

# **Transfer of open source principles to diverse collaborative communities**

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## **Abstract**

Open source culture and practice emerged as computer hackers networked to take control over the production, ownership and distribution of their skilled labor. As a movement, free software and open source hackers developed organizational and dialog structures to support their ethos. This paper introduces a list of traits common to successful free software and open source hacker communities. These traits are applied as a framework to analyze three non-hacker, collaborative communities to better understand successful collaborative practice. While this framework may not tell the whole story of these communities, the analysis yields observations relevant to the design of collaborative systems.

The framework consists of the following characteristics of successful free software and open source communities:

- open and widespread membership based upon participation
- geographically distributed, asynchronous, networked collaboration
- project transparency: open, recorded dialog; peer review of project materials, discussion and decisions
- collaborative, iteratively clarified living documents and project artifacts
- a community-wide sense of project ownership
- a hybrid political system based upon meritocracy
- a benevolent dictator, typically the project founder
- a compelling foundational artifact to organize participation around and to build upon
- foundational developers and early adopters who, along with the benevolent dictator, set project ethos
- consensus as a decision-making tool
- a mechanism for institutional history
- playfulness, taking the serious humorously and humor seriously
- upholding the right to fork.

## Introduction

During the 1950's, 1960's and 1970's, computer programs were distributed among programmers with source code and without restrictions. By the 1980's, corporations became power distribution sources for commoditized software. The era of non-proprietary software appeared to be over. Hackers subverted this system by declaring their own licensing structures and formalizing alternative production, ownership and distribution strategies through the free software and open source movements. As Richard Stallman, founder of the Free Software Foundation emphasizes in *The Free Software Definition*, "Free software is a matter of liberty, not price. To understand the concept, you should think of free as in free speech, not as in free beer" [Stallman a].

This revolution, quiet and unnoticed by most Americans, occurred over twenty years ago. During this time, free software and open source hackers labored individually and collectively, creating operating systems, programming languages, compilers and collaborative platforms which hold significant influence in today's market. Along the way, free and open source software hackers created a successful model for collaboration.

## A Brief History of Hacker Culture

In 1975, a Jargon File emerged as a glossary of hacker lingo. The Jargon File is an online living document existing to this day. Its definition of *hacker* remains fairly constant:

**hacker:** n.

[originally, someone who makes furniture with an axe]

1. A person who enjoys exploring the details of programmable systems and how to stretch their capabilities, as opposed to most users, who prefer to learn only the minimum necessary. RFC1392, the *Internet Users' Glossary*, usefully amplifies this as: A person who delights in having an intimate understanding of the internal workings of a system, computers and computer networks in particular.
2. One who programs enthusiastically (even obsessively) or who enjoys programming rather than just theorizing about programming.
3. A person capable of appreciating *hack value*.
4. A person who is good at programming quickly.
5. An expert at a particular program, or one who frequently does work using it or on it; as in "Unix hacker". (Definitions 1 through 5 are correlated, and people who fit them congregate.)
6. An expert or enthusiast of any kind. One might be an astronomy hacker, for example.

7. One who enjoys the intellectual challenge of creatively overcoming or circumventing limitations.

8. [deprecated] A malicious meddler who tries to discover sensitive information by poking around. Hence passwordhacker, network hacker. The correct term for this sense is cracker. [Jargon File]

Hackerdom is a meritocracy based upon ability. As the Jargon File notes, "It is better to be described as a hacker by others than to describe oneself that way" [Jargon File].

A foundational characteristic of hacker culture is the *hacker ethic*:

**hacker ethic:** n.

1. The belief that information-sharing is a powerful positive good, and that it is an ethical duty of hackers to share their expertise by writing open-source code and facilitating access to information and to computing resources wherever possible.

