The Connector Website Model[*]
New Implications for Social Change

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Presented at the Annual Meeting of the American Sociological Association
Internet and Society
Montreal, August 11, 2006

ACKNOWLEDGMENTS

The "Notes" section, beginning on page 33, is meant to be a useful resource for academics, journalists, bloggers, and those engaged in the online community industry.

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Executive Summary

Today many millions of Americans use a new type of website for social exchanges in order to facilitate communications or execute transactions. This "connector website", a theoretical construct proposed and defined in this study, enables timely and relevant interactions between individuals while enlarging the scale of social exchange processes, by way of online social search and social networking. Reports about the social impact of connector websites (such as eBay, MySpace, Match.com, Facebook, Craigslist, Flickr) are largely anecdotal.

Empirical research is sparse. Most researchers have focused their energies modeling the design of online communities, observing individual and social behaviors within a single website's online community, or employing social network analysis to measure the kinds of relationships in the community's social networks. In recent years, the Pew Internet and American Life Project and the University of Southern California's Center for the Digital Future have conducted large scale surveys giving us valuable information about human behavior in online communities. However there is little social science research on websites, functioning as social organizations and producing online communities.

This report treats connector websites as social institutions. The current research does not offer a thorough examination of their real world implications. As a starting point to fill this void, I set out to examine four questions:

1. What is the connector website model?

The connector website model is based on the assumption that a person making even a limited social connection will affect the status quo. There are several essential parts when describing a connector website. The following is an operational definition:

- ☐ The connector website provides a relatively simple means of interaction for users who seek to offer or obtain goods, services, or information;

- ☐ It is an intermediary offering peer-to-peer web applications that collectively make up an infrastructure for social exchange, networking, and diffusion processes;

- ☐ Over time, user-to-user interactions gradually generate a majority portion of the website content and the regulation of which is governed jointly between the host organization and the online community of users;

- ☐ Depending on the surrounding social and economic conditions, as well as site design and development, the connector website should excel in facilitating the discovery and coordination of context-based communications and transactions.

The connector website adds substantial value to online communities when executing two processes: discovery and coordination. Connectors make *discovery* more powerful and accurate through social search and trust-building applications. Joe Cothrel, an online community expert with BTC Research, has suggested that "with these tools, a user not only finds that someone has something they need – [he or she] also finds out something about the quality of that product and the likelihood this party will deliver it." In terms of *coordination*, connectors are more efficient than other online community websites because they have the capacity to maneuver, or network, specialized communications and transactions for users in specific situations. Often social search and social networking applications are mixed together on connector websites and previously have been regarded by and large as a single application.

Why is a connector website appealing? The connector saves time and energy for people, offering effective ways to link up with others based on common needs, interests, and priorities. The model seizes on the low transaction costs of using the Internet. It also has the potential to forge weak (but important) contacts and to develop lasting relationships. The connector empowers the individual. The frequency, diversity, and informality of online social exchanges expose people to new perspectives and experiences. A diffusion process could lead to larger scale, possibly exponential social change. This study attempts to be a starting point for new research on websites as social organizations and online communities as social systems.

2. Which websites have pioneered the connector website model?

So far there have been two generations of connector websites. In the mid-to-late 1990s, the first commercial connector websites were those emphasizing online social search applications for pursuits like online dating (e.g. Match.com), online trading and classifieds (e.g. Craigslist), online auctions (e.g. eBay), and reunion (e.g. Classmates.com). A second generation of connectors gained national media attention in 2002-2003, offering explicit social networking applications for professional/career networking (e.g. LinkedIn), and for making new friends through mutual friends or interests (e.g. Friendster, MySpace, Facebook). For nearly all of these websites, word-of-mouth referrals have been an effective marketing tool. Connectors' registration numbers and business activities are sizable – they have social exchange applications that appeal to tens of millions of people, as well as investors.

3. Do connector website trends demonstrate exponential social change?

Yes, connector websites experience exponential changes in website traffic over time. Each of at least five (almost six) connectors more than doubled user traffic growth from May 2005 to June 2006. Standout examples are Flickr (540 %), Tagged (286 %), and MySpace (236 %). Based on modeling methods and trend estimations, four connectors – Flickr, MySpace, MSN Spaces, and Facebook – showed strong exponential growth over the time period. LiveJournal was the only connector to substantially lose users. Volatility appears to be a nagging characteristic of relatively younger connectors like Flickr, Tagged, Orkut, Bebo, and LinkedIn. Also suggested in the analysis, connector websites and online communities may need time to mature for attaining sustainability in terms of traffic trends. A connector website's age appears to be related to website traffic trends and

volatility. New connectors may want to learn from the start-up experiences of first and second generation connector websites.

4. Do lessons of existing connector websites have future implications?

Thoughtful business practice underscores emerging norms and strategies for connectors:

- Understand community in terms of needs, interests, and priorities. (i.e. social context)

- Plan early for community scale.

- Clearly set rules of the game to cultivate website norms and values.

- Manage user expectations.

- Institute accountability systems and trust-building mechanisms.

- Structure online incentives to support the website's norms and values.

- Encourage community self-regulation.

- Develop infrastructure and capacity as quickly as possible.

- Make the website sticky.

- Create webpages that are both simple and functional.

- Mix content: Content is created by the host, individual users, and host-user collaborations. Features could include user profile pages, blogs, wikis, discussion boards, ratings, reviews, rankings, lists, bookmarks, classifieds, chat sessions, interviews, surveys, polls, and downloadable files.

- Keep pace with fast changing website technologies.

- Commit to marketing by word-of-mouth referrals, partnerships, and advertisements.

- Establish a brand as quickly as possible.

The evidence here is not conclusive, but the analysis does strongly suggest it would be a mistake to overlook the social implications of connector websites. Recent developing stories point to future areas for possible research and further examination:

A. **Social Values and Tradeoffs.** Connector websites offer convenience of choice, reliability of personal judgment, efficiency of communications and transactions, and the potential for tapping into others' experiences and resources. What is the downside to these expanded freedoms? Issues of personal privacy and security have hit the headlines in 2006. Stories grow about pedophiles stalking on teen connector websites like MySpace ready to prey on vulnerable or overly trusting young girls and boys. A public reaction was inevitable. The U.S. House Committee on Energy and Commerce Subcommittee on Oversight and Investigation held several hearings from June 21-28, 2006, which included testimony from the Federal Trade Commissioner, federal and state law enforcement officials, and executives from Facebook, MySpace, Xanga, Google, Yahoo!, Microsoft, and market research organizations. Major concerns aired about the confidentiality of members' personal data and how websites monitor and enforce safety, rules, online community best practices, and adherence to the Children's Online Privacy Protection Act (COPPA). The Federal Trade Commission now has a "Facts for Consumers" bulletin for parents posted on the agency website. It is unclear which direction public policy will turn at this point, but it is possible state and federal government officials may seek to regulate connector websites.

B. **Differentiation and Specialization.** As connector websites evolve, they appear to be differentiating with respect to their organizational missions and focusing branding efforts on users' needs, interests, and priorities. This is happening in 2006. A sampling of new connector themes and organizing topics are related to: political campaigns and elections; religious expression and sharing; car and truck enthusiasts; female professionals; family-based networks; pet ownership; the World Cup; mental health issues; youth social initiatives; wedding preparations and references; and world travel. Many of these connectors will never approach the size of an eBay, MySpace or Match.com. However they are likely establishing a core competency and competitive advantage based on substance, and not relying solely on the novelty of is web application or timing of website launch. Many are also looking beyond usual demographic indicators like age or gender. Increased specialization should continue in the future, and the community scale of connector websites on average will probably shrink as the overall sector matures.

It is timely to discuss connector websites because of their booming participation numbers, traffic growth rates, and evident social resonance. This report tries to bridge the disconnected information pools and audiences coming out of academia, the mainstream news media, bloggers, and the Internet industry's insiders and analysts. Connector websites and their social applications continue to evolve and receive the public's attention. Website principals are increasingly emphasizing the value of market research and study of their users. As a result, rich datasets should become available to continue analyzing these new massive institutions and the behavior of their online communities.

PREMISE

In February 2000, Malcolm Gladwell published his best-selling book *The Tipping Point* to much controversy as well as popular acclaim. Gladwell's thesis, building on the work of epidemiologists and social scientists before him, stated that a social "tipping point" is characterized by: (1) the contagiousness and subsequent "stickiness" of an idea, product, or message; (2) small causes leading to big effects and social change; and (3) a resulting social change that occurs quickly and exponentially.[1]

How does tipping theory work? A disease epidemic is the metaphor. According to Gladwell, social tipping happens as a viral process by which ideas, products, and messages spread and infect a population. Gladwell's "Connector" is a key human agent in social epidemics. Connectors are important because they know a lot of people, and the people they know come from diverse social networks and subcultures. Simply put, Connectors bring many people together who otherwise would have little chance to make an acquaintance. If these people casually interact by exchanging ideas, products, or messages (relying on the first factor of contagiousness and stickiness), interactions should exponentially increase across a defined population and lead to a social tipping point.[2]

A classic social networking model put forth more than thirty years ago by Mark Granovetter explains one of the general processes driving tipping point theory. In an article published in the *American Journal of Sociology*, Granovetter explored how limited small-scale social interactions (he termed "weak ties") can lead to large-scale phenomena such as diffusion of influence and information, social mobility, community and political organization, and social cohesion.[3] Weak ties tend to be low maintenance in terms of time, commitment, and energy. These relationships often provide a broad range of

sources that are quick references for new information and opportunities. Gladwell's

Connectors can enable the weak ties between people.

