

Tweeting in times of exposure: A mixed-methods approach for exploring patterns of communication related to business scandals on Twitter

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ABSTRACT

Currently, three trends mutually influence each other and can be observed using social media: (a) the growing use of social media, in particular Twitter, by organizations, (b) increased expectations of transparency towards organizations, and (c) massive public response to organizational crises via social media. Getting an understanding on how customers and organizations react to crises and crises responses as well as identifying different communication strategies is difficult, since the large amount of actors and the abundance of messages can not be handled by traditional methods from the Social Sciences. These often rely on manual work, for instance, interviews, qualitative studies, or questionnaires. Even large parts of content analysis using computer-assisted qualitative data analysis software have to be supported by manual work. At the same time, the availability and accessibility of large volumes of messages on Twitter also opens up possibilities for mixed-methods approaches to analyze this data. In particular, natural language processing can support the analysis of large sets of tweets. In this work we present first steps towards a large-scale analysis of Twitter communication during corporate crises by leveraging a mixed-methods approach. Such analyses can improve our understanding of organizational crises and their communication and can also prove beneficial to provide recommendation for successful reactions and interactions.

1. INTRODUCTION

In this paper we address three broader trends affecting Twitter communication: the growing use of Twitter by organizations, increased expectations of transparency by organizational stakeholders and customers, and a seemingly rising trend to scandalize organizational crises via social media. The interrelation of these trends is examined through an analysis of scandal-related tweets and the reciprocal relationship between public allegations and organizational Twitter

reactions. For this purpose a combination of methods from Natural Language Processing and the Social Sciences would be optimal. The question to be answered is in which direction the capacities of Twitter change characteristics of accusations, of organizational self-representation, justification and aspirations for legitimacy.

Although Twitter facilitates interaction, personal interchange and distribution of information around particular events or topics of interest, it forms public opinion in a different manner than in times of one-way communication [3, 14]. Public opinion, articulated via social media, tends to be more personalizing and more dynamic [32]. It thus contributes to an expanding observation of private sector enterprises and public organizations, putting them under more pressure [1, 9]. As a reaction, organizations themselves expand their use of social media communication and Twitter [5, 31]. In order to calm down their stakeholders and the public by Twitter, they need to change message structure and rhetorical techniques [4]. The following considerations deal with the consequences of this development and its impact on organization-related Twitter communication. In order to gain additional insights into the content and interdependence of online activity between organizations and their observers, this work promotes the study of Twitter-referencing reporting and negative press associated with public organization-related scandals or crises of corporations. For these stakeholders, scandals and crises can be understood as focal points of changed expectations, they were selected to serve as demonstration objects for possible changing patterns of expectations and legitimacy. If the rules of the game of mutual observation, accusation and justification between organizations and the public have been modified through Twitter, it is important to get indications of the character of these rules. For this purpose we focus on the following research questions:

- How do companies, which are seen in connection with scandals, react to allegations via Twitter?
- What is the content of allegations made by Twitter users, which kind of sentiments are of main importance?
- Which patterns of interaction between organizations and Twitter users can be recognized?

We try to answer these questions by collecting tweets of companies that were affected by crises during the last years

and tweets which refer to or mention those companies. We then analyze the tweet collection using a mixed-methods approach.

This paper is organized as follows: in Section 2 we provide an overview on related work and in Section 3 we describe the methods we used for our analysis. We present the results in Section 4 and conclude the paper in Section 5.

2. RELATED WORK

Organizations in general as well as business firms and their stakeholders do increasingly participate in social media and Twitter communication [31, 20]. Twitter seems to be considered as a relevant communication tool, since about 78% of the Fortune 500 companies had active Twitter accounts in 2015 and since consumers increasingly interact with brands through social media [5, 7, 30]. The number of tweets mentioning an organization was estimated at 19% already in 2009 [12]. In this context, organizational use of Twitter is divided into four general thematic fields, and is classified into three strategic orientations: Thematically, Twitter can be used for brand communication, for service and information transfer, for communication about Corporate Social Responsibility (CSR), and for crisis communication. Considering the strategical orientation used by organizations as users, Twitter can be executed in form of one-way or two-way communication [16]. Furthermore, it can be divided into the corporate policies of broadcasting, reactive strategy, and an engagement strategy [8, 23, 29, 32]. The latter (engagement) means that companies actively get in contact with other Twitter users and reply to their remarks and questions, while the other forms of strategy refer to only replying to questions (reactive), or only providing information, but not reacting to questions (broadcasting) [8].

Findings concerning the content of organizational Twitter messages indicate that organizations predominantly tweet in the areas of information-, service-, and brand-related communication [16, 26]. Companies mainly aim to arouse interest in their products and campaigns [15], and organizations predominantly use Twitter to convey one-way messages [34]. A lack of interactivity and engagement in the use of Twitter was confirmed, and companies typically seem to prefer a broadcasting strategy and primary act, if at all, re-actively with regard to CSR [8] (similar and for other content of Twitter messages: [4, 23, 29]).

