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Wikipedia in the Spotlight

Wikipedia founder Jimmy “Jimbo” Wales walked away from the *Time Magazine* gala in the spring of 2006 with a smile on his face. He had just been named one of *Time*’s 100 Most Influential People. Wikipedia was an online encyclopedia, widely known as the world’s most popular Internet reference source. Wales took pride in the success of his experiment, but knew the credit should be spread around, as Wikipedia’s entries were written entirely by volunteers.

The flurry of positive press attention put the spotlight on Wikipedia, attracting new users and new contributors. Wikipedia was a wiki, which is an open-source project aimed at facilitating collaborative development of content. As the largest wiki ever, Wikipedia faced questions that no site had faced before: Could the site accommodate a skyrocketing number of participants? How could new users and contributors be brought on board without losing the features that inspired enthusiasm in existing Wikipedia participants? Could growth occur if nothing about Wikipedia changed, or could Wales and his board help initiate actions that would enable more growth? Were there any risks in taking such actions? What was too much change and what was too little?

The Encyclopedia

Wikipedia was an online-only encyclopedia-like reference that was entirely written and edited through user contributions. It had grown rapidly since its founding in 2001. But was Wikipedia truly an encyclopedia? Most of its contributors and users, when polled, agreed with Wikipedia’s position that it was “the free encyclopedia that anyone can edit.” To those who had been in the reference-book industry decades earlier, however, the answer was less clear. Wikipedia did not look like encyclopedias of the past. It evolved according to distinct principles and presented its results in a different format.

The first encyclopedia was written in 1728. It was a comprehensive, multivolume general knowledge source. Since then dozens of companies had published scores of editions of this type of reference in print form. These compendiums had a typical form: usually experts in their fields contributed articles while a robust professional review process ensured quality. For most of the twentieth century, *Encyclopædia Britannica* dominated the English-language encyclopedia market.

Britannica’s dominance had eroded recently. When personal computers began to penetrate American homes in the early 1990s, the printed encyclopedia faced a market challenge. A multimedia encyclopedia in CD-ROM form took the dominant spot in the reference sector. Launched by Microsoft under the name Encarta, this electronic reference source helped drive

print encyclopedias into commercial decline. The Internet accelerated the decline, eventually compelling even Encarta to move online.

By 2006 Britannica still remained dominant as an authoritative reference for libraries and institutions, but not for households, which generally used many different online sources as their primary information-gathering mechanism, spreading activity among multiple formats. Microsoft's Encarta had a lead in popularity for several years, but Wikipedia surpassed Encarta as the Internet's most popular research site in 2005, a position that it held thereafter.¹ According to Web-traffic monitoring site Alexa.com, for most of 2006 Wikipedia ranked in the top twenty among the most visited Web sites in the world.

As of 2006 Wikipedia was owned and administered by the Wikimedia Foundation, a not-for-profit group set up in mid-2003 to manage the costs and donations associated with operating the Wikipedia Web site and related efforts. The stated goal of the foundation was "to develop and maintain open-content, wiki-based projects and to provide the content of those projects free of charge."² The not-for-profit status of the organization was a feature of Wikipedia that Wales and the board had no intention of ever changing, an opinion that the vast majority of contributors heartily seconded.

The Wikimedia Foundation was governed by a five-member board that included Wales and two business partners. The other two board members were elected Wikipedia community representatives.

Even not-for-profits face costs when trying to accomplish their missions, and Wikipedia was no exception. Wikipedia had two paid employees and few other regular expenses aside from its servers. Wikipedia maintained more than one hundred servers worldwide, and the capacity required of these servers increased as the organization's needs increased. These costs could run in the hundreds of thousands of dollars.³ Wikipedia had never accepted advertising, nor did it sell access to its content. It had funded itself on donations, which had been more than sufficient to cover expenses. It did not face any significant financial issues in 2006, nor did it anticipate any in the near term.⁴

Comparing Wikipedia with Other Reference Sites

In 2000 Jimbo Wales created a peer-reviewed, closed-content encyclopedia called Nupedia.com, and hired Larry Sanger to be its editor. They intended to produce Nupedia in a variant of the traditional peer-review process, but that format eventually proved costly and burdensome. In early 2001 Nupedia was altered to a "wiki" format, which gave editing power to any user with access to the site and would, in principle, speed content development. Wikipedia was the result. Within weeks, Wikipedia became so popular that the Nupedia project was shuttered.

¹ Elizabeth Corcoran, "The Answer Man: Jimmy Wales," *Forbes*, September 5, 2005, 122.

² http://en.wikipedia.org/wiki/Wikimedia_Foundation.

³ *Ibid.*

⁴ Jimmy Wales, private correspondence, August 28, 2006.

Wikipedia was very successful very quickly; between 2001 and 2004, 450,000 articles were written by Internet contributors on the English-language site. By the summer of 2006 the totals were astounding. Worldwide, 1.3 million articles in English had been published. An even larger number had been published by community users in other languages (by that point Wikipedia was available in more than one hundred languages). German had the second largest number, with more than 450,000 entries.⁵

In comparison, the English-language version of *Encyclopædia Britannica* had 120,000 entries in its most comprehensive edition.⁶ This comparison cannot be made without criticism, since Wikipedia had suggested that contributors limit articles to 32 Kb, less than 6,000–10,000 words at most, before splitting the article into multiple postings. Other formats could tolerate much longer presentations.

The site contained another key difference from printed encyclopedias: the topics varied widely. Wikipedia contained many articles that did not differ from those in a printed encyclopedia, such as entries devoted to historical questions or to basic science. It also had many entries for general topics in geography and politics. Yet many Wikipedia entries did not neatly fit into a single category. Some entries discussed the history of famous companies; others were devoted to famous writers or actors; still others contained current events, celebrity biographies, summaries of fictitious novels, or hundreds of thousands of topics considered too obscure for attention in a traditional encyclopedia. If the Wikipedia community thought a topic deserved attention, then it received an entry.

The size and quality of the entries depended on the level of attention contributors devoted to the topic. The article on actor Patrick Stewart, for example, included only a little about Stewart himself. However, it did include a lengthy (fictional) biography of the character he portrayed on the television series *Star Trek: The Next Generation*, Captain Jean-Luc Picard. The entry was written by extremely enthusiastic fans. Who else would have gone to the trouble of entering this 3,800-word, 116-paragraph passage devoted to a fictional character?

