

# **ETHICSHARE PROGRAM DEVELOPMENT SUMMARY FINAL REPORT**

**NOVEMBER 2009 – APRIL 2011**

***By the University of Minnesota***

Center for Bioethics

University Libraries

Department of Computer Science and Engineering

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# EthicShare Program Development Final Report

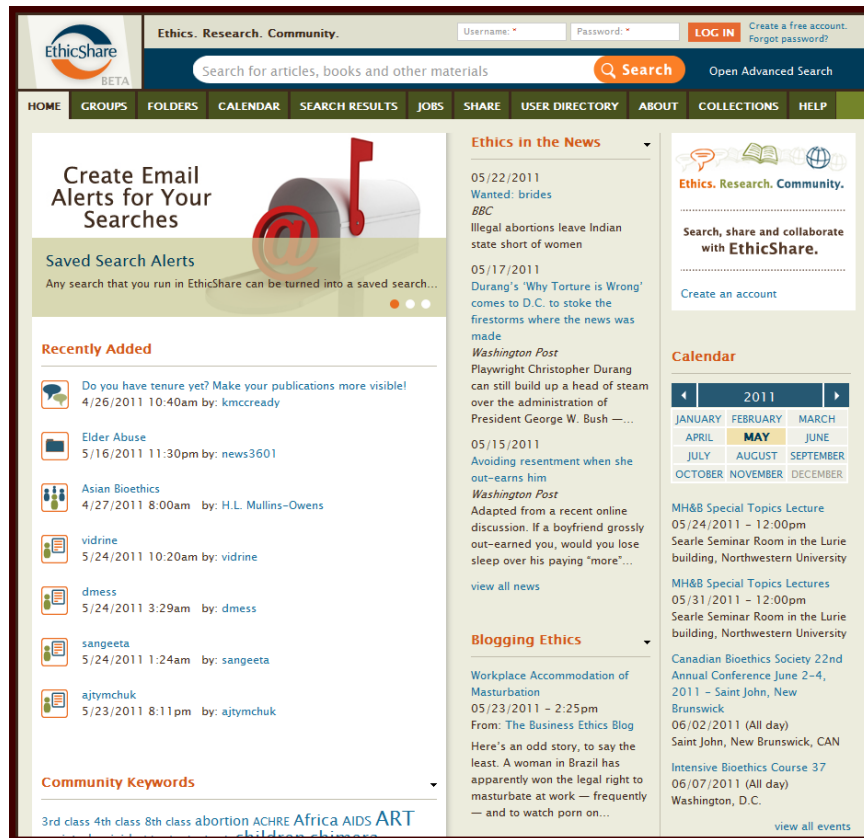
## I. PROJECT DESCRIPTION AND HISTORY

The University of Minnesota, working in collaboration with our governance board (representing faculty from Georgetown University; Indiana University-Purdue University, Indianapolis; Indiana University-Bloomington; Stanford University; University of Virginia; and the University of Mississippi) as well as scholars in bioethics, have taken the lead in exploring and developing EthicShare, a service to meet the information needs of this community.



Through extensive planning and development, our partnership between the University of Minnesota’s Center for Bioethics, University Libraries, and Department of Computer Science and Engineering has engaged the community in specifying its needs for scholarly resources and tools to support ethics scholarship. We have also had as a goal the assessment of social technologies to determine how those new tools and features are adapted within a scholarly environment. EthicShare has been developed in three phases, each funded by grants from the Andrew W. Mellon Foundation with additional support from the University of Minnesota, the Council on Library and Information Resources, and the National Science Foundation. This report primarily documents activity in the most recent phase (*November 2009 – December 2010*).

Under development since January 2008, with use of only open source technologies, EthicShare.org is both a discovery tool for resources relevant to people interested in bioethics research, as well as a collaborative space for sharing and networking. The EthicShare project has moved from an experimental framework for research practices to a robust, fully functioning environment that promotes community, sharing and discovery. Launched to the public in April 2009, the site (which is free and open to all) now has over 2100 registered users and has had visits from scholars based at nearly 600 institutions.



