Avoiding Tragedy in the Wiki-Commons

ANDREW GEORGE[†]

ABSTRACT

Thousands of volunteers contribute to Wikipedia, with no expectation of remuneration or direct credit and with the constant risk of their work being altered. As a voluntary public good, it seems that Wikipedia ought to face a problem of noncontribution. Yet Wikipedia overcomes this problem, like much of the open-source movement, by locking in a core group of dedicated volunteers who are motivated by a desire to join and gain status within the Wikipedia community. Still, undesirable contribution is just as significant a risk to Wikipedia as noncontribution. Bad informational inputs, including vandalism and anti-intellectualism, put the project at risk because Wikipedia requires a degree of credibility to maintain its lock-in effect. At the same time, Wikipedia is so dependent on the work of its core community that governance strategies to exclude these bad inputs must be delicately undertaken. This article argues that to maximize useful participation, Wikipedia must carefully combat harmful inputs while preserving the zeal of its core community, as failure to do either may result in tragedy.

TABLE OF CONTENTS

———— ◆ ————

I.   INTRODUCTION

¶1   Wikipedia[1] seems to be an economic "riddle, wrapped in a mystery, inside an enigma."[2]   Somehow, a free Internet encyclopedia that anyone can edit has enticed thousands of contributors to share their knowledge and research on every imaginable subject, without direct compensation or academic credit, with the constant risk of having their work altered.   Under these circumstances, it is remarkable that anyone would bother devoting time to this enterprise.

---

[1] http://www.wikipedia.org.
[2] Winston S. Churchill, Radio Address (Oct. 1, 1939) (describing the Soviet Union).

¶ 2   So how can we explain the proliferation of Wikipedia? Wikipedia is, first and foremost, a product of a greater cultural movement toward the free propagation of knowledge: the open-source movement. Part I of this article will outline Wikipedia and the open-source movement. Several analyses of open-source projects have uncovered certain core motivations for contribution that may also explain Wikipedia participation. Part II will consider the ability of open-source motivations to explain Wikipedia participation, concluding that Wikipedia participation is driven mainly by the desire to identify and gain status within a community. The importance of this community is a prime concern to governing Wikipedia, which will be considered in Part III. Specifically, Part III will note the balance that must be struck between promoting participation and excluding bad informational inputs such as vandalism and anti-intellectualism. This final Part will argue that because Wikipedia walks such a fine line between encouraging volunteerism and succumbing to apathy, future governance steps should be handled with caution if Wikipedia's economic miracle is to continue.

II.   WIKIPEDIA AND THE OPEN-SOURCE MOVEMENT

A. Public Goods and the Free-Rider Problem

¶ 3   Public goods exist where the consumption of a good by an agent neither precludes nor diminishes use by another agent.[3] Strictly connected to public goods is the problem of free riding, wherein a person knows that she may use a good or service without contributing to it.[4] Wikipedia is an archetypical example of a voluntary public good because any individual may access it and derive value from it without contributing to it or detracting from another's use. So why are thousands of people devoting their time to creating content for Wikipedia—work that they will never get paid for, work that they will probably never receive academic "credit" for, and work that may be freely edited by others? Who are these "crazy people,"[5] and why are they doing so much, for so many, for so little?

B. The Open-Source Movement

¶ 4   The open-source movement is driven by the philosophy that "[g]iven enough eyeballs, all bugs are shallow."[6] In other words, the more people who consider a

---

[3] Tyler Cowen, *Public Goods and Externalities*, *in* THE FORTUNE ENCYCLOPEDIA OF ECONOMICS 74 (David R. Henderson ed., 1993).

[4] This is a recognized phenomenon in open-source newsgroups, where reading discussions without contributing is known as "lurking." *See* Margit Osterloh, Open Source Software: New Rules for the Market Economy 12 n.10 (Oct. 15, 2002) (unpublished manuscript, available at http://www.colbud.hu/honesty-trust/osterloh/Margit%20Osterloh.doc).

[5] Bruce Perens, Open Source—Infrastructure for Democracy 2 (2003) (unpublished manuscript, available at http://www.rieti.go.jp/en/events/bbl/03061801.pdf).

[6] Eric Stephen Raymond termed this "Linus' Law." Eric Stephen Raymond, The Cathedral and the Bazaar at 8, (Sep. 11, 2000), http://gnuwin.epfl.ch/articles/en/cathedralbazaar/cathedral-bazaar.pdf. Under this "bazaar" model, problems are solved in a cooperative, organic fashion, entrusting the work of finding bugs to as many eyeballs as possible. *See id.* The "cathedral" model, on the other hand, deals in long release intervals where original distributors hope that no bugs have slipped through and, in Raymond's

problem, the more likely it is that one of them will have the knowledge or creativity to solve it. Following this strategy, it is believed that all that is necessary to solve software problems is to continually release new versions that can be pored over by developers. With this in mind, an open-source project is one where a group of people create readable[7] source code that is distributed free of charge and that can be modified, extended, adapted, and incorporated into other programs with few restrictions.[8] Although many thousands of people contribute bits of code at some point during their lifetimes, the vast majority of open-source contributions come from a core group of developers.[9] They are mostly male, approximately thirty years of age, and living in the Western world.[10] These dedicated volunteers create most of the code, report most of the bugs, and even provide field support.[11]

C. Wikipedia

¶5   The origins of Wikipedia are surprisingly controversial and reveal much about Wikipedia's direction. In the late 1990s, Jimmy Wales, a wealthy former options trader, recruited Larry Sanger, a doctoral student, to serve as the editor in chief of a new, free, online encyclopedia called Nupedia. In his new role, Sanger assembled and coordinated a complex editing process to be performed by academics, but the process was slow, expensive, and unproductive.[12]

¶6   At this point, Wales's and Sanger's stories diverge, as both claim to have learned, independently, of the potential that "wikis" (websites where users can add and edit content) might have for their project.[13] They also both claim credit for uniting the wiki

---

view, are inevitably disappointed that their "long-awaited releases are not perfect." *See id.* Therefore, not only does the bazaar model have less at stake because of its deflated expectations, it also desires to engage as many problem-solving eyeballs as possible, such that problems are more likely to be solved more efficiently. *See id.* at 8-9.

[7] This is source code written in a programming language, as opposed to a binary set of 1's and 0's. *See* Josh Lerner & Jean Tirole, *Some Simple Economics of Open Source*, L(2) J. INDUS. ECON. 197, 200 n.5 (2002).

[8] Yossi Spiegel, *The Incentive to Participate in Open Source Projects: A Signaling Approach*, 2 (Oct. 30, 2005) (unpublished manuscript, available at http://ssrn.com/abstract=851265).

[9] *See* Lerner, *supra* note 7, at 204.

[10] Karim R. Lakhani & Robert G. Wolf, *Why Hackers Do What They Do: Understanding Motivation and Effort in Free/Open Source Software Projects*, *in* PERSPECTIVES ON FREE AND OPEN SOURCE SOFTWARE 3, 98 (J. Feller, B. Fitzgerald, S. Hissam, & K.R. Lakhani eds., MIT Press 2005).

[11] *See* Lerner, *supra* note 7, at 205-6, 212, n.11.

[12] *See* Daniel H. Pink, *The Book Stops Here*, WIRED, Mar. 1, 2005, http://www.wired.com/wired/archive/13.03/wiki_pr.html. Sanger established an intensive, seven-stage process of editing, fact checking, and peer review. *See id.* "After 18 months and $250,000," said Wales, "we had 12 articles." *Id.* Note here Sanger's early proclivity toward expert editing and peer review—it is an aspect of Sanger's approach that continues to this day, as he prepares to launch Citizendium. *See infra* Part IV.C.3.