By comparison, the July 2006 site for an actual space explorer, John Huchra, Harvard astronomy professor and discoverer of the Great Wall (the second largest super-structure in the universe), had an entry of fewer than one hundred words. The entry also had a link to Huchra's Web site as well as to several other relevant entries on the Great Wall. Users could follow the links and find out more about these topics if desired.

A number of observers had pointed out that the sites for pop stars Britney Spears and Michael Jackson ranked among the most frequently edited entries on the site in 2006.⁷ The attention within Wikipedia was correlated with their status as pop figures whose actions generated controversy and attention in other media.

It was more accurate to say that Wikipedia was everything its contributors wanted it to be. It acted as a "reference desk" on many standardized topics, as any encyclopedia would. It was more interactive, however, because it also allowed visitors to submit research questions to Wikipedia volunteers (with the caveat that the site should not be used for students wishing to have other people write their school papers for them). Wikipedia also acted as a community portal where all

⁵ Anja Ebersbach, Markus Glaser, and Richard Heigl, "Wiki: Web Collaboration," *Springer Science + Business Media*, 2005, 10.

⁶ Stacy Schiff, "Know it All: Can Wikipedia Conquer Expertise?" *New Yorker*, July 31, 2006.

⁷ Marshall Poe, "The Hive," *Atlantic Monthly*, September 2006, 86–96.

site news, updates, and chats were posted. Wikipedia even had multitudes of “to-do lists,” or “stubs,” where volunteers posted pages that needed to be categorized, linked, completed, and referenced, ready for any eager contributor to take up.

These features inspired intense loyalty among contributors and many repeat visits by users who liked the site’s accessibility and diverse set of topics. With Wikipedia’s increasing spotlight, it also inspired criticism from outside the community of contributors and users.

In the view of critics, Wikipedia’s coverage was subject to the whims of its contributors, which tended to reflect “geek priorities,” such as an inordinate interest in all things having to do with *Star Trek*. Even as the site had grown well beyond this particular obsession, it emphasized surprising, amusing, or curious details, as found in popular magazine writing. To a reader with a strong preference for the tone and topic selection found in the traditional printed encyclopedias, this feature produced dissatisfaction.⁸

Wikipedia had one particular feature that critics found especially unsettling: it was never finished. More to the point, it was always changing somewhere. Any entry could change if a contributor thought it needed it. All the entries related to a particular topic could change quite a bit over the course of a month if a group of contributors decided to take an interest.

Critics also complained that although Wikipedia’s articles could be easy to use, the unfinished entries were hardly graceful while they were in the midst of being edited. Many of these half-completed Wikipedia entries had a bland, jumpy, or awkward narrative quality. The editing and re-editing process could lead to synthetic or graceful treatments of a topic, but it took time and effort. According to these critics, many entries did not improve quickly enough.⁹

Wikipedia’s contributors and loyalists had developed an array of counterarguments to these criticisms. There was also an active and lively debate inside Wikipedia about what types of entries fit with its identity, and about the processes that led to the most desirable outcomes.

The Open-Source Model and the Wiki

Wikis were often compared to other organizations with collaborative user-generated content, known as open-source organizations. At a broad level, wiki sites shared one major feature with open-source projects: they were collaborative in nature. Upon close examination, however, there were many differences and similarities with other well-known open-source models.

The open-source model began as an experiment in the organization of the production and sharing of software. Open source is an organizational model that grew around a novel form of intellectual property, specifically a copyright license that made collaborative software easier to produce.

There was no single format for the license used by every open-source project; there were a variety, and each organization could design one for its own purposes. The most common form

⁸ Roy Rosenzweig, “Can History be Open Source? Wikipedia and the Future of the Past,” *Journal of American History* 93, no. 1 (June 2006): 117–146, reprinted at <http://chnm.gmu.edu/resources/essays/d/42> (accessed August 2006).

⁹ Ibid.

was the general purpose license. By 2006 different projects had pushed open-source licensing in many directions. Some allowed software code to be mixed with nonfree software, others permitted users to make modifications without returning them to the community, and still others granted the copyright holder special rights over use of a user's modification. These differences were employed in a variety of ways, depending on whether the organizers intended to prohibit or nurture the use of the code for commercial purposes.¹⁰

One important model for an open-source project was Linux, a computer operating system. It was begun by Linus Torvald in the early 1990s as a derivative, or "fix," to Unix, a widely used and ever-improving operating system that others had implemented in a variety of distinct ways over two decades. In the Linux community the code was shared, and many programmers contributed additional pieces to it. After many years of these contributions, Linux had acquired capabilities that exceeded those found in any prior vintage of Unix software. It had become a robust and highly capable operating system. Many companies then began basing their operating systems on the Linux core, or "kernel." Several firms began to turn a profit selling services and related components. By 2006 Torvald and others were formally employed by an organization to which many computer companies made contributions.

Apache was another successful open-source project. It was founded to support and create fixes for the HTTPD Web server written by the National Center for Supercomputing Applications (NCSA). By 2006 more than 65 percent of Web sites in the world were powered by the Apache HTTPD Web server.¹¹ Apache differed from many other open-source organizations in that contributors "earned" the right to access the code. One had to be working on at least one of Apache's projects to be a contributor.

Another open-source project, MySQL, pursued a distinct commercial model. A basic package was developed through an open-source arrangement and, accordingly, no user paid for basic software. Companies paid only for more advanced features, largely developed by the employees of the company who sponsored MySQL. From the outset, the organization behind MySQL aspired to make a profit. MySQL was a database with Web site-powering, packaged software, and enterprise applications. Many small to medium-sized companies used the free basic MySQL for their operations. The number of paying customers numbered in the tens of thousands.

