A Survey of Revenue Sharing Social Software's Systems

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ABSTRACT

In this paper we survey 21 different revenue sharing social software based websites and analyze the approaches that these websites have taken in sharing its revenue. We investigate the revenue sharing algorithms if they are disclosed as well as outline the anti-fraud mechanism implemented by these websites to avoid forgery. The sudden emergence of revenue sharing websites shows the importance of user generated content and the users who play a major role in the success of social software websites.

Categories and Subject Descriptors

H.5.3. Group and Organization Interfaces: Web-based interaction, D.m [**Software Psychology**]: *social software*, *user contribution measurement and algorithms, contribution motivation.* J.4 [**Economics**]: *revenue sharing*

General Terms

Algorithms, Measurement, Economics

Keywords

Social software, revenue generation, revenue sharing, user contribution, fraud detection, anti-fraud, motivation, websites

1. INTRODUCTION

Dron (2006) defines social software as, "*software that allows individuals to collaborate, groups to self-organize and communities of individuals to evolve into an emergent structure*" [4]. In simpler words it could be treated as software that helps people to socialize online, form groups and allows for democratic approaches to the generation of online content e.g. *Wikipedia*, *MySpace*, *YouTube* and *eBay*. In contrast to Dron's definition, Shirky's (2003) definition is much broader and suggests that social software encompasses "*software that supports group interaction*" [5, 11]. Based on this definition social software would include e-mail, instant messaging programs and chat programs, which allow for real-time (synchronous) communication between people and groups of people online as well as offline collaborations like *MeetUp* and *nTag*.

Based on these definitions we can identify that one of the key characteristics of social software includes people that participate in an online (or offline) community. Other than people, another important characteristic of social software is that it can experience rapid growth and popularity by allowing its users to create content e.g. YouTube, a video sharing portal is renowned as the fastest growing website in Internet history [14]. This kind of active participation by end users in generating content for a website is referred to as *user generated content* (UGC) and can include items such as comments, articles, reviews, songs, pictures and videos etc. [13]. What we can understand from these examples is that the success of any social software or social service depends on the contributions made by the two key entities; the *infrastructure provider* and the *content provider*. The infrastructure provider provides the platform for a society to emerge and develop where as the content provider provides the content to add richness to the society. However, providing a strong and robust infrastructure comes at a cost and the infrastructure provider may require sources of revenue to sustain the online community.

Currently social software based websites rely on one or a combination of the following sources of revenue; advertising, membership fees, affiliate programs, donations and selling merchandise, to recover costs and to possibly generate a reasonable amount of profit [1]. While the infrastructure provider generates revenue it would be reasonable to expect that some share of the revenue is passed to the active content providers for their efforts. The term *revenue sharing* refers to passing on revenue, received from the revenue generating models mentioned above, to the users that have helped generate that revenue. Some sort of contribution ranking scheme is required to identify how much revenue should be passed on to each contributing user. Implementing a revenue sharing model can not only be seen as a motivator to attract new users but also to encourage repeat usage from existing users and possibly increase the quality of UGC so users can be ranked more favorably in terms of their contribution [7, 12, 15]. The main aims of this paper are to survey existing revenue sharing based social software websites and study their revenue sharing model if publicly available. The paper is organized as follows. Section 2 surveys 21 different social websites. Section 3 examines the issues with revenue sharing and Section 4 concludes the paper with future directions.

2. SURVEY OF REVENUE SHARING SOCIAL SOFTWARE

In this section we survey 21 social software website that share revenue with their users. Table 1 outlines these 21 social websites and lists the type of revenue being shared and the type of content that is contributed by the user community. We now review a sample of revenue sharing social software websites and briefly outline their revenue sharing approach, their user contribution measurement model and their anti-fraud mechanisms to avoid malicious attempts to manipulate revenue.

Table 1. List of revenue sharing social software websites

Social Software Website	Type of Revenue Shared	Type of Content
Broadband Sports	Advertising	Video
Dada.net	Advertising, member referrals	Profile, blogs, videos, photos, audio, forum
DigitalJournal	Advertising	Blogs
DotNetKicks.com	Advertising	Stories
Flixya	Advertising	Videos, photos, blogs
GroundReport	Advertising	News articles
HubPages	Advertising	Profile, hubs (webpages)
myLot	Advertising	Profile, blogs, discussion, news
Ning	Advertising	Community
odiogo	Advertising	Blogs, audio
Pooxi	Advertising	Video
RateItAll	Advertising	Topics, weblists
Revver	Advertising video referrals	Video
SharedReviews	Advertising, content distributors	Reviews, votes
Shvoong	Advertising	Essays, articles, abstracts
SPYMAC	Advertising member referrals	Videos, pictures, audio
thisisby.us	Advertising member referrals	Articles, comments
Videoegg	Advertising	Video
Vizu	Market research	Surveys / polls
Yuwie	Advertising	Profile, blogs, picture
ZippyVideos	Advertising	Video

2.1 *Flixya.com*

Flixya allows users to share their videos, photos and blogs. Users are required to specify their Google Publisher ID (GPId) so that the *Google AdSense* advertisements displayed on the webpage containing their uploaded content will be linked to their account. This results in the user receiving 100% of the revenue from advertisement views and clicks on pages containing their content. *Flixya* relies on *Google AdSense* for its fraud detection so users will not click on their own advertisements or repeatedly click on their friend's advertisements to generate fraudulent revenue. Fraudulent activity from users, if detected, will likely result in the termination of their *Google AdSense* and their *Flixya* account.

