

Diagnostic Tools to Assess Social Media Presence for Marketers of Experiential Products: Exploring the Content and Social Network Structure of Wine-related Social Media Interactions across Twitter, Facebook, and Instagram

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ABSTRACT

The purpose of this paper is to employ available search and analytical tools to explore the type and quality of information that can be derived from large scale social media interactions. Using graphical techniques such as wordclouds, tracking wordclouds over time, and sociograms (including name and chain social networks), a wealth of information can be derived from the candid and public social media statements and interactions that have become a part of everyday life. The first step to turning this vast source of data into usable diagnostic social media marketing information is understanding how to interrogate the social networks. This research offers search strategies and techniques for Twitter, Facebook, and Instagram. This research looks at wine-related social media posts during a one-week period in August 2016 resulting in 1450 posts (tweets) in Twitter, 10,000 posts in Instagram, and 250 posts in a Facebook group. Specific research and marketing strategies and recommendations are directed to those in the wine industry.

KEYWORDS

Social media network analysis
Wordcloud
Sociograms
Social name network
Wine industry

INTRODUCTION

Over the past two decades, social media technologies have been rapidly and widely adopted; primarily these technologies provide social networking and/or content sharing services. The most well-known of these tools are Facebook, LinkedIn, Instagram, and Twitter. Hundreds of millions of people are utilizing social media networks, often on a daily basis. Boyd and Ellison (2007, p. 211) define social media networks as “web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system”. More simply, Reyneke, Pitt and Berthon (2011) define social media as “media designed to be disseminated through social interaction between individuals and entities such as

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organisations” (p. 22). As a social media network can be thought of as an information network of interactions or relationships between entities, it can therefore be analyzed in terms of both content and linkages.

Social media tools are increasingly a component of consumer decision making as they assist consumers with awareness, information sharing, attitude formation, purchasing and post-purchase evaluations (Mangold & Faulds, 2009). These social media networks are thus increasingly important for businesses too. Indeed, it has been estimated that the economic impact of social media on business could exceed \$1 trillion (Chui et al., 2012). Effective marketing is intertwined with communication because communication is necessary to develop, implement, and evaluate virtually all marketing strategies and decisions. In other words, it is imperative that marketers have a clear understanding of customer preferences, expectations, attitudes and behaviors to not only at the product design/development, to offer effective promotions, and to analyze the effectiveness of those activities (Alalwan et. al., 2017; Lu et. al., 2020). The reason social media and networks are so important for marketers is because they are replacing many of the tools and channels that marketers have traditionally used to communicate with their customers. Television, radio, and print advertising are being replaced by digital streaming services that are intertwined with social media networks. Today, marketers would not consider to have a product launch without a corresponding Facebook event and Twitter reminders. Also, face-to-face interaction with potential and long-term customers is likely to happen via social media and internet forums, and many of the training and instruction for new products is published on video streaming social networks (Iankova, et. al, 2019). Given this, it is surprising that research into online communities, social media networks and consumer-generated communication is still in its infancy (Quinton & March, 2010).

Social media networks are an ideal medium for marketers of experiential products, like food and wine, to reach and influence consumers, particularly as food and wine are an inherently social product that is often experienced, and thus discussed, with others. In their research on social networks, Quinton and Harridge-March (2010) find that consumers have a desire to share their knowledge and experience of wine and have a desire to learn from other consumers too. Whilst wine businesses are aware of the need to embrace social media technologies, many do not know how to effectively use these tools to help achieve their marketing goals. Although Wilson and Quinton (2012, p. 277) note that “wine is being talked about daily and hourly by an international and diverse tweeting population, ” the use of social media within wine businesses is still in its infancy (Fuentes-Fernández et al., 2017). Recent research (Thach, et al., 2016) suggests that this situation is changing, necessitating further exploration into the process of consumers connecting on different platforms.

The literature suggests that social media is critical to the future of marketing, and food/wine marketers are certainly aware of social media, have probably set up social media accounts, and may have tried to integrate social media into their marketing decisions. What is missing, are methods to systematically explore the interactions that are occurring in social media with the purpose of finding information that can be used to improve marketing decisions (Appel et. al, 2020). This paper describes an example of a winery network analysis across three social media tools in order to explore the following research questions:

RQ1: What are the main characteristics of Twitter, Instagram, and Facebook social networks and how can relevant data be collected and organized?

