

# How Companies Engage Customers Around Accessibility on Social Media

Erin Brady  
Department of Computer Science, ROC HCI  
University of Rochester  
Rochester, New York, USA  
brady@cs.rochester.edu

Jeffrey P. Bigham  
HCI and LT Institutes  
Carnegie Mellon University  
Pittsburgh, PA, USA  
jbigham@cs.cmu.edu

## ABSTRACT

Social media offers a targeted way for mainstream technology companies to communicate with people with disabilities about the accessibility problems that they face. While companies have started to engage with users on social media about accessibility, they differ greatly in terms of their approach and how well they support the ways in which their users want to engage. In this paper, we describe current use patterns of six corporate accessibility teams and their users on Twitter, and present an analysis of these interactions. We find that while many users want to interact directly with companies about accessibility, companies prefer to redirect them to other channels and use Twitter for broadcast messages promoting their accessibility work instead. Our analysis demonstrates that users want to use social media to become part of the process of improving accessibility of mainstream technology, and suggests the extent to which a company is able to leverage this input depends greatly on how they choose to present themselves and interact on social media.

## Categories and Subject Descriptors

K.4.2 [Computers and Society]: Social Issues – Assistive technologies for persons with disabilities

## General Terms

Human Factors

## Keywords

Social media; corporations; accessibility; Twitter

## 1. INTRODUCTION

Social media offers a targeted way for companies to communicate with people with disabilities about the accessibility of their products and services. This channel can be used for direct dialogues between accessibility teams and customers with disabilities that were not previously feasible. Some problems can be quickly resolved without escalation, other customer needs can be triaged

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and passed on to relevant teams to address quickly, and companies can reinforce their commitment to accessibility by publicly engaging with customers around their accessibility efforts.

People are known generally to ask questions to their friends on social media [13], and prior work has explored how and when people with disabilities may want to interact with their social networks to overcome accessibility problems [1, 17]. As companies have joined social media sites such as Twitter, people with disabilities can engage them or their accessibility teams in ways that may have been difficult to do before. These accounts allow companies to advertise their efforts around accessibility, to respond to accessibility criticisms observed in broadcast social media, and even to respond to accessibility questions or criticisms on an individual level.

While companies have started to engage with users on social media about accessibility, we find that the approaches that they have taken to it differ substantially. As we think about tools that may support this sort of direct two-way interaction, it is important to understand how companies are presenting their accessibility efforts on social media now, and how customers want to engage with social media in finding support. For instance, we find that customers want to advise the companies that make the products they use of specific accessibility problems or fixes, even though most companies do not have a way to directly feed this information back to the technical teams.

In this paper, we focus our efforts primarily on Twitter<sup>1</sup>, a broadcast social media site in which messages (tweets) can be seen by everyone by default. As a result, not only is the record of interactions available, companies may also have an extra incentive to engage with customers who raise issues about their products and services, because everyone else can see them. As Twitter content is short (140 character or less) strings of text, it is often viewed as inherently accessible, which has led to a number of accessibility-oriented web sites for interacting with Twitter, such as EasyChirp<sup>2</sup>.

This paper contributes a characterization of the current accessibility efforts of the companies who run the 50 most popular web-sites. We analyze the behaviors and contents of over 200 tweets from, to, and about six corporate accessibility teams on Twitter, and describe interaction patterns from 60 conversations between accessibility teams and individual Twitter users.

## 2. EXAMPLE INTERACTIONS

The motivation for our research came from seeing a number of examples of people interacting with companies around accessibility. The first of these examples occurred during the 2014 Oscars season, when Deaf actress Marlee Matlin used Twitter as a venue

<sup>1</sup><http://www.twitter.com>

<sup>2</sup><http://www.easychirp.com>

to voice her complaints about the process of bringing her interpreter to a party for the awards:

Only in Hollywood is my interpreter counted as a "guest" for a pre-Oscar party saying I can't bring anyone else. Wise up. It's called access  
– @MarleeMatlin, 2/18/2014

Less than 3 hours after her initial tweet, she updated her followers that the issue had been resolved, and thanked them for supporting her. While the resolution to her issue was not necessarily based on her tweet, it provided a compelling example of how the platform could be used to publicly call out accessibility issues.