INTRODUCTION

Today many millions of Americans are utilizing "connector websites" to serve as

a proxy for Gladwell's Connector. The connector website is a proposed theoretical

construct and is defined in this report. This type of website is a new kind of social

institution, and its public availability coincided with the emergence of the Internet in the

mid-1990s. A connector website has the capacity and function to provide contacts and

facilitate social exchanges between people, and effectively build communities of users.[4]

It boosts timely and relevant interactions between individuals while enlarging the scale of

social exchange processes, by way of online social search and social networking.

Social exchange applications (i.e. technologies) collectively fortify the

infrastructural backbone for connector websites. To some degree, each website allows

for "social search" *and* "social networking".[5] It is an empirical question beyond the

scope of this report to parse out to what extent a website is used specifically for one

purpose or the other. In general, connectors allow users to create self-identifying

profiles, while also empowering them to search for others based on needs, interests,

mutual "friends", contacts, or other points of focus. In the mid-to-late 1990s, the first

connector websites were those emphasizing social search, and more specifically, online

dating (e.g. Match.com), online trading and classifieds (e.g. Craigslist), and online

auctions (e.g. eBay). A second generation of connectors gained national media attention

around 2002, offering more explicit social networking options for professional/career

networking (e.g. LinkedIn, Ryze), and for making new friends through mutual friends or

interests (e.g. Friendster, MySpace, Facebook). Pace-setting companies like Google, Yahoo!, MSN, and AOL have been testing their own connector websites to enhance their existing online communities.[6]

The social impact of connector websites is largely unknown. Most researchers have focused their energies modeling the design of online communities, observing individual and social behaviors within a single website's online community, or using social network analysis to measure the kinds of relationships in the community's social networks.[7] In recent years, the Pew Internet and American Life Project and the University of Southern California's Center for the Digital Future have conducted large scale surveys giving us valuable information about human behavior in online communities.[8] (see Appendix A) However there is little social science research on websites, functioning as social organizations and producing online communities.

When arguing the importance for studying institutions in economics, legendary economist Ronald Coase stated: "… it is the institutions that govern the performance of an economy, and it is this that gives the [study of institutions] its importance for economists."[9] Likewise, this study assumes the general importance of studying social institutions to the performance of a social system. In this report I treat connector websites as institutions whose social context – development, operations, culture, and governance – have real world implications for the performance of their respective online communities, as well as the larger social system that is the Internet. Connector websites are a subset within a larger universe of online community websites.[10]

The existing research literature on websites that meets this report's definition of a connector website is sparse, and it is generally grounded in theoretical and formal

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modeling, social network analysis, or case study. University of California-Berkeley and Massachusetts Institute of Technology researchers have described website applications within connectors, namely Friendster.[11] They have given an early overview of social websites; conducted ethnographic fieldwork to describe the simultaneous evolutionary patterns of a connector's online community and its web-based social applications; and studied the role of online profiles for communications and social networking. Frederic Stutzman, a doctoral student at the University of North Carolina-Chapel Hill, is currently researching the booming website called Facebook. To this point he has restricted his research to the local Chapel Hill campus, and he has uncovered interesting trends with respect to Facebook registration and self-identification behavior.[12] Larry D. Rosen, a psychologist based at California State University-Dominguez Hills, recently studied the behavior of Los Angeles area MySpace users.[13] In August 2006, Cornell University researchers presented a conference paper discussing the challenges of collecting and analyzing longitudinal data on online social groups and communities, specifically investigating the connector website LiveJournal and a smaller online conference community.[14] They used social networking analysis and formal modeling techniques to consider the ways in which communities in online social networks grow over time.

The current social science research does not take the broad view, examining tangible implications of connector websites. This report's core objectives are definition, discovery, exploration, and description.   I set out to examine four questions:

(1) What is the connector website model?

(2) Which websites have pioneered the connector website model?

(3) Do connector website trends demonstrate exponential social change?

(4) Do lessons of existing connector websites have future implications?

By building on useful social theories, the previously mentioned case studies, and the snapshot reporting of journalists, bloggers, and market analysts, the hope here is to better understand websites whose broad implications are unknown. This study should help us to better assess the impact of a connector website in terms of its aggregate effects.

THE CONNECTOR WEBSITE MODEL

In early October 2005, at the annual Online Community Summit, enthusiasm abounded for the potential of online collaboration and community-building. Many in attendance viewed the Internet's quickly evolving social applications as a new boon for website development. Many attendees left the conference with an optimism believing that online communities can do social good, whether through private, nonprofit, or public sector organizations.[15]

The connector website model is based on the assumption that a person making even a limited social connection will affect the status quo.[16] There are several essential parts when describing a connector website. The following is an operational definition:

- ☐ The connector website provides a relatively simple means of interaction for users who seek to offer or obtain goods, services, or information;
- ☐ It is an intermediary offering peer-to-peer web applications that collectively make up an infrastructure for social exchange, networking, and diffusion processes;

- Over time, user-to-user interactions gradually generate a majority portion of the website content and the regulation of which is governed jointly between the host organization and the online community of users;

- Depending on the surrounding social and economic conditions, as well as site design and development, the connector website should excel in facilitating the discovery and coordination of context-based communications and transactions.

A little more elaboration might be useful. First, interpersonal communications and transactions are relatively simple. Specifically, connectors allow users to look for others by targeting online profiles either through mutual contacts or customized search parameters. A user can also perform a search on one or more preference criteria, or keywords, specifying what qualities he or she most desires in another user. Depending on the level of detail, a person can search for others based on one category (e.g. zip code) or multiple categories (e.g. gender, career interest, favorite sports, favorite movies, likes to cook, etc.). Interactive classifieds and discussion boards are other applications that facilitate interactions. These early website applications were rooted in social search. Several years later, a more explicit social networking application added another dimension to the connector website.

Secondly, a connector website serves as a key intermediary for its users. It serves this function by actively bridging users who act as "consumers" with those users who are "producers". In an idealized model, consumer-users create the demand for information and other goods, and the producer-users supply the timely and relevant information or goods. (see Table 1) For example, eBay or Craigslist can easily connect a user wanting a

U2 poster or a GE microwave with other users who can supply these goods. Facebook,

MySpace, and Classmates.com are intermediaries for making human contacts.

Connectors tend to tap into a previously underserved supply and demand market,

mediating frequent and new exchanges within its online community.[17]

Third, most connector website content is generated by the online community. A

useful metaphor is a professional conference. The connector is the host of an online

"conference" that never adjourns, running twenty-four hours a day, seven days a week.

The connector website enables the introductions and establishes the structure, goals,

usability, and social norms and values for the conference. However the attendees (users)

significantly contribute and add value to the proceedings (website content) as time moves

on. This could mean establishing new working relationships or cultivating existing ones,

presenting products and personal/professional information, advancing reputation, and

offering any number of other informal services.

The connector website's content responsibilities alternate between its host

organization and its group of users. Initially, right after website launch, it is important for

the website to supply content and the "rules of the game" for the community. Online

tutorials help users to learn the navigating and using the website. The connector ideally

supplies online material to spark discussions or ideas for other interactions. Managing

user expectations is also critical. As connectors mature over time, a significant amount of

content begins to be directly generated by the online community – examples are user

profile pages, blogs, tags, wikis, discussion boards, ratings, reviews, lists, classifieds, and

user-posted downloadable files. (for definitions of terms, see Appendix B) There are also

connector-community interactions such as group blogs, group wikis, chat sessions,

surveys, and polls. The connector may offer timely and relevant classifieds, website

links, blogs, and interviews. User interactions drive the website's dynamics, and in the

process, further build the online community. (see Figure 1 for a diagrammatic summary

of this discussion)

Finally, online communities gradually become jointly self-regulating with the host

organization once social norms are clear and well-established. This means the users

collectively take on more responsibility for enforcing website and community values with

respect to the user-posted content. Accountability systems fueled by feedback and

reputation-building technologies (providing cues like ratings and reviews) signal

important information about a user and his or her content.[18] By implementing some kind

of accountability system a connector subtly structures online incentives in such a way to

guide user behavior. There is a cautionary note, however. Evidence exists of connectors

applying heavy-handed top-down regulation, and as result, websites have lost users. To

some degree, connectors with some self-regulation have user leaders or mavens who

volunteer to enforce the connector's norms and values. These members function like

online neighborhood watchdogs.[19]

The connector website adds substantial value to online communities when

executing two processes: discovery and coordination.[20] Connectors make *discovery* more

powerful and accurate through social search and trust-building applications. Joe Cothrel,

an online community expert with BTC Research, has suggested that "with these tools, a

user not only finds that someone has something they need – [he or she] also finds out

something about the quality of that product and the likelihood this party will deliver it."[21]

In terms of *coordination*, connectors are more efficient than other online community

websites because they have the capacity to maneuver, or network, specialized communications and transactions for users in specific situations.[22] Often social search and social networking applications are mixed together on connector websites and previously have been regarded by and large as a single application.

Why is a connector website appealing? The connector saves time and energy for people, offering effective ways to link up with others based on common needs, interests, and priorities. The model seizes on the low transaction costs of using the Internet. It also has the potential to forge weak (but important) contacts and to develop lasting relationships. The connector empowers the individual. The frequency, diversity, and informality of online social exchanges expose people to new perspectives and experiences. A diffusion process could lead to larger scale, possibly exponential social change.[23] This study attempts to be a starting point for new research on websites as social organizations and online communities as social systems.