"WikiWiki" is Hawaiian for "quick" or "hurry." The label was applied to user-changeable content because wiki sites can be made available in a quick and uncomplicated way. There had been other wiki sites before Wikipedia, but none as large or as successful at reaching the spotlight as Wikipedia was. The first wiki was developed in 1995 by Ward Cunningham, a software engineer from Portland, Oregon. Wikis were first developed and intended for software development. Says Cunningham, "The subject I had in mind was the knowledge necessary to write good computer code, but I realized it would have broader implications. It's a medium that allows people to collaborate more easily than they could in systems that are modeled after the pre-computer world, like e-mail."¹²

Wikis had grown out of that first use and were now applied to a multitude of applications. In the case of Wikipedia, the format was applied to the development of textual and nontextual content displayed on the Internet. By 2006 Wikipedia ran on its own custom-built software. There

¹⁰ Sandeep Krishnamurthy, "A Managerial Overview of Open Source Software," *Business Horizons*, September–October 2003.

¹¹ Apache Software Foundation, <http://www.apache.org/foundation/how-it-works.html> (accessed July 2006).

¹² Quoted in Robert Levine, "New Web Sites Seeking Profit in Wiki Model," *New York Times*, September 4, 2006.

were hundreds of other wikis on the Internet, differing in focus, programming language, and profit/nonprofit status.¹³

Wikis could be used in a closed work group or without restrictions on the contributors. Wikipedia started with almost no contribution restrictions, and over time developed only a few to facilitate administration of the site in an effort to remain open.

Wikipedia did share one thing with other open-source projects: the use of open-source licensing. Most images and other content in Wikipedia were covered by the GNU free documentation license (GFDL), a variant on the popular general purpose license. With the latter, contributions remained the property of their creators, while the GFDL license ensured the content would remain freely distributable and reproducible.¹⁴ Copies could be sold commercially, but if produced in larger quantities than the original document or source code had to be made available. The license was designed for manuals, textbooks, and other reference materials, as well as the documentation that accompanies software code. As of 2006 the largest project using the license was Wikipedia.

Evolution of a wiki differed from traditional software production in a number of ways. First, wiki server technology allowed the creation of associative hypertexts with nonlinear navigation structures. Each page contained a series of cross-links to other pages. The reader decided how to navigate through the site. Even if the wiki had a hierarchical navigation structure, this hierarchy was secondary to the nonlinear navigation model embedded in the wiki. Second, contributing to a wiki was easy. The contributor did not need knowledge of programming. Entering and formatting text usually required only a few simple rules; for example, sentences could be formatted into lists by placing a star or dash in front of them.

Wiki functions had a few common characteristics:

- Editing was an important feature of wikis.
- Each wiki article could be linked by association.
- Wikis usually contained history pages, which saved all previous versions or modifications to a page. The history page allowed a user to open a previous version and save that version again, called “rollback.”
- RecentChanges pages provided an overview of recent modifications (usually within a specific timeframe) to wiki pages. This page was produced automatically and could not be changed by users.
- A SandBox page taught new users how to use wikis and acted as a sort of instructional guide to users.
- Most wikis had a simple search function.

As with any collaborative open-source project, Wikipedia relied on users to generate suggestions for changes. To understand how that worked in practice, it is important to understand the community that operated Wikipedia, a group that called themselves Wikipedians.

¹³ <http://c2.com/cgi/wiki?WikiEngines> (accessed July 2006).

¹⁴ <http://en.wikipedia.org/wiki/Wikipedia:About> (accessed July 2006).

Consensus among the Community of Wikipedians

After five years, Wikipedia had accumulated an extraordinarily large set of entries, even though Wikipedia had only two paid employees. A community of contributors had grown the Wikipedia site to what it was by 2006.

In general, any Internet user, whether registered on the site or not, could make an addition, edit, or deletion to an article. By mid-2006 the English version of Wikipedia had more than 200,000 registered users, about 33,000 of whom were considered active volunteers in the editing and creation of articles for the encyclopedia.¹⁵ These 33,000 were responsible for about 70 percent of the work.¹⁶ A smaller number of writers (about 1,000) controlled the bulk of editing on the site. According to Wales, “A lot of people think of Wikipedia as being 10 million people, each adding one sentence. But really the vast majority of work is done by this small core community [of about 1,000].”¹⁷

An elite group of “Wikipedians” were allowed to delete, restore, and protect pages as well as block users for violating policy. Often these Wikipedians were called “admins,” which is short for administrators.¹⁸ They obtained this status by gaining the trust of other admins through experience editing on the site.

At the same time, content came from a combination of dedicated contributors and a diverse group of users. As stated by one Wikipedian who tested a number of articles:

*An outsider makes one edit to add a chunk of information, then insiders make several edits tweaking and reformatting it. In addition, insiders rack up thousands of edits doing things like changing the name of a category across the entire site—the kind of thing only insiders deeply care about. As a result, insiders account for the vast majority of the edits. But it’s the outsiders who provide nearly all of the content.*¹⁹

Wikipedians were bound by a common desire to explain a topic and to have some authority or control over its presentation on the site. In addition, many contributors liked interacting with each other and felt a bond with others who were committed to the goal of making information accessible to any Internet user. These community members were “strongly compelled to lay it all down when tinkering with the ‘sum of Human knowledge,’”²⁰ whether author, historian, scientist, teacher, or teenager. The importance of the community aspect of Wikipedia was exemplified through this statement on the Web site:

The Wikipedia Community is personal . . . Wikipedians define themselves within the context of the project through their interests and goals. This brings both benefits and complications—Wikipedia takes advantage of personal qualities like trust, insight, imagination, idiosyncrasy, and empathy which bureaucratic institutions cannot; but it cannot do so without also having some of the downsides, including confusion, bias,

¹⁵ Josh Hyatt, “The Wonder of Wikipedia: How to Motivate—and Control—An Army of 30,000 Volunteer Workers,” *Fortune*, June 12, 2006, 134.

¹⁶ Schiff, “Know it All.”

¹⁷ Katie Hafner, “Growing Wikipedia Revises Its ‘Anyone Can Edit’ Policy,” *New York Times*, June 17, 2006, 1.

¹⁸ Schiff, “Know it All.”

¹⁹ Aaron Swartz, “Who Writes Wikipedia?” <http://www.aaronsw.com/weblog/whowriteswikipedia> (accessed October 2006).

²⁰ http://meta.wikimedia.org/wiki/The_Wikipedia_Community (accessed July 2006).

*mistakes, and hurt feelings. A healthy community doesn't eliminate the problems, but it understands how to deal with them.*²¹

The statement also embodied the essence of Wikipedia: mistakes were anticipated and in due time dealt with by the community. The site was organized in a way that presumed all errors would be corrected given enough eyes. This was a shared assumption among all Wikipedians.