We also saw examples of Twitter being used as a medium to request accessibility accommodations. After PBS correspondent Miles O'Brien had an arm amputated in February 2014, he turned to Twitter to update his fans and discuss his adjustment process<sup>3</sup>. Within a month and a half, he was also using Twitter to ask Canon for ideas on one-handed camera use:

Hi @CanonUSA - I would love to talk with someone about possibly modifying my C-100 for easier usage with one hand. Thanks in advance.  
– @milesobrien, 3/20/2014

While Miles O'Brien's request was for preliminary information and ideas about how to accommodate one-handed use, other Twitter users are very familiar with accessibility and hope to share their expertise with others. Accessibility researcher Sina Bahram publicly tweeted the following request to Pandora Radio's Twitter account:

.@Pandora\_Radio can we please have a quick chat. A few lines of code can allow users with disabilities to use your site. #a11y  
– @SinaBahram, 1/28/2014

Despite receiving a preliminary response from the team acknowledging his request, the accessibility issues he tried to report remain unresolved<sup>4</sup>.

After observing these examples, we wished to learn more about how Twitter could be used as a platform for discussing and improving accessibility. Are people commonly using Twitter to discuss accessibility issues and seek solutions? Are companies interacting with Twitter users and trying to engage in dialogues, or are user requests being lost in the high volume of activity on Twitter? With this paper, we hope to provide a first look into how corporations and individuals are discussing accessibility on Twitter, and what kind of interactions are taking place between them.

### 3. RELATED WORK

Social media sites have opened up a new channel for individuals and corporations to connect to each other. For people interested in accessibility, these channels may allow them to report accessibility issues that they've encountered in the wild, ask for help, and lend their expertise to others. In this section, we discuss how companies have begun to pay more attention to accessibility issues, how companies currently engage in social media platforms, how people use social media platforms to ask questions, and how people with disabilities use social media.

#### 3.1 Corporations and Accessibility

In 2005, the National Federation for the Blind (NFB) reported a number of web accessibility issues on the website [target.com](http://target.com)

<sup>3</sup><https://twitter.com/milesobrien>

<sup>4</sup><https://twitter.com/SinaBahram/status/463861574151593985>

to the Target Corporation. When Target did not make any accommodations that would help screen reader users access their site, the NFB filed a lawsuit claiming that Target was violating the Americans with Disabilities Act (ADA) and California legislature governing accessibility in businesses. After Target's motion to dismiss was refused, they settled with the NFB and paid \$6 million dollars to members of the class action<sup>5</sup>.

In the years before the Target litigation, there was little improvement in the accessibility of corporate websites [11]. However, there was a marked improvement in corporate website accessibility after the ruling was passed [3]. Though there is no direct evidence to indicate that this improvement in accessibility was caused by the Target case, it seems likely that many companies started to pay more attention to accessibility at this time as a strategy to avoid expensive, time-consuming litigation.

Despite improvements, accessibility problems remain widespread [11]. The reasons for these issues are complex, but many of the problems can be attributed to webmasters who, while supporting the concept of accessibility in the abstract, lack the time or knowledge of how to make their websites accessible [10].

#### 3.2 Corporations and Social Media

Whether companies have a presence on Twitter or not, the platform is frequently home to discussions about products. 19% of tweets mention a brand or organization, and ~20% of these have either positive or negative sentiments, indicating that Twitter is a valuable platform for gauging customer sentiments or managing consumer perceptions of a brand [6].

With the discussion of brands composing such a large amount of Twitter activity, it is no surprise that many companies have joined the platform as a way to engage with consumers or lead consumer perceptions. In the popular press, the platform was heralded as an innovative way that corporations and individuals could connect with each other and form stronger, more personal relationships [8]. Two-way communication is also known to cultivate relational trust between consumers and corporations [9] and can result in positive sentiments when used while engaging with consumers [16]. Still, it does not appear that many corporations are currently taking advantage of Twitter's usefulness for two-way conversations.

In a 2010 study of dialogic communication by Fortune 500 companies on Twitter [15], 170 of the companies maintained active Twitter profiles. Of the 93 companies analyzed, 60% had responded to individuals at least once in their most recent tweets, but only 26.9% had asked follow-up questions and appeared to be engaged in active dialogue. Additionally, 30% of the companies had posed unprompted questions as a way to facilitate dialogue with consumers. However, companies were still found to be under-utilizing Twitter as a resource for dialogic communication with consumers.

Another analysis performed on non-profit organizations found a similar under-utilization of two-way communication. These non-profits primarily used Twitter as a one-way broadcast mechanism, with sending and receiving direct messages as a small percentage of their Twitter behavior [12]. The lack of two-way communication between organizations and individuals is surprising, since many individual Twitter users already take advantage of the platform to ask questions and form opinions.