PIONEERING CONNECTOR WEBSITES

Connector websites target both general and particular communities whose members are interested in individual expression, trading and auctioning of goods, matchmaking and dating, building social/friend networks, professional/career networking, civic organization, event planning, and other social activities. For nearly all of these websites, word-of-mouth referrals have been an effective marketing tool. Connectors' registration numbers and business activities are sizable – they have social exchange applications that appeal to tens of millions of people, as well as investors.[24]

First Generation Connectors

About ten years ago, connectors established an Internet presence on several fronts in social search – online auctions, classifieds, and online dating. In the first case, transactions-based connectors surfaced on the Internet in 1995. eBay (www.ebay.com), built by Pierre Omidyar and Jeff Skoll, is the alpha website of this group. A decade old and now boasting more than a hundred million active members, the service is known to most Americans.[25] eBay's mission is "…to provide a global trading platform where practically anyone can trade practically anything."[26] So far it has worked to unparalleled success on the Internet. Millions of items are listed in an online auction format. A seller can upload photos and other descriptive materials for whatever he or she would like to sell. That person sets an initial bidding price and period of time for the auction. Many sellers also can set a fixed price to forego the auction process. On the other side of the transaction process, buyers either casually browse or selectively search through items for their desired consumption. Today eBay serves as an auction house and shopping mall. If ever the cliché might be appropriate, Omidyar and Skoll were able to deliver an idea whose time had come – a hyper efficient trading community guided by online social search applications and accountability mechanisms.

One of the many innovations at eBay is the way it provides information to sellers and buyers about each other. The website relies heavily on a feedback system that builds user (buyer or seller) reputation, and as a result, installs a useful accountability system. After a transaction, the buyer and the seller are allowed to rate the person or some other entity on the other end of the transaction on a one-to-five star scale.[27] Accumulating these ratings, good or bad, contribute to additional signals about a user's trustworthiness.

This important information establishes a known value, which is important when making any transaction. People are more likely to make rational choices than irrational ones, and so they want as much information as possible about whom and what they are dealing with in order to base an economic decision to serve their interests.

Maybe one of eBay's largest social contributions is how it has helped the general Internet population to recognize new norms in social exchange. eBay is not the only website responsible for this phenomenon, but it likely can share the credit. The website service constructed an online system of "trust cues" about its members, and in the process, they possibly have helped establish ratings and feedback banks as Web currency. Not only did eBay install a system to valuate transaction items, but it also systemized the valuation of its community members.

Craigslist (www.craigslist.org) is a conceptual cousin of eBay, though without the nested accountability system. Craigslist uses an interactive online classifieds format rather than eBay's online auctions format – a simple online bulletin board display, which is highly functional, and is easy to use.[28] The searchable classifieds are within a chosen city of interest (in contrast to employing a profile or keyword matching and sorting method like other social search applications). Craigslist offers an organized directory of topics, and a familiar classifieds display to enable a swift user learning curve. Users post announcements or submit responses with ease, and so the social exchanges are quick and direct. Unlike eBay, Craigslist does not use feedback or ratings mechanisms to build trust. Most transactions tend to be conducted face-to-face whether someone wants concert tickets, an apartment, jobs, or other items and services.

At about the same time eBay and Craigslist started out their paths on the Internet, online dating websites started to gain social acceptance. Match.com (www.match.com) has been a premier online dating website since 1995. Today the website boasts that millions use its social search applications for dating and relationships.[29] Match.com has been successful because it attracts highly motivated and engaged people – those who could be lonely, looking to find dates, or hoping to start a romantic relationship.

Classmates.com (www.classmates.com), also launched in 1995, served implicit social networking goals, but it technically relied on a social search application. This early connector's stated mission was (and still is) "…connecting millions of members throughout the U.S. and Canada with friends and acquaintances from school, work, and the military."[30] Classmates.com is the nearest link to a later generation of connector websites because it helped familiarize U.S. Internet users with the notion of social networking by way of the Web. Now more than 14 million different people visit Classmates.com each month.[31] Social search made inroads for online trading, dating, and reunion, but a few more years would go by before explicit social networking tools emerged on websites, offering a new method for social exchange.

Second Generation Connectors

In 2003-2004, the publicity behind Friendster (www.friendster.com) ushered in a new cohort of connector websites.[32] Friendster offered an explicit social networking application that was partly based on dating websites' use of searchable online profiles. When Friendster first launched, it offered a novel way of meeting people by allowing users to view the friends of friends – first, second, and third degrees of friends.[33] The rapid user growth of Friendster led to many copycat websites, and it caught the attention

of the big Internet companies like Yahoo! and Google. [34] Google launched its own social

networking connector, called Orkut, in early 2004.

There are fascinating upsides and downsides to Friendster's young history. To its

credit, Friendster has been used for purposes ranging from online dating to meeting

people based on personal background, location, interests, or pre-existing friendships. On

the other hand, Friendster does not have much in the way of original content nor does it

seem to have a core understanding for one or more distinguishable groups of its users.

As a result, the website currently appears to be scrambling to brand itself.

Friendster includes many of the features of online dating connectors, but its

appeal is largely functionality. The website offers searches for people or groups across

an unlimited number of social networks or topic categories. On Friendster, contacting the

friends of friends is based in part on Stanley Milgram's famous "six degrees of

separation" experiment.[35] The process is simple and repetitive to find an "nth degree"

friend. Given a user starting at his or her own profile home page, this person can readily

see his or her first degree friends. It is then possible to go to a first degree friend's profile

and see all of that person's first degree friends, which are actually the user's second

degree friends. The process can begin again with a second degree friend's profile in

order to find third degree friends, and so on.

Friendster makes social search very easy, connecting people by particular

demographics and keywords. For example, if a person wants to find others who have

liked reading the *Da Vinci Code* or someone who happens to follow the Pittsburgh

Steelers, Friendster is a sure bet for matching with other like-minded people based on

those parameters. The website enables a high likelihood of finding other people with a

mutual interest in a short amount of time. Because of this creative mixture of social

search and social networking applications, Friendster at one time publicized having more

than 20 million people in its online community, and after only three years of service.   In

an effort to broaden its appeal, Friendster now offers blogging, interactive classifieds, and

bookmark sharing capabilities.[36]

   After an initial splash of success, Friendster began having a number of nagging

problems. The connector website has earned the unwanted reputation for technical

miscalculations and poor customer service. The website's infrastructure was not ready

for its early surging user growth rates. People complained about major lag times between

making profile edits and those edits being officially posted on the website. Another

problem has been Friendster's lack of brand or theme. It has been like a food court, a

purely functional place that tries to offer many different things to many different people.

Demographics is the most defining character of the website – urban twenty-somethings,

who are by and large looking for dates or racing each other to create the largest friend

network, but this is at best passive branding – Friendster is not actively targeting this

group of users.[37] The question is whether functionality is enough to win user loyalty.

My estimation is no. Eventually some other kind of feature or theme is probably

necessary to separate Friendster from other connectors as social exchange applications

are incorporated and mixed together by competitors. Friendster accomplished two

necessary ingredients for success – early entry into a new industry and offering a new and

innovative service – but now the website is trying to gain the competitive advantage for

longer term sustainability.

Over the past two years, MySpace (www.myspace.com) has capitalized on Friendster's problems.[38] On the surface, MySpace is similar to Friendster – it is primarily based on social search and social networking applications for the purpose of context-based communications. At one time the demographic of the two sites were alike, targeting teens and twenty-somethings. However MySpace went a step further than Friendster by seeking out a niche community of users by specifically focusing on music and popular entertainment interests. The website enables people to discover music and online in the same way they find out about music in person – through friends. At an early stage, MySpace started offering file downloads, direct connections to bands, testimonials and ratings, and career networking capabilities for musicians.[39] It is a derivative of Friendster, but MySpace has catapulted way ahead of its predecessor in terms of membership growth, user log time on the website, and user satisfaction.[40] On July 11, 2006, it was reported that (based on Hitwise Internet market research statistics) MySpace dethroned Yahoo! as the most heavily visited website on the Web.[41]

Like MySpace, Facebook (www.facebook.com) also utilizes Friendster's social networking model, but focused on a more targeted audience – college students. Mark Zuckerberg, Dustin Moskovitz, and Chris Hughes, all students at Harvard University, launched the website in early 2004. Danah Boyd has described Facebook as a "closed" network – memberships restricted only to those people with academic email addresses and searching only locally within schools and not across schools.[42]   In just over two years, Facebook claimed at least 80% participation on nearly every major college campus in America.[43]

LinkedIn (www.linkedin.com) also features social networking capabilities and uses an even more restricted network model for nurturing its online community. LinkedIn facilitates business and professional networking. The company describes its connecting protocol as "…users can be approached [only] if one of their trusted contacts forwards a contact request to them because they believe it is an opportunity their contact will appreciate."[44] In essence LinkedIn constrains access to its members. This is quite more restrictive than MySpace, Friendster, and other more social or friends-based websites. Reid Hoffman, founder of LinkedIn, converted a common offline social process into an online process. Both LinkedIn and Facebook have taken steps to frame their online communities by respective needs, interests, and priorities, while establishing large and somewhat restricted social networks.