EthicShare Site, May 2011

We began conceptualizing EthicShare in the winter of 2007 by consulting with bioethics scholars across the country to identify both their research needs and the challenges these interdisciplinary researchers face. We discovered that scholars in this field needed a variety of material types (scholarly articles, books, news stories, videos, etc.) aggregated into a single, searchable collection. However, these resources had to be high quality materials focused on their topics of interest. Too often, bioethics research requires weeding out the resources of interest from a much broader field focused on medicine, law, or philosophy.

Interviewing and surveying bioethics graduate students and faculty in 2007 was just the start of having the targeted users engaged in the development process. We used an iterative process to first identify gaps or problematic areas in the current research practices and then build experimental tools to enable new methods for scholars' work. For example, junior scholars mentioned that they would like to know more about what the senior scholars find to be important in the field. We created "Groups" which work in conjunction with the site's citations to allow discussions to occur on the site around the materials of interest. After each new feature or tool has been developed, we then ask our users to test that feature and give us feedback on our design. We are continually asking our users for guidance in priority setting and input on our development efforts. The project serves as a model for this engagement process.

By spring of 2009, a pilot instance of the site had been created that contained over 300,000 resources, a calendar of events, "Group" space for discussion and sharing, and a feed of recent news articles. The pilot instance of EthicShare also provided links to "resolver services" which allow users to access the full-text of the materials. The resolver service identifies what institution a user is affiliated with and connects that user to the full text of the desired resource available at his or her institution. Personal and group information management tools are also incorporated into the site to allow users to organize, email, and export citations. We've also enabled other related efforts through the development of open source modules.

In our most recent development phase, our efforts focused on capitalizing on the site's initial success by extending EthicShare to include learning objects and multimedia resources (e.g., syllabi, videos, etc.). Soon, users will also be able to exchange information about their activities in the field including sharing information about, or copies of, their publications as well as events or job postings they want to promote. We have been dedicated to growing the user base and charting a course for sustainability.

## **II. PURPOSE OF THE GRANT (2009-2010)**

The three primary areas of development activities that were undertaken during this phase were: Information Discovery, Access, and Management; Repository and Dissemination Services; and Scholar Networking. Our overarching goal was, and continues to be, to serve as a catalyst for advancing the field through the creation of a model virtual research environment. Such an environment combines relevant information resources with collaborative workspace for the

purpose of increasing productivity and community engagement. We identified several core deliverables to position EthicShare for success in serving the critical research needs of practical ethics scholars while gaining greater adoption of the site.

These proposed deliverables included:

- Aggregation and indexing of large-scale metadata from scholarly literature and popular media sources, and the addition of relevant fugitive content such as case study materials, conference papers and presentations, and learning objects.
- Implementation and promotion of new scholar networking features, specifically through expanded user directory and profiling mechanisms and recommendations leading to the identification of experts.
- Development of new mechanisms for user contribution and participation allowing subject matter experts to participate in the development of the collection, tools, and features on the site.
- Large scale promotion of EthicShare through conference presentations, focus group sessions, targeted invitations, and online marketing of the site.

In support of these deliverables, we proposed to create repository services; expand the data model/metadata schema; document and release the developed modules; and create interoperability with external services. Additionally, we planned to document the necessary technology framework to support the new services and features. Ultimately, we aspired to establish EthicShare as the premier collaborative networking environment for bioethics scholars.