2. The belief that system-cracking for fun and exploration is ethically OK as long as the cracker commits no theft, vandalism, or breach of confidentiality. [Jargon File]

In 1983, Richard Stallman, a researcher at MIT's Artificial Intelligence Lab, codified the ideologies and methodologies of the hacker movement in the GNU Manifesto. The GNU Manifesto defined the Free Software Movement, announced the GNU Operating System project, and established the GNU General Public License. The GNU Manifesto posited that all information should be free and any proprietary control is wrong. This ethos applies to both source code and organizational methodologies. The term *open source* was coined in 1998 by Christine Peterson of the Foresight Institute during a strategy session to frame Netscape's release of their source code, Mozilla. The concept of open source has since entered colloquial culture to signify community-wide, networked, collaborative development.

The project which arguably did most to advance free software and open source collaboration is Linux. Because the 21-year old University of Helsinki graduate student Linus Torvalds could not run the proprietary Unix on his personal computer, he embarked upon the creation of his own operating system. In August 1991, Torvalds conducted a "small poll" for his "new operating system" via a newsgroup:

From: [torvalds@klaava.Helsinki.FI](mailto:torvalds@klaava.Helsinki.FI) (Linus Benedict Torvalds)  
Newsgroups: comp.os.minix  
Subject: What would you like to see most in minix?  
Summary: small poll for my new operating system  
Message-ID: <[1991Aug25.205708.9541@klaava.Helsinki.FI](mailto:1991Aug25.205708.9541@klaava.Helsinki.FI)>  
Date: 25 Aug 91 20:57:08 GMT  
Organization: University of Helsinki

Hello everybody out there using minix -  
I'm doing a (free) operating system (just a hobby, won't be big and professional like gnu) for 386(486) AT clones. This has been brewing since april, and is starting to get ready. I'd like any feedback on things people like/dislike in minix, as my OS resembles it somewhat (same physical layout of the file-system (due to practical reasons) among other things).

I've currently ported bash(1.08) and gcc(1.40), and things seem to work. This implies that I'll get something practical within a few months, and I'd like to know what features most people would want. Any suggestions are welcome, but I won't promise I'll implement them :-)

Linus ([torvalds@kruuna.helsinki.fi](mailto:torvalds@kruuna.helsinki.fi))

PS. Yes - it's free of any minix code, and it has a multi-threaded fs. It is NOT portable (uses 386 task switching etc), and it probably never will support anything other than AT-harddisks, as that's all I have :-).

By December, Linux had a small group of programmers working on the code, communicating through a mailing list and posting modules via ftp. As Linux versions progressed, Torvalds and Linux leveraged a worldwide computing community networked through the Internet.

### **Traits of Successful Free Software and Open Source Hacker Communities**

An analysis of successful free software and open source hacker communities reveals the following traits:

- open and widespread membership based upon participation
- geographically distributed, asynchronous, networked collaboration
- project transparency: open, recorded dialog; peer review of project materials, discussion and decisions
- collaborative, iteratively clarified living documents and project artifacts
- a community-wide sense of project ownership
- a hybrid political system based upon meritocracy
- a benevolent dictator, typically the project founder
- a compelling foundational artifact to organize participation around and to build upon
- foundational developers and early adopters who, along with the benevolent dictator, set project ethos
- consensus as a decision-making tool
- a mechanism for institutional history

- playfulness, taking the serious humorously and humor seriously
- upholding the right to fork.

I apply these traits as a framework to analyze three non-hacker collaborative communities to better understand collaborative practice. While this framework may not tell the whole story of these communities, the analysis yields observations relevant to the design of collaborative systems.

## **Wikipedia**

Wikipedia is an online, collaboratively-written, free content encyclopedia initiated in 2000. As an artifact, Wikipedia shares similarities with open source code. It has a modular structure composed of entries. This structure enables contributors to work in their areas of specialty. The modules are iteratively-written, peer reviewed, and together reflect the consensus of collective intelligence through individual transactions.