To sum up this section, first and second generation connector websites have clearly set out to enable weak ties between users, first by social search, and then by phasing in social networking. Following the successes of pioneering connectors, many of the 2005 and 2006 startup connectors have embedded social networking applications into their platforms. (see Appendix D) Given the premise stated earlier, that in general a connector enables social processes that can lead to exponential change, we should expect these websites to show evidence of exponential trends. Longitudinal website traffic data and user growth rates should supply the evidence. To the best of my knowledge and review, no prior research exists evaluating website traffic to determine whether or not a website demonstrates exponential change over time.

Can user traffic data for a connector website offer evidence of emergent online community behavior and suggest information about its social and economic conditions? I explore this question for the rest of the report.[45]

DATA & METHODS

The following analysis treats connector websites as social institutions. I analyze monthly website traffic data for thirteen connector websites. (see Table 2) Most of these connectors are part of the highly-publicized "Web 2.0" phenomenon, a term popularized in the press for peer-to-peer-oriented websites, which emphasize interaction, collaboration, and user-generated content.[46] I use comScore Media Metrix website traffic data (U.S. only) for longitudinal analysis.[47] (see Appendix E) Observations are initially restricted by the availability of data for comScore-selected connectors that have, to some degree, installed social networking and social search applications. Connectors also had to meet the following conditions: (1) the website's online community generates a substantial amount of content; and (2) the web applications launched before July 2005.[48] The observed time period spanned fourteen months, May 2005 through June 2006. The unit of analysis is the connector website, and the key dependent variable is "Monthly Unique Visitors" – estimated counts of individual users who view a website in a particular month.[49]

Do connector websites offer evidence of exponential social change over time? This is the key empirical question for this report. I consider month-to-month traffic changes for a given website as a snapshot of social change for that particular online community. The comScore website traffic data will lead to traffic trend estimations for each of the thirteen connector websites. At the end of this section, I will make a

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judgment on whether or not a given connector demonstrated exponential change in the time period May 2005 through June 2006. The determination will be based on the following observations:

(1) Percentage change over the time period, May 2005 to June 2006;

(2) Traffic trend estimation with respect to an exponential function;

(3) Website volatility

A couple cautions and limitations should be mentioned at this point. The following data analysis is exploratory and descriptive - causality cannot be asserted using the methods I employ here. I am also unable to distinguish between the characteristics attributed to the host organization from those of the online community of users. I treat them as a single entity, what I have been referring to as a social institution. This analysis is strongly suggestive, but not conclusive, since we are looking at a relatively small number of connector websites. In any case we should be able to learn more about longitudinal trends on thirteen popular connector websites and see if past trends may have future implications for social change.

comScore Media Metric Analysis

Table 3 lists the connector websites in rank order of monthly unique visitors (hereafter, traffic) in June 2006. MySpace clearly separates itself from the pack, having more than three times the number users when compared to the nearest connector. The U.S. traffic coming to MySpace is about 30% of the U.S. traffic on the entire Internet. Classmates.com and Facebook each claim roughly 8% of U.S. Internet users. Moving

down the table, the connectors from MSN Spaces to Bebo attract between 5% and 1% of the U.S. Internet usage market. Friendster, LinkedIn, and Orkut are all beneath the 1% threshold.[50]

In Table 4 we begin to see evidence of large growth on some of the connector websites. Five (nearly six) websites at least doubled their monthly traffic over the course of fourteen months. Flickr increased its traffic more than fivefold. Five of the connectors actually lost users during the time period, three of them (Classmates.com, Xanga, and LiveJournal) being the oldest in the sample.

At this point, I model each of the connector website trends with respect to an exponential function, using the equation: $y = ae^{bx}$. In the equation x is the value of the independent variable (month), and y is the value of the dependent variable (monthly unique visitors). The value e (approximately 2.7182) is the base of natural logarithms. A statistical program calculates the values of a and b that best fit the connector's data. If the observed data points closely correlate to the newly generated exponential curve, then this pattern (illustrated by a high R^2 value) indicates that exponential growth does a good job of explaining a connector website's trend during the time period.

Figure 2 lays out the trend graphs for the connector websites in the sample. Table 5 summarizes the trends and the exponential function tests. To err on the side of caution, I consider $R^2 \geq .8$ to be a "strong" fit; $.5 \leq R^2 < .8$ to be "moderate" fit; and $0 \geq R^2 < .5$ to be "weak" fit. Five of the trends correlate nicely with its exponential model, exhibiting a strong fit. Three of them – Flickr, MSN Spaces, and MySpace – displayed staggering growth over fourteen months. Facebook nearly doubled, but also importantly, showed modest downturns like the other three higher growth websites. LiveJournal is the only

website indicating what seems to be very serious decline. Tagged and Orkut demonstrated high growth spurts in this period, but the wild rhythms of their trends likely hurt its correlation to their respective exponential models.   As a result, these two connectors fall within the "moderate" category.   The other websites did not show a dramatic percentage growth nor did they fit well with their exponential models. Eight connector websites do not pass this empirical test.

Trend volatility might explain in part why Tagged and Orkut missed the cut, and why Facebook (showing less impressive growth) did fit its exponential model. Table 6 lists the connector websites in ascending order, from least to most volatile.[51] We see Tagged and Orkut are at the bottom of the list, having the steepest upturns and downturns on their respective month-to-month rates of change. (see Appendix G) The bottom line is that the end point for this particular analysis, June 2006, may have been chance that Tagged and Orkut were at favorable levels when compared to May 2005.

Website Age and Seasonal Trends

Two general website characteristics may partly explain the observed trends. First, the age of the connector website, or online community, seems to relate to traffic growth differences. There is a moderate negative association (r=-.45) between a website's age (in months) and its percentage growth over the time period – meaning that older age may bring slower growth.[52] This is not a big surprise. It is quite possible the older websites boomed at an earlier time before the observed time period.   A maturation period may be a characteristic for these websites as they approach long term sustainability. It is also interesting to note that there is a moderate negative association (r=-.40) between a website's age and its volatility across the time period – meaning that older sites may

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experience less severe shifts in monthly rates of change[53] It is intuitive to think that a

host organization and/or online community would eventually get past some kind of initial

maturation period, leading to less severe traffic swings.

When glancing at the graphs in Figure 2, it seems like there also could be a

seasonal pattern for most of these thirteen connector websites. A closer look at Figure 3

sheds some more light on this suggested seasonal characteristic. For this analysis I made

a count of connector website "winners" and "losers", those who showed positive or

negative growth in a given month-to-month time interval. It seems like the up-and-down

trends follow the school year calendar. Connector website winners increased from

September to December and January to April. More and more losers emerged over the

late summer (July to September), over the holidays (December to January), and at the end

of spring (April to June). However only a portion of these connector websites explicitly

target teens and college students, so school year factors may only be a small part of an

explanation. In general the data analysis presented here is impressionistic and should

probably receive more in-depth consideration that is beyond the scope of this report.

DISCUSSION & IMPLICATIONS

One basic finding stands out. Connector websites experience exponential changes

in website traffic over time. At least four out of the thirteen connectors showed rapid

growth, and one other displayed substantial shrinkage. Five connectors have produced

rather unexpected social epidemics in terms of huge gains (or loss) in user traffic.

As a side note, it would seem impossible to sustain the kind of Flickr or MySpace

traffic growth in the long-term. Take Flickr as an example. The site is approximately 28

months old. Hypothetically, if the website kept escalating at the current pace of about

450% per year, it would approach 2.5 billion unique monthly users in June 2010 – that would be nearly 1 out of 4 people on the planet! Eventually growth has to decelerate. Therefore it seems to be important for any connector website's host organization to forecast its market, or online community scale, at the early stages of the website's operations. Over time, sustaining a level relative to the forecasted scale might be more prudent than seeking constant rapid growth. This is not to understate the difficulty of making such projections and calculations. Quite the contrary, for a general service like Flickr (i.e. photo sharing and tagging), forecasting for scale will likely be difficult.

Why does it look like some connector websites exhibit exponential change, and others do not? The average age of the connectors that exhibit positive exponential growth is approximately 27 months. Based on their large online constituencies and relative "maturity", it is a reasonable guess that Classsmates.com, LiveJournal, and Xanga (all three started before 2000) may have showed sizable growth long before the time period in this analysis. There is anecdotal evidence that Friendster hit hyper growth in 2003-2004. It would be interesting to test whether or not there is a clear maturation process for these websites and their host organizations. The moderate correlations presented in the preceding analysis offer suggestive evidence on the importance of time and age with respect to exponential trends.

What do the lessons of existing connector websites imply for future startups?

Connector websites have to contend with a number of issues. First of all, personal security and fraud could be major problems for a host organization's reliability and trust with its online community. Connectors are virtual open markets for social exchanges of information or other goods and services, and they largely rely on self-policing and

reporting of website abuses. Not long ago Friendster was notorious for its users creating

fictional profiles and even defamatory profiles, also known as "fakesters".[54] Fortunately

new web services are becoming available to enable connectors to conduct verifications

for online profiles as a means to prevent fakesters, harassers, and underage users.[55]

A lot of connectors ask for photos to go with online profiles, and sometimes

these photos are quite explicit. Match.com has a fairly strict screening process that

mandates a waiting period before photos are posted. Employees scrutinize submitted

photos as a means of quality control.[56] So the problem is resolvable, albeit likely

requiring more labor and cost. For some connectors, photos may not be necessary for

facilitating interactions among users. Yahoo! Avatars is a good example for side-

stepping the pitfalls of providing profile photos. Users create an animated image to build

a virtual self-portrait.[57] A connector called Stardoll uses avatars for its online community

of seven-to-seventeen year-olds, where the members can dress and change the outfits of

their personal online doll.[58] Inappropriate and misrepresenting images are largely

eliminated. In the case of consumer fraud, eBay is trying to prevent fake listings of

expensive consumer goods such as plasma televisions and mountain bikes. In the effort

to fight fraud, eBay employs more than 800 people for the cause.[59] Prospering

connectors are actively addressing security dangers and are committed to quality control.

