

Survey on Governance of User-generated Content in Web Communities

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ABSTRACT

Web communities court for the users' favor. Maintaining a high quality of the user-generated content is a foundation of a healthy and flourishing community. In order to maintain this quality, the community platform needs governance. Governance of a web community can be understood as steering and coordinating the activities of community members. This includes viewing and reviewing of already existing content but also limitations for creating and sharing new content. In this paper, we systematically review successful web communities for creating and sharing user-generated content. To this end, we have grouped the communities into the following four categories: Social Media, News, Social Reviewing, and Social Networking, we have chosen the five most prominent web platforms from Alexa Page Rank. For our survey of these platforms, we have analyzed the functionality they offer for governing the user-generated content. The result is a description of best practices for governance of user-generated content in different categories of web communities.

Categories and Subject Descriptors

H.5.3 [Information Interfaces and Presentation]: Group and Organization Interfaces—*Collaborative Computing*; H.1.2 [Models and Principles]: User/Machine Systems—*Human information processing*

General Terms

Governance, Web Community, Rating System

1. INTRODUCTION

Some web community platforms are more successful in attracting users than others. Being at the right time with the right idea and providing attractive services is surely essential for running a successful community platform. However, there are further factors that influence the prosperity of a community platform. Among them is the quality, interest-iness, and attractiveness of the available user-generated

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content [4]. Keeping a high quality of the user-generated content is a foundation of a healthy and flourishing community platform. In order to maintain this quality, the community platform needs governance.

In this work, we consider a *web community* as a group of people that share a common purpose and interact with each other through a community platform [7]. Members of a web community interact with each other either directly through the community platform by personal communication or in discussion threads. Indirect interaction is performed when one user consumes content that was uploaded by another user or several users are collaboratively editing a wiki page.

Governance is defined as the task of steering and coordinating actions of collective actors and managing the interdependencies of these actors [1]. Governance of web communities that produce user-generated content therefore encompasses tasks of steering and coordinating the actions of members of the web community. The focus of this survey lies on governance that is performed or supported by members of the community. Other means of governance and methods for governance [6] such as law or terms of use are out of the scope of this paper. The result is a summary of best practices for governance of different types of web communities or content.

In the next section, the method of the survey is explained with emphasis on selection of surveyed community platforms, community types, scope of the analysis and analyzed criteria. Subsequently, in Section 3 the results of the analysis are presented, grouped by different types of community platforms. Section 4 summarizes the results across all community platforms. Finally, we conclude the paper in Section 5 and give an outlook on future research.

2. METHOD OF THE SURVEY

In this section, the method of the survey is presented. Firstly, we explain how the most prominent web communities that are considered in this paper were determined. Subsequently we present the four different types of community platforms. Finally, we define the scope of the analysis followed by a detailed description of the analyzed criteria.

2.1 Selection of Community Platforms

Goal of this survey is to analyze prominent web community platforms for their implemented means of governance. Thus firstly, a criterion for measuring prominence needs to

be defined. Prominence can be measured using the Alexa Page Rank¹ that is calculated using a combination of average daily visitors and page views over the past month. From the top 250 sites we have chosen these sites that offer community functionality. In order to broaden the scope of the analysis by reducing the dominance of specific types of web sites we grouped all chosen platforms in four categories according to their dominant purpose. These four community types are described below. From each of the four categories, we include the five most prominent community platforms for our survey.

2.2 Community Types

Web communities that allow the creation of user-generated content have different foci of the functionality they provide. The reason for this are the different goals of the platforms and the different types of content. In order to ensure variety among the chosen platforms in this survey, each of the following community types is equally represented.

Social Media is the most obvious category of web communities that allows generation and sharing of user-generated content. In Social Media platforms, user-generated content is the most important concept. Although additional functionalities like social connections exist they are centered around a specific type of content like forum postings, photos, videos, or articles. Based on the way how singular content items are created within the community, we can distinguish three subcategories: (1) Collaboratively created content has no single creator but is created, modified, and improved by different users (e.g., Wikipedia²); (2) Non-collaboratively created content has one single creator who is responsible for it (e.g., Flickr³, Youtube⁴); (3) Interactively created content documents the communication of different users (e.g., the Question/Answering Platform “Answers”⁵). Since the platform Answers is the most prominent web community of the subcategory (3), but not among the five most prominent platforms of the type Social Media we have added this platform as an additional sixth community of this type to our survey.