2.2 *Dada.net*

Dada.net is a social software portal that allows users to share videos, photos, audio files and to participate in forum discussions. Users are also required to specify their GPId, which is used to display advertisements on their profile page, blogs, videos, photos, audio files and forums as well as on pages of other users that they have invited to *Dada.net*. Rewarding user referrals is an excellent approach to increase the growth rate of a social software user population. The revenue sharing approach and fraud detection method is similar to *Flixya* but it is not clear how much is paid for each referred member.

2.3 *SharedReviews.com*

SharedReviews.com is a website that allows users to post reviews on products. Users are currently receiving $10 for every 5 product reviews that have been approved by *SharedReviews.com* and up to a $100 per person for the BETA phase. Since the reviews are filtered by *SharedReviews.com* before posting it, its authenticity can be questioned. It may have been better to allow users or visitors to decide which reviews should be approved or rejected based on polling. Its revenue sharing model will be revamped when the website is officially launched and user payments will be distributed on a monthly basis. The product reviews generate revenue through advertising and from content distributors. 50% of the advertisement revenue is shared with the user community which is then evenly distributed to reviewers and users that have voted for reviews. There currently appears to be no fraud detection and management features implemented in *SharedReviews.com* to handle the issue of users creating multiple accounts and voting for many reviews to generate additional revenue.

2.4 *thisisby.us*

thisisby.us inspired by *del.icio.us* (as far as the domain name goes), is a social software website that promotes excellent writing in regards to news, opinions, how-to's, humor, politics, technology and many other subject areas. Revenue is generated from advertisements and 50% of this revenue is distributed to article writers, 10% is distributed to members that write comments on these articles and users can also earn up to 5% of the amount eant from their referred member's articles. Each day the site owner credits half of the advertising revenue to users. *thisisby.us* employs a contribution point system which they have termed as a user's *goodness rating*. A user's all time goodness rating is the result of $(1 + views) * votes$.

2.5 *Yuwie*

Yuwie is a social networking website that generates its revenue through advertising. Revenue is shared through *page views* which refer to the number of times an advertisement is viewed on a user's profile, blog, pictures or shared layouts. Interestingly, advertising rates on *Yuwie* are not based on how many times an advertisement is clicked but rather the number of times it is viewed (impressions). As a fraud detection measure, excessive advertisement clicking can result in the termination of a user's *Yuwie* account.

2.6 DotNetKicks.com

DotNetKicks.com is a community website that allows users to submit and review .NET related stories. This website generates revenue through advertising and allows the story creator to

specify their GPId in order to receive a portion of this revenue. For 50% of the time, the site's advertisements are displayed and the story creator's advertisements will be displayed for the other 50% of the time on their stories. *DotNetKicks* does not implement a user contribution measurement approach and only rewards the story creator and themselves through *Google AdSense*. Therefore revenue is not passed on to other users that review, vote and comment on other user's stories.

3. OPEN ISSUES WITH REVENUE SHARING MODELS

The survey conducted in Section 2 has brought to light several open issues with implementing revenue sharing models within social software websites. These issues are now discussed in detail.

3.1 User Contribution Score (UCS)

[15] defined and tested an expectancy-theory framework that implemented a set of reinforcement constructs to identify how extrinsic incentives (i.e. money, gifts, social recognition and feedback) could alter a person's performance and contribution. The ability to measure and apply reinforcement constructs is referred as *feedback*. In order for a social software provider to achieve feedback, it must decide upon and implement a model to measure UCS. This becomes increasingly important for social software providers that share a portion of their revenue with their users to ensure that users are rewarded fairly. For example, a user that provides valuable contributions to the social software website should be rewarded more than a user that has provided less valuable contributions. When tactfully implemented, reinforcement (i.e. revenue sharing) can strengthen contributors existing attributes of self-efficacy, intrinsic motivation, desire to achieve and trust [12]. For example, *Spymac* is social software website that allows users to upload pictures, videos and audio files. This website runs a competition to reward users that upload popular and interesting content with daily and monthly jackpots. *Spymac* identifies these users by employing a *complex user contribution ranking algorithm* that evaluates several factors including: the user rating, amount of comments they receive their on their uploaded content, amount of views and the amount of advertising revenue that the user has help accumulate for *Spymac*.