At its most basic level, Wikipedia was simply following Linus' Law as formulated by Eric Raymond in his open-source essay "The Cathedral and the Bazaar": "Given enough eyeballs, all bugs are shallow."²²

Critics raised questions about whether that mantra could work as well in text as it does in code. The ultimate test of good code is whether it worked well or not. What was the ultimate test for a passage of text? There were several different ways to answer that question. Ask a Wikipedian and the answer usually emphasized the editing process; that is, it came back to believing in the power of an open revision process that enabled multiple users to edit any passage.

On Wikipedia's own page about who contributes articles to the site, it reads, "Many users of Wikipedia consult the page history²³ of an article in order to assess the number of people who have contributed to the article. An article can be considered more likely to be accurate when it has been edited by many different people (since most edits make constructive changes, not destructive ones)."²⁴

Wales reiterated the idea in his public comments: "I think the day will come in the future when people will look at an article in Britannica and say, 'This was written by one person and reviewed by two or three more? That's not sufficient. I need an article that's been reviewed by hundreds of people.'"²⁵

While debugging articles in practice could be unpredictable in its details, the process tended to follow a somewhat predictable interactive sequence: when a first draft of content was sent to the site, users read and reviewed it and made edits and additions, using terms and topics that could be associated with the original topic, but linked to new or existing articles. This would open the door for another contributor to take on the project and edit or complete the link from the first article, create a new article, and so on. Because of this pattern, Wikipedia was ever-expanding and thus always required revision, addition, and updating.

The reliability of an entry was a subject of constant debate. On the one hand, many Wikipedia critics believed that these sites or programs were not reliable because editing was not restricted to experts, such as a PhD researcher or an active participant in a specialized area who had a proven track record of explaining the topic to outsiders. On the other hand, a growing number of Wikipedians believed open-source software and sites were more reliable than proprietary

²¹ Ibid.

²² See Eric Raymond, "The Cathedral and the Bazaar," *First Monday*, http://www.firstmonday.org/issues/issue3_3/raymond (accessed August 8, 2006), Rule No. 8. The law, stated more formally, is: "Given a large enough beta-tester and co-developer base, almost every problem will be characterized quickly and the fix obvious to someone."

²³ All entries have page histories, allowing a reader to trace the history of changes in reverse chronological order.

²⁴ http://en.wikipedia.org/wiki/Wikipedia:Who_writes_Wikipedia (accessed August 2006).

²⁵ NPR: Talk of the Nation, "Analysis: Wikipedia, Open Source, and the Future of the Web," transcript, November 2, 2005.

software or Web sites because content was not locked. Content was being reviewed by its own users and going through constant auditing.

Wikipedia had three main policies in place to encourage the emergence of reliable content from all its contributors. Contributors that violated these policies could be banned indefinitely. As of June 2006 the administrators could also lock articles from further editing if they judged it necessary.

First, all articles had to be written or edited with a “neutral point of view,” representing views fairly and without bias. Conflicting opinions were supposed to be presented alongside one another, not asserted in a way that was meant to be convincing. All significant points of view had to be represented in the article. In Wikipedia speak, this boiled down to the principle that Wikipedians could “assert facts, including facts about opinions, but not opinions themselves.”²⁶ According to Wales, “if a viewpoint is held by an extremely small (or vastly limited) minority, it doesn’t belong in Wikipedia . . . regardless of whether it is true or not; and regardless of whether you can prove it or not.” Users were encouraged to note if something was currently in dispute.

Verifiability was the second principle governing entries. Any reader of an article had to be able to check its contents and verify it with a reliable source. Editors had to be able to cite these reliable sources in their articles and provide links if possible. It is important to note that Wikipedia stressed verifiability, not truth; the editor was not responsible for determining whether a newspaper article he or she cited was true, as long as the newspaper was a reliable, peer-reviewed source.

Finally, Wikipedians were not permitted to submit original research. All material must have been previously published by a reputable source. Alternatively, a reasonable adult should understand the concept (i.e., “vegetable” does not need to be published by a reliable source to be permitted an article in Wikipedia). This policy was put in place, in Wales’s words, in order to avoid a “novel narrative or historical interpretation” of a subject.

It is one thing to state policies and quite another to do so succinctly. Critics and newcomers to the site found its policies somewhat bewildering. The Wikipedia “Policies and Guidelines” page links to dozens of others, including “General Guidelines,” “Behavioral Guidelines,” “Content Guidelines,” “Style Guidelines,” and “Conventions.”²⁷

Enforcing these policies also involved many challenges. Over time the site had adopted a design that made it simple for contributors to monitor each other. Wikipedians could subscribe to follow (or “watchlist”) articles to check if they were changed. In principle, every edit also could be traced to its originator through an ISP address, though only a small number of admins ever had to do so. These tracing mechanisms were in place for a reason: “Being very transparent encourages good behavior,” Wales said.²⁸ Furthermore:

Everything is very carefully monitored by a core community who is constantly watching the site, constantly discussing, reviewing changes that are coming in . . . if [a user] is something of an outsider to the community, his changes when they come in will be

²⁶ http://en.wikipedia.org/wiki/Wikipedia:Neutral_point_of_view (accessed July 2006).

²⁷ Rosenzweig, “Can History be Open Source?”

²⁸ Hyatt, “The Wonder of Wikipedia.”

*noticed, as, oh, well, this is somebody we don't know and we'll check it over and if it seems fine, it'll stand. Otherwise, it can be removed very quickly.*²⁹

Enforcing a neutral point of view became the focal point for discussion by those constructing entries in Wikipedia. Many of the back-channel conversations on Wikipedia-dedicated IRC channels³⁰ concerned whether particular passages reflected this principle. In general, the vast majority of entries settled on approaches that the wide community of contributors agreed to, either because it reflected a consensus, or because those with minority opinions got the passage they wanted, or because a dissident on an entry simply gave up trying to make revisions.