Nevertheless, it can be assumed that at least in situations of crises or scandals, companies most likely could find themselves forced to an active Twitter engagement. This could be the case because it was proved that using Twitter seems to mitigate the user's readiness to judge negatively about a company undergoing a crisis, what intensifies the reputational threat for the company [33, 36]. In this respect, research results indeed suggest different behavior on the part of the companies. Measured by the published number of tweets during a crisis situation in which Toyota has been involved in 2010, the number of Twitter reactions from the organization as well as from public users during the period of crisis is characterized by peaks [27]. Similarly, an analysis of the Domino's Pizza crisis in 2009, reports how the organization under charge created a Twitter account to apologize its misconduct and to address the comments it was exposed to [19]. The analysis also revealed that the diffusion of bad news is faster than that of other types of content (e.g., apologies). A significant Twitter communication peak

during the Playstation hacking event in 2011 was observed, but could not be traced back to an increased engagement by Sony [18]. Although it can be seen as proven, that firms experiencing crises can gain the public's emotional support by communicating emotion-laden messages through social media [37], Sony did not feel obliged to react to public comments in their case. This poses the question for the shape of patterns and for preconditions of Twitter interaction in cases of company-related public scandals, particularly in the light of the fact, that business leaders seem to attribute little value to the use of social media [21]. Insofar it seems highly probable that Twitter use puts pressure on organizations being scandalized [2], we ask whether and to what extent the use of Twitter as a medium of self-presentation does not appear appropriate to them. During three types of organizational crisis situations – accidents, scandals and product safety incidents – different types of reaction or communication can be expected [17]. In cases of accidents and product safety incidents, where the needs of victims and customers are concrete, managers are forced to apologize and to address to certain stakeholders directly. Corporations here appear defensive and therefore tend to increase their communicative efforts. In situations of scandals by contrast, where the number of people affected often is unknown and accusations as well as legal consequences tend to stay unclear in the first instance, organizations normally react a little bit more observantly. Against the background of pressures and necessities of Twitter communication the question arises whether this kind of wait-and-see attitude can be sustained. It can be expected that companies, being subjected to Twitter pressure, can no longer afford being hesitant.

3. METHODS

We collected tweets from Twitter and analyzed them using different methods which we describe in this section.

3.1 Data Selection and Acquisition

Our analysis is based on tweets which were posted by official company accounts on Twitter as well as tweets by other Twitter users which refer to the companies. As a first step, we had to decide, which companies to include in our analysis. We selected eleven corporations which were involved in nine scandals during the last three years. Defining *scandal* as a special scheme and medially enhanced reaction to organizational misbehavior, we investigated publicly available cases of accusations that have taken place in this period. Hereby we shortlisted scandals that produced the most obvious resonance in mass media. The resulting set of companies is shown in Table 1. The selected cases of scandals are characterized as follows:

- In the case of *ADAC* (a club, governed by economic interests), the company was convicted of manipulating votes of their annual, self-executed elections of the car of the year in Germany. ADAC had to admit its guilt. Through this, the company brought itself in disrepute and lost its credibility. To prevent further terminations of memberships (about 300,000 members quitted during the first weeks after the scandal), and in order to demonstrate a will to change its policy, the organization should have been well advised, to use Twitter as a tool for communication and to apologize for its misbehavior.

- In the cases of *DFB* (German Football Association) and *FIFA* (Fédération Internationale de Football Association), both organizations were charged for corruption, but criminal proceedings just stood at the beginning. The question of guilt had not been determined at the moment of scandalizing organizational behavior. Therefore, the role and the expectations towards the organizations differed from those towards ADAC: there was not something to justify or to apologize yet.
- The complaints made against *Nestlé* dealt with using horse meat for the production of food. Since this accusation was simultaneously also made against other companies, and Nestlé had already become discredited for a longer period before this scandal due to its environmental policy, there could be expected some kind of routine when dealing with Twitter-made accusations (confirmed by the #FragNestlé hashtag).
- *Primark*, accused for exploiting workers already before the alleged cries for help were found in clothes, similarly to Nestlé, should have not been surprised by the scandal. It could be expected that the corporation would endeavor to ensure that it is not guilty.
- *Tesco*, being charged of illicit manipulation of accounting practices, similarly to FIFA and DFB, seemed not to stand under extremely high pressure to justify its behavior. The accusations had not been validated at the moment of scandal.
- *Volkswagen* in contrast to this had completely made a fool of itself, for everyone got to know evidence for how seriously and how far-spread the manipulation of exhaust fumes had been, furthermore: how ruthless the corporation had been cheating and betraying. Therefore it could be expected that the company would appear as a repentant sinner via Twitter.
- The three breweries *Bitburger*, *Krombacher*, and *Warsteiner*, all together found guilty of illegal price agreements, similarly were expected to react quickly and extensively in order to apologize and not lose too many of their customers.

For each company, we then had to decide which Twitter account is owned by the company and best represents it. We observed that most companies have several accounts, e.g., for different subsidiaries. We manually identified the accounts which were most relevant for our analysis.

