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Bluefin Labs: The Acquisition by Twitter

"Social TV" was a phrase used to describe what happened when people watched TV with a smartphone or tablet computer in hand. One viewer tweeted, "I do love watching TV and Twitter at the same time. It's like having a Super Bowl party with friends except I don't have to share snacks." Another responded, "Me too . . . totally changed the way I watch TV."¹ Programs with an element of surprise such as awards programs and sports broadcasts drew large volumes of online conversation, and even engrossing dramas seemed to benefit when viewers were in touch with others' opinions. Some conversations were among friends temporarily apart, but many occurred among total strangers who found each other by embedding into their tweets and searches the hashtagged titles of TV shows such as #personofinterest or #modernfamily.

Deb Roy cofounded Bluefin Labs with the goal of monitoring and measuring social TV. The opportunity, as he put it, was to "measure audience *engagement*, and not just media *consumption*." He bought data from sites such as Twitter and used it to generate insights for TV networks and advertisers.

Twitter, the main source of Bluefin's data, was a real-time communications platform with 200 million monthly active users globally, among them world figures such as the Pope, celebrity athletes, recording stars, political insurgents, and news organizations, as well as millions of ordinary people. It was said to measure the pulse of the planet. Despite its considerable success at attracting users, there was no consensus on what value to place on what Twitter had built.

In February 2013, just 18 months after the launch of Bluefin's first commercial product, Twitter acquired the company for a price rumored to be between \$70 million and \$100 million. To some onlookers, the sale was too early. With time, they speculated, Bluefin could have become a rival to Nielsen in the TV audience measurement market, turning its measures into a currency without which media and advertising professionals couldn't do their jobs. Bluefin's management team expressed a different view. Bluefin's blog announcing the merger declared that it would get to the future of social TV all the faster. It read, "Our work in social TV measurement and analytics to date have meant that Bluefin Labs has necessarily taken an objective, but passive, role in the evolution of social TV. Now as part of Twitter, we look forward to working closely with Nielsen, TV networks, advertisers, agencies, and the rest of the TV ecosystem to help shape the future of social TV."²

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The Company and Its Origins

As a professor at the Massachusetts Institute of Technology, Deb Roy had directed the Cognitive Machines group at the MIT Media Lab. He studied how context influenced language acquisition. He was most widely known for a three-year project in which, having installed cameras in the ceilings of each room in his house, upon the birth of his son in 2005, he began a video and audio record of speech and activity in the home for eight hours each day. He used the resulting 250,000 hours of multi-track audio and video to show how his son acquired language. In a widely viewed Technology, Entertainment, and Design (TED) conference talk, he pinpointed exactly how his son progressively learned to speak the word “water.”

Roy credited his research collaborator and Bluefin’s cofounder, Michael Fleischman, with the suggestion that if machine learning could identify how a child began to learn to say “water,” it could identify how, in the flow of television content, consumers talked about brands, products, and programs. In his TED talk he said, “We have the capabilities to connect the dots . . . between what people are saying and the context they’re saying it, and what’s emerging is an ability to see new social structures and dynamics that previously have not been seen. The implications here are profound . . . for science, for commerce, for government.”³

In 2008, Roy took a leave of absence from MIT to start Bluefin Labs, naming it for Blue Fin, a sushi restaurant in Cambridge, Massachusetts’ Porter Square where he and Fleischman often ate.

Bluefin pulled in live TV by satellite, fingerprinted it to identify ads and shows, and then linked the TV stimuli to social media conversations on social networks. That chatter did not need to mention the show or the ad itself: the more the machine learning algorithms at Bluefin Labs listened, the better they refined their semantic technology to know what people were talking about. Metadata indicated what time of day a show ran and the names of characters. Sports specialty feeds contained such information as player names and play-by-play information.

To link social media comments to the people who made them and the people who read them, Bluefin Labs relied on persistent, public screen names. Most commonly, these names were Twitter handles. Accumulating data at the rate of 2.5 million minutes of television programming a month (inclusive of over 2 million discrete advertisements) and 5 billion online comments a month, Bluefin concluded that there were about 40 million people in the U.S. who communicated routinely about television and were identified by public profile names. In the month of December 2012, for example, 35 million people made 910 million comments about television content. For a particular program’s telecast, Bluefin could sometimes identify millions of comments on the program and several thousand comments on a brand advertised during the program. The 2013 Super Bowl was the most commented-on TV telecast of all time, with 28 million tweets about the game and 3.5 million tweets about brands and ads on the show.