#### 3.3 Question Asking and Social Media

As social networking sites have gained traction, people have started using them to ask questions and seek out answers. In a large-scale study of Facebook users, Morris et. al found that 50% of

<sup>5</sup><http://www.w3.org/WAI/bcase/target-case-study>

participants had asked questions on the site at least once [13]. Participants reported several motivations for asking questions on social networks, including the fact that they could target their questions to a specific audience who might be more knowledgeable about a topic than a search engine.

### 3.4 Social Media and Accessibility

Though social networking sites often have accessibility issues, people with disabilities are active users of the sites. In a study of blind Internet users, 92% of participants were members of social networks, with 52% using Twitter. Of these Twitter users, 40% reported asking at least 1 question a month on Twitter, and 50% said they were very or somewhat comfortable using the platform for question asking (compared to only 34% of Facebook users feeling similarly) [1]. Additionally, a recent study of blind Facebook users found that, despite the potential fears of stigmatization, people with visual impairments frequently talked about issues related to disabilities on their social networks [17]. These previous works indicate that social networking sites may be appropriate venues for people with disabilities to voice accessibility concerns and try to search for solutions.

## 4. CORPORATE ACCESSIBILITY ONLINE

To gauge the importance and visibility of corporate accessibility efforts, we first conducted a search for various markers of accessibility efforts from popular companies on the web.

### 4.1 Methodology

We chose as a sample the Alexa Top 50 companies in the United States<sup>6</sup>. We chose these companies since they are the most 'popular' sites on the web (based on a proprietary metric of users and pageviews) and represent a diverse group of companies (including technology companies, social media sites, banks, etc).

The markers of accessibility efforts that we searched for were: *accessibility policies* where companies elaborate on their commitment to accessibility, as suggested in [11], *promotional materials* such as websites or blogs about the company's accessibility efforts, *customer service* for accessibility-specific requests, *contact information* including email addresses or phone numbers, and *social media presence* on Facebook or Twitter.

In order to find these markers, we searched with a standard search engine for each companies' name and a combination of accessibility-specific search terms (eg. "accessibility policy", "section 508"). We also manually browsed each site, examining the contact, support, and frequently asked question pages and the sitemaps for relevant information, or searching the help pages for accessibility-specific terms (eg. "accessibility", "screen reader"). We located Facebook and Twitter accounts both through the contact information on the websites and through manual search on the sites themselves.

### 4.2 Results

We categorized the accessibility markers that we found into *static* resources, which users could access for information, and *interactive* resources, where users could talk to people and voice concerns or complaints.

#### 4.2.1 Static Accessibility Markers

We found that 8 of the companies had explicit accessibility policies, detailing their commitment to accessibility, and 3 others fell under the corporate umbrella of those 8 (eg. Youtube being owned

<sup>6</sup><http://www.alexa.com/topsites/countries/US>, retrieved in April 2014

by Google, and thus subject to their policies). These policies often laid out guidelines supporting the use of assistive devices (such as screen readers), preventing discrimination on the basis of disability status, and requiring that the company have a policy for dealing with accessibility complaints.

Of the companies with accessibility policies, four were financial institutions or payment processors (Paypal, Bank of America, Chase Bank, and Wells Fargo Bank). This may indicate that these companies have better consumer-related policies in general due to their physical presences, or that there exists increased legislation over financial institutions that requires accessibility policies.

12 companies had specific portions of their websites dedicated to either talking about their accessibility teams or describing how to use their products with assistive technologies. Two of the companies had blogs specifically devoted to accessibility issues.

#### 4.2.2 Interactive Accessibility Markers

Nearly half of the companies had some sort of customer service presence online - either contact information or live chat with customer service representatives, or online forms where users could submit feedback. For accessibility related issues, though, only 7 companies had specific venues for accessibility feedback (either a separate customer service site, or the ability to categorize feedback as accessibility-related). 4 of the companies had a specific email address where users could send accessibility concerns, and 5 had specific phone numbers or TTY contact information.

Few accessibility teams had presences on social networking sites. Six teams had Twitter accounts, and three were present on Facebook - two with organizational "pages" that users could follow, and one as a "person" that users would need to friend in order to get updates.

## 5. METHODOLOGY

Since more corporations had accessibility Twitter accounts than Facebook pages, we chose to focus on Twitter to learn more about corporate accessibility outreach on social media. The six companies which had Twitter accounts for their accessibility teams were Google (@googleaccess), Facebook (@fbaccess), Twitter (@a11y team), Microsoft (@MSFTenable), PayPal (@PayPalInclusive), and Wordpress (@wpaccessibility).

