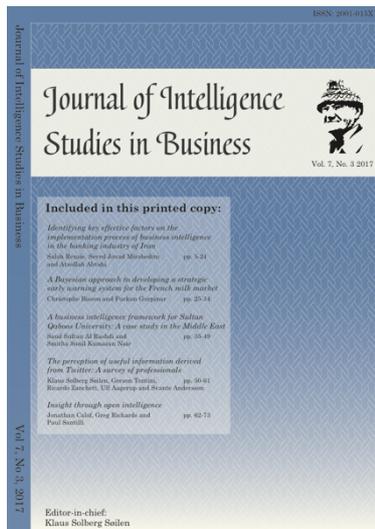


# Journal of Intelligence Studies in Business



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### The perception of useful information derived from Twitter: A survey of professionals

Klaus Solberg Søylen<sup>a</sup>, Gerson Tontini<sup>b</sup>, and Ulf Aagerup<sup>a</sup>

<sup>a</sup>Department of Engineering, Natural Sciences and Economics, Faculty of Marketing, Halmstad University, Halmstad, Sweden, <sup>b</sup>FURB, Brazil; [klasol@hh.se](mailto:klasol@hh.se)

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## The perception of useful information derived from Twitter: A survey of professionals

Klaus Solberg Søylen<sup>a,\*</sup>, Gerson Tontini<sup>b</sup> and Ulf Aagerup<sup>a</sup>

<sup>a</sup>*Department of Engineering, Natural Sciences and Economics, Faculty of Marketing, Halmstad University, Halmstad, Sweden*

<sup>b</sup>*FURB, Brazil*

\*Corresponding author: [klasol@hh.se](mailto:klasol@hh.se)

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**ABSTRACT** In this study we gathered data from 220 professional users of information via a survey. Twitter is perceived as a service for useful information but not for the reason one may expect, not because the content of the tweets give valuable information, but because of what can be derived and extracted from the information that is being tweeted and not tweeted. Professional users are aware that tweets are being manipulated by communication departments so they adjust for this in their understanding of the content that is being delivered. For the same reason “fake news” is not seen as a problem either by professionals. Twitter is seen as valuable alongside other social media software (additional software solutions) and used directly together with other software (integrated software solutions). As a stand-alone service it is found to be of less value to experienced users and there are no signs that Twitter is a valuable tool for learning.

**KEYWORDS** Bots, business intelligence, competitive intelligence, consumer opinion mining, sentiment analysis, social media, Twitter

### 1. INTRODUCTION

For this research project we wanted to know if the online news and social networking service Twitter is a source of useful information, as useful information, or intelligence, is the core of what makes companies thrive. Previous studies have shown how information leads to a competitive advantage (Porter and Millar; 1985) and the importance of strategic planning for company performance (Jenster & Søylen, 2013). An early study by Java et al. (2007) suggests that people tweet because they want to share daily activities and information, so it would be a natural next step to ask what the value of this information for business purposes is. This question is also important for the public company Twitter as its share price depends much on the value or perceived value of the information it makes available, which is

inseparable from its product. If Twitter delivers valuable information the service is an important source of intelligence and maybe even learning. In the worst case it is a marketplace for gossip.

That the service offers a large amount of information or data is reflected in the numbers: in 2016 Twitter reported that they had 319 million active users. When we do some statistics, we see that images are posted more than videos, but that videos get more likes. Most retweets are given to texts with links/URLs. Humor seems to be the most frequent type of content, but politics, (pop) culture, food and travel are other popular categories and the categories are not mutually exclusive, either. Those accounts with the most followers are pop-stars (60% of the top 50), followed by tv-stars and other celebrities. Only

five out of the top fifty are big news outlets (two accounts for CNN, BBC, ESPN and another sports channel) and three are politicians (Trump, Obama and Modi).

Previous research has shown that Twitter has an effect on political outcomes, such as the Arab Spring Movement (Kassim) or the 2012 US presidential election (Mills, 2012). The focus in this article is on valuable information for business.

Research in marketing has shown how Twitter can result in people not seeing a movie as a result of poor reviews through microblogging word of mouth (MWOM) (Hennig-Thurau et al., 2015). The phenomenon is called “the Twitter effect” and has strong economic implications for products that are sensitive to immediate success, such as movies (Hayes, 2002), music (Asai, 2009) and electronic games and it affects early adoption of new products.

Information diffusion on Twitter occurs through the process of retweeting. Suh et al. (2010) analyzed 74 M tweets and found that best chances of being retweeted occur with the use of URLs and hashtags. It is also affected by the number of followers and followees, as well as the age of the account. Naveed et al. (2011) found that retweets occur when the topic is general and public instead of narrow and personal. This is an argument for Twitter as a news platform, the authors argue. Their research also confirms the existence of the Twitter effect, that bad news travels longer and faster.

Hong et al. (2011) show, in a highly cited poster paper, some of the mechanisms for getting many likes on tweets. The likelihood of being retweeted increases with the number of followers a person has and the extent to which the tweet has been retweeted by others before, but the paper also goes into more detail.

