team>). This team of Library Professionals created this project workspace to investigate the changing information needs of the MIT community and make recommendations about the libraries' role within this environment. Library Professionals could also use a wiki to work on a jointly authored document or to write policies as a group. Although other online tools exist that perform this collaborative writing function (e.g., Writely at <http://www.writely.com/> or Write board at <http://www.writeboard.com/>), [16-17] wikis can be used this way also. Overall, wikis work well as a collaborative workspace and are even more effective when used with distributed work teams.

## CONCLUSION

There are other ways wikis can be used in library & information services, but this paper focused on their use in managing knowledge. As a conversational technology, wikis encourage incremental knowledge creation and knowledge sharing, in addition to supporting a decentralized group of users. When wikis are coupled with complementary technologies, they become even more powerful as a knowledge management tool. For example, wikis use RSS to push the recent changes or additions to people who subscribe to a wiki's RSS feed. So, RSS feed readers or aggregators (e.g., Bloglines, Pluck, etc.) are useful tools when used in conjunction with wikis. They help people track changes to a wiki so they know when they want to add content, make additional changes, or comment on new content. All in all, wikis have tremendous value as knowledge management tools in many types of

organizations and environments, including library reference services.

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