[13] Wales claims that Jeremy Rosenfeld, a Bomis employee, introduced him to the concept of a wiki. History of Wikipedia, http://en.wikipedia.org/wiki/History_of_Wikipedia (last visited Oct. 15, 2006). Independently, Ben Kovitz, a computer programmer and regular on Ward Cunningham's wiki (the WikiWikiWeb), may have introduced Sanger to wikis over dinner on January 2, 2001. *Id.*

concept with the idea for an encyclopedia.[14]   And while the resultant Wikipedia prospered, Sanger and Wales's relationship deteriorated, with Sanger resigning from Wikipedia in 2002.[15]   Sanger has now founded the Citizendium, a rival to Wikipedia.[16]

¶7   Meanwhile, Wikipedia is one of the most popular sites on the Internet today.[17] The English version contains approximately 1.4 million articles, a number that is increasing at a rate of at least 1,000 per day,[18] as compared with its nearest rival, Britannica, which claims to have more than 120,000 articles online.[19]   And one recent, highly controversial[20] study in the journal *Nature* found similar levels of factual accuracy between the two encyclopedias,[21] though Wales admits that Britannica is of higher quality, which Wikipedia aspires to exceed.[22]

¶8   Despite its massive size, Wikipedia employs just a handful of paid employees.[23] The rest of the work is completely managed by volunteers, including Mr. Wales.[24]   Like open source, a core group of about 2 percent of 40,000 total volunteers does the vast majority of the work,[25] spending hours every day contributing new content, editing current articles, and fighting vandalism.[26]   Some are academically qualified experts, but most (probably) are not.[27]   These Wikipedians work for free, without even the

---

[14] Posting of Larry Sanger to Wikipedia, http://en.wikipedia.org/w/index.php?title=User:Larry_Sanger/Origins_of_Wikipedia&oldid=39843351 (Feb. 16, 2006, 05:55 EST).

[15] Posting of Larry Sanger to Wikimedia, http://meta.wikimedia.org/wiki/My_resignation--Larry_Sanger (last visited Oct. 15, 2006).

[16] *See infra* Part IV.C.3.

[17] *See* Ranking of Wikipedia, http://www.alexa.com/site/ds/top_sites?cc=US&ts_mode=country&lang=none (last visited Nov. 1, 2006).

[18] *See* Wes Sinor, *Students Love It, but Teachers Take Issue with Wikipedia's Reliability*, THE AUBURN PLAINSMAN, Oct. 13, 2006, *available at* http://www.theplainsman.com/campus/the_war_on_wikipedia.

[19] Why Try Britannica Online?, http://www.britannica.com/premium (last visited Nov. 2, 2006).

[20] *Britannica* published a rebuttal to this study. *See* Fatally Flawed: Refuting the Recent Study on Encyclopedic Accuracy by the Journal Nature, *available at* http://corporate.britannica.com/britannica_nature_response.pdf (last visited Oct. 15, 2006). *Nature* responded to this as well. Press Release, Nature, Encyclopaedia Britannica and Nature: a response (Mar. 23, 2006) (on file with author).

[21] *See* Jim Giles, *Internet Encyclopaedias Go Head to Head*, 438 NATURE 900, 900 (2005).

[22] *See* Jimmy Wales, Wikipedia Founder, Speech to the Center for Global Development (Dec. 1, 2005) *available at* http://www.cgdev.org/doc/event%20docs/Wales%20Transcript.pdf at 40.

[23] *See id.* at 13.

[24] *See id.*

[25] *See* Brock Read, *Can Wikipedia Ever Make the Grade?*, 53(10) CHRON. HIGHER EDUC. A31 (Oct. 27, 2006); Wales, *supra* note 22, at 17, 26.

[26] *See* Pink, *supra* note 12; *see also* Wales, *supra* note 22, at 18 (noting that the community of Wikipedians has developed tools to deal with suspicious changes). For instance, if an article goes from "20,000 characters down to six . . . [i]t probably says 'Hi, mom' or something like that." *Id.* Users also set up personal watch lists where they can monitor changes to pages on which they have particular interest or expertise. *See id.* Tools also exist to compare older and newer versions of documents, to better evaluate whether changes were appropriate. *See id.*

[27] *See* Read, *supra* note 25.

guarantee that their work will come to any lasting fruition.[28]

III.   MOTIVATIONS FOR CONTRIBUTION

¶ 9   Participants in Wikipedia and the open-source movement devote substantial amounts of time with no expectation of direct compensation,[29] often at great opportunity cost.[30] They do this in apparent defiance of the public-goods problem that predicts that because they do not internalize the full benefits of their contributions, they will have no incentive to contribute, making participation seem irrationally altruistic.[31] In fact, this problem of noncontribution is not entirely absent from the open-source world. Open-source projects frequently have a difficult time gaining initial momentum, and most fail,[32] particularly those seen by programmers as unexciting.[33] In other words, open-source projects do not succeed simply by virtue of being open-source projects; they must pose sufficiently compelling missions that developers will gladly toil and sacrifice to breathe life into them. If a project gains momentum, then a "lock-in mechanism" can take hold, whereby as the program gains market share, participation and innovation increases.[34]

¶ 10   It is therefore critical to identify the aspects of open-source contribution that facilitate locking in contributors. Investigations of the open-source movement indicate several likely motives for contribution, roughly organized within two main groups: internal factors and external rewards.[35] These findings indicate that the reasons for contributing to open source are largely explainable by looking beyond classical economic utility.[36]

A. Internal Factors

¶ 11   Internal factors are motivations that are ultimately rooted within the individual.[37] Among these factors are (1) intrinsic motivation, where a person is motivated by

---

[28] The 1,000 articles added daily to Wikipedia actually make up only one-sixth of the total number of articles that are submitted to Wikipedia every day; 3,500 of which are deleted immediately. *See* Sinor, *supra* note 18.

[29] Michael Geist, *All Rights Reserved? Cultural Monopoly and the Troubles with Copyright*, 10 MARQ. INTELL. PROP. L. REV. 411, 420 (2006).

[30] *See* Lakhani, *supra* note 10, at 10 (finding that programmers contribute on average 14 hours per week); Lerner, *supra* note 7, at 213.

[31] *See* Lakhani, *supra* note 10, at 4.

[32] *See* Clay Shirky, Speech at ETech (Apr 24, 2003) (transcript *available at* http://www.shirky.com/writings/group_enemy.html). Shirky notes that "if you go into Yahoo groups . . . [t]here's a small number of highly populated groups, a moderate number of moderately populated groups, and this long, flat tail of failure." *Id*.

[33] *See* Lerner, *supra* note 7, at 220.

[34] *See* Andrea Bonaccorsi & Christina Rossi, *Why Open Source Software Can Succeed*, 32 RES. POL'Y 1243, 1251 (2003) (emphasis added).

[35] *See* Lakhani, *supra* note 10, at 4.

[36] *See* Lerner, *supra* note 7, at 198 (quoting Eric Stephen Raymond, Homesteading the Noosphere: An Introductory Contradiction (1999), http://www.tuxedo.org/-est/writings/homesteading).

[37] *See* Alexander Hars & Shaosong Ou, *Working for Free? Motivations for Participating in Open-Source Projects*, 6(3) INT'L J. ELECTRONIC COM. 26 (2002).

feelings of enjoyment; (2) altruism, where a person is motivated by the feeling of increasing the welfare of others; and (3) community identification, where a person is motivated by the social benefits derived from the activity.[38]

1. Intrinsic Motivation

¶ 12 Some open-source programmers simply describe an "[i]nnate desire to code, and code, and code until the day [they] die."[39] Through their work, they are able to achieve maximum enjoyment, which psychologist Mihaly Czikszentmihalyi calls a state of "flow."[40] Specifically, he names eight elements of enjoyment that can lead to flow: (1) finding challenges that match skills, (2) being able to concentrate, (3) having a clear goal, (4) receiving immediate feedback, (5) finding release from the worries of every day life, (6) having control over actions, (7) losing sense of time, and (8) losing self-consciousness.[41] Many of these elements can probably be achieved through writing or editing Wikipedia articles.