Turning to studies more closely related to information, Haustein et al. (2016) show how Twitter can be used effectively to spread scientific information. They show how automated twitter accounts, known as Twitterbots, which are small software programs that are designed to mimic human tweets, schedule posts automatically when the engagement and potential reach are higher, allowing for repetition of tweets. Tools like Tweriod can tell what day and times followers are most active. With a IFTTT recipe like Buffer it is possible to automatically reschedule the content posted in social media. With TwitterCamp tweets can be displayed in large-format displays. With

chir.ps, AudioBoo, or Twaudio users can send voice messages via twitter, which is also a way of getting around the 140 characters limit.

Castillo et al. (2011) look at the information credibility of news on Twitter. The authors explain why it is so easy to be misled on Twitter, especially for inexperienced users. Newsworthy tweets tend to include URLs, have deep propagation trees, come from users with many tweets and have many retweets.

Kim et al. (2016) conducted a competitive intelligence (CI) exercise comparing consumer opinions and sales performances between an iPhone and Samsung mobile phone. The analysis confirms the value of Twitter for CI. The authors found that the volume of tweets revealed a significant gap between the two products. This was confirmed by the purchase intention data and the social opinion gap. Other authors have studied how Twitter and CI are relevant for specific industries, like the film industry (Kim et al., 2015), hotels (Ye et al., 2011), restaurants (Lu et al., 2013), retail (Chen, 2010) and the food industry (Kim and Jeong, 2015).

Text data about end users are analysed using opinion mining and sentiment analysis. Both are a part of social media analytics. Social media analytics is about finding software or business intelligence solutions to gather, monitor, analyze, summarize, and visualize social media data such as that from Twitter. An evaluation of business intelligence systems along similar lines has been conducted by Amara et al. (2012), Sabanovic & Søylen (2012), Søylen (2012 b) and Fougatsaro (2009). It gives a more accurate assessment of customer responses, enabling companies to improve their market strategies (Chen and Zimbra, 2010; Liu et al., 2010; Lusch et al., 2010). Li and Li (2014) show how social media marketing is effective in increasing brand awareness of existing or new products, and can help to build a strong brand community. Most studies using social media analytics suggest that it is a powerful tool for marketing purposes.

In conclusion, many studies have dealt with a single case or a specific phenomenon. What is missing is a critical study about what perceived value Twitter has for CI and business intelligence (BI) professionals in general. There is another gap in the literature regarding the receiver of the tweets, i.e. the readers who evaluates that information. The problem is interesting for the scope of intelligence studies as outlined in Søylen (2015).

When it comes to intelligence, most research papers are of a more technical nature. Data mining, artificial intelligence and data learning technologies have come a long way when it comes to identifying and classifying the information in tweets according to names of people, organizations, locations, dates and times in what is sometimes called Named Entity Recognition (NER): findings that are highly useful in marketing and segmentation. Inkpen et al. (2017) show how it is possible to go deeper into location and identify not only countries, but province and cities.

Another related body of research looks more at alert functions for national and military intelligence. For example with large scale tweets, some events may be predicted. Alsaedi et al. (2017) propose to that an end-to-end integrated event detection framework which was tested and confirmed using a large-scale, real-world dataset from Twitter, using the August 2011 riots in England as an example. The same technology can be useful for private companies to predict new trends.

## 2. METHOD AND RESEARCH DESIGN

The purpose of this study is exploration, hypothesis testing and description. we have the following research questions:

RQ1: Is Twitter a source of useful information for companies?

RQ2: To what extent do managers use Twitter?

RQ3: What do managers think about Twitter in general?

To answer the first question a number of hypotheses were formulated (hypothesis testing). To answer the second question, a number of specific questions were asked (descriptive method). For the third question an open-ended question was created (exploratory method).

### 2.1 Hypothesis testing

The following hypotheses were defined for this study:

Hypothesis 1: Twitter is useful for competitive intelligence (Q1)

Hypothesis 2: Those who post on Twitter have valuable information (Q2)

Hypothesis 3: Those who post on Twitter whom I follow have valuable information (Q3)

Hypothesis 4: I get my most valuable information from Twitter (Q4)

Hypothesis 5: The most valuable information I get on social media is from Twitter (Q5)

As humans we tend to overestimate our own abilities. Thus, we think that we know more than others and that the people we know and follow on Twitter are more knowledgeable. This assumption is tested with the difference in answers from H2 and H3. We also want to see and compare any difference of what people understand as CI and useful information in general by comparing H1 to H4. It may be valuable to compare the information gathered on Twitter to the information we get from other social network services, such as Facebook. To make a distinction possible we split the hypotheses in two, allowing a comparison with all information sources (H4) and other social network information sources (H5). A Likert scale of 1-5 was used, including the five categories: I completely agree, I agree, neutral, I disagree and I completely disagree.