A consensus about “wiki etiquette” also informally governed the behavior of many contributors. There were three points to it: good faith, civility, and discussion. Good faith encompassed the working assumption of contributors that others were trying to improve the site, not deliberately sabotage it, until evidence suggested otherwise. Civility meant text-based communication was done with respect, not with belittling attacks on each other’s ideas. Finally, there would be civil and good faith efforts to resolve all disputes through discussion before any other means.³¹

In practice, admins frequently removed new entries, after much discussion with other Wikipedians, if they deemed the topic unsuitable for an encyclopedia. These debates were particularly common for biographical entries. Some were simply vanity entries from teenagers trying to enter information about themselves or friends, while others were entries from someone with an interest in, for example, an obscure historical figure or a musical group with a cult following. Admins had to decide if the person was of sufficient “renown” or had achieved “notoriety for their involvement in newsworthy events.”³²

Consensus did not reign on all entries, however, nor would anyone expect it to among such a large group of contributors. Some disputes continued indefinitely; one side would change a passage and then the other would change it back. When the natural course of editing and discussion did not settle such disputes, contributors could take them to an arbitration committee. Before it reached this committee, it had to pass through a mediation committee.³³

Jimbo Wales tried to emphasize the positive in his public comments: “Well, one of the things that we do is that we have a very strong neutrality policy that actually works very well. It turns out most people are quite reasonable, even people who come from interest groups. They really understand that you can’t put in a one-sided rant because it won’t survive very long in Wikipedia.”³⁴

These statements reflected a broader philosophical principle behind Wikipedia. Wales had deliberately taken a hands-off approach, preferring to let the community of contributors reach consensus about setting agendas. Contributors and admins defined a neutral point of view in any given instance and resolved disputes between versions. This was no small matter, as it had led to

²⁹ NPR: Talk of the Nation, “Analysis: Wikipedia, Open Source, and the Future of the Web.”

³⁰ IRC, or Internet relay chat, is the equivalent of a “party line” over a computer network, where people can hold conversations with others, generally with minimal delay.

³¹ <http://meta.wikimedia.org/wiki/Etiquette>.

³² Noam Cohen, “Giving the Heave-Ho in an Online Who’s Who,” *New York Times*, October 8, 2006.

³³ Schiff, “Know it All.”

³⁴ NPR: Talk of the Nation, “Analysis: Wikipedia, Open Source, and the Future of the Web.”

another feature of the site's culture that outsiders found bewildering: the contributors to Wikipedia largely governed themselves, reaching consensus as often as possible, seemingly not taking direction from anyone. It was a basic premise behind the Wikipedia culture that regular contributors took for granted. Larry Sanger had disliked this approach and it was part of the reason he no longer worked at Wikipedia after 2002.³⁵

Outsiders and critics found this feature difficult to accept, since it differed sharply from the traditional model for developing an encyclopedia, where an editorial staff took ultimate responsibility for all features of it. The harshest critics focused on the lack of a mechanism to assign authority to an expert who took ultimate responsibility for an entry and exercised considered judgment. Critics found consensus inadequate for numerous reasons, calling it democracy trampling expertise, or collaborative mob rule.³⁶

There was little middle ground on the importance of consensus. Wikipedians celebrated the culture.³⁷ Wales, the mediation and arbitration committees, and many Wikipedians with admin status took pride in this feature. Collective judgment had played a large role in Wikipedia's history. It gave many contributors a sense of ownership and pride in what they had accomplished and encouraged.

Reliable and Authoritative Information

Questions about reliability and authority had been raised about Wikipedia in the past. While the questions were not new to the site's experienced contributors, they were for the newest users who came to the site in 2006. The media spotlight seemed to magnify the importance of these questions.

These questions arose partly because Wikipedia was a creature of its time. By 2006 there were millions of experienced Web surfers, and for them Wikipedia had its strengths and weaknesses. They understood intuitively how open-source projects operated and were comfortable with searching for information online, even on topics where it was difficult to assess the reliability or accuracy of a passage. For such users, Wikipedia had become a very accessible gateway into many topics. They recognized that Wikipedia could not be the last word on controversial topics and knew when to doubt a key fact or interpret a shaded opinion. Wales also was well aware of the pros and cons of the wiki model and made an effort to help users understand its strengths and weaknesses (**Exhibit 1**).

Yet many new users had arrived only after the media spotlight had focused on Wikipedia's growing popularity. Critics wondered if every Web user of such a popular site understood the subtleties of Wikipedia's origins or how it functioned. That raised concerns that other users would employ Wikipedia in inappropriate ways.

These questions and concerns were magnified by several well-publicized examples of people submitting factually inaccurate information on Wikipedia that was not corrected in a timely

³⁵ Poe, "The Hive."

³⁶ Rosenzweig, "Can History be Open Source?"

³⁷ See the many entries on http://en.wikipedia.org/wiki/Category:Wikipedia_culture.

manner. For example, the entry for former Assistant Attorney General John Seigenthaler, Sr. was vandalized, and it went 132 days before it was corrected.³⁸

There were also well-publicized examples of people editing passages with the intent of polishing them for self-centered gains. For example, staffers for several members of Congress were caught deleting objectionable material from the site's entries about their bosses.³⁹

Wikipedia also fought a never-ending battle with vandals and prank contributors, who inserted profanity or destroyed existing text. Robots constantly searched the site for the most obvious vandals and other mechanisms caught the most recent problems. Admins frequently restored text after such incidents.

Perhaps no recent incident had garnered more attention than a widely publicized stunt by Steven Colbert, comedian on the television show *The Colbert Report*. In the summer of 2006 he tried to demonstrate how easily entries on Wikipedia were altered, which cast doubt on their truth. During his broadcast, he altered the entry on elephants and asked viewers to enter facts they knew to be inaccurate. Wikipedia had to lock twenty sites related to elephants, and also locked Colbert's user account.