¶ 13 First, Wikipedians are able to take on challenges at the "correct" level of technicality to match their expertise and dedication.[42] In fact, the optional nature of Wikipedia participation allows participants a greater chance of finding flow than they would have in a commercial enterprise. This is because volunteers can choose to take on the challenges they find most interesting with a level of freedom not present in the structure of most commercial settings, increasing their opportunities to make optimal choices for their skill sets.[43]

¶ 14 Second, the solitary nature of Wikipedia contribution (working alone at a computer) allows participants to concentrate while working. Third, participants' goals are likely to be clear because the goals are selected voluntarily. Participants can identify what has to be done and choose to do it.[44] Fourth, feedback is easily obtained by the level to which work is further edited, as well as through discussion groups on Wikipedia. Fifth, Wikipedia participation facilitates relief from the worries of everyday life because it allows for complete focus on a narrow task.[45] Sixth, because of the optional nature of Wikipedia contribution, participants exercise great control over their

---

[38] *See id.* at 26-28.

[39] *Id.* at 28.

[40] MIHALY CSIKSZENTHMIHALYI, FLOW: THE PSYCHOLOGY OF OPTIMAL EXPERIENCE (Harper & Row, Publishers, Inc. 1990).

[41] *See id.* at 49.

[42] *See* Lakhani, *supra* note 10, at 4-5; Osterloh, *supra* note 4, at 11, (citing Ellen Ullman, CLOSE TO THE MACHINE, TECHNOPHILIA AND ITS DISCONTENTS (City Lights Publishers 1997), who showed that programmers "often experience strong personal satisfaction from creating 'something that works.'"). Osterloh suggests that where flow is achieved, contributions may function not as costs but as benefits. *See id.* at 10. This optimal level is programmer specific, as challenges that appear dry, technical, and requiring of little creativity to outsiders may, in fact, be incredibly stimulating and novel to experts—a highly realistic scenario for source-code lovers. *See id.* at 7.

[43] *See* Lerner, *supra* note 7, at 213 ("[T]he programmer compares how enjoyable the mission set by the employer and the open source alternative are. A 'cool' open source project may be more fun than a routine task.").

[44] *See* CSIKSZENTMIHALYI, *supra* note 40, at 54.

[45] *See id.* at 58.

challenges.[46] Seventh, due to the tremendous amounts of time that Wikipedians invest, it is likely that some of that time passes without their noticing.

¶ 15   The eighth element is critical because the loss of self-consciousness is often accompanied by a feeling of oneness with a greater union.[47] This point has special relevance to Wikipedia because it indicates that participants achieve flow at least partially through group effort—lending support to the additional motivation of community identification, as will be explained.[48]

2. Altruism

¶ 16   Both open source and Wikipedia present compelling stories of altruism and participation for the good of mankind. But economists disagree as to the true import of altruism (doing something for another at some cost to oneself)[49] in voluntary contribution to a public good such as open source. Several studies have found altruistic motives behind open-source contributions. These studies report such explanations for contributing as follows: "we agree with the values of the Free Software movement,"[50] "we wish to place our source code and skills at the disposal of the Free Software community and hope that others will do the same,"[51] "helping others,"[52] "giving something back,"[53] and "the person I help may never be in the position to help me, but someone else might be."[54]

¶ 17   But these studies, all of which are premised on voluntary surveys, may have two methodological problems. The first is social-desirability bias.[55] Participants may report that altruism motivates them because they want to be seen as altruistic, regardless of whether it is actually true. The second, greater problem is that these studies do not ask volunteers to rank altruism *as opposed to* other motivations—instead they ask volunteers to report altruism *in addition to* other motivations, allowing participants to costlessly label themselves as altruistic.[56] Under such circumstances, most people would probably report that altruism partially motivated their actions.

¶ 18   In fact, participants' choice to act altruistically may be costless as well. This is because altruism is an inherent feature of the open-source movement, such that participation prescribes altruistic action by default. Most open-source participants probably enjoy the fact that their activities benefit others. But such altruism is

---

[46] *See id.* at 61.

[47] *See id.* at 63.

[48] *See infra* Part III(A)(4).

[49] *See* Hars, *supra* note 37, at 28.

[50] *See* Andrea Bonaccorsi & Christina Rossi, *Altruistic Individuals, Selfish Firms? The Structure of Motivation in Open Source Software*, 9 FIRST MONDAY 1, 2 (2004).

[51] *See id.*

[52] *See* Osterloh, *supra* note 4, at 11.

[53] *See id.*

[54] *See id.*

[55] *See* THE BLACKWELL ENCYCLOPEDIA OF SOCIAL PSYCHOLOGY 46 (Antony S. R. Manstead & Miles Hewstone eds., 1995).

[56] *See* Bonaccorsi, *supra* note 50, at 2. *See generally*, Hars, *supra* note 37.

incidental, not motivational. Therefore, these studies do not conclusively prove altruism's motivational impact on open-source contribution. In fact, Andrea Bonaccorsi, the author of one of the above studies, even doubts altruism's significance as a motivator because the amount of time and intellect that open-source developers expend cannot be explained by altruism alone.[57] Open source is, after all, born of the hacker culture,[58] whose participants are not all aligned with altruism.[59] Thus, most participants are probably not in it for the altruism, but they are happy to have it and even happier to report it as a motivator.

3. Rebellion

¶ 19   Numerous studies have shown that a motivation of open-source programmers is emancipation from large software companies and proprietary software.[60] Other than the sheer belief that software should be free,[61] those who detest companies like Microsoft are also driven by the feeling that those companies do not represent their values by not paying adequate attention to problems such as security and consumer well-being.[62] These consumers seem bothered standing by when they feel that an inferior product is delivered.

¶ 20   These consumers derive their feelings from an incident in 1976, when a young programmer named Bill Gates issued an "Open Letter to Hobbyists" advocating that software developers (then called "hobbyists"), namely, himself, be paid for their work (much of which was being performed for free).[63] This began a long-lasting feeling within the hacker community that Microsoft places greater concern on protecting the rights to its software than on improving it.[64] This is what makes Microsoft the "Great Satan," motivating hackers to expose Microsoft's weaknesses and open-source programmers to create programs that follow their philosophies, such as Linux.[65] So with both hackers and open-source contributors working to "stick it" to fee-based companies, including Microsoft (or perhaps Britannica), open-source or Wikipedia contribution may simply be a gentler form of hacking.

---

[57] *See* Lerner, *supra* note 7, at 198, n.1 ("The media likes to portray the open source community as wanting to help mankind, as it makes a good story. Many open source advocates put limited emphasis on this explanation.").

[58] *See* Bonaccorsi, *supra* note 50, at 1.

[59] Steven Levy's "Hacker Ethic" includes mistrust of authority—promoting decentralization—and that computers can change one's life for the better. *See* Steven Levy, Hackers: Heroes of the Computer Revolution (1984), ftp://sailor.gutenberg.org/pub/gutenberg/etext96/hckrs10.txt. The first of these appears to encourage rebellion and the second is the exact opposite of altruism.

[60] *See* Bonaccorsi, *supra* note 50, at 3; Osterloh, *supra* note 4, at 11.

[61] *See* Bonaccorsi, *supra* note 50, at 4.

[62] *See* Douglas Thomas, *Why Hackers Hate Microsoft*, ONLINE JOURNALISM REVIEW, Apr. 29, 1998, http://www.ojr.org/ojr/technology/1017969479.php.

[63] William Henry Gates III, General Partner, Micro-Soft, An Open Letter to Hobbyists (Feb. 3, 1976) http://www.blinkenlights.com/classiccmp/gateswhine.html.

[64] *See* Thomas, *supra* note 62.

[65] *See* Osterloh, *supra* note 4, at 18.