After explaining features of the Twitter platform, we present an analysis of the accessibility teams, discussing their behaviors and dialogic features when tweeting on the platform, and the content of their tweets.

### 5.1 Twitter

Twitter is a social microblogging platform that allows users to post messages ("tweets") up to 140 characters in length. Each user can write tweets of their own, or read tweets in their homepage feed, which collects the tweets of users they follow. Twitter users can follow other users to see their statuses in their feed, and can be followed by other users, but these relationships are not reciprocal by default.

We refer to regular tweets as *public tweets*. Tweets can *mention* other users by including their username prefaced with an '@' symbol. If a tweet begins with the '@' symbol, it becomes a *directed message* which is only visible in the homepage feed to users who follow both the tweeter and the user the message was sent to. Users can also privately message each other if both users follow the other. We refer to this as *private messaging*, and it is not included in our analysis.

Tweets can use *hashtags*, words prefaced by a '#' symbol, to denote important keywords. Clicking on a hashtag leads to a stream

of all tweets which have also used that hashtag, allowing users to find more about topics of interest from people who they don't follow. Users can also share other's tweets by *retweeting*, either through formal retweeting (where the shared status appears in your followers feeds as if they followed its' author) or informal retweeting (where the user copy and pastes the status as their own tweet, preceded by 'RT @[username]').

## 5.2 Twitter Behaviors

We base our analysis of Twitter behaviors primarily on Lovejoy et. al's analysis of Twitter behaviors of non-profit organizations [12]. This work provides a framework for analysing how organizations use Twitter to engage with stakeholders, and how effective they are at utilizing the two-way communication mechanisms of the platform. With the exception of mentions, which were not discussed in Lovejoy et. al's work, all of the justifications provided build upon their framework. The behavioral features analysed include *tweeting activity*, *features of the Twitter platform*, and *engagement with other users*.

We examined *tweeting activity* in order to discuss how active and responsive an organization appears. Organizations which tweet infrequently may not be gaining the awareness they desire from the Twitter platform, as their rare tweets will be buried in a users' feed and possibly missed. However, organizations which tweet excessively may alienate users for appearing spammy. The ratio of public statuses to public messages can provide insight into the perceived responsiveness of the Twitter account.

*Features of the platform* include the ability to add hyperlinks, which can provide information beyond the 140 limit, and hashtags, which allow tweets to be searched by keywords. Both of these features enhance the static text of the tweets, and allow interested readers to learn more about the specific tweet or related subjects.

*Engagement with other users* can allow organizations to build communities and spread information amongst their followers. By following users who have followed or interacted with their accounts, organizations appear interested in the users and may create mutual ties. Similarly, retweeting content from other users or mentioning users in tweets shows engagement with those users and can help information disseminate between diverse groups.

We also looked for dialogic features of the tweets sent. Dialogic communication refers to communication that, according to Kent and Taylor, involves "any negotiated exchange of ideas and opinions" between two actors [7]. In addition to measuring public messages as described above, we also manually examined tweets to find discussion prompts posed by the accessibility teams, where followers are asked an open question and can respond with their answer or opinion.

## 5.3 Content

While behavioral features provide some quantitative insight into the types of communication happening among accessibility teams and individual Twitter users, they do not provide much information about the content of these interactions. In order to learn more about the content of the communications, we performed an open coding analysis on all tweets retrieved by the search API when searching for each corporate accessibility Twitter handle. These search results include tweets both from and to the corporate handles, but are subject to the limitations discussed in section 5.4.

A sample of the tweets were coded and grouped into concepts, with a focus on interaction between the team and users, and direct requests asked by the users to the team. A complete round of coding was performed on the tweets, and codes and concepts were refined. The data was then re-coded with the newly developed codes.

A complete description of these codes is shown in Table 1, with frequencies of tweets both to and from the accessibility team in the sample from the month of April. Tweets could be classified with multiple codes, so totals may sum to more than 100%. The basic categories were *promotional*, *questions and criticisms*, *responses*, and *conversational*.

*Promotional* tweets primarily served to draw awareness to the accessibility team, through talking about the team and its' members, recommending the team's Twitter handle to other users to follow or include in discussion, and promoting accessibility efforts within the team or highlighting efforts and discussions that the team found interesting.

*Questions and criticisms* were tweets where users asked for more details about accessibility efforts from the team, or criticised a perceived lack of accessibility in their products. These questions could range from general inquiries about the company's accessibility efforts, requests for tutorials or instructions on how to complete a certain task, or questions about the technical details of a problem or solution.