The next step was the collection of relevant tweets. Therefore, we created three sets of tweets:

Tweets from companies: We used a combination of the user timeline REST API¹ and Twitter’s advanced search functionality² to collect tweets from the companies’ Twitter accounts. The REST API for the user timeline returns a collection of up to 3,200 most recent tweets (including retweets) posted by a user. We collected 41,772 tweets using this approach. To partially overcome the limitation of the REST API that it returns only the most recent tweets, we also use the

¹https://dev.twitter.com/rest/reference/get/statuses/user_timeline

²<https://twitter.com/search-advanced>

advanced search. However, these search results do not contain retweets by the companies. We collected 449,465 tweets from the start of each company’s account until the end of February 2016. The result is a collection of 479,206 unique tweets.

Tweets from other users: We employed two approaches to collect tweets of users about companies. First, we retrieved tweets using the advanced search that replied to or mentioned the selected companies’ user accounts as well as tweets that contain hashtags or terms that refer to the companies (e.g., *volkswagen*, *vw*, *deutschebank* – cf. Table 1 for a complete list). We restricted the search to the start date of each company account until the end of February 2016. This resulted in 860,554 tweets. Second, we collected 1,459,190 tweets from a one-percent sample of the Twitter stream that spans the time period from 2013 to 2016 using the same search queries.³

Tweet reply cascades: To analyze the 6,839 tweets⁴ of companies which are *replies* to other tweets, we collected the original tweets using Twitter’s status lookup API.⁵ Therefore, for each tweet from a company account, which included a `in_reply_to_status_id_str` field, we collected the corresponding tweet that the account replied to. For all tweets which we collected this way, we repeated the procedure, until we reached for each such *reply chain* its start, i.e., a tweet which was not a reply. Note that all such chains end with a tweet from a company, since the API does not support getting tweets in the other direction, i.e., getting all replies for a tweet. Overall, we collected 5,948 reply chains (for 891 replies the replied tweets were no longer available, e.g., deleted) and 15,309 tweets (including the 5,948 “final” replies).

3.2 Sentiment Enrichment

We enriched the tweets with sentiment scores using the Sentiment140 bulk API⁶ by Go et al. [11]. The tool is based on a maximum entropy classifier which leverages linguistic features (part of speech tags) and *n*-grams. It was trained using tweets which contained positive and negative emoticons. For a given tweet, the service assigned one of the polarity values *negative*, *neutral*, and *positive*. Our goal was to test the hypothesis that significant polarity shifts from positive to negative happen during crisis periods. Therefore, we analyzed the number of positive, neutral, and negative tweets over time around the crisis period as well as the ratio of positive to negative tweets. However, we could not observe large changes, since most tweets were classified as neutral, even though there were clearly negative tweets among them. One solution would be to retrain a domain-specific sentiment classifier that captures the phrasing used in typical Twitter conversations.

³It seems counter-intuitive that the 1% sample contains more relevant tweets than the search on Twitter. The reason is that the Twitter search lacks retweets.

⁴We omitted Tesco in this analysis, since 90% of their tweets (386,635) are replies which were much more than we had for all other companies.

⁵<https://dev.twitter.com/rest/reference/get/statuses/lookup>

⁶<http://www.sentiment140.com/api/bulkClassifyJson>

Table 1: Selected cases of corporate crises and scandals.

corporation	date(s)	object of scandal and accusations	Twitter accounts	terms
ADAC	14.01.2014 (19.01.2014 resignation)	manipulation of votes in the election of the “car of the year”	@ADAC	<i>adac</i>
DFB	16.10.2015	bribery in applying for the FIFA World Cup	@DFB	<i>dfb</i>
FIFA	27.05.2015	corruption when awarding the FIFA World Cup	@fifamedia	<i>fifa</i>
GlaxoSmithKline	15.07.2013	bribery to win orders	@GSK	<i>gsk</i> <i>glaxosmithkline</i>
Nestlé	19.02.2013	using horsemeat for the production of food	@Nestle @nestlecsv @NestleUKNews @NestleEU @NestleGermany	<i>nestlé</i> <i>nestle</i>
Primark	24.06.2014	notes of exploited workers found in clothes	@Primark	<i>primark</i>
Tesco	22.09.2014	wrong information on profits	@Tesco	<i>tesco</i>
Volkswagen	18.09.2015	manipulation of exhaust fumes	@Volkswagen @Vwpress_en @Vwgroup_en @VWnews	<i>volkswagen</i> <i>vw</i>
Bitburger Krombacher Warsteiner	22.03.2013	illegal price agreements when selling beer	@Bitburger @KROMBACHERBEER @warsteiner	<i>bitburger</i> <i>krombacher</i> <i>warsteiner</i>

3.3 Analysis Platform

The large amount of relevant tweets requires a system for analysis that allows us to quickly perform complex queries, visualize the temporal distribution of tweets as well as top users, hashtags, or topics with respect to the query. Furthermore, manual exploration of tweets requires functions for zooming into interesting time periods and restricting queries to certain users or hashtags. We used Elastic⁷ (ElasticSearch with Kibana) to support such a flexible exploration process. Elastic enabled us to build dashboards to explore the data, spot missing data, and re-iterate again. The flexibility of the system allowed us also to enrich tweets, i.e., with sentiment scores and to visualize those using Kibana. Finally, we built a custom component which allowed us to quickly select all tweets that were relevant for a specific company, by using a pie chart from Kibana, in which each slice is a filter for that specific company in our index. Clicking on the slice restricted the analysis to the tweets relevant for the corresponding company. Overall, we created two dashboards: one for the tweets from the company accounts and one for the tweets from the other users. We stored the tweets from the companies and the tweets from the other users in two distinct indexes. To analyze a specific company only, we created stored queries that could be selected using filters.