The Social Media Monitoring Industry

Since about 2007, it had become increasingly clear to people with an interest in what the public was thinking and talking about that there was a new way to find out. Growing numbers of people were using social media to proclaim or listen in on personal attitudes, interests, and opinions and by 2011, about half the U.S. population of 314 million was doing so at least once a month. “We always knew that word of mouth mattered,” said Anjali Midha, vice president of brand products for Bluefin Labs, “but we could not hear it, measure it, or link it to valued outcomes at scale. Now we can.”

Social media conversation happened on social networking sites such as Facebook (with 179 million unique visitors per month), Twitter (with 56 million), and LinkedIn (with 43 million),⁴ as well as via postings to fan forums, to stories on news sites, to blogs like Wordpress, to social bookmarking sites like Deli.cio.us, to social news sites like Digg, and to rating sites like Yelp. Not all of the postings were accessible to monitors (Facebook members, for example, tended to protect their postings from public view), but enough was visible to give rise to an industry known as social media monitoring.

The so-called firehose of social media chatter was not in itself a scarce resource, but identifying insights that managers could act on were rare. A small number of firms gathered comments and made them available to so-called listening companies for analysis. DataSift, for example, offered connections to the Twitter firehose for rates ranging from \$1,000 per month to \$15,000 per month (see **Exhibit 1**). DataSift's clients included analysts like Radian 6, Sysomos, Converseon, and Visible Technologies (see **Exhibit 2**). Most of these analysts served large packaged-goods firms and corporations that wanted to monitor their public reputations. They offered keyword searches, volume of mentions, and sentiment analysis (to determine whether comments were positive or negative). They referred to the people who saw comments about brands and companies as "earned media" audiences, to distinguish them from paid media audiences.

Bluefin Labs was one of the few social media analytics firms that served just one niche. It specialized in social TV, analyzing how TV content sparked social conversation. Others in this niche were Trendrr and SocialGuide (see **Exhibit 3**).

Twitter Enters the TV Audience Measurement Business

Founded in 2006, Twitter was by 2013 the third-largest global social network behind Facebook and LinkedIn. Users could send and read text messages of up to 140 characters, known as tweets. By default, tweets were public and searchable, but they could be restricted to followers. By the end of 2012, though still privately held and not yet cash flow positive, Twitter's revenues were rumored to be about \$350 million.⁵ Most of those revenues came from advertising, such as promoted tweets that appeared in search results and in member news feeds.

After an incident during the 2013 Super Bowl, Twitter became identified with a practice called real-time marketing. Quick-thinking advertisers, among them Oreo, BMW, and Tide, discovered that they could use promoted tweets on Twitter to exploit transitory events for large impact when the game was interrupted by a power failure in the stadium. First off the mark was the Oreo cookie brand, which took four minutes to design and caption a graphic that read, "Power out? No problem. You can still dunk in the dark."⁶ Oreo bid for promoted tweets to appear against searches for #poweroutage, which was appearing in tweets at the rate of 231,500 times per minute. The trade press speculated that the Twitter execution had overshadowed Oreo's far more expensive TV ad and a Twitter user, Rolando Ugarte, tweeted, "The lights went out and a new era in advertising was born."⁷

If it was a new era, it had a long way to go before it rivaled established media. Corporations spent very little on Twitter. They paid as much to social media monitoring firms to tell them what was being said about them on Twitter. Positive social sentiment was becoming a key performance indicator for brands, and Twitter earned little from this trade.

In November 2012, Nielsen, the television ratings giant, bought SocialGuide, a small rival to Bluefin that fed off the same Twitter pipe but lacked Bluefin's sophisticated system for tracking program content. Nielsen announced that the motive was "to quantify the relationship between social TV and TV ratings to enable advertisers to maximize the impact of their spend, and provide new research metrics to understand social TV's impact on consumer behavior and viewing habits."⁸

Just a month later, Twitter announced a joint venture with Nielsen, to be known as Nielsen Twitter TV Ratings,⁹ to provide a measure and analysis of social TV audiences. The two companies explained that the new service would complement Nielsen's existing TV ratings, particularly in such areas as live TV, second-screen activity (a reference to using a mobile phone or tablet while watching TV), and advertising campaigns that relied on both paid and earned media. Barely two months after that, Twitter bought Bluefin.