Even before this stunt, outside reviewers had begun to test Wikipedia's accuracy. In a well-publicized article in the journal *Nature*, a reporter interviewed experts to ascertain the accuracy of some scientific entries. The article reported 162 errors in a group of scientific articles on Wikipedia, and a comparable number (123) in the most recent edition of *Encyclopædia Britannica*. Hence, on average, Wikipedia articles had four mistakes, while Britannica articles had three.⁴⁰

Britannica objected strongly to the article, claiming it exaggerated errors in Britannica and focused on the wrong features. The company's response read, in part, "Britannica has never claimed to be error-free. We have a reputation not for unattainable perfection but for strong scholarship, sound judgment, and disciplined editorial review."⁴¹ In contrast, Wales was concerned that simple contests fostered superficial impressions, which was a double-edged sword. He thought the article had portrayed Wikipedia's accuracy in the areas where they were strongest: scientific and technical topics. The site might have fared worse in areas where the community of contributors was small and the articles were undergoing change at a slower rate.⁴²

The test also did not emphasize the speed at which Wikipedia articles could be updated. "You could go and write an article on someone you didn't like," explains Wikipedia press team member Mark Pellegrini. "But it's probable that someone else will come along and modify or revert the edits you made. [For example,] the George W. Bush entry is edited hundreds of times per day."⁴³ In August 2005, when one self-appointed expert amended the entry on President Bush

³⁸ "Wikipedia Tightens Rules for Posting," *CMP TechWeb*, December 5, 2005.

³⁹ Aaron Blake, "Wikipedia Site Attempts to Make Politics Healthier," *The Hill*, <http://www.thehill.com/thehill/export/TheHill/News/Campaign/071106.html> (accessed July 2006).

⁴⁰ Jim Giles, "Internet Encyclopedias Go Head to Head," *Nature*, December 15, 2005, 900-901.

⁴¹ Quoted in Schiff, "Know it All."

⁴² Jimmy Wales, private communication, August 28, 2006.

⁴³ "Wikipedia: Friend or Foe on the Net?" *PR Week*, February 24, 2006, 15.

to include “George W. Bush is the worst president to sleep in the White House,” the post lasted only six minutes.⁴⁴

Chris Anderson, editor-in-chief of *Wired Magazine*, summed up the positive views of these incidents with the following comment:

*You will certainly find examples of really terrible entries, just completely biased or ignorant or wrong. And, you know, rather than sort of throw your hands up and say, “See? You know, Wikipedia doesn’t work,” what’s delightful is that often people improve them. When they see a bad entry, they don’t dismiss Wikipedia, they improve the entry. And that sort of—you know, it’s almost counterintuitive that most people when given a resource like Wikipedia aim to improve it, not to destroy it, which sort of runs counter to our notion that vandals will run riot.*⁴⁵

As it gained popularity, Wikipedia faced questions about its core policies, especially those encouraging a neutral point of view. Wikipedia could not escape an escalating edit war between opposing views on some topics. Religious issues were particularly subject to endless editing and re-editing by contributors with different views. For example, the entries for Jesus, Islam, Christianity, and Pope Benedict XVI all received hundreds of edits a week, ranking them among the top twenty edited entries.⁴⁶ Other topics in the top twenty included those on political leaders, such as President George W. Bush, John Kerry, and Bill Clinton. Similar issues surrounded the entries regarding current international conflicts, such as the Israeli-Palestinian conflict. Historically controversial topics also received many edits, such as the description of the Armenian genocide or World War II, as well as the biography of Adolf Hitler.⁴⁷

Could a neutral point of view ever exist on any of these topics? Wikipedians pointed to the triumph of civility on even the most controversial topics, arguing that the results displayed a more neutral view than any printed entry. In comparison with a traditional encyclopedia, this process took multiple views into account, achieving something the traditional encyclopedias did not do as well by relying on a single author.

Related issues had received considerable discussion among Wikipedians and motivated several proactive steps in the Wikipedia community. Among them, many contributors started adding more references to sources outside Wikipedia. These bolstered the credibility of claims within articles and gave readers the option to search for more opinions. When such verification was not readily available on controversial articles, some admins began to designate controversial articles as under dispute or in need of further editing or verification.

In a few cases, some particularly contentious articles became locked frequently, slowing down the rapid revise and revert cycle between opposing sides. Experienced Wikipedians generally did not prefer this approach; it was a sign that good faith and civility had broken down.

The issue of neutrality shaped the tone and content of almost every major entry in Wikipedia. Wikipedians disliked stodgy and dull entries but also resisted entries filled with a tone of smug certainty or the passionate celebration of one point of view. The predominant cultural norm

⁴⁴ Corcoran, “The Answer Man: Jimmy Wales.”

⁴⁵ NPR: Talk of the Nation, “Analysis: Wikipedia, Open Source, and the Future of the Web.”

⁴⁶ Poe, “The Hive.”

⁴⁷ Schiff, “Know it All.”

governing controversy on Wikipedia was to air out differences so a neutral point of view could result from all the back-and-forth arguing.

Managing the Virtuous Cycle

Wikipedia's success depended on the participation and growth of a collaborative community. How could that arise during the writing of an entry, which could be a solitary activity? Wikipedia succeeded because most entries were not done by one person, but by many. Why did contributors become involved in such collaboration?

There were numerous reasons contributors participated in writing, editing, and revising entries. These included a fundamental tenet of the open-source movement, a belief in the power of the "bazaar" instead of the "cathedral" for the accumulation and presentation of knowledge.⁴⁸ Many Wikipedians expected good-faith application of Wikipedia's principles and enjoyed collaborating with others who liked the same.

Beyond that shared understanding, many Wikipedians thrived on the challenge of translating complex topics into accessible material. Still others thrived on making the agenda for the topic, as well as deciding what areas were emphasized. Many contributors thrived on the transparent process performed in an extremely flexible setting, bringing them into contact with a diverse group of topics and other collaborators.⁴⁹

However, personal satisfaction and reward from participating in the production of one entry did not fully describe how Wikipedia sustained its success. Success on one project usually shaped success on another. This continual success involved a virtuous cycle and could be described as the process that kept Wikipedia growing over time.

A healthy virtuous cycle is one that reinforces itself. It arises as improvements are made. A prototype is developed and submitted to users (reviewers). The users find errors in the prototype, improve upon it, and return it for resubmission to the owner of the project or to a newly generated next user. At that point the person repurposes the project to the wider audience. This leads to more attention, which leads to further improvements and edits, which generate more users to edit and improve the project, and so on.

This editing and revising does not take place in an online environment lacking human spirit, humor, or foibles. A satisfying collaborative process has a way of generating bonds between those who collaborated during a project. Many contributors developed working relationships that went beyond mere familiarity with each other's writing style. They struck up friendships, or developed camaraderie and mutual respect. This bond could carry over into other projects on other passages. Hence, the cycle could be self-sustaining, migrating to new projects and spawning development.