RQ2: How can content and network analytical methods be employed to help summarize and display social media messages and interactions in ways that can help make marketing decisions?

SOCIAL MEDIA NETWORK ANALYSIS

Social network analyses (or sociograms) are graphical representations of the social interactions or connections between network members. Sociograms illustrate the social media members, their relationships and how information is spread through a network (Hambrick, 2012). Sociograms can also identify influential members who spread information to others. In these graphs, members are depicted as points (called nodes) and the connections are depicted as lines (ties) connecting the nodes. For a social media network, the connections (ties) occur when other members (nodes) are named, and this creates a Name network. Alternatively, a Chain network's connections occur when posts are directed from one member to another member. Once created, the sociograms can be further described using some specific network statistics.

These names vary across social network analysis software but those offered by Netlytic will be adopted for this research (Netlytic.org). The Diameter of a network is longest number of ties between one node and another. This indicates whether there are long paths of connections with many intermediaries in the network, although it may not be representative of the network as a whole. The Density of a network is another measure of connectedness of members, and is the number of ties in relation to the total possible number of ties (if everyone had a connection with everyone else). The Reciprocity of a network is proportion of the connections that involve two-way, where the members name each other or send and receive messages to each other. The Modularity is an indication of whether the members connect in separate clusters, or as a single core and Centralization is an indication of whether the network is dominated by a few central participants (Gruzd, 2016).

Organization of Online Conversations

Twitter – Tweets are small messages which are usually posted without a recipient; the tweets appear in home pages of the poster's "followers." Tweets often contain shared keywords called hashtags and can contain photos. All tweets are public and there are no restrictions on following anyone. When a Twitter member sees a tweet that they appreciate or would like to promote, they can re-tweet it, then all of their followers can see it as well. For social network analysis, connections between Twitter members can be either name networks, where Twitter members have been named in the Tweets of others, or in chain networks, where Tweets are directed to a specific member. Directed messages occur when the first word of a tweet is a Twitter member. As Twitter is based on short written messages that are not specifically directed, they are particularly useful for content analysis, including keyword and hashtag searches and Wordclouds.

Instagram – Posts are photo-based and can include text messages, names of other members, and hashtags. People can "like" the posts and the total "likes" can be seen with the message. Comments from Instagram "followers" can also appear at the bottom of the post. In terms of privacy, followers are subject to approval and posts can be restricted to followers. Social network analysis in Instagram is well suited to name networks, which can be created by members being named in the posts, and chain networks, based on followers' comments which are directed to the post (and poster). Content analysis including keyword or hashtag Wordclouds can be employed,

but Instagram posts rely on the photos to convey messages and the words may not provide enough detail for a thorough analysis.

Facebook – Every member on Facebook has a home page where they post, like, follow, and chat with other members. Individual members have friends but they can also sign up to public members and groups. Privacy can be controlled with friend approval and home page restrictions. A social network analysis of Facebook content is limited to what an individual user can see, which is limited to the home pages of their friends, groups, or any public pages. For this reason, public Facebook pages or open groups are the most accessible targets for name and chain network analyses.

RESULTS AND DISCUSSION

Twitter #winery Social Network Analysis

A Twitter search of hashtag (#)winery for 7 days (August 2015) resulted in 1,420 posts and those posts contained 13,560 unique words or emoji (graphical characters). Figure 1 is a “Wordcloud” or a graphical representation of most common words (top 100 in this case). The Wordcloud was generated using Netlytic, an online Social Network Analysis webapp (netlytic.org). A word cloud displays the most common words found; the most common words are shown in larger fonts and the numbers beside the words are their frequency across the posts. Not surprisingly, re-tweet or the shortened “rt” was the most common word (630 occurrences, or 44% of the messages). A number of the common words were hashtags and other words related to wine, activities, locations, and seasons. The @ symbol before a word is an indication that it is a Twitter handle (a user’s identity) and the #winery search only had 1 handle (@janromes) in the top 100 words.