A mostly self-regulating online community is the desirable means for enforcing

website rules and norms. However, online vigilantism is an unintended consequence for

such bottom-up enforcement of the community's norms and values. eBay has been

struggling with this issue over the past few years.[60] eBay users have taken accountability

measures into their own hands mainly by alerting buyers that a listing is fake. eBay

encourages reporting fake listings to the company, but they do not approve of user-to-user alerts or self-styled sting operations. These actions may undermine eBay's accountability system, which is the primary signal for a given user's reputation and trustworthiness. The lesson here is that extreme regulation, bottom-up or top-down, is unhealthy for a connector's long term development. Online security violations and fraud take many forms, but there is no doubt that quality control of user-generates content will be a major concern for connectors. As time passes, it is conceivable that host organizations adapt by encouraging online community rules, norms, and self-regulation, contributing to the maturation period suggested in the previous section.

Secondly, a key challenge for connector websites is to attract a great quantity of users that provide an expansive range of perspectives and experiences. Otherwise the power of the connector diminishes. For example, if someone is an elementary school principal looking for information in order to adopt a new reading program, it would be most valuable if there are many reading specialists, many textbook salespeople, and many principals who at the least can serve as points of reference. In order to assure the sign up of new member, it is probably important for connectors to have consistent publicity and strategic marketing for the initial stages of web development.

However there can be a downside for seeking out as many new users as quickly as possible, and the allure of exponential network growth rates is tempered by some recent experiences. Friendster shows how good fortunes can quickly reverse. With its "six degrees of separation" networking technology, Friendster became more popular literally by the week, but technical problems multiplied as the website could not keep up with its

growing community of users. Writing in *The New York Times*, Gary Rivlin quoted a

former Friendster employee saying:

> "The service was growing faster than we could keep up with, so we spent all
> this time making sure the service was stable… A lot of people were frustrated
> because we weren't rolling out a lot of features but instead working on
> infrastructure."[61]

Another risk for connectors is the over-reliance on the viral / word-of-mouth

marketing approach that is commonplace and often touted by existing connectors. The

strategy is a fascinating social experiment, but it is likely a long-term liability for the host

organization. Sites can cede too much of the online community's development to the

discretion and rationale of its users. Orkut is a good case in point, having more than 65%

of its user base located in Brazil. Orkut launched in early 2004 as a challenger to

Friendster and MySpace, and it is doubtful that this Google-affiliate initially wanted the

bulk of its online community building to take place in South America.[62]   The word-of-

mouth approach may have been effective for exponential growth over a time period, but

it leads to greater long term concerns for website control, development, and direction.

Third, newly launched connectors should seriously consider their scale and

benchmarks for sustainable growth. Otherwise, as shown by Friendster, a lack of

preparedness may cause a customer service meltdown and threaten the website's survival.

At the outset of website development, it is beneficial to understand the planned online

community's needs, interests, and priorities as best as possible. Within these parameters,

stable connectors prepare and develop the website according to a community scale, hoping to serve the projected maximum number of users for that online community. Connectors ought to plan for exponential growth rates, but also plan for deceleration of traffic growth and effectively manage user (and investor) expectations.

Fourth, a connector needs to establish a recognizable brand, or else it will likely face fickle users.[63] Three types of branding come to mind for these websites, either in terms of the online community's social context (i.e. needs, interests, priorities), in terms of community demographics (i.e. age, gender, race, ethnicity, location), or timing of the websites launch and entry into targeted market(s).[64] Connectors like Classmates.com (alumni connections), Match.com (online dating), and LinkedIn (professional networking) explicitly focus on the social context of users. A social networking website like Facebook (teens/college) brands itself based on demographics. Sites like eBay and Craigslist have probably benefited a great deal by the timing of their launches, as well as how long they have remained relatively unchallenged by any competitors.

Connectors that do not plan for branding can be criticized for taking the "if you build it, they will come" approach. Friendster is one such example that has not clearly defined its brand. In other words, the novel applications of social networking, blogging, or tagging, may not be good enough in the long term to draw new users and maintain stickiness. These sites risk being perceived as overly superficial and faddish, lacking any substantive understanding of its community of users. Some connectors are struggling to offer anything more than what is turning out to become a common web application for bringing people together.

What about some of the other rapid growth connectors identified in this report's data analysis? It is possible that Flickr will establish itself as *the* photo sharing and networking service on the Internet. Like eBay and Craigslist, Flickr entered early in the photo-sharing genre, has had few competitors, and built a sizable online community (almost 6 million active users per month) very quickly. The barriers for market entry are probably considerable for competitors. However, the same could have been said for Friendster. It will be interested to see whether or not Flickr has erected market barriers that are higher than what Friendster had built a few years ago. Other connectors like Orkut, Tagged, and MSN Spaces do not appear to neatly fit into any of the three branding categories. Though all three have had tremendous growth since 2005, their prospects for long term sustainability seem to be shakier than connectors with recognizable brands.

Fifth, reputation-building mechanisms and accountability systems likely contribute to traffic growth. A connector's legitimacy and value depend on how well its feedback systems satisfy user expectations. Feedback takes many forms, ranging from discrete to subtle signals. Ratings and rankings on connectors like eBay, MySpace, and Omidyar Network, give explicit cues about other community members. In effect, these social metric systems quantify reputation, and more specifically social capital. James Coleman, a very influential sociologist in the late twentieth century, suggested social capital as "… relations among persons that facilitate action… it exists in the relations among persons."[65] Ratings and rankings quantify a given set of relations between two users, and this observable quantity on a connector website can influence the actions of other users. For example, a user with a 4.8 rating on a 5.0 scale will be viewed as trustworthy and reliable, but someone scoring at 2.2 much less so. Within the social

structure consisting of the website and its community, users have a higher incentive to seek out User 4.8 rather than User 2.2 for online communications or transactions.[66] User 4.8's social capital is actually visible and come across as more attractive to others.

There are qualitative means for gauging trust and reputation on connector websites. Reviews (also called testimonials, bulletins, and recommendations) exist on connector such as Judy's Book, Friendster, MySpace, and Tribe.net. This user-generated text is an explicit cue. More subtle signals are found on a given user's profile page, such as the appearance of the profile page; disclosed frequency of a user's online activity; quantity and quality of listed friends/contacts; response quality in the profile's categories; and user postings or comments to message boards. Such information can signal personal characteristics in much the same way we get impressions from email.[67] It is reasonable to think that a connector's online community would like these various explicit and implicit user cues to be as valid and reliable as possible. If this occurs, trust should develop between users, and between the community and the website. If there is little validity and reliability in these cues, user flight to a competing connector should likely occur over time. Well-constructed accountability mechanisms probably temper trend volatility and add to a site's stickiness.

Although connectors have had a measurable impact in a variety of social areas (commerce and trading; dating; teenage and collegiate socializing; career networking), in the future the model will likely be used for more specific interests and topics in which people are regularly engaged or for people in life transition phases. Themes could organize around occupations, education, healthcare, parenting, religious or spiritual

living, volunteering, politics, hobbies, or residence. In fact, connectors launching in late 2005 and 2006 seem to be following this path toward differentiation.[68]

Table 7 displays some emerging norms among current connector websites, summarizing the main ideas in this section.[69] Thoughtful business practice underscores most of these strategies. Connectors add value when identifying communities that either have been underserved in some way or unrecognized by conventional (i.e. offline) commercial, government, or nonprofit institutions.

CONCLUSION

Connector websites matter a great deal to Americans. This is evident when observing connectors' monthly traffic trends and correlating their actual trends with an exponential model. They demonstrate dramatic traffic change over time. Millions of people are actively using these websites as intermediaries to find people, information, services, or other goods. The numbers of people using connectors continue to swell. Each of at least five (almost six) connectors more than doubled user traffic growth from May 2005 to June 2006. Standout examples are Flickr (540 %), Tagged (286 %), and MySpace (236 %). Four connectors – Flickr, MySpace, MSN Spaces, and Facebook – showed exponential growth over the time period. LiveJournal was the only connector to substantially lose users. Volatility appears to be a nagging characteristic of relatively younger connectors like Flickr, Tagged, Orkut, Bebo, and LinkedIn. Based on the analysis, connector websites and online communities may need time to mature for attaining sustainability in terms of traffic trends. New connectors may want to learn from the start-up experiences of first and second generation connector websites.

The evidence here is not conclusive, but the analysis does suggest it would be a mistake to overlook the social implications of connector websites. Recent developing stories point to future areas for possible research and further examination:

1. **Social Values and Tradeoffs.** Connector websites offer convenience of choice, reliability of personal judgment, efficiency of communications and transactions, and the potential for tapping into others' experiences and resources. What is the downside to these expanded freedoms? Issues of personal privacy and security have hit the headlines in 2006. Stories grow about pedophiles stalking on teen connector websites like MySpace ready to prey on vulnerable or overly trusting young girls and boys. A public reaction was inevitable. The U.S. House Committee on Energy and Commerce Subcommittee on Oversight and Investigation held several hearings from June 21-28, 2006, which included testimony from the Federal Trade Commissioner, federal and state law enforcement officials, and executives from Facebook, MySpace, Xanga, Google, Yahoo!, Microsoft, and market research organizations. Major concerns aired about the confidentiality of members' personal data and how websites monitor and enforce safety, rules, online community best practices, and adherence to the Children's Online Privacy Protection Act (COPPA).[70] The Federal Trade Commission now has a "Facts for Consumers" bulletin for parents posted on the agency website.[71] It is unclear which direction public policy will turn at this point, but it is possible

state and federal government officials may seek to regulate connector websites.

