

# Web 2.0 Wiki Technology: Enabling Technologies, Community Behaviors, and Successful Business Techniques and Models

by

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## **Abstract**

Many technologies fall under the umbrella of what is commonly known as “Web 2.0,” including the Wiki, a software product which allows multiple users to review and edit documents online. Like all Web 2.0 technologies, Wikis are characterized by collaboration; without an active community, they can rapidly become stale and of little use.

Businesses based on collaborative web sites must effectively manage a large circle of what are essentially non-employees with perhaps no or little interest in the company other than the benefit they derive from the information offered through the site. The company must provide this benefit to them and give them a desire to keep the site running in order to do its best to ensure itself with a sustainable revenue model.

This thesis seeks to discover how a business can create visibility, maintain an eager-to-contribute user base, and generate revenue from users’ effort. It will examine the evolution of technology which has created the collaborative Web 2.0 tools, specifically the Wiki. It will then move into looking at the social networks that must be created to sustain the Wiki. Lastly, it will examine the business models and techniques that can enable a savvy company to earn a profit from the use of these technologies.

Thesis Advisor: Michael Cusumano

Title: Sloan Management Review Distinguished Professor of Management

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I have a number of other professors to thank, including Nancy Leveson, who caused me to take a second look at the software I had been doing for ten years and think about what goes into its design and implementation, as well as the human factors which surround it. I also want to thank professors Tom Allen and Pat Hale for admitting me into the SDM program at MIT and for being supportive throughout my journey. Lastly, thank you to Mr. Pane, Ms. Conley, and Mrs. Engdahl, all English teachers in high school and junior high school who had a large effect on my love of writing and (what I like to call) my superior grammatical awareness.

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# **Chapter 1: Thesis Motivation and Approach**

## **1.1 Background and motivation**

This thesis is going to explore the intricacies of hosting and managing a community site online, specifically as it pertains to Wiki sites. The motivation for this thesis grew from a Web 2.0 paper that I co-wrote with three of my classmates for a class on the software business. While researching that paper, I began to wonder about how two of the major components of what is commonly called “Web 2.0” were linked: technology and community.

I then joined a startup firm based on Web 2.0 technologies, and became interested in how such companies generated revenue. It occurred to me that for such a company to be successful, we needed to have a strong intersection of technology, community, and business savvy.

### **1.1.1 Approach**

I took a multi-pronged approach to collecting data and researching material for this thesis, most of them using the actual technologies I will discuss.

First, I started with a background in the topic. I have been in the Internet industry for 10 years, and have focused on software and the software business. Through connections I have made within this industry, I have stayed up-to-date on the latest technologies. This basis of knowledge helped to provide a solid foundation from which I could expand my data set.

Second, I conducted an extensive literature review, primarily based on papers and articles available on line. I used a variety of sources including personal blogs, professional blogs, journal and magazine articles, and books.

Third, I set up a survey on SurveyMonkey.com. These questions were as follows:

1. Do you consider yourself technically savvy?
2. How many hours a day are you on a computer?
3. Do you blog? If so how many do you maintain?
4. Have you ever visited a Wiki site such as Wikipedia?
5. Have you ever contributed to an online forum or Wiki?
6. If you answered "Yes" to #5 what made you contribute to a Wiki?
7. What other factors could make you contribute?
8. Have you ever used the "track changes" feature in Microsoft Word or other word processor?
9. How many times a week do you go visit with friends?
10. How did you find out about this survey? If I can contact you further about your answer please leave me your email address

Fourth, I set up a Wiki site at <http://www.writemythesis.com> to see if people would continue to update my thesis.

Finally, I tried to apply my incremental findings to my full-time employment as I discovered new data, techniques, or information through work conducted on this thesis.

### **1.1.2 Structure of thesis**

Wikis are enabled by good technology strategy and by a strong community. Both of these features contribute to a robust business model. These three factors define the lines by which I have divided the content of this thesis into chapters: technology, community and business.

It has been difficult to separate Web 2.0 technology from its community; each is equally important to the Web 2.0 movement. This thesis will first address the technological component of Web 2.0 and Wiki technologies before moving on to look at the social requirements, and finally onto the business models that can allow companies to profit from the use of these collaborative technologies.

## **1.2 Introduction to Key Concepts**

Before diving into the main points of this paper, some background on the history of the web and its related technologies must be explored.

### **1.2.1 Welcome to Web**

A high-level view of the history of the Internet would reveal that it grew from ARPANET, a military tool. As time has progressed, so has the Internet and its capabilities. Those such as Tim Berners-Lee, the inventor of the hypertext-based Internet, have taken the server-to-server capabilities provided by these military products and created client layers so that information could be shared among many people.

The original incarnation of the Internet was far from what Tim Berners-Lee had predicted:

*In 1999, the World Wide Web inventor Sir Tim Berners-Lee looked back on the previous decade and lamented: "I wanted the Web to be what I call an interactive space where everybody can edit. And I started saying, 'interactive,' and then I read in the media that the Web was great because it was 'interactive,' meaning you could click. This was not what I meant by interactivity.<sup>1</sup>*

---

<sup>1</sup> Lamb, Brian. "Wide Open Spaces: Wikis, Ready or Not," EDUCAUSE Review, vol. 39, no. 5, September/October 2004 p 37.

Instead of a global community, the web began with flat brochure-type and text-heavy information sites. Originally intended as a military tool and then as an educational enabler, the Internet quickly grew and evolved, progressing far beyond its original purpose.

### **1.2.2 Web 0.2: Flat Text and Blink Tags**

The first iteration of the Internet was a land of flat text sites. I refer to it as Web 0.2, as ironically the blandness of the look and feel of the first iteration of the Internet has much in common with the more technologically advanced—but still aesthetically non-innovative—flavor of Wikis.

In Web 0.2, text was pushed at consumers. Mostly informative in nature, companies and individuals were beginning to explore the idea of sharing content. Little thought was paid to actual user experience; the fact that information could be had online for free was enough.

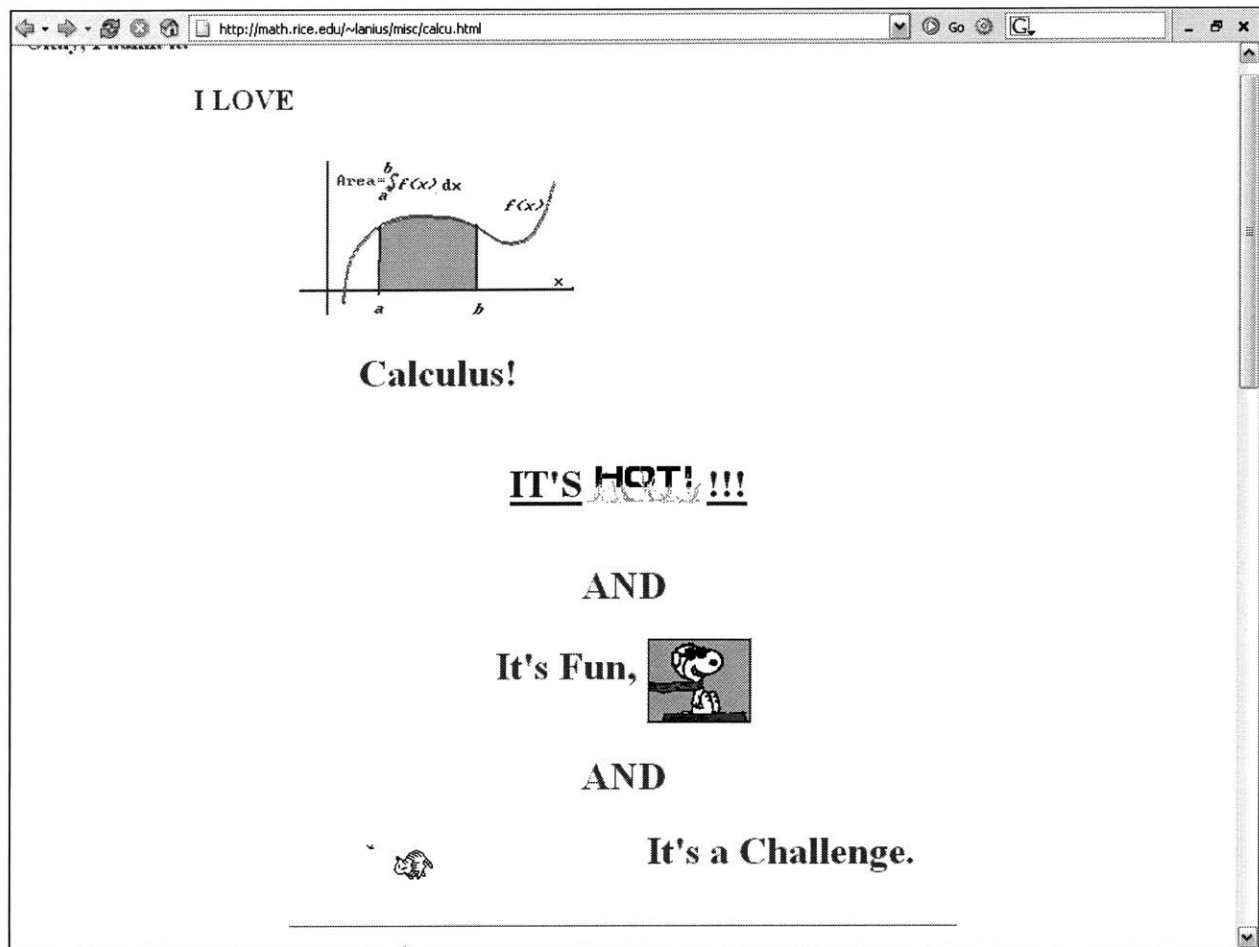


Figure 1 An early web site. Gratuitous, disorganized graphics. <sup>2</sup>

### 1.2.3 Web 0.9: Brochures

The next iteration of the Internet was one of introduction to commerce, including the DotCom bubble. Companies scrambled to get online. Many had what were even then known as “brochure sites;” they pushed content at users, expected nothing in return, and had no dynamic content.<sup>3</sup>

---

<sup>2</sup> Lanius, Cynthia. “I Love Calculus.” <http://math.rice.edu/~lanius/misc/calcu.html>. Created in 1998. Last updated 2004.


<sup>3</sup> Manila Newbies. “Types of Manila Sites: The Brochure Site.” <http://manilanewbies.userland.com/usersguide/typesofmanilasites/brochuresite> (19 September 2006).

Many software firms began to grow during this time, creating these sites for various clients.

Many sites were still very text-heavy or with random graphics. Information was available on the site, but it was “pushed” information only.

## Plant City Cornerstone Center

*“In the heart of the city with the city at heart”*



- »About Us
- »Stained Glass Windows
- »Organ
- »Board of Directors
- »Members
- »How You Can Help
- »Event Planning Information
- »Calendar
- »Gallery

315 North Collins  
Post Office Box 2273  
Plant City, Florida 33564

Email

**Figure 2 A Brochure Site: shows information, takes none in.**<sup>4</sup>

### 1.2.4 Web 1.0: The DotComs

Finally, we arrive at the DotCom Era. Companies had realized the value of the Internet and were no longer content to push flat brochures at their customers. People were now able to conduct actual business online. Packages began to be available to support this, including software packages that will be explored in the Technology chapter.

---

<sup>4</sup> “Plant City Cornerstone Center.” <http://www.plantcitycornerstonecenter.org/>. Last updated 2005.



Individuals began to see the web as a personalized place. Cookies could keep track of bank account numbers or favorite types of shoes. The audience of the Internet continued to grow as such features as bill pay attracted non-technology people with the promise of convenience. Yahoo first implemented its Bill Pay system in 1999 as a free service.<sup>5</sup> One article attributed the success of the program and security to “secure by the Yahoo! Security Key password system and the Secure Sockets Layer (SSL) security standard.”<sup>6</sup>

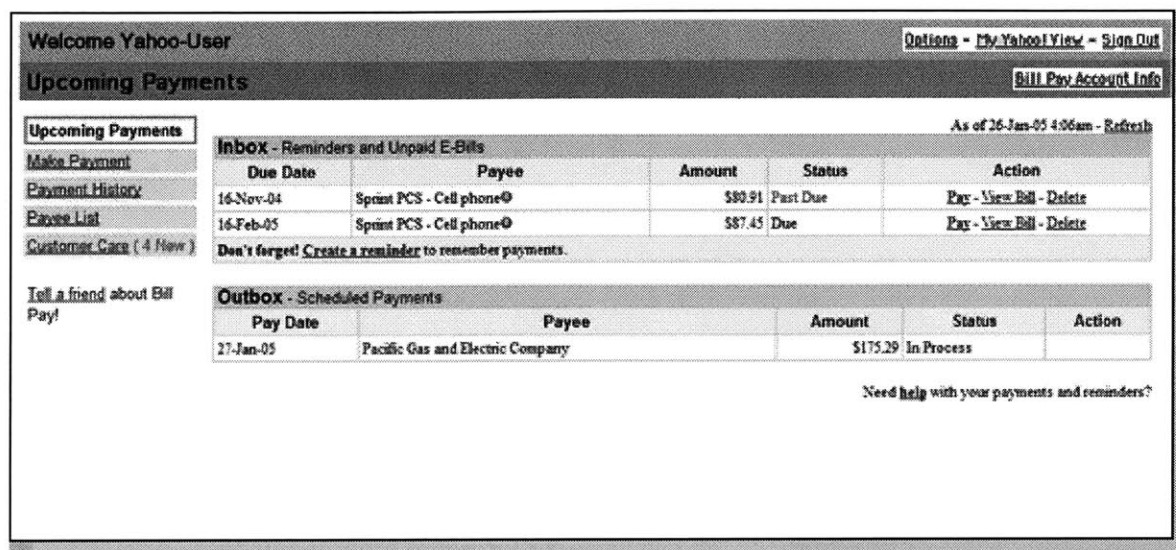


Figure 3 Yahoo Bill Pay; example of DotCom era site.

### 1.3 Web 2.0

Web 2.0 is the most common term for the movement of the Internet from “push” technology to interactive technology. It is nearly impossible to quickly and efficiently define Web 2.0. The best embodiment of the definition is that it is a renaissance of the Internet, a movement from sites whose main goal was to provide information to sites whose main goal is to provide a place for users to share information. No longer is the source of information one-sided; it is now a

<sup>5</sup> Ginty, Maura. Yahoo! Debuts Bill Pay Service. InternetNews.com. 13 December 1999. <http://www.internetnews.com/ec-news/article.php/258541> (19 September 2006).

<sup>6</sup> Ginty, Maura. Yahoo! Debuts Bill Pay Service. InternetNews.com. 13 December 1999. <http://www.internetnews.com/ec-news/article.php/258541> (19 September 2006).

communal effort among different people who may never meet but may grow to know each other through Internet identities.

## 1.4 Web 2.0: Wikis



### 1.4.1 What is a Wiki?

In its simplest definition, a Wiki is a text-based tool which allows edits to a single document by any number of parties. However, the theories and technologies behind Wikis are so complex that they will continue to be explored in-depth throughout the course of this paper. Before reaching into these depths, however, we must start with a few basic ideas and concepts behind a Wiki.

First, a Wiki is a Commons-Based Peer Production.

*[This term] refers to any coordinated, (chiefly) Internet-based effort whereby volunteers contribute project components, and there exists some process to combine them to produce a unified intellectual work. CBPP covers many different types of intellectual output, from software to libraries of quantitative data to human-readable documents (manuals, books, encyclopedias, reviews, blogs, periodicals, and more).<sup>7</sup>*

The CBPP quality of the Wiki is what makes it very different from any other technologies.

Similar to Microsoft's "Track Changes" feature in its ability to record edits, the Wiki varies from Word in many other ways. A Microsoft Word document that has changes tracked is like the baton in a relay race: each runner can contribute and will influence the final result, yet only one racer at a time can carry the baton. A Wiki is more like a cross-country race in which all runners start the race at once and the team score is determined by an average time: contributions are made by many people simultaneously.

As a result of this change in editing power, Wikis have organizations changing how they handle document sharing and collaboration. Mark Choate comments on this complex change in workflow in an article on Wikis in the workplace:

*Wikis turn the idea of workflow on its head. They are decentralized and typically lack the controlling mechanism of a workflow system with a formal approval process.*

*The fact that Wikis are decentralized and lack sophisticated workflow systems and approval processes is considered a feature of Wikis and not a fault. This is contrary to the basic philosophy of many content management systems, which emphasize control over empowerment.*

*Despite Wikis decentralized approach, there is one important thing to remember: the anyone-can-edit policy is just that – a policy – and not an inherent feature of the software. At the same time, Wikis don't handle content control in the same way*

---

<sup>7</sup> Krowne, Aaron. "The FUD-based Encyclopedia." Free Software Magazine. 28 March 2005.

*that a content management system does, so you will need to take a different approach with Wikis.*<sup>8</sup>

We will see in the technology chapter that the Wiki was created and originally used by those in the high-tech community, yet the Wiki has become a popular tool in a variety of businesses and social communities. The relatively new collaboration technique has been adopted by schools, businesses, charities, and any random group of people who need to share ideas.

In an article about Ben Elowitz (founder of FatBrain and Blue Nile) founding WetPaint, a Wiki-based company, Laurie Sullivan wrote:

*Consumers are warming up to Wikis, too. Wikia Inc., the company founded by Jimmy Wales of Wikipedia, launched a worldwide travel site on Monday. World Wikia offers city guides for locations from San Francisco to New Orleans to London.*

*For example, romanchurches.wikia already includes nearly 250 articles examining the architecture, art and history of churches in Rome. Wikipedia has become the 17th most-trafficked site on the Web, according to Web traffic research firm Alexa.*<sup>9</sup>

The CBPP tool known as the Wiki has been gaining in popularity across any number of communities. The uses for this tool are widespread, and its absolute limits have yet to be reached. Over the course of this paper, I will look at various communities and businesses that make use of this tool in the context of a Web 2.0 setting, and will begin by going into the evolution of a Wiki in more depth.

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<sup>8</sup> Choate, Mark. "What makes an enterprise Wiki?" CMS Watch. <http://www.cmswatch.com/Feature/145-Wikis-in-the-enterprise>. 28 April, 2006.

<sup>9</sup> Sullivan, Laurie. "Blue Nile Cofounder Wades into Wikis." TechWeb. 9 August 2006.

## Chapter 2: Technology

Wikipedia is defined on its own pages as a “very simple, easy-to-use user-maintained database for searching or even creating information.”<sup>10</sup> Many casual users may not realize the transactional complexity of a Wiki: for them, it is a place where they can read or change content. However, most Wikis are so intricately designed and implemented that they have a record of every change submitted to every piece of content.

This sophisticated use of technology has required robust solutions on both the client and server sides, as well as a heavy dose of creativity in order to synthesize these two components.

Although what a user sees (the client side) may seem very simple to the user, the underpinnings which connect it to its server side and therefore to the underlying data and information can be quite complex.

### 2.1 Technology History

The first step toward computer-based collaborative writing was taken by Microsoft. Microsoft released Microsoft Word 6 in 1994, which then contained a feature called “Revision Marks,” which would eventually become the “Track Changes” tool used today. It allowed asynchronous, digital collaboration on a document without the former necessity of merging several documents into one cohesive unit.<sup>11</sup>

---

<sup>10</sup> “Wiki.” <http://en.wikipedia.org/Wiki/Wiki>. Last updated 26 August 2006. (26 Aug 2006)

<sup>11</sup> Szybalski, Andy. “Why it’s not a Wiki World (Yet).” March 14, 2005  
[http://andy.bigwhitebox.org/papers/Wiki\\_world.pdf](http://andy.bigwhitebox.org/papers/Wiki_world.pdf), 2.

Teammates and others were able to collaborate on documents through changes made inline as well as through comments which were kept separate from the text of the document. No longer were collaborators required to be in the same place at the same time to effectively create a document which merged their opinions, nor was one person given the task of physically merging several documents into one cohesive units. Teams could circulate one document and collect a number of opinions.

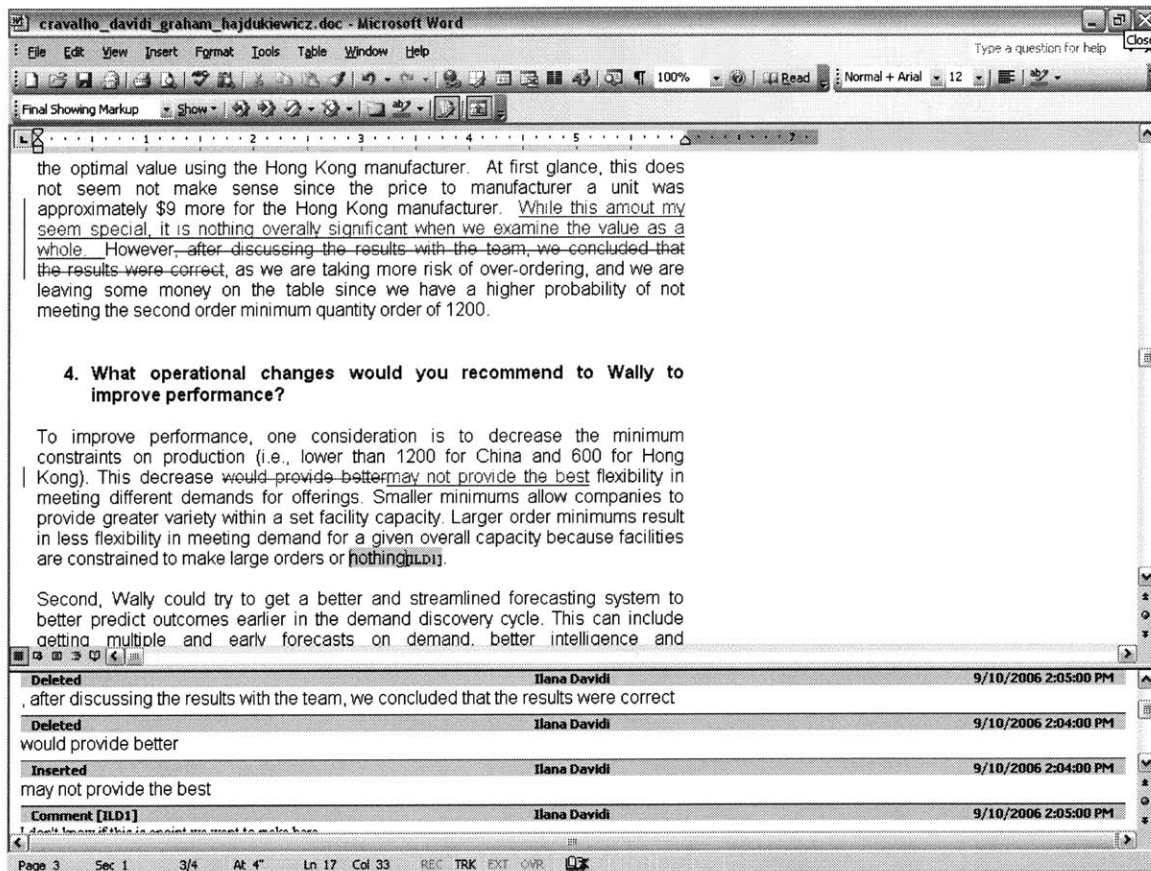


Figure 4 Microsoft Word document showing tracked changes and comments.

As always, there was room for improvement from the document circulation model used by Microsoft Word in which collaborators needed to wait for another's changes to be complete

before receiving the documents themselves. A model whereby all collaborators had access to the document on a continual basis could further improve the efficiency of document collaboration.

Enter Ward Cunningham, who invented the Wiki in 1995 as a means of allowing software developers to discuss design patterns on his website, the Portland Pattern Repository. The idea was based on a HyperCard stack he wrote in the late 1980's,<sup>12</sup> a database-like program run on the Apple which allowed uses such as "Choose-Your-Own Adventure" stories.<sup>13</sup> The original WardsWiki had a very simple interface, not even allowing for formatting or images.<sup>14</sup> However, this bare-bones approach left ample room for innovation from its high tech customer base.

Using the Wiki tool, engineers were able to collaborate on commentary about different design patterns. Ward had sought to create a site that was "open, incremental, organic, mundane, universal, overt, unified, precise, tolerant, observable, [and] convergent."<sup>15</sup> The Wiki has survived to this day based in large part on the Wiki authors' principles of "trust, fun, and sharing."<sup>16</sup>

---

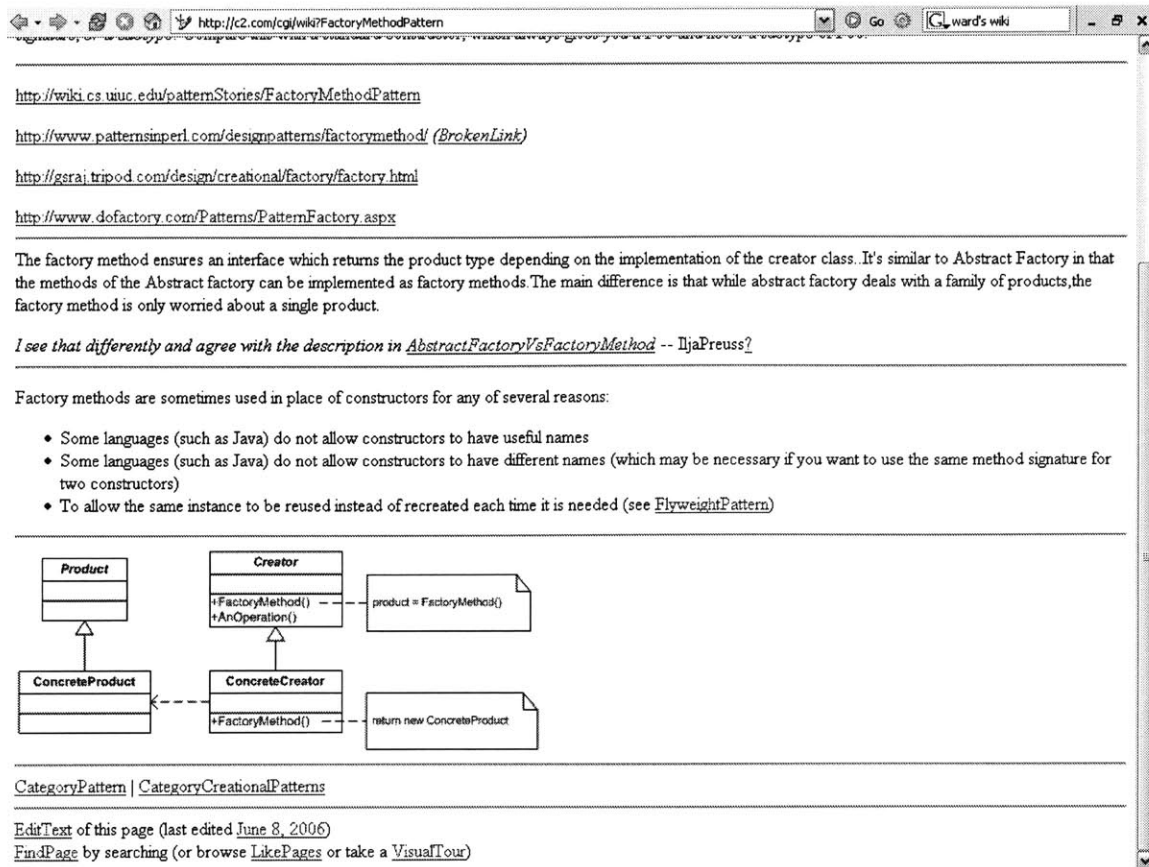
<sup>12</sup> "Wiki." <http://en.wikipedia.org/Wiki/Wiki>. Last updated 26 August 2006. (10 September 2006).