The Wikipedia project leverages open source wiki software. This platform enables an accessible, networked connection between the project and geographically distributed participants. In other words, the wiki provides the community with a place to work. The first wiki, *WikiWikiWeb*, was created by Ward Cunningham in 1995 to host the Portland Pattern Repository, a collection of problem and solution archetypes for computer programming. Cunningham's design encodes the ethos of the free software/open source movement by supporting social, political and conceptual phenomena conducive to successful collaborative projects. *Wiki wiki* is a Hawaiian term meaning *quick and easy*. It is very simple to contribute to a wiki. Wikis employ a minimal text markup that can be entered on-site. Wikis support a mesh network of hyperlinked modules of content, *WikiWords*. Each module also contains two additional layers for module history and discussion specific to the module's content.

The history layer of the module serves as a versioning system that records iterations and can be used to revert the module to an earlier state. The discussion layer facilitates negotiation of consensus about content. Both the history and discussion layers form an institutional history of a project, making transparent the decisions and protocol related to the modules. Cunningham's design has propagated through other wiki projects such as Swiki, Twiki and Wikipedia's platform, MediaWiki.

Creating the appropriate wiki structure for an organization requires forethought. Wiki webs can be created within and alongside other wikis. Wikipedia's parallel sister projects include foreign language versions, Wiktionary, Wikinews and other projects. Each project has its own wiki platform. Meta-Wiki is a project coordination space for issues pertaining to all Wikimedia projects, and exists on its own wiki platform. Separate project management spaces support the fabric of a community by recording project

background, organizational information, developer guidelines, style guides and information for newbies. It is here that one can get a sense of a project's personality, motivations and protocol. Separating project content from project management, history, and discussion enables the project to retain its integrity while maintaining essential communication channels and keeping project operations transparent.

Wikipedia shares the traits of successful free software/open source communities. As mentioned above, minimal barriers to participation exist on a wiki platform. As a matter of Wikipedia policy, anyone, including anonymous users, are permitted to edit any page on any subject. Their work will be peer reviewed and either contribute to an iteration of an entry or be deleted. Reviewers allow or delete edits according to consensus determined by discussion in the discussion sections of each entry. Ownership of work is distributed throughout the community. Contributor names do not appear on entries, although discussion section remarks are signed.

Schlock and chaos are avoided due to the watchful eyes of the many. As anyone can edit Wikipedia, vandalism does occur. On the other hand, because anyone can edit Wikipedia, Wikipedia is robust. IBM's Collaborative User Experience Research Group found that most Wikipedia pages have been vandalized. They also found that most pages were repaired through version rollback using the module histories so quickly that most users would never see the effects [IBM]. This phenomenon is called *soft security* in the open source community. It is also an example of Linus' Law, coined by Eric Raymond in *The Cathedral and the Bazaar*. Raymond describes this principle exemplified in the Linux project as "Given enough eyes, all bugs are shallow" [Raymond].

Wikipedia participants, like free and open source software hackers, are personally motivated to contribute. Participation is voluntary and is the sole condition of involvement in the community. Because the discussion pages are the only forum for dialog (a benefit of geographically-distributed, asynchronous, networked collaboration on a dedicated platform), discussion is open and decision-making is transparent. Transparency reduces abusive practice. While formal restrictions exist to limit members who violate project mores, they are rarely necessary. Peer pressure typically regulates behaviour before administrative actions are needed. Participants self-manage and are usually not subject to political or organizational authority.

On a fundamental level, every participant can edit pages on an equal footing; however, an administrative hierarchy is built into the Wikipedia system. Administrative roles are granted by peers to participants who exhibit competence, trustworthiness and dedication to the project. For example, Wikipedia Sysops are elected by the community and are able to delete pages or block users. Wikipedia Bureaucrats set Sysop privileges. Stewards are multi-project Bureaucrats. This bottom-up hierarchical structure is similar to the structure set to administer module oversight in open source projects. Wikipedia Developers, not

situated within this hierarchy, have access to the wiki source code and have the power to shape the project by implementing features in the platform. Board members debate policy and project stewardship [Meta-Wiki a].

