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# FROM SELF-INTEREST TO COMMONS: DISTINCT ASPECT OF SOCIAL BOOKMARKING SERVICES

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## Abstract

With web contents being generated and shared at an ever-increasing pace, a number of approaches to effectively control and retrieve contents have been developed. Social tagging is a widely implemented method for classifying contents resulting from the dispersed activities of users. Social bookmarking services (SBM) is a web service with the purpose of making information generally available on a shared basis. Accumulation of tags on SBM occurs mainly without inviting the collaboration of others, but on the basis of activities satisfying individual self-interest. SBM is in fact the optimal web platform utilizing the sum of such activities for the formation of commons.

**Keywords:** *Social Bookmarking Services, Information Retrieval, Metadata, Knowledge Sharing, Platform*

## 1 INTRODUCTION

More and more contents on the web are being generated and shared among users all over the world. They use web applications such as blogs, photo sharing services like Flickr and video sharing services like YouTube. Services and activities provided by these kinds of applications are generally referred to as social computing (Parameswaran and Whinston, 2007). Many people enjoy entries of blogs and watching video contents posted by someone unknown to them.

However, social computing cannot be effective without users contributing to the generation and sharing of web contents. Just how users come together in communities and how they make use of communal activities to make such platforms sustainable has long been an interesting topic. (e.g. Chiu et al., 2006; Law and Chang, 2008 ) User motivation is reflected in different designs of services and types of contents to share. Much research focusing on participant motivation has been conducted on a number of platforms such as in social networking services (Hu and Kettinger, 2008; Boyd and Ellison, 2006), photo sharing services (Nov and Ye, 2008), movie review sites (Beenen et al., 2004), and so on.

Not only contents like articles, photos and movies but also metadata attaching to these contents are transacted and shared among users on social computing platforms. A tag is a kind of metadata which consists of a short text, i.e. "keywords", used to classify contents. A tagging system stands for the web service implementing function of using such tags (Golder and Huberman, 2005). While Golder and Huberman (2006) analyzed the flow of tagging activities and the effect of tags on changes in the popularity of contents, tagging is not only implemented for web services in this sense. For example, one source code annotation tool has been designed to allow tagging to contribute in collaborative software development (Storey et al., 2006). Social tagging has also been evaluated as an effective tool for collaboration. There is a case study where social tagging is used in an educational setting (Yew et al., 2006).

Social bookmarking services (SBM) is a form of web usage which allows users to attach comments to URLs and store them on a server on the Internet, instead of on local memory using the bookmarking function of browsers. While contents on most social computing services are created by individuals, SBM is a service where individual users store personal website links but access entire collections of these links created by users at large. As users can therefore share a diversity of websites, SBM is regarded not only as a communications domain, but also as a knowledge-sharing platform as such.

Let us review the nature of SBM under the following headings:

- User motivation to share and diffuse contents generated by others
- Purpose of use: a communications platform or a tool of information management
- Effectiveness as an information or knowledge management tool

## **2 ANALYTICAL FRAMEWORK**

### **2.1 Motivation to share and diffuse contents generated by others**

Most web contents are generated by individual users on platforms that embrace some aspect of social computing. Users may compose entries and submit new posts for blogs. Others may upload large numbers of pictures they themselves have taken. Users of these and other services wish to communicate with others through these kinds of expressions.

On the other hand, SBM is a tool with which to create a common store of references to websites. As many users may register the same URLs, most stored URLs do not point to contents created by any particular users themselves. Therefore, motivation appears to exist beyond the wish to communicate with others or simply express oneself among the general users of SBM.

### **2.2 Purpose of use**

SBM is a web service which is designed somewhat analogous to the bookmarking function of a private browser. Just as the browser's bookmarking function is used to keep a store of URLs for subsequent website access, SBM may be viewed as a tool to manage information on the web at large by way of storing URLs on the web.