*Responses* are tweets addressing questions or criticisms addressed to the team, whether the response comes directly from the team or from another Twitter user. These tweets could include instructions on how to access something with a screen reader, an acknowledgment that a problem exists or of a solution/forthcoming solution, or suggestions of other accessibility products that could be useful.

*Conversational* tweets encompass the remaining tweets to and from the accessibility teams and Twitter users. These tweets may reflect structural features of the Twitter platform (retweets, continuations of tweets that exceed 140 characters) or tweets with little informational content, such as greetings, redirection to other websites or resources, or any other tweets which fell outside of the previous categories.

## 5.4 Limitations

This work was limited by the access that we had to tweets from Twitter. Specifically, the tweets that we analyzed represented a sample of those that match a specific search term that we provided. Without access to Twitter's Firehose<sup>7</sup>, which is both expensive and requires significant computational resources, we were unable to collect all the relevant tweets for each of our queries. Since these accessibility-related queries make up a small percentage of Twitter data, it is likely according to [14] that our samples may not properly represent the full data available on Twitter. Despite this, we have no reason to believe that the sample provided was biased in a way that would have meaningfully changed our results, and we think that our work provides a valuable first look into how Twitter is being used by some people for accessibility requests.

## 6. ACCESSIBILITY TEAMS ON TWITTER

Our first analysis focused on the six corporate accessibility teams on Twitter. In Table 2, we present basic information about each team's activity on Twitter since their first tweet on the platform. We also provide quantitative numbers for all tweets from each team during the month of April. In the sections below, we describe the behaviors of the teams and a content analysis of some of their tweets.

### 6.1 Behaviors

A behavioral analysis was performed on all 184 tweets from the six accessibility teams during the month of April 2014.

<sup>7</sup>Firehose access is available from [gnip.com](http://gnip.com) or [datasift.com](http://datasift.com)

Tweet Categorizations			To Team	From Team	Conversations
Promotional			52%	66%	33%
P1	Team & members	Discussing the team or members	14%	13%	40%
P2	Recommendation	Recommending the team's handle to others	14%	0%	10%
P3	News/outreach	Sharing promotional materials or insights	71%	87%	50%
Questions and Criticisms			15%	1%	80%
Q1	Technical question	Questions about the technical implementation of a product	23%	0%	23%
Q2	Need instructions	Asking for help with the team's product	14%	0%	6%
Q3	Problem or request	Reporting an accessibility problem or requesting a fix	23%	100%	45%
Q4	Suggestion	Suggesting a new product or feature	5%	0%	6%
Q5	Criticism	Critiquing a specific product, the company, or the team	23%	0%	13%
Q6	Additional details	Adding information to a previous question or critique	14%	0%	6%
Responses			5%	23%	68%
A1	Instructions	Providing how-to information or instructions	0%	29%	12%
A2	Acknowledgement	Acknowledging a question, request, or criticism	0%	10%	34%
A3	Resolution	Fixing a problem or addressing a criticism	14%	13%	2%
A4	Follow-up	Asking for clarification or more information	14%	6%	20%
A5	Details	Providing details about the resolution of an issue	14%	13%	0%
A6	Outside scope	Saying an issue cannot be resolved	0%	6%	2%
A7	Forthcoming fixes	Telling users to wait for a resolution	43%	13%	7%
A8	Suggestions	Suggesting a solution or accessibility tool	14%	10%	22%
Conversational			29%	10%	38%
O1	Conversational	Thanks, conversation, instructions on how to contact team	38%	54%	100%
O2	Other	Any other tweets that were not categorized	14%	0%	0%
O3	Continuation	Continuation of a previous tweet, eg. "... (2/2)"	2%	15%	0%
O4	Share me	A request for someone to share or retweet information	5%	0%	0%
O5	Retweet only	A retweet of someone's information, prefaced by "RT"	40%	31%	0%

**Table 1: Categories and sub-categories identified in tweets involving accessibility teams on Twitter. The percentages for categories represent the percentage of tweets sampled that could be coded into that category; percentages for sub-categories represent the percentage of tweets in that category that can be coded into that sub-category**

### 6.1.1 Tweet Activity

The teams analyzed had varying levels of activity. Hughes [5] used 1 tweet per week as a metric of *active* or *inactive* users, while Lovejoy [12] suggested 3 tweets per week as a standard for *active* or *inactive* organizations. By this standard, 4 of the 6 teams analyzed were *active* during the month of April (@a1lyteam, @mstfenable, @paypalinclusive, and @wpaccessibility).