This method can only give a perception of what users think, not say what they actually think. As such, this empirical study is in a tradition of perception studies. The reason for choosing this method is primarily one of economy, as other studies demand more time and resources (direct observations and experiments).

### 2.2 Description

A number of specific questions were formulated to find out to what extent managers use Twitter:

How often do you think you check Twitter each day? (Minutes) (Q6)

How many minutes do you think you spend on Twitter each day? (Q7)

How often do you tweet? (Number of times per day/week/month) (Q8)

What percent of your time on Twitter is for professional use (not private use) (Q9)

Questions were asked in a survey with the option to add comments and explanations to

each answer. As it can be difficult (almost impossible) to know how many minutes we use on Twitter we ask what managers think they use (Q6, Q7). It is assumed that it is easier to remember how many tweets we send (Q8). The answers show we should have used “think” in the last specific question, too (Q9). Initial answers also show that it may have been wrong to use several measures as options in one and the same question, like day/week/month as respondents used different measures, which demanded unnecessary recalculations for direct comparisons.

### 2.3 Exploration

For the last part of the survey we wanted to know what managers think about Twitter in general.

“Please give your personal comments about the importance of Twitter for competitive intelligence” (Q10)

An open ended question was given with enough space for comments.

### 2.4 Research Design

The extent of researcher interferences was moderate. All questions were sent in networks online in the form of a link to a survey using the service SurveyMonkey. The online networks defined as the population were eight groups related to business intelligence in LinkedIn with from 7 000 to 1.8 million members in each group, and a mailing list of more than 900 members for the JISIB journal, as shown in Table 1.

Table 1 Population defined.

Nr.	Group's name	Members
1	Software and Technology	1,800,000
2	Business Intelligence professionals	206,000
3	Microsoft Business Intelligence	120,000
4	Software as a Service (SAAS)	101,000
5	SCIP	26,000
6	Market Intelligence Professionals	25,000
7	CI Professionals	12,000
8	Competitive Intelligence Professionals	12,000
9	JISIB membership list	900

These users are defined as experienced users, thus less likely to be manipulated by

false information on Twitter (Castillo et al., 2011). There was less than a minimum of manipulation and/or control and/or simulation. The study setting must therefore be said to be contrived as it is an artificial setting and we are not studying a natural environment where the phenomenon occurs normally. The research strategy is survey research. The data collection method is a questionnaire. The unit of analysis is individuals. The measurement is scaling for the hypotheses. Items in the descriptive part are measured (times, minutes). The exploration part is based on text analysis. The study is partly longitudinal with two measures in time, with a time difference of 6 months between each. We used the same sample/survey.

Sampling size:  $n = 220$ .

The sample was 0,012% of the population, which reflects the increasing difficulty of getting users to fill in complete surveys with the increased number of users seeking attention on the internet. This gives us a confidence interval of about 7 with a 95% confidence level.

For the text analysis from the open-ended question, we use a synthesis process by which opinions are classified according to relevant dimensions identified in the process (1), narrowed down to key words (2), and analyzed for the least common denominator/meaning (3). This allows for a test of validity and accuracy as readers can largely redo the analysis from the same raw data and the empirical test can easily be replicated.

## 3. EMPIRICAL DATA

Table 2 summarized the responses to the first questions. In Q6 and Q7: Most respondents misunderstood this question, something that was missed in the pre-test. Respondents treated Q 6 as if it was the same as Q7, asking only for the number of minutes, not the amount of time spent.

The average answer was 16 minutes, but answers varied too much for the average to have much meaning. Many respondents do not check Twitter at all and the minutes used on Twitter vary from 1 minute to 180 minutes per day. The most frequent answer was 10 minutes (15.5%), followed by 60 minutes (12.0%), 1 minute (10.3%), and 20 minutes (6.9%). Only 3.4% of respondents never use Twitter.

Table 2 The hypotheses (Q1-Q5).

	<b>I completely agree</b>	<b>I agree</b>	<b>Neutral</b>	<b>I disagree</b>	<b>I completely disagree</b>
Q1	23.33%	46.67%	18.33%	10.00%	1.67%
Q2	5.00%	43.33%	36.67%	15.00%	0%
Q3	18.33%	46.67%	26.67%	5.00%	3.33%
Q4	1.67%	20.00%	23.33%	36.67%	18.33%
Q5	6.67%	15.00%	28.33%	33.33%	16.67%

Q8: Number of tweets per day/week/month varied even more than the number of minutes spent on tweets. So again, an average makes little sense. Some respondents answered in days, others in weeks and others again in months. This was not an optimal way of framing the question but luckily it could easily be solved by recalculating all numbers as “tweets per day”. This is shown in Table 3.

Table 3 Tweets per day.