### **III. PROGRESS SUMMARY**

#### **A. Software Upgrades and Development**

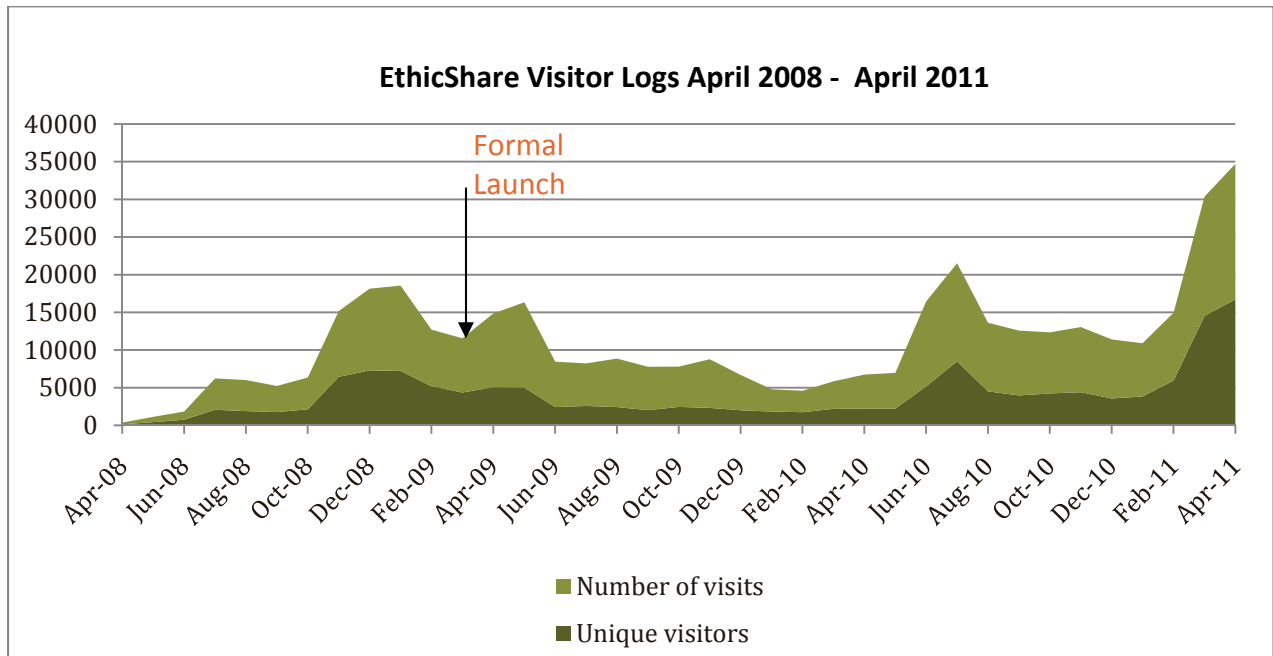
We began this grant phase by migrating EthicShare's content management system, Drupal, from version 5 to version 6. The "backend" technology that supports the public's interaction with EthicShare is comprised of three core elements. They are: the ETL system (Extract, Transform, Load), which provides a mechanism for the EthicShare to harvest data from disparate source providers; the data schema which provides a framework for how data are aggregated, indexed, stored and accessed; and the open source content management system, Drupal.

Upgrading Drupal required updating the other two technological foundations of the site, but, as anticipated, this undertaking accomplished much on our development agenda: the ability to email and post search results to Twitter and Facebook, the ability to post varied content types (polls, videos, wiki pages, and links to other sites) to Groups, additional fields and functionality for the user directory, a more streamlined "invite" process for group membership, redesigned homepage to surface more of the site's activity to a user's initial view (such as the "Recently

Added” and “My Recent Activities” sections), while also ensuring that the site will be viable for a much longer time.

## B. Site Adoption

EthicShare’s site traffic has grown steadily since initially launched in April 2009 and continues to grow. In 2011, total monthly visits to EthicShare have grown tremendously (after removing robot and spider traffic from our statistics). Unique visitors began at approximately 4000 per month, but have grown to over 16,000 by the end of April.