Bluefin's Market Opportunity

Before it was bought by Twitter, Bluefin served two markets.

First, it served broadcasters of TV content by complementing traditional audience data sources such as the Nielsen TV audience tracking panels and Experian Simmons surveys of audience demographics and lifestyles. These two data providers allowed a broadcaster to measure the size and demographics of a program's audience so that the broadcaster could sell the audience to advertisers seeking to reach particular consumer segments. Bluefin could complement such data with consumer thoughts and reactions to programming. And while the traditional data sources published their reports up to six months after the data had been gathered, Bluefin's programming data were available in real time, with live results available in the company's online dashboard.

Second, it served advertisers. Because it tracked all national ads, Bluefin's data could tell advertisers when an ad generated brand mentions, the positivity or negativity of the sentiment in the mentions, and whether advertising placed in some programs generated more or better mentions than when placed in other programs. Some advertisers questioned whether people who mentioned ads on social media were representative of the whole audience for the ads, and therefore questioned the representativeness of the volume and sentiment indicators. When a campaign's objective was to create online social chatter about a product, however, questions of representativeness fell away. Bluefin data depicted the whole universe of digital social communication.

In the early months of the company's existence, the sales team was focused on supplying data that would make better matches between the buy side and the sell side of the broadcast TV market. Thus the early clients were TV networks that sold advertising space, like CBS, A&E, and TBS, and media buyers that bought advertising space, like Starcom Mediavest Group. In the long run, Bluefin anticipated that its data could be valuable to many elements of the advertising supply chain: brands, advertising creative teams, media planners, media buyers, broadcast networks, program writers, directors and producers, and cable systems.

Products

Bluefin's first product offering was a data analysis tool called Bluefin Signals, which allowed clients or Bluefin analysts to query the data. One of Bluefin's measures of social media response to a TV program was known as "affinity," the correlation between a TV show and a brand, or between two TV shows. The show *Pretty Little Liars*, for example, scored high on affinity to consumers who showed interest in beauty and in retailers such as Victoria's Secret and American Eagle (see **Exhibit 4**).

"With the introduction of affinity scores, we can provide new insight into audience engagement and composition in a way that has not been possible before. With these contextualized metrics in hand, media and marketing executives can interpret the properties of any program," said Deb Roy. "This insight will help marketers and agencies assess TV shows and networks to better inform ad planning, buying, and creative decisions."

Illustrative Analyses

TV program and channel analysis Bluefin Labs claimed that it could infer audience characteristics from its data. Traditionally, brands relied on audience surveys to infer who watched particular programs. For example, a media planner for a client like PepsiCo might decide that an animated comedy like *Family Guy* would be a good purchase because its viewers were in the 18-to-24 age demographic and thus likely to be heavy buyers of carbonated sodas. But, in a particular month, *Family Guy* might be shown on three networks: current episodes on the Fox network, reruns from an early episode on TBS, and reruns of a recent episode on the Adult Swim network. Were the audiences for these three airings of the program equally attractive? Bluefin data showed that the audience's profile, as revealed by the profiles of those who commented on social media, varied substantially across the three telecasts of the program. Midha argued that audience demographics depended as much on the channel as on the program.

Analysis of a brand's social expressions Tom Thai, Bluefin's vice president of marketing, contended that a social expression about a brand (e.g., what people tweeted about a brand when they saw it advertised on TV) was significant for two reasons. First, it showed that the viewer had some affinity with the brand and, second, it allowed the viewer's friends and followers to be exposed to the brand message. These expressions were termed "amplifications." But not all program contexts were equally good at amplifying an advertiser's message. In one case Thai found that viewers on Fox were 10 times more likely to tweet or blog about an ad than viewers on another network with identical ratings. To decide which programming was most effective at social amplification, the advertiser could compare telecasts by the volume of social media mentions.

More refined analysis showed that an advertising burst increased the volume of conversations initiated by viewers, but only among viewers with a high affinity for the brand. When viewers were categorized prior to the ad campaign into high and low affinity based on prior mentions of the brand, the high-affinity group generated two to five times more conversation than it had done prior to the ad campaign. The low-affinity group showed little or no increase in mentions. That led Bluefin to investigate whether the relative lift in brand mentions across brands in tweets could be used as a measure of a brand's affinity.