Figure 1 shows the dashboard we used to analyze tweets of Twitter users about Volkswagen. On the top left corner is the doughnut-shaped pie chart, to select the company. The bar chart in the center shows the temporal distribution of the tweets. The spike around September indicates the intense reaction on Twitter to the manipulation scandal. Below these two components, there are pie charts listing the top contributing users, mentioned hashtags, mentioned users, replied users, retweeted users, and tweet languages. At the bottom there is a table to inspect the tweets (only a part of it is shown in the screenshot), where the terms

matching the query (in this case *vw* and *volkswagen*) are highlighted.

3.4 Structural Analysis

To analyze the interaction between the companies and the Twitter users, we focused on their replies. These are tweets in which the companies reply to tweets of the users, e.g., to answer questions or respond to requests. Therefore, replies indicate if and how companies interact with Twitter users and customers. We first analyzed the ratio of company tweets which are replies. We then analyzed the length of the reply chains for different companies and manually inspected the long chains. The results of this analysis are found in Section 4.1.

3.5 Qualitative Analysis

To enable a topical sorting of scandal-related tweets as well as an allocation of companies to types of different Twitter strategies (broadcasting, reactive, or engagement strategy), we conducted a qualitative interpretation of what users and organizations were tweeting, thereby utilizing content analysis. For this purpose we sampled organizational and user tweets around the public discovery date of the misconduct of the respective organization. These data were visually explored and sorted according to their thematic content first: did the tweets mention the scandal or did they follow other thematic priorities? Second, those tweets mentioning the scandal were classified according to characteristics of company strategy and the users’ evaluation criteria as well as their tone of voice. Finally an attempt was made to identify patterns of interaction between companies and users. The tweets were coded in a three-step procedure. At first, the whole Twitter communication during the scandal period was read and then a reference to the scandal was established by identifying keywords, links, persons and other scandal-related information. Those tweets were counted manually for each case, just the same as the “normal” ones. In a

⁷<https://www.elastic.co/>

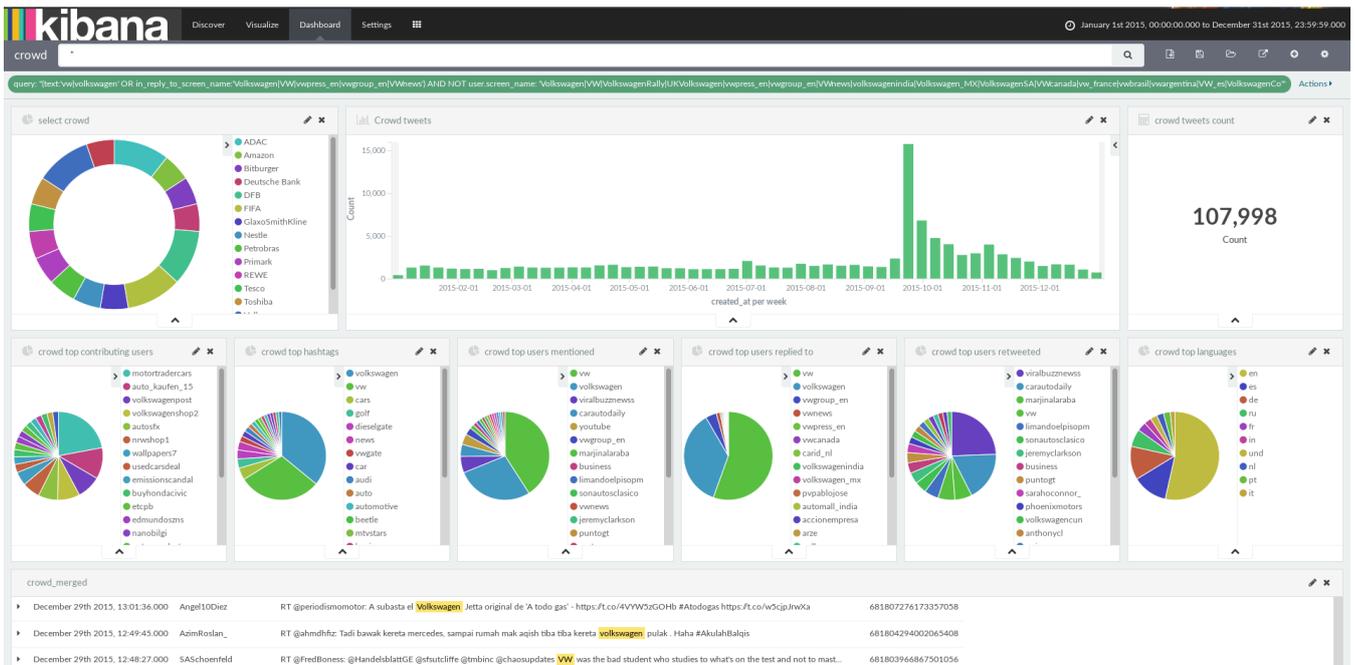


Figure 1: The Kibana dashboard used to analyze the tweets, showing tweets that contain the terms *volkswagen* or *vw* or are replies to tweets from one of the Volkswagen accounts.

third step, numbers and tally sheets were correlated. By intensively studying the course of tweeting for each case and comparing them, we constructed generalized summaries of typical communication strategies. On this occasion we also identified terms reflecting specific communication patterns, e.g., *we* or *you*.