Editorial News platforms are not primarily focused on user-generated content. The main content is created by professionals and provided by the platform itself as articles or multimedia content (e.g., Yahoo! News⁶, msnbc.com⁷). Nevertheless user-generated content is an additional functionality that allows the consumers of the edited content to actively participate in discussions and to provide feedback.

Social Networking platforms allow users to express social relationships like friendship and to engage in interaction with other users. Also, these platforms allow for providing status updates of users. In these processes, multiple types of user-generated content are created that are visible to other users.

¹<http://www.alexa.com/help/traffic-learn-more>

²<http://www.doodle.com/uzswt8vhqu96r9t6>

³<http://www.flickr.com/>

⁴<http://www.flickr.com/>

⁵<http://www.answers.com/>

⁶<http://news.yahoo.com/>

⁷<http://www.msnbc.msn.com/>

Social Reviewing functionality in platforms allows community members to express their opinion about a service or product. Typically, user ratings consist of a rating score and a review text. We do not restrict this category to platforms with focus on Reviewing. We also included eCommerce platforms like eBay⁸ or Amazon.com⁹ since their community related functionality comprises reviewing functionality.

2.3 Scope of the Analysis

Goal of this survey is to analyze the means of governance of web communities that involves user participation. Therefore, this survey comprises means of governance that can be accessed through the user interface and its effects on the user’s perception of available user-generated content.

We do not have access to the source code of the community platforms nor detailed information about the internal organizational processes of the platform owners for governing the content of the platform. Thus, this survey is limited to means of governance that are available to the ordinary community member. Internal and hidden governance by community owners, e.g., through moderation by paid employees, is out of the scope of this survey. Also effects of governance that influence the perception of content in a non-transparent way, e.g., scores for “relevance” or “popularity” cannot be identified without internal knowledge and are therefore out of the scope of this survey.

In some platforms users can express and describe themselves by creating a profile page. Especially in platforms of the type Social Networking, it is an important functionality to express social relationships to other users. Although these functionalities can also lead to user-generated content that should be governed, these aspects are very specific to certain types of platforms. Therefore, they are not considered in this survey that analyzes differences and similarities among a broad variety of community types.

Different platforms offer complementary functionalities, e.g., question answering and microblogging. An integration of these platforms and the available content is possible. Since the extent of integration is neither fully transparent to the user in every aspect nor allows governance across the platforms, only content and governance of the focal platform is considered.

2.4 Analyzed Means of Governance

Governance may be performed through direct intervention of the community platform owner. The owner may use automated spam detection [3] or he may pay professional administrators to review the content. Another means of governance is functionality of the community platform that allows members of the community to provide free support in reviewing the content through, e.g., abuse reporting systems, reputation systems [5, 2], or ranking of content based on user ratings. Based on this support the actions of all platform users are effected since the visibility of user-generated content changes according to ratings and user reviews. Users may also directly modify content that was created by other users if they are given rights to do so. For instance, in the

⁸<http://ebay.com/>

⁹<http://amazon.com/>

community platform Answers, selected users can be promoted to “Floating Supervisors” because they contributed valuable content in the past. These governance means which involve user participation are of particular interest as they allow to keep a high quality of user-generated content while at the same time they scale better with community growth than other approaches, e.g., professional administrators reviewing each content item. The result of governance is the steering of users actions. The consumption of content based on searches and ranking of available content is also a user action. So ranking criteria are relevant in the investigation of governance since they influence which content is visible to the user and what is beyond the perception of users.

However, there are examples where governance is performed on top of the existing functionality but without special functionality. In these cases there is an established agreement within the community that assigns specific parts of the content a special function. As consequence an emergent behavior can be observed. Examples for this type of governance are special voting and discussion pages in Wikipedia which receive their importance from administrators, who act according to the collaboratively created results.

The following paragraphs explain the criteria of online communities that are analyzed in order to survey the implemented functionality to support governance. Governance on the community platform is performed by community administrators and users through actions on user-generated content. These actions comprise reviews and ratings for user-generated content as well as direct actions on content like modification or deletion. Important influences on these actions are scores that are derived from reviews and usage statistics but also the way the content is presented to the users for consumption like ranked lists of search results and recommendations for viewing.