Those bonds could be quite strong, surviving the inevitable frustrations of editing a never-ending project. Those who edit are often passionate about their topic, striving for a better-than-ever-before, defect-free creation. Aspirations for perfection often clashed with the reality of

⁴⁸ For elaboration of these principles, see Raymond, "The Cathedral and the Bazaar."

⁴⁹ See Ebersbach, Glaser, and Heigl, "Wiki: Web Collaboration," ch. 1.

continuing improvement. An entry never could be “finished,” because of the open nature of a wiki: further contributors might find improvements, edits, and modifications to be made. Yet because of the virtuous cycle, authors of the original text enjoyed the improvements to their original work and the back-and-forth process of generating entries.

The virtuous cycle puzzled observers familiar with the operations behind the printed encyclopedia. The editor-in-chief and staff provided a guiding hand in that process, whereas Wikipedia had no single person who took that role. A guiding hand was there by consensus, and thus was shared by many Wikipedians. Wales had special status, but he generally did not use it often on specific entries.⁵⁰ Instead, different Wikipedians took this role in many different topics. It did not become associated with any specific person for the entire project. Outsiders found this feature frustrating, as it seemed to assign authority to any single individual who self-selected the role, irrespective of whether he or she had sufficient expertise. Wikipedians argued that it let articles get attention from those who cared most. Wikipedians also argued against taking too short-term a view, since constant review would squeeze out errors, even those coming from early contributors.

When a Wikipedian took the role of guiding hand for an entry, he or she was regarded as an authority by the community of contributors. Disputes over version control and priorities for presentation could hamstring the cycle, so it fell to the guiding hand to make many small decisions, note holes in entries, create space for new material, and invite others to fill it in. The guiding hand also could initiate discussions about changes to entries. That way, when disputes arose about particular passages in controversial entries, the community of contributors did not cease to contribute as a result. Generally speaking, experienced contributors understood how many of these processes worked and, as a result, had a much easier time taking this role than new contributors.

No open-source project had managed a community as large as Wikipedia's, so clearly something had gone well. Yet regardless of the success Wikipedia enjoyed prior to 2006, there were new challenges inherent in Wikipedia's ever-increasing size. Successful growth depended on the cycle operating in the future as it had in the past. Such operation depended on retaining contributors who wanted to take on the guiding hand role, and attracting new contributors as well.

Would the guiding hand continue to emerge as Wikipedia grew larger? New contributors were interested in new topics and that would generate new issues. How could new users with good intentions learn from the experience of others? What could Wales and his community do to help others join the community, take on these roles, and help the site move into new and uncovered areas?

Growth, Competition, and the Future

Perhaps no area of Wikipedia produced more misunderstanding with outsiders than the nature of competition with alleged rivals. While it was undeniable that Internet users compared Wikipedia to an array of other sites that vied for attention, it was less apparent whether this competition had much influence on many Wikipedians' behavior.

⁵⁰ Poe, “The Hive.”

Nobody in Wikipedia focused on increasing market share, as in a profit-oriented site. This was partly a result of Wikipedia's status as a not-for-profit organization with more than enough resources to meet its mission. The site had also far exceeded any number of visits it needed to generate more attention for the site. It also far exceeded any number of visitors needed to help convince some contributors that their efforts would be read.

Wikipedia also differed from other sites because no manager worried about monetizing every visit. The site did not accept advertising and had no need to do so. Hence, the usual logic for a profit-oriented Internet site did not apply; there was no need or desire to generate extra revenue, so the question seemed irrelevant to Wikipedians. What would advertising do to the enthusiasm of the core base of Wikipedians? It would certainly hurt it. Did the site have enough resources to accomplish its primary missions? Yes, it did. In brief, accepting advertising would damage what had been accomplished and what might be accomplished in the future, only to generate revenue for which the site had no immediate need.

Wikipedia's phenomenal success also made Wikipedia different from other wikis. Did Wikipedians care that other startups were trying to profit using the wiki model? Not especially. Wikipedia was an encyclopedia, and that left plenty of room for other topics and subjects.⁵¹

These successes and goals also made Wikipedia different from many other nonwiki interactive sites as well. Many such sites devoted time and resources to increasing their traffic. There were multiple experiments at many sites in 2006 for generating user feedback, developing blog-enabled conversations among users, or creating multiple yardsticks to rate the quality of content to help users select among options. Wikipedians did not care about imitating such practices. The site already had more than enough traffic, so why should they change the basis for assessing content? No such scheme had been needed, so they saw no reason to have one now.

Moving Forward

Wikipedia did face questions about the future that many other Web sites could only hope to experience. Wikipedia had become a focal point for a substantial community of contributors and users, and that status would not disappear any time soon. It gave the community a great deal of freedom to pursue a range of ambitions. For example, not long after the English-language site's birth, other sites had been set up for different languages (as early as May 2001). By 2006 German, French, and other European languages had the largest number of contributors, but there was also growth in several other languages, such as Chinese, Japanese, Korean, and Arabic. Most impressively, one hundred other languages had some representation.

The expansions did not stop there. By 2004 Wikipedia had launched several of what it called "sister projects." This included—in English and many different languages, depending on the age of the project and the size of the contributing community—separate wikis for species classification, a dictionary, language translation, textbook contents, quotes, news sources, and images and sound data.⁵²

⁵¹ Robert Levine, "New Web Sites Seeking Profit in Wiki Model," *New York Times*, September 4, 2006.

⁵² See Wikimedia projects, http://en.wikipedia.org/wiki/Wikimedia_Foundation (accessed August 2006).

Wikimedia faced questions about the priority for its expansion. Sometimes these were simple questions; for example, where should these wikis be located on the site's increasingly crowded home page? Sometimes these were almost unanswerable until a community of contributors appeared; for example, what criteria should the organization use for deciding whether a suggestion had succeeded or failed in generating as much collaboration as possible? Some questions were logistic issues; for example, how could Wikipedia's volunteers build tools to help coordinate contributors who used different languages?

Existing contributors did not want the community expansion to remove features they found most enjoyable. At the same time, the existing community had to find quick and easy ways to welcome new users. How should the community train new contributors in wiki etiquette and allow them to contribute in new ways, accommodating scores of languages and cultural norms for collaboration? What else could the organization do to open up the editing process to the global community of potential contributors?