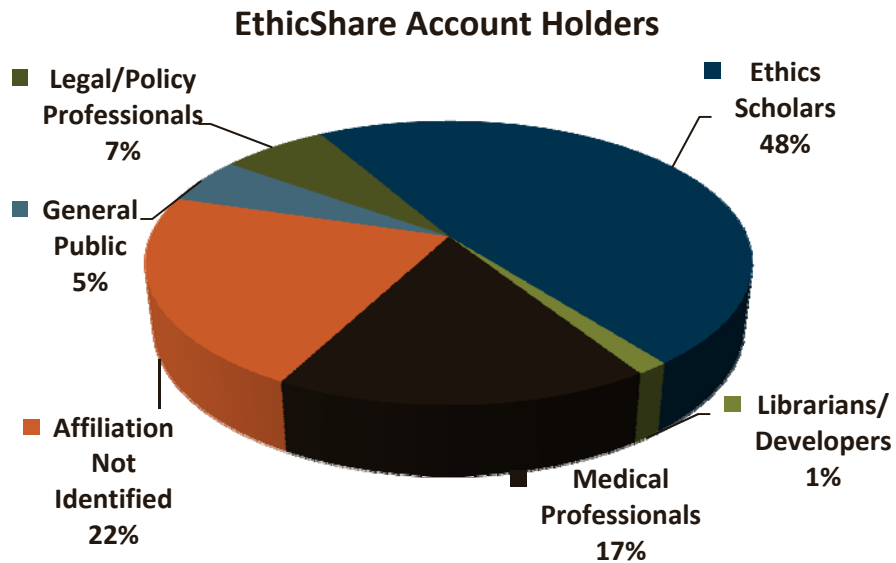


We are also seeing increased use of some of the social features on the site. Users are posting jobs and they are creating public folders of citations. The total number of Announcement/Calendar posts by users has reached 378 and the total number of folders has increased to 315. While scholars repeatedly indicated they would contribute to public discussions, interestingly there has been very little use of the “Groups” functionality to date. EthicShare’s Groups allow for members to hold public or private discussions, share resources including videos, create wiki pages, and post links to other websites.

In February 2011, we began experimenting with a variety of marketing ideas. First, we launched a Facebook page and a Twitter account. We post new content to these sites frequently (two to three times per week) and have been “liked” by over 250 people on Facebook. We don’t have many Twitter followers, but we are continuing to send messages to Twitter and Facebook via Hootsuite. Hootsuite is a “social media dashboard” that allows you to organize and schedule messages to your social networking sites. We also began sending out

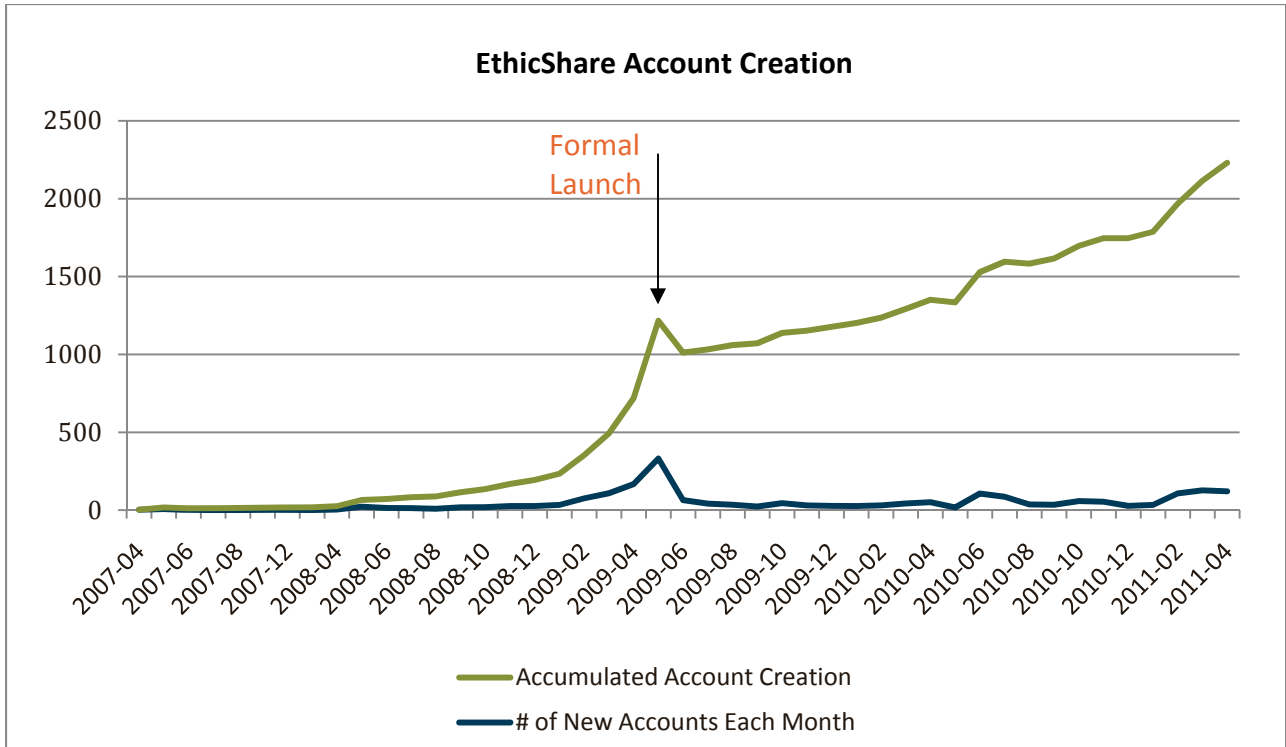
monthly email announcements to our registered users and have seen that about 25% of those contacted interact with the site. Lastly, the most successful marketing effort has been the use of Facebook and Google Ads. The advertisements that are posted on Facebook and Google search results are relatively inexpensive (approximately 80¢ per click through) but they have been immensely successful. Prior to launching these ads, our unique visitor traffic hovered around 4000 per month. After the advertisements have run for 3 months, our unique visitor traffic has quadrupled to over 16,000 hits in April.