	<b>Day</b>	<b>Week</b>	<b>Month</b>
	3, 1, 2, 1, 3, 3, 1, 2, ,1 10,	2, 10, 5, 2, 2, 5	30, 1, 2, 3, 30, 1
Average	2.7	4.3 per week	11.2 per month
Day equivalent		0.6	0.3

Those who answered in tweets had an average of 2.7 per day, in weeks they had 4.3 per week or the equivalent of 0.6 per day. Those who answered in months had an average of 11.2 tweets per month and the equivalent of 0.3 per day. The answers suggest that it may be that this division of days/weeks/months catches a more nuanced understanding of users’ habits than if we had only written days. Those who answered in weeks have a far lower range of tweets than those who answer per day and those who answer per month have a far lower number of tweets than those who answer in tweets per week. The total average is 1.2

tweets a day, which for example is below the limit of 3 tweets recommended by the service Buffer. Their statistics suggest that the engagement of your followers drops first after the third tweet. See <http://follows.com/blog/2016/04/times-day-post-twitter>. A large percent answered that they send 0 tweets per day (27.6%).

Q9: On average, respondents use Twitter for work purposes 50.1% of the time. Answers vary greatly and often, from 0-100%. The most frequent response (mode) was 100%, which was answered by 17.6% of respondents. 15.7% answered 50% of the time. 7.8% answered 90%, 5.9% answered 1%, and 5.9% answered 0 times.

Q10: Often it is the open-ended question that brings the most meaning to the empirical work. From the 220 respondents we have taken away blank answers, irrelevant comments or pure opinions without arguments or backing. These represented 56% of comments, or 123 comments. We also took away double comments, comments with content that was too similar. These represented another 23% of comments, or 50 comments. This left 46 comments, or 21%, as shown in the tables below. These are deemed significant and worth analyzing further.

Looking at the comments, four dimensions (D) were identified as relevant for further analysis: Advantages (1), Potentials (2), Limitations (3), and Warnings (4) as shown in Table 4.

Table 4 The comments (Q10).

<b>D/ Nr</b>	<b>Advantages</b>	<b>Potentials</b>	<b>Limitations</b>	<b>Warnings</b>
1-4	Strongly important especially when it comes to extracting knowledge and insights from social data.	Not so useful for CI but for marketing and consumer insight teams.	Twitter may provide competitive information for some industries.	Relying completely on it would be futile for most.

5-8	Twitter's immediacy means you can get quick updates on a range of topics, products and news.	In CI we can get info regarding bigger changes in consumer attitudes and know if rivals do pilot tests with new products somewhere in the world.	Sometimes data may be available from only one category of users.	Mostly its content (which is followed, viewed and commented on by many) is banter and self-promotion by individuals.
9-12	It lets you keep up-to-date and allows you to capture the zeitgeist of your target.	Twitter is ONE source of new signals in the competitive environment.	Twitter is one of many resources, not a primary source.	Some try to use it for marketing of products or services, which by itself does not provide anything useful.
13-16	You can find the latest news posted by companies involved in a competitive landscape.	The most authentic opinions on Twitter are from politicians (they use it in a very straightforward way),	It is one more source of information, but not focused, in near real time. Corporate accounts are mostly controlled by communication departments.	I remember once a group I worked with tried to analyze Twitter content to understand what people wanted for Valentine's Day. They ended up only with information from marketers on things people could buy for Valentine's Day. All the plans of providing new insights into the client vaporized into thin air.
17-20	The instantaneity of information, in particular "alerts" on events.	I do sometimes use it to ID human sources who we could speak with on various topics with authority.	It really depends on the industry. If none of the competitors or customers are using it, it will be useless.	Twitter is certainly not a CI tool. CI should be focused on building outside-in perspectives.
21-24	Twitter is the best source for recent/actual information (fastest social media).	It's a gap filler.	One of many resources, but not exclusive.	I think Twitter more often misleads than informs for CI work.
25-28	I think it is important but I rarely tweet.	Large potential though for text analysis and network analysis, etc.	To be integrated, but limited by itself.	I find it not worth the time required to scan all of the pointless stuff.
29-31	Twitter is useful for identifying relevant sources for CI tasks, their messaging and their networks.	Twitter can be useful because it contains very different information about the environment.	There's a huge variation in quality of content and difficult to assess these differences.	
32-34	It is useful real time news in relation to surprise events such as terrorist attacks, military moves, uprisings, disease outbreaks, [...] and for geopolitical and catastrophe monitoring.	The importance of Twitter for competitive intelligence requires sifting through the noise.	I don't regard it as important. It is merely a tool that can guide you towards leads.	
35-37	It's an indirect tool. Assess what people know, value or say.	To use Twitter, you should also use tools like Tweetdeck or Hootsuite so you can manage the Twitter stream and put key people into columns and lists.	In the age of information overload and disinformation it is as much what people don't say or omit on Twitter.	
38-40	When used seriously I think it is very valuable.	Follow the group rather than the individual. For tweeting use tools such as Buffer to schedule tweets.	I prefer FB.	
41-42		I believe Twitter is a platform where people are spontaneous.	Only for selective accounts and filters need to be applied.	
43-44		It is possible to spot trends early but you need to be following the trend setters. Identifying true trendsetters is difficult.	Interesting but like any secondary source offers guidance at best.	
45-46		Depends on who you follow and who follows you.	It is simply a source of information in which public opinion may be manipulated.	