We also examined the ratio of public tweets and public message from the teams. Of the 5 teams who tweeted during April, only 1 had more directed messages than public statuses (@a1lyteam, with 8x as many directed messages as public statuses). The other 4 had more public statuses than directed messages, with ratios ranging from 1.8x to 6.7x more public statuses (mean 3.35x).

### 6.1.2 Platform Features

All teams who tweeted during April used hyperlinks in at least 1 public tweet. There were 54 tweets containing hyperlinks total, nearly all in public statuses - only 4 were tweeted in directed messages. Similar behavior was exhibited in hashtag use, with all teams tweeting at least once with a hashtag and 77 total tweets with hashtag use, but only 5 direct message tweets with hashtags.

### 6.1.3 User Engagement

All of the teams studied were followed by far more Twitter users than they followed, with averages of 4881 followers and 85 users followed. Retweeting behaviors were very team dependent, with 3 of the teams who tweeted in April retweeting never or only once, and the other two teams (@paypalinclusive and @wpaccessibility) both having retweets as nearly 35% of their activity.

Mentioning behaviors also depended on the team. @fbaccess

and @a1lyteam engaged in very little mentioning (0% and 11% of their overall tweets). The other three teams were actively mentioning others users, with between a quarter and a third of their tweets mentioning a username (excluding retweets and public messages).

Dialogic prompts accounted for a low percentage of total tweets. Prompts accounted for 12% for @mstfenable, the team with the highest frequency of prompts, since they often asked discussional questions to their followers:

Question for our followers: What are your experiences using the power of the community to help support kids w/disabilities? #MSFTAbility  
– @mstfenable, 4/24/2014

While these questions were intended to prompt discussion, they did not receive many responses (7 of the 11 prompts asked by the teams were responded to, with 1 or 2 responses each) and the teams rarely followed up to create a dialogue (only 2 of the users were responded to by the teams).

### 6.1.4 Results

High levels of activity for most of the accessibility teams indicate that they are actively engaged in the platform. However, since many of the accounts communicated mostly through public statuses instead of directed messages, the accounts may be perceived more as promotional, broadcasting tweets to large groups, than as personal and responsive.

Heavy use of hyperlinks and hashtags indicate that many teams see Twitter as a valuable opportunity to grow their network, either by recruiting new followers through hashtags or directing current ones to outside resources with hyperlinks. The limited use of hash-

### Corporate Accessibility Team Twitter Accounts

	Google	Facebook	Twitter	Microsoft/Live.com	PayPal/Ebay	WordPress
Twitter Handle	@googleaccess	@fbaccess	@a11yteam	@MSFTEnable	@PayPalInclusive	@wpaccessibility
First Tweet	Nov 1, 2010	Jan 30, 2013	Aug 5, 2013	Jan 9, 2012	Oct 3, 2012	Feb 10, 2013
Total Tweets	259	198	118	645	1153	610
Followers	17900+	2639	1557	5767	910	516
Following	29	84	0	290	80	29

### Corporate Accessibility Team Behaviors in April 2014

Tweets Total	0	6	18	68	70	22
Public statuses	n/a	4	2	50	40	9
@-messages	n/a	2	16	17	6	5
Retweets	n/a	0	0	1	24	8
Tweets with #hashtags	n/a	3	1	46	20	7
Tweets with links	n/a	3	1	27	17	6
Tweets with @-mentions	n/a	0	2	23	18	8
Tweets with prompts	n/a	0	1	8	2	0

### Sampled User Behaviors in April 2014

Tweets Sampled	11	9	16	43	26	16
Public statuses	5	4	6	24	13	8
@-messages	6	4	10	16	6	7
Retweets	0	1	0	3	7	1
Tweets with #hashtags	0	0	0	2	1	0
Tweets with links	7	3	1	21	14	9

**Table 2: Data about the 6 accessibility-related Twitter accounts from the Alexa Top 50 companies, retrieved in May 2014. For users, retweets are only tweets prefaced by "RT"**

tags and hyperlinks in directed messages may reveal that the accessibility teams don't view two-way communication as an appropriate venue for self-promotion, but instead are trying to have more personal interactions with consumers.

Teams showed varying levels of user engagement. None of the teams followed many other users, which may make the teams appear disinterested in content from other users. However, some of the teams were actively involved in retweeting and mentioning other users, so the sense of community might not have suffered too greatly.