Figure 1. Twitter #winery wordcloud

Source: Netlytic.org

According to her twitter account, @janromes (53.5K followers) is a romance and women’s fiction writer who had recently written a romance novel called “I’d Rather be Growing Grapes” and perhaps there was an event on the 18th of August to promote the book. The tweet on the 18 August, which had been re-tweeted by a number of followers was:

RT @JanRomes I'D RATHER BE GROWING GRAPES #romance #winery (link to book)
(emojis of a wine bunch, green love heart, and a wine glass along with other added
hashtags)

This tweet and all of the re-tweets explain some of the unexpected popularity of words like #romance, #sweetromance, and #findlayohio in the search. If we look at most common words across the dates of the search, the Jan Romes retweets seemed to peak on the 18 August. Figure 2 shows the Wordcloud over the search period and just before the 19 August, virtually all of the most popular words and emojis are from the @janromes tweets and re-tweets.

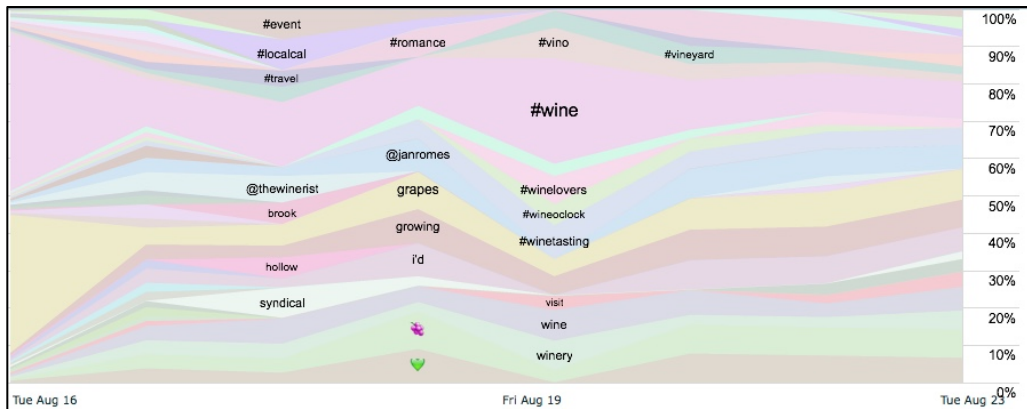


Figure 2. Twitter #winery wordcloud over time

Source: Netlytic.org

The Twitter Name network for “#winery” is shown in Figure 3. This network can be described by its components of nodes, ties, and unique names. The Twitter “Winery” Name network consists of 493 nodes (individual members), 756 ties (one member naming another), and 1023 unique names (Twitter handles). It can also be described statistically by its diameter, density, reciprocity, centralization, and modularity. These statistics that are considered low as they approach 0 and high as they approach 1. In this example, the network has a diameter of 16, which means that the longest connection from 1 node (name) to another is 16 ties. The *Density* of this Twitter network is low at 0.0014. It also has a low *Reciprocity* score (0.07), and Figure 3 confirms that there are very few pairs of nodes with 2 ties between them. The connections in Figure 3 do not appear to be dominated by a small number of members and this is confirmed by a low centralization score of 0.058. Finally, the Twitter name network has a very high modularity score of 0.90, indicating that there are multiple clusters with very few ties between them.

If we look closer, Figure 4 shows the centers of the largest clusters were janromes (54k followers), thewinerist (50k), and wineuva (11k). Further analysis shows that janromes had 87 ties (83 in, 4 out), thewinerist had 65 ties (56 in, 9 out) wineuva had 28 ties (28 out). These in/out numbers suggest that during this time wineuva was sending tweets (and naming others) while janromes and thewinerist were mostly being named.

We can look closer still and view the specific tweets in this cluster from wineuva, and many of them are retweets that also name other twitter users including this example:

RT @1MandaBear: 2013 Generation @ramondvinyard @jc_boisset #WineTasting in
#NapaValley #Vinyard #winery (& link to Instagram photo)

This retweet includes the Twitter handle of the original tweet, the winery, a winery personality, hashtags, and a link to an Instagram photo. It wouldn't take many of these tweets to generate a

large name network emanating from @wineuva. A Twitter #winery chain analysis was performed but the same 1420 tweets only produced a chain network with 17 nodes and 26 ties. This is evidence that tweets are from members who retweet from other members, but they are rarely directed to someone in particular. As such, no further analysis was performed on the Twitter chain network.