<sup>13</sup> "Hypercard" <http://en.wikipedia.org/Wiki/HyperCard>. Last updated 10 September 2006. (10 September 2006).

<sup>14</sup> Szybalski, Andy. "Why it's not a Wiki World (Yet)." March 14, 2005  
[http://andy.bigwhitebox.org/papers/Wiki\\_world.pdf](http://andy.bigwhitebox.org/papers/Wiki_world.pdf), 3.

<sup>15</sup> <http://c2.com/cgi/Wiki?WikiDesignPrinciples>. Last edited September 8, 2006. (10 September 2006).

<sup>16</sup> <http://c2.com/cgi/Wiki?WikiDesignPrinciples>. Last edited September 8, 2006. (10 September 2006).



**Figure 5** The FactoryMethodPattern page from WardsWiki. Note the "EditText" last edited date of June 8, 2006

Wikis did not gain widespread notoriety until after 2001, when Wikipedia was founded by James Wales and Larry Sanger.<sup>17</sup> Wikipedia is by far the best-known Wiki, and while an exception in terms of usage and visibility, serves as an excellent example of the means by which a Wiki can be used. This online encyclopedia has over 1,363,000 articles in English alone,<sup>18</sup> and, according to an article in *Nature*, is considered more accurate than the Encyclopedia Britannica.<sup>19</sup>

<sup>17</sup> Szybalski, Andy. "Why it's not a Wiki World (Yet)." March 14, 2005  
[http://andy.bigwhitebox.org/papers/Wiki\\_world.pdf](http://andy.bigwhitebox.org/papers/Wiki_world.pdf), 4.

<sup>18</sup> <http://www.wikipedia.org/>. 4 September 2006.

<sup>19</sup> "Internet Encyclopedias go Head to Head." 14 December 2005.  
<http://www.nature.com/news/2005/051212/full/438900a.html> (4 September 2006).





**Figure 6** FactoryMethodPattern last edit page shows result of last revision.

### 2.1.1 Early Content Storage

In their early stages, Wikis stored data and content as flat text files containing information written in a markup language. When a request was made for the page, this flat file was returned, and the markup language rendered into HTML. This was a good start, but did not scale for some larger projects: too many files became stored on servers, and the rendering time was poor.<sup>20</sup>

This model still exists today. The WikiWiki site started by Cunningham still uses a flat file system and serves as an excellent example of the robustness of the original tool. Pages are stored as separate files in one directory on a Linux server. Serialization is controlled by the mkdir

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<sup>20</sup> Choate, Mark. "What makes an enterprise Wiki?" CMS Watch. <http://www.cmswatch.com/Feature/145-Wikis-in-the-enterprise>. 28 April, 2006.

command common to both Unix and Linux. This prevents pages from being simultaneously changed, thereby losing information.<sup>21</sup>

However, for some sites such as Wikipedia, the content of pages is stored entirely in databases, usually as CLOBs (Character Large Objects, can exceed over 4000 characters in length). While perhaps slightly more expensive in terms of server usage, this methodology makes tracking pages and their changes slightly easier. Rather than relying on file information, entire pages can be called up and ordered using the Structured Query Language (SQL, pronounced, “sequel”).

Both of these sites allow the popular feature of history tracking, which allows users to see the evolution of content. Most Wiki sites use a database for this purpose; even if files are stored outside of the database. A row is taken for each entry, and the correct file is found through selecting the most recently updated row pertaining to that page. The correct document can then be returned.<sup>22</sup>

## **2.2 Enabling Technologies**

### **2.2.1 Databases**

One of the enabling technologies is the evolution of databases combined with the falling costs of accompanying hardware.

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<sup>21</sup> “More About the Database.” <http://c2.com/cgi/Wiki?MoreAboutTheDatabase>. Last updated 4 June 2004 (10 September 2006).

<sup>22</sup> “More About the Database.” <http://c2.com/cgi/Wiki?MoreAboutTheDatabase>. Last updated 4 June 2004 (10 September 2006).

The earliest database was the System Development Corporation's presentation of "Development and Management of a Computer-centered Data Base" in June of 1963.<sup>23</sup> The relational data model took rise in 1970. Since then it has evolved, resulting in distributed databases in the 80s, the object-oriented database of the 90s, and the XML databases of today. With each step, data insertion and access became more efficient, reliable, and scalable. Perhaps more important than the evolution of the models was the falling price of data storage.

In the past, data cost such a large amount of money to store that even two characters were valuable; hence the 2000 crisis in which developers had stored years as "76" rather than "1976," setting up a global crisis for when all years turned to zero.<sup>24</sup> Estimates had over 1 trillion lines of COBOL code with the problem, as well as 25 million chips, with approximately 2-5% of these chips being potential problems.<sup>25</sup> Costs fell throughout the hardware and software industries, resulting in the price of storing data no longer being prohibitive. An example of this phenomenon is Moore's Law.

Moore's Law states that circuit component complexity doubles with respect to minimum component cost, and this law seems to have carried over into technologies beyond the circuits on which the law is based.<sup>26</sup> While their growth is not as striking or as rapid, databases are faster and better at indexing than ever before, and pulling data from them is rapid and efficient. No longer must people be concerned with storing a certain number of characters.

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<sup>23</sup> "Database." <http://en.wikipedia.org/w/index.php?title=Database&oldid=71234852>. Last updated 4 August 2006. (August 24, 2006).

<sup>24</sup> "Y2K Information and Resources." <http://www.y2ktimebomb.com/>. 10 September 2006.

<sup>25</sup> "Workshop on the Year 2000 Problem in Computers and Strategies Issues for National Statistical Offices." [http://www.unescap.org/stat/gc/y2k\\_06.asp](http://www.unescap.org/stat/gc/y2k_06.asp), 9 June 1998.

<sup>26</sup> "Moore's Law." [http://en.wikipedia.org/wiki/Moores\\_law](http://en.wikipedia.org/wiki/Moores_law). Last updated 27 Aug 2006. (28 Aug 2006).

With these changes, it is now possible to archive entire chunks of data. Typically, the content of each Wiki entry is stored in its own row in a database. Each time an edit is made, a new row is created so that tracking the history of each entry is made possible. Most databases store these as CLOBs, and the entire history of any page can be stored in a series of rows containing a CLOB. In the case of flat-file Wikis such as Ward's Wiki, the CLOB is replaced with a reference to the location of the flat file.

### **2.2.2 Front end**

Users are not exposed to the complexity behind a Wiki, one of the major appeals to this technology. When a user visits a Wiki page, a request is made to the server. Typically, the text is then pulled from a database or flat file and rendered into HTML. Different implementations of Wikis can render the text into different markups, including mobile-device compliant languages, such as WAP or WML, as all that is needed is a translator that will take Wiki mark-up and render WML-compliant markup.

Once converted to a viewable markup language, the text is wrapped in a template chosen by the site owner. This helps to give the site the look-and-feel of a site laboriously written in HTML, while those contributing the content are actually using the much simpler syntax known as WikiText, which will be explained in detail shortly.

One problem with Wikis is that the text within these templates—including the rendered HTML—cannot be cached due to their instant-change nature, making them slower to return to

the user. Ward's Wiki notes that "Wiki templates (and page rendering in general) often are not cached, so the page is rendered with each request. From an enterprise perspective, a lack of caching can obviously limit the scalability of the system."<sup>27</sup> This creates an interesting paradigm: for fractions of a second more waiting on the consumer end, the owner of the Wiki has far less to manage, as cache management can be costly in terms of both human and capital resources.

### 2.2.3 WikiText

One of the main advantages to Wikis is that contributors do not need to know HTML, even if elaborate text-entry tools are not available. Many will have their own languages with an easy-to-learn lexicon. For example, in some Wikis, a double dash (- -) creates strikethrough type throughout the surrounded text. Writes Wiki expert Mark Choate, "In those implementations, the markup of a newly-edited HTML version of the page is generated and submitted to the server transparently, and the user is shielded from this technical detail."<sup>28</sup>

This code is known as WikiText. While the name is common among Wikis, the syntax is not, and is defined by each Wiki. One common standard is the use of CamelCase (initial capitals on words run together, such as CamelCase or WikipediaPage) to define words which should be automatically linked.<sup>29</sup> This feature is a key component, as it allows for Wikis to become very well linked and integrated within themselves as users in practice create a new page each time they input a CamelCase word. They are then able to edit this page, extending the Wiki. Because

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<sup>27</sup> Choate, Mark. "What makes an enterprise Wiki?" CMS Watch. <http://www.cmswatch.com/Feature/145-Wikis-in-the-enterprise>. 28 April, 2006.

<sup>28</sup> Choate, Mark. "What makes an enterprise Wiki?" CMS Watch. <http://www.cmswatch.com/Feature/145-Wikis-in-the-enterprise>. 28 April, 2006.

<sup>29</sup> "Wikitext." <http://en.wikipedia.org/wiki/Wikitext>. Last updated 22 August 2006. (26 August 2006).

there are none of the HTML tags, the margin for error is greatly reduced; the omission of even one quotation mark in the typical linkup (`<a href="linkHere.html">click here</a>`) can break an entire page.

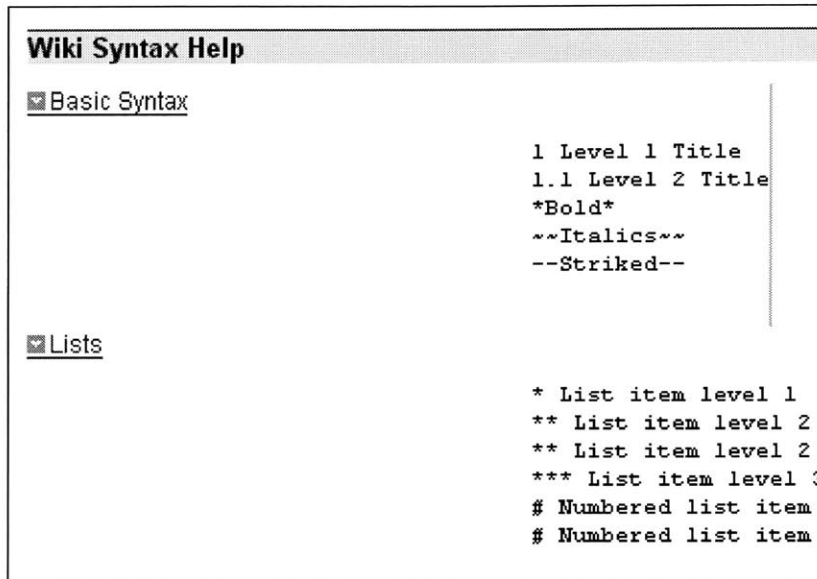


Figure 7 WikiText explanation on a site without a WYSIWYG component.

## 2.2.4 WikiText Alternatives

Some Wikis have gone beyond the simple WikiText to more advanced what-you-see-is-what-you-get (WYSIWYG, pronounced “wizzy-wig”) editors. These have been made possible by technologies such as JavaScript, ActiveX, and AJAX. Notes Laurie Sullivan of the Wiki team WetPaint:

*The behind-the-scenes technology that enables WetPaint's "three steps to create your own" Wiki sits on a Representational State Transfer (REST) architecture running on the Linux open-source operating system and built on a service oriented architecture (SOA) platform. The Wiki user sees Web pages built on a combination of JavaScript and AJAX with XML on an API layer to support the site.*<sup>30</sup>

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<sup>30</sup> Sullivan, Laurie. “Blue Nile Cofounder Wades into Wikis.” [TechWeb](#). 9 August 2006.

The use of AJAX creates movement on a page, making it look very carefully crafted. Because the text of the Wiki is treated as a basis around which to frame a more elaborate site, this site can have the appearance of being very complex—and, indeed, it may be this complex. Users can still alter content on these sites without harming the general look-and-feel. Sometimes AJAX tools are used to create a more complex means of entering the Wiki. For example, in Figure 9 below, the buttons across the top of the text box which apply the bold, italics, and other font enhancements are coded in AJAX and applied to the Wiki template.

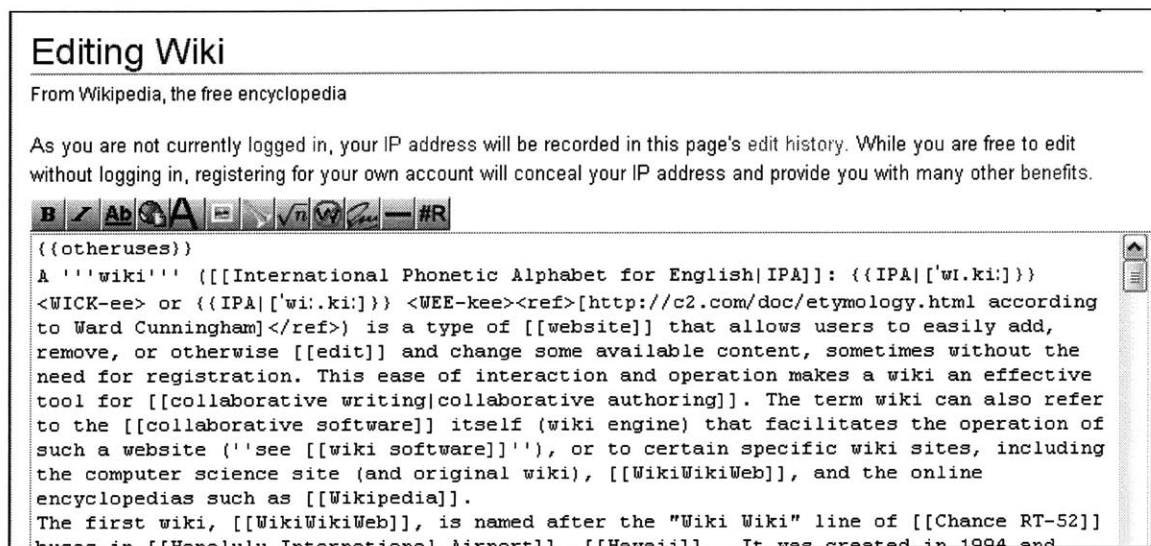


Figure 8 Example of a WYSIWIG (buttons up top) editor with WikiText in text box.

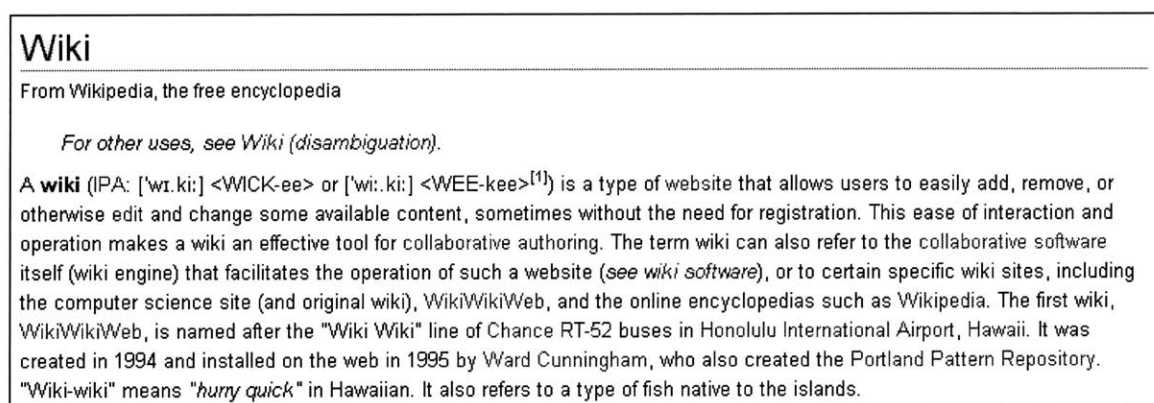


Figure 9 Resulting entry from above.

## 2.2.5 Look and Feel

Despite the advances made in making the Wiki text entry process a more aesthetically pleasing experience, and despite enhancements made to the sites surrounding this text, Wikis still tend to have a reputation for lacking in beauty. A Google search of “Wikis are ugly” returns over a million results.<sup>31</sup> The final rendered page has a template applied to it to give it more of a look-and-feel than being simple HTML. Many have complained that the “new” look of the web recalls the “old” look, when companies and individuals wanted to push content rather than improve the overall look of it.<sup>32</sup>

However, Wikis are already progressing beyond these visually unappealing originals. Unlike at the beginning of the Web, we now have experience with wrapping basic content with templates or similar frames. Today, many web sites use the Model-View-Controller pattern. This pattern separates out the data (model), presentation (view), and business logic (controller) pieces.<sup>33</sup> The appearance of the Java Enterprise Edition (J2EE) in the late 90s was a large step towards separating out presentation and data. Since then, many other technologies, including Apache Struts (<http://struts.apache.org>) and a series of other methodologies, have separated out the data and text from the look and feel.

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<sup>31</sup> <http://www.google.com/search?q=Wikis+are+ugly>, 26 Aug 2006.

<sup>32</sup> Choates, Tom. “The Ugly Wiki?” [http://www.plasticbag.org/archives/2003/05/the\\_ugly\\_Wiki/](http://www.plasticbag.org/archives/2003/05/the_ugly_Wiki/). 1 May 2003. [26 Aug 2007]

<sup>33</sup> Gamma, Erich; Helm, Richard; Johnson, Ralph; Vlissides, John. Design Patterns: Elements of Reusable Object-Oriented Software. Addison-Wesley Professional. 15 January 1995.



Since the Wiki entry is now only a piece of data stored in a database, its rendering can be greatly enhanced through an effective presentation layer. Traditionalists may still search for an API (Application Programming Interface, typically functions and variables of a computer programming language) with which to render the content, but all that is truly needed is an effective system design to allow the site to develop around the Wiki content, and the Wiki content to develop independent of its surroundings.

### **2.3 Security Models**

One of the key aspects to the Wikis that have made them a viable tool is the means they have of reducing the number and severity of attacks. Many of the solutions to these problems have yet to be solved through technology and must still be handled at a human level, as is typical for many community tools. The technology gives us the basis, while we must still attend to it. The pen and paper were excellent tools, but useless without someone to write with and on them, and almost as useless without someone else to read or improve upon the original text; Wikis are very similar in that we have the tools, but we must work with them to create a viable product. The discussion of the greater part of the security models will be found in the section of this thesis centered on community.

Unfortunately, just as technologies have become more efficient and savvy, so have their attackers. A simple registration requirement is not enough to deter malicious attacks, and in such, many different attack types need to be studied and appropriate responses prepared.

### 2.3.1 Fighting Technology without Technology

Much like a town with a volunteer fire department, the Wiki needs a community that takes pride in it and seeks to protect it, and—much like this community and its town services—the Wiki takes time to build a community and discover those who will seek to protect it. While the subsequent building of this community will be explored in the business chapter, we can look at some of the technologies that can help attract a loyal community. This alternative to computer-based monitoring will be explored in the chapter on community, as well as means of building, sustaining, and creating self-policing communities.

### 2.3.2 Access control

Access control is a key component of ensuring Wiki quality. Wikis can be designed to sniff out robots and crawlers. There are several various means of controlling access and doing the best to ensure that a Wiki edit or entry is done by a person, including registration, “CAPTCHAs,” and IP sniffers.

A basic way to control users is to require registration. Registration can help block malicious users and even IP addresses. Of course, no security model is perfect. The robots and spammers have gotten around these by registering many user names and by using programs that disperse IP addresses over a number of different configurations.

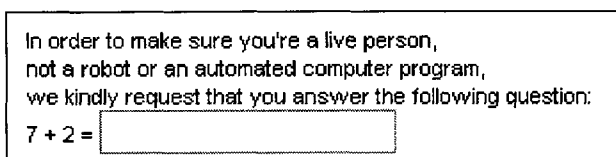
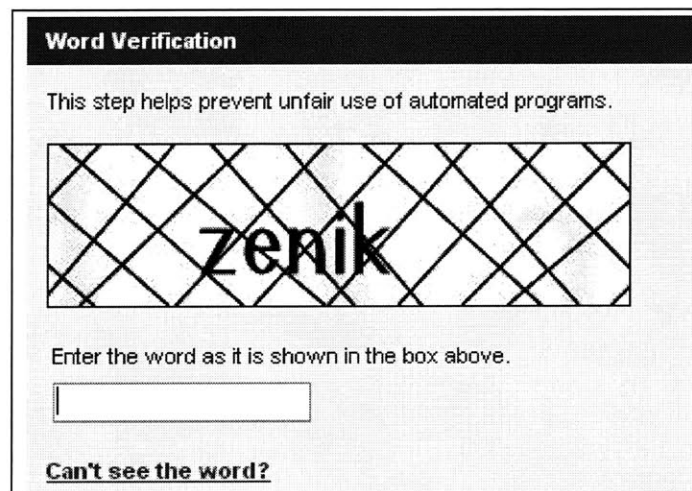


Figure 10 A CAPTCHA which uses math to avoid robots.

Robots can be stopped with “CAPTCHAs” which are images or text created on-the-fly by the server. Some require the solving of a math problem, something that robots have not yet learned to do. Others require the reproduction of a text message embedded in an image. These are temporary fixes, as there is no guarantee that robots will not be able to solve them in the future.

The WC3 committee warns of the reliance on these CAPTCHAs:

*It is a logical fallacy, then, to hail CAPTCHA as a spam-busting panacea. Even 10% accuracy by a computer amounts to system failure, just at a slower rate. It is also faulty logic to believe that the adoption of CAPTCHA in large sites is evidence of its supremacy in fighting spam. Indeed, a number of techniques are as effective as CAPTCHA, without causing the human interaction step that causes usability and accessibility issues.<sup>34</sup>*



**Figure 11** A CAPTCHA which uses visual tricks. Clicking on the "Can't see the word?" directive leads to a site with instructions for calling the vendor.

In addition to these failings, CAPTCHAs can exclude people with disabilities, including those with visual problems. While most sites have a link for those who cannot see the page, the links

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<sup>34</sup> May, Matt. "Inaccessibility of CAPTCHA." W3C. <http://www.w3.org/TR/turingtest/>. 23 November 2005.

do not provide much additional help. For example, on the Ticketmaster site, a visual CAPTCHA must be translated for tickets to be purchased. Those who cannot see the CAPTCHA will see a page instructing that they call a service department. However, this department is only open during very limited hours.<sup>35</sup>

Internet Protocol (IP) sniffers can prove effective in some cases. These sniffers can detect the IP address from which a “user” is making a request for the page. Entire sites or addresses can be blocked by such means. Many different packages exist that can find bad IPs. For example, the SnoopAnalyzer helps users find bad and block bad IP addresses by analyzing Network Protocol access.<sup>36</sup>

### **2.3.3 Revision/Version Capture**

The database-backed technology allows former versions of pages to be captured and kept for as long as is necessary—most Wikis currently do this indefinitely. In this way, if an entry is wiped or edited beyond repair, an old version can be brought back. While the search for the bad page can be time-consuming on a site of Wikipedia’s size, the actual reversion to an earlier version can be performed quickly. Some sites choose not to display history pages, in part because of the rapidity with which versions can be cycled and recycled.

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<sup>35</sup> Ticketmaster web site. [http://www.ticketmaster.com/access/1D003CCEA0454F73?unviewable\\_optik=1](http://www.ticketmaster.com/access/1D003CCEA0454F73?unviewable_optik=1). (10 September 2006).

<sup>36</sup> Bradley, Tony. “SnoopAnalyzer Standard” <http://netsecurity.about.com/od/securitytoolprofiles/p/aaprnsnoopanlwr.htm>. 12 September 2006.



Figure 12 This history page for CNN.

In addition, entries can be “diff’d.” Two entries are compared side-by-side, which highlights the changes. In this way, if only a small fraction of an article is ruined or lost, it can be restored.

This can be very helpful in tracking down who made what changes when, and in seeing if someone made large or small changes to an existing page.

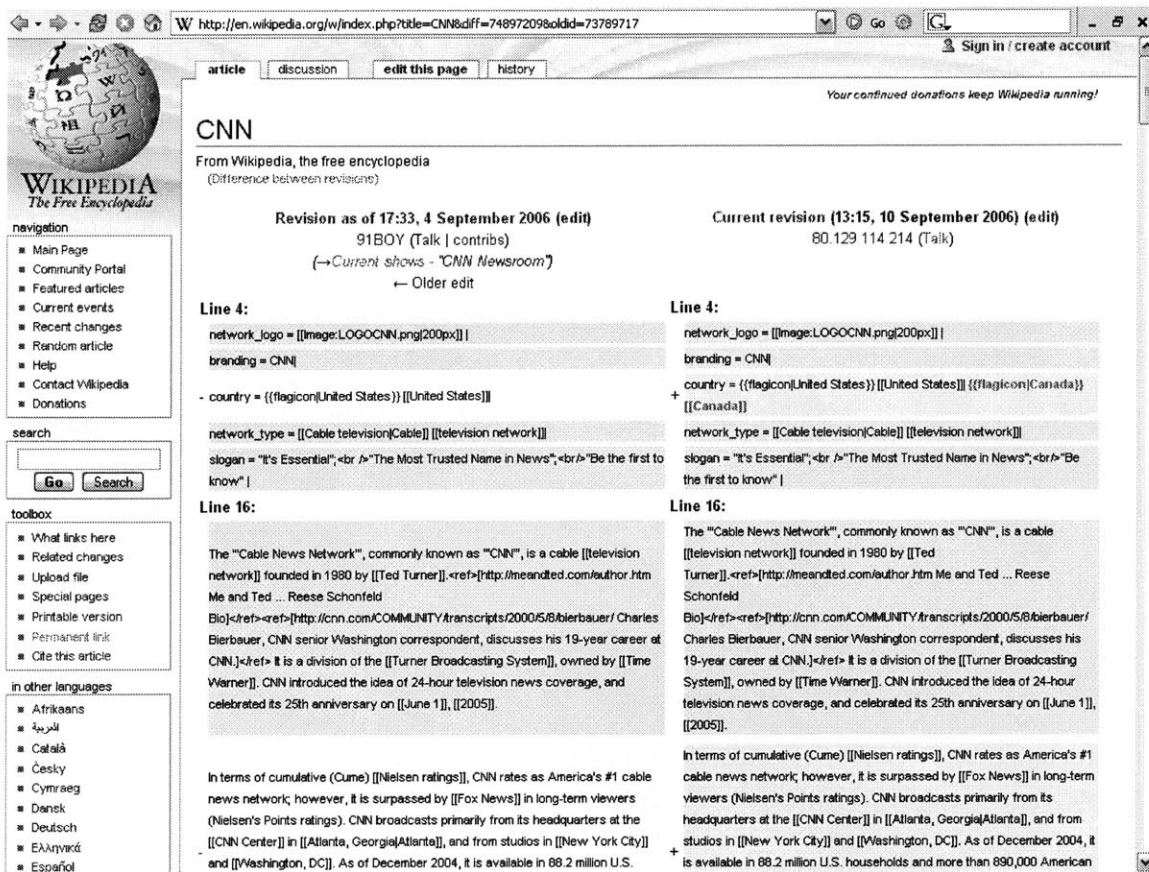


Figure 13 Screen shot of a diff page, showing the differences between two consecutive versions of the page.