2.4.1 Content Assessment

Ratings. Ratings are means for users to express their opinion about content intentionally in an abstract way. Although users in general can be also rated in some platforms such functionality is not considered in this survey as we concentrate on user-generated content. The user opinion about a content item can concern specific aspects like quality, interestingness, or a mixture of all subjective relevant aspects in a single score (e.g., “like” rating). A rating can be expressed in a variety of different metrics. In the simplest case, the rating is expressed as a flag (“like”, awarding a “star”). Since there is only one option for the user to rate, these type of ratings are in the following referred as 1-rating. Another prominent case is rating as decision between a positive and a negative opinion (e.g. “like/dislike”, referred as 2-rating. In other cases more fine granular options are available, like for the popular 5-star rating. There the number of options is denoted in a similar way as 5-rating. Some platforms allow multiple ratings for different aspects of content, like “interestingness” and “novelty”. In these cases the multiple rating metrics are provided in a sequence, e.g. 1/5 for the combination of a “like” rating and a 5-star rating.

Text Reviews. Users can express their opinion about content items as text. Although an automated aggregation of these opinions is not naturally possible, a text allows the user to address aspects that are not predefined. Review texts are pieces of user-generated content themselves and therefore also subject to user supported governance (e.g., ratings).

Bookmarks. Bookmarks are a means of indirect rating. Although the intended purpose of bookmarks is to ease the access to subjective important content, a bookmark is also a statement of the user that expresses a positive opinion about the content item.

Abuse Reports. Abuse reports are different from normal rating. While the purpose of rating is to assess the quality while keeping the content, abuse reports have the goal to remove unsuitable content by flagging it as abusive content. Although this information is never displayed to other users it is an indication for the administrators of the platform to oversee the content and delete it, if it violates the terms of usage.

2.4.2 Content Selection and Ranking

When users consume content of the platform by browsing, searching, and viewing user-generated content they are affected by governance actions and their consequences. These influences are important since they affect the perception of existing user-generated content and therefore governance means like ratings and actions on content items. Influenced elements in the platform are ranking in lists and search results, or hiding of list elements. Especially the ranking can be influenced by users. Criteria for ranking of content items are ratings, creation time, number of views, number of replies or comments, and other scores. Other scores have names like “relevance” or “activity”. Their calculation can be based on different parameters and is often kept as secret. Therefore, their existence can be recognized only but they cannot be described in detail.

2.4.3 Content Modification

In web communities. users generate and manipulate content actively. But the actions of content manipulation are restricted by means of governance. Therefore, possible user actions within the platform can be influenced in different ways. Modification of existing content is one way of influence. Unsuitable parts or errors can be corrected by rewriting the text as possible in Wikipedia. Another means of direct governance is the ability for an owner of a content item to delete other users’ comments on this item. For example, in Youtube the owner of a video can remove comments on that video that seem inappropriate to him.

2.4.4 User Roles

The concept of direct governance can be further extended by assigning additional privileges to community members. These privileges are typically awarded to members who have proven active and trustworthy so that they are allowed to moderate other users content by moving it to an appropriate section or even by deleting unsuitable content. If such special roles exist they are indicated and explained.

3. COMMUNITY ANALYSIS

The following section presents the results of the survey on governance in prominent web communities. A summary of the surveyed functionality is given in Table 1. For each of the four community types Social Media, Editorial News, Social Networking, and Social Reviewing the most prominent community platforms are briefly described. Subsequently a comparison of governance functionality per community type is conducted.

3.1 Social Media

3.1.1 Overview

*Youtube*¹⁰ is a non-collaborative Social Media platform that allows users to upload and share videos. Specific videos can be rented, also advertisements are shown within the platform that is owned by the Google Inc.

*Wikipedia*¹¹ is a collaborative Social Media platform that hosts more than 3.6m encyclopedic articles containing text and other multimedia content. The service is mainly financed by donations to the Wikimedia Foundation that maintains the service.

*Twitter*¹² is a non-collaborative Social Media platform that distributes text messages of max. 140 characters, therefore it is also called microblogging service. No advertisements are shown to users. There is no information about sources for revenue.

*Flickr*¹³ is a non-collaborative Social Media platform that allows users to upload and share photos. It is currently owned by the Yahoo! Inc. and creates revenue with advertisements and fees for extended functionality.