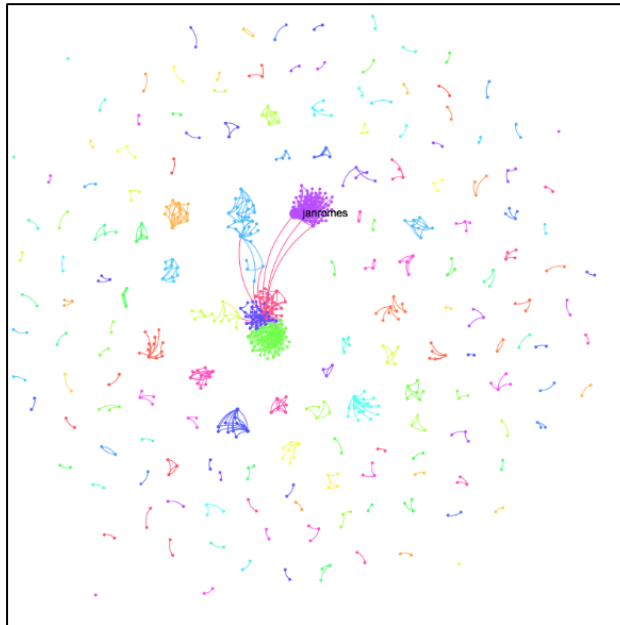


Figure 3. Twitter #winery name network
Source: Netlytic.org

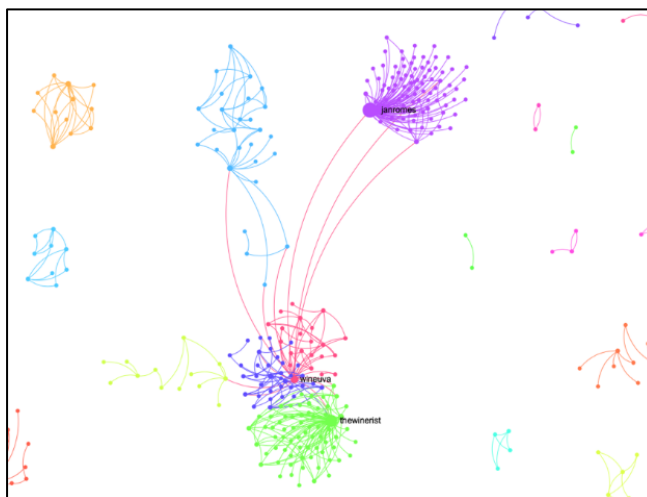


Figure 4. Twitter #winery name network clusters (zoom)
Source: Netlytic.org

Instagram Winery Social Network Analysis

An Instagram search for “winery” resulted in a staggering 10,000 posts over 5 days (August 2016) and those posts contained 78,640 unique words. The 100 most common words across those posts were formatted into a word cloud (Figure 5). As Instagram posts are photos, words aren’t always the best way to describe the content of the post, although the theme of wine is clear along with photography, travel, weekend, and enjoyment.



Figure 5. Instagram “Winery” Wordcloud
Source: Netlytic.org

The Instagram Name network for “winery” is shown in Figure 6. This network can be described by its components of nodes, ties, and unique names. The Instagram “Winery” Name network consists of 1458 nodes (individual members), 2710 ties (one-member naming another) and 7340 unique names. It can also be described statistically by its diameter, density, reciprocity, centralization, and modularity. In this example, the network has a diameter of 8, which means that the longest connection from 1 node (name) to another is 8 ties. The density of a network is the proportion of ties to the maximum number of theoretical ties, and for this network, the density would be considered low at 0.00022. Reciprocity is the proportion of ties that are reciprocal or 2-way connections. For a Name network, a reciprocal connection occurs when 2 members name each other in their posts or responses. Reciprocal connections are noted in Figure 6 but with a score of 0.11, most connections are one-sided. The centralization of a network indicates the degree to which connections are made through a small number of members. The connections in Figure 6 do not appear to be centralized and this is confirmed in low centralization score of 0.0084. Finally, the modularity in a network analysis looks at within-cluster connections compared with between-cluster connections. This network has a very high modularity score of 0.98, indicating that the cluster have very little overlap with each other.