### 2.3.4 Monitoring through Crawlers

Another means of controlling for bad content is to constantly monitor the changes via a system of alerts and crawlers. Crawlers work by means similar to those of the large search engines—Google and Yahoo—that “crawl” the Internet in search of content. As these crawlers crawl pages within the Wiki, they can send alerts about or even modify pages with inappropriate content.

The database can be configured to send emails or similar notifications to a set of administrators each time a change is made to a page, subset of pages, or even the whole database. This means of controlling for bad content is becoming increasingly popular:

*Some Wiki engines provide additional content control. It can be monitored to ensure that a page, or a set of pages, keeps its quality. A person willing to maintain pages will be warned of modifications to the pages, allowing him or her to verify the validity of new editions quickly.<sup>37</sup>*

This type of monitoring still requires human intervention to stop attacks. However, if this work is dispersed across a large set of volunteers, the pain can be greatly lessened. In addition, the crawlers can be programmed to correct some malicious behavior on their own; for example, when an inappropriate word is found, they can be programmed to roll back to the most recent edition of the page in which this content is absent. This type of policing can result in some true users being unhappy about what they may see as excessive monitoring or a limitation placed on free speech, but can pay large dividends over time.

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<sup>37</sup> "Wiki." <http://en.wikipedia.org/Wiki/Wiki>. Last updated 26 August 2006. (26 August 2006).

## Chapter 3: Community

*The basic [idea] of the Web is that [of] an information space through which people can communicate, but communicate in a special way: communicate by sharing their knowledge in a pool. The idea was not just that it should be a big browsing medium. The idea was that everybody would be putting their ideas in, as well as taking them out.<sup>38</sup>*

*- Tim Berners-Lee, creator of the World Wide Web*

In this chapter, we will look at online communities, including the people involved, typical demographics they fill, and what motivates them to write. These factors will be examined independent of technologies used or business models employed.

### 3.1 Introduction

While many still balk at the notion of spending time contributing knowledge or opinions for no monetary reward, the movement towards unlimited knowledge distribution has been well under way throughout the 21<sup>st</sup> century. An excellent example of this is the open source community. It is important to study this community because in it, we can discover the root of an attitude which would help Web 2.0 and its technologies grow outside of the world of software engineers.

The Open Source movement created an unusual platform for software development: developers were contributing content without receiving monetary compensation from the owner of the software being produced. This movement and related attitude of openness would find itself growing beyond the geek community and into the mainstream. Though originally a small movement, sites such as SourceForge.net gave developers a place to collaborate online and find like-minded teammates.

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<sup>38</sup> Lamb, Brian. Wide Open Spaces: Wikis, Ready or Not. Educause Review, vol 39, no 5. September/October 2004, 7.



Open source projects are run almost entirely online. While some projects may pay contributors to write software through various grants (such as user donations), most rely upon free labor. Some companies which see a benefit to a certain project may pay their employees to work on some of these projects, but again, the majority of open source software projects are done on donated time and effort alone.<sup>39</sup> In exchange, the developers receive tools they can use, positive Internet reputations, and acceptance into any number of online communities.<sup>40</sup>

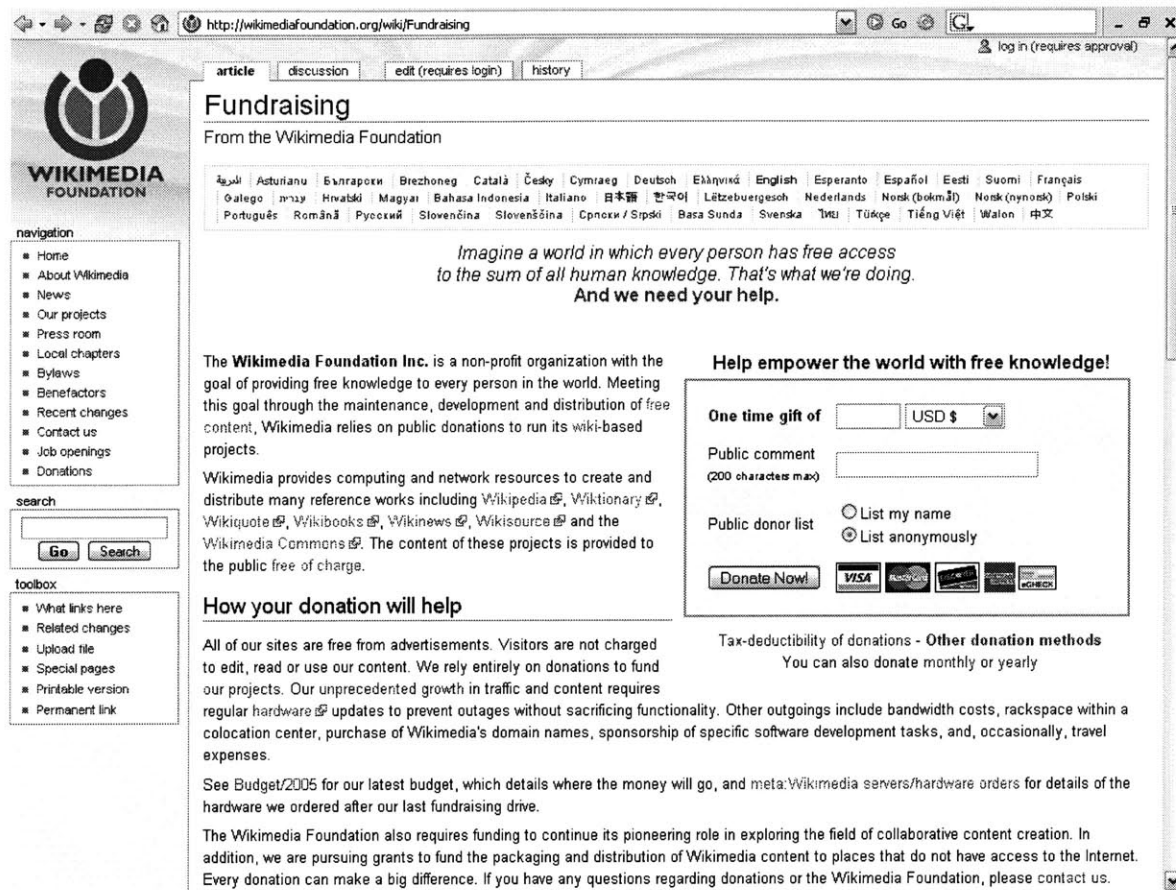


Figure 14 Wikimedia's page requesting donations.<sup>41</sup>

<sup>39</sup> "What Does Free Mean?" <http://www.debian.org/intro/free>. Last edited 24 September 2006. (1 October 2006).

<sup>40</sup> Lakhani, Karim R. The Core and the Periphery in Distributed and Self-Organizing Innovation Systems. Doctorate Thesis, February 2006.

<sup>41</sup> "Fundraising." <http://wikimediafoundation.org/Wiki/Fundraising>. Last updated 29 August 2006. (17 October 2006).

Open source projects are not a new phenomenon, but their popularity has skyrocketed in recent years. Many believe that the GNU project launched in 1984 was the first true open source project.<sup>42</sup> Richard Stallman founded GNU (“GNU is Not Unix”) in 1983 with a letter containing the following quote:

*Starting this Thanksgiving I am going to write a complete Unix-compatible software system called GNU (for Gnu's Not Unix), and give it away free to everyone who can use it. Contributions of time, money, programs and equipment are greatly needed.<sup>43</sup>*

The “free” would later be often clarified as being “free as in speech, not as in beer.” Regardless of the definition of the “free,” Stallman called for people to work on his project for no monetary reward. It was then distributed including its source code—the earliest “open source.”



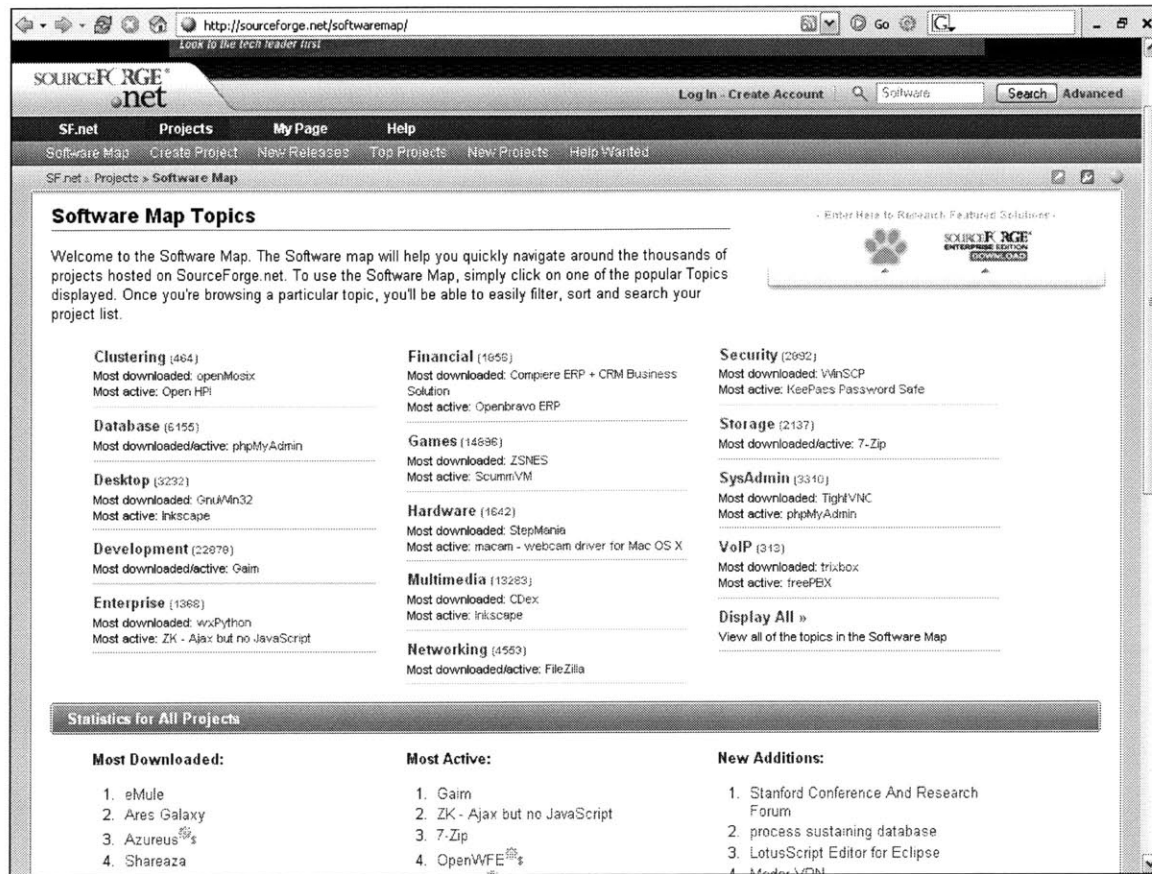
**Figure 15 GNU's mascot.**

The Open Source realm has grown exponentially. Among the best known are Apache (a high tech incubator) and SourceForge, which has over one million projects.

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<sup>42</sup> “The GNU Operating System: Free as in Freedom.” <http://www.gnu.org/>. (20 September 2006).

<sup>43</sup> Stallman, Richard. “new UNIX implementation.” <http://www.gnu.org/gnu/initial-announcement.html>. 27 September 1983.



**Figure 16** SourceForge.net is an online space for developers to work jointly on software projects.

Boston Consulting Group wanted to look at what made people write “free” software. In doing so, they spoke with Open Source expert Karim Lakhani.

*Lakhani says (open source programmers) could be separated into four categories: community believers (those who believe source code should be open), professionals (program for a work need), hobbyists (program for non-work reasons) and the learners (program to build skill and have fun).<sup>44</sup>*

These attitudes would carry over from beyond software developers into many areas. Each of the four groups created could eventually be applied to more casual users of community technology, such as Wikis.

<sup>44</sup> Surmacz, John. “Creative Coding.” *Darwin*. 31 July 2002. [http://64.28.79.73/learn/numbers/number\\_detail.cfm?ID=92&METRIC=410](http://64.28.79.73/learn/numbers/number_detail.cfm?ID=92&METRIC=410). (20 September 2006).

Community believers work for a common good. They would enter content into Wikis, chat rooms, or forums believing that someday their “donation” would be returned in the form of information they might need. In addition, a survey conducted for this thesis identified that 50% of those polled would contribute content to a Wiki simply for the “sense of helping others.”<sup>45</sup> A strong community is an imperative for a Web 2.0 site, and those who are already community believers are a good resource.

Professionals in open source code to improve their own software. While they may receive no monetary compensation, they are rewarded with a software product which can help them further their jobs. This is probably the category to which it is most difficult to directly tie community sites. While only 22% of survey respondents said they would enter Wiki content for money, many have joined companies in which contributing to Wiki content can build a positive online reputation. For example, if one wanted to build credibility around a new sports site, those involved in this community may want to post to other sites to start building a reputation that would lend credibility to their own sites. While perhaps not exactly the same as coding software to use a product, it is similar in that these users are strengthening communities so that their own may survive.

Hobbyists are perhaps the clearest to link. Many people like to share knowledge about their passions. In the survey, 68.6% of respondents who had contributed to a Wiki cited the main reason as being subject expertise, not error correction or compensation. Contributing to an

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<sup>45</sup> Davidi, Ilana. “SurveyMonkey: Web 2.0 Contributions.”  
<http://www.surveymonkey.com/s.asp?u=833272435673>. Survey closed 25 October 2006.

online community is one means by which to further a hobby; it creates more vested involvement, especially when the contribution requires a login and helps the user to start building a reputation within that community.

Last are the learners. 17.1% of those who had contributed to a Wiki did so to “try a new technology.”<sup>46</sup> People can have the opportunity to learn both by playing with the new web 2.0 technology, and by learning about the content on the site. This thesis was available at <http://www.writemythesis.com>. While the experiment of having others write this did not necessarily succeed, reactions were interesting. I intentionally left spelling errors on the page. I had one person respond to me, telling me of the error. When I had this person fix it, she was happy that she understood the new technology, and said she would contribute again in the future if the opportunity presented itself centered on a subject she understood.

### **3.2 Attitude history**

For some, the notion of people doing work for free seemed almost impossible. Said Aaron Swartz, a member of the board at Wikimedia:

*“If I had come here five years ago and told you I was going to make an entire encyclopedia by putting up a bunch of web pages that anyone could edit, you would have been able to raise a thousand objections: It will get filled with vandalism! The content will be unreliable! No one will do that work for free!”<sup>47</sup>*

However, once Wikipedia’s growth began, it was exponential. A community grew around the content, and many of Wikipedia’s entries are among the first hits that come up for various

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<sup>46</sup> Davidi, Ilana. “SurveyMonkey: Web 2.0 Contributions.” <http://www.surveymonkey.com/s.asp?u=833272435673>. Survey closed 25 October 2006.

<sup>47</sup> Swartz, Aaron. “Who runs Wikipedia?” <http://www.aaronsw.com/weblog/whorunswikipedia>. 7 September 2006.

Google searches. While vandalism does exist (and will be discussed shortly), the attitude of many people was positive enough to make Wikipedia into a viable and successful business.

### 3.2.1 Open Source Attitude outside of Open Source

More and more services and products similar to those produced by open source are being done by those not involved in software programming: the online sphere has become a popular place for such adventures as dating or finding and booking travel. The openness seen in the open source community seemed to be dispersed into other parts of the Internet, those populated both by software engineers and by average users. User reviews would soon be shared on lines in such sites as Epinions and TripAdvisor.

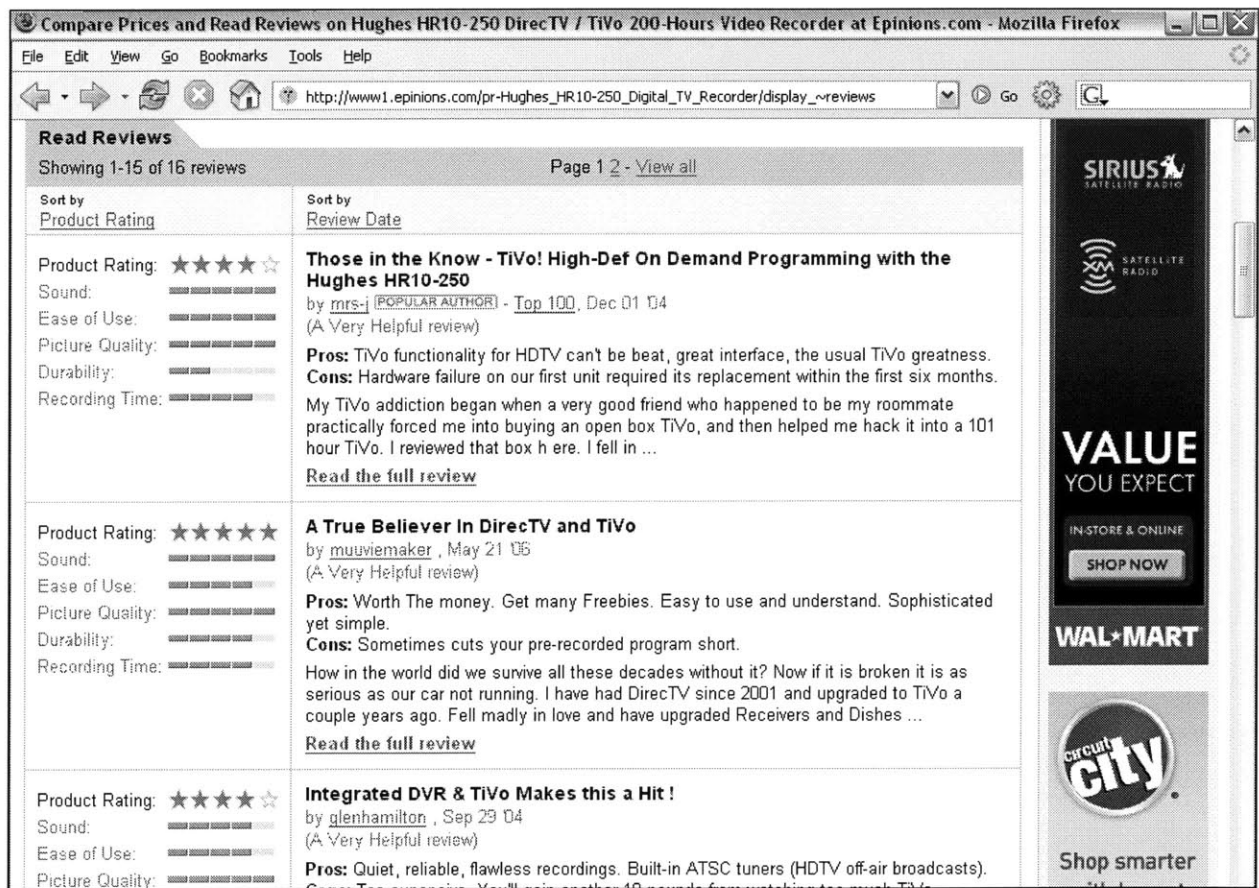


Figure 17 User opinions on ePinions.com

People would work for free, contributing time and effort to submit a user review, and often for no credit other than an attribution to a screen name. However, this process is still not completely communal; while posters seem to be posting for no reason other than helping others, they are still passing on information unilaterally instead of through a communal voice. In addition, all reviews must be approved through processes at Epinions and TripAdvisor, and can take up to 48 hours to appear. Rather than being of one voice in a real-time setting, users spoke asynchronously through different channels. While still a positive community, the asynchronous nature of this type of site left space for a different type of communal site.

### **3.2.2 Web logs**

Web logs, less formally and more commonly known as “blogs,” have appeared almost everywhere; information consolidator Technorati lists over 53.1 million blogs.<sup>48</sup> Some blogs are web diaries, while other have distinct purposes: information, entertainment, or knowledge dissemination centered on a specific topic. Some writers claim blogs, others blog anonymously. While a blog is not an even community as a Wiki is, it is a place where one person or one group of people can share an initial opinion, and many others can comment.

#### **What makes people blog?**

If we can look at why people blog, perhaps we can understand why they are ready to go another step and completely hand over control of their knowledge. One blogger named “Writer Chick” asked what made people write blog entries. Responded one writer:

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<sup>48</sup> <http://www.technorati.com/>. 4 September 2006.

*The blogger, by virtue of simply writing down whatever is on his mind, will be confronted with his own thoughts and opinions. Blogging every day, he will become a more confident writer. A community of 100 or 20 or 3 people may spring up around the public record of his thoughts. Being met with friendly voices, he may gain more confidence in his view of the world; he may begin to experiment with longer forms of writing, to play with haiku, or to begin a creative project—one that he would have dismissed as being inconsequential or doubted he could complete only a few months before.<sup>49</sup>*

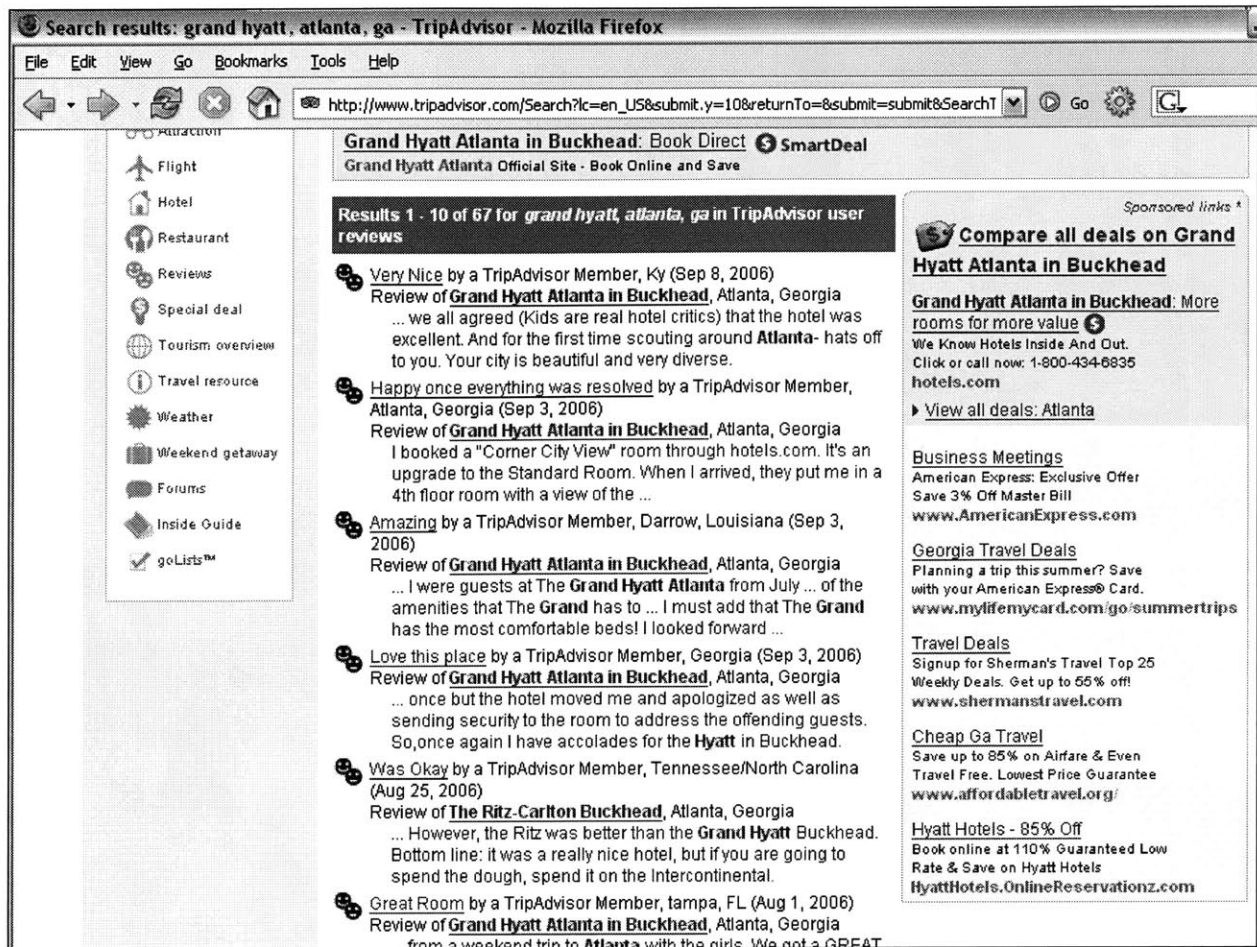
According to Writer Chick, it seems that bloggers blog for appreciation, self-reflection, and to create their own community. Many respondents to a survey distributed for this thesis noted that they blog to help people, think about what they have experienced, and just share with others to search for a common bond.

One survey respondent noted that she had posted to TripAdvisor because she would hope that someone with information about places she wanted to stay would post their opinions in return. Again, this is reminiscent of the “community” attitude discussed by Karim Lakhani in conjunction with Open Source software; people believe in community.

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<sup>49</sup> “Why do Bloggers Blog?” <http://writerchick.wordpress.com/2006/08/14/why-do-bloggers-blog>. 14 August 2006 (20 September 2006).





**Figure 18 Listing of user reviews on TripAdvisor. Content is attributed to a single user for each entry, and content must be approved before being displayed on the site.**

### 3.2.3 Wiki

With community-inspired entities such as open source, opinion sites, and blogs creating the Web 2.0-like community atmosphere, a path was cleared for Wiki to make its entry. As addressed in the first chapter, “Wiki” is derived from the term “WikiWiki” in Hawaiian, meaning quick. A Wiki was described by Ward, its creator, as “The simplest online database that could possibly work.” Wiki.org has expanded on this definition as follows:

*Wiki is a piece of server software that allows users to freely create and edit Web page content using any Web browser. [...] Wiki is unusual among group*

*communication mechanisms in that it allows the organization of contributions to be edited in addition to the content itself.*<sup>50</sup>

One of the benefits of a Wiki is that it gives all users an equal opportunity to edit and manage content. This was the true intent of the Web by the man that invented it, who saw the Web as a place for people to “communicate by sharing their knowledge in a pool.”<sup>51</sup>

### 3.3 Who writes Wikis

*“When they first hear about Wikipedia, many people think that articles are created by people adding a few words at a time. Many edits are very minor, and just fix spelling, rephrase, or add a fact or two. But some editors who are interested in a particular subject contribute paragraphs or whole articles at a time; these editors might be anyone from a professor in the field, to a hobbyist, to a person who just wants to fill a hole in the encyclopedia.”*<sup>52</sup>

Indeed, many different types of people contribute to Wikis. Wikis center on any number of subjects, and each successful Wiki must have active contributors. There are Wikis for almost every topic, as well as general Wikis such as Wikipedia or Wikinews, which appeal to a vaster audience.