*Craigslist*¹⁴ is a non-collaborative Social Media platform that allows for placing local textual advertisements. Although most types of advertisements are free for specific ones a fee is charged.

*Answers*¹⁵ is an interactive Social Media platform that allows to collaboratively formulate questions and according answers. Advertisements are shown to users. We included this platform as additional Social Media community to the survey since otherwise the type of interactive Social Media would be missing in the analysis.

3.1.2 Comparison

The comparison of different rating mechanism shows a great variety that has a range from no possible rating mechanism (e.g. in twitter.com) to a detailed rating that covers six aspects in Wikipedia. The user specific bookmarks are considered as form of rating. So every surveyed web community of the type Social Media has some means of rating functionality. In some cases (Youtube, Flickr) the rating score can be

complemented with comments as textual opinions. Except for twitter.com and Wikipedia every community allows to report abusive content. For Wikipedia, the absence of this functionality is compensated since every user can modify an article and erase unsuitable parts.

For presentation of user-generated content most platforms provide ranking by creation time and platform specific scores that indicate concepts like “interestingness” or “popularity”. Retrieval according to ratings is only available in Youtube and Wikipedia. Youtube also allows for ranking of videos according to the number of views while Answers allows ranking of comments according to replies. Youtube hides content from the user if the user rating of this content is below a specific threshold. Craigslist follows a similar approach for automatic deletion of content items, if they receive a defined number of abuse reports. But since the content is deleted and not only hidden, this functionality does not match that criterion.

Direct governance is implemented for all the platforms that allow comments on content (Youtube, Flickr). These comments can be deleted by the content owner. Two platforms (Wikipedia, Answers) allow for modification of content that was primarily created by other users. The same communities that allow modification also implement a variety of user roles. In the case of Wikipedia and Answers these comprise roles with additional rights for deleting content, prohibit modification, and management of other users (e.g., exclusion of community members). Whether this is only coincidence or a need for communities that allow collaboratively editing of content has to be analyzed for a bigger number of similar platforms.

3.2 News Community

3.2.1 Overview

*Yahoo! News*¹⁶ is an international portal that aggregates editorial news from various domains and allows for user comments. For financing the service advertisements are shown on the web site.

*msnbc.com*¹⁷ is a web site that aggregates English speaking editorial news content. The web site allows for user comments and presents commercial advertisements on the pages.

*ESPN*¹⁸ is an portal for English speaking editorial news focusing on sports. ESPN allows for user comments and shows commercial advertisements.

*cnn.com*¹⁹ is an international news portal for editorial content. Users can comment news articles. Commercial advertisements are shown on the web site.

*Spiegel Online*²⁰ is a German news portal for editorial content. Spiegel Online allows for user comments on articles and shows commercial advertisements to users.

¹⁰http://www.youtube.com/t/about_youtube

¹¹<http://en.wikipedia.org/wiki/Wikipedia:About>

¹²<http://twitter.com/about>

¹³<http://www.flickr.com/about/>, <http://www.flickr.com/upgrade/>

¹⁴http://www.craigslist.org/about/help/posting_fees

¹⁵<http://wiki.answers.com/about/>

¹⁶<http://news.yahoo.com/>

¹⁷<http://www.msnbc.msn.com/id/32027560/>

¹⁸<http://espn.go.com/>

¹⁹<http://edition.cnn.com/about/>

²⁰<http://www.spiegel.de/>

Platform	Content	Content Assessment		Content Selection/Ranking					Content Modification			User Roles	
		Rating	Text	Bookmarks	Abuse Report	Rating	Time	Views	Replies	Other Score	Hide low Quality		Owner Deletes
<i>Social Media</i>													
Youtube	video	2	(comment)	•	•	•	•	•	•	•	•	•	
	comment	2			•	•	•	•	•	•	•	•	
Wikipedia	article	5/5/5/1/1			///•/•							•	•
Twitter	message			•									
Flickr	photo		(comment)	•									
	comment												
Craigslist	post	1											
Answers	question	1											•
	answer	1											•
<i>Editorial</i>													
Yahoo! News	comment	2			•	•	•	•	•	•	•	•	
msnbc.com	comment	1			•	•	•	•	•	•	•	•	
ESPN	comment				•	•	•	•	•	•	•	•	
cnn.com	comment	1			•	•	•	•	•	•	•	•	
SpiegelOnline	comment				•	•	•	•	•	•	•	•	
<i>Social Networking</i>													
Facebook	post	1	(comment)	•	•	•	•	•	•	•	•	•	
	comment	1											
LinkedIn	-												
Myspace	post	1	(comment)	•									
	comment												
Orkut	post	1	(comment)										
	comment												
Badoo	-												
<i>Social Reviewing</i>													
Amazon.com	review-text	2	(comment)		•	•	•	•	•	•	•	•	
	comment	2			•	•	•	•	•	•	•	•	
eBay	product	3/5/5/5/2	(comment)										
	comment												
IMDb	review-text	2			•	•	•	•	•	•	•	•	•
CNET.com	review-text	2	(comment)		•	•	•	•	•	•	•	•	
	comment												
StumbleUpon	review-text												