2. **Differentiation and Specialization.** As connector websites evolve, they appear to be differentiating with respect to their organizational missions and focusing branding efforts on users' needs, interests, and priorities. This is happening in 2006. A sampling of new connector themes and organizing topics are related to: political campaigns and elections; religious expression and sharing; car and truck enthusiasts; female professionals; family-based networks; pet ownership; the World Cup; mental health issues; youth social initiatives; wedding preparations and references; and world travel.[72] Many of these connectors will never approach the size of an eBay, MySpace or Match.com. However they are likely establishing a core competency and competitive advantage based on substance, and not relying solely on the novelty of is web application or timing of website launch. Many are also looking beyond usual demographic indicators like age or gender. Increased specialization should continue in the future, and the community scale of connector websites on average will probably shrink as the overall sector matures.

In 2005-2006, connector websites continue to adapt to their social and economic circumstances, while leading the Web 2.0 online expansion phase. In terms of their participation numbers, website traffic trends, and unorthodox business practices and strategies, connector websites are a timely topic. An overarching goal here has been to bridge the somewhat disconnected information pools and audiences coming out of

academia, the mainstream news media, bloggers, and the Internet industry's insiders and

analysts. In researching and writing this report, I had other objectives as well: (1)

Propose and define the connector website as a new type of social institution and

intermediary; (2) Describe how the connector website model is playing out in the real

world; (3) Apply an institutional approach to analyze the behavior of connector websites

and their online communities; (4) Determine whether or not connector websites have

demonstrated exponential change over time; and (5) Suggest the implications of existing

connector websites, pointing to future trends and possible areas for research. This report

should enable us to better evaluate connector websites as they evolve in the future.

NOTES

[1] Malcolm Gladwell, *The Tipping Point*, (New York: Little, Brown, & Company, 2000). Also see Gladwell's interview on The Charlie Rose Show: The Tipping Point. [segment within transcript]. "The Charlie Rose Show." Bloomberg Productions. May 12, 2000. Tipping theory has been developed over many years and in a number scientific disciplines, notably in the fields of epidemiology, mathematics, sociology, economics, and computer science.

[2] In the late 1970s, Thomas Schelling and Mark Granovetter modeled critical mass and tipping points as part of social theory. See Thomas C. Schelling, *Micromotives and Macrobehavior*, (New York: W. W. Norton & Company, 1978); Mark Granovetter, "Threshold Models of Collective Behavior," *American Journal of Sociology*, Vol. 83, No. 6, (1978), pp. 1420 – 1443. For additional examples of tipping points, see James Q. Wilson and George L. Kelling, "Broken Windows: The Police and Neighborhood Safety," *The Atlantic Monthly*, Vol. 249, No. 3, (March 1982), pp. 29 – 38; Timur Kuran, *Private Truths, Public Lies: The Social Consequences of Preference Falsification*, (Cambridge: Harvard University Press, 1995).

[3] Mark Granovetter, "The Strength of Weak Ties," *American Journal of Sociology*, Vol. 78, No. 6, (1973), pp. 1360-1380. This article is also included in the early comprehensive volume on social network analysis: Samuel Leinhardt, ed., *Social Networks: A Developing Paradigm*, (New York: Academic Press, 1977). Granovetter used social networking theory to explain how people find employment: Mark Granovetter, *Getting a Job: A Study of Contacts and Careers*, (Cambridge, MA: Harvard University Press, 1974). Evidence for the strength of weak ties in family planning decisions is given in William T. Liu and Robert W. Duff, "The Strength in Weak Ties," *Public Opinion Quarterly*, Vol. 36, (1972), pp. 361-366. Granovetter updates his social networking model in Mark Granovetter, "The Strength of Weak Ties: A Network Theory Revisited," *Sociological Theory*, Vol. 1, (1983), pp. 201 – 233. The weak ties model was recently supported by experimental research reported in Peter Sheridan Dodds, Roby Muhamad, and Duncan J. Watts, "An Experimental Study of Search in Global Social Networks," *Science*, Vol. 301, (August 8, 2003), pp. 827-829. For a good review of the academic literature, see Laura Garton, Caroline Haythornwaite, and Barry Wellman, "Studying Online Social Networks," *Journal of Computer Meidated Communications*, Vol. 3, No. 1, (June 1997).

[4] Peter Blau's *Exchange and Power in Social Life* influenced my research a great deal. See Peter M. Blau, *Exchange and Power in Social Life*, (New York: John Wiley & Sons, Inc., 1964), pp. 1-12, 88-114, 253-282.

[5] The news media often treat "social search" and "social networking" as meaning the same thing while describing a given website's core applications. They are actually two distinct online applications and processes. The term "social search" is broad, and it basically refers to the capability to search for online community members by use of keywords or some other parameters. A user can search others' member profiles. The term "social networking" means to visually see the network of a given online community member and have the opportunity to contact one or more of those persons, as well as subsequent "degrees" of networks. The "six degrees patent", awarded to Andrew Weinreich and Adam Seifer in the late 1990s, pioneered the social networking applications found in many second generation connector websites.

[6] Edward C. Baig, "Friends, Photos, and Blogs All in One Place," *USA Today*, April 14, 2005. Also see Steven Levy and Brad Stone, "The New Wisdom of the Web," *Newsweek*, April 3,

2006, pp. 47-53. Forbes.com has an excellent visual presentation summarizing representative websites based on niche, embedded in Rachel Rosmarin, "The MySpace Bubble," *Forbes.com*, June 29, 2006: http://www.forbes.com/home/digitalentertainment/2006/06/29/myspace-network-facebook_cx_rr_0629socialnetwork.html

[7] Howard Rheingold, *The Virtual Community: Homesteading on the Electronic Frontier*, (Reading, MA: Addison-Wesley, 1993); Laura Garton, Caroline Haythornwaite, and Barry Wellman, "Studying Online Social Networks," *Journal of Computer Mediated Communications*, Vol. 3, No. 1, (June 1997); Peter Kollock, "Design Principles for Online Communities," *PC Update*, Vol. 15, No. 5 (June 1998), pp. 58-60; Peter Kollock and Marc A. Smith, "Communities in Cyberspace," in *Communities in Cyberspace*, Peter Kollock and Marc A. Smith, eds., (New York: Routledge, 1999), pp. 3-28; Barry Wellman and Milena Gulia, "Net Surfers Don't Ride Alone: Virtual Communities as Communities," in *Communities in Cyberspace*, Peter Kollock and Marc A. Smith, eds., (New York: Routledge, 1999), pp. 167-194; Barry Wellman and Keith Hampton, "Living Networked On and Offline," *Contemporary Sociology*, Vol. 28, No. 6 (November 1999), pp. 648-654; Jenny Preece, *Online Communities: Designing Usability and Supporting Sociability*, (New York: John Wiley & Sons, Inc., 2000); Robert McArthur and Peter Bruza, "The ABCs of Online Community," Lecture Notes in *Computer Science*, Vol. 2198 (2001), pp. 141-147; Lada A. Adamic, Orkut Buyukkokten, and Eytan Adar, "A Social Network Caught in the Web," First Monday, Vol. 8, No. 6 (June 2003); Devan Rosen, Joseph Woelfel, Dean Krikorian, and George A Barnett, "Procedures for Analyses of Online Communities," *Journal of Computer-Meidated Communication*, Vol. 8, No. 4 (July 2003); Jenny Preece, and Diane Maloney-Krichmar, "Online Communities: Design, Theory, and Practice," *Journal of Computer-Mediated Communication,* Vol. 10, No. 4 (July 2005), article 1; Andrea Kavanaugh, John M. Carroll, Mary Beth Rosson, Than Than Zin, and Debbie Denise Reese, "Community Networks: Where Offline Communities Meet Online," *Journal of Computer-Mediated Communication,* Vol. 10, No. 4 (July 2005), article 3. Also see recent work conducted by the Community Lab, a collaborative project of the University of Minnesota, University of Michigan, and Carnegie Mellon University: http://www.communitylab.org.

[8] John Horrigan, *Online Communities: Networks That Nurture Long Distance Relationships and Local Ties*, (Pew Internet & American Life Project, 2001); Pew Internet & American Life Project, *Internet: The Mainstreaming of Online Life: Trends 2005*, (Pew Internet & American Life Project, 2005); Center for the Digital Future, *Highlights: Digital Future Project 2005*, (Los Angeles: Center for the Digital Future, 2005). Also see the recent report by Jeffrey Boase, John B. Horrigan, Barry Wellman, and Lee Rainie, *The Strength of Internet Ties*, (Washington DC: Pew Internet & American Life Project, 2006).

[9] See Ronald Coase, "The New Institutional Economics," *The American Economic Review*, Vol. 88, No. 2 (May 1998), pp. 72-74.