Absolute indicators of who contributes to Wikis were difficult to discern in a survey conducted for this thesis. Of the 45 respondents who had contributed to a Wiki, 91.1% of them considered themselves technically savvy (compared to 68.5% of the total of 131 respondents). 51.1% of them were on the computer for 8 or more hours a day, and the reason most cited for contribution was “subject matter expertise” at 68.6%. 79.5% of them had used Microsoft’s “Track Changes”

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<sup>50</sup> “What is Wiki?” <http://Wiki.org/Wiki.cgi?WhatIsWiki>. Last edited 27 June 2002. (20 September 2006).

<sup>51</sup> Lamb, Brian. Wiki Ready or not, p7.

<sup>52</sup> “Who Writes Wikipedia?” [http://en.wikipedia.org/Wiki/Wikipedia:Who\\_writes\\_Wikipedia](http://en.wikipedia.org/Wiki/Wikipedia:Who_writes_Wikipedia). Last updated 19 September 2006. (19 September 2006).

feature. This last feature seemed to be the second biggest indicator of whether someone might contribute to a Wiki or not behind the consideration of oneself as technically savvy; only 64.8% of all respondents had contributed.

These numbers were in general too non-absolute to prove a path about Wiki contributors. It seems that people will contribute when they know a subject, although those that are technically savvy may be slightly more inclined to do so. Being on a computer for more than 8 hours a day may also give users more time to spend looking at Wiki sites and familiarizing themselves with these communities.

### **3.3.1 Problem of people not understanding purpose**

Some visitors to Wiki sites may not have an ill purpose in mind, but can compromise the integrity of a Wiki by not fully understanding or learning its purpose: both the purpose of the site, and the purpose of Wiki technology.

Instead of providing information, these users may post questions in the middle of a Wiki or create a Wiki around a question. For example, on the CarGurus Wiki site, one user had posted: “I am trying to find out how many mustangs were made in 1964-1/2” on the Wiki page for this car. Ironically, this behavior is not ostensibly harmful to the site, and may even win some users, as they see that others share the same inquiries as themselves. However, it is still not directly inline with the purpose of the Wiki.

When I distributed the link to the Wiki for this thesis (<http://www.writemythesis.com>), I received questions and comments concerning the Wiki. I was thrilled; this meant that perhaps I would be

seeing some edits from various people. However, many of the comments centered on typos I had put in to the Wiki on purpose. Several people reported these typos to me rather than fixing them themselves.

### **3.3.2 The Reversal: Using the online community to perfect the real community**

More Perfect (<http://www.moreperfect.org>) is a Wiki site which seeks to improve society by sharing ideas on a communal, un-password-protected Wiki.

*more perfect was born out of the firsthand experience of its founders, who have been directly involved in the formulation of local and state-wide legislation and public policy for more than a decade. Frustrated with the limitations of the traditional approach to policy development, more perfect's founders set out to develop a model for collaboration that avoids a time consuming, costly and often ineffective public outreach process, and that would involve more people and re-invigorate the market of ideas.*<sup>53</sup>

They are taking the idea of an online community and extending it backward into an actual community, rather than the more typical reversal of trying to create a web community based on an existing “real” community. They have different sections to allow those who want to discuss and improve different aspects of society to do so.

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<sup>53</sup> “About More Perfect.” [http://www.moreperfect.org/Wiki/index.php?title=About\\_More\\_Perfect](http://www.moreperfect.org/Wiki/index.php?title=About_More_Perfect). Last edited 21 September 2006. (2 October 2006).

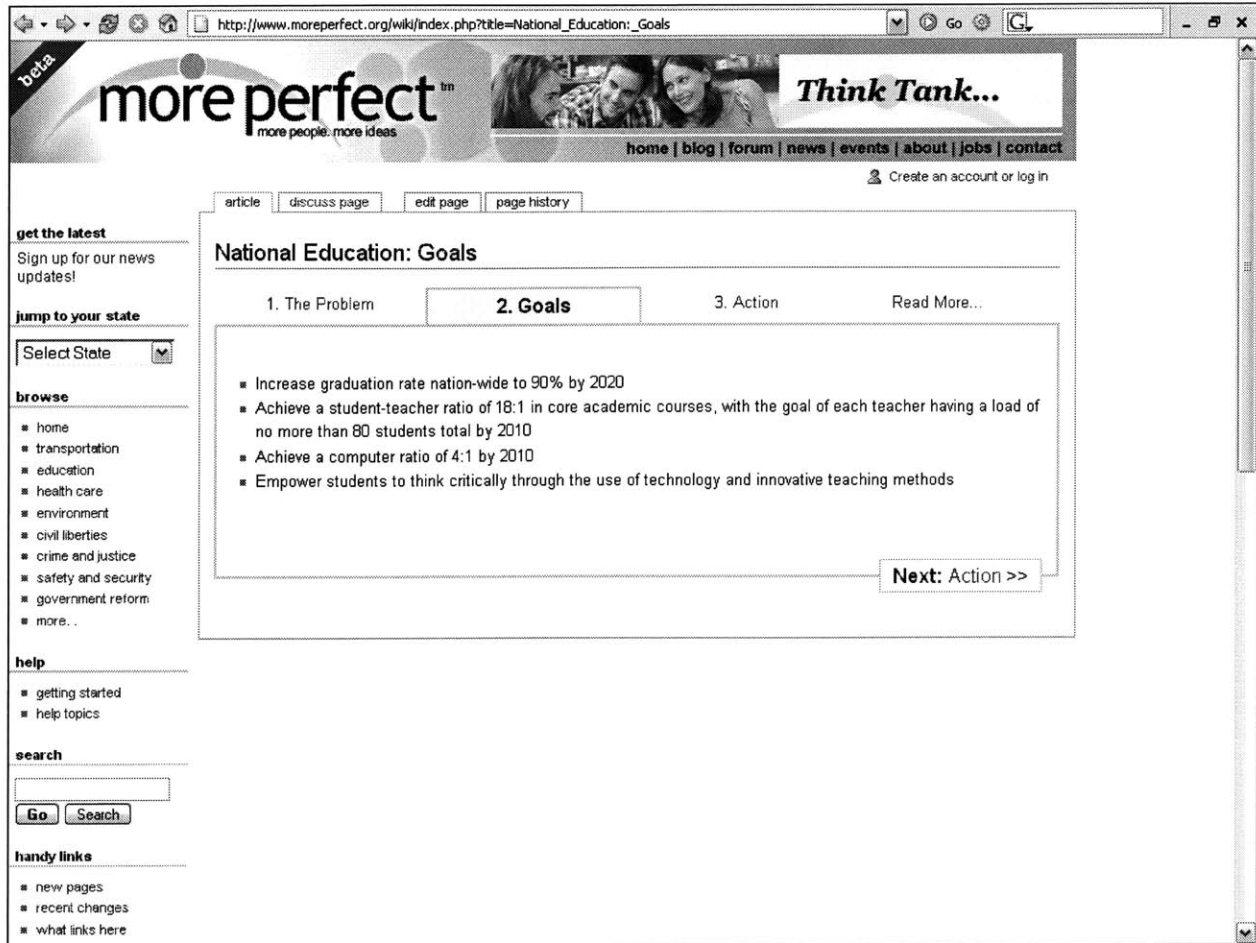


Figure 19 Screen shot of more perfect.

While they get nowhere near the traffic of Wikipedia, their approach to managing society through a Wiki is novel. They currently have 186 articles,<sup>54</sup> whereas Wikipedia measures theirs in the millions.

More perfect has been far from successful, as many of their pages remain the originally generated stubs. This problem of creating an active online community with actively contributing writers will be further explored in the following chapter on Business.

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<sup>54</sup> "About More Perfect." [http://www.moreperfect.org/Wiki/index.php?title=About\\_More\\_Perfect](http://www.moreperfect.org/Wiki/index.php?title=About_More_Perfect). Last edited 21 September 2006. (2 October 2006).

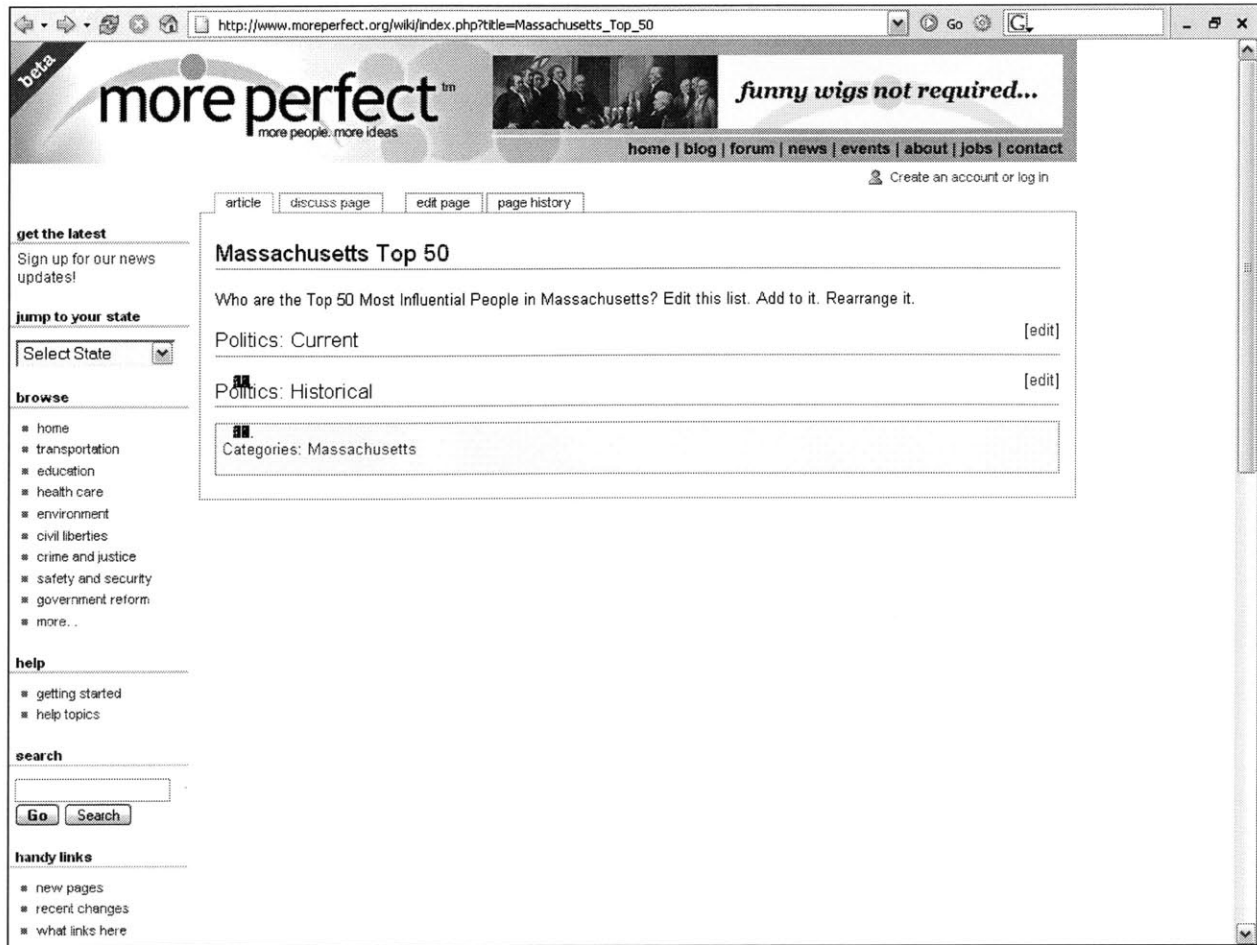


Figure 20 Screenshot of the more perfect page, showing an untouched Wiki stub.

### 3.4 Threats to Community

There are several threats to a community such as that comprised around a Wiki. For this community to be successful, the threats must be identified and controlled, either by the community or by official “police,” such as a site owner.

The venerable Wikipedia has had many problems with vandalism and similar threats:

*As problems of vandalism, prejudice and inaccuracy ensued, Mr. Wales [the founder] was reluctant to clamp down. In the end, he had to. The site has set down policies to mediate debates; it has banished unco-operative contributors; it locked down entries that were frequently vandalized (such as one on George Bush)—changes come only from contributors who are designated as leaders on*

*the strength of their work. A blunt new policy was promulgated: “Don’t be a dick.” [...] Wikipedia changed its rules so that only registered users can edit existing entries, and new contributors must wait a few days before they can start new ones.<sup>55</sup>*

Just as the world’s largest Wiki has had to play with rules to get a successful product somewhat sheltered from threats, so must all other sites.

CBBP-type policies can play a large role in aiding in the content management of many sites.

While some Wiki owners may be hesitant to request a login due to the threat of losing users who do not want to register, the reduced amount of vandalism may be worth losing a user to some. It may give the site more of an exclusive feel—not necessarily a good thing in a community site—but legitimate users will likely respect the steps taken to protect the content they have painstakingly created.

### **3.4.1 Threats: Bots**

Bots are machine processes which can interact with content on a site in ways intended only for human users. The most common non-malicious usage of bots is information gathering. For example, web crawlers crawl sites recursively to gather a listing of pages for that site.<sup>56</sup> The only real threat from these is server usage.

Other bots can be malicious by replacing content with advertising, inappropriate content, or nothing: they simply erase existing content. These bots can cripple a site both through their

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<sup>55</sup> “Open Source Business: Open, but not As Usual.” [http://www.economist.com/business/displaystory.cfm?story\\_id=5624944](http://www.economist.com/business/displaystory.cfm?story_id=5624944). 16 March 2006.

<sup>56</sup> “Internet Bot.” [http://en.wikipedia.org/wiki/Internet\\_bot](http://en.wikipedia.org/wiki/Internet_bot). Last edited 8 September 2006. (10 September 2006)

usage of the server and by leaving a path of destruction that humans have no alternative but to follow and clean.

The server usage by bots is such a threat to Wikipedia that it has created an official policy directing the use of bots on the site.<sup>57</sup> Bots on Wikipedia must receive permission from Wikipedia and must identify themselves through a formal policy program Wikipedia has created.<sup>58</sup> Owners of bots must first be good, active contributors to Wikipedia, and their bots must be proven to be harmless through the bot permission submission process. Most importantly, the bots must be benign, meant only to catalogue or record the information as a search site crawler would. In addition, spell-checking bots are explicitly outlawed, as Wikipedia feels these can ruin content in their sometimes haphazard attempts to improve it.

### **3.4.2 Threats: Spam**

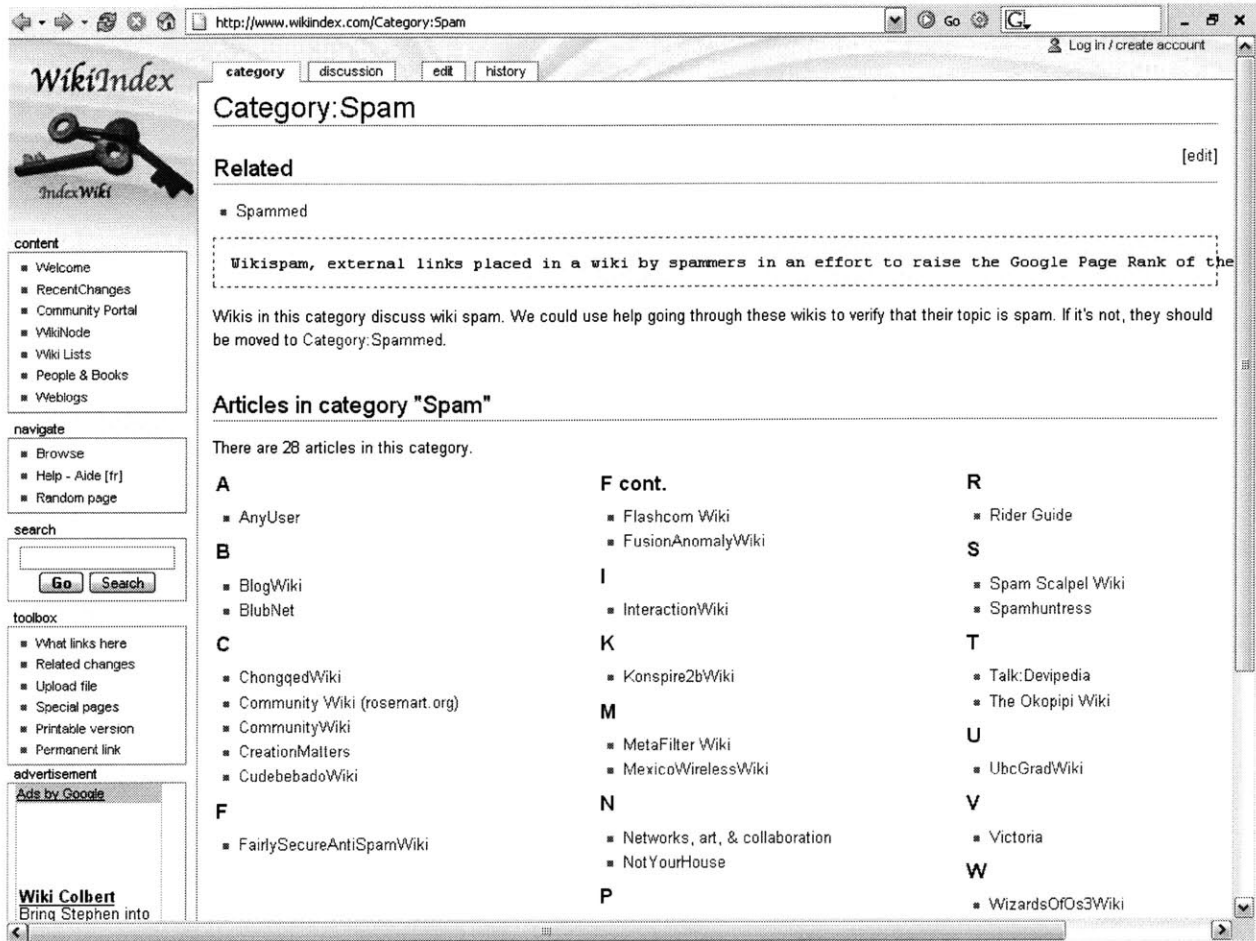
Spammers have many ways of infiltrating a Wiki. They can use brute force, posting links and text advertising their site. In some Wikis, then can even post images. They can choose to integrate their advertisements in at least two ways.

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<sup>57</sup> Wikipedia:Bots. <http://en.wikipedia.org/wiki/Wikipedia:Bots>. Last edit 7 September 2006. (10 September 2006).

<sup>58</sup> "Wikipedia:Bots. <http://en.wikipedia.org/wiki/Wikipedia:Bots>. Last edit 7 September 2006. (10 September 2006).





**Figure 21** Articles from Wikis focusing on dealing with spamming within Wikis.<sup>59</sup>

First, some spammers and the bots they create work overtly. They will not mask their intent, posting only text such as “Check out this link: <http://www.dummysite.com>.” This brute force method is easy to identify, but may be hard to fix. Either the Wiki community can delete the text or a site owner may be forced to monitor the site more carefully. If the site has login capabilities, these may need to be more stringently enforced.

To protect against this type of threat, a site owner (or a surrogate with administrator privileges) can try to filter out certain types of sites or IP’s. However, this could create a problem for

<sup>59</sup> “Category: Spam.” <http://www.wikiindex.com/Category:Spam>. Last updated 11 June 2006. (6 October 2006).

legitimate users. For example, if a site owner filters out any site linking to a specific technology, make of cars, or line of clothes, legitimate writers may no longer be able to post this type of information. However, if the same poster is consistently posting links to the same sites, code can be added to disallow these entries. Unfortunately, this could add more burden on the database and servers of the site owners. Balancing threats while not alienating users requires a delicate balance which will be explored in the Business chapter of this paper.

Another means by which bots operate is to integrate their text as seamlessly as possible into the text of the Wiki. They will appear to give advice centered around their good or service. For example, they can recommend visiting a certain car dealership or hotel, claiming that they have superior service. For the most part, this is harmless. However, when the seamlessly-entered link is to an inappropriate site, unsuspecting users can be misled. In addition, if this entry purposely uses incorrect information, the overall value of the Wiki would be diminished. This also can present an unfounded bias into which community members may fall.

The problem of blatant posting can be ameliorated in at least two ways. First, registration can be a requirement, keeping in mind that spammers could get around this by registering a new account each time their old one is shut down. However, registration can make it easier for a site owner to go in and delete all from a certain user.

A second defense is brute force. Users or owners of the community would need to go in and delete whatever this user has posted. This can start to deteriorate the community as users gain thoughts of being too closely monitored or policed. Conversely, it can strengthen the community

as they work to expel threats together. This theory will be explored in more detail in the section on community policing.

Blending is the third means, and is slightly more sinister in its cure. Users will have to go in and manually delete only the sentences, links, words, or phrases placed there by the spammers. This must be done carefully and by a human user, as loyal users to the community may be recommending some legitimate services, while spammers may be only recommending their own.

Writes Sternstein of the trouble with spam in Wikis:

*"Accessibility can [also] let in annoyances such as spam. People who use spambots - applications that post unwanted advertisements on public Web sites that allow comments - love Wiki sites because they are like free billboards. Wiki sites archive all their versions so they also archive spam, boosting spammers' page rankings on the Google search engine. Much of [a site director's] efforts were directed toward blocking spam. "It's a tough thing between being open and being secure," he said."*<sup>60</sup>

### **3.4.3 Threats: Malicious behavior**

At the risk of sounding completely unscientific, I make this statement: some people are jerks. They seem to base their existence not on their own accomplishments, but in detracting from those of other people. They are not out to advertise services or further their own causes; they just want to cause trouble.

These people have just as much right to go to Web 2.0 pages as any other user, and fully exploit this right. They do not have an advertising purpose in mind, but instead go into a community site and use profanity or grossly modify or delete the work of others. They can use inappropriate language and post inappropriate images.

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<sup>60</sup> Sternstein, Aliya. "Wiki Means Fast." FCW.com <http://www.fcw.com/article88467-04-04-05-Print>. 5 April 2005.

Many threats of this type have learned how to get around prevention techniques. The use of fake IP addresses is common. The Microsoft web site goes into some detail on the problem of IP spoofing:

*Most networks and operating systems use the IP address to identify a computer as being valid on a network. In some cases, it is possible for an IP address to be falsely used. This is known as identity spoofing. An attacker might use special programs to construct IP packets that appear to originate from valid addresses inside an organization intranet.*

*After gaining access to the network with a valid IP address, the attacker can modify, reroute, or delete data. The attacker can also conduct other types of attacks, as described in the following sections.<sup>61</sup>*

Once one IP address is banned, they merely switch to another using any number of available software programs. Users such as these can exploit registration sites by entering false information, a fake or temporary email address, or other misleading information.

Similarly, some malicious users will go so far as to use network rerouters to hide their incoming information. Such sources are best known as the proxies which allow users to access blocked sites. Using fake routers, users can penetrate sites from which they have been blocked. There are sites throughout the web which allow people confined within schools to bypass blockers to access such sites as MySpace and Facebook.<sup>62</sup> Similar sites can be used to alert other web sites which use IP address blocking as security.

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<sup>61</sup> "Security Issues With IP." [http://www.microsoft.com/resources/documentation/windows/xp/all/proddocs/en-us/sag\\_ipsec\\_ov2.mspx?mfr=true](http://www.microsoft.com/resources/documentation/windows/xp/all/proddocs/en-us/sag_ipsec_ov2.mspx?mfr=true). Microsoft Corporation.

<sup>62</sup> "View Blocked Sites from School or Work." <http://www.fastandloud.com/uncategorized/blocked-school-work-filter-bypass-myspace-facebook-friendster-google-orkut-yahoo-360/>. (1 October 2006)

### 3.4.4 Does community policing strengthen or weaken the community?

Community policing is the internal verification of Wiki content by those within the community. There are varying opinions on whether community policing strengthens or weakens the community. Some believe that it strengthens the community, as inappropriate content is filtered out by members of the community itself. However, others disagree that it strengthens the community, as different people may find different content inappropriate. Others wonder where the line is drawn for free speech.

For example, the aforementioned article on Bill Gates led to a discussion within the Wiki on the true origins of the “rumors” of his arrest and atheism.<sup>63</sup> It is, unfortunately, also an example of Wiki vandalism. Eventually, members of the community cleaned the article and gave it special status as an article which only selected members of the community can edit. The members of the community successfully policed this article, rendering a piece of work which was more factual. As with many Wikis, the history remains available so that users can see the past edits to the entry.

Sustainable Ballard considers itself a Wiki meant to be a “blueprint for every town.”<sup>64</sup> It requests that users of different levels—from casual to administrator—monitor different pages and report any vandalism immediately. Administrators are further requested to follow up on such threats by

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<sup>63</sup> “Bill Gates.” Wikipedia. [http://en.wikipedia.org/wiki/Talk:Bill\\_Gates](http://en.wikipedia.org/wiki/Talk:Bill_Gates). Last modified 1 October 2006. (1 October 2006).

<sup>64</sup> “Sustainable Ballard.” <http://www.sustainableballard.org/wiki/index.php>. (9 October 2006).

using the database to monitor behavior by suspected vandals.<sup>65</sup> Casual users are asked to monitor “Recent Changes” and note any misuse.