From the classification of relevant dimensions a number of keywords could be extracted from each group of answers:

1. Keywords for Advantages: Extracting knowledge and insights from social data, fastest social media, quick updates on a range of topics, up-to-date and allows you to capture the zeitgeist, latest news posted by companies, "alerts" on events, identify people and networks, assess what people know, value or say.
2. Keywords for Potentials: Not useful for CI but for marketing and consumer insights, consumer attitudes and know if rivals do pilot tests, only one source among several, authentic opinions from politicians, ID human sources who could speak on various topics with authority, potential for text analysis and network analysis, different information about the environment, requires sifting through the noise, requires use of other tools (Tweetdeck, Hootsuite, Buffer), follow the group rather than the individual, a platform where people are spontaneous, but you need to be following trend setters, identifying trendsetters is difficult, depends on followers and who you are following
3. Keywords for Limitations: Corporate accounts controlled by communication departments, sometimes data maybe available from only one category of users, not a primary source, value depends on customers, if they use it, limited by itself, difference in scope and quality, difficult to assess, at best for leads, tells you what people are not saying, FB is better for CI work, a secondary source, easily manipulated
4. Keywords for Warnings: Futile to rely on, mostly self-promotion by individuals, a marketing tool for companies, reflects the market, not a CI tool, for inside-out perspectives, misleading, not worth time for scanning.

A look at the data shows that respondents think the advantage of Twitter is that it is a fast social media, quick with updates and alerts, on a range of topics and events. It's good for identifying people and their networks, not necessarily for finding the truth, but what individuals and institutions value and say. Twitter is not a CI tool as such, but more valuable for marketing and consumer insights, potentially easily to manipulate and controlled by communication departments. It's largely a place where individuals and corporations promote themselves and their products. In the

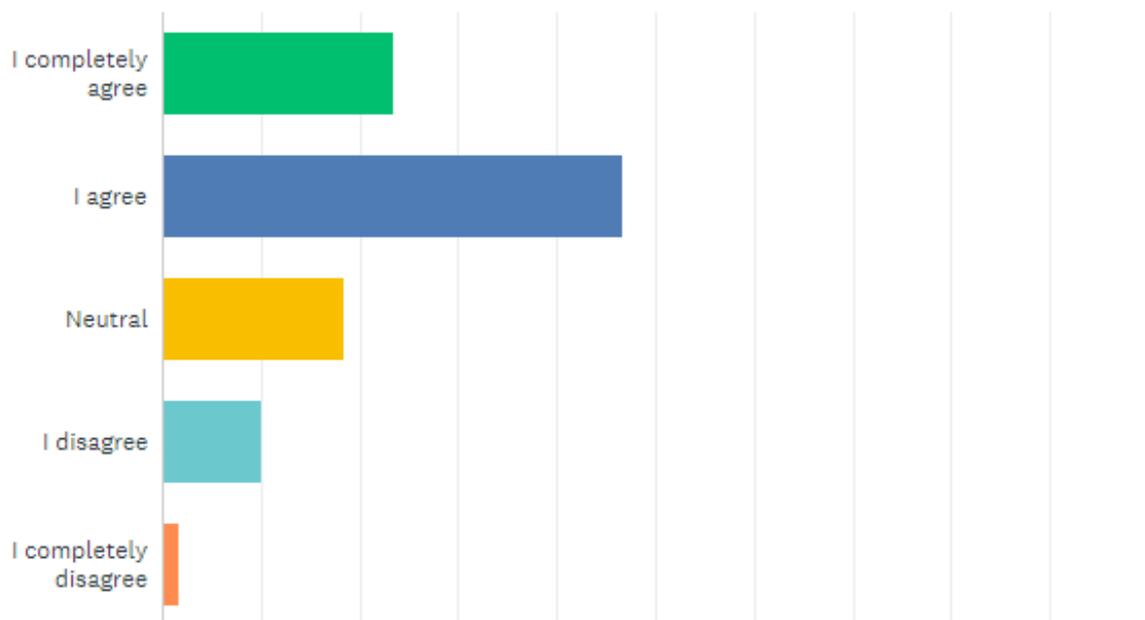


Figure 1 Results for H1.

next part we conduct an analysis to see what this may mean.