Used Symbols and Notations: Rating: 'ab' – Two different ratings, each with a resp. b different options; General: '•' – Feature available, '' – Feature not available

Table 1: Functionalities for Governance in Prominent Web Communities

3.2.2 Comparison

Among the surveyed web communities around editorial content, there is no consent in rating mechanism. Basic 1-ratings or 2-ratings can be observed as well as the absence of rating functionality. In contrast to this, abuse reports are available in every inspected platform.

Ranking of comments for news articles by creation time can be observed in all surveyed platforms. One platform additionally allows ranking for rating scores directly or the number of replies. In Yahoo! News the functionality of hiding comments that have received a sufficient number of bad ratings can be found as well as ranking according to a score called "Highest Rated". The computation of this score is not transparent for the user. Since Yahoo! News is the only platform that allows to state a negative rating (2-rating) all other platforms lack the information for this functionality. We have not found any means of direct governance support by users for communities around Editorial content.

3.3 Social Networking

3.3.1 Overview

*Facebook*²¹ is an international social networking web site that was founded 2004 and had more than 600 million monthly users in the beginning of 2011²². It allows users to create a profile, social connections to other users, posting of text or multimedia content and rating of arbitrary entities. Commercial advertisements are shown on the web site.

*LinkedIn*²³ is an international social networking site focusing on professional social relationships with more than 100 million users. Apart from personal profiles no user-generated content can be created. Users can subscribe to a premium membership, also commercial advertisements are shown to users.

*Myspace*²⁴ is a social networking web site with focus on music and entertainment. It allows for creating profiles, posting multimedia content, and comments. Advertisements are shown on the web site.

*Orkut*²⁵ is an international social networking web site. It allows for creating profiles, multimedia content, and comments.

*Badoo*²⁶ is an international social networking web site with focus on meeting people. Social connections can be established as well as conversations between users. Apart from the user profile no content can be created. Some functionalities for communication and access to additional user information are only available for a fee.

3.3.2 Comparison

The first observation for web communities that focus on Social Networking is that two of the five most prominent

²¹<http://www.facebook.com/facebook>

²²http://www.msnbc.msn.com/id/40929239/ns/technology_and_science-tech_and_gadgets/

²³<http://press.linkedin.com/about/>

²⁴<http://www.myspace.com/Help/AboutUs>

²⁵<http://www.orkut.com/Main#About>

²⁶<http://corp.badoo.com/>

platforms, namely LinkedIn and Badoo, do not allow to create user-generated content apart from the user profile. Therefore the according rows in Table 1 are empty. The other three platforms have very homogeneous functionality for governance on user-generated content.

The most simple rating (1-rating) seems to be sufficient for postings of status updates and for other user's comments. For status updates typically abuse reports can be made.

Ranking of user generated content is in most cases restricted to the creation time. One exception is Facebook that allows ranking or status updates according to a score called "Top News" that might be based on further criteria.

The only means of direct governance functionality that is implemented in all three community platforms is that the owner of a posting can delete comments on his content.

3.4 Social Reviewing

3.4.1 Overview

*Amazon.com*²⁷ is an international electronic commerce platform. It allows users to create detailed reviews for products.

*eBay*²⁸ is an online electronic market place for commercial and private actors. The participants of a transaction can create a review for product and partners.

*Internet Movie Database (IMDb)*²⁹ is a web based database for movies, tv series and other video production. Although users can suggest new movies to be included the content is confirmed and edited. Users can write reviews and rate videos.