Wikipedia is not owned by any individual or group. The content of Wikipedia is licensed under the GNU Free Document License, the open content counterpart to the GNU General Public License mentioned above. The Wikipedia community acknowledges founder Jimmy Wales as its benevolent dictator. Wales originated and initially financed the Wikipedia project. He reserves veto power on all decisions and the right to unilaterally make decisions. In practice, however, he rarely exercises these rights [Meta-Wiki a]. Benevolent dictators are crucial roles in the hybrid political systems of open source communities. It is the role of the benevolent dictator to keep the project active while not infringing on the community-wide sense of project ownership. Benevolent dictators can be singular, or plural, or shift among persons, as the history of the Mozilla project demonstrates.

Typically, benevolent dictators are founders of the project and have put considerable energy into creating the initial version. Open source collaboration works well to iterate and organically grow a project, but it is difficult to originate a project using open source methods. A seed project must show promise or otherwise be compelling enough to recruit volunteers.

Founders and early adopters establish the foundational mores of the community. Much of Wikipedia policy developed from Wales' desire to create "a world in which every single person on the planet is given free access to the sum of all human knowledge" [Wales] and the project work of early adopters. Foundational decisions are transparent to the contemporary community through institutional history. They are considered "grounded in tradition" and "beyond debate" by Wikipedians. These foundational decisions therefore become defining attributes of the project. Wikipedia's foundational principles include:

- NPOV, or neutral point of view, as guiding editorial principle,
- anyone can edit articles without registering,
- the *wiki process* is the final authority on article content  
(author's note: where *wiki process* refers to the sedimented, collective actions of the community),
- GFDL licensing,
- Jimmy Wales as the ultimate authority on any matter [Meta-Wiki b].

These principles are important as project guidelines and for the negotiation of consensus. They are appealed to and reasserted in the discussion sections. This discussion keeps the principles active. The principles form a constitution of sorts. Policy not related to these foundational issues evolves through "collaborative editing and the search for consensus and compromises" [Meta-Wiki b]. The related

collaborative editing and discussion process is recorded through discussion and history sections of the wikis.

The benevolent dictator's power is checked by the right to fork, guaranteed through the GFDL. All participants are volunteers and can leave the project at any time, taking it with them if they choose. The Wikimedia platform and content database is available for download. As a consequence, a benevolent dictator only retains the position as long as he or she is trusted. Project forks can also occur when foundational attributes falter, fade, or no longer apply.

## **Black Rock City**

For one week a year, Black Rock City exists in the Black Rock Desert of Nevada, a flat, dry, alkali lakebed which does not otherwise support life. During this week, Black Rock City is one of the largest cities in Nevada, with a population of approximately 35,000 at last count. Black Rock City is home to Burning Man, a participatory social experiment in community and self-reliance off the grid.

Foundational cultural principles of Burning Man include participation above spectatorship, self-reliance and the ecological principle of "leave no trace." No cash transactions are allowed. Black Rock citizens engage in a gift economy. Pay it forward is a local ethos, although an underground barter economy is apparent as well. Participants are self-managed and their participation is self-determined. Common contributions include making art, providing a service, opening a club, or helping build and maintain city infrastructure. Hurdles to participation parallel those of free and open source software communities. In those communities, one must be able to code competently enough to participate. Black Rock citizens must be competent enough to survive in the harsh desert environment. Black Rock City hosts occasional deaths. Entrance tickets read, "You voluntarily assume the risk of serious injury or death by attending."

The streets of Black Rock City are laid every year before the event in polar coordinates. The city has a Department of Public Works, a Department of Mutant Vehicles, public utilities such as road and sewage services, ice and coffee service, a fire department, a field hospital, a public art program, over twenty radio stations, and an airport. A community group, the Black Rock Rangers, patrols the city to mediate disputes. Black Rock City has an official newspaper, *The Black Rock Gazette*, and an alternative newspaper, *Piss Clear*. In 2004, Black Rock City saw its first street protest over ecological concerns.