4. Community Identification

¶ 21   Wikipedia carries, to some degree, a myth of anonymous participation.[66] In truth, Wikipedia's anonymity has greater force in theory than in practice. As the site currently stands, only registered users may create articles, but anyone can edit content, regardless of whether a person has a Wikipedia account (if not, they are identified merely by IP address). Editors can also create Wikipedia accounts, and many do, so that they can be identified in editing histories and chat rooms by their usernames.[67] So while this editing framework certainly makes possible the idea of anonymous contribution, in reality, this view is quite misleading. Much of Wikipedia's contributor base is not anonymous[68] and probably has no desire to be.

¶ 22   Instead, Wikipedia is a community.[69] Like other voluntary collective enterprises, Wikipedia offers participants the powerful but intangible benefit of building interpersonal relationships.[70] Participants build a common bond as they construct articles that are greater than themselves; compendiums of knowledge that far exceed their own.[71] Therefore, perhaps a primary explanation for seemingly altruistic behavior in both Wikipedia and open-source projects generally is the need for belonging and love.[72]

¶ 23   This is a sort of love that "don't come easy." Joining open-source communities is no simple task, as "you aren't really a hacker until other hackers consistently call you one."[73] As an initial matter, software development is very knowledge intensive.[74] The average person simply does not possess the advanced technical knowledge necessary to participate in open-source projects.[75] But, more important, open-source developers are quite elitist.[76] There is a clear hierarchy in open-source communities, and most developers never ascend to "core group" status in an open-source project.[77] They

---

[66] Posting of Dale Hoiberg, Editor in Chief, Encyclopedia Britannica, to Reply All: *Will Wikipedia Mean the End of Traditional Encyclopedias?* http://online.wsj.com/public/article/SB115756239753455284-A4hdSU1xZOC9Y9PFhJZV16jFlLM_20070911.html?mod=blogs (Mr. Hoiberg said "Contrary to Wikipedia, Britannica's contributor base is transparent and not anonymous.").

[67] Wikipedia: Why Create an Account, http://en.wikipedia.org/wiki/Wikipedia:Why_create_an_account%3F (last visited Oct. 15, 2006).

[68] *See* Wales, *supra* note 22, at 17.

[69] *See id.*

[70] *See* Hanoch Dagan & Michael Heller, *The Liberal Commons*, 110 YALE L.J. 549, 572-73 (2001).

[71] *See id.* at 573, nn.100-1.

[72] *See* Wales, *supra* note 22. *See also* Hars, *supra* note 37, at 28, 32 ("More than half of the respondents . . . selected 'because I build a network of peers' as the reason for participating in open source projects."); Lakhani, *supra* note 10, at 12 (nearly half of respondents to a survey agreed that the hacker community is a primary source of identity).

[73] Eric Stephen Raymond, How to Become a Hacker (2001), http://catb.org/esr/faqs/hacker-howto.html#MS_hater.

[74] *See* George von Krogh et al., *Community, Joining, and Specialization in Open Source Software Innovation: A Case Study*, 32 RESEARCH POLICY 1217 (2003).

[75] The average person probably has not spent the previous two years on a project involving "a distributed architecture based on RMI with a cryptography provided by the Sun JCE." *See id.* at 1227.

[76] *See* Lerner, *supra* note 7, at 206.

[77] *See id.*

typically begin by trying to get on the mailing list for a project.[78] Once on the list, they often "lurk" for some time, waiting to make an introduction until they better understand the nature of the work that is being done.[79] Like a "new kid" at school wanting to join the popular kids' table, these developers wait for the right time to introduce themselves and whatever ideas they can contribute.[80] Typically they do so with a newcomer's quiet humility,[81] in the hope that perhaps over time, they will gain the respect of their peers and be propelled into the stratosphere of open-source "coolness": membership in the core group.

¶ 24   Wikipedians behave similarly. Of course, their activity may not be as obscure and technical as writing code, but contributing new, high-quality content to a massive encyclopedia may not be something that the average person is capable of. Rather, like other open-source projects, Wikipedia has a "core community"[82] doing most of its work.[83] This core group watches closely over the project; it monitors topic areas and article changes,[84] and group members know each other quite well.[85] So, like open source, a new Wikipedia contributor may contribute modestly at first, fearing social-norms enforcement by the dedicated core group of Wikipedians.[86]

¶ 25   Jimmy Wales embraces and promotes this notion of the Wikipedia community, yet, strangely, he also "rant[s]" about the notion of "social software," which is "software that people use in some sort of social way."[87] He jokes that "the point of social [software] seems to be to replace the social with the software, which is a really bad idea."[88] Perhaps so, but that is precisely what Wikipedia does. Even Wikipedia's lengthy article on "social software" lists Wikipedia, or Wikis generally, as a form of social software.[89] In his adoration of Wikipedia's tightly knit core group of editors, even Mr. Wales appears swept by the sociality of his software. It may be a guilty pleasure, but it is one with great explanatory power. Like any successful social club, the open-source movement and Wikipedia promise respect, kinship, and mutual admiration, under the specter of exclusivity—only for those who earn it.

---

[78] *See* von Krogh, *supra* note 74, at 1227.

[79] *See id.*

[80] *See id.*

[81] *See id.* ("[I]t might be wise to start out humbly and not to boldly announce 'great ideas' for solving problems.").

[82] *See* Wales, *supra* note 22, at 17.

[83] *See id.* Amazingly, 615 people are responsible for half of the edits to English Wikipedia. *See id.*

[84] *See id.* at 19.

[85] *See id.* at 15.

[86] *See id.* at 21. Implicit in these hierarchies is the possibility that contributions to open-source projects are motivated not only by a desire to belong but also a desire to be recognized. This will be discussed in detail under the motivation of "peer recognition" in Part II(b)(iv)(4). Suffice it to say for now that these two categories, community identification and peer recognition, are both different and, in many ways, interconnected and symbiotic.

[87] *See id.* at 19.

[88] *See id.*

[89] Social Software, http://en.wikipedia.org/wiki/Social_software (last visited Oct. 15, 2006).

B. External Factors

¶ 26   In addition to the above internal rewards, contributors to Wikipedia and open-source projects may also be guided by the prospect for outside rewards. In the absence of direct compensation, contributors face numerous possible forms of indirect rewards for their efforts, including money from technical support, education and training, employment assistance, and prestige. It is often said that contributors to open-source projects, such as Wikipedia, do so with no expectation of remuneration of any sort.[90] Yet, beyond immediate financial gains, it is clear that a number of external rewards may follow participation in these projects.

1.   Revenues from Related Products and Services

¶ 27   Many people have made money from the open-source movement. Programmers, who develop extensive skills and knowledge in the course of their work, are able to generate revenue from consulting, support, training, distribution, and implementation services. [91]   This profit taking is generally acceptable within the open-source community, and it has given birth to such companies as Red Hat, a Linux distributor.[92] Linus Torvalds, the founder of Linux,[93] lives a very comfortable life from speaking and consulting fees.[94] But there is no doubt that he could be much wealthier. The same is true for Jimmy Wales. Because Wales, and other open-source icons, so regularly reject massive financial rewards to continue their projects, they must be driven by something other than pure financial lust. Therefore, like altruism, the potential to earn revenue from products and services related to open source or Wikipedia seems again like an incidental benefit, not a driving force for participation.

¶ 28   The fact that this sort of revenue is allowed, yet Bill Gates's focus on proprietary software is reviled, raises a question of why one is accepted but not the other. An initial answer may be simple spite toward Bill Gates and Microsoft, but greater forces are probably involved. The nature of a hacker's work is to earn a reputation for performing quality work, then to give that work away,[95] and this would probably be true with or without Microsoft. A programmer's choice to "go proprietary" may announce an intention to make the lives and work of other hackers more difficult by withholding access to products. He becomes like a man who charges his neighbors to cross a path in front of his house. He may be using his property in the most efficient

---

[90] *See* Geist, *supra* note 29, at 420. One exception to this is the case where a programmer creates a program on the basis of personal need.