Advertising interpretation Bluefin's data sometimes suggested that the message communicated by an ad changed when the program in which the ad appeared changed. In one instance, an ad was tested in isolation from programming and scored well. When the ad was placed in Olympics programming, within one day Bluefin saw viewers tweeting that the ad portrayed its main character in racist terms. No such negative effects were seen in other programming contexts, so the ad was pulled from Olympics programming. In another instance, placement of an ad in football programming led to tweets sympathetic to the main character but not in other nonsports programming.

Advertising effectiveness Social media mentions, Midha claimed, could provide clues as to whether advertising was influencing the kinds of behavior that might lead to purchase. An advertising campaign could identify attitudes and behaviors it hoped to induce, such as test drives of a car or judgments that a new beverage was "delicious," and then monitor the social media data stream to see whether people who mentioned the brand also mentioned the behavior or attitude that the advertiser was interested in provoking.

Program content In the reality TV genre, it was common to film a body of material and later to construct episodes for broadcast from the footage filmed earlier. Social TV reactions to early episodes sometimes influenced the prominence given to characters or the direction in which the plot would unfold.¹⁰

A Client's Reaction to Bluefin's Services

CBS Television, the most-watched television network in the U.S., had been among the first clients to sign up for access to Bluefin Labs data. The chief research officer at CBS, David F. Poltrack, explained that while CBS already knew a great deal about television audience behavior, it was open to the possibility that social media had something new to say: "If it's just confirming something CBS already knows, it's not something we need."

Poltrack observed that he would not expect, and did not find, that Bluefin chatter volumes correlated with Nielsen ratings, because, he noted, "70% of Bluefin's data come from Twitter, and only 10% of our market is on Twitter. We don't look for representativeness from data sources like Bluefin." For representativeness, CBS supplemented its Nielsen People Meter data with a proprietary viewer panel. If it wanted viewer reactions to a show, or wanted to know reactions from a subset of the panel with a propensity to influence other viewers, it had only to email its question to the panel and receive, within three or four days, 4,000 responses.

Advertisers, Poltrack recognized, needed much larger samples than a panel could provide and might value the large numbers to be had from social media monitoring more than a network did. While many viewers could be relied on to comment on a program, very few viewers were likely to say anything spontaneously about an advertisement within the program. "Let's say Honey Bunches of Oats sponsors a contest in the People's Choice Awards and Post Foods (the brand's owner) wants to know if there is an uptick in the conversation about the brand. They will need a million or so observations to detect the signal. No panel or survey can supply that big a sample. If the signal's there, social media monitoring will hear it."

Poltrack had been experimenting with both Bluefin and Nielsen's SocialGuide so that CBS would have access to the same data and insights that his clients, the brand advertisers, could see. "Right now the jury's still out on whether we and they need the deep dive of Bluefin or the more summary picture that SocialGuide provides," he said. "We will be reviewing that question when it is time to renew. But you can be sure of one thing: if the brand guys get more insight from one than the other, that's the one we will be buying."

Conclusion

At the time of its acquisition, Bluefin had had about 30 clients and about 60 employees. It had begun to hire aggressively across sales and client-services divisions, rounding out a staff that had been heavy on technology, product, and data roles. Now, however, Twitter was calling a halt to the cultivation of clients for Bluefin. Twitter's announcement of the acquisition read, in part, "We intend to honor existing Bluefin customer contracts, but we will not continue to sell Bluefin's product suite beyond the existing contracts."

Twitter was careful to frame the acquisition in terms that would not threaten its partnership with Nielsen. The company announced, "We plan to collaborate closely with Nielsen and SocialGuide on product development and research to help brands, agencies, and networks fully understand the combined value of Twitter and TV."¹¹ Bluefin's onetime position as a serious contender in the TV and

brand analytics space, to be a currency like Nielsen ratings that media and advertising professionals would require to do their jobs, seemed to be on hold, if not at an end.

Now that Bluefin was owned by an online advertising medium, was it a tainted source for information on social TV? Would clients trust its analytic insights, or would they see them as puffery from the promotional arm of its parent? And if Bluefin's analysis was no longer objective, of what value was it to Twitter? What might Twitter do with Bluefin's capabilities, and how would the founders feel about its ideas? Would Bluefin's entrepreneurial spark survive Twitter's embrace?