The creation and participation with art of all types is a central value of Black Rock City society. Louis Brill, in a *Leonardo* article titled *The Art of Burning Man*, pointed out that Burning Man has become "the largest outdoor art performance festival in North America.... it has become an art incubator encouraging

an exploration of creative expression against unique physical constraints and challenges of using a 20,000-year-old prehistoric lakebed as a blank canvas of artistic expression” [Brill].

Because Black Rock City is temporal, a geographically dispersed citizenry networks through informal cyberchannels such as tribe.net, email lists and web sites during the rest of the year.

At the helm of Black Rock City and Burning Man is founder Larry Harvey, the city and event’s benevolent dictator. Harvey has described Burning Man as “a project dedicated to discovering those optimal forms of community which will produce human culture in the conditions of our post-modern mass society” [Harvey].

Burning Man originated on a San Francisco beach in 1986 when Harvey and a core group of project founders burned the effigy of a man. This practice continued as a yearly ritual. When the project moved to the Black Rock Desert in 1990 and had to support a community making a home there, the focus turned to society building. Early adopters include members of the Cacophony Society.

Why analyze Black Rock City and Burning Man through the framework of the free and open source software movements? Black Rock City is a society hack. In the words of the *hacker ethic*, above, Burning Man is exploratory system-hacking. As such, it exemplifies some traits of successful free and open source software movements, but fails to exemplify others. As mentioned above, using this framework to analyze Black Rock City and Burning Man may not tell the whole story of this community; regardless, lessons for collaborative community building may emerge.

Considered in the abstract, Black Rock City, like most cities, evolves in a sedimented way; building the city is not linearly accomplished. Black Rock City is unique as a city in that it exists only one week per year. For the rest of the time, geographically distributed Black Rock citizens are loosely networked in cyberspace through tribe.net, email lists and web sites. They gather together each year for another iteration, and then the city dissolves back into the network, along with its collective history.

Black Rock City and Burning Man have the foundational fundamentals of a successful open source community:

- a benevolent dictator, project founder Larry Harvey;
- a compelling foundational artifact to organize participation around and to build upon, not only the ritual effigy burning but also the resurrection and dismantling of a city each year;
- foundational developers and early adopters who, along with the benevolent dictator, set the ethos of the project;
- open and widespread membership based upon participation.

When analyzing Black Rock City and Burning Man through the framework of open source communities, we find some characteristics that do not correspond. Burning Man and Black Rock City are governed by Black Rock City, LLC, a staff operating as a traditional, top-down, opaque bureaucracy. This operational model does not conform to the open source notions of transparency, open dialog, and peer review.

The traits of free software/open source communities considered here are often interrelated. For example, distributed, asynchronous, networked collaboration can force project transparency, open dialog, and peer review. Distance is not necessarily a disadvantage for collaboration. Geographically distributed, networked collaboration can thwart the tendency for power centers to form around co-located members who can then control the decision-making process, access to information, and institutional history. Online open source communities are forced to develop platforms that support project transparency in order to successfully communicate and collaborate. Asynchronous communication encourages collaborative, perpetually clarified living documents, artifacts and project histories. If these structures are not developed, there is no mechanism for collective institutional history or project rollback to a stable state. A sense of project ownership also becomes difficult to maintain as the project matures and the ranks of participants grow.

Successful free software/open source communities develop hybrid political structures similar to both an open cathedral and the bazaar. Self-managed participants anarchically contribute according to their desires. One truism Eric Raymond developed in *The Cathedral and the Bazaar*, is that “every good work of software starts by scratching a developer’s personal itch.” He explains:

...too often software developers spend their days grinding away for pay at programs they neither need nor love. But not in the Linux world—which may explain why the average quality of software originated in the Linux community is so high...the Linux community seemed to resemble a great babbling bazaar of differing agendas and approaches...out of which a coherent and stable system could seemingly emerge....[Raymond]