Figure 7 shows a close-up view of the two largest clusters from Figure 6. The purple cluster is dominated by the very large Spanish winery Grupo Matarromera (8k), who has 60 name ties, mostly within the cluster but with some to the green cluster. The green cluster has a number of interconnected wine sites and/or bloggers (# of followers) including onceuponawine (110k), projectovinhobrasil (65k), winerylovers (29k) enrico.onthewine (16k), and simply.wines (14k).

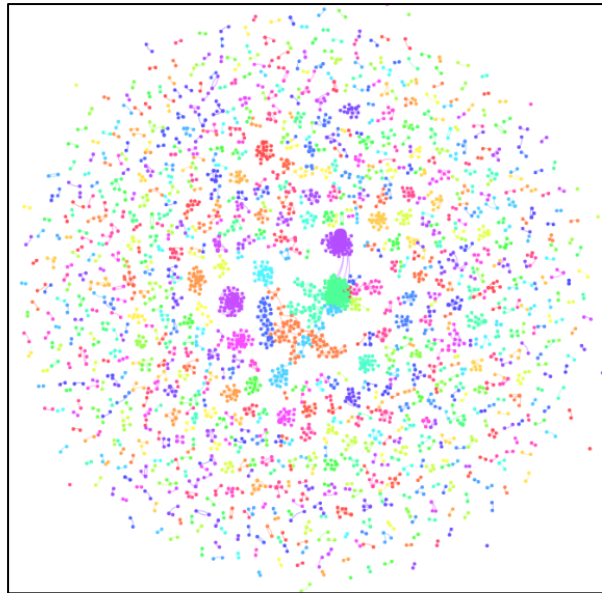


Figure 6. Instagram “Winery” name network

Source: Netlytic.org

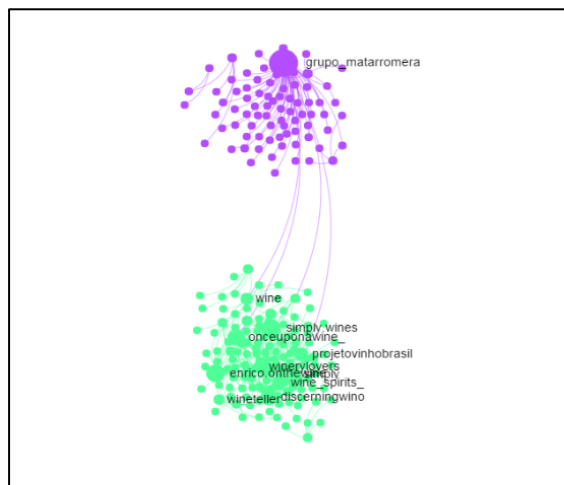


Figure 7. Instagram “Winery” name network clusters 1 & 2

Source: Netlytic.org

Another way to characterize the network is by following the messages sent from member to member. In Instagram, members make posts but they are not directed to anyone in particular, so the Chain network consists of responses to posts. Figure 8 depicts the Instagram “Winery” Chain network. With 3384 nodes and 4602 ties, it has more connections than the corresponding Name network. It has a similar diameter (9) and low density (0.00019), but almost non-existent Reciprocity (0.0087), and is slightly more centralized (0.011). The modularity (0.91) is less than the Name network but there still is very little overlap between clusters.

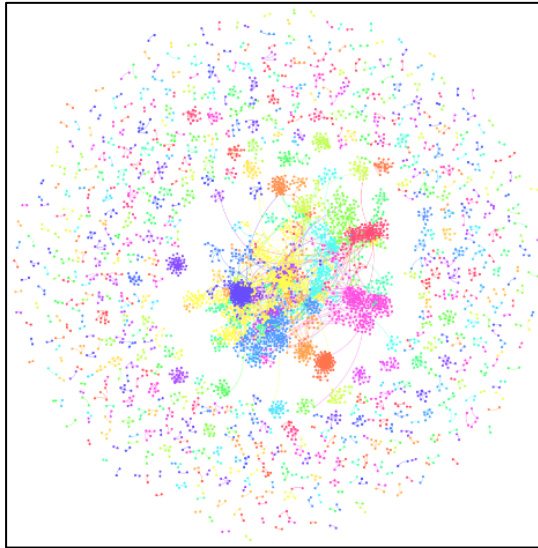


Figure 8. Instagram “Winery” chain network
Source: Netlytic.org

If we look at the two largest clusters (Figure 9), we can see yellow cluster #1 seems to be populated by members selling to wine enthusiasts. Rootessentials (3k) sells wine accessories, lesvendangesdantoine (<1K) is a wine buying club and auraglass (<1K) make a spill-proof wine glass. The blue cluster #1 seems to be populated with some of the same wine forums and bloggers as in the Name network.