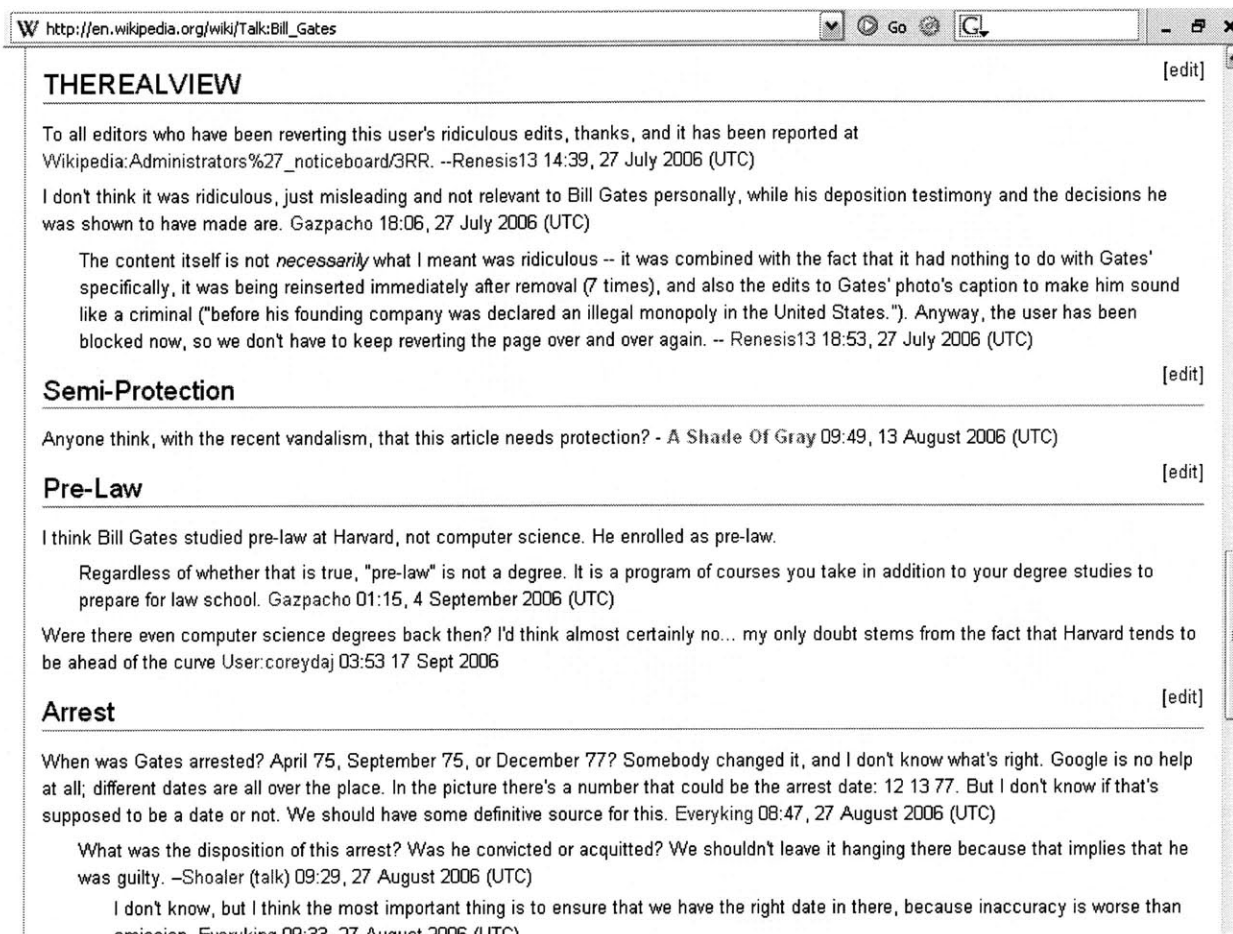


Figure 22 Screenshot of the "talk" section of the Wikipedia article on Bill Gates.

Community policing is primarily a positive thing. It shows that community members are vested in the site and want to make it work to succeed. A small faction of these users may be upset about what they may see as a limitation to free speech. In the end, the heightened quality of pages from user policing offsets any problems with those upset about it. Users know the site is used and protected, and will be more likely to leave their content there.

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<sup>65</sup> “Sustainable Ballard: Vandalism.” [http://www.sustainableballard.org/Wiki/index.php?title=Sustainable\\_Ballard:Vandalism\\_Prevention](http://www.sustainableballard.org/Wiki/index.php?title=Sustainable_Ballard:Vandalism_Prevention). Last updated 28 March 2006. (9 October 2006).

## Chapter 4: Business

*“Nobody has found the de facto business model for Wikis...It’s kind of the Wild West.”*

-Ramit Sethi, co-founder of PBWiki, 4 September 2006<sup>66</sup>

The concept of earning money from others’ labor is intriguing. With several Web 2.0 technologies, that possibility presents itself as a viable reality. The ease of user interaction in a Wiki makes it a prime candidate for the basis of an Internet business. However, to build a successful business online, the site must appeal to a large audience—especially if the model is based on advertising.

This chapter will explore means of building, sustaining, and earning money from user writing.

### 4.1 Why Wiki

As noted in the Wiki definition section of this paper, a Wiki is a Commons-Based Peer Production, which is a project whose team is comprised of volunteers. CBBP refers primarily to Internet-based projects, but can include many different project types, such as software, libraries of data, and books.<sup>67</sup>

Aaron Krowne, author of an article on the dispute between Encyclopedia Britannica and Wikipedia, claims there are at least two forms of CBPP sites: the free-form model and the owner-centric model. Wikipedia is an example of the former: no login is required although the

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<sup>66</sup> Levine, Robert. “New Web Sites Seeking Profit in Wiki Model. The New York Times. Section C, page 1, column 6. 4 September 2006.

<sup>67</sup> Krowne, Aaron. “The FUD-based Encyclopedia.” Free Software Magazine. 28 March 2005.

user can register if he or she wishes to claim the content he or she creates, and any person can edit any entry. Benefits of this kind of site were discussed in the chapter on community. The owner-centric model has an owner for each entry—usually the person who started the entry—and this owner can grant selected users permission to edit. While users can suggest changes, only the owner may actually enter them until he or she decides to grant permissions to others. This model gives the owner more control of his site.

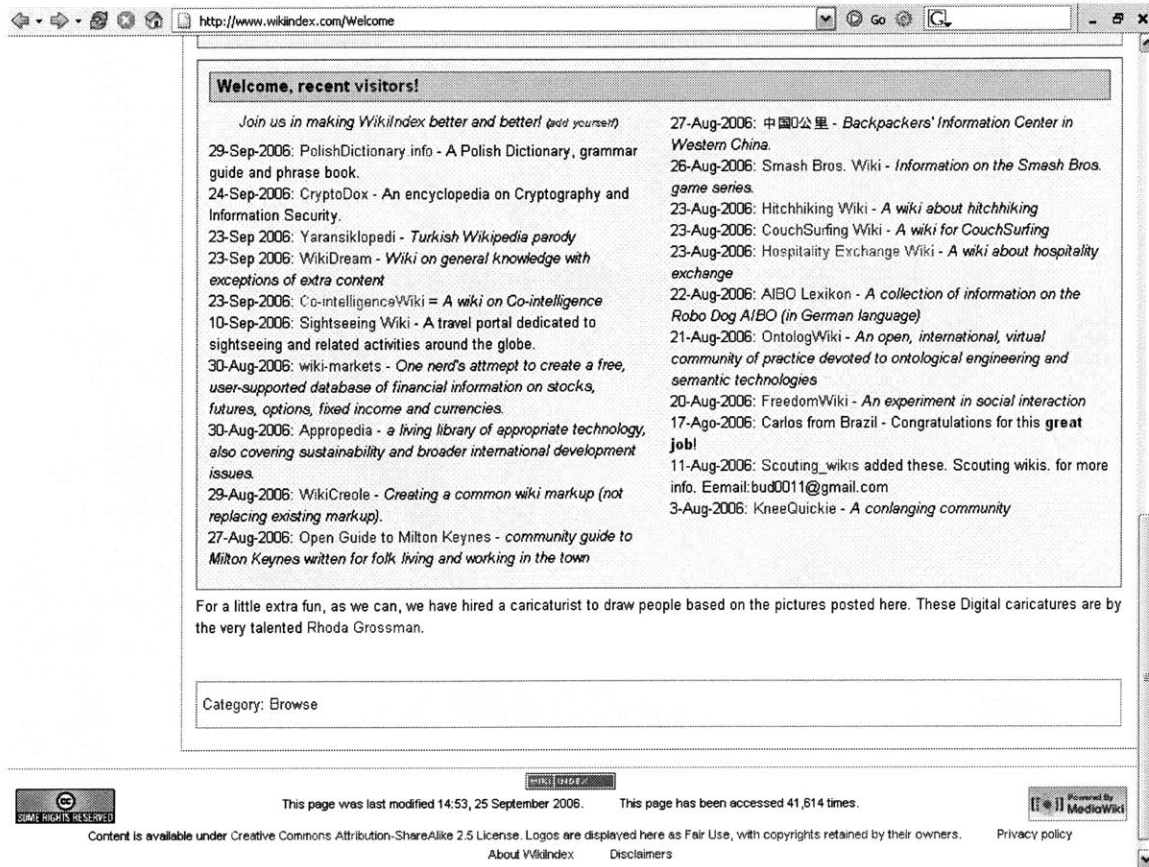
This owner-centric type of site is very similar to an open source project. Generally, in open source software—and always in Apache open source software projects—a project has an owner.<sup>68</sup> Users of the software may submit fixes, but in the beginning, the owner must implement these fixes himself. As the project progresses, the owner may recognize that individual and grant him the role of contributor or the higher role of administrator. Different roles have different levels of commit privileges, allowing users to edit and contribute directly to various parts of the project. In the CBPP model, different Wiki contributors earn the right to directly contribute content, just as do open source software developers.<sup>69</sup>

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<sup>68</sup> Davidi, Ilana; LaMantia, Matthew; Schiller, Dave; Shapira, Yoav. “Open Source Software at Apache.” Unpublished. Submitted to System Project Management class, December 2005.

<sup>69</sup> Davidi, Ilana; LaMantia, Matthew; Schiller, Dave; Shapira, Yoav. “Open Source Software at Apache.” Unpublished. Submitted to System Project Management class, December 2005.





**Figure 23** A variety of Wiki sites listed at [wikiindex.com](http://www.wikiindex.com)

To Krowne's two definitions, I add a third commonly found model: the login site with no specific monitoring for each entry. Monitoring can be executed at a higher level, with each entry allowed to flourish under the guidance of a user community. I would place this option in between his two options in terms of monitoring capabilities and user empowerment, and will refer to it as the general login model.

All of these models have advantages and disadvantages. With the free-form model, there is little barrier for users to write. This can be both a positive and a negative: while casual users may be more likely to make minor changes to content, they may be less likely to commit time when there is no credit to be received. This can also make it easier for vandalism to occur on the site,

as there is no registration process and vandals can edit or destroy entries slightly more quickly and easily.<sup>70</sup>

With the general login model, it is easier to track users, and it is simpler for these users to build reputations for themselves. Users can log in, create a name, and start earning a reputation. With the self-policing within the community, there is less for the business owner to do. He or she needs to monitor at a high level, but can leave it to the community to denote direction.

In owner-centric model, the owner has complete control. The challenge of this model is that the owner needs to allow the community to write and feel as though it has the right to do so without being constantly policed for any minor infraction, such as a misspelling. The owner controls not only the site (as with the general login model), but each individual entry separately. This model requires extra vigilance on the part of the owner, as well as on the part of those who participate in it.

## **4.2 Starting out: Types of sites that may succeed**

Collaborative sites must effectively manage a large circle of what are essentially non-employees with perhaps little or no interest in the company other than the information they can gather from the sites' pages. The company must provide this benefit to them and give them a desire to keep the site running in order to do its best to ensure itself with a sustainable revenue model. The business of running these sites hearkens back to some of the DotComs sites: they are hybrid

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<sup>70</sup> "Sustainable Ballard: Vandalism."  
[http://www.sustainableballard.org/Wiki/index.php?title=Sustainable\\_Ballard:Vandalism\\_Prevention](http://www.sustainableballard.org/Wiki/index.php?title=Sustainable_Ballard:Vandalism_Prevention). Last updated 28 March 2006. (9 October 2006).

companies, providing both products and services, but in a less-defined way than might traditional storefronts.

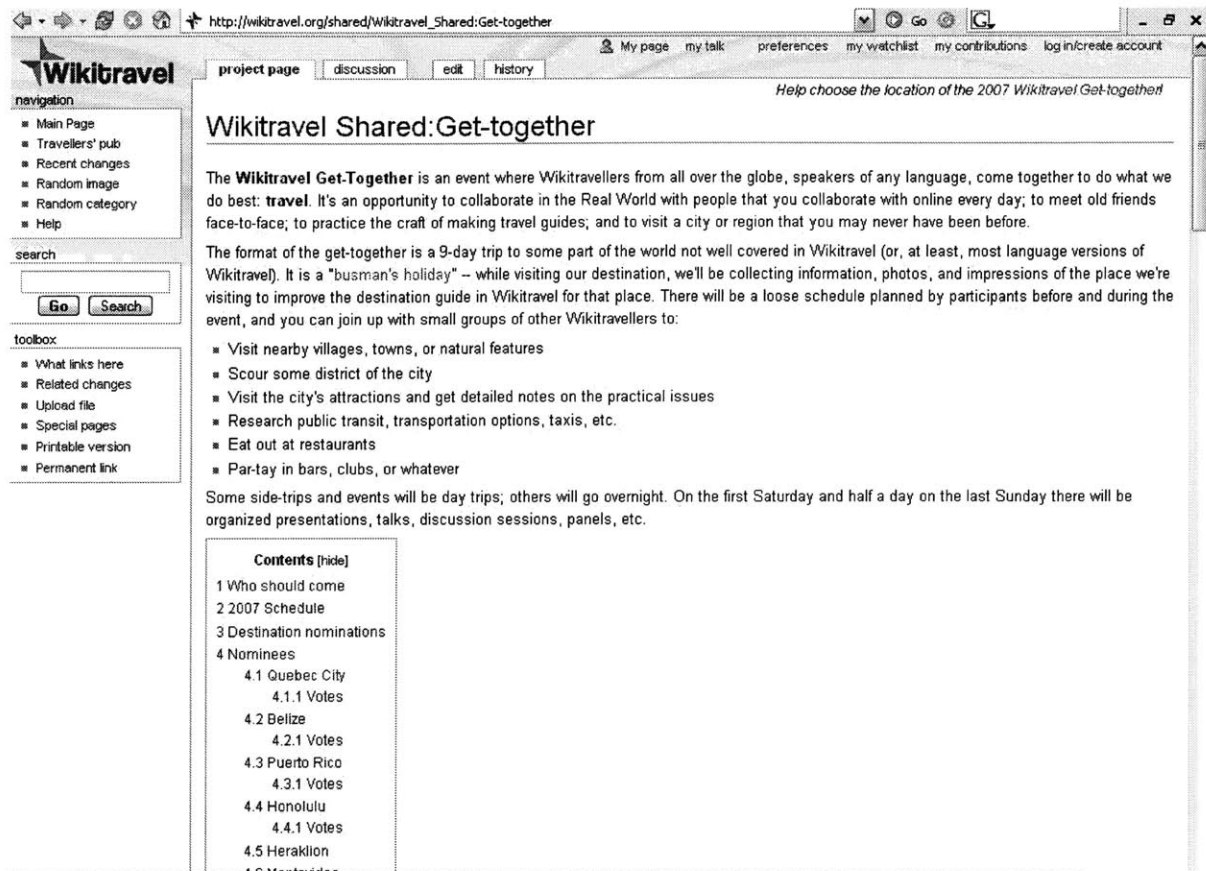


Figure 24 Creating a "business trip" for the Wikitravel community<sup>71</sup>

The main product is information. By putting together the collective knowledge of a relatively random group of individuals, a variety of views of information can be amassed. While the information may not always be truthful—such as the Bill Gates article in Wikipedia discussed in the community section—it is a place to begin a discussion and perhaps to learn more.

<sup>71</sup> [http://wikitravel.org/shared/Wikitravel\\_Shared:Get-together](http://wikitravel.org/shared/Wikitravel_Shared:Get-together). Last updated 28 September 2006. (2 October 2006).

The service provided can be equally as vaguely defined. Part of the service is the provision of a place for like-minded people to find one another. Connections made over obscure topics can be difficult to discover in day-to-day conversations, yet Wikis provide a place for these people to find one another. In addition, certain sites can provide information services.

The company's main role from a user perspective is therefore to provide a place for these people to congregate. Once a company has an audience, it can provide further services, such as links to topic-related pages or ways to learn more about certain subjects. The company cannot stop actively maintaining a community once one starts to appear. Those involved with the company should carefully monitor the site's progress to ensure that community members are having a positive experience.

A major risk in building a business on a Wiki is that the energy behind it may change. As Robert Levine noted in an article in the New York Times, "If Wikis become a big business, some of that idealism may fade — and consumers may begin to resent contributing to the sites free. So far, though, the sites are growing fast, thanks to dedicated volunteers."<sup>72</sup> To avoid this type of problem, a company must supply a robust product and establish a dedicated corps of users and writers.

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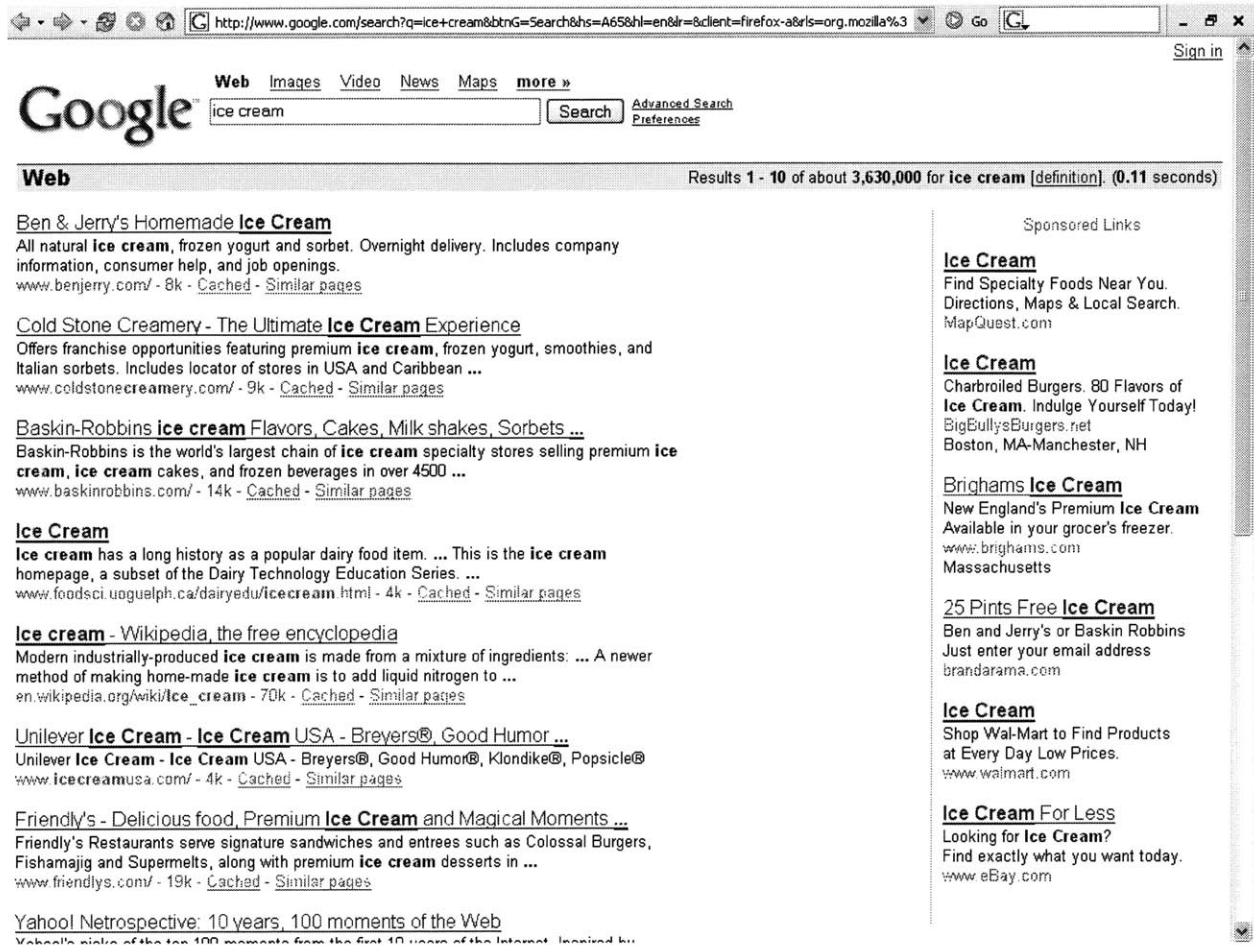
<sup>72</sup> Levine, Robert. "New Web Sites Seeking Profit in Wiki Model. The New York Times. Section C, page 1, column 6. 4 September 2006. .

### **4.2.1 Build something useful**

The Wikis currently in existence center on many different topics. As previously discussed, a Wiki's success depends heavily on its community; an active community is a requirement for Wiki sustainability. Users will return to a site if it is useful to them. Obvious though this may seem, many Wikis die due to a lack of community; there was no use found in the site by its potential users.

Based on the number of pages, the most popular public Wiki is Wikipedia. This site provides the same function as the encyclopedia books that are used so often in research. In addition, it has become the home for anything factual; if something is based in fact, Wikipedia will most often allow a page. Pages showing bias or company advertising are often not allowed.

Wikipedia fills a very useful niche: it is the Encyclopedia Britannica for a generation that does much of its work and research online. No longer are periodically updated volumes purchases required; information can be updated realtime and made immediately available to the viewer. It is well-indexed online, and is usually among the first entries for any Internet search.



**Figure 25** Even for a term as popular as "ice cream," Wikipedia is still listed in the top five entries.<sup>73</sup>

Similarly, other popular Wiki products focus on every-day usage items, such as Wiktionary, a Wiki dictionary with over 296,330 entries.<sup>74</sup> A dictionary is a common usage item for many people, and again, these are real-time entries. Hard-cover dictionaries do not need to be purchased annually to update any of the new or current words.

Other popular Wikis center on software, including the original Wiki, Ward's Wiki. These sites are especially useful, as the software community spends much of its time online and expects to

<sup>73</sup> Google. http://www.google.com/search?q=ice+cream. (2 October 2006)

<sup>74</sup> Wiktionary. http://en.wiktionary.org/Wiki/Main\_Page. Last updated 20 October 2006. (20 October 2006).

find resources there. While Ward's Wiki centered on patterns, many open source software projects use Wikis for their documentation. Users of the software can edit the pages related to any problems, tricks, or instructions they may discover throughout their own use.

While still not as popular as some of the other mainstream Wikis, Apache's Wiki has seen different edits on its various software projects. Some people have added accompanying graphics, as well as step-by-step instructions to implementing many of Apache's software products.<sup>75</sup>

Many of the most popular Wikis provide uses for people searching for general, useful content. Sites such as Wikipedia, Wiktionary, and Lyricpedia (for retrieving song lyrics) top the list of most popular Wikis (for the complete list, please see Appendix C).<sup>76</sup>

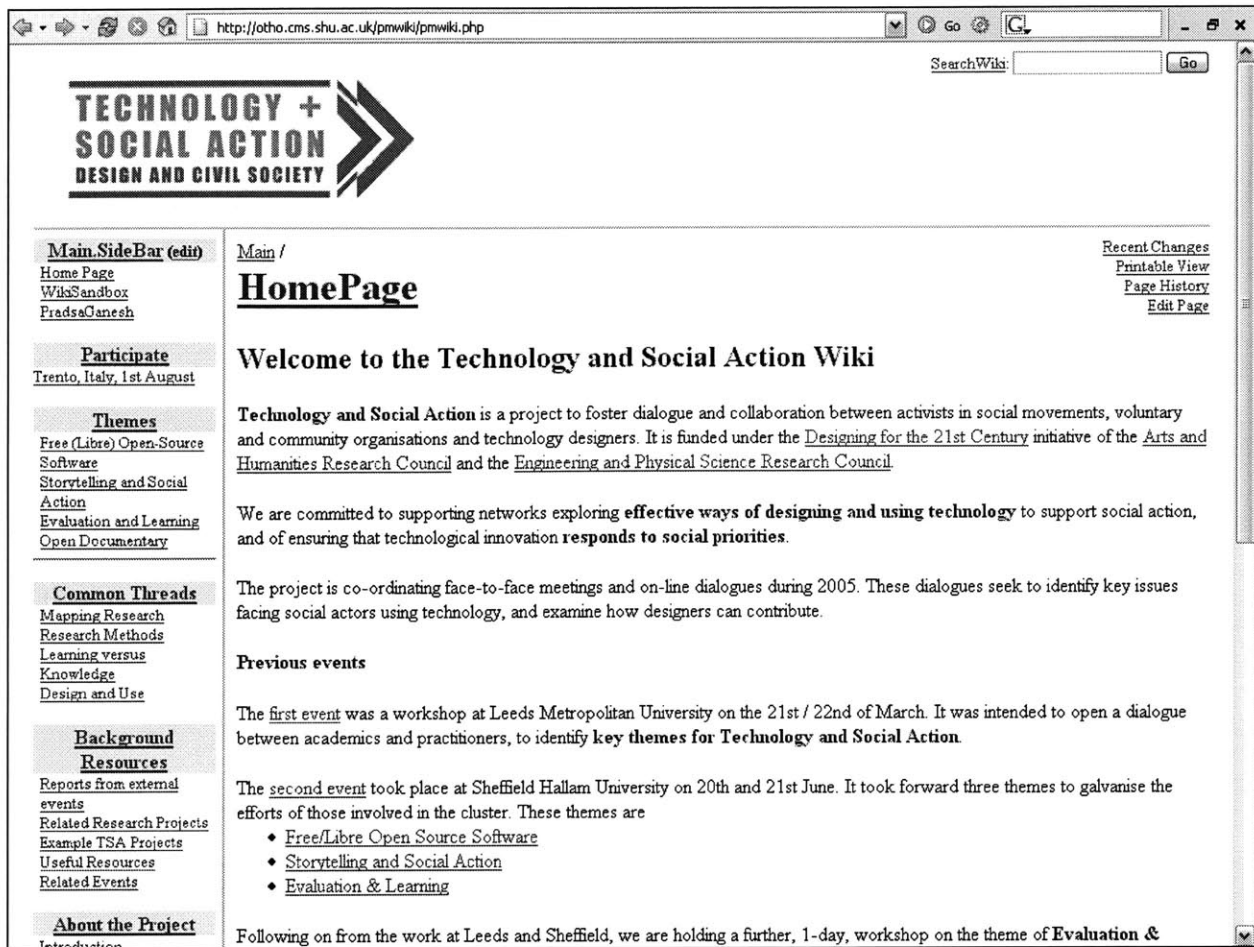
#### **4.2.2 Center on a subject which evokes passion**

As noted above, many of the more popular Wikis seem to focus on the mundane, useful parts of life, such as encyclopedias and dictionaries. However, others can create a common ground for those with a common interest, no matter how much of a niche the interest may seem. It can be hard to divine which subjects evoke more passion. While some may seem fairly obvious, pockets of passionate users exist throughout various communities. Some sites evoke passion from their users, who respond by filling the site with information.

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<sup>75</sup> "Apache Wiki: Recent Changes." <http://Wiki.apache.org/general/>. Last updated 3 October 2006 (5 October 2006).

<sup>76</sup> List of Largest Wikis. [http://meta.wikimedia.org/Wiki/List\\_of\\_largest\\_Wikis](http://meta.wikimedia.org/Wiki/List_of_largest_Wikis). Last updated 15 October 2006. (22 October 2006).



**Figure 26** The Technology and Social Action Wiki provides a place for those involved with social movements to collaborate and discuss.<sup>77</sup>

Realistically, an assumption that there is only room for a limited number of large-scale Wikis cannot be far from the truth. As such, creators of new Wiki sites may want to center on topics which have passionate communities, such as travel, conspiracy theories, or pets. For now, the most successful Wikis are those with broad-based interests, but going forward, the smaller communities should be ready to gain in space.