[10] There are non-connector websites that build online communities. Examples are consumer websites such as Amazon.com and Edmunds.com; lifestyle websites such as iVillage and Askmen.com; music sharing websites like Napster or BearShare. Under close examination these sites do not meet the operational definition of the connector website found on pp. 5-6.

This study was restricted to investigating websites that have major social search and/or social networking web applications. Further research needs to be done regarding three classes of websites with distinctly different applications: (1) wiki websites (e.g. Wikipedia); (2) fantasy sports websites (e.g. Yahoo! Fantasy Sports); and (3) gamer websites (e.g. World of Warcraft).

[11] See Danah Boyd and Jeffrey Heer, "Profiles as Conversation: Networked Identity Performance on Friendster," In *Proceedings of the Hawai'i International Conference on System Sciences (HICSS-39),* Persistent Conversation Track. Kauai, HI: IEEE Computer Society. January 4 - 7, 2006; Judith Donath and Danah Boyd, "Public Displays of Connection," *BT Technology Journal*, Vol. 22, No. 4, (October 2004), pp. 71 – 82; Danah Boyd, "Friendster and Publicly Articulated Social Networks," *Conference on Human Factors and Computing Systems*, April 24-29, 2004.

[12] Stutzman has called the online communities of Facebook and other connector websites – "social networking communities". See Frederic Stutzman, "Student Life on Facebook," Ph.D. Working Paper, University of North Carolina, January 2006; Frederic Stutzman, "An Evaluation of Identity-Sharing Behavior in Social Network Communities," Ph.D. Working Paper, University of North Carolina, July 2005. He also gives a good overview of social network analysis as it applies to the Internet today: Frederic Stutzman, "Social Network Analytic Approaches to the World Wide Web," Ph.D. Working Paper, University of North Carolina, May 12, 2005. His blog, called "Unit Structures", contains several very insightful posts on social networking websites.

[13] Larry D. Rosen, *Adolescents in MySpace: Identity Formation, Friendship, and Sexual Predators*, (Dominguez Hills, CA: California State University-Dominguez Hills, 2006). The executive summary is available online at the following URL: http://www.csudh.edu/psych/lrosen.htm

[14] See Lars Backstrom, Dan Huttenlocher, Jon Kleinberg, and Xiangyang Lan, "Group Formation in Large Social Networks: Membership, Growth, and Evolution," Presented at the Association for Computer Machinery's Twelfth Annual International Conference on Knowledge Discovery and Data Mining (ACM KDD '06), Philadelphia, Pennsylvania, August 20-23, 2006.

[15] I attended the 2005 Online Community Summit (October 5 – 7, 2005), and I conversed with more than twenty conference participants to better understand the future growth of online communities. The proceedings provided tremendous insight for the direction of online community development. The event was jointly sponsored by Forum One Communications, Omidyar Network, Lithium Technologies, AOL, and the American Legacy Foundation.

[16] James Coleman described the inherent value of this interaction as "social capital". See his two major publications on social capital: James S. Coleman, "Social Capital in the Creation of Human Capital," *Supplement: Organizations and Institutions: Sociological and Economic Approaches to the Analysis of Social Structure, American Journal of Sociology*, Vol. 94, (1988), pp. S95 – S120; James S. Coleman, *Foundations of Social Theory*, (Cambridge: Harvard University Press, (1990), pp. 300 – 316.

[17] Intermediaries in markets are found in Vincenza Odorici and Raffaele Corrado, "Between Supply and Demand: Intermediaries, Social Networks, and the Construction of Quality in the Italian Wine Industry," *Journal of Management and Governance*, Vol. 8, (2004), pp. 149-171.

[18] HP Labs issued a brief in 2004 discussing several approaches to building online reputation mechanisms. See Tadd Hogg and Lada A. Adamic, "Enhancing Reputation Mechanism via Online Social Networks," HP Labs, May 2004.

[19] Nancie Meng and Michel Thouati, "Self-Regulating Communities," Presentation given at the

2005 Online Community Summit, Sonoma, CA, October 6, 2005. Though not a connector website, an interesting case in point is the Sony Play Station online community. Sony has been proactively building mutually satisfying relationships with the most frequent users of their gaming website. These regulars have been recruited to become leaders of their website's gaming community. These gaming leaders have been Sony's online eyes for several years now. If a concerning situation arises, the gaming leaders are first consulted. This kind of bottom-up community enforcement has been less costly and labor intensive than if Sony used a top-down approach. Sony bundles recognition and responsibility to gaming leaders in exchange for their peer pressure, giving the most regular users a higher degree of ownership for their respective roles. These incentives appear to garner loyalty and give a sense of special worth. Self-regulation requires a connector's host organization, like a Sony, to actively try and understand the needs and interests of its community members. As a result, the host and community create a mutually satisfying feedback loop. Visit the Sony Play Station online community at the following URL: http://www.station.sony.com/en/message_boards.jsp

[20] For a full discussion related to these processes in online marketplaces, see Michael P. Wellman, "Online Marketplaces," in *The Practical Handbook of Internet Computing*, Munindar P. Singh, ed., (London: CRC Press, 2004), Chapter 19-1.

[21] Email exchange with Joe Cothrel, BTC Research, based in Ann Arbor, MI.

[22] Email exchange with Joe Cothrel, BTC Research. Fred Stutzman discusses "situational relevance" in his blog: http://chimprawk.blogspot.com . Also see Paul DiPerna, "K-12 Encounters the Internet," *First Monday*, Vol. 11, No. 5, (May 2006).

[23] For an introduction to diffusion theory and a history of diffusion research, read chapters 1 and 2 in Everett M. Rogers, *Diffusion of Innovations*, (New York: The Free Press, 1995), pp. 1-95.

[24] Leslie Walker, "New Trends in Online Traffic," *Washington Post*, April 4, 2006, p. D1; Rachel Rosmarin, "The MySpace Bubble," *Forbes.com*, June 29, 2006. Anya Kamentez recently wrote a very nice essay about the current trends on social networking websites: Anya Kamenetz, "The Network Unbound," *Fast Company*, Issue 106, (June 2006), p. 68. Also see Appendix C.

[25] Word-of-mouth publicity spurred eBay's early years when it was known as Auction Web. This kind of marketing approach seems to be a characteristic of connector websites during their initial operations. See Carmela Ciuraru, "Book Review: eBay's Path from Humble Hobby to Online Auction Powerhouse," *Los Angeles Times*, July 5, 2002, p. 4.

[26] Information about eBay is located at the following URL: http://pages.ebay.com/aboutebay/thecompany/companyoverview.html

[27] Some evidence exists suggesting that online reputation mechanisms promote trust and trustworthy behavior. See Gary E. Bolton, Elena Katok, and Axel Ockenfels, "How Effective Are Online Reputation Mechanisms?" May, 2002. Available online at the following URL: https://papers.econ.mpg.de/esi/discussionpapers/2002-25.pdf .

[28] Tribe.net, relaunched in 2003, is a key competitor to Craigslist.

[29] To see the Match.com press release, please go to the following URL: http://corp.match.com/index/newscenter_release_detail.asp?auto_index=89

[30] Information about Classmates.com is located at the following URL: http://www.classmates.com/cmo/about/index.jsp

[31] *MarketWatch*, "Social Networking Sites Continue to Attract Record Numbers as MySpace.com Surpasses 50 Million U.S. Visitors in May," *MarketWatch*, June 15, 2006, Table 1.

[32] See Friendster CEO Jonathan Abrams' interview on The Charlie Rose Show: The Creativity Crisis in America; A Look At Film 'Going Upriver: The Long War of John Kerry. [segment within transcript]. "The Charlie Rose Show." Bloomberg Productions. October 14, 2004.

[33] See Teresa Riordan, "Idea for Online Networking Brings Two Entrepreneurs Together," *The New York Times*, December 1, 2003, p. C20; L. Gannes, "Friendster Wins Patent," *Red Herring*, July 6, 2006.

[34] Andy Ihnatko, "Google Makes Attempt at Connecting Friends of Friends," *Chicago Sun-Times*, March 9, 2004, Financial, p. 58.

[35] Stanley Milgram, "The Small World Problem," *Psychology Today*, Vol. 1, (1967), pp. 60-67. Columbia University sociologists recently updated Milgram's experiment using email on a global scale. Their results supported the notion that "… successful social search is conducted primarily through intermediate to weak strength ties." See Peter Sheridan Dodds, Roby Muhamad, and Duncan J. Watts, "An Experimental Study of Search in Global Social Networks," *Science*, Vol. 301, (August 8, 2003), pp. 827-829.

[36] For more information about Friendster, please go to the following URL: http://www.friendster.com/info/index.php?statpos=footer

[37] Problems at Friendster are detailed in the following articles: Daniel Terdiman, "Friendster Quickly Gathering Foes," *Wired News*, November 21, 2003; Cathleen Moore, "Friendster Scales the Network with Open Source," *InfoWorld*, Vol. 27, No. 14, (April 4, 2005); Duncan Martell, "Friendster CEO Departure Signals Difficulties," *Reuters*, May 27, 2005. The latter article is available online at: http://news.yahoo.com/s/nm/20050527/wr_nm/tech_friendster_dc&printer=1.

[38] For more information about how MySpace works, please go to the "FAQs" section of the website: http://viewmorepics.myspace.com/misc/faq.html?z=1&Mytoken=20050629111126

[39] Alex Williams, "Do You MySpace?," *The New York Times*, August 28, 2005, Style, p. 1; Reyhan Harmanci, "Online Networking Clicks Among Friends," *San Francisco Chronicle*, October 23, 2005.