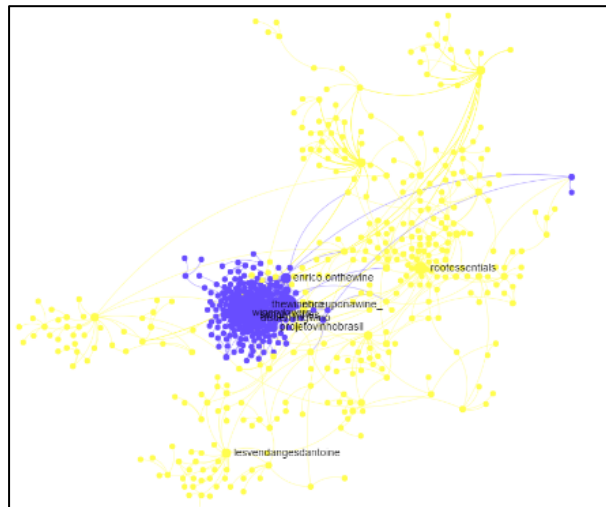


Figure 9. Instagram “Winery” chain network clusters 1 & 2
Source: Netlytic.org

Facebook “Wine Lovers Group” Social Network Analysis

A Facebook public or group page can be a very specialized and centralized social network because interaction occurs on a specific page or on individual members/followers’ timelines. Also, most of

the interaction is between individuals and the group page. The example for such a group is the public group “Wine Lovers,” who had around 3,500 members in August 2016. Figure 10 shows the Word Cloud for 2 weeks in August 2016 representing common words from the 252 posts during that time and 1403 unique words. During this period, there were a number of wine tasting notes from a wine blogger’s Facebook page “Nittany Epicurean”. This explains the frequency of the words nittany and epicurean, and some of the occurrences of tasting, time, vintage, and bottle.

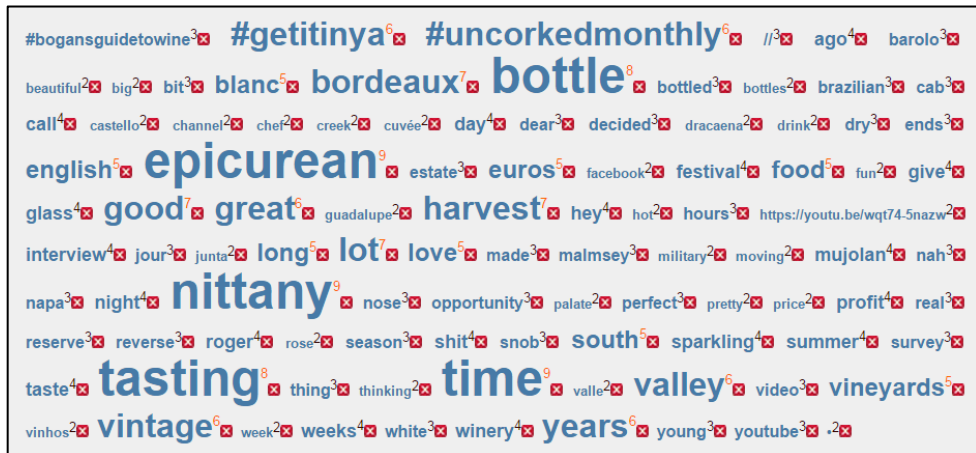


Figure 10. Facebook “Wine Lovers” public group word cloud

Source: Netlytic.org

However, when we look at the social network analyses of the 252 posts to the Facebook Group, only 35 member names were mentioned in posts so the Name network wasn’t very informative. Figure 11 shows the Chain network with 75 (active) members posting messages and 7 of those posts were announcements to the group as a whole. For this group, the interaction with the group was via posting/announcing and not to individuals within the group. Perhaps because Facebook offers other avenues for peer-to-peer contact (posting or chat), it may not be possible to explore the total Facebook interactions between members of the group.