Early in our planning for EthicShare, we identified a total potential population of approximately 4000 scholars (through academic programs and association memberships) whose work could be served by EthicShare. As of April 2011, we have 2,141 registered users.



Nearly all users (2,081) have created profiles in the public directory. An analysis of our registered users' profiles shows that close to 50% are ethics scholars. There is also a good portion, 17%, who are affiliated with a hospital or medical center. Interestingly, 7% of our registered users are affiliated with a law firm or other organization involved in legal or policy matters. A significant portion, 22% of registered users, provided contact information, but did not designate an organizational affiliation or topical interest.

We know that users primarily find our site through Google or other search engines. They typically visit one to two pages before they leave our site. While this is great exposure, it isn't full adoption. As we have begun to market the site more heavily as a trustworthy, working site, we have learned that a majority of our anticipated user community either hadn't heard of us yet (but were excited about the news) or had learned about the project in the planning phases but hadn't returned to spend time exploring the resources and services the site had to offer. We believe that with promotion of the site, user success, and time, we'll broaden the site's usage further and become a fully adopted technology for the field.



Although development of specific tools and features has been necessary to the success of this project, the real goal—one much harder to measure—is to implement changes that will advance the scholarship within the fields of practical ethics. Building a cooperative environment for a specified segment of humanities scholars to increase collaboration and rapid dissemination of information and expertise is radical change and, possibly slow to take hold. That said, we are moving in the right direction. Through marketing and promotion of the site we are ensuring that EthicShare is consistently gaining new registered users, and site visits are holding steady or increasing each month.

**C. Project Outcomes**

The overall outcome of the project was to produce a fully operational research environment for an interdisciplinary field that allowed for, and promoted, new methods for collaboration and sharing. The pilot instance of EthicShare held a great deal of promise, but some functionality and data reliability were lacking. During the third phase of the project, we focused on refining the site’s features and functionality to ensure that scholars believed in the trustworthiness of the site. We also wanted the opportunity to make their expressed needs for collaborative tools a reality so that we could determine which, if any, social or collaborative tools would serve a scholarly purpose. The specific objectives and outcomes for the third phase are listed below.



- A. *Aggregation and indexing of large-scale metadata from scholarly literature and popular media and news sources, and the addition of relevant fugitive content such as case study materials, conference papers and presentations, and learning objects.*

Initially, we focused our energies on data remediation, normalization, and schema development for the sources of bibliographic records that we had targeted in earlier phases of development. Merging complex data sources (e.g., various data structures and differing document types) while attempting to keep our data structure simple and flexible proved to be a challenging undertaking. An initially overly flat data schema limited the number of records we were able to import and store from our primary sources (PubMed and WorldCat). In response, we developed, in consultation with Jim Safley from George Mason University, a more sophisticated bibliographic schema that includes field maps for all document types in PubMed and WorldCat so that we are able to import all relevant document types. Within WorldCat, for instance, we now are able to harvest records for videos and films, audio materials such as podcasts, archival materials, government reports, legislative materials, legal case materials, and book chapters. Some of these records are for materials previously included in the OAIster database.