4. RESULTS

In this section we present the results of our analyses. We start with an overview on basic observations about our data.

4.1 General Observations

As we can see in Table 1, companies typically have several Twitter accounts, e.g., for different subsidiaries or regions (e.g., @UKVolkswagen, @NestleEU), for communication with customers, for media communication (e.g., @fifamedia), and so forth. There is a big variance in the activity of the company accounts. From accounts like @Tesco with more than 1.2 million tweets (which we could not all get, but of the 425,000 tweets we could get, 90% were replies) to @Bitburger with just 41 tweets (5 of them are replies). Figure 2 shows the number of tweets and replies per company. As we can see, ADAC, DFB, Primark, and Nestlé are the most active companies in our sample, together with Tesco which we excluded as noted earlier.⁸ Except for DFB they are also actively replying to Twitter users: more than 10% of their tweets are replies (more than 20% for Nestlé and Primark). Looking at the individual accounts, however, we see differences, for instance, @nestlegermany contributes 3,237 tweets, 75% of them are replies. Almost all of them are from the #FragNestlé campaign from September 21, 2015.

⁸The numbers are not normalized by time, i.e., companies which started tweeting a long time ago might have more tweets but be less active than other companies.

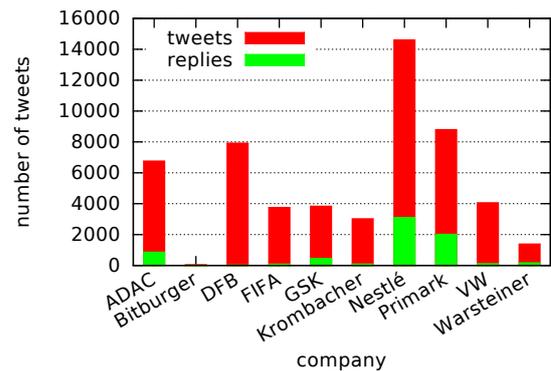


Figure 2: Distribution of the number of tweets and replies per company.

For Volkswagen, only @vwnews (i.e., the official Volkswagen USA account) has replied to users (100 of the 2,719 tweets in our sample). The number of replies for @DFB, @fifamedia, @KROMBACHERBEER, @nestlecsv, and @NestleEU is negligible (each below 100 or 3% of their tweets). In the days after the public disclosure of scandal-related events (we considered a 30 days period), the relative volumes of company tweets did not show any noticeable changes. It therefore must be stated in general that public tweeting in crisis situations does not seem to have the power to put remarkable pressure on the companies to tweet reactions.

4.2 Reply Chains

The distribution of the length of reply chains shown in Figure 3 shows that only some companies have longer reply chains. The zigzag patterns that can be observed for some

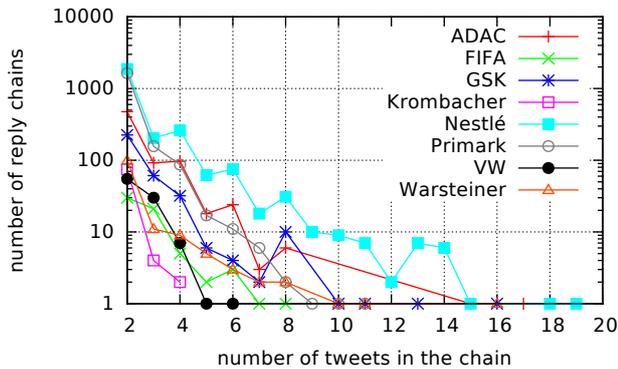


Figure 3: Distribution of the length of reply chains.

companies (e.g., Nestlé) are caused by accounts of these companies which are mainly used for customer communication: the customer is tweeting to the company, which then replies. This might continue by the customer replying again, followed by the company’s reply, etc. Such chains have an odd length, when the customer is the last one who replied. Since we did not get those replies, the chains with odd lengths are not complete which results in the observed zigzag pattern.