## 4. ANALYSIS

### 4.1 The results from the empirical work on the hypotheses

The first hypothesis is “Twitter is useful for competitive intelligence” (Q1). 46.7% answered “I Agree” and 23.3% “I completely agree”. This makes 70%, thus we can accept Hypothesis 1 with 95% certainty even though we have a high confidence interval of 7 (Figure 1):

H1: Accepted

The results for the other hypothesis were: H2: Those who post on Twitter have valuable information (Q2). 43.3 % answered “I Agree” and 5% “I completely agree”. This makes 48.3%, thus we cannot accept Hypothesis 2:

H2: Rejected

This may at first seem like a contradiction. If Twitter is useful for intelligence is it then possible that those who post on Twitter do not possess any valuable information? It may be that intelligence professionals can find valuable information about markets, industries, and products without the person tweeting having any valuable information. It would mean that the value comes from the analysis of the data, not the data itself. We find this in some of the answers above, it may be that the value of the information lies in the things that are not said. If we have knowledge about an industry we can draw our own conclusions that are not the same as what is being tweeted. In the comments above we find an emphasis on “extracting knowledge and insights” and “opinion mining and sentiment analysis”. This suggests that it is not so much the raw data that is valuable as the analysis of the data.

Intelligence professionals know that corporate tweets come from communication departments and professionals. They may know how to read what they see or what is between the lines, so to speak. In that lays the valuable information.

For H3 we asked “Those who post on Twitter whom I follow have valuable information” (Q3). 46.7% answered “I Agree” and 18.3% “I completely agree”. This makes 65%, thus we can accept Hypothesis 3:

H3: Accepted

Here the respondents are saying that there are also those who tweet who possess valuable information and the individuals that I follow belong to this group. Again it may be seen as a contradiction that there is no valuable information for CI on Twitter (H1), but those I follow have valuable information, but by the same logic respondents could be saying that most of those who tweet do not have valuable information, but those I follow do.

Regarding, the fourth hypothesis “I get my most valuable information from Twitter” (Q4), 20% answered “I Agree” and 1.7 % “I completely agree”. This makes 21.7%, thus we cannot accept Hypothesis 4:

H4: Rejected

There are other sources that are much more valuable in terms of intelligence for professionals than Twitter. Those who disagree are 36.6% and those who strongly disagree 18.3%, in total 54.9%. It is a surprise that the percentage rejected is not even higher, as the comparison here is with all other sources. It may be that respondents thought of social media only, which is H5.

In hypothesis 5 we claim “The most valuable information I get on social media is from Twitter” (Q5). 15% answered “I Agree” and 6.7 % “I completely agree”. This also makes exactly 21.7%, thus we cannot accept Hypothesis 5 either:

H5: Rejected

Respondents gave similar answers to questions 4 and 5. There was a possibility to go back and changes answers in the survey, but respondents may have ignored this. It is tempting to treat the answers given in 5 and 6 as if both were comparing with other social media only.

From the other questions, we know that users check their Twitter for 16 minutes per day on average (Q7), send 1.2 tweets (Q8) and use Twitter for professional use 50.1% of the time (Q9). We did not get any reliable data about how many times a day users check their Twitter account (Q6). From Q6-9 we see that Twitter is only one of several social media channels used by respondents and only attracts limited attention. This is also confirmed in the comments (Q10).