[91] *See* Hars, *supra* note 37, at 29.

[92] *See id.* Red Hat distributes Linux source code within a package of different components creating an inexpensive, easy-to-use alternative to Windows. *See id.*

[93] Linux, a free operating system, is the brainchild of Linus Torvalds, who, as a 21-year-old graduate student (a common theme among open-source programs), constructed the core element, called a "kernel," for an open-source operating system. *See* Lerner, *supra* note 7, at 208.

[94] Interview by Kristie Lu Stout with Linus Torvalds, in Portland, Or. (May 19, 2006) *available at* http://edition.cnn.com/2006/BUSINESS/05/18/global.office.linustorvalds/. Likewise, all of the founding fathers of the open-source movement "have earned enough of a reputation to pay the rent and maintain their kids." Bonaccorsi, *supra* note 34, at 1245 n. 8.

[95] *See* Raymond, *supra* note 73.

way, but he is doing little to foster good will and camaraderie in his neighborhood. Likewise, a programmer who refuses to share his software directly contradicts the communitarian motivation of the open-source movement. In fact, these actions look suspiciously premeditated. The decision to protect an innovation signals that perhaps a developer's intention all along was not to be part of the community but to eventually cash in. In the idealistic hacker world, there is probably little room for this sort of preplanned profit taking.

2. Human Capital

¶ 29   Open-source projects offer participants the chance to increase their mastery of the craft. The open-source community features intensive peer review that readily finds errors and makes suggestions with every code contribution.[96] This leads to improvements, not only in the code, but also in the developer.[97] By participating in this process, the developer builds "human capital" (her knowledge and abilities).[98] This is true with both Wikipedia and open source generally. In both cases, participants are able to selectively contribute and build knowledge in areas that they find most interesting.[99] At the same time, like altruism, building human capital is a costless consequence of participating in open-source projects, and it may also be an incidental side effect, as opposed to being a driving motivator.

3. Self-Marketing

¶ 30   Open-source projects offer programmers a chance to showcase their skills to potential employers. In the same way that open-source projects can lead to compensation through consulting-related work, these projects can also lead to financial rewards by signaling to employers the competency of the programmer.[100] But because significant open-source contributions are likely to attract the most attention, they may also draw open source's best participants away from the community, as they are hired for paid projects.[101] Yet such contributions of a sufficient magnitude to achieve career-enhancing signaling are rare, and most programmers neither expect, nor are likely to receive, a direct career-enhancing benefit for their work.[102]

¶ 31   Even so, the self-marketing potential of open-source participation is fairly obvious,[103] as open-source work is quite similar to the work that a programmer would presumably be hired to do. For Wikipedia, however, that potential is simply nonexistent. The task of contributing an article to Wikipedia has practically no signaling value for finding a career. It is difficult to imagine how a person's

---

[96] *See* Lakhani, *supra* note 10, at 7.

[97] *See id.*

[98] *See* Hars, *supra* note 37, at 29.

[99] *See id*.

[100] *See id*.

[101] *See id.* at 29-30.

[102] *See* Osterloh, *supra* note 4, at 10.

[103] Different surveys have found that programmers rank the importance of this rationale differently. *Compare* Lerner, *supra* note 7, at 213, 218 (ranking it a close second behind intrinsic motivation), *with* Bonaccorsi, *supra* note 50, at 3 (ranking it ninth).

contribution to a Wikipedia article could possibly result in career signaling, at least as Wikipedia currently exists.[104] Therefore, career signaling is probably not a factor for participation in Wikipedia.

4. Peer Recognition

¶ 32   Bragging rights are a critical feature of the open-source movement.[105] Showing off one's programming skills may be not only a ticket to employment but also a key to earning respect among peers. It should surprise few that within communities generally, voluntary contributions may be driven by the desire not only to identify with the group but also to be respected within the group.[106] Status matters as much in the open-source community as in any other group, and giving credit to authors has been noted as essential to the open-source movement.[107] This is why open-source newcomers frequently "lurk" before contributing[108]—they are playing it safe.[109] And while the risks to reputation are substantial for open-source editors, so can be the reputational payoffs. CNN recently called Linus Torvalds, a self-acknowledged "geek," a "rock star."[110]

¶ 33   The same is true in Wikipedia, which, to an academic, might represent peer review on steroids. Jimmy Wales readily notes the importance of reputation within Wikipedia's core community of developers.[111] Every edit to Wikipedia goes into a "recent changes page," which Wales claims is watched by hundreds of dedicated Wikipedians daily.[112] Under this fairly intensive scrutiny,[113] certain Wikipedians become known for performing quality work. Their words then tend to carry more weight than newcomers.[114] Minor celebrities, such as "famous Wikipedian" Rick Kaye,

---

[104] *See* Read, *supra* note 25. Because Wikipedia does not designate who among its contributors are "experts," the reputation-enhancing benefits of good work on Wikipedia remain locked within Wikipedia's core community—their status never reaches, and probably would not be greatly respected by, the outside academic world.

[105] *See supra* note 94 ("There was a bit of bragging.").

[106] *See* Osterloh, *supra* note 4, at 13 ("The 'reward' a programmer gets . . . is respect among one's peers.") (notes omitted).

[107] This is indicated best by the fact that "surreptitiously filing someone's name off a project is, in cultural context, one of the ultimate crimes." *See* Eric Stephen Raymond, Homesteading the Noosphere: An Introductory Contradiction (1999) http://www.tuxedo.org/-est/writings/homesteading.

[108] *See* von Krogh, *supra* note 74, at 1227.

[109] One study noted that no "joiner" to an open-source mailing list introduced new "great ideas," or any unsolicited ideas at all. *See* von Krogh, *supra* note 74, at 1227. In this study, a substantial number of new participants who indicated their desire to contribute got no response. *See id.* They were expected to work their way into the group by participating in group discussions and finding their own tasks to work on. *See id.*

[110] *See id.*

[111] *See* Wales, *supra* note 22, at 16 ("Within the community of Wikipedia, people gain reputations for doing good or bad work . . . as an example, you might have a user who [says] this person does really fantastic work in biology, but don't, for God's sake, let him anywhere near Israel/Palestine because he goes berserk.").

[112] *See id.* at 17.

[113] Wales notes that it is "kind of embarrassing when the Wikipedians make fun of you for self-promotion." *See id.* at 36.

[114] *See id.* at 23.

have even been born.[115] Wales recently mentioned Kaye in a speech as something of a benchmark for quality within Wikipedia. The value of such a "name-drop" within the Wikipedia community must be something akin to being elected to the Baseball Hall of Fame.

¶ 34 Reputation, therefore, probably performs a dual function for Wikipedia and open source. While the reputational benefits that flow from bragging about good work are probably motivators to an extent, they are also an important quality-control mechanism. The existence of a Wikipedia aristocracy can motivate those who want to gain entry into the club. It almost certainly motivates already well-established Wikipedians, as they seek to protect their identities and further their reputations within the group. But it may discourage others, as will now be explained.

IV. GOVERNANCE: HOW WIKIPEDIA MAY OR MAY NOT AVOID TRAGEDY

¶ 35 Wikipedia survives and expands, but by what margin, and at what cost? Wikipedia seems to successfully overcome a potential commons problem resulting from contributors' internalizing greater costs than benefits. In theory, this could threaten the quantity of contribution to Wikipedia. In fact, however, under Wikipedia's current model, Wikipedians actually internalize substantial benefits, in terms of experiencing flow, and identifying with and gaining status within a community. But because Wikipedia is so dependent on the time-consuming volunteerism of Wikipedians, any governance regime it institutes must carefully balance between encouraging volunteerism and creating apathy.