There are some differences between SBM as a web service and the bookmarking function of a browser. First, stored lists of URLs are basically open to anyone. You can view lists of URLs any particular user has been storing, together with links to his or her account. You may also be able to profile user interests according to the portfolio of URLs he or she has recorded. While I made the point that the information accumulated on SBM is not directly generated by users themselves, SBM users can nevertheless express their views by their choice of URLs and they may add information to them by attaching tags and comments. Whether the function of SBM should be viewed as "personal" information management or as communication directed at others may be affected by user motivation.

### **2.3 Effectiveness as information or knowledge management tool**

If SBM is regarded as a tool, no one will propose to use it unless it is more convenient than the bookmarking function of a personal browser. In fact, one of the convenient functions SBM offers is data portability. Users can access their own URL lists anywhere they are connected to the Internet. SBM also offers some other functions which differentiate it from PC-based bookmarking. Most of these functions rely on the sharing activities of users. In the next section I shall address some of the specific features of SBM. Do these features allow us to conclude that users are engaged in the management of information? The answer will determine the characteristics of SBM.

### 3 CHARACTERISTICS OF SOCIAL BOOKMARKING SERVICES AND TAGS

As referred to above, SBM incorporates a tagging system. Tags are used to classify stored URLs. When a tag is issued, a link is automatically formed with the respective list of URLs it relates to. By tagging, the respective contents to be saved will be grouped and classified. Tags are being used in a variety of areas for this classification purpose.

When organizing files and data on a PC, we create folders and classify them in directories. When classifying the folders, understanding their place in the hierarchy of the directory is a prerequisite. If the hierarchy is not understood properly, it will be difficult to search later (Marlow et al., 2006) and if multiple folders are created without regard to hierarchy, it will be difficult to locate them subsequently (Jones et al., 2005). On the other hand, SBM requires no hierarchy among URLs classified with tags and there is no need to recognize relationships among tags. Users can search URLs with tags directly by searching on words, i.e. keywords. In other words, users can easily “appropriate” the methods of classification of other users by using their tags. There is some research about SBM in enterprise knowledge management illustrating this point (Millen et al., 2006).

Vocabulary used for tagging on SBM represents the “categorization” requirements of the users. Hence, collections of tags can be viewed as a reflection of their preferences. In other words, they indicate and visualize the information management system of a given user. Based on these concepts, a “folksonomy” has emerged, i.e. a kind of non-hierarchical classification system developing bottom-up from an initially flat namespace. (Mathes, 2004).

From the beginning, the purpose of aggressively utilizing tag groups and developing classification systems as folksonomies was to establish an information distribution system. Using tags generated by others for searching websites may encourage users to generate tags not only for themselves but also for others. In other words, sharing tags supposes collaboration among the user community.

### 4 RESEARCH METHOD

Examining the nature of SBM on the basis of the three aspects referred to above, a range of qualitative surveys exist, from interviews (Ames and Naaman, 2007; Thom-Santelli and Muller, 2007; Thom-Santelli et al., 2008) to the analysis of performance tags (Zollers, 2007). We conducted our own quantitative survey of SBM users in order to obtain more robust inferences. The survey was designed to analyze user motivation and to show just how participants use the service and metadata generated by other users. The survey was conducted for users of the Japanese SBM, “Buzzurl”.



Figure 80. Buzzurl Top Page

The survey of Buzzurl users was conducted in May, 2007. We invited “active users” of Buzzurl via email to fill in and return a specific web survey form. Active users were defined by the following criteria:

- having registered a total of more than ten URLs with more than 10 tags attached
- having registered more than one URL in the one month leading up to the survey

While 258 users qualified by these criteria, 78 of them (30.2%) returned the completed web questionnaire.

## 5 RESULTS OF ANALYSIS

### 5.1 Reasons for using SBM

Table 1 shows reasons for using the social bookmarking service. Nearly 90% of subjects answered they use SBM for personal information retrieval. Choices relating to communication with others came to less than 20%. Few users were motivated to share or diffuse contents generated by others.

	%	N
total	100	78
retrieving personal information	89.7	70
sharing information with friends and relatives	15.4	12
attracting other users with posted URLs	19.2	15
other reasons	5.1	4

Table 27. *Reasons for using SBM*

### 5.2 Reasons for attaching tags

Table 2 shows reasons for attaching tags. Nearly 70% of the subjects stated as their reason “classifying and ordering URLs” or “making it easier to search same sites later”. While individuals themselves generate tags for information management, the intention of attaching tags is not primarily related to communication among users.