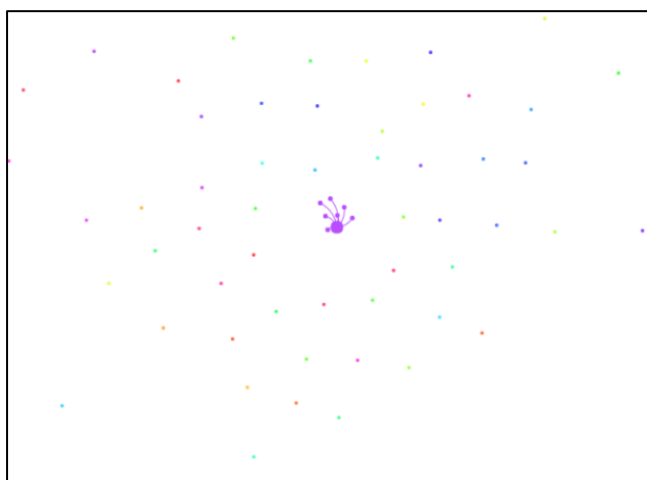


Figure 11. Facebook “Wine Lovers” public group chain network

Source: Netlytic.org

CONCLUSION

Marketers of experiential products, like food and wine, may understand that their brand needs a social media presence and they should be following developments in the social media networks, highlighting consumer trends, and looking for opportunities for growth and success. However, without methods to systematically delve into those networks, wine marketers would be hard pressed to convert the enormous number of seemingly random tweets and posts into information that could be useful in shaping marketing decisions. Hopefully, this paper provides marketers with the first steps to help bridge this gap, and begin to turn big social media data into information.

This study performed a basic examination of 3 popular social networks. Very general wine-related keywords and hashtags were used and the data collection time was limited to only one week. A wine marketer would probably have a number of ongoing “keyword” searches that specifically relate to their brands. This could include all of their Twitter and Instagram handles, brands, vintages, wineries, and locations that are associated with their products. Performing such an initial analysis can serve a number of important purposes in the development and evaluation of marketing strategies in general but also for specific promotions and/or events. The first analytical step in the process is primarily data collection and creating a baseline of a wine marketer’s social media network “presence”. In this step, wine marketers can map all of the occurrences of their keywords, including who is generating them, and how they are being shared in the networks. They can link these keywords to events, geographical locations, supply chain and industry partners, personalities, and complementary products. These “conduits” may offer new opportunities to forge closer links to those who have demonstrated the ability to use these networks to create “buzz” for their offerings. At this point a practical step would be for wine marketers to follow everyone in the network that have proven to play an important role in sharing wine content. Not only do marketers want to keep up with their content, but chances are, the conduits will follow them back and that means company tweets, Instagrams, or posts will show up on the conduit’s timeline.

The second analytical step is to explore the network presence of important competitors as well as the wine marketers who do a particularly good job at maintaining a positive presence in the social networks. This reference group can be used as a benchmark for performance or as an aspirational “best practice” to work towards. Finally, wine marketers can look for the impact of their new social media marketing strategies on their presence in the social media networks. These could be changes in the occurrence of their keywords in Wordclouds, increasing usage of their identities in Name and/or Chain network activities, or increased usage of keywords in targeted cluster centers and influential “voices” in the network. Wine marketers could then begin to link these surges in network presence to potential attendance in upcoming wine marketing events and ultimately to future wine sales.

More work needs to be done before any general conclusions can be drawn, but this rudimentary analysis shows that if you are a wine marketer and have an interesting phrase, link, or comment related to wine, there are hundreds of twitter users, each with tens of thousands of followers who are happy to retweet your sentiment, especially if it names them and/or links to something they are passionate about. Also, if someone tweets something nice about you, make sure you retweet it. It not only amplifies a positive message, and shows that you are listening, but the message didn’t come from your marketing team, and that means a lot for many consumers. If you have beautiful photos of your wine, winery, winemakers, customers, sunsets, or puppies, get an Instagram account and start posting them. People are drawn to images and you can always tweet, retweet and post on Facebook about them later. Even more than the other social networks,

Facebook is all about followers. It is an extremely difficult network to map because it is limited to public pages and groups, which is a tiny percentage of the activity on the network.

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