## 6.2 Content

A content analysis was performed on a sample of 108 tweets from the companies during the month of April 2014. The results of the content analysis are shown in Table 1. The majority of tweets originating from the accessibility teams were *promotional* in nature (66%). This fits with the literature showing that most corporate Twitter accounts are not using the platform for its' two-directional communication mechanism, but as a way to promote themselves and control the nature of discussion about their products. Teams had various types of promotional tweets, including updates from the team, release announcements for products, and special events:

Hey, the new iOS app for PayPal by PayPal, an eBay Company, is out w/ #a11y improvements. Give it a go!  
<https://appsto.re/us/1Rb6q.i>  
 - @PayPalInclusive 4/30/2014

The majority of tweets that were *responses* were simple instructions or how-tos (29%), letting users know how to complete a task or use a feature:

@samanthaash1993 Hi, you can 1. Double-tap & HOLD your finger on the screen (wait for sound) 2. While holding slide left to launch menu...  
 @samanthaash1993 ...to archive the message. We are

looking into making this experience better.  
 -@fbaccess, 4/28/2014

Other responses gave more technical details about reported problems or acknowledged existing issues:

@zkline This problem was unique to @nvaccess; works in all other SR+browser combos (except WindowEyes + IE). Let us know if we missed one.  
 -@a11yteam, 4/24/2014

The presence of these tweets show that, despite the limitations on the length of tweets, Twitter can be an effective public way to provide customer service and deal with bug reports. However, this type of interaction currently makes up a relatively small portion of the accessibility teams' overall activity.

## 7. USERS AND ACCESSIBILITY TEAMS

We also analyzed the users on Twitter who were tweeting about the accessibility teams. We analyzed a sample of 121 tweets sent during April 2014 which were directed to or mentioned one of the accessibility teams.

### 7.1 Behaviors

Due to the limitations on our sampling method (as discussed in section 5.4), we cannot draw any conclusions from the total number of tweets observed directed at each team. However, we can still analyze some features of user behaviors, in order to learn more about what users want and expect from corporate accessibility teams.

Unlike with the sample of accessibility teams, the range of ratios of public tweets to public messages was much more constrained for individuals, with an average ratio of 1.2x as many public tweets as public messages (min 0.6x, max 2.17x). While this may be due to the sample provided by Twitter, it may also reflect that individual users are more interested in their own personal communications

with each accessibility team than being involved in larger conversations.

Hashtag use was limited in tweets from individuals, indicating that individual users were less interested in reaching out to others with similar interests. However, many used hyperlinks to refer to external materials.

## 7.2 Content

The results of the content analysis of the sample from April are shown in Table 1. Many tweets about the accessibility teams were *promotional*, sharing interesting accessible products coming from the companies or promoting articles or content created by the team:

A computer experience customizable to each unique individual #Evolve via @MSFTEnable #a11y  
<http://www.youtube.com/watch?v=yklvejTgXHY...>  
—@dolphinsvp, 4/3/2014

These tweets were interesting, as they came from external sources but served to promote the accessibility team by describing them as curators or creators of interesting content. This also explains the high amount of hyperlinks in tweets mentioning the accessibility teams, as users were tagging the teams when distributing external content the team had created or shared.

*Questions and criticisms* made up a portion of the tweets about accessibility teams (15%). Types were varied based on the user asking and the team they were directed to, ranging from simple questions to critiques:

So, what's the gist of Windows 8.1 update 1 on phones?  
Does it have a screen reader or not? CC @MSFTenable  
—@MarcoInEnglish, 4/2/2014

Really disappointed with Google. They removed custom user styles from Chrome and removed inverted rendering in Android KitKat. @googleaccess  
—@demouyard, 4/27/2014

These examples show the varied ways in which users are composing tweets around corporate accessibility teams, but leave outstanding questions about the interactions between the two.

## 8. CONVERSATIONS BETWEEN USERS AND ACCESSIBILITY TEAMS

In addition to studying individual corporate and user tweets about accessibility, we wanted to get a better picture of the interactions between the two groups. We analysed both behavioral and content features of 60 interactions between accessibility teams and users, comprising of 208 tweets in total.

### 8.1 Methodology

We collected the 10 most recent interactions with unique users from April 30th, 2014 and earlier for each of the 6 teams, for a total of 60 interactions. Due to the differences in tweet frequency for the teams, the span between 10 unique interactions ranged from less than a month to over a year. For each interaction, we analyzed the initial tweet, the response from the corporation, and any followup from either the initiating user, the corporation, or other users. We examined both quantitative and qualitative features of these tweets.

The quantitative features we analyzed included the number of participants in the conversation, number of messages exchanged, and length between the beginning and end of the conversation, similar to the analysis performed in [4]. We also manually coded conversations for coherence (if the conversation veered from one topic to another) and content (based on the codes in section 5.3).