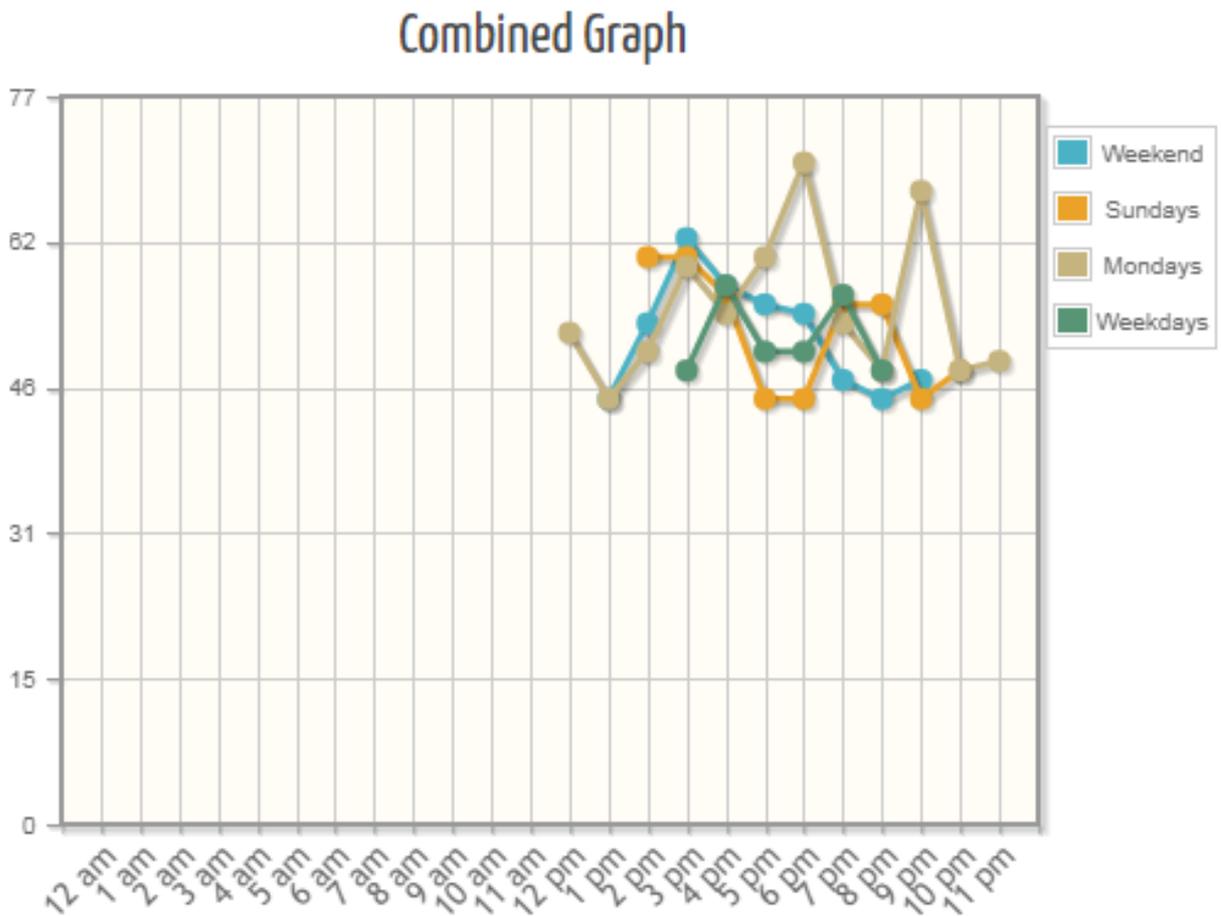


Figure 2 Analysis in Tweriod.

## 4.2 No stand-alone application

Twitter is not a good stand-alone application, but is best used with other software. This can take two forms, either beside and/or alongside other software (additional software solutions), for example together with Facebook and LinkedIn or in conjunction with other software, like Tweriod and Buffer (integrated software solution). Twitter is an ineffective software when used alone. When using other software in conjunction with Twitter the supportive software helps to render Twitter more effective. As an example, below we used Tweriod to find what day and times my own followers are most active, as shown in Figure 2.

The graph presents times for weekends in general, Sunday, Monday and weekdays. If we are to choose one day we should tweet on Monday at 6 pm or 9 pm. The lowest chances of tweets being seen is on Sundays. If we choose one time to tweet, Monday at 3 pm is the best. Using Buffer we can then schedule automated tweets, for example on the coming Monday at 6:00 PM.

In the example in Figure 3 we schedule extracts from my book “Goeconomics” (Søilen,

2012c). Followers and tweet readers cannot see that the tweet comes from a bot. Integrated software solutions allow me to use my working days more effectively and better plan what is to be communicated. Without it, social media services like Twitter, where we are always asked to check what just happened, tend to steal too much of our time.

## 4.3 Fake news

We see that users did not find “fake news” to be a problem in general on Twitter. Users expect the information from companies to have a certain angle, to be manipulated or come as propaganda so they analyze the data based on this assumption. We may assume that professionals and experienced users know what to look for to avoid being tricked (for example, number of followers, number of retweets, links/URLs, likes). Those who are being tricked tend to be more inexperienced users. This does not mean that experienced users cannot be tricked with false data, but they themselves do not see “fake news” as a problem for the value of the information they get from Twitter. It may be that they have a low self-criticism ability, we do not know. For Twitter as a company this is good news, as