Related to this, we revised our code extensively to ensure that records previously loaded into EthicShare would be updated if they were altered in their original location. For example, when PubMed records are created they are often lacking Medical Subject Heading terms, but we harvest those “temporary” records to ensure that our database is remaining current. Once the records are fully indexed and updated in PubMed, our system is now triggered so that our records represent the same, updated data.

We have also greatly expanded our collection of popular news sources. Currently, our “Ethics in the News” section has been expanded to include records and links for articles in the New York Times, LA Times, Washington Post, BBC News, National Public Radio (NPR), ProPublica, Time, Wired, and Chicago Tribune. The full text of these materials is available initially through the publisher’s homepage (when possible). When the time-limited free public access to these materials ceases, we provide the full text, when available, through our “library link” resolver service. This tool, which is in operation for the entire database, connects users to their own institution’s licensed copy of the article.

Blogs are also an increasingly relied upon form of communication for those working within practical ethics. There are about a dozen well respect “ethics” bloggers who are followed by scholars in the field. We implemented a collection of ethics related Blogs: Each day, our “Blogging Ethics” section is automatically updated to include all the posts from the blogs that we harvest. We create records for each post and send users to the actual blog site for the full text content.

To make the collection more accessible, and in response to user requests, we added the “Saved Search” functionality. The result is that any search that is conducted in EthicShare can be “saved.” Saved searches are then repeated at various intervals (daily, weekly, monthly) and email alerts are delivered to their creator. The feature appears to be providing great benefits to scholars. For example, at the University of Minnesota’s Center for Bioethics, weekly tracking of new bioethics articles was previously done by hand by a research assistant who combed the relevant bioethics journals and then alerted each faculty member. Now, using the “Saved Search” feature, individual researchers (or their assistants) can craft specialized searches within EthicShare and information about relevant, new articles is sent to the scholars automatically via email. We are in the process of crafting general saved searches that users can subscribe to (e.g., for the top 5 scholarly journals, for major topic areas such as stem cell research, etc.).

*B. Implementation and promotion of new scholarly networking features, specifically through expanded user directory and profiling mechanisms and recommendations leading to the identification of experts.*

As mentioned above, to achieve this goal, we determined that the most efficient option was to upgrade our underlying content management system from Drupal 5 to Drupal 6. The user directory was updated to allow registered EthicShare users to create profiles for themselves that include areas of expertise and interests, while also allowing them to save institutional affiliation information alongside their personal information. EthicShare’s users, whether logged in or not, can now search the User Directory. The entire directory is indexed so scholars are findable by name, institution, or interest area.

We also implemented the Jobs section. “Jobs” allows registered users to post open positions and contact information. The functions for searching or browsing job postings are open to anyone. Users can also subscribe to receive emails about all new job postings. We designed the Jobs feature based on our users’ input: the feature was identified during user focus group sessions and, when implemented, usability testing was conducted to ensure it met user needs.

*C. Development of new mechanisms for user contribution and participation allowing subject matter experts to participate in the development of the collection, tools, and features on the site.*

This goal was one of our highest priorities for the grant period. Although the collection of harvested bibliographic citations is substantial and on target with ethics scholars’ needs, it isn’t comprehensive. Nor does it include grey literature, nor teaching resources. Given this, we have added the functionality for users to add records and materials directly to the EthicShare database. This development item was a major effort

that required extensive planning, usability testing, design work, infrastructure changes, schema alterations, and coding. Because of this, we launched this feature in early 2011 (just shortly after the official grant period ended) and are not yet able to report on adoption of this service. We allow users to create bibliographic records and upload files of journal articles, books, book chapters, websites, syllabi, lectures, presentations and more. When the full text is not loaded onto the site, our library link feature will direct users to the licensed full text or locally owned copy.

For this feature, users must affirm they have the legal right to upload the materials (as stated in our user submission policy). In return, we will preserve their materials on EthicShare. We have created a mechanism to route users to Creative Commons, <http://creativecommons.org/>, thereby assisting them in applying an open license to their works (when applicable).

*D. Large scale promotion of EthicShare through conference presentations, focus group sessions, targeted invitations, and online marketing of the site.*

We promoted the site extensively throughout 2010 via both targeted and broad-based efforts. At both the American Society for Bioethics and Humanities (ASBH) and the Association for Practical and Professional Ethics (APPE), we distributed materials in the exhibit halls and held focus group sessions. We also routinely sent emails to ASBH members, the Medical School of Wisconsin (MCW) listserv (which serves as an international forum for bioethics communication), and registered EthicShare users.