<sup>77</sup> “Welcome to Technology and Social Action Wiki.” <http://otho.cms.shu.ac.uk/pmwiki/pmwiki.php>. Last updated 13 December 2005. (6 October 2006).



### **4.2.3 Establish credibility within the community**

As noted repeatedly, arguably the most important aspect of a community site is the community. To gain respect within this community, the owner of a community-type company should do his or her best to blend into and to better the social network surrounding the subject matter of the site.

Having a subject matter which inspires passion in users is indeed a good way to draw people to a site. Similarly, these passionate users may not like someone using their passion to make money. For example, a stamp collector may not appreciate a site which merely haphazardly links to advertisements for stamp-related products. Rather, the site owner should take care to show that the company is aware of trends in the industry as well as of other sites or information repositories surrounding the hobby.

The site owner or representative can also log into various related communities, such as chat rooms centered on the topic. By proving knowledge by answering forum questions or participating in group topics, the site representative can build a positive reputation for the company. Participating in user communities outside of his or her own site can also create valuable links to the site which may be followed both by fellow community members as well as by search engine spiders, thereby increasing the company's page rank and indexability.



Figure 27 This Wiki site provides a place for those who want to build an ecovillage to discuss their plans.<sup>78</sup>

#### 4.2.4 Make the site inviting

For one web site, the key to getting more writers was to change their interface. At first, the site did not have a slick, Web 2.0-type interface. Instead, the site was difficult to navigate with only a text “edit” to alert the user that the content was indeed editable.

<sup>78</sup> “Welcome to Ecoreality.” [http://www.ecoreality.org/Wiki/Main\\_Page](http://www.ecoreality.org/Wiki/Main_Page). Last updated 28 September 2006. (6 October 2006).

After a change to a more modern interface, edits skyrocketed. The week previous to the change, the site had had two original posts. The week following, there were nine, then 16 in the next week.

Unfortunately, this success came at a cost to the revenue model. Users were so intrigued by the tabs that they neglected to click through on ads embedded on the site. Ironically, improvements to the look and feel of the site had been a deterrent to writing rather than an attraction to it.

Any change to the site should be made carefully. The value of an aesthetically pleasing site should not be undervalued. However, if this change is going to come at the expense of a drop in revenue, the change should be made carefully, with a constant eye toward the bottom line. Of course, one must keep in mind that community support is tightly coupled with the site's revenue, and with fewer customers to the site, it will lose money, regardless of the slick look and feel.

#### **4.2.5 Avoid barriers to entry as possible**

Some aspects to a site should be avoided when possible. For example, a large barrier to entry for getting people to start writing on a Wiki can be login. As noted in the Technology chapter, registration is a useful tool for improving security on a site. However, this same tool for deterring vandalism or corruption can also deter legitimate writers. Many site owners believe that what they gain from a robust, reliable site containing good content is worth the occasional loss of a contributor, care should be taken and studies completed before any extra hurdles are put before potential writers.

While many security models can help to improve the overall quality of a site, any possible data collection should be conducted to ensure that the best model is employed for each site. As noted earlier, Wikipedia found the required login too large of a barrier to entry to maintain. They eventually took down the required login and saw a vast improvement in the number of hits and edits they were getting.<sup>79</sup>

### **4.3 Encouraging an active writing community**

In an article called “Why it’s not a Wiki world...Yet,” Stanford Masters candidate Andy Szybalaski wrote, “There is no instant gratification to be found in starting a Wiki; in fact, even new Wikis started by the high-profile Wikimedia Foundation, such as Wikinews, are slow to become useful.”<sup>80</sup>

Indeed, a large problem for any Wiki business is gaining customers, particularly customers who will actively contribute to the site. In addition to the problems faced by typical software companies, a Wiki business must deal with the additional problem of getting people to start writing on their sites.

The problem of getting people to start writing and authoring Wiki entries is a difficult one indeed. Oftentimes, behavior may seem random. In a poll conducted for this thesis, only 37.1%

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<sup>79</sup> Timothy, “The Early History of Nupedia and Wikipedia, Part Two,” Slashdot. 19 April 2005. <http://features slashdot.org/article.pl?sid=05/04/19/1746205&tid=95>.

<sup>80</sup> Szybalaski, 8.

out of 116 respondents had ever edited a Wiki,<sup>81</sup> even though 86% considered themselves to be technologically savvy. Further, only 69.9% of those surveyed cited a reason why they might contribute in the future.

The chicken-and-egg problem surrounding a site such as a Wiki is that people will not visit until there is content available, and without visitors, there are few ways to input content. Having original content on a site can pay huge dividends in terms of attracting search site crawlers.<sup>82</sup> To get around this, business owners may have to “seed” the Wiki by entering content themselves. The minimal cost paid to getting someone to post content can be offset through gains reaped in advertising on other parts of the site. There are a variety of ways to entice people to start writing for a site, and several of these will be discussed below.

#### **4.3.1 Advertise the need for content**

On most Wikis, there is a page specifically for those who would like to get involved. On this page is a consolidated list of links to articles which need to be cleaned up, deleted, or expanded. Those who want to get involved with the site can come to these pages, find a task, execute on that task, and start building an online reputation.

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<sup>81</sup> Davidi, Ilana. “SurveyMonkey: Web 2.0 Contributions.” <http://www.surveymonkey.com/s.asp?u=833272435673>. Survey closed 25 October 2006.

<sup>82</sup> “Search Engine Optimization.” <http://forums.devshed.com/search-engine-optimization-108/content-is-king-217484.html>. Last edited October 2004.

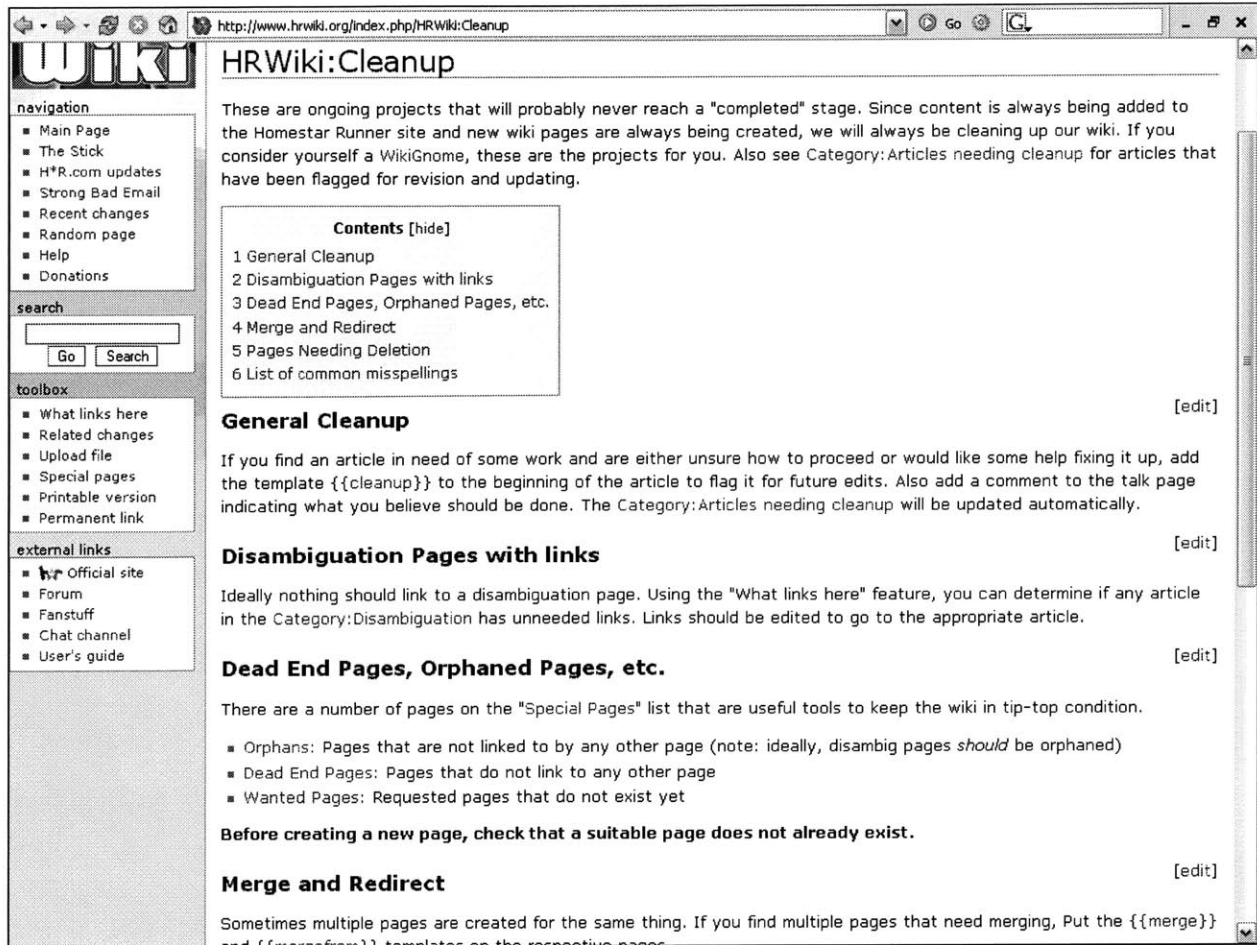


Figure 28 Cleanup page for HomestarRunner Wiki.<sup>83</sup>

These pages are good for getting newcomers to the site involved. However, for a blossoming site, all of its pages may need content but not all pages can be listed on these as “needing content.” To get content on these pages, it may sometimes be necessary to hire writers or use creative ways to attract people to write.

<sup>83</sup> “HomestarRunner: Cleanup.” <http://www.hrwiki.org/index.php/HRWiki:Cleanup>. Last updated 26 August 2006. (9 October 2006).



Figure 29 A call to action. Note text which says, "This is your Wiki - feel free to build it."<sup>84</sup>

### 4.3.2 Be robust and reliable

Few things can deter potential users more than an unreliable canvas on which they must risk creating their “art.” When setting up a business which requires user input to succeed, care must be taken in the configuration of servers and related technologies to ensure as much up time as possible. If a user believes he or she cannot depend on his or her input being available whenever needed, the business can lose this user: the user does not want to see hard work immediately lost.

<sup>84</sup> “The Open Business Model Project.” iCommons.  
[http://Wiki.icommons.org/index.php/%E2%80%98The\\_Open\\_Business\\_Model\\_Project:\\_call\\_for\\_partners](http://Wiki.icommons.org/index.php/%E2%80%98The_Open_Business_Model_Project:_call_for_partners)

Geoffrey Moore discussed this “whole product solution” in his book, Crossing the Chasm. He notes that software firms must offer reliable and robust products to customers in order to gain a wide audience.<sup>85</sup> While this type of rule is applicable to most businesses, in Wikis and other web-related technologies, this is of utmost importance: there are many alternatives to these sites, and users will not usually give multiple chances to websites with failures. Notes For Use, a website familiar with enhancing the user experience:

*From a design standpoint it is especially important to understand how readily Web site visitors can shift among roles. The transitions from one role to another need to be considered and managed if possible. The fact that the user can so easily and quickly abandon a site to go to the competition or another resource needs to be taken into account. It can be of great importance if and when a Frustrated-Product-Installer switches roles to become an Interested-Add-On-Buyer or a Disgruntled-Email-Help-Seeker.<sup>86</sup>*

This thought holds doubly true for a site such as a Wiki in which those visiting the site can potentially become active contributors to it. An article by GUI blooper purveyor Jeff Johnson further emphasizes the need to have a good, reliable site:

*Web users are even less tolerant of services that are hard to use. Why struggle, when there are several dozen (or several hundred) other sites offering the same thing for less hassle? We'll just hit "Back" and go somewhere else.<sup>87</sup>*

Because of the explosiveness of technology online, the site owners must be extremely careful to define and enforce a positive user experience. If not, users may abandon the site for a more robust one which poses little risk of lost data.

In addition, Wikis are dependent on users for more than simple advertising revenue. A Wiki needs to have an active community and disappointing even one member of the already

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<sup>85</sup> Moore, Geoffrey. Crossing the Chasm.

<sup>86</sup> “For Use FAQ.” <http://www.foruse.com/questions/index.htm>. Last updated: 2003.

<sup>87</sup> Danino, Nicky. “Interview: Jeff Johnson of GUI Bloopers.” Sitepoint. 30 April 2002.



established community outside of the Wiki can have negative consequences. Any lost user could have been the one that would someday become a lead writer or review, or even a site administrator.

All saves must be done without issue, and the site must be available as often as possible. When the editable site is taken down for any reason, a placeholder must be arranged, even if the content is not able to be edited. Content must be available at all times.

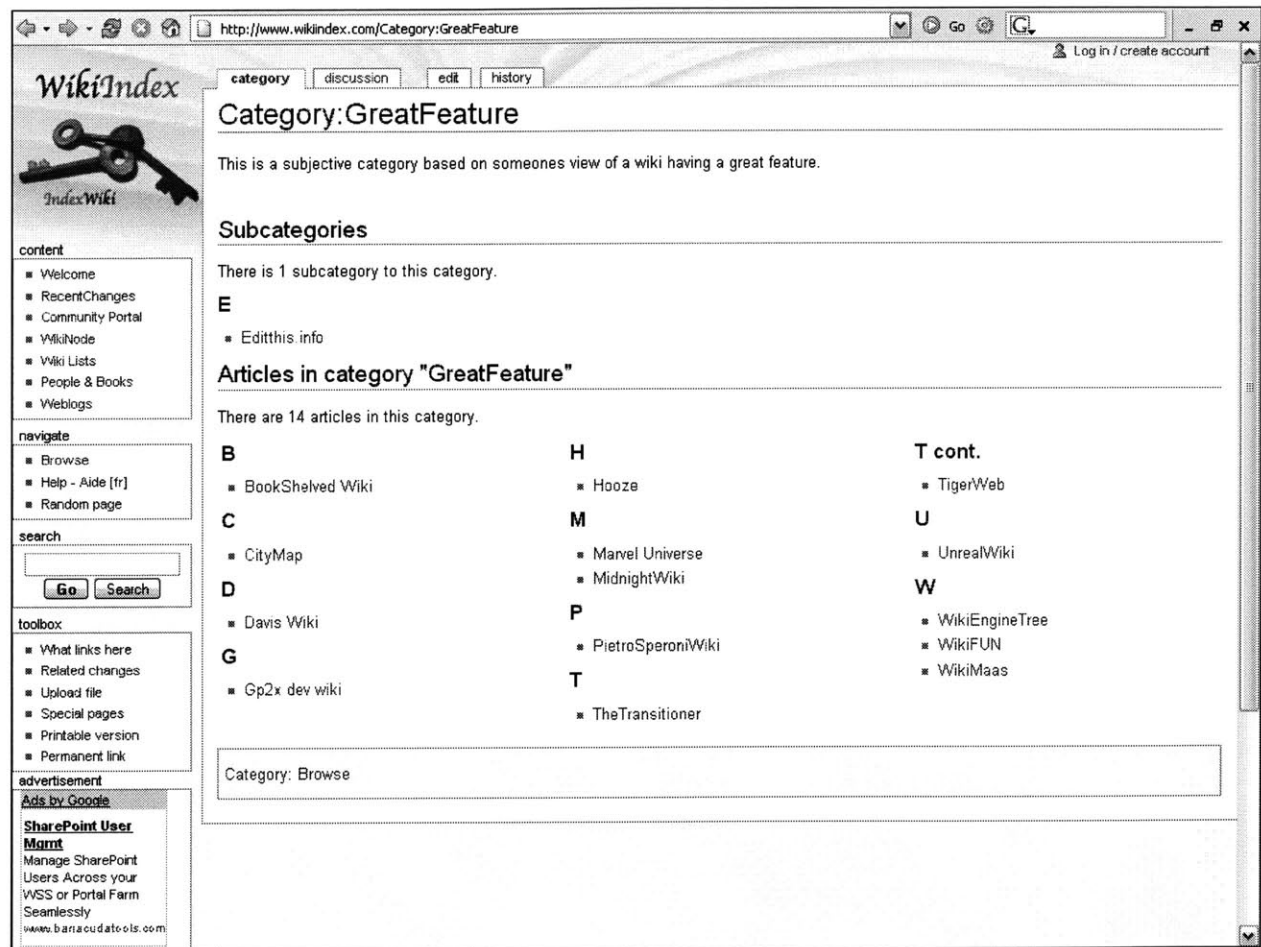


Figure 30 This Wiki page focuses in on user-chosen Wiki sites which have "Great Features."<sup>88</sup>

<sup>88</sup> "Great Features." <http://www.wikiindex.com/Category:GreatFeature>. Last updated 17 May 2006. (6 October 2006).

### **4.3.3 Perceived reward: Work recognition**

Now that a user has found a site which fits a need and is robust and reliable, the Wiki business should find a way to reward this user for his or her participation. One type of perceived reward is the recognition of a user's community involvement. Users can get "karma," or points, for each entry they contribute. This karma can be varied depending on amount written or on votes given by other community members for a positive contribution.

A hall of fame or constant contributor area can be set up and maintained to point out the best contributors in the community. Wikipedia recognizes articles as "featured articles." Writers of these articles can be seen by looking at the history pages.

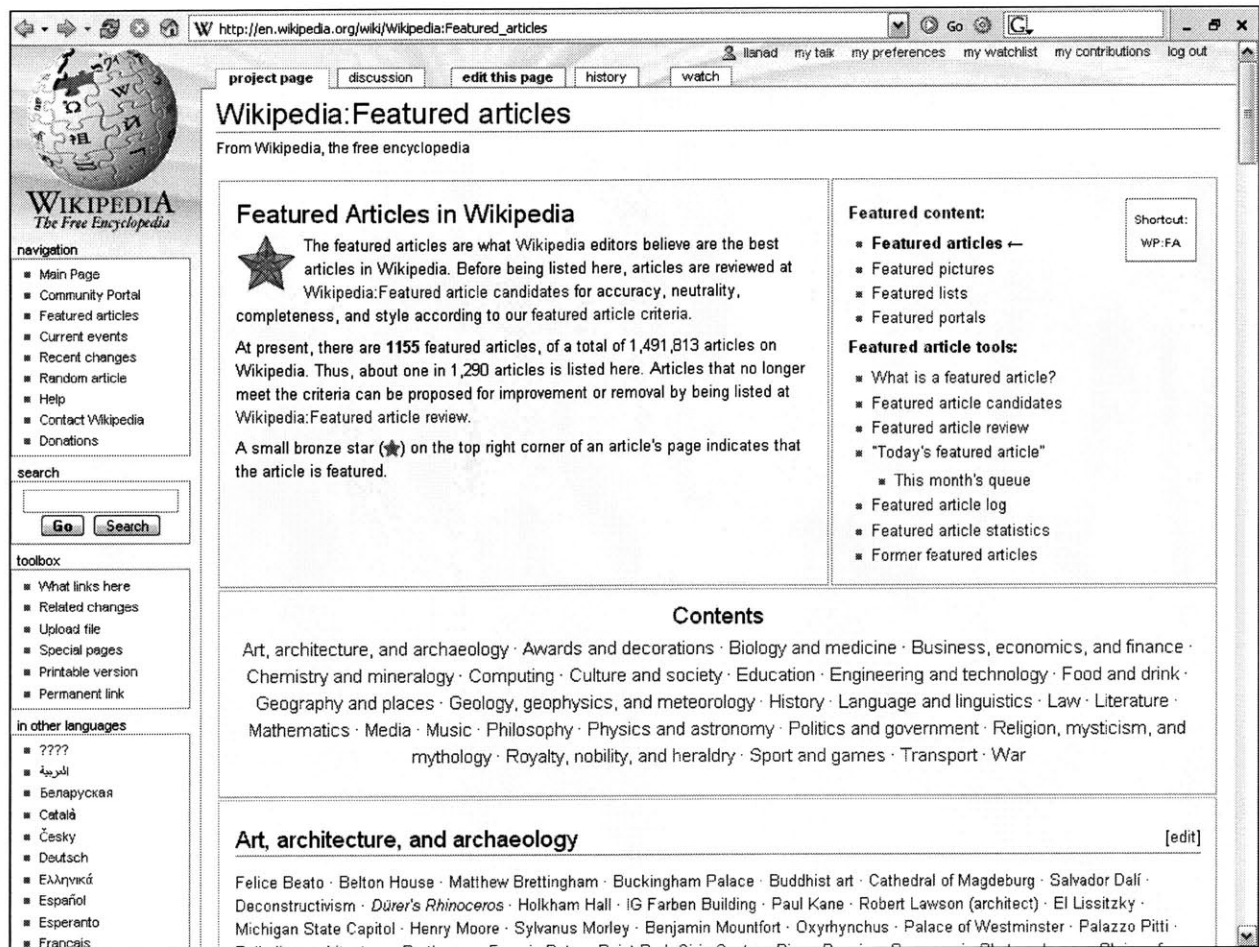


Figure 31 Wikipedia's featured articles<sup>89</sup>

Sondra Crane, a 76-year-old woman living in Florida, talked about contributing content to the wikiHow Wiki site on topics such as cooking a pot roast: “I’ve been writing all my life and I always wanted to have my name known,” she said. “I’d like to get paid — I put a lot of hours in. But it’s nice to know that people are being helped.”<sup>90</sup> Contributors such as Crane seem to enjoy helping others, but also want to have name recognition, if only by a screen name. While what they may see as the good deed of helping others may not be rewarded with monetary

<sup>89</sup> “Featured Articles.” [http://en.wikipedia.org/wiki/Wikipedia:Featured\\_articles](http://en.wikipedia.org/wiki/Wikipedia:Featured_articles). Last updated 18 October 2006. (18 October 2006).

<sup>90</sup> Levine, Robert. “New Web Sites Seeking Profit in Wiki Model.” *The New York Times*. Section C, page 1, column 6. 4 September 2006.

compensation, they can achieve a positive online reputation and karma through an association of their names with their content.

#### 4.3.4 Pay them

If users are not getting to the site by themselves or are not happy by merely receiving karma points for their work, a Wiki business may be able to entice them with money. Writers can always be paid to write. One option to seeding a Wiki is to hire writers at a lower cost, then put them to work writing about the subject matter. The hiring of writers can be done for little or no investment. Communities such as Craigslist allow free job postings.<sup>91</sup> Job postings found there ranged in salary from around \$7.50/hour to \$30 an hour for writers.<sup>92</sup> Depending on the throughput of the writers and the site's current revenue levels, the writing can provide large return for low investment. No longer will visitors be faced with an empty entry, but a more legitimate, longer stub from which they can grow their content.

There are some caveats accompanying this method. The first is that all writers have a distinct style, and if users detect that one person is being made to write extensive content, it may be off-putting for the community. Second and more importantly, having a professional writer seed a Wiki can intimidate others into not posting their own content. As previously noted, mistakes can attract edits.<sup>93</sup> A user may be hesitant to edit a seemingly "perfect" article. I like to call this the "Karaoke Effect." When doing karaoke, few want to follow professional-quality singers.

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<sup>91</sup> "About Craigslist." <http://www.craigslist.org/about>. (16 October 2006).

<sup>92</sup> <http://boston.craigslist.org/writing>.

<sup>93</sup> Davidi, Ilana. "SurveyMonkey: Web 2.0 Contributions." <http://www.surveymonkey.com/s.asp?u=833272435673>. Survey closed 25 October 2006.

However, if there is a bad singer, the line follow can grow rapidly. Similarly, while a professionally-written Wiki article may be good to read, it may cause other, well-intentioned users to avoid editing it for fear of destroying the high quality of content already in existence.

Another alternative found throughout business but applicable in Wikis as well is to have a contest. Users can be required to register, then entered into a drawing for each Wiki edit made. Edits can be required to be of a certain length or quality, but in truth, the business just needs users on the site. The possibility of a \$100 or so prize can encourage hundred of people to write original content, possibly for less than that paid as an hourly wage. Sites such as TreoCentral have employed contents to encourages users to contribute. Noted a blogger on TreoCentral: “Many thanks to every user who contributed to the TreoCentral Wiki during our TreoCentral Wiki Contest! Literally every edit I saw was beneficial and helped make it more informative, organized, just plain better.”<sup>94</sup>

Paying for the initial seeding of content may pay large dividends as search engine crawlers such as Google’s or Yahoo’s discover more original content on sites and continue to offer more links to them through their search engines.

#### **4.3.5 Monitor the site**

A Wiki site needs to be monitored to be successful. While some community policing may exist, if the site’s goal is to create revenue, the site or business owner must be prepared to monitor the

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<sup>94</sup> “TreoCentral Wiki Contest Winners.” <http://www.treocentral.com/content/Stories/913-1.htm>. 20 September 2006.

content. As noted in the technology chapter, this can be done in a number of ways, including internal bots crawling for inappropriate content or email alerts referring to new entries.

Site owners can use “Recent Changes” pages to monitor what pages have been changed, and what these changes have been. Monitoring the site requires vigilance, especially in the early stages, as someone bent on destroying the site can do damage in a short amount of time. While it is not usually difficult to revert pages, having the vandalism on the site can be embarrassing and may cause customers to not return if they visit during that time.