## 8.2 Behaviors

### 8.2.1 Conversation Initiation

The majority of conversations were initiated by a user and directed to the team (54/60). Most of these conversations (34) were started with a user tweeting the team (half publicly messaged, half with the user mentioning the team). The others were initiated when a user responded to a public status by the team (15), or when a user tweeted something indirectly about the team and then another Twitter user mentioned the team in a response (5).

Only 6 of the conversations were initiated by the team, with half as responses to tweets by users and half as unprompted public messages or mentions of other users.

### 8.2.2 Conversation Features

Most conversations were personal, with only 2 (45) or 3 (13) active participants in the conversation, and short, with only 2 (23) or 3 (14) messages exchanged. The most active conversational participants in any interaction was 5, with an average of 2.30 participants (median 2). The most messages exchanged in a conversation was 9, with an average of 3.47 messages per conversation (median 3).

### 8.2.3 Conversation Content and Coherence

Conversations were categorized using the same categories described in section 5.3, and results are presented in Table 1. Each conversation was coded for any behavior shown in any of its' tweets, so totals exceed 100%.

Unsurprisingly, most of the conversations involved questions (80%) and responses (68%). Nearly half of the questions asked were to report problems and request solutions to accessibility issues. Responses were generally helpful, suggesting solutions (22%) or providing instructions (12%), or acknowledged the users' issue without providing a direct solution (34%), but rarely provided concrete resolutions (2%) or promises of forthcoming solutions (7%).

Almost all of the conversations (54) were coherent, and the topic of discussion stayed the same throughout the interaction. In all 6 conversations that lacked coherence, the reason was another user coming into the discussion later and interjecting a bug report of their own:

@googleaccess I'm having an event for people with disabilities. Could you provide info I could give to people regarding accessibility?  
— @wctlc, 9/20/2012

@wctlc check out <http://www.google.com/accessibility> for more info on accessibility in Google products  
— @googleaccess, 9/21/2012

@googleaccess is google dox fairly usable, or do we still have some work i am a college student and would like to try  
— @paras12, 9/24/2012

These interjections may indicate that users think they will have trouble attracting the attention of the team, and thus they try to join into an ongoing conversation rather than initiating a new conversation. It is evident, however, from the conversations started from unprompted public messages, that these users may have been able to successfully initiate a new conversation and receive a response.

## 9. DISCUSSION

In this paper, we have explored how companies are engaging with accessibility on social media, and how users are interacting with those digital presences.

For the most part, we found that neither corporations or users are taking full advantage of the two-way communication channel afforded by Twitter. While some people are asking accessibility questions, and some teams are using the platform to respond, most interactions around the accessibility teams are promotional in nature. However, the popularity of retweets and mentions indicates that a community of people and corporations interested in accessibility is being formed on Twitter and may encourage more dialogue in the future.

Some of the emergent behaviors we observed may indicate opportunities for corporate accessibility teams to form stronger bonds with customers. For example, while many teams redirected users with accessibility requests to external resources, others took the information received from Twitter users and filed the bug reports directly. This helpfulness might engender positive feelings towards the company, and ensures that the team does not miss a bug if users are unwilling or unable to file a bug report on an external site.

The public nature of conversations on Twitter may also influence what kind of interactions corporations are willing to engage in. If teams can provide positive responses to user requests, they may be more likely to engage with users so they can build trust and appear responsive. If a team is unable or unwilling to assist a user, however, they may not want to reject them publicly on Twitter and be subject to criticism.

Future work could leverage some of the behaviors we observed to help solve accessibility issues. Highly technical users on Twitter who make suggestions to accessibility teams (as in Table 5.3, A8) could donate their expertise to crowdsource accessibility fixes that developers may not know about. Even just interacting with these users could help promote awareness of accessibility issues for corporations by giving them exposure to the users' perspective [2].

## 10. CONCLUSION

Companies are increasingly using social media for the purpose of promoting their accessibility efforts and engaging with customers who care about or experience problems with accessibility. Our investigation suggests that while users are interested in finding solutions to their own accessibility problems on Twitter, companies seem more inclined to use it as a means to broadcast messages about their activities related to accessibility, and neither group is utilizing two-way communication to its full potential. Users interacting with corporate accessibility teams may offer companies a way to connect with an important stakeholder group, both to improve the users' experience with the company's products and to leverage the unique expertise that these stakeholders stand to bring to the company. Adjusting to these trends may require new technology to be developed that would support these kinds of interactions and/or new processes to be incorporated in companies to allow them to fully leverage the users that want to engage with them.

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