¶ 36 Even as Wikipedia avoids a commons-based risk to quantity, another commons hazard to quality remains because some participants may fail to internalize the burdens of providing erroneous information. This is most clearly a concern with nondedicated Wikipedians and vandals, who "contribute" to Wikipedia without concern for their reputations within the Wikipedia community. But it is also a real risk with dedicated Wikipedians, who may be so concerned with status that they value status over accuracy where the two collide. In fact, these are both the same kind of danger; if informational inputs to Wikipedia are not aligned with accuracy, then the entire encyclopedia may be corrupted.

¶ 37 The question of how to govern Wikipedia therefore lies at the core of the encyclopedia's development. On one hand, the more regulated Wikipedia becomes, the more it risks becoming an anticommons,[116] where it is no longer worth contributing because the benefits are depleted by too many barriers to contribution. It is also possible, on the other hand, that Wikipedia is already suffering an anticommons tragedy, as a result of its vast dispersal of veto rights—rights that may drive away

---

[115] According to Wales, Rick Kaye is a "very famous Wikipedian," whose word need not be questioned due to his "stellar reputation" for accuracy. *See id.*

[116] Michael Heller's seminal article defines a "tragedy of the anticommons," where the anticommons is "a property regime in which multiple owners hold effective rights of exclusion in a scarce resource." Michael Heller, *The Tragedy of Anticommons: Property in the Transition from Marx to Markets*, 111 HARV. L. REV. 621, 668 (1998).

frustrated potential contributors, particularly academic experts. The challenge for Wikipedia is to avoid these paths to tragedy by choosing a strategy that maximizes useful participation while minimizing inaccuracy.

A. The Current Model

¶ 38   Wikipedia, like most open-source programs, is currently governed by a "benevolent" dictatorship.[117]   A "thoughtful dictator" (Jimmy Wales) oversees the project at large, making "the big decisions" and preventing the project from getting bogged down by formal decision-making mechanisms.[118]   In practice, this approach is mainly laissez-faire,[119] giving Wikipedians radical freedom of editing.   The point, following directly from the open-source idea that "all bugs are shallow,"[120] is to take a long view of accuracy.   Indeed, Wikipedia seems to embody Justice Holmes's fabled free marketplace of ideas, which prescribes that if all ideas are put on the table, in the long run, the truth will emerge.[121]

¶ 39   Jimmy Wales understandably enjoys touting compelling examples of instances where participants who, by all accounts despise each other, somehow collaborate to create miraculously balanced pages.[122] These success stories demonstrate Wikipedia's power to build communities.   Wikipedia is an encyclopedia whose mission is to compile the truth, but it also builds consensus.   Wikipedia participants are not just aggregating knowledge; they are building a community that actually depends on and fosters greater understanding among people.   Wikipedia provides a metaphorical table at which diametrically opposed parties can sit and find common ground.   It acts as a bridge, or, at least, it can.[123]

¶ 40   In fact, the entire bridge-building process is there to review.   As opposing viewpoints collide to create balanced presentations, their viewpoints are recorded in editing histories, allowing review of the deliberative process, as well as the end product. Like conference notes to a Supreme Court opinion, or legislative debates to a statute, the information from an edit history is valuable for an observer seeking to better understand the full scope of why an issue is controversial and how consensus was reached.

B. The Problem of Bad Inputs

¶ 41   Wikipedia's model mandates that its content will be accurate only where its

---

[117] See Wales, *supra* note 22, at 24. This model dominates the open-source world. *See id.*

[118] *See id.*

[119] Jimmy Wales's "goal in life is to wave at parades." *See id.* at 26.

[120] *See* Raymond, *supra* note 6.

[121] *See* Abrams v. United States, 250 U.S. 616, 630 (1919) (Holmes, J., dissenting).

[122] Such groups include Catholic Priests and Planned Parenthood, the NRA and gun-control advocates, and even, ironically, Larry Sanger and Jimmy Wales. *See supra* note 22, at 33, 37.

[123] *See* Carol Rose, *The Comedy of the Commons: Custom, Commerce, and Inherently Public Property*, 53 U. CHI. L. REV. 711, 762 (1986). Rose observed that commons are favored when they result in increased social interaction—like roads, canals, or bridges. *See id.*

inputs are aligned with accuracy. This does not require that all inputs actually be accurate. Rather, inputs must simply reflect the author's or editor's subjective view of fact. In other words, if a sufficient number of participants' eyeballs are looking to solve perceived inaccuracies, Wikipedia's long-run philosophy will lead to increasing accuracy. But two types of inputs can threaten this process. The most obvious one is vandalism. The more subtle, perhaps more pernicious one is anti-intellectualism—where information with the strong potential for accuracy is opposed for that reason. Both of these inputs are essentially artifact.

¶ 42   This matters for Wikipedia because there is probably a threshold of public perception of Wikipedia as inaccurate beyond which potential contributors will not see contribution as worthwhile. Likewise, the more accurate the public's perception of Wikipedia, the more prestigious it will be to take part in it, increasing volunteerism. This is Wikipedia's analogue to open source's lock-in mechanism.[124]   Charities function in a similar manner. If a charity is seen as reputable, then it will likely attract great donations of time and money. If a charity is seen as prone to fraud and mismanagement, however, then it will probably fail, regardless of how noble the cause is. Therefore, to promote the public's perception of credibility, it is in Wikipedia's interest to recognize and avoid instances where status and accuracy are misaligned.

1. Vandalism

¶ 43   Wikipedia has experienced numerous embarrassing incidents where false and damaging "facts" have been posted about specific people or topics.[125] Vandals, through fairly minimal effort, attain benefits through the sheer joy of subversion[126] or by propagating false or misleading information as part of an agenda.[127] At the same time, they internalize none of the costs created by their actions. Therefore, one way to combat vandalism may be to attempt to reduce its benefits so that they are outweighed by vandalism's (nominal) costs.

¶ 44   The Wikipedia community has been remarkably successful in doing this, developing sophisticated methods and programs to detect and correct vandalized content so quickly that the benefits from vandalism are minimized.[128] Yet vandalism

---

[124] *See* Shirky, *supra* note 32.

[125] *See* Read, *supra* note 25.

[126] Stephen Colbert was banned from Wikipedia after he instructed his viewers to change the article for "elephant" to read that the African elephant population had tripled in the past six months. Posting by Caroline McCarthy, to http://news.com.com/2061-10802_3-6100754.html?tag=nl (Aug. 1, 2006).

[127] Wikipedia claims that over a thousand edits have been made by IP addresses originating from congressional offices. Congressional Staffer Edits to Wikipedia, http://en.wikipedia.org/wiki/Congressional_staffer_edits_to_Wikipedia (last visited Oct. 15, 2006). Offices of legislators have also been caught several times attempting to "self-edit" the biographies of their respective lawmakers, a prohibited practice on Wikipedia. *See, e.g., Web Site's Entry on Coleman Revised Aide Confirms His Staff Edited Biography, Questions Wikipedia's Accuracy*, ST. PAUL PIONEER PRESS, Jan. 31, 2006, at B3.

[128] *See* Read, *supra* note 25 (discussing the accuracy of Wikipedia entries). As an experiment, Alexander Halavais, an assistant professor of communications from Quinnipiac University attempted to post thirteen errors on Wikipedia, some of which were glaring (he claimed that the Disney animated film *The Rescuers Down Under* had won an Oscar), and others which were more subtle (he claimed that

remains a problem, particularly in more lightly traveled areas of Wikipedia, where it is likely to go unnoticed for longer.[129] Of course, where an obscure article is vandalized, few are likely to notice it. But that is probably little consolation to a person who is defamed in such an article.[130]

2. Anti-Intellectualism and In-Group Bias

¶ 45 Debating the Flat Earth Society is tiring business. Many people, including academic experts, do not have the patience for Wikipedia's long run.[131] Because Wikipedia allows anyone to edit any article anonymously, anyone with a computer has a veto right over content. Of course, few people exercise this right. But the few that do are sufficient to drive away numerous desirable contributors, particularly experts, whose volunteerism may be rebuffed by less-informed editors.[132] For experts who want to contribute, the prospect of going up against a faceless world of less-informed objectors may make their efforts seem not worth it, thus depriving Wikipedia of their scholarship.