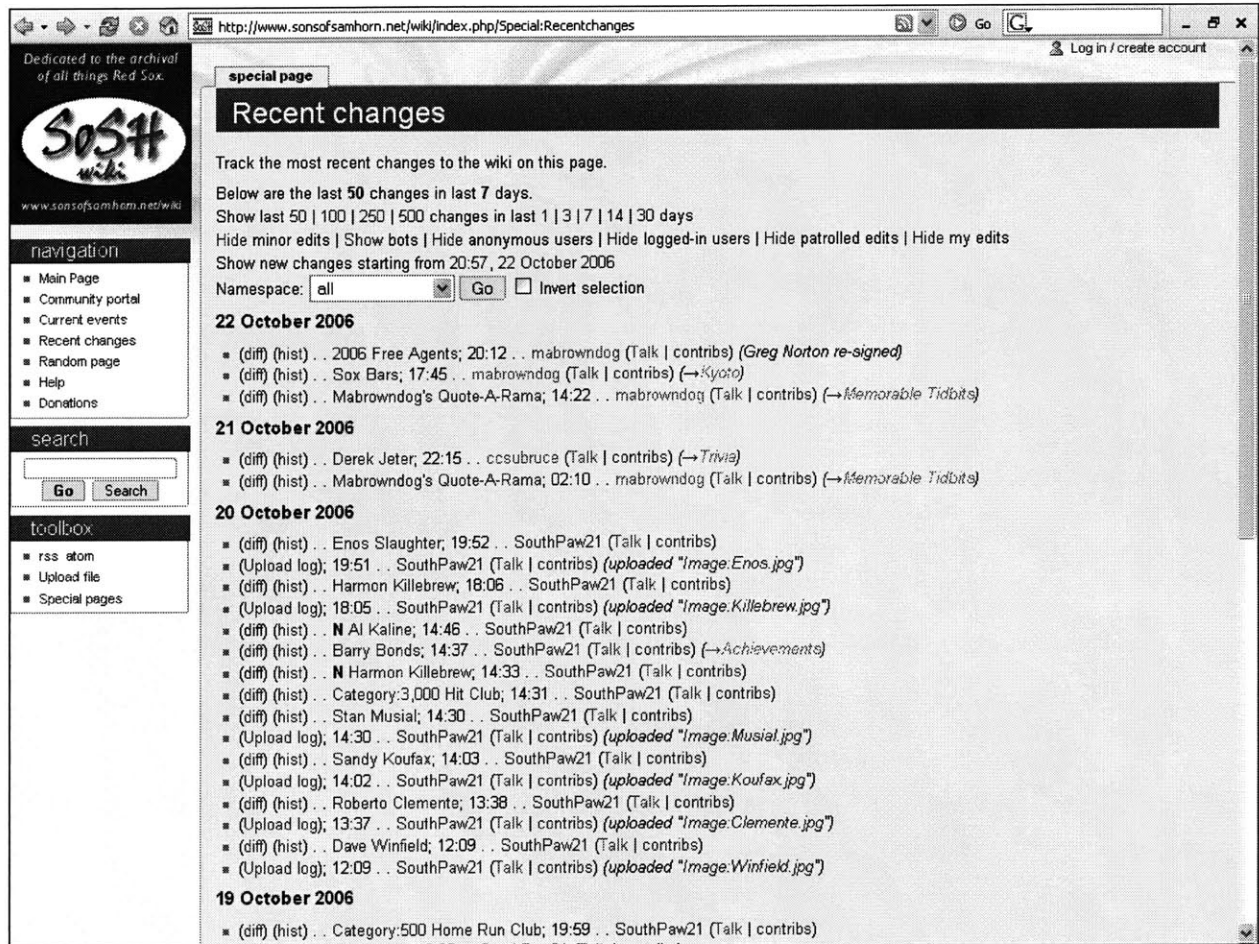


Figure 32 Recent changes pages on the Sons of Sam Horn Wiki.<sup>95</sup> The site owner might want to start his or her monitoring of this Red Sox fan site with the change to the article on Yankee Derek Jeter. ;)

### 4.3.6 Simple corrections

Minor edits can entice contributors to begin to edit pages. In a survey conducted for this thesis, of those that had edited a Wiki, 34.3% had done so to correct an error in fact, grammar, or spelling.<sup>96</sup> These types of edits are generally minor and quick, making it easy for someone to log in, correct the error, and see the results immediately.

<sup>95</sup> "Recent Changes." Sons of Sam Horn. <http://www.sonsofsamhorn.net/Wiki/index.php/Special:Recentchanges>. Last edited 22 October 2006. (22 October 2006).

<sup>96</sup> Davidi, Ilana. "SurveyMonkey: Web 2.0 Contributions." <http://www.surveymonkey.com/s.asp?u=833272435673>. Survey closed 25 October 2006.

While this may seem like an enticing means of attracting users to edit Wikis, errors can give the Wiki a less professional appearance. Intentional errors such as minor misspellings could cause the Wiki to lose its credibility as an area where knowledge is shared. While these edits are beneficial to the quality of the content, they do not necessarily expand the quantity.

When using the tactic of minor error correction, the hope is that those that made these fixes will feel encouraged to continue doing good for the community. In addition, if login is required, these users may be more likely to come back in order to build an online reputation.<sup>97</sup>

#### **4.3.7 Do not over-monitor the site**

When first conceived, Wikipedia (then “Nupedia”) entries would go through a rigorous editing process. However, after a year, only two dozen articles had been entered.<sup>98</sup> Success was far from immediate, but grew quickly once better established: “After 20 days, the site had over 600 articles; six months later, it had 6,000; by year's end, it totaled 20,000 articles in a plethora of languages.”<sup>99</sup>

Once the Larry Sanger and Jimmy Wales, the co-founders of Wikipedia, began to let the entries grow more freely, they grew more quickly indeed. The process was not slowed by the rigorous edits imposed by Nupedia’s structure. Rather, the articles grew freely as people added and edited them without the slowing process of being professionally edited and approved before release.

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<sup>97</sup> Davidi, Ilana. “SurveyMonkey: Web 2.0 Contributions.”  
<http://www.surveymonkey.com/s.asp?u=833272435673>. Survey closed 25 October 2006.

<sup>98</sup> “Open Source Business: Open, but not As Usual.”  
[http://www.economist.com/business/displaystory.cfm?story\\_id=5624944](http://www.economist.com/business/displaystory.cfm?story_id=5624944). 16 March 2006.

<sup>99</sup> “Open Source Business: Open, but not As Usual.”  
[http://www.economist.com/business/displaystory.cfm?story\\_id=5624944](http://www.economist.com/business/displaystory.cfm?story_id=5624944). 16 March 2006.



When running a Wiki site today, these same lessons should be applied. Be sure to keep an eye on the site to monitor content quality, but do not get so caught up in the minor problems of the site that it cannot grow organically. As noted, typographical errors can be fixed by users and may even help win users. Let the community take care for some of the cleaning, and concentrate on making the Wiki stronger and more robust.

#### **4.3.8 Simple questions**

Another less-than-professional-appearing technique is to ask questions within the body of the Wiki. This was previously mentioned in the community section on people not understanding how a Wiki works or what it is.

As an experiment, I inserted a question into the body of a Wiki entry I wrote about a Ford Mustang.<sup>100</sup> The question was not directly answered, but the entry did receive a large edit, providing excellent information on the car. I continue to monitor this page to see if anybody has answered the question. I believe this technique should be used sparingly. Too many questions on a Wiki can give it the appearance of a forum, chat room, or similar asynchronous community site.

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<sup>100</sup> “1986 Ford Mustang.” <http://cargurus.com/Cars/Overview-c3703-1986-Mustang-Overview.html>. (15 September 2006).

### 4.3.9 Keep trying new tactics

One page on CarGurus.com which received almost immediate edits was the 1968 Corvette page. The content on this page began, “Continuing its apparent quest to honor cartilaginous fish, the 1968 Chevrolet Corvette was a close relative of Chevrolet's "Mako Shark" concept car created by Larry Shinoda. This popular Sting Ray Corvette featured a complete redesign; as the sales brochure said, "all different all over,” and went on to discuss the features of the Corvette in comparison to a shark: “Like a shark, the '68 Corvette was muscular and aerodynamic in external design. It also appeared to have no eyelashes, with wipers that were hidden from view when not in use. Also like a shark, it was scary powerful. (Okay, no more shark analogies, I promise.)”<sup>101</sup> While many other entries on this site floundered, the 1968 flourished, eventually covering over four times the typical entry on the site.<sup>102</sup>

This entry was meant to sound more fun than typical entries. The less professional-sounding animal metaphor may have encouraged others to write and join the fun.

## 4.4 Creating a sustainable business

Assuming that the site has an active audience, there are a few different ways to earn money from such a site, including advertising, partnerships, and user fees.

While Wikis in general are still struggling, there is one clear success story in terms of user privation: Wikipedia. However, Wikipedia’s goal is not to make money. On its own pages,

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<sup>101</sup> “1968 Corvette.” <http://www.cargurus.com/Cars/Overview-c443-1968-Corvette.html>. Last updated 2006. (9 October 2006).

<sup>102</sup> “1968 Corvette.” <http://www.cargurus.com/Cars/Overview-c443-1968-Corvette.html>. Last updated 2006. (9 October 2006).

Wikipedia states it is “a non-profit organization with the goal of providing free knowledge to every person in the world.”<sup>103</sup> Instead, donations are requested for the sole purpose of site upkeep, including server acquisition and maintenance. Money is donated to Wikipedia’s parent, Wikimedia, which distributes it among its free websites, including Wikiquote, Wikibooks, Wikipedia, and Wiktionary.<sup>104</sup>

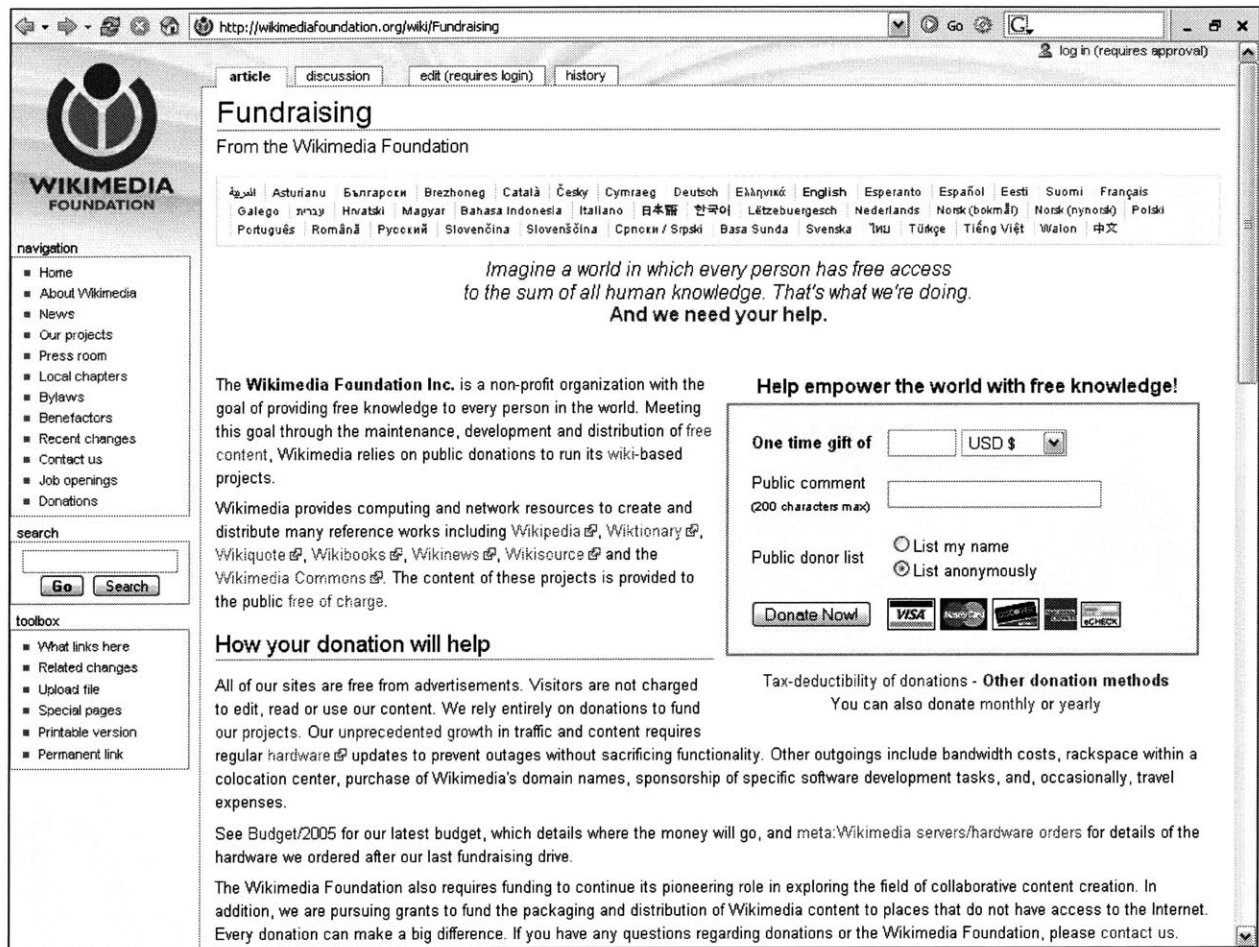


Figure 33 Wikipedia's fundraising page, featuring the donation box.<sup>105</sup>

<sup>103</sup> “Fundraising.” Wikipedia. <http://wikimediafoundation.org/wiki/Fundraising>. Last updated 23 October 2006 (30 October 2006).

<sup>104</sup> “Fundraising.” Wikipedia. <http://wikimediafoundation.org/wiki/Fundraising>. Last updated 23 October 2006 (30 October 2006).

<sup>105</sup> “Fundraising.” Wikipedia. <http://wikimediafoundation.org/wiki/Fundraising>. Last updated 23 October 2006 (30 October 2006).

The majority of these donations are raised during fundraising periods, which occur three or four times a year.<sup>106</sup> Grants from corporations are also used to fund Wikimedia's various projects.

#### 4.4.1 Advertising

In a discussion of not charging for access to web sites, Internet technology article author Laurie Sullivan notes, "The goal is to leverage advertiser support in order to keep the service free and remove barriers for adoption."<sup>107</sup> Through actions such as these, the payment for the upkeep of the site may remain out of the users' view. They use the site and click through to advertisements when the content of these commercials is applicable to them. They do not have to go out of their way to support the site, as they advertisements should be targeted to the users and should appear as a benefit to the user in the form of additional sources for related information.

Purposely assuming an opposite point of view in a forum on business models for Wiki, one poster took a sarcastic look at one faction of users' views on earning money from Wikis:

*What ever fly little concept you dream up, if you try to float it as a Wiki, people with way too much time on their hands and a permanent indignant streak, will brand you a whore to The Man, and a complete rip-off for running banner ads or Google ads or whatever. You should be doing it for free, didn't you know? Or maybe flat American beer. But you certainly shouldn't be trying to make a living on other people's labor, swine. I say if you're a masochist, rock on dude. Rock on...*<sup>108</sup>

This user makes light of the sometimes self-righteous attitude found among a community of people who may be used to getting services free of charge. He reflects a common belief: that the

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<sup>106</sup> "Yahoo Answers: How does Wikipedia make money?"

<http://answers.yahoo.com/question/index?qid=1006040210318>. Last updated March 2006. (30 October 2006).

<sup>107</sup> Sullivan, Laurie. "Blue Nile Cofounder Wades into Wikis." TechWeb. 9 August 2006.

<sup>108</sup> "Wiki, as a business model?" <http://forums.devshed.com/business-help-92/Wiki-as-a-business-model-336005.html>. Comment updated April 2005. (2 October 2006).

sudden appearance of advertisements can “cheepen” the look of the Wiki, and scare off a community who now think (or know) that the site is just for profit.

One respondent to the survey conducted for this thesis noted that she had started running ads on her blog. She received many complaints about them, as readers thought she may have been altering the content of her blog to get better or more ads from Google AdSense.<sup>109</sup> She eventually felt pressured into taking them down. Other bloggers have left their advertisements up on their blogs, despite “capitalization” accusations.

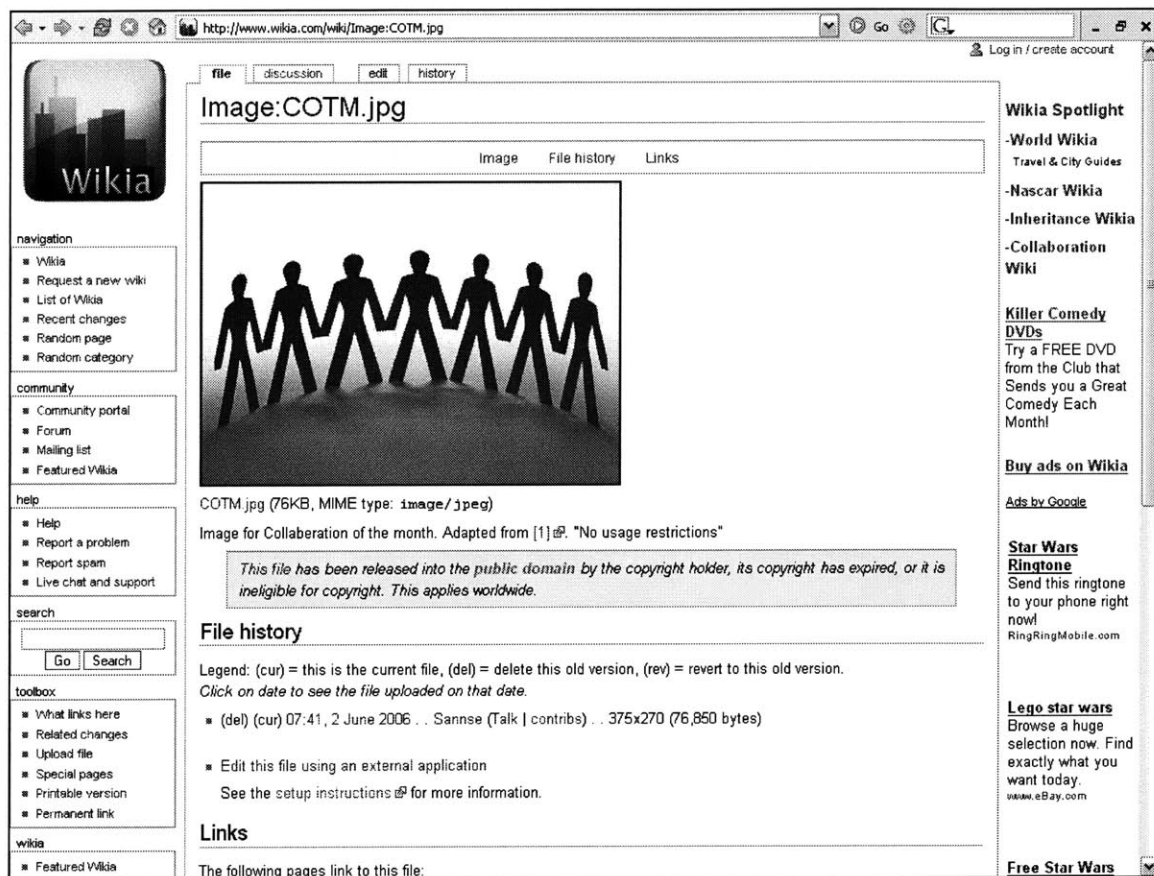


Figure 34 Wikia page showing subtler Google ads in right margin.<sup>110</sup>

<sup>109</sup> Davidi, Ilana. “SurveyMonkey: Web 2.0 Contributions.”

<http://www.surveymonkey.com/s.asp?u=833272435673>. Survey closed 25 October 2006.

<sup>110</sup> “Image: COTM.jpg. <http://www.wikia.com/Wiki/Image:COTM.jpg>. (2 October 2006).

As for the model of earning money from advertising, there are several different means through which this can be accomplished. Among the more commonly used advertising methods is Google AdSense. Google AdSense provides a very simple means for any company or individual to start using Google Ads. The company or individual need only start an account on Google, then insert generated scripts into the pages of the site. Google AdSense matches advertising to content contained on the site through the same type of tools it uses to crawl pages.

There are several other companies that provide the same type of service as Google AdSense. Internet giants such as Yahoo and Microsoft have both tried to get into this business, though neither has been particularly successful.<sup>111</sup> Competitors such as Chitika, Azoog, AdEngage, Adbrite, and many more provide easy-to-install advertising.<sup>112</sup>

A product called “IntelliTXT” links page content automatically to target advertising. Unlike Google AdSense and many of the similar products, it puts advertising directly into the body of the page.<sup>113</sup> While IntelliTXT may blend more seamlessly into pages, there are several tools available which will disarm the required JavaScript on these pages, and render the advertising useless to anyone who has the new tools installed.

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<sup>111</sup> “Microsoft to Bow Google AdSense Competitor.” [http://www.marketingvox.com/archives/2005/03/15/microsoft\\_to\\_bow\\_google\\_adwords\\_competitor/index.php?rss1](http://www.marketingvox.com/archives/2005/03/15/microsoft_to_bow_google_adwords_competitor/index.php?rss1). 15 March 2005.

<sup>112</sup> “AdSense Alternatives.” <http://www.v7n.com/forums/google-forum/28009-adsense-alternative.html>. Last update 21 April 2006. (22 October 2006).

<sup>113</sup> IntelliTXT. <http://www.intellitxt.com/>.

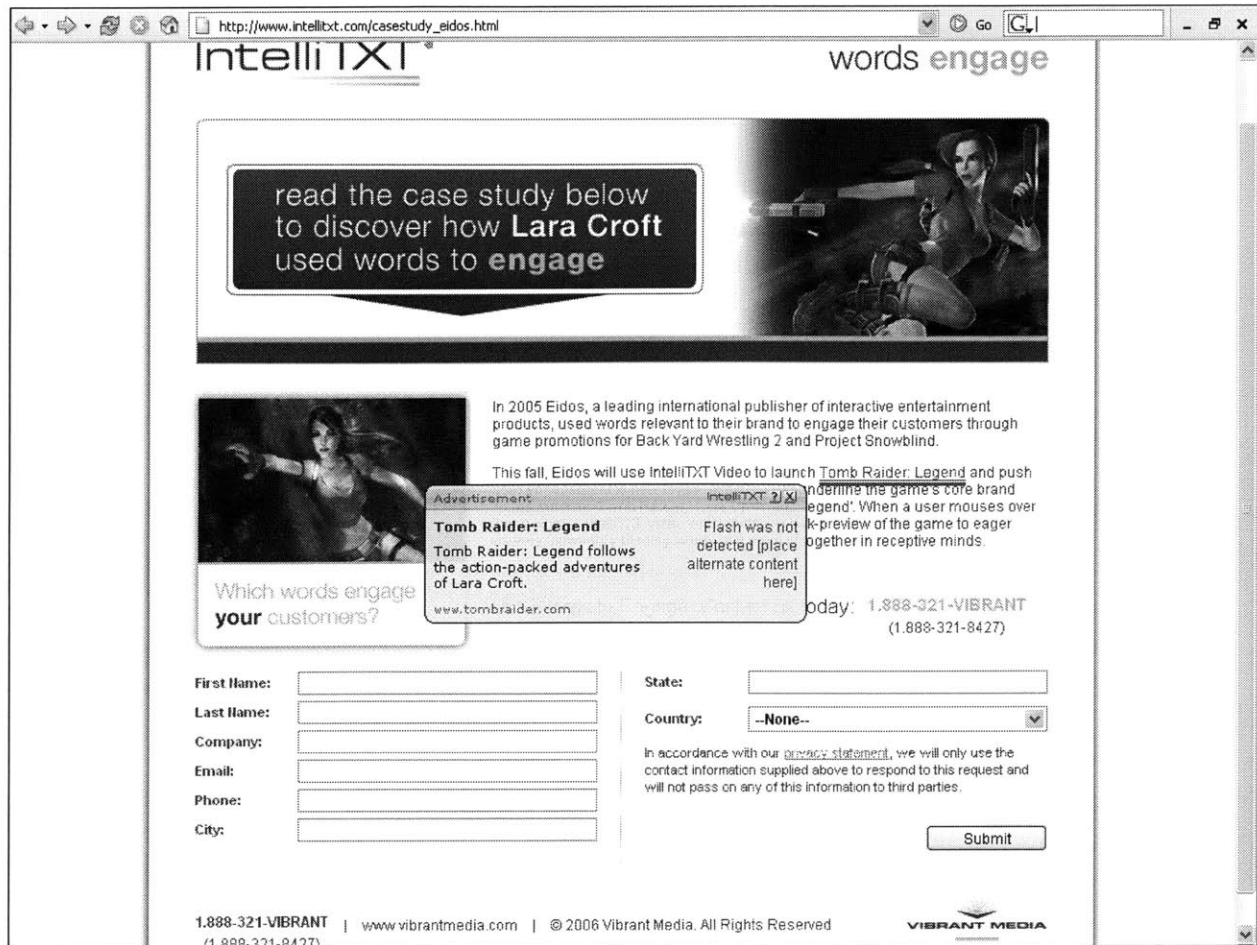
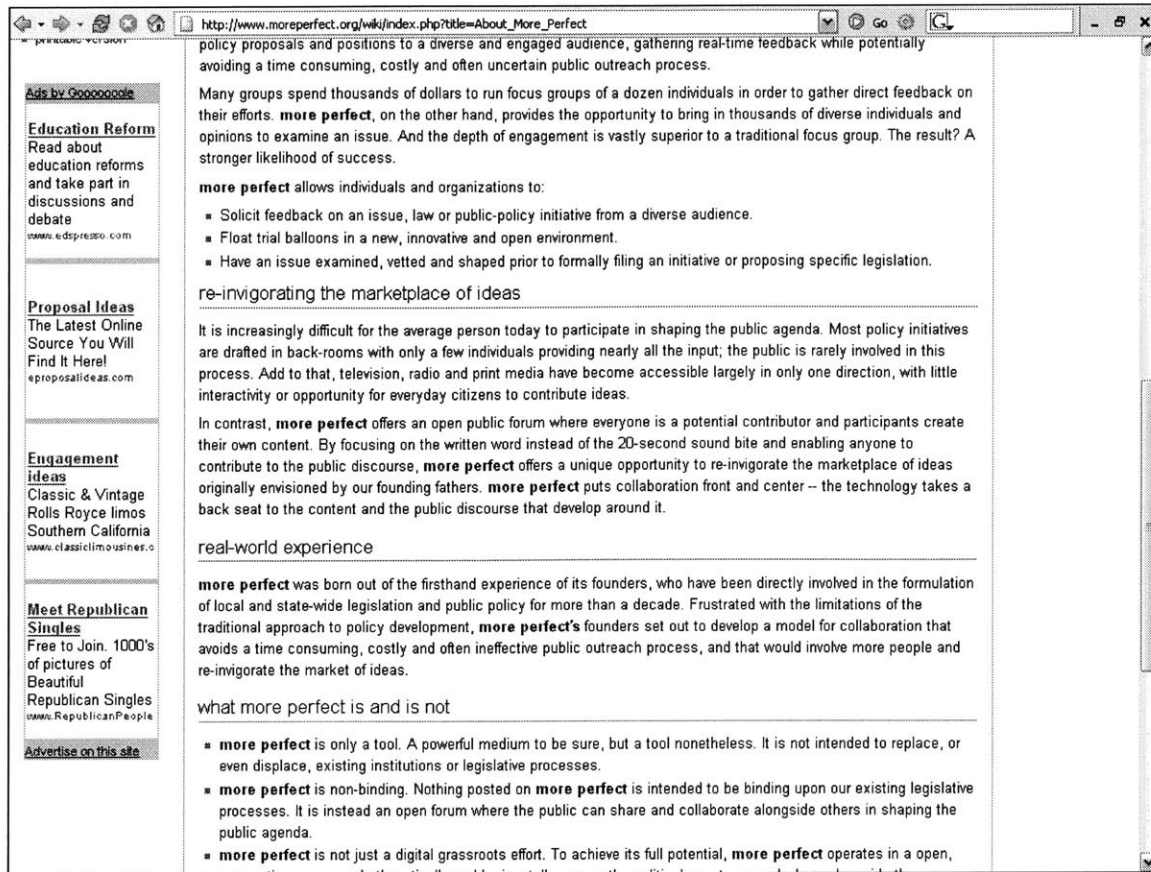


Figure 35 Example of IntelliTXT on IntelliTXT own page.<sup>114</sup>

Lastly, sites can solicit their own advertisements. Some sites choose to maintain a large company advertising presence, such as Google AdSense, while simultaneously soliciting individual advertisers. Although getting individual advertisers to pay to show their advertisements on a web site may be more time-consuming to set up, the returns will be larger, as the proceeds will not need to be shared with Google, and because the advertiser may be willing to pay a premium to appear on a site which he or she believes will send targeted business.