Exhibit 1 Social Media Resellers

	Description	Products	Price
Gnip	Official Twitter partner; provides high-volume data to enterprise partners for the purpose of analysis	Decahose (10% of all tweets), Link Stream, User Mention Stream ^a	Available from company on a custom basis
DataSift	Official Twitter partner; real-time curation platform that allows mining of the Twitter firehose for tweets matching specific search terms/criteria	Packages: Bronze: 25,000 DPU ^a hours Silver: 50,000 DPU hours Gold: 125,000 DPU hours Platinum: 250,000 DPU hours *DPU = data processing unit	\$3,000/month \$5,000/month \$10,000/month \$15,000/month ^b
BoardReader	Crawls over 16 billion documents/postings from web forums and message boards, and indexes the data	n/a	n/a

Source: Casewriter analysis from company websites.

^a Gnip's Firehose is described as follows on its website: "Our Firehose products will deliver complete access to data directly from the source. Twitter Firehose products include the Decahose, Link Stream and User Mention Stream which provides a 10% sample of every Tweet with a link or user mention, respectively. For all other sources the Firehose includes every activity." (Source: <http://gnip.com/products/realtime/firehose/>, accessed November 21, 2013.)

^b <http://datasift.com/platform/pricing>, accessed February 13, 2013.

Exhibit 2 Social Media Monitoring Tools

	Description	Pricing
Radian6	Tracks brand mentions, industry segments, and competitors on major social media sites and offers a variety of ways to analyze, measure, and report findings. Acquired by Salesforce.com in Spring 2011.	Packages range from \$600 to \$4,000/month
Sysomos	Offers real-time social media monitoring of brands and competitors for analysis via proprietary technology that assigns values to individual visitors based on factors such as other sites they visit; enables engagement with key customers and influencers; uses open API for integration into other tools	Packages range from \$500 to \$2,500/month
Converseon	Mines 500 million+ domains including social media, blogs and blogging platforms, video- and photo-sharing sites, wikis, e-commerce, and traditional media sites in 13 languages for implicit and explicit meaning; analyzes sentiment at the level of phrases and sentence fragments; pulls data from full Twitter firehose	Packages from \$5,000 to \$30,000/month
Visible Technologies	Monitors 250 million+ domains, including major social media sites, blogs, podcasts, Wikipedia, e-commerce sites, traditional media, and aggregator sites in 50+ languages for brand and competitive analysis; offers PR and crisis management, influencer marketing, customer service, and lead generation	Packages range from \$2,500 to \$6,000/month

Source: Casewriter analysis from company websites.

Note: All platforms cover the large social channels (i.e., Facebook, Twitter, YouTube and LinkedIn) but not all cover bookmarking sites like Digg and Reddit or specific forums and chat rooms.

Exhibit 3 Social Television Platforms

	Description
Trendrr	Real-time dashboard identifies volume, sentiment, location, demographics, and influencers around products and brands, as well as the pace of link-sharing on the social web. Also tracks sales & marketing campaigns using blogs, microblogs, news aggregators, social networks, commerce, and video sites.
SocialGuide	Real-time Social Programming Guide (SPG) ranks TV programs based on real-time social activity of those in a given network. ; Also tracks first-run movies from pre-release through theatrical runs, DVD, and video-on-demand.
GetGlue	Social networking for mobile devices allows users to check-in to the entertainment that they consume using a website, mobile website, or app. Database contains 350 million check-ins, ratings, and reviews. Fans earn rewards and discounts.

Source: Casewriter analysis from company websites.