Figure 3 reveals that Nestlé has the most longest chains, almost all of them are from the #FragNestlé event. This campaign was initiated by the company in 2015, at the 21th of September [13]. The company’s marketing department used this hashtag for one day in order to “initiate a critical dialogue” with customers and clients. Within only 24 hours, more than 4,000 tweets were received – the majority of them negative and critical. As a result of this campaign, Nestlé became a target of mockery on the one side, but on the other side the company could place detailed and prepared answers, information and videos, thereby improving its image. Further manual inspection of the tweets showed that most reply chains reflect interaction due to customer support (e.g., “@GSK hi, bought thermobol (maximuscle) capsules but hear bitter orange can have bad side effects. Now questioning using them. Any advice?” — “@Flangie501 Hi Peter, its best to speak with our colleagues who can give you full info on Maxi products, pls ring +44 (0)800 783 8881 thanks”). However, we also observed that GlaxoSmithKline frequently reply to their own tweets to send longer messages. Upon further inspection, we found 56 reply chains with 197 tweets which only contained “self-replies”, i.e., the companies replied to their own tweets. Six companies showed this behavior (GlaxoSmithKline: 33 chains, Nestlé: 13, Tesco: 6, FIFA: 2, Primark: 1, DFB: 1). Almost all of those chains consist of two tweets only. An exception are the chains of GlaxoSmithKline – they frequently post longer chains of up to 16 tweets. Therefore, 150 of the 197 tweets (76%) are from GlaxoSmithKline while only 33 of the 56 chains (59%) are from them. We also found many examples of critical customer tweets to which companies replied, although typically not during concrete crisis situations. We analyze such interactions in more detail in the following subsections.

4.3 Communication Strategy During Exposure

We observed changes in the absolute amounts of tweets around the dates of scandals (peaks), cf. Figure 4. While there is a visible increase of Twitter communication by users/

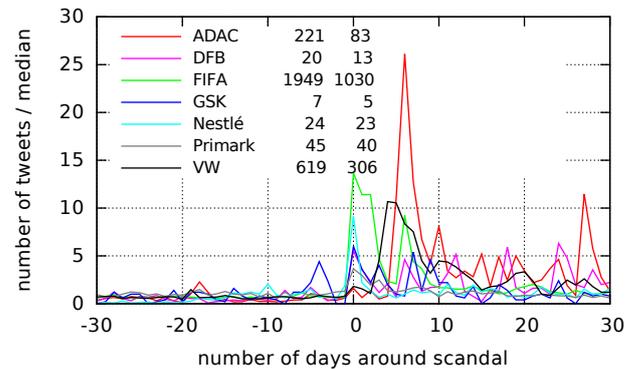


Figure 4: The customer tweet volume around the scandal date. The volume is shown for 30 days before and 30 days after the scandal day, which is indicated by 0 on the x -axis. The volume is normalized by the mean of the number of tweets within each company’s 61 days period. Thus, the plot shows by which factor the tweet volume deviates from the median. The legend shows the mean and median number of tweets for each company within that period. The three breweries were omitted due to their very low tweet volume.

customers in all cases without exception, there are some variations among the companies. Some of them reduce their tweeting activity for a short time, while others seem to intensify them due to the scandal. The proportion between scandal-related tweets and tweets of other content can be estimated as a ratio much less than 1:10 on the part of the companies around the scandal discovery date. In contrast, the customers/users show significant increases of addressing the scandal, where in general a share of about 30-80% of their tweets can be attributed to the scandal. In Figure 4 we can also observe that the tweet volume sometimes peaks only some days after the revelation of the scandal. Sometimes this is caused by weekends, in the case of the ADAC this indicates the resignation of its communication director which was published five days after the scandal.

The topics of the majority of company tweets are advertisement, product information, activity-related news and customer service, whereby only a very small share represents reactions to allegations. These scandal-related Twitter reactions of the companies mainly consist of references to official statements/declarations of the company and its officials. Scandal-related direct responses to customers could be noted only in exceptional cases (Primark, Tesco, and Nestlé). As an example for a typical company Twitter reaction the following dialogue between Tesco and Twitter users shows how the organization tries to adopt a stalling tactics. This kind of standardized answer of a company under pressure could be observed as well in eight other cases:

- Sep 22 2014, 09:13, @fraserbacon: What the hell has happened @Tesco. Inflating the figures by £250m to boost the share price. . . well Every Little Helps. #greedy-fuckers
- Sep 22 2014, 09:24, @Tesco: @fraserbacon It is a complex investigation so we appreciate your patience. 1/2
- Sep 22 2014, 09:24, @Tesco: @fraserbacon We will provide a further update at our interim results, which will be announced on the 23 October 2014. 2/2

- (original tweet was not available)

Sep 22 2014, 13:05, @Tesco: @pod181965 It is a complex investigation so we appreciate your patience. We will provide a further update at our interim results. 1/2

Sep 22 2014, 13:05, @Tesco: @pod181965 These will be announced on the 23rd October. 2/2

The reactions of Volkswagen, Primark, and ADAC are similar:

- Sep 22 2015, 18:43, @vwpress_en: See video: Statement Prof. Dr. Martin Winterkorn <http://t.co/69QGGpCnJP>.
- Sep 24 2015, 10:06, @primark: @S_Tagblatt: Unseren Verhaltenskodex findest du hier <http://t.co/6xAMjzyUu9> (You can find our current code of conduct here)
- Jan 22 11:38, @ADAC: Aktuelle Erklärung von ADAC Präsident Peter Meyer zur öffentlichen Kritik am Club => <http://t.co/WyCF8Rwrqd> (Current declaration of ADAC president Peter Meyer on public criticism of the club)