For a bazaar to function, however, an organizational structure must support it. Hybrid, flexible political systems based upon meritocracy motivate participants and encourage a community-wide sense of project ownership. In successful free software/open source communities, the benevolent dictator and consistently active personnel keep the project active and keep dialog open. Linus Torvalds was in a constant feedback loop with other Linux hackers. As Raymond points out, Torvalds kept the hackers stimulated by the prospect of taking part in the project, and rewarded by the project’s constant improvement. Torvalds kept his hackers in a constant stimulation/reward dialog. The bazaar of open source communities gets most of the work done, but an open cathedral supports the community-wide social fabric by providing feedback for involvement, reasserting foundational mores, and keeping dialog active and open.

A transparent meritocratic structure allows for smooth succession within administrative positions. In accordance with the watchful eyes of the many, administrative roles are granted by peers to participants who exhibit competence, trustworthiness and dedication to the project. A benevolent dictator can be succeeded in this way by an individual, more than one person, or shift among persons, as the history of Mozilla demonstrates.

In 2004, Burning Man experienced a crisis. The scale of the event had increased enormously. Floods of new citizens, armed with superficial knowledge of the project and its basic ideals, unskilled in the community's norms, stressed the project. Additional stresses included an increased presence of federal law enforcement and a feeling of being underappreciated among long-term volunteers. During such a crisis, the benevolent dictator can re-establish foundational principles and reweave the social fabric. The Burning Man leadership, operating on a closed, top-down hierarchical model, focused on civic protocol. The artists of Black Rock City, feeling both the increase in authoritative control and a lack of involvement in the public art program, incited a revolution from within. They chose to fork.

The call to revolution occurred the fall after Burning Man 2004, when Black Rock City had dissolved into the networks for another year. Two long-time citizens, Jim Mason and Chicken John, founded the movement, circulating their speeches and bluster through email lists and an online petition addressed to Larry Harvey. A distributed community was alerted through the networks in cyberspace, particularly tribe.net. The petition was signed by over a thousand citizens and the troops of the fork were gathered.

Harvey received the petition and upheld the right to fork. He granted the fork, named BORG2, the right to exist within Black Rock City. BORG2's mission statement reads "BORG2 is an experimental project designed to demonstrate a radically collaborative community-based process to fund and curate public works of art at the Burning Man 2005 event" [BORG2]. BORG2 configures their mission as a "demonstration project using MASSIVELY Collaborative DO-MOCRACY as a means to inspire, facilitate, curate and fund public works of art for Burning Man. In the process, we also intend to reaffirm the core truth of the larger Burning Man experiment: Collaborative creative work, broadly defined, is our main vehicle towards community." BORG2 has consciously stated that they intend to "work in the open source model" [BORG2].

Within the rubric of our analysis, the Burning Man community was unstable to the extent that it did not embrace the open source traits of project transparency and a supportive, bottom-up, hybrid political system as described above. When the project was stressed, community-wide sense of project ownership eroded and was not resurrected by project founders. Foundational mores were not reasserted. Project ethos faded.

## ThinkCycle

ThinkCycle is an open, web-based collaborative platform for sustainable design projects. Initiated in 2000 by MIT Media Lab doctoral students Ravi Pappu, Saul Griffith, Nitin Sawhney, Yael Maguire, Wendy Plesniak and Ben Vigoda, ThinkCycle seeks to support “distributed collaboration toward design challenges facing underserved communities and the environment” and to create “a culture of open source design innovation” [ThinkCycle a]. ThinkCycle is “an online space for designers, engineers, domain experts and stakeholders to discuss, exchange and construct ideas toward sustainable design solutions in critical problem domains” [ThinkCycle a].

Co-founder Nitin Sawhney cites the Appropriate Technology Movement of the 1970's as influential. This movement emphasizes design within a social, economic and political context and a focus on social impact as opposed to profit. It stresses the social and moral responsibility of designers and considers the protection of socially valuable ideas to be unethical [Sawhney]. Sawhney also cites three emerging trends in the 1990's which contributed to the creation of ThinkCycle: distributed computing and online communities, global dialog on the digital divide and sustainable development, and intellectual and public domain movements such as the open source movement.