A virtual community of this scale raised novel questions. What did Wikipedia's board need to invent anew for a virtual organization of this size? Some questions were quite basic; for example, was there any role for nonvirtual meetings? Many contributors did want to discuss issues with other like-minded Wikipedians. What was the value in conducting meetings with broader goals, such as at a convention? If so, how often should conventions occur and where should the gatherings occur?

This all came back to the same two questions: What could the Wikimedia Foundation do to accommodate a skyrocketing increase in participants? Would growth continue if nothing about Wikipedia changed, or could Wales and his board help initiate actions that enabled more growth?



Exhibit 1: Using Wikipedia as a Research Tool

As a wiki,⁵³ articles are never complete. They are continually edited and improved over time, and in general this results in an upward trend of quality, and a growing consensus over a fair and balanced representation of information.

Users should be aware that not all articles are of encyclopedic quality from the start. Indeed, many articles commence their lives as partisan, and it is after a long process of discussion, debate, and argument, that they gradually take on a consensus form. Others may for a while become caught up in a heavily unbalanced viewpoint which can take some time—months perhaps—to extricate themselves and regain a better balanced consensus.

In part, this is because Wikipedia operates an internal resolution process when editors cannot agree on content and approach, and such issues take time to come to the attention of more experienced editors.

The *ideal* Wikipedia article is balanced, neutral, and encyclopedic, containing notable verifiable knowledge. An increasing number of articles reach this standard over time, and many already have. However, this is a process and can take months or years to be achieved, as each user adds their contribution in turn. Some articles contain statements and claims which have not yet been fully cited. Others will later have entire new sections added. Some information will be considered by later contributors to be insufficiently founded, and may be removed or expounded.

While the overall trend is generally upward, it is important to use Wikipedia carefully if it is intended to be used as a research source, since individual articles will, by their nature, vary in standard and maturity. There are guidelines and information pages designed to help users and researchers do this effectively.⁵⁴

SUMMARY OF STRENGTHS, WEAKNESSES, AND ARTICLE QUALITY IN WIKIPEDIA

Wikipedia's greatest strengths, weaknesses, and differences arise because it is open to anyone, has a large contributor base, and articles are written by consensus according to editorial guidelines and policies.

- Wikipedia is open to a large contributor base, so it is less susceptible to retaining bias, is very hard for any group to censor, and is far more responsive to new information, especially information not widely known in the West, and it is more easily vandalized or susceptible to unchecked information later needing removal.
- Wikipedia is written by consensus, so eventually for most articles, all notable views become fairly described and a very neutral stance can be achieved even on emotive subjects, and the reaching of consensus takes considerably longer than a simple drafting, and is occasionally made harder by extreme-viewpoint contributors. (Articles also tend to be more fluid or changeable for a long time compared to other reference sources until they find their “neutral approach” that all sides can agree on.)

⁵³ <http://en.wikipedia.org/wiki/Wiki>.

⁵⁴ http://en.wikipedia.org/wiki/Wikipedia:Researching_with_Wikipedia.

Exhibit 1 (continued)*Key Strengths*⁵⁵

- Having a very large number of active writers and editors in many languages, Wikipedia often provides access and breadth on subject matter that is otherwise inaccessible or little documented.
- Wikipedia often produces excellent encyclopedic articles and resources covering newsworthy events within hours or days of their occurrence.
- Wikipedia is one of few sites even attempting neutral, objective, encyclopedic coverage of popular culture.
- The Western-centric bias found in many Western publications is significantly reduced on Wikipedia.
- In comparison with most Web-based resources, Wikipedia's open approach tremendously increases the chances that any particular factual error or misleading statement will be relatively promptly corrected.
- There is no one central point where censorship can be imposed, and therefore censorship by any given group, restriction to "officially reported" sources, or "pushing" of any particular viewpoint, whether official or unofficial, is difficult to achieve and almost always fails after a time.
- In contrast with many Web resources, information added to Wikipedia never "vanishes," and is never "lost" or deleted.

*Key Weaknesses*⁵⁶

- Wikipedia's radical openness means that any given article may be, at any given moment, in a bad state, such as in the middle of a large edit, a controversial rewrite, or recently vandalized.
- Wikipedia operates a full editorial dispute resolution process that allows time for a discussion to be discussed and resolved in depth, but also permits months-long disagreements before poor quality or biased edits will be removed forcibly.
- While blatant vandalism is usually easily spotted and rapidly corrected, Wikipedia is more subject to subtle vandalism and viewpoint promotion than a typical reference work.
- There is no systematic process to make sure that "obviously important" topics⁵⁷ are written about, so Wikipedia may contain unexpected oversights and omissions.
- Articles may be incomplete in ways that would be less usual in a more tightly controlled reference work, for example some aspects may be well covered but others briefly or not at all.

⁵⁵ http://en.wikipedia.org/wiki/Wikipedia:Why_Wikipedia_is_so_great.

⁵⁶ http://en.wikipedia.org/wiki/Wikipedia:Why_Wikipedia_is_not_so_great.

⁵⁷ http://en.wikipedia.org/wiki/Wikipedia:List_of_articles_all_languages_should_have.

Exhibit 1 *(continued)*

- Many contributors do not yet comply fully with key policies, or may add information without citable sources.

*Quality of Information*⁵⁸

While Wikipedia articles generally attain a good standard after editing, it is important to note that fledgling, or less well monitored, articles may be susceptible to vandalism and insertion of false information, although this usually ceases to be as significant a problem as articles mature. Inappropriate edits are often noticed and corrected within a relatively short time on most articles.

(See for example this incident⁵⁹ in which a person inserted a fake biography linking a prominent journalist to the Kennedy assassinations and Soviet Russia as a joke on a co-worker which went undetected for four months, saying afterwards he “didn’t know [Wikipedia] was used as a serious reference tool.”)

Source: <http://en.wikipedia.org/wiki/Wikipedia:About> (accessed July 2006).

⁵⁸ http://en.wikipedia.org/wiki/Reliability_of_Wikipedia; http://en.wikipedia.org/wiki/Wikipedia:Researching_with_Wikipedia.

⁵⁹ http://en.wikipedia.org/wiki/John_Seigenthaler_Sr._Wikipedia_biography_controversy.