4.4 Reactions of the Users

With respect to reactions of the users in answer to scandal-related news, it appears that the Twitter users without exception show strong emotionally charged reactions. For any case under research the number of tweets in general is rising substantially at the moment of scandal. The content of scandal-corresponding remarks preponderantly consists of tweeting and retweeting news facts, of offenses, outrage, indignation and sometimes humor, sarcasm, or irony. In the case of the FIFA and DFB corruption scandals one even can actually talk of shit storms. In one exceptional case, the misconduct of concerned companies occasionally is played down (ADAC). Tweets that directly address the companies appear to be common (even though they are a minority) and either consist of insults or (less frequently) call for an immediate clarification of accusations or ask for further information. Some examples for three types of user reactions:

Irony: Sep 18 2015, 19:16, @zeb600: RT @tomgara: This alleged sketchiness by Volkswagen is pretty amazing: <http://t.co/1DjG1MPy9J> <http://t.co/x7kbGKa6Bu>

Sep 18 2015, 20:30, @dougmartz: @VW: will you please give me my money back for the 2 "Clean" Diesel Golfs you sold me now that we know they are not all that clean? Cheaters?

Anger: May 27 2015, 06:19, @badgergerhokie: RT @AndrewCieslak: When are they gonna make zero dark thirty but about watching these FIFA assholes get dragged from their 5 star resort?

May 27 2015, 06:22, @danparkins9: @FIFAcOm: please shutup

Mockery, Disgust: Feb 19 2013, 15:26, @GGPolitics: DIS-USTING! Horsemeat now found in Nestle products!! <http://t.co/rmmRxUr4>

Feb 19 2013, 03:52, @nickmorrot: I wonder if Nestle will rebrand as LessNeigh

4.5 Interactivity

Considering interaction patterns between companies and Twitter users, these appeared only in very rare cases. Direct replies to scandal-related inquiries tend to be an exception. They could be observed sporadically in the cases of Primark, Nestlé, and Tesco (examples are shown in Tables 2 and 3). Therefore, the conclusion is that companies under pressure pre-dominantly are pursuing a strategy of broadcasting, they do not seem to be willing to reply or to interact with Twitter users seriously. If at all, direct requests to scandals predominantly are responded to by references to official statements, to CSR principles, or by the reference to further investigations. A reactive strategy of interactively replying to tweets either seems to be too risky or too laborious. The two sample reply chains in Tables 2 and 3 demonstrate how an interactively followed strategy is executed by companies.

What is apparent by these reply chain examples is that a company's use of Twitter by all means seems to be considered as useful sometimes. The companies' reactions in these cases demonstrate that they take their customers seriously and that they are willing to enter a direct exchange. By this strategy they are most likely able to reduce waves of indignation or shit storms. Even if some people reacted mockingly to the Nestlé hashtag #FragNestlé, activated in September 2015 [13], Twitter usage by companies can stabilize identity and gain legitimacy [2]. The reasons for why this kind of engagement strategy by organizations nevertheless seems to be an exceptional case during times of exposure need to be further explored. More cases need to be taken into consideration and compared.

5. CONCLUSION

In this work we presented an analysis of companies and customer reactions on Twitter to corporate crisis situations. We can answer to our leading questions as follows:

- *How do companies, which are seen in connection with scandals, react to allegations via Twitter?* – In general, Twitter does not seem to impose more communicative constraints on scandal-affected business organizations as expected. Although Twitter is used during scandals in the cases at issue, the analyses showed that the majority of firms tend to choose a wait-and-see strategy, for they do very seldom interact with the public and they prefer to broadcast skimpy links to press statements or to further developments.
- *What is the content of allegations made by Twitter users, which kind of sentiments are of main importance?* – Twitter users on the other side accuse the companies of intentionally cheating, fooling and harming the public. They transmit and pass on case-relevant links resp. information. By this, they predominantly display sentiments like anger, disgust, mockery, and irony. They hereby confirm the thesis that Twitter promotes interest and commitment on themes of public interest and that it tends to emotionalize the debates.
- *Which patterns of interaction between organizations and Twitter users can be recognized?* – With regard to interaction patterns, it must be stated that companies in general do not seem to feel obligated to respond directly to accusations via Twitter. The majority of organizations follow a broadcasting strategy. If at all,

Table 2: A sample of reply chains by Nestlé. The communication was not exercised during the scandal, but during the #FragNestlé campaign. In the first conversation a user is sarcastically asking when Nestlé is offering new products with horse meat and thereby refers to the scandal from 2013. Nestlé is answering quick-wittedly by saying that they have to disappoint the user, since they neither have such products in stock nor plan to produce them. The other two conversations refer to allegations that Nestlé is restricting water supply in developing countries as addressed by the documentary “Bottled Life”. Nestlé is replying with links to official statements explaining their position and answers to questions that address the allegations made in the movie.