The ThinkCycle process begins with members contributing a design challenge within the domains of sustainable design, underserved communities, and the environment. ThinkCycle also solicits design problems from non-governmental organizations and other stakeholders involved with underserved communities. These challenges are peer reviewed by domain experts and made accessible to designers through ThinkCycle. Design processes are transparent and anyone is invited to post ideas, critiques, suggestions and drawings of their own proposed solutions. Researchers in academia and industry can mentor student design teams. Design faculty can build a course around a design challenge. Student work is reviewed by domain experts who also give project advice and help with resources [ThinkCycle b].

Each design challenge has a wiki-like area with sections for discussion, shared team spaces, an open digital publication repository and project archives. ThinkCycle, like Wikipedia, reserves a separate space for general discussion unrelated to a specific design project. Recognizing that these discussion areas often serve as a forum for free-flow, and at times emotional, dialog, this space is call Soapbox and members are invited to post “rants” here.

Successfully completed projects include a novel, inexpensive cholera treatment device, a passive incubator for premature infants, bio-sand and ceramic household water filters, and a low cost eyewear

micro-manufacturing system. ThinkCycle has also sponsored two conferences, *Development by Design 1* and *2* [ThinkCycle a].

ThinkCycle has attributes of an open source community: open dialog, peer review, collaborative, iteratively clarified documents, and foundational developers setting project ethos. ThinkCycle is supporting the right to fork by developing open source collaborative problem-solving and design software for distribution, including an open source platform, ThinkCycle Lite, for high school students, and ThinkCycle@Home, an asynchronous, low-bandwidth, low-resource desktop client that provides updated offline content from topics in the ThinkCycle website [ThinkCycle c].

On the other hand, membership in ThinkCycle does not depend upon project participation. Anyone is welcome to register on the site and post comments. This practice leads to off-topic remarks and a lack of focus in the discussion sections since dialog is not channeled by project work. While ThinkCycle's web-based system has a robust organizational structure, there is a lack of political structure to support the bazaar of participants. ThinkCycle is currently facing the lack of a heavily invested, heavily involved benevolent dictator. ThinkCycle was formed by a group of MIT graduate students who are leaving MIT and the project [ThinkCycle d]. The result of open participation without political structure is a lack of peer oversight supporting the collaborative process. This lack of oversight in turn results in a lack of focus in discussion and concept posts and some schlock.

Another challenge that hinders ThinkCycle's development stems from the co-location of many of its contributors. Because ThinkCycle originated as an MIT academic project, it was used most by MIT design teams. Because the team members were co-located, the projects were developed in realspace and then recorded retroactively on ThinkCycle. In these cases, team members saw ThinkCycle as a time-waster. They felt that they were duplicating their efforts by using the system [Sawhney]. The most successful and most publicized ThinkCycle projects were created by MIT students working in this way.

ThinkCycle would benefit from making participation a condition of membership, a supportive political structure which sustains peer review, successor benevolent dictators, and participants situated across a more geographically dispersed area.

## **Conclusion**

Open source represents an alternative approach to collaborative development that has evolved along with network technologies. Because the free software and open source communities collaborated under historically novel circumstances, they discovered novel collaboration methodologies. For example, the free software and open source communities evolved online collaboration platforms which supported

geographically distributed, asynchronous collaboration, project transparency, recorded dialog, project and institutional histories, iteratively clarified living documents, project forking and an emphasis on sedimented, as opposed to linear or hierarchical, methods. These new attributes may not be limited in effect to free software and open source development. The emergence of new collaboration conditions for the free software and open source movements may have helped develop new and effective means of collaboration not considered previously, but that form an effective paradigm for collaborative practice, especially given the distributed, networked nature of contemporary society.