¶ 46 This calls into some question Jimmy Wales's great faith in Wikipedians' self-monitoring abilities.[133] Wales thinks that Wikipedians achieve self-monitoring over accuracy by interacting and protecting their reputations within their community. Yet the problem with this model is evidenced by the lurking-before-contribution behavior exhibited with open-source contribution.[134] Newcomers know better than to burst onto an open-source scene with major ideas or suggestions, even if they are qualified to do so, because they know that this will likely agitate the core group. This phenomenon, known as "in-group bias," causes members of a core group to look with greater esteem

---

Frederick Douglass lived in Syracuse, NY, for four years). *Id.* All of these errors were caught and corrected, and Mr. Halivais was asked to "refrain from writing nonsense articles and falsifying information." *Id.* Of course, it is not surprising that all of his false submissions would be caught, considering that once editors found his glaringly false ones, they would naturally review his other edits.

[129] *Id.* ("Relatively obscure articles . . . are especially vulnerable to vandalism").

[130] This famously occurred in the case of journalist John Seigenthaler Sr., who wrote an angry editorial denouncing Wikipedia because an article about him, making the false claim that he was "thought to have been directly involved in the Kennedy assassinations of both John and his brother, Bobby," remained uncorrected for over four months. John Seigenthaler Sr., Editorial, *A False Wikipedia "Biography,"* USA TODAY, Nov. 29, 2005, at A11.

[131] See, *e.g.*, Read, *supra* note 25. History professor Roy Rosenzweig once edited a Wikipedia article on the financier Haym Solomon, removing a false but widely held claim that the eighteenth-century broker had lent money to the infant U.S. government during the Revolutionary War. Almost immediately after he removed the passage, another contributor reinserted it, citing its appearance in a number of books, which had been debunked according to Rosenzweig. Only a seasoned historian would be likely to know that the claim was false, he said. *Id.*

[132] *See* Read, *supra* note 25. "Professors have, for the most part, stayed away. The site now has more than 40,000 active, registered contributors, members of an online community who bond over shared interests even as they spar over changes in articles. About 1,100 of those contributors have identified themselves as graduate students, says Mr. Meeks. Far fewer have identified themselves as professors." *Id.* This does not mean, of course, that simply being a professor makes all contributions valid. *E.g.*, *Bigfoot Research Makes Professor a Campus Outcast*, CNN.com, Nov. 6, 2006, http://www.cnn.com/2006/EDUCATION/11/03/professor.bigfoot.ap/index.html.

[133] *See* Wales, *supra* note 22, at 19.

[134] *See* von Krogh, *supra* note 74, at 1227.

on each other than on outsiders.[135] In fact, core-group members are likely to look with disdain on outside contributions to preserve their status within the group.[136]

¶ 47   Wikipedia is highly vulnerable to in-group bias. One must wonder whether the "dedicated group of a few hundred volunteers who know each other and work to guarantee the quality and integrity of the content," who quickly "shut down" Professor Alexander M.C. Halavais's article on theories of communication (Professor Halavais's area of expertise), would have treated the article in the same manner had it been written by "famous Wikipedian" Rick Kaye.[137] If not, then that would mean that Wikipedians sometimes treat reputation earned on Wikipedia as equivalent or superior to reputation earned in the academic world at large. The result would be many disaffected experts and a less-informed encyclopedia.

3. A Skewed Marketplace

¶ 48   Because of in-group bias, Wikipedians must sometimes choose between loyalty to their community and loyalty to accuracy. So long as accuracy is the currency by which reputations are built, then reputation can be reasonably relied on to produce accurate results. But if the search for truth becomes even partially supplanted by other priorities, then Justice Holmes's free marketplace of ideas can quickly become Justice Brandeis's race to the bottom.[138]

¶ 49   In fact, misuse of Wikipedia's model can make this result predictable from the outset. An example of this may be "Intellipedia," a recently launched version of Wikipedia for the U.S. Intelligence Community.[139] The idea behind Intellipedia is simple: a free exchange of views on intelligence matters will lead to more accurate intelligence, thus preventing inaccuracies like those that plagued prewar estimates for Iraq.[140] This is a noble thought, perhaps, but copying Wikipedia's model is no guaranteed ticket to accuracy. It may facilitate truth seeking, but it still requires truth-seeking inputs to actually reach accurate results.

¶ 50   This creates a real challenge for Intellipedia[141] because the community that gives Intellipedia's inputs will be fundamentally different from the Wikipedia community. The greatest risk that Wikipedians face in their work is damage to their reputations

---

[135] *See* Henri Tajfel & John C. Turner, *The Social Identity Theory of Intergroup Behavior*, *in* PSYCHOLOGY OF INTERGROUP RELATIONS 7, 13 (Stephen Worchel & William G. Austin eds., 2d ed. 1986).

[136] *See* Richard H. McAdams, *Cooperation and Conflict: The Economics of Group Status Production and Race Discrimination*, 108 HARV. L. REV. 1003, 1024 (1995) (discussing individual group members' levels of cooperation in relation to the desire to increase personal status within the group).

[137] Read, *supra*, note 25. Larry Sanger has also confirmed that some Wikipedians hold the notion "that nonexperts should be able to treat with disdain anything an expert says." *Id.*

[138] Ligget Co. v. Lee, 288 U.S. 517, 559 (1933).

[139] Greg Miller, *Spy Agencies Now Share the Wikipedia Way*, L.A. TIMES, Nov. 1, 2006, at A12.

[140] *Id.*

[141] It is not the only challenge for Intellipedia. Another issue is that classified information, by its nature, could not be widely disseminated, such that only a few qualified eyeballs could pour over the bugs of sensitive topics.   On the other hand, if Intellipedia is widely disseminated, then it will have to be diluted in terms of its sensitive content, reducing Intellipedia's impact.

within the Wikipedia community. Intellipedians, however, have their livelihoods at stake in their work, not just their social status. And although accuracy (hopefully) matters greatly to Intellipedians' career success, factors such as loyalty, seniority, and of course, political allegiance are also of great importance. Intellipedians may quite reasonably fear that their actual careers could be on the line for contributing politically "wrong" information—resulting in a skewed encyclopedia.[142]

¶ 51 Despite this negative outlook, Wikipedia's model can also foster a culture of accuracy. With the correct inputs, Intellipedia has the potential to serve as an affirmation of what is supposed to be at the foundation of the intelligence community: facts. Intellipedia is the sort of project that can help restore an ethos or contribute even more to its downfall, depending on how it is governed. Perhaps if everything possible is done to make Intellipedians' reputations dependent on accuracy, then Intellipedia's inputs will reflect reality, and a culture of accuracy will develop.

C. Potential Improvements

1. Reducing Technological Barriers to Contribution

¶ 52 A frequent compliment that the open-source community likes to give itself is that it caters to its most advanced users, whereas Microsoft "dumbs down" for its most ignorant users (presumably most of the population).[143] Certainly this is a virtue to techies, who need not be assaulted with ignorance-compensating features every time they turn on their PCs, but what about the rest of us? Technospeak can be just as great a barrier to volunteerism as can the overall aristocracy of open-source and Wikipedia communities. This is problematic because experts in various fields often are not "computer geeks."[144] So expanding Wikipedia's "big tent" by embracing simple technology is a big step because it expands outsiders', including experts', ease of access into Wikipedia's core group.[145]

2. Instituting Feedback Mechanisms

¶ 53 Feedback mechanisms might allow for better signaling of content reliability. But they would also be problematic to implement and highly vulnerable to in-group bias. The problem is selecting who would do the grading. Generally, websites that employ feedback mechanisms feature one-on-one transactions between feedback provider and recipient. For instance, eBay buyers and sellers rate each other after conducting one-on-one business with each other. But Wikipedia has no such direct interaction. A single article may have edits from twenty or more editors, such that the task of

---

[142] *See*, *e.g.*, Evan Thomas & John Barry, *Anatomy of a Revolt*, NEWSWEEK, Apr. 24, 2006, at 26 (discussing the example of General Eric Shinseki, who in 2003 warned Congress that an Iraq occupation would require "several hundred thousand troops" and was "rewarded" for his honesty by being publicly castigated and shunned).