@wereachthesun	#FragNestle Wann kommen neue #Pferdefleisch-Produkte? <i>(When do you offer new horse meat products?)</i>
@NestleGermany	@wereachthesun Da müssen wir dich enttäuschen: Es sind aktuell keine Produkte weder im Sortiment noch in Planung. <i>(We have to disappoint you: there are currently neither products in stock nor planned.)</i>
@coerdelion	Nestlé Pure Life is killing Pakistan's water supply http://t.co/oSYZiokPd4 via @Sum_of_Us
@nestle	@coerdelion We're not draining Pakistan's water We installed 2 water filtration plants to give access to clean water http://t.co/dHUv1jvNjh
@BWassertisch	Zum Nutzen der Wasserkonzerne: EU-Kommission treibt #Privatisierung der Wasserversorgung voran http://t.co/Cz4fGRFEM7 #right2water <i>(For the benefit of the water corporations: EU commission is promoting privatization of water supply)</i>
@MXLola5	@BWassertisch Reicht denn nicht schon ein gieriger #Nestlé, der schon vielen, meist ärmsten Ländern das Wasser abgräbt!? <i>(Isn't a greedy #Nestlé sufficient, which digs off the water of many poor countries!?)</i>
@NestleGermany	@MXLola5 Wir respektieren das Menschenrecht auf Wasser. http://t.co/awiWfc6rz0 <i>(We respect the human right for water)</i>
@MXLola5	@NestleGermany @BWassertisch Dass ich nicht lache Ihre mantramäSS. Sprüche können Sie d Ärmsten u Ungebildeten verk. http://t.co/M4HrBbBWKU <i>(Don't make me laugh You can sell your mantra-like slogans to the poorest and uneducated)</i>
@NestleGermany	@MXLola5 den Film haben wir auch gesehen und unsere Sicht aufgeschrieben http://t.co/7rkfkVUZIE <i>(We've seen the movie and documented our point of view)</i>

interaction predominantly is limited to brief references to press releases, public statements of officials or to denials of guilt. Longer reply chains or serious mutual information exchange are exceptions and do not necessarily occur during scandal situations (as in the example of the #FragNestlé hashtag). These findings

Table 3: A sample of longer reply chains by FIFA. In the first conversation FIFA is announcing the live stream for the FIFA congress. A user is then asking about the agenda and specific reforms. FIFA replies with links to the agenda and a statement that these reforms will be addressed at a later congress. The second conversation starts with a user stating that FIFA will pay no tax in Brazil. FIFA replies with numbers citing an Ernst & Young study and then another user joins in and asks specific questions about the study and the tax payment. FIFA answers with a link to the study and another statistic. The numbers can not convince the user, since they are not clearly related to each other. FIFA then states that the statement of the first user is not true.

@fifamedia	If you're interested in the #FIFA reform process, voting will begin shortly at the #fifacongress via live-stream. http://t.co/UdAfZ8utfr
@IVendemiale	@fifamedia which are the points of this reform process?
@fifamedia	@IVendemiale The agenda is here Lorenzo. Agenda point 13: http://t.co/U8LyMA8SHa & in more detail here: http://t.co/1PIVNxh0NG
@IVendemiale	@fifamedia thanks a lot, I'm also watching the live streaming. But nothing about age limits or terms of office. Isn't it?
@fifamedia	@IVendemiale That's right. Confirmed few days ago that this will now be presented at Sao Paulo congress in 2014.
@_PaulHayward	Good Private Eye numbers. Cost of Brazil World Cup - €8.6bn. Brazil's average monthly wage - €410. Tax Fifa will pay - €0.
@fifamedia	@_PaulHayward Simply not true. FIFA pays tax. Ernst & Young study: added World Cup tax revenue of R\$18.1bn and R\$63.5 bn income for BRA.
@LukeMcLaughlin	@fifamedia @_PaulHayward Where could one read the Ernst & Young study? Would be interesting to know FIFA's tax as a percentage of revenue.
@fifamedia	@LukeMcLaughlin @_PaulHayward Study: http://t.co/Sh6iKwDatm . More facts: FIFA spends over 1.3bn USD on World Cup.
@LukeMcLaughlin	@fifamedia @_PaulHayward Thanks. A bit misleading to say 'FIFA pays tax' then quote R\$18.1bn figure? One has nothing to do with the other.
@fifamedia	@LukeMcLaughlin @_PaulHayward What is misleading (and not true) is to say FIFA pays no tax and to imply hosts do not benefit from World Cup

suggest that organizational social media policies during times of exposure do not seem to follow new communicative norms or practices. Twitter use related to company scandals fails to fulfill the promise of generating a public sphere of interchange and to serve as an instrument to put pressure on companies.

A large-scale analysis of many companies requires meth-

ods to automatically identify malpractices/crises of companies. Therefore, an application of NLP techniques seems the appropriate methodological way. By using NLP, a further refinement and expansion of the methodology of content analysis could be pursued. Since the bulk of qualitative content analysis (identification, coding, sorting of single terms and document segments) can no longer be achieved for larger amounts of data in a satisfactory way, there could be tools developed that facilitate and automate a comparison of much more cases. More concretely, we expect that NLP can support the analysis by identifying

- adjectives (to find out which mood corporations and customers try to transport with their tweets),
- sentiment (different kinds of sentiment of tweets or their strength in expression and their accumulation have a connection with the use of Twitter by companies),
- actors (Whom do companies address in their tweets and how? On whom do they focus – on themselves, on their customers or on someone else?), or
- entities (Which entities or topics are frequently mentioned?).

An open question for future work is why companies do react in the way they react? Reasons could be organization culture, legal risks, or market structure. In some situations silence is probably seen as the best option, at least until another strategy is prepared.

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