3.2 Fraud Detection and Prevention

If UCS techniques are implemented; the social software website providers are likely to inform the users on how they can increase their UCS. This is beneficial for not only the user to increase the amount of revenue that they stand to receive but also the social software provider to encourage users to upload more quality content. Secondly the social software provider may wish to direct the website content in a particular direction. e.g. length of reviews should at least be 200 words or users should invite at least 5 users before they can participate in revenue sharing. The UCS parameters are required to be disclosed so that the community is aware of what is allowed and what is not. This is in stark contrast to search engine providers that do not disclose their search and page ranking algorithm where webmasters have to test numerous search engine optimization techniques in order to gain a higher website page rank. However, social software can be viewed differently because it aims to develop a community and the community may only develop if it knows how it can benefit. This follows the concepts laid in Digital Ecosystems. The user

community will not want to spend too much time and effort to test and understand the UCS algorithm when they could utilize another social software website that explicitly educates them how to maximize their contribution score. This dimension to social software is a major security issue and developing anti-fraud solutions for social software websites is a big challenge.

With the knowledge of UCS algorithms, users may attempt to exploit user contribution measurement techniques to unfairly attain higher contribution scores. For example, *SharedReviews* allows users to post reviews on goods and services and passes on the revenue to the review contributor and the users that have voted for reviews. However, *SharedReviews* users that have this knowledge may be able to create multiple accounts and vote for as many reviews as possible in order to accumulate more overall revenue. *GroundReport* manages fraud by disabling user accounts and forfeiting all their earnings if posts include false, pornographic, plagiarized, hateful or copyright-infringing content. This is a good approach to punishing fraud but the difficulty lies in developing and employing a robust approach to detect fraudulent behavior. It is important that fraud detection approaches are implemented to ensure that users are rewarded fairly for their contributions. Rewarding users that engage in fraudulent activities to gain a higher contribution score is undesirable. This could possibly lead to a decline of social software activity if users begin to notice that other users are obtaining more contribution rewards for fraudulent activities that go unpunished.

3.3 User Contribution Motivation

If users are paid for uploading content or writing articles, then they may do so in a bias manner to gain maximum rewards and possibly be entirely motivated by the monetary rewards. [12] argue that extrinsic rewards can either be controlling or informative. If rewards are controlling, then intrinsic incentives such as community citizenship, generalized reciprocity, moral obligation and pro-social behavior become crowded-out by the extrinsic incentives. If the provider ceases to reward the users then individuals may stop contributing because they value monetary reward over intrinsic rewards. However, if rewards are more informative (i.e. T-shirts given to the top 10 contributors) then users may feel more appreciated and motivated as the community acknowledges their efforts. Interestingly, a UCS model that can predict the potential contributions of user participation activities can encourage further user motivation and contribution [9, 12]. Additionally, further evaluation of a framework that details 14 social software motivational factors can be further evaluated to encourage active user contribution [7]. *Motivating* user contribution is important for social software websites with a modest user population. Research has indicated that a critical mass of content and participation is desired to achieve active interaction from existing social software users and to also attract new users [2, 8, 17]. *Critical mass* is a term to define a community that has achieved a large enough contributor base that can sustain the needs of its contributors and *lurkers* (visitors / content consumers that do not contribute) [12]. Having too few contributors can result in insufficient interaction and can result in the loss of interest by contributing users [8, 12].

3.4 Copyright Infringements

Most social software websites specifically detail copyright issues and guidelines for users to abide by. A main concern with copyright from a UCS and revenue sharing perspective is that there may be users who post copyrighted content and receive revenue from this. If permission is received by the poster from the content author then this is acceptable as the content may be relevant to the topic of discussion. However, it is difficult for the social software provider to track the communication of these permissions and its authenticity. Another possible issue is deciding whether it is acceptable for content to be duplicated by the content owner on multiple social software websites to obtain multiple revenue sharing streams. Interestingly, *YouTube* have announced that they will be implementing a revenue sharing model that will reward their users for their uploaded videos. Additionally, users will also be charged for using copyrighted videos clips and music on their videos [3, 6]. Reactively, *GroundReport* and *Spymac* have firmly stated in their *terms of use* agreement that users who post copyright-infringing content will have all their earnings forfeited and their user account will be deactivated.

3.5 Moving towards revenue sharing

Another major issue with revenue sharing is, *what would the existing social software websites do if they wanted to change their revenue model or adopt revenue sharing?* This is an important question to answer, in particularly for highly popular social software websites that currently do not implement a commercial form of revenue generation such as *CiteULike*, *Wikipedia* and *del.icio.us*. How do we determine user contributions for social software websites that do not currently incorporate a revenue sharing scheme? This is a challenging question to answer.

4. CONCLUSIONS

In this paper we surveyed 21 different social software websites which share part of their revenue with its users. We studied their UCS models, fraud detection and prevention techniques and raised some interesting questions that should be addressed in the near future to help these social software websites become more robust and reliable. Currently our team is developing a UCS for web-based discussion forums with anti-fraud mechanisms.

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