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# The Economics of Contribution in a Large Enterprise-scale Wiki

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**Abstract**

The goal of our research was to understand how knowledge workers use community-curated knowledge and collaboration tools in a large organization. In our study, we explored wiki use among knowledge workers in their day-to-day responsibilities. In this poster, we examine the motivation and rewards for knowledge workers to participate in wikis through the economic idea of costs to contribute.

**Author Keywords**

Collaboration; contribution, enterprise, wiki.

**ACM Classification Keywords**

K.4.3. Organizational Impacts: Computer-supported cooperative work.

**General Terms**

Design, Human Factors.

**Introduction**

Wikis are a technology that easily allows users to create and edit pages with a low technical barrier to entry and a social structure that supports collaboration, community, and governance. While research has shown there are similarities among user collaboration and sharing behavior across wikis, many interactions and

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behaviors are often context-dependent [6]. Studying wiki communities that go beyond the general knowledge that Wikipedia provides to more contextually-specific uses, such as enterprise wikis, can yield important insights to wiki use.

Although enterprise wikis use the same or similar technology and much of the user interaction and behavior is the same as Wikipedia [6] there are also a number of important differences. The purposes of an enterprise wiki are often different from those for public wikis like Wikipedia, for example, to support personal information management, small group projects, or capture enterprise-level knowledge [4]. Policies, procedures, and guidelines for contributing to enterprise wikis are often much different than Wikipedia and change the dynamics of the wiki community [2][5][6].

Motivation to contribute to enterprise wikis is different than Wikipedia, such as requiring authors to balance the cost of contribution to different work-related incentives [4][5]. Other work [1] found promotion and prevention as the primary motivational forces in enterprise wiki contributions.

While not a problem in Wikipedia, whose purpose is to share information with the public, enterprise wikis often experience challenges with the "openness" of content. Sharing information in general is often a new, cultural shift for an organization [4][5]. Organizations often launch wikis but then limit access to content [4]. In some cases, restricted access to certain content made sense, such as for financial information [2]. Some wiki software has security features that support multi-level access to content [3].

## **Methodology**

Knowledge workers (KW) in our study were responsible for analyzing and synthesizing information and producing reports that summarize their findings. Their use of the enterprise wiki was similar to the use of enterprise wikis in other research. KWs used the wiki to look up information about organizations, people, projects, as well as used the wiki as a collaborative workspace and to share information.

Interviews were conducted with 12 KWs (four female) about their use of wikis in their work processes. KWs had at least one year experience in their current knowledge working job and one year experience using the enterprise-level wiki. Interviews lasted approximately 60 minutes each and followed a semi-structured format and questions were guided by the following topic areas:

- Your role and responsibility at your organization
- Your day-to-day activities as knowledge worker
- Your experience using wikis for your job
- Your experience using wikis outside your job

Interview notes were analyzed using a Grounded Theory approach with two researchers iteratively coding 100% of the data with 92% inter-coder reliability.

## **Costs to Contribute**

The greatest influences on KWs' behavior, perception, and use of wikis were the motivation to contribute to the wiki. We describe these motivational influences in an economic context as costs to contribute.

### *Cost to Reputation*

KWs described several examples of how the risks of contributing to a wiki page outweighed the benefits of contributing. While contributing to a wiki page could establish the author as a subject matter expert, there is also a risk the information is incorrect and could negatively affect their reputations. This risk was even greater with unfinished content that may have incomplete facts or may be taken out of context.

The work-in-progress nature of wikis made KWs uncomfortable because they were used to sharing “finished” work and being responsible for what they publish. At minimum, the KWs’ personal reputation was at risk. A grave consequence would be a mistake that had reputational, financial, or personal repercussions. KWs work in an environment where the consequences of mistakes are higher than casual users and exercise more conservative behavior when consuming and contributing knowledge to a wiki. Ultimately KWs felt that they were responsible for the accuracy of the content even though wikis are a collaborative environment.

### *Cost of Conflict*

While there are many reasons for conflict in a wiki community the most commonly cited reasons for conflict by KWs were territoriality and ownership of content. Many KWs described a sense of ownership over content, especially when it comes to getting credit for creating and sharing information. At the same time they were sensitive to the fact that other KWs may “own” content and were hesitant to contribute to a wiki page that was not their own. There were few examples of KWs receiving credit for wiki contribution.

### *Cost of Opportunity*

In a time-sensitive work environment, KWs must choose with care what to do with their time. Many KWs did not get credit, or did not know if they would get credit for contributing to wikis. Only one KW described wiki contribution as an expected part of team collaboration. Several KWs were self-described wiki advocates and active wiki contributors, but it was unclear if their contributions were considered in their performance evaluations. Other KWs stated that they simply did not have time to contribute.

This perceived lack of time could be attributed to the fact that many KWs did not receive recognition for contributing to wikis. Without a formal reward system for wiki contribution, KWs were hard pressed to use time to contribute to wikis when they could use that time to do work they will receive credit for. This is especially true for technical and time-consuming hurdles such as learning wiki syntax that increase the amount of time it takes to contribute to a wiki and takes away from other reward-earning opportunities.

### *Cost of Security*

Some KWs did not know if they were permitted to contribute to a wiki, and if so, what they were allowed to contribute. This hesitation stems from the sensitivity and legal responsibility of sharing personal identifiable information (PII), financial information, and proprietary information. The enterprise-level wiki studied is a very large wiki community and sharing would mean KWs must give up control of information.

KWs felt accountable for the information they posted and were hesitant to publish anything they were not completely confident with. To control information for

security purposes, multiple wikis were established to support different compartments and different levels of security. As a result, KWs participated in a convoluted information sharing system with many wikis and fragmented context. Consuming and contributing to a wiki was more difficult in addition to the increased cost of opportunity for participating in the system.

### **Implications for Design**

Many of the costs to contribute could be addressed through informed design recommendations that can impact the way users interact and collaborate, create and consume, establish trust, and explore wiki content.

- A richer author profile system could increase trust in community-curated content by indicating the competency or authority of the information and help decrease the cost to reputation.
- Better metrics on contribution value or reputation could contribute to formal performance evaluations and help offset the cost of opportunity.
- The wiki should give users guidance on how the author would like to receive feedback about their content and help reduce the cost of conflict.
- Take advantage of plugins that allow word processors to convert text into wiki syntax to help decrease the cost of opportunity.
- In the case of KWs in a sensitive work environment, additional access controls are necessary to safeguard information and to help decrease the cost of security.
- Better information security mechanisms would reduce the need for multiple wikis and reduce the cost of opportunity during information seeking and disambiguation across multiple wikis.

### **Conclusions**

Although this early work describes the experiences specific to a single enterprise wiki, the lessons can be applied to many enterprise-level wiki communities. We provide a number of recommendations that could help mitigate these costs and improve the user experience of wikis. Future work includes continuing to interview KWs and to test our design recommendations on the enterprise wiki.

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