These results indicate that SBM may be regarded as a tool for information retrieval. Most users appear to be motivated by personal utility, using SBM mostly as a tool for information management and not for communication purposes in the sense of other social computing platforms.

	%	N
total	100	78
classifying and ordering URLs	71.8	56
making it easier to search same sites later	69.2	54
keeping site evaluations	33.3	26
maintaining tasks or plans related to sites	15.4	12
leaving messages for authors of sites	14.1	11
other purposes	0.0	0

Table 28. *Reasons for using SBM*

### 5.3 Uses of information generated by others

Examining the uses of information generated by others (Table 3), we found that participants in the survey utilized information collected on SBM in a number of ways. More than 35% of the subjects answered they use popular bookmarks lists and nearly 25% of them indicated they refer to the tag clouds of all users. Given these facts, we can assume that a significant number of users make reference to the aggregated

activities of others. Some 28% of the subjects use SBM to link responses made by other users to their own sites. At the same time, 11.5% of the subjects browse URL lists assembled by their favorite users.

We realize that there are a variety of ways of making use of SBM and that only less than 20% of the subjects never utilize information registered by others. In other words, most users make mutual use of information generated by other users.

	%	N
total	100	78
accessing popular bookmark lists	35.9	28
accessing whole user tag clouds	23.1	18
searching URLs	33.3	26
searching tags	28.2	22
attaching tags of other users to own sites	33.3	26
attaching comments of other users to own sites	28.2	22
accessing URL lists with postings similar to own	24.4	19
browsing URL lists of others	11.5	9
others	0.0	0
never referring to URLs and annotations of others	19.2	15

Table 29. *Uses of information generated by others*

#### 5.4 How SBM is used

The data gathered in the quantitative survey of users of Buzzurl allows us to make certain assumptions as to the motivation and attitudes of the subjects toward SBM.

- **Users treat SBM as a tool for personal information retrieval and management.**  
While some users are interested in the responses of other users to existing URL lists, SBM is primarily regarded as a repository of information gathered on the web. This aspect makes SBM different from other social computing platforms.
- **Few users communicate with others on SBM, which works as a tool for individuals.**  
Even though some users are interested in the activities of others, the majority utilizes the annotating function to increase the efficiency of managing their own information. So SBM users rarely tend to accumulate URL lists and annotations for others. It can therefore be said that the utilization of SBM is not directly related to actual communication.
- **Users make use of metadata generated by others.**  
Nearly 80% of subjects using SBM answered that they refer to annotations and URL lists posted by others. In short, data accumulated on SBM helps individuals with information retrieval and knowledge management.

## 6 CONCLUSION

Our survey shows that SBM is, in fact, regarded more as a knowledge management tool than a communications platform. Even though the function of SBM is to rationalize management of one's own personal information, many users make use of information available thanks to the activities of others. In this regard SBM differs from other social computing platforms such as SNS and photo sharing sites. The particular features of SBM may open up distinctive mechanisms of diffusing benefits among users. The analysis of what exactly triggers specific patterns of use and benefit on SBM while building loyalty to such platforms ought to reveal important elements of architecture where users come to form communities and collaborate to build commons.

It should be noted that the survey for this paper was conducted in the early stages of the Buzzurl service, after having been running for only some 16 months. The number of people who used SBM in Japan in early 2007 was still small. However, people who used SBM early on were perhaps already very interested in web services or had reason to deal with a vast amount of information on the web. Since that time the number of SBM users has been increasing quite markedly. What is now needed is an analysis of the effects of this increase.

Besides user motivation, several other aspects of SBM require analysis. Even though our survey shows that users refer to information collected by others, the effectiveness of these collections for individual users must be determined. Further qualitative surveys like interviews or observation of service usage would assist a detailed analysis of both user motivation and benefits of SBM. Whether sharing annotations of websites enables users to handle information more effectively as hitherto must be taken into consideration when evaluating the architecture of platforms like SBM.

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