Near the end of the grant cycle, with confidence in the stability of the tools, functions, and data within the site, we began promoting the site on Facebook and Twitter. We also have advertising campaigns on Facebook and Google. These efforts have proven to be very successful. On Facebook, our ad has been shown to over 800,000 people and over 400 people have visited the site as a result. Google Ads has been even more helpful at exposing the site to new people. Our Google ads have been displayed to over 1.4 million people and we have gotten just under 900 visits to the site as a result. The impact of marketing the site has become increasingly apparent to us through both the rise in site traffic and the daily increase in user accounts. During this coming year, we are focusing our efforts on ensuring that our user community is fully aware of EthicShare's tools and features.

#### **IV. PLANS AND GOALS FOR THE UPCOMING YEAR**

We have significant developments planned for EthicShare's promising future.

## **A. New Features and Content**

We will update the “Collections” tab on the site to provide more specialized subsets of materials within EthicShare that can be revealed to our users. We will also create space for users to provide commentary around specific publications or issues that could have broad impact for teaching, etc. We will also explore the potential for new distribution vehicles and possibly publishing capacity within EthicShare as part of the University of Minnesota Libraries’ development of publishing infrastructure.

We will also undertake the investigation and planning for the development of a new module to expose relationships between experts and their publications. Similar work, also using Drupal, has already been undertaken on this concept by the Harvard University’s Open Scholars project [<http://scholar.harvard.edu>] The University of Minnesota Libraries is already engaged in this topic in many recent undertakings as well. We recently launched a Virtual Research Collaborative for the purpose of defining elements of successful virtual research sites; we will be building the virtual community aspects for the DataNet project; and we have created the “Profiles” site for Clinical and Translational Science Institute (which is soon expanding to other departments on campus) [<http://profiles.ahc.umn.edu/Search.aspx>].

We will expand EthicShare content acquisition to include materials from JSTOR and the National Library of Medicine’s Catalog. We also hope to serve as a platform for the official conference materials (e.g., abstracts, presentations) for the October 2011 ASBH Annual Conference.

## **B. Marketing and Promotion**

We plan to continue attending conferences, marketing the site on Google, Facebook and Twitter, as well as sending messages to our current user base about tools and features of interest. We will also continue to present EthicShare as a model for virtual research environments at relevant professional societies and conferences.

We will move toward social network marketing techniques by encouraging scholars to share their expertise on the site through the use of public folders and group posts, and then telling their colleagues about it.

Although there are challenges ahead, we have clear evidence of growing adoption of the site by our targeted user community. This momentum provides encouragement to continue our efforts with this virtual community environment for a humanities-based discipline.

## V. OPEN SOURCE CODE AVAILABILITY

All EthicShare source code is freely available under the terms of the GNU General Public License, version 2 (<http://www.gnu.org/licenses/gpl-2.0.html>). Because we implemented EthicShare by extending the Drupal content management system, the source code is in the form of Drupal modules. We have made these modules available via the Drupal community website at the following URLs:

- Citation module: <http://drupal.org/sandbox/nihiliad/1093578>
- Link Resolver module: [http://drupal.org/project/link\\_resolver](http://drupal.org/project/link_resolver)
- Organic Groups Folders: <http://drupal.org/sandbox/cfennell/1108632>
- Flag URL: <http://drupal.org/sandbox/cfennell/1108638>
- ApacheSolr 2.x EthicShare Advanced Configuration:  
<http://drupal.org/sandbox/cfennell/1095330>

In the future, we also may decide to distribute some or all of the source code via other public repositories. If we do so, we will document the location of those repositories at the above URLs. A full listing of all presentations and publications related to the EthicShare project can be found at: <http://www2.lib.umn.edu/about/ethicshare/docs.html>

## VI. FULL DOCUMENTATION

The proposals and final reports for all phases of the EthicShare project can be found on the project page at: <http://www.lib.umn.edu/about/ethicshare>

Additionally, information about the project staff, and links to presentations we've given are available there as well.