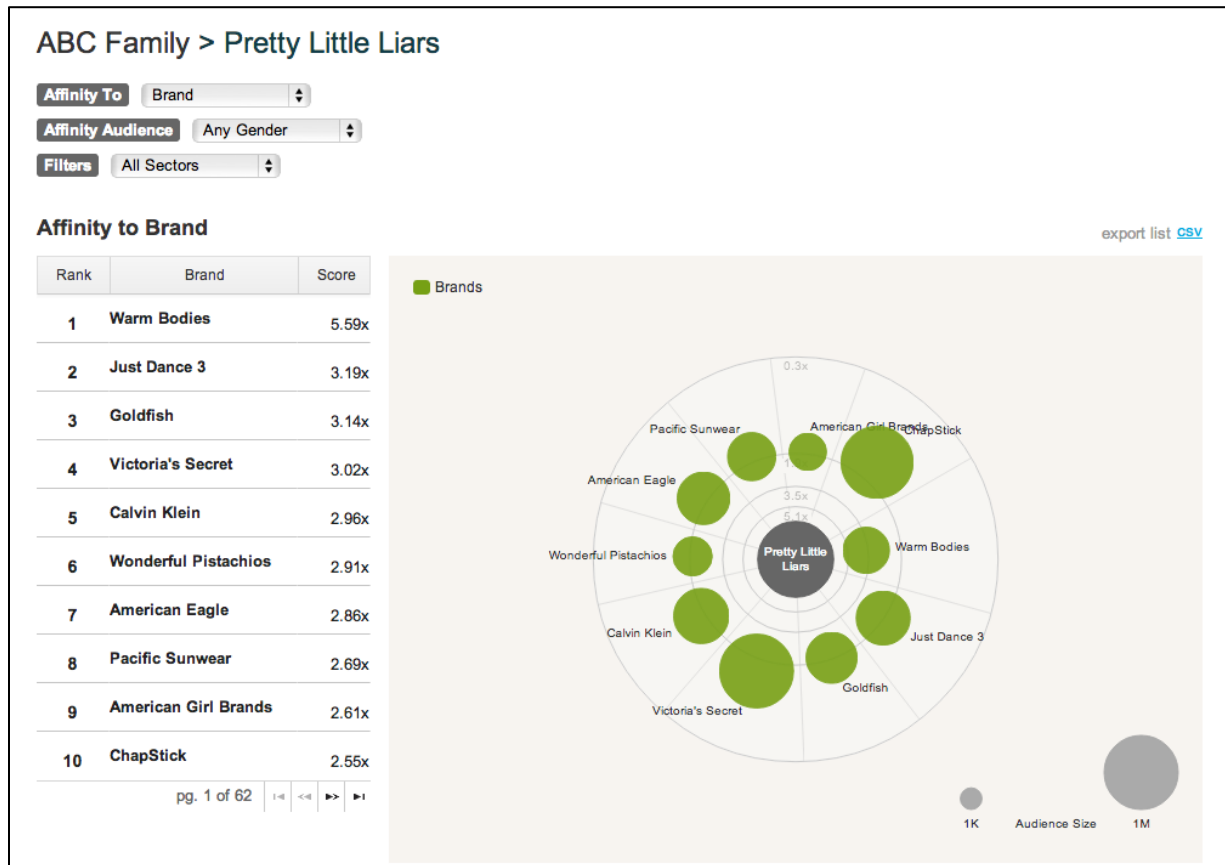
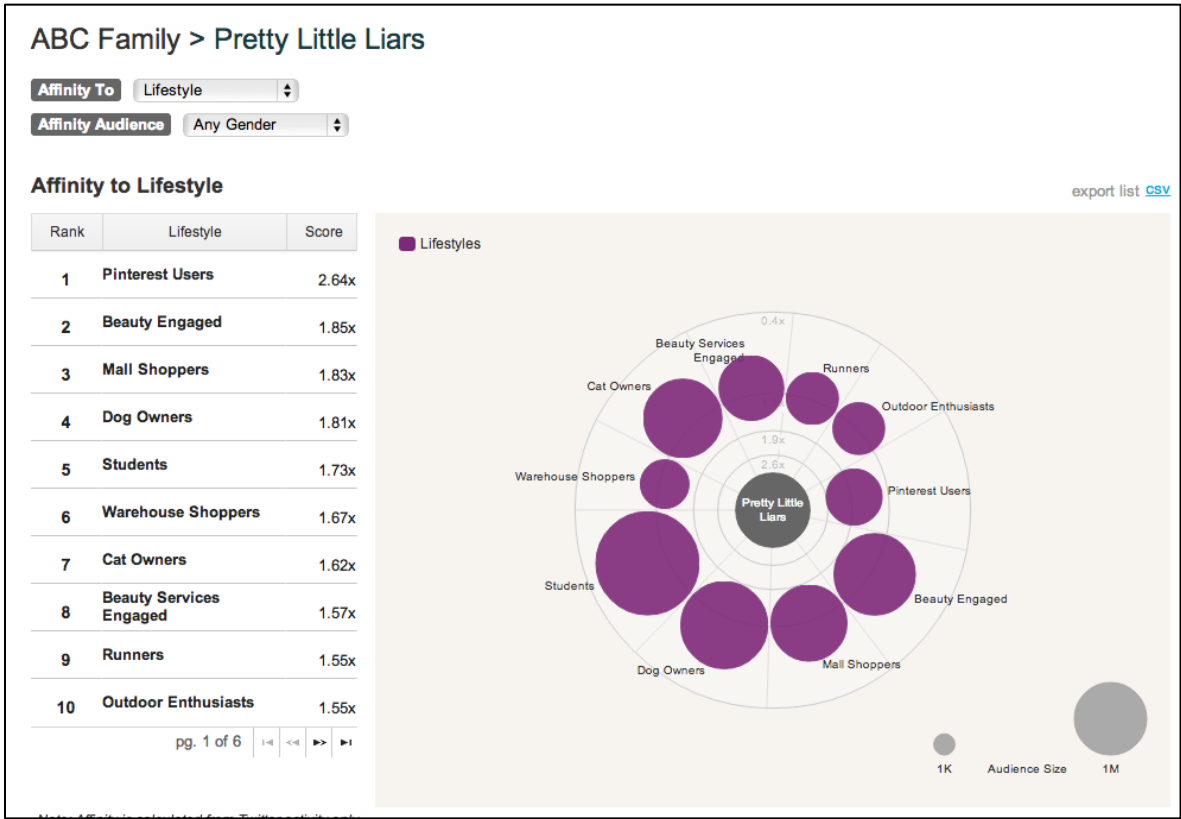
Exhibit 4 Affinity Report for *Pretty Little Liars*