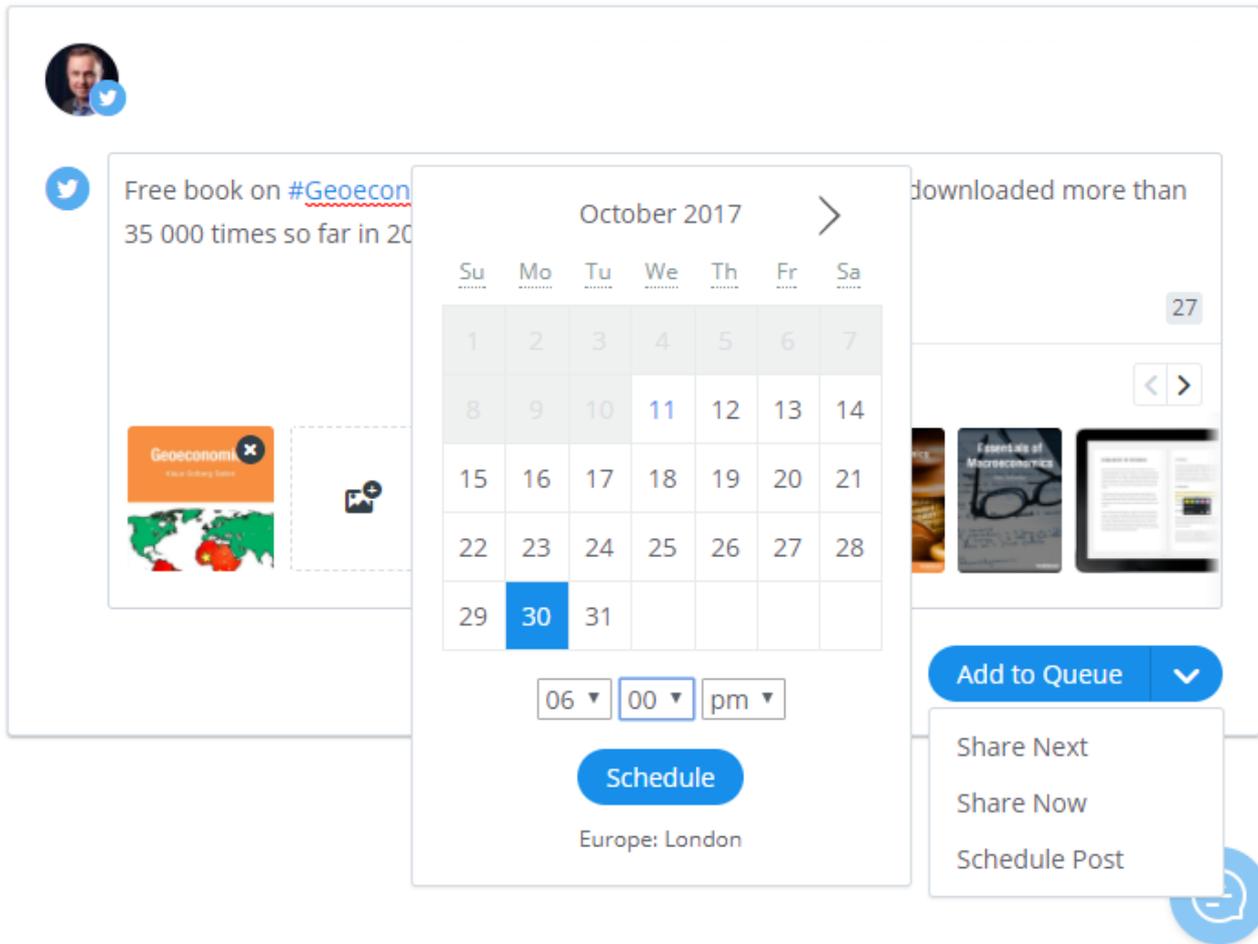


Figure 3 Example of Twitter scheduling.

professional users are not concerned about being tricked or bombarded with fake news and are not considering leaving Twitter for this reason.

Even though the biggest accounts (most followers) are connected to pop stars and celebrities, the fact that BBC and CNN rank high is a sign that there are also those searching for more objective news and content that have a broader bearing on life. Among the smaller accounts there are many examples of valuable information coming from experts and professors like Richard Dawkins (2.5 million followers), Yanis Varoufakis (1 million), Joseph Stiglitz (200,000) Michael Porter (151,000) Niall Ferguson (127,000) and Steve Keen (46,000). Thus valuable information is very much a question of whom we chose to follow. This again assumes that we know who knows and who we can trust.

#### 4.4 Comparing findings to theory

Much existing theory is confirmed. Professionals find Twitter valuable for alerts, breaking news and events.

When compared to theory, respondents in the sample miss part of the deeper insights of social media analytics for its value to market intelligence. In comparison with traditional data, social media content is much richer and contains a diverse range of information. In this regard, business intelligence gleaned from social media can enable business analysts and decision makers to develop market insights into consumer behavior, discover new marketing ideas, improve customer satisfaction, and ultimately increase returns on business investments (Chau and Xu, 2012; Chen et al., 2012).

## 5. FUTURE STUDIES

I always find conclusions to be of less value in papers as they just repeat what is said elsewhere. For the same reason we do not like introductions because they do not get to the point.

Most tweeting happens “on the go” with people using smartphones (McGee 2012). Does this affect the quality of the information conveyed? Or does it make the information

more actionable, more up to date with what is happening in the market?

Most studies are on likes and retweets, but it would also be interesting to see what value comments have on tweets as the third active possibility to give a reaction. What is more effective: using time on commenting, retweeting or liking a post?

A study by Chu et al (2012) found that 10.5% of Twitter accounts are bots, with an additional 36.2% classified as “cyborgs” (defined as a “bot-assisted human or human-assisted bot”). Future studies should find out how much of this is pure spam, thus less valuable information. Bots are also used to spread viruses. There is a risk that social media is being filled not only with more information but less valuable information not only in the US but also in other countries like Russia (Kelly et al., 2012) and that the valuable information is getting harder to locate. To avoid manipulation it is important to separate between and identify what information comes via human, cyborg, and bot accounts.

Twitter as a microblogging platform has vast potential to become a collective source of intelligence that can be used to obtain opinions, ideas, facts, and sentiments. But, what are the incentives for sending valuable information out for free unless in anger or as a revenge? Those who possess valuable information tend to sell it as reports or consultancy. Is the information more valuable if it comes from organizations instead of from individuals? These are some suggestions for future studies in this field.

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