<sup>114</sup> IntelliTXT – Eidos Case Study. [http://www.intellitxt.com/casestudy\\_eidos.html](http://www.intellitxt.com/casestudy_eidos.html). Vibrant Media, 2006.



**Figure 36 Google ads on moreperfect.org. They appear on the left-hand side of the page. It also requests that those interested in advertising directly click through to a form to begin to do so.**

## 4.4.2 Partnerships

A common practice in the software business—as well as most types of business throughout the world—is partnership. This type of model can allow the Wiki to be specialized or centered on one topic, while providing its customers with access to a number of services provided by partners.<sup>115</sup>

<sup>115</sup> Cusumano, Michael. The Software Business. Free Press, New York, NY. 2004. pp 250-257.



For example, a Wiki site focused on hotels may not want the added burden of having to manage a number of pages about air travel to these destinations or about activities in which people can participate once they arrive. The owner of this hotel Wiki may decide to partner with providers of the other services in order to concentrate on being the best at the hotel Wiki description service.

The two sites may do as little as provide specialized links to one another. They may work out a revenue sharing program by which money earned through purchases made by those who click on the partner link are shared. If both sites are participating in advertising programs, this money would be divided between the two sites.



**Figure 37 Partner sites listed at Hotels.com (a non-Wiki, Internet commerce site)<sup>116</sup>**

This partnering can increase traffic, thereby increasing the potential for content to be contributed to the site.

### 4.4.3 User fee/Subscription

While it would be difficult to run a successful site off of user fees or subscriptions alone, the subscription business model has survived for years in such businesses as magazine publishing and can be applied in conjunction with other revenue streams. The subscription model can entice

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<sup>116</sup> Hotels. <http://www.hotels.com>. (22 October 2006).

customers with the promise of endless availability.<sup>117</sup> It also promises the company at least some level of user commitment.

However, it does not guarantee that these users will help to strengthen the community by contributing to the Wiki. Furthermore, if the subscription fee is applied site-wide, it could deter users who would be contributors. The use of a subscription for premium pages in the site could be a divisive factor, and may not be the best model to apply to a Wiki business.

#### 4.4.4 Acquisition

The final business model this thesis will examine is acquisition. Recently, the video server YouTube was acquired by Google for \$1.65 billion.<sup>118</sup> Before being acquired, YouTube's business plan baffled many. Wrote MediaShift blogger Mark Glazer:

*But the enigma is how YouTube will profit on its own spectacular popularity. Julie Supan, senior director of marketing for YouTube, said the site now serves up 35 million videos per day, and users upload 35,000 videos per day, with 100 million page views per day. These are massive numbers for a site that's not even a year old yet.*

*But so far, the only hint of a way this startup will make money is by making deals with media companies such as MTV2 and E! Entertainment Television to help promote their offerings with video clips.<sup>119</sup>*

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<sup>117</sup> "Subscription Business Model." BookRag. [http://www.bookrags.com/Wiki/Subscription\\_business\\_model](http://www.bookrags.com/Wiki/Subscription_business_model) (2 October 2006).

<sup>118</sup> Arrington, Michael. "Google Has Acquired YouTube." TechCrunch <http://www.techcrunch.com/2006/10/09/google-has-acquired-youtube/>, 9 October 2006.

<sup>119</sup> Glaser, Mark. "YouTube Ceo Hails 'Birth of a New Chip Culture.'" MediaShift. [http://www.pbs.org/mediashift/2006/04/digging\\_deeperyoutube\\_ceo\\_hail.html](http://www.pbs.org/mediashift/2006/04/digging_deeperyoutube_ceo_hail.html) 4 April 2006.

This type of model has become increasingly popular in a world where a few businesses—specifically Google, Yahoo, and Microsoft—have most of the dollars. Many companies try to build something that will build “buzz” and wait to be acquired.

These types of sites can be funded by venture capital money before being acquired. VC money can dilute the pool of shares owned by those who run or originally invested in the site, so it may not be a desirable source of funding for many. However, if the correct VC’s are chosen, they can contribute not only money, but advice as well. While the venture capitalists now have a say in decisions made, the site has funding to get them through to whatever the next step may be.

Some sites are started and privately funded by serial entrepreneurs. These business-savvy individuals or teams take their money from successful startups from the past and reapply it to a new venture. Like VC’s, they come with a background of making sites successful or even what makes them fail; often knowing why a venture in the past has failed can be more valuable than a site which was immediately successful.

Of the sites that have been successful with this model, TripAdvisor is most similar to a Wiki site, as it consists almost entirely of user-written content. TripAdvisor practiced careful Search Engine Optimization to generate business for their site. With the number of visitors they would get to their site, they were able to offer user reviews and opinions on hotels, flights, and locations. They were acquired in May of 2004 by Expedia for \$220 million, joining Harry

Diller's travel conglomerate, InterActiveCorp.<sup>120</sup> The management team from the original site split up, with two of them staying at TripAdvisor, and others deciding to part ways and try to make other startups successful.

#### **4.4.5 Establishing a “volunteer fire department”**

The establishment of a “volunteer fire department” is an extremely important part of managing a successful Wiki site. Many of the qualities of a good Wiki site already discussed can help to make this challenge a reality.

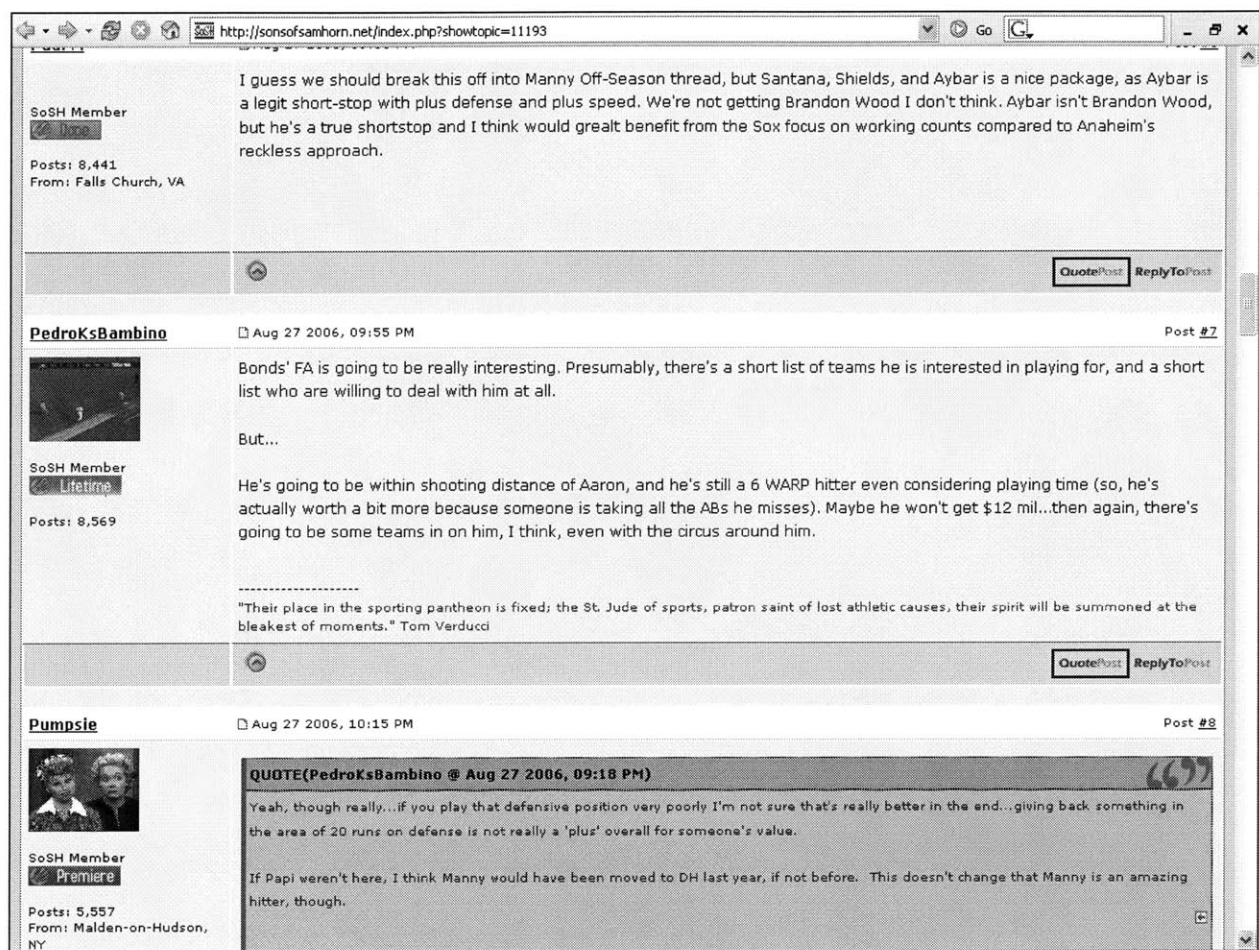
If users come to value the site, depend on it, and use it frequently, they may step forward and begin to take responsibility for the quality of content available on it. They can do this through many of the means that we studied in the section on community: by deleting bad articles, contributing major and minor Wiki edits, and by contributing content themselves.

To continue to encourage this squadron, site owners may give recognition to top contributors, or make these top editors members of the team; they may be granted administrator-level access. This type of permission grant is beneficial for both the volunteer and the site owner. For the volunteer, it can help give him or her a positive reputation on the site and in the larger community. For the site owner, it adds one more vested, knowledgeable party to the team.

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<sup>120</sup> “Big Miss: Mark Mahaney’s Take (ESPE),” *Seeking Alpha*. <http://Internet.seekingalpha.com/article/10603>. 15 May 2006.

This type of recognition may be as simple as noting a user’s participation next to this user’s screen name throughout the site. For example, most forums note user participation and give accompanying titles to show which users are the more senior.



**Figure 38 Sons of Sam Horn forums. Member status is shown beneath their names. These are three very senior members, with the "Dope" being short for "Dope that runs this site."<sup>121</sup>**

This type of acceptance into a community can create an atmosphere in which the user will want to become fully vested and protective of the site. Rewarding participation on a Wiki can

<sup>121</sup> “Sons of Sam Horn: Manny....again.” <http://sonsofsamhorn.net/index.php?showtopic=11193>. Last updated 28 August 2006. (22 October 2006).

encourage the user to contribute more and to make sure that the quality of the site remains high, as he or she has a desire to protect it and its content.

#### **4.4.6 How do you know when to stop?**

Many masterpieces have a stopping point; a point when even one more brush stroke can ruin a work of art. Some believe that despite the fluid motion of a Wiki, such a time will arise.

Wikipedia, a Wiki whose popularity many others hope to achieve, had a large discussion about freezing a “Wikipedia 1.0” version, having it reviewed by experts, then summarily copying to a DVD.<sup>122</sup>

However, many Wikipedia administrators and contributors objected to this content freeze. One noted, “Stable articles? A paper encyclopedia? Privileged editors? Is that what everyone did it for?”<sup>123</sup> Although some objected to this contributors theories as being more about the process than the product, he represents the way many in a community may feel: the changeability of the Wiki is in itself much of what makes the product great. All are equal in some Wikis; anyone can change anything at any time. Noted another editor, “The beauty of Wiki is its openness - Wiki is a dynamic process.”<sup>124</sup>

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<sup>122</sup> Sanger, Larry. “Why Wikipedia Must Jettison Its Anti-Elitism.” KuroShin. 31 Dec 2004.  
<http://www.kuroShin.org/story/2004/12/30/142458/25>, 24 February 2004

<sup>123</sup> “Wikipedia Talk: Version 1.0 Editorial Team Objection Archive.”  
[http://en.wikipedia.org/Wiki/Wikipedia\\_talk:Version\\_1.0\\_Editorial\\_Team\\_objections\\_archive](http://en.wikipedia.org/Wiki/Wikipedia_talk:Version_1.0_Editorial_Team_objections_archive) 26 Nov 2004 (20 September 2006)

<sup>124</sup> Wikipedia Talk: Version 1.0 Editorial Team Objection Archive.”  
[http://en.wikipedia.org/Wiki/Wikipedia\\_talk:Version\\_1.0\\_Editorial\\_Team\\_objections\\_archive](http://en.wikipedia.org/Wiki/Wikipedia_talk:Version_1.0_Editorial_Team_objections_archive) 26 Nov 2004 (20 September 2006)

## Chapter 5: Conclusion

A new breed of sites is popping up now, although some experts expect none to reach the level of Wikipedia.<sup>125</sup> Said Gil Penchina, the chief executive of Wikipedia, “It feels to me like Craigslist,” he said. “It’s a small business, but it’s a good business and it makes a lot of people happy.”<sup>126</sup> This type of happiness is intrinsically linked to the three components of a professional Wiki: technology, community, and business.

Originally conceived by Ward Cunningham for a site on design patterns, Wikis combine a number of different technologies that were either created or made significant advances in the past few years. Databases have become efficient enough to insert, retrieve, and update rows of large content in seconds. Memory has become inexpensive to store this data and to run the business logic necessary to deliver it quickly, efficiently, and correctly to the user. Front-end processes have advanced to allow for wrapping and translation of content from a Wiki-specific markup language into one which is viewable in a pleasing form by users. The layering of these technologies is called the model-view-controller pattern; fittingly, a pattern which appears on the site containing the earliest Wikis, the WardsWiki.

The community aspect has developed into an important part of what we know as the Internet today. Although the creator of the Internet-enabling Hypertext, Sir Tim Berners-Lee, originally conceived the Internet as a collaboration tool, it took many different communities to turn it into

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<sup>125</sup> Levine, Robert. “New Web Sites Seeking Profit in Wiki Model. The New York Times. Section C, page 1, column 6. 4 September 2006.

<sup>126</sup> Levine, Robert. “New Web Sites Seeking Profit in Wiki Model. The New York Times. Section C, page 1, column 6. 4 September 2006.

such. The Open Source community and the collaborative attitude it fostered were key elements in the process of getting random people to work toward a common goal, whether they did it for their own self-satisfaction, for the community, or to build a positive online reputation. Sites such as Epinions and TripAdvisor gave those that wanted to contribute opinions outlets for doing so. Wikipedia took a different tact, asking users to contribute factual rather than opinionated content, and giving them a place to share their knowledge.

The last component is the discovery and application of business models. While there is great potential in these models, this is the area in which Wikis fall short. Many different types of sites have been successful using models such as subscription, donations, acquisition, or advertising. These models have been applied to sites such as YouTube, TripAdvisor, Adobe, and many others, but not yet to an exclusively Wiki-based site. The most popular Wiki, Wikipedia, is strictly donation-based. The goal of Wikipedia has not been to earn money, but to create an online encyclopedia. As of yet, there is still no one clear business model that seems to be able to make Wikis succeed.

When I started this thesis, I believed that I would be able to find a clear-cut way for companies to center businesses on Wikis. Although I found some encouraging data, such as the article on Wiki business models in the New York Times, it seems like it may still be too early for Wikis to succeed in the mainstream. The site I created for this thesis, <http://www.writemythesis.com>, was untouched by anyone other than myself. I had hoped that people would want to play with the technology, and contribute small edits, but this did not happen. Given more time, I would perhaps appeal to a larger audience and try to take out advertising on Google to direct people there. However, I had hoped that word of mouth would be enough to get this effort started.



In discussions I have had about why people do not seem to want to edit Wiki content, a popular reason is the impression of the sanctity of the written word. Contributing an opinion to a site such as epinions.com is easier, as it is adding content, not changing it. We were raised in book world: one does not edit the content of a book, one reads and comments on it instead. Changing what appears to be words embedded in HTML can be intimidating to some.

In conclusion, Wiki technology is indeed an exciting and up-and-coming field. However, like many technologies, it may take time to be adopted into the mainstream. Until this happens, the key for businesses is to continue to direct people to their pages and to earn revenue through such channels as advertising and partnership.

## Chapter 6: Appendices

### 6.1 Appendix A: Survey Questions

**1. Do you consider yourself tech savvy?**

- Yes
- No

**2. How many hours a day are you on a computer?**

- Less than 1
- 1-3
- 4-5
- 6-8
- More than 8

**3. Do you blog? If so, how many do you maintain?**

- No (0)
- Yes (1)
- Yes (2)
- Yes (more than 2)

**4. Have you ever visited a wiki site such as Wikipedia?**

- Yes
- No

**5. Have you ever contributed to an online forum or wiki?**

- Yes
- No

6. If you answered, "No" to question #5, please skip to question 7.

If you answered "Yes" to #5, what made you contribute to a Wiki. (Please check as many as apply)

- Subject matter expertise
- Wanted to try new technology
- Wanted to correct error in writing
- Other (please specify)

7. What other factors could make you contribute? (Please check as many as apply)

- Sense of satisfaction
- Sense of helping others
- Payment
- Contest
- No idea
- Other (please specify)

8. Have you ever used the "track changes" feature in Microsoft Word or other word processor?

- Yes
- No

9. How many times a week do you go visit with friends? (Dinner, drinks, movies, etc)

- 0
- 1-2
- 3-4
- More than 4
- Too busy with online friends

10. How did you find out about this survey? If I can contact you further about your answer, please leave me your email address.

## 6.2 Appendix B: Survey Data



1. Do you consider yourself tech savvy?			
		Response Percent	Response Total
Yes		67.9%	89
No		32.1%	42
<b>Total Respondents</b>			<b>131</b>
(skipped this question)			2

2. How many hours a day are you on a computer?			
		Response Percent	Response Total
Less than 1		3.1%	4
1-3		16%	21
4-5		13%	17
6-8		32.8%	43
More than 8		35.1%	46
<b>Total Respondents</b>			<b>131</b>
(skipped this question)			2



3. Do you blog? If so, how many do you maintain?			
		Response Percent	Response Total
No (0)		62.6%	82
Yes (1)		25.2%	33
Yes (2)		8.4%	11
Yes (more than 2)		3.8%	5
<b>Total Respondents</b>			<b>131</b>







4. Have you ever visited a wiki site such as Wikipedia?

		Response Percent	Response Total
Yes		83.8%	109
No		16.2%	21
<b>Total Respondents</b>			<b>130</b>
(skipped this question)			3

5. Have you ever contributed to an online forum or wiki?

		Response Percent	Response Total
Yes		35.1%	46
No		64.9%	85
<b>Total Respondents</b>			<b>131</b>
(skipped this question)			2

6. If you answered, "No" to question #5, please skip to question 7. If you answered "Yes" to #5, what made you contribute to a Wiki. (Please check as many as apply)

		Response Percent	Response Total
<b>Subject matter expertise</b>		66.7%	24
Wanted to try new technology		16.7%	6
Wanted to correct error in writing		33.3%	12
<a href="#">View</a> Other (please specify)		19.4%	7
<b>Total Respondents</b>			<b>36</b>

7. What other factors could make you contribute? (Please check as many as apply)			
		Response Percent	Response Total
	Sense of satisfaction	43.1%	44
	<b>Sense of helping others</b>	<b>49%</b>	<b>50</b>
	Payment	22.5%	23
	Contest	15.7%	16
	No idea	30.4%	31
<a href="#">View</a>	Other (please specify)	9.8%	10
<b>Total Respondents</b>			<b>102</b>
(skipped this question)			31

8. Have you ever used the "track changes" feature in Microsoft Word or other word processor?			
		Response Percent	Response Total
	Yes	64.6%	84
	No	35.4%	46
<b>Total Respondents</b>			<b>130</b>
(skipped this question)			3

9. How many times a week do you go visit with friends? (Dinner, drinks, movies, etc)			
		Response Percent	Response Total
	0	6.9%	9
	1-2	42.7%	56
	3-4	36.6%	48
	More than 4	13%	17
	Too busy with online friends	0.8%	1
<b>Total Respondents</b>			<b>131</b>
(skipped this question)			2

10. How did you find out about this survey? If I can contact you further about your answer, please leave me your email address.			
		<a href="#">View</a> Total Respondents	96
(skipped this question)			37

## 6.2 Appendix C: List of Largest Wikis

### Key

<i>Wikipedia</i> projects
<i>Wiktionary</i> projects
other <i>Wikimedia</i> projects
other non- <i>Wikimedia</i> projects using the <i>MediaWiki</i> software
other non- <i>Wikimedia</i> non- <i>MediaWiki</i> projects

### List

No.	Wiki	Good	Total	Admins	Users	Edits	Views	Updated (CET)
1	English Wikipedia	<b>1433619</b>	6028992	<u>1022</u>	<u>2482740</u>	<u>84254576</u>	63208805	2006-10-15 06:03:51
2	German Wikipedia	<b>480249</b>	1264420	<u>235</u>	<u>289022</u>	<u>23435897</u>	8543798	2006-10-15 06:03:12
3	English Chainki	<b>424679</b>	426060	<u>2</u>	<u>64</u>	<u>160758</u>	255172	2006-10-14 12:01:08
4	BCZ Directory	<b>389039</b>	390434	<u>1</u>	<u>15</u>	<u>496917</u>	32667	2006-10-15 06:02:29
5	French Wikipedia	<b>376180</b>	893971	<u>115</u>	<u>161441</u>	<u>10757040</u>	2285300	2006-10-15 06:03:51
6	Polish Wikipedia	<b>305344</b>	484028	<u>103</u>	<u>73267</u>	<u>5190601</u>	2704125	2006-10-15 06:03:53
7	English Wiktionary	<b>294059</b>	405093	<u>40</u>	<u>22300</u>	<u>1544004</u>	395224	2006-10-15 06:03:12
8	Japanese Wikipedia	<b>272316</b>	627823	<u>51</u>	<u>87511</u>	<u>8536142</u>	2340980	2006-10-15 06:04:52
9	LyricWiki	<b>240603</b>	252925	<u>9</u>	<u>1151</u>	<u>277197</u>	3387199	2006-10-15 06:05:10
10	Dutch Wikipedia	<b>233223</b>	529625	<u>83</u>	<u>67994</u>	<u>5631491</u>	3200225	2006-10-15 06:03:50
11	French Wiktionary	<b>206614</b>	236179	<u>11</u>	<u>2389</u>	<u>1426393</u>	7	2006-10-15 06:03:50
12	Italian Wikipedia	<b>205442</b>	517321	<u>56</u>	<u>99655</u>	<u>5259032</u>	406	2006-10-15 06:04:04
13	Vietnamese Wiktionary	<b>203553</b>	206905	<u>3</u>	<u>399</u>	<u>346338</u>	0	2006-10-15 06:02:37
14	Portuguese Wikipedia	<b>188760</b>	493312	<u>60</u>	<u>133689</u>	<u>3682425</u>	156	2006-10-15 06:03:56
15	Swedish Wikipedia	<b>187386</b>	384306	<u>62</u>	<u>23351</u>	<u>3009073</u>	1254153	2006-10-15 06:04:09
16	Spanish Wikipedia	<b>160865</b>	375090	<u>88</u>	<u>235942</u>	<u>5683062</u>	2161426	2006-10-15 06:03:59
17	Russian Wikipedia	<b>110952</b>	288859	<u>40</u>	<u>28934</u>	<u>2115556</u>	79753	2006-10-15 06:03:49
18	The TV IV	<b>107108</b>	124076	<u>14</u>	<u>4048</u>	<u>219114</u>	7550454	2006-10-15 06:05:04
19	WikiZnanie	<b>103447</b>	124352	<u>3</u>	<u>668</u>	<u>163772</u>	5125062	2006-10-15 06:02:25
20	Chinese Wikipedia	<b>94510</b>	310129	<u>80</u>	<u>114972</u>	<u>2681080</u>	325484	2006-10-15 06:04:11
21	Chinese Wiktionary	<b>91275</b>	106211	<u>6</u>	<u>1456</u>	<u>353057</u>	1	2006-10-15 06:03:14
22	Ido Wiktionary	<b>85247</b>	122077	<u>1</u>	<u>85</u>	<u>295899</u>	0	2006-10-15 06:03:44
23	Finnish Wikipedia	<b>82404</b>	198180	<u>36</u>	<u>34468</u>	<u>1798352</u>	396	2006-10-15 06:03:35
24	Norwegian Wikipedia	<b>79400</b>	174800	<u>62</u>	<u>22112</u>	<u>1407869</u>	152	2006-10-15 06:03:47
25	Wikispecies	<b>76410</b>	92791	<u>13</u>	<u>3696</u>	<u>172027</u>	0	2006-10-15 06:03:55
26	Greek Wiktionary	<b>68353</b>	78409	<u>3</u>	<u>178</u>	<u>120472</u>	0	2006-10-15 06:03:48
27	Esperanto Wikipedia	<b>59469</b>	124024	<u>9</u>	<u>2407</u>	<u>686495</u>	716972	2006-10-15 06:03:52
28	Slovak Wikipedia	<b>57148</b>	101927	<u>20</u>	<u>3816</u>	<u>598027</u>	381	2006-10-15 06:04:03



29	<a href="#">Danish Wikipedia</a>	<b>50758</b>	110480	<u>27</u>	<u>8981</u>	<u>942981</u>	604158	2006-10-15 06:03:56
30	<a href="#">Polish Wiktionary</a>	<b>47810</b>	88644	<u>12</u>	<u>983</u>	<u>282037</u>	58	2006-10-15 06:03:45
31	<a href="#">Czech Wikipedia</a>	<b>47598</b>	115050	<u>20</u>	<u>10343</u>	<u>856131</u>	50023	2006-10-15 06:04:12
32	<a href="#">Wikimedia Commons</a>	<b>46619</b>	1142849	<u>152</u>	<u>76257</u>	<u>3407070</u>	0	2006-10-15 06:04:12
33	<a href="#">Hebrew Wikipedia</a>	<b>45881</b>	156843	<u>38</u>	<u>25860</u>	<u>2169014</u>	29380	2006-10-15 06:03:52
34	<a href="#">Bible Wiki</a>	<b>45374</b>	178839	<u>2</u>	<u>256</u>	<u>223811</u>	1923310	2006-10-13 06:00:04
35	<a href="#">Italian Wiktionary</a>	<b>44817</b>	51641	<u>6</u>	<u>974</u>	<u>172651</u>	2	2006-10-15 06:02:46
36	<a href="#">GeneaWiki</a>	<b>44070</b>	57521	<u>7</u>	<u>3455</u>	<u>194781</u>	4227107	2006-10-15 06:04:43
37	<a href="#">Catalan Wikipedia</a>	<b>42506</b>	92876	<u>10</u>	<u>4050</u>	<u>653470</u>	171	2006-10-15 06:04:28
38	<a href="#">Hungarian Wikipedia</a>	<b>41567</b>	94289	<u>10</u>	<u>9608</u>	<u>923848</u>	6640	2006-10-15 06:04:02
39	<a href="#">English Wikisource</a>	<b>39612</b>	60131	<u>20</u>	<u>5876</u>	<u>249074</u>	0	2006-10-15 06:04:09
40	<a href="#">Romanian Wikipedia</a>	<b>39404</b>	103376	<u>18</u>	<u>20489</u>	<u>593491</u>	15059	2006-10-15 06:03:46
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