Exhibit 4 (continued)



Source: Client files.

Endnotes

¹ Tweets by @sarahbethdurst and @kimberleypurcell, posted February 3, 2013, 7:05 pm, <https://twitter.com/sarahbethdurst/status/298266115325440003>, accessed February 11, 2013.

² Bluefin Labs blog posting, "Bluefin Labs Joins Twitter: Getting to the Future of Social TV Faster," <https://bluefinlabs.com/blog/2013/02/05/bluefin-labs-joins-twitter-getting-to-the-future-of-social-tv-faster/>, February 5, 2013, accessed February 11, 2013.

³ Deb Roy, "The Birth of a Word," TED talk, <http://www.youtube.com/watch?v=VwgkT34g61w>, March 10, 2011, accessed November 16, 2011.

⁴ "comScore Announces Beta Release of Media Metrix® Multi-Platform, Providing a Unified View of Web, Smartphone and Tablet Audiences," November 29, 2012, http://www.comscore.com/Insights/Press_Releases/2012/11/comScore_Announces_Beta_Release_of_Media_Metrix_Multi-Platform, accessed February 15, 2013.

⁵ Alexia Tsotsis, "Twitter Brought In \$350M in 2012, So When Will It Hit \$1B?," <http://techcrunch.com/2012/12/18/god-bless-us-every-one>, accessed February 12, 2013.

⁶ Tweet by @Oreo, posted February 3, 2013, 5:48 pm, <https://twitter.com/Oreo/status/298246571718483968>, accessed February 11, 2013.

⁷ Tweet by @RolandoUgarte24, posted February 3, 2013, 6:24 pm, <https://twitter.com/RolandoUgarte24/status/298255688658976768>, accessed February 12, 2013.

⁸ Nielsen, "Nielsen, NM Incite Acquire Social Guide," press release, November 12, 2012, <http://www.nielsen.com/us/en/insights/press-room/2012/nielsen-nm-incite-acquire-socialguide.html>, accessed February 11, 2013.

⁹ Nielsen, "Nielsen and Twitter Establish Social TV Rating," press release, December 17, 2012, <http://www.nielsen.com/us/en/insights/press-room/2012/nielsen-and-twitter-establish-social-tv-rating.html>, accessed February 11, 2013.

¹⁰ Pamela Berger, "What it takes to make good reality TV," October 27, 2011, <http://www.cnn.com/2011/10/27/showbiz/tv/good-reality-tv-berger>, accessed February 22, 2013.

¹¹ Twitter, "Welcome Bluefin Labs to the Flock," blog posting, February 5, 2013, <http://blog.twitter.com/2013/02/Welcome-Bluefin-Labs.html>, accessed February 11, 2013.