[143] *See*, *e.g.*, Lerner, *supra* note 7, at 203.

[144] *See id.*

[145] *See* Wales, *supra* note 22, at 32. Wikipedia has already introduced Wikitext, which is a more user-friendly editing interface than HTML but is "still a little bit scary for a lot of people."

critiquing specific edits might be so tedious that it would be partaken in only by a core group of Wikipedians. Feedback mechanisms might be additionally undermined if anonymous users could simply reenter the community under a different user name. Finally, actually codifying the process of reputation building might serve to further intimidate new participants.

¶ 54   An intriguing alternative follows directly from the guiding philosophy that "given enough eyeballs, all bugs are shallow." [146]   Economist Rafe Furst proposes an "information liquidity" metric for each article that would measure, by darkness of color on a gray scale, the level of editing activity on the page.[147]   In theory, articles with a darker color would be more reliable due to the increased editing they have received. This idea directly addresses the known phenomenon that Wikipedia pages that are more frequently trafficked are also more likely to be accurate.[148]   Also, this function is performed in a manner that does not discriminate by author, preventing in-group bias. Of course, this system might create a perverse incentive against initial quality since a theoretically perfect article would rate low. Therefore, a variant on this approach would not grade on the basis of page changes but rather simply on page views from unique IP addresses. Presumably, a large number of people having viewed a page could be just as strong of an indicator of the page's quality as the number of actual edits to that page.

¶ 55   But while these suggestions might act as signaling devices to users, they do not address Wikipedia's expert-bleeding problem. Even if these changes were implemented, experts might still be driven out by extensive editing of work by less-qualified editors.

3.   The Citizendium: Leaving It to the Experts

¶ 56   The question remains: what to do with experts? Wikipedia, understandably, fears expert condescension against other Wikipedians and is therefore unlikely to embrace formal expert-recognizing mechanisms. [149] This policy no doubt results in many disaffected experts, who, understandably, might want editing power commensurate with level of expertise. From the beginning, Larry Sanger has objected to the anonymous egalitarianism of Wikipedia's editing process.[150] Even during his work on Nupedia, it was clear that Sanger desired more expert-driven results.[151]

¶ 57   Enter the Citizendium (from "Citizen's Compendium"). It was originally envisioned as a "fork" on Wikipedia, which would copy all of Wikipedia's content and subject it to vetting by experts, while ending anonymous editing.[152] But currently it is

---

[146] Raymond, *supra* note 6, at 8.
[147] Posting of Stephen D. Levitt & Stephen J. Dubner to
http://www.freakonomics.com/blog/2006/10/25/an-interesting-new-prediction-market/ (Oct. 25, 2006,
16:37 EST).
[148] Read, *supra* note 25.
[149] *See* Read, *supra* note 25.
[150] *Id.*
[151] *Id.*
[152] *Id.*

experimenting with creating all new content.[153] Its "editors" are chosen on the basis of academic credentials and have the power to act as arbiters over disputes between authors and to stamp certain articles as "approved."[154] The Citizendium also bans anonymous editing.[155] These changes undoubtedly encourage expert participation, but at what cost to the community?

¶ 58   As an initial matter, the elimination of anonymity should allow the Citizendium to reduce the vandalism that has plagued Wikipedia. It will also enhance the reputation-enforcing mechanisms that generally keep Wikipedians in check, actually strengthening Wikipedia's self-monitoring. At the same time, however, the fear of making mistakes and incurring the wrath of scrutinizing Wikipedians might deter some contributions, particularly from new users, who might prefer to lurk and make small changes in the beginning.[156]

¶ 59   But, more significantly, the Citizendium, in effect, forcefully introduces formal academia into its community. In doing so, the Citizendium reduces veto rights that discouraged expert input in Wikipedia, while increasing veto powers over nonexpert authors. The Citizendium does this first in the literal sense, by granting qualified editors the power to preside over disputes between authors. More important, however, it grants editors the power to approve sites, such that a nonexpert's work can be of only limited perceived reliability. This second level of review greatly depletes the value of an average contribution, making nonexpert editors mere assistants to academic overseers. While the Citizendium's overall publicly perceived accuracy may increase compared with Wikipedia, many dedicated amateur authors would be effectively demoted.

¶ 60   As part of this, no longer will a "famous Wikipedian" hold sway over disputes in a community that does not distinguish by credentials. This raises the most important dilemma that will face the Citizendium. Professional academics may have extremely valuable input to give to an encyclopedia project, but Wikipedia's most motivated contributors are almost certainly current Wikipedians. In other words, by improving the product, there is a distinct risk of breaking the will of the most dedicated contributors and reducing the vigorous participation that makes Wikipedia so remarkable. The Citizendium holds great promise to take Wikipedia to a new level, but there is a risk that it will take improvement too far—so far that that it may exceed the spirit behind participation in the project itself.

V.   CONCLUSION

¶ 61   Many of the factors that have fueled the open-source movement also help to

---

[153] Larry Sanger, OK, Let's Delete the Wikipedia Articles (An Experiment) (Jan. 18, 2007), https://lists.purdue.edu/pipermail/citizendium-l/2007-January/000863.html.

[154] Larry Sanger, Toward a New Compendium of Knowledge (Sep. 15, 2006), http://www.citizendium.org/essay.html (noting that at first, the experts will have to apply for "editor" status, but later, editors will simply declare themselves by posting a CV with verifiable links).

[155] *Id.*

[156] *See* von Krogh, *supra* note 74, at 1227.

explain Wikipedia's economic mystery. Wikipedians contribute to Wikipedia for many reasons. They enjoy the challenges involved in creating new articles and spotting errors in others; they enjoy the fact that their work has altruistic value; they rebel against a proprietary "enemy"; and they build their own knowledge of the world. But, most important, they gain status in a community. When a person writes or edits a first article, that person enters into a common identity shared by every other Wikipedian. Wikipedians can further immerse themselves within their community by becoming increasingly respected for performing good work. Wikipedia is essentially a social club, with status to be gained and lost.

¶ 62 This motivation informs the question of how Wikipedia should optimally be governed. Even with Wikipedia's goal of moving from quantity to quality, it is critical that the site maintain its dedicated volunteer base. Problems arise with Wikipedia's current framework of unrestricted editing because it allows for non–truth-seeking inputs. Vandals decrease Wikipedia's publicly perceived reliability, hurting volunteerism. Bona fide experts are not given due respect by Wikipedian amateurs and are driven away along with their useful knowledge. Ultimately, Wikipedia's model is only as good as its inputs.

¶ 63 Improvements should therefore be directed toward improving the quality of these inputs without hurting volunteerism. Feedback mechanisms, directed at either editors or articles, fail to solve this problem, although a unique-page-views meter might be a helpful addition to better indicate how many eyeballs have glanced at an article's bugs. Eliminating anonymity, as the Citizendium will do, also seems a wise choice; identification, even under a nickname, seems a minor burden for writers who have the energy to edit an article. More important, the challenge of incorporating experts without alienating the Wikipedia community will be directly tested in the Citizendium. Experts and accuracy matter greatly, but Wikipedia or the Citizendium will ultimately fall short of their maximum potential unless they continue to foster that underlying community of "crazy people" who are willing to devote their time and energy in the hopes of finding enjoyment, love, and a place to show off.