Lessons for collaborative communities learned from this analysis of three non-hacker, collaborative communities include:

- The benevolent dictator and early project adopters create an essential social fabric by establishing and asserting project mores, protocol and personality.
- Hybrid political systems consisting of elements of anarchy, dictatorship and bottom-up, bureaucratic, meritocratic hierarchy support the project when the bureaucracy is transparent and the dictator is trusted.
- A community-wide sense of project ownership is important when participants are volunteers.
- An asynchronous, geographical membership distribution coordinated through an effective platform facilitates transparency and project metalayers. It also thwarts the tendency for opaque co-located power centers to develop.
- Project platforms should have discussion and history metalayers to support project content and the project community.
- Members should be active project participants, otherwise focus can be lost.

## References

[BORG2] BORG2. BORG2 dedicated to making the Art of Burning Man 2005 SPECTACULAR- Mission Statement. Available online (May 1, 2005) at <http://www.borg2.org/mission.php3>.

[Brill 2001] Brill, Louis M. Burning Man: Desert Weirdness Incubates a New Era of Art and Technology. MIT Press, 2001 Available online (May 1, 2005) at <http://mitpress2.mit.edu/e-journals/Leonardo/gallery/burningman/brillintro.html>.

[Cunningham] Cunningham, Ward. Portland Pattern Repository. Available online (May 1, 2005) at <http://c2.com/ppr/>.

[Harvey] Harvey, Larry. Burning Man and Cyberspace. Available online (May 1, 2005) at <http://www.burningman.com/whatisburningman/people/cyber.html>.

[IBM] IBM Collaborative User Experience Research Group. History Flow. Available online (May 1, 2005) at <http://c2.com/ppr/>.

[Jargon File] Jargon File, ver. 4.4.7. Available online (May 1, 2005) at <http://www.catb.org/~esr/jargon/>

[Meta-Wiki a] Meta-Wiki. Power structure. Available online (May 1, 2005) at [http://meta.wikimedia.org/wiki/Power\\_structure](http://meta.wikimedia.org/wiki/Power_structure).

[Meta-Wiki b] Meta-Wiki. Foundation issues. Available online (May 1, 2005) at <http://meta.wikimedia.org/wiki/Foundation> issues.

[Raymond] Raymond, Eric S. The Cathedral and the Bazaar, version 3.0. Available online (May 1, 2005) at <http://www.catb.org/~esr/writings/cathedral-bazaar/cathedral-bazaar>.

[Sawhney 2003] Sawhney, Nitin. Cooperative Innovation in the Commons: Rethinking Distributed Collaboration and Intellectual Property for Sustainable Design Innovation, MIT Media Lab, Massachusetts Institute of Technology, Cambridge, Mass. 2003.

[Stallman a] Stallman, Richard. The Free Software Definition. Available online (May 1, 2005) at <http://www.gnu.org/philosophy/free-sw.html>.

[Stallman b] Stallman, Richard. GNU General Public License. Version 2, June 1991. Available online (May 1, 2005) at <http://www.gnu.org/licenses/gpl.html>.

[ThinkCycle a] ThinkCycle. About ThinkCycle. Available online (May 1, 2005) at <http://www.thinkcycle.org/about>.

[ThinkCycle b] ThinkCycle. ThinkCycle: Open Collaborative Design. Available online (May 1, 2005) at <http://www.thinkcycle.org/>.

[ThinkCycle c] ThinkCycle. Topic: Collaborative Open-Source Design Platforms. Available online (May 1, 2005) at [http://www.thinkcycle.org/tc-notes/?topic\\_id=3101](http://www.thinkcycle.org/tc-notes/?topic_id=3101).

[ThinkCycle d] ThinkCycle. March 30, 2005. Topic: ThinkCycle.org: Creating a Sustainable Non-Profit. Available online (May 1, 2005) at [http://www.thinkcycle.org/tc-notes/?topic\\_id=33432](http://www.thinkcycle.org/tc-notes/?topic_id=33432).