*CNET.com*³⁰ is a web site focusing on editorial product descriptions and reviews that are complemented by user reviews and ratings. Advertisements are shown on the web site.

*StumbleUpon*³¹ is a rating platform for websites. Based on ratings and user preferences web sites are recommended.

3.4.2 Comparison

Rating functionalities in the surveyed Social Reviewing platforms are heterogeneously distributed. Review texts are typically complemented with a 2-rating. While for the product in eBay an elaborated rating for six categories is possible. Except for comments in eBay and review texts in StumbleUpon every examined content item can be reported as abuse regarding the terms of usage.

Ranking of content according to time of creation is possible in all platforms, except for comments in eBay. Most of the platforms allow ranking according to quality ratings, except for StumbleUpon and eBay. The ranking criterion for products in eBay is not transparently defined but can be also depend on users' ratings.

²⁷<http://www.amazon.com/>

²⁸<http://www.ebayinc.com/who>

²⁹<http://www.imdb.com/help/>

³⁰<http://www.cnet.com/>

³¹<http://www.stumbleupon.com/aboutus/>

Direct governance is only apparent in the shopping platforms. In Amazon.com, the author of a review text can delete other users' comments. In eBay, the seller of a product has the option to start a mediation process with the possible outcome that a buyer's negative rating and comment is modified. Different user roles naturally exist in eBay since seller and buyer need different platform functionality.

4. SUMMARY

In general we could find no means of governance that was apparent in all platforms. We could observe similar governance support among the community platforms of the types Editorial and Social Networking as they allow for similar types of user-generated content. The community platforms of type Social Media and Social Reviewing offer a variety of different functionality and therefore differ in their means of governance.

Among all web communities that have been analyzed one can observe a variety of rating schemes. So the different rating schemes range from no numerical rating at all over textual ratings to detailed ratings that cover different aspects. Nevertheless one can observe the tendency that simple short content items like comments allow only for simple types of ratings. Among the majority of surveyed platforms, the functionality of reporting abusive content is available. This seems to be a widely accepted means of governance as there can be also found further evidence [8] for its effectiveness. For other types of user-generated content (e.g. photos, videos, review-texts) different types of ratings and governance means can be observed. So either different content types require different governance means or the survey is not extensive enough to extract common best practices. For ratings that are more elaborated than the 1-rating direct user transparent ranking according to all aspect of these ratings is seldom implemented. But such ratings are a factor in the calculation of other ranking scores called "Top News" or "Highest Rated".

The functionality of creating comments is available in most of the analyzed community platforms. In all platform types governance means regarding user actions on comments are implemented similarly. If there exists rating functionality it allows only a basic 1-rating or 2-rating. Ranking of comments for creation time is always possible. If comments refer to other user-generated content that has only one user as creator (e.g. photos in Flickr or posts in Facebook) user moderation by the creator of the original content is allowed. Since editorial content has no community members as creators, this is not the case for platforms of the type Editorial. For comments we could find similar ranking criteria across the platforms, namely ranking for time, ratings or a score based on ratings. The functionality of hiding low rated comments requires negative ratings, at least a 2-rating. Even if these ratings are available this functionality is not available in every case.

We have found only little indication that if user-generated content can be collaboratively edited (Wikipedia, Answers) there is need for support of user moderators that are chosen using a complex criteria and are given roles from a complex role model. In all other community platforms except for the special case of eBay, could be found no model of user roles.

5. CONCLUSION

In this paper, we have surveyed the most prominent web communities for their means of governance with regard to user-generated content. With the concept of abuse reports we have found a means of governance that is suitable for all four types of platforms and for nearly every type of content. For the content type comment there are widely adapted means of governance functionality that involves user participation. These can be considered as best practices, but there is no common agreement for other content types.

Therefore in future work there need to be surveyed more platforms in order to get results that are more representative for other types of content. Also further platform functionalities can be considered, e.g., user profiles. Another important aspect in future work is the comparison of governance that is supported by rating and reports of users with other means of governance based on other user reactions. This governance is based on "forgetting" of content in absence of activity (e.g., views) or prolonging (e.g., replies, retweets). The absence of activity is used as governance support that might lead to reduction of unwanted content in such platforms like Twitter or 4chan³².

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³²<http://www.4chan.org/>