[40] On the competition between MySpace and Friendster, read Gary Rivlin, "Users Lose the Thrill of 'Social Networking'," *The New York Times*, January 24, 2005, p. C1. For more overviews of MySpace's activities, read PR Newswire Association, Inc., "MySpace Music Aligns Musicians, Fans, and Industry Professionals to Transform Online Music Scene," *PR Newswire*, May 25, 2004; Nat Ives, "A New Type of Pitch to the Online Crowd Mixes Pop Stars and Personals," *The New York Times*, December 3, 2004, p. C6; Mike Osegueda, "Just a Click to Fame MySpace.com Helps Bands Find Their Place in the Musical Universe," *Fresno Bee*, May 23, 2005, p. D1.

[41] See Reuters, "MySpace Overtakes Yahoo! Mail," *Reuters Online*, July 12, 2006. Validity of the Hitwise measurement is disputed by Yahoo!.

[42] Email exchange with Danah Boyd, August 11, 2005. Also see Frederic Stutzman, "An Evaluation of Identity-Sharing Behavior in Social Network Communities," Ph.D. Working Paper, University of North Carolina, July 2005.

[43] See Linda Hanson, "Student Networking Is In-Your-Facebook," *Knight-Ridder Newspapers*, November 16, 2005; Suzannah Gonzales, "Trend-setting Website Snags 40,000 at UT," *Austin American-Statesman*, January 2, 2006, p. B1. For more information about Facebook, please go to the following URL: http://www.facebook.com/about.php

[44] A brief description of the LinkedIn approach can be found at the following URL: https://www.linkedin.com/static?key=company_info_more

[45] The data do not allow a distinction between the online community's attributes and those associated with the host organization. In this study the online community of users and organization are treated together as a single social institution.

[46] Tim O'Reilly, of O'Reilly Media, offers a thorough description of Web 2.0 – see the following URL: http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html . Also see Scott Kirsner, "Champions of Web 2.0 See a Shift to More Participation by the Public," *The Boston Globe*, October 10, 2005, p. F1.

[47] Thank you to Andrew Lipsman and comScore Media Metrix for providing me with this data. comScore Media Metrix is a leading website tracking organization that is based in Reston, Virginia. The more than 2 million participants in the comScore Global Network drive the company's audience measurements and analytical reporting. The Advertising Research Foundation recently issued some very high praise for comScore's methodology. The ARF review can be found at the following URL: http://www.comscore.com/method/arf_cs_review11502.pdf

[48] I obtained this information from the website's main webpage, "About Us" webpage, media reports, and (if applicable) the website's Wikipedia entry.

[49] A preliminary analysis in January 2006 used Alexa website traffic data. Serious concerns of sampling bias prompted me to switch to comScore Media Metrix, another website tracking service that is more widely cited in the news media. Alexa has a selection bias toward those people who use Alexa "outlets" such as Amazon.com and Internet Archive, as well as the Alexa toolbar. A non-response bias likely exists as well. Alexa toolbar users are likely to be more willing to download software, trust interaction on the Internet, and be more active online than the average Internet user. To access this earlier Alexa analysis, see Paul DiPerna, "The Connector Website Model (Alexa version)," Brookings Working Paper, March 2006. This paper is available online at the following URL http://www.blauexchange.org

[50] MSN Spaces relaunched as "Windows Live Spaces" on August 1, 2006.

[51] Volatility defined here simply as the variance of a website's "monthly percentage change" over the fourteen month time period.

[52] Erratum to the ASA conference presentation, August 11, 2006: This is *not* statistically significant – confidence level significant only at the .12 level – probably due to the small sample (N=13) and too few data points in the data set.

[53] Erratum to the ASA conference presentation, August 11, 2006: This is *not* statistically significant – confidence level significant only at the .18 level.

[54] A description of "fakesters" is found in: Michael Erard, "Decoding the New Cues in Online Society," *The New York Times*, December 18, 2003, p. G1.

[55] Phoneconfirm.com is one such provider that is offering support to connector websites. See the following press release: http://www.pr9.net/business/ecommerce/3766april.html .

[56] Match.com and Yahoo! Personals are currently dealing with another kind of fraud, stemming from their own employees. Allegations of "date bait" are surfacing where employees set up dates with members in order to keep them subscribed and paying dues to the website for a longer period of time. See Martha Graybow, "Online Daters Sue Matchmaking Sites," *Reuters*, November 18, 2005.

[57] Yahoo! Avatars is found at the following URL: http://avatars.yahoo.com . Fantasy sports websites, such as ESPN Fantasy, and video gamer websites began using this "user symbol" and self-expression feature for their online communities in the 1990s.

[58] See Stardoll's "About Us" webpage: http://www.stardoll.com/about

[59] Katie Hafner, "With Internet Fraud Up, eBay Attracts Vigilantes," *The New York Times*, March 20, 2004, p. A1.

[60] Katie Hafner, "With Internet Fraud Up, eBay Attracts Vigilantes," *The New York Times*, March 20, 2004, p. A1.

[61] Gary Rivlin, "Users Lose the Thrill of 'Social Networking'," *The New York Times*, January 24, 2005, p. C1.

[62] See Komfie Manalo, "Brazil to File Suit Against Google," *All Headline News*, August 16, 2006, available at the following URL: http://www.allheadlinenews.com/articles/7004553834

[63] Rachel Konrad, "Friendster Appoints New CEO Amid Niche Market Challenges," *Associated Press*, May 25, 2005.

[64] Thank you to Tom Loveless. A phone discussion crystallized this point for me.

[65] James S. Coleman, "Social Capital in the Creation of Human Capital," *Supplement: Organizations and Institutions: Sociological and Economic Approaches to the Analysis of Social Structure, American Journal of Sociology*, Vol. 94, (1988), pp. S100–S101.

[66] For further academic work on social capital, see James S. Coleman, *Foundations of Social Theory*, (Cambridge: Harvard University Press, (1990), pp. 300 – 316; Robert D. Putnam, *Bowling Alone*, (New York: Simon & Schuster, 2000).

[67] In her book, *The Psychology of the Internet*, Patricia Wallace discusses the impressionistic tendencies that people exhibit online. She explains that given a fixed amount of online information (what could be on a connector profile page), people have the tendency to try to maximize their "impression formation shortcuts" – exerting the least possible amount of energy and work, people will try to glean as much information as possible about others who are online. See Patricia Wallace, *The Psychology of the Internet*, (Cambridge: Cambridge University Press, 1999), pp. 14-37.

[68] See Appendix D.

[69] The proceedings of the 2005 Online Community Summit touched on most of these norms. Some themes are consistent with the guidelines issued by Chris Nagele, and his company Wildbit, in the *Social Networks Research Report*. The document is an informative resource about online community design. See Wildbit, *Social Networks Research Report*, (Philadelphia: Wildbit, 2005). It can be downloaded at the following URL: http://www.wildbit.com/wildbit-sn-report.pdf

[70] For news clippings regarding these hearings, see Declan McCullagh, "Congress Targets Social Networking Sites," *c|net NEWS.COM*, June 30, 2006; *Red Orbit*, "Teen Websites Face Investigation," *Red Orbit*, July 3, 2006. Also see the Subcommittee on Oversight and Investigation's webpage, available at the following URL: http://energycommerce.house.gov/108/subcommittees/Oversight_and_Investigations_Action.htm

[71] http://www.ftc.gov/bcp/edu/pubs/consumer/tech/tec14.htm

[72] See Appendix D.

TABLE 1

Why use a connector website?
By Term of Time Commitment

Short Term	Medium Term	Long Term
- advice - affirmation - commerce - corroboration - elaboration - peer support - reference - research - resources - self-expression - trading	- collaboration - focus groups - interviews - mobilization - peer support - research - self-expression - working relationships	- collaboration - organization - peer support - research - self-expression - working relationships

FIGURE 1

Connector Website Dimensions, 2006

CONNECTOR WEBSITE

COMMUNICATIONS

TRANSACTIONS

SOCIAL NETWORKING

SOCIAL SEARCH

MEMBER PROFILES

BLOGS

CLASSIFIEDS

DISCUSSION BOARDS

DOWNLOADABLE FILES

INSTANT MESSENGER

RATINGS & REVIEWS

TAGS

WEB MAIL

WIKIS

TABLE 2

Selected Connector Websites
By Launch Month-Year

NAME	Online since*	Social Search/Networking for**
CLASSMATES.COM	Jan-1995	Maintaining School, Work, Military Connections
LIVEJOURNAL	Mar-1999	Blogging – Ratings
XANGA	Nov-1999	Blogging; Exploring/Sharing Photos
FRIENDSTER	Apr-2002	General / Pop Culture Interests
LINKEDIN	May-2003	Business Networking (in more than 130 industries)
MYSPACE	Sep-2003	General / Pop Culture Interests
HI5	Dec-2003	General / Latin America, Europe, North America, Australia
ORKUT	Jan-2004	Converting Offline Networks Into Online Networks (Google affiliate)
FACEBOOK	Feb-2004	College and High School Students
FLICKR	Mar-2004	Folksonomy/Tagging – Organizing/Sharing/Suggesting Photos and Images
TAGGED	Oct-2004	Tagging – Exploring/Sharing Photos, Videos, Bookmarks
MSN SPACES	Dec-2004	Blogging, Sharing Photos
BEBO	Jan-2005	United Kingdom – Teens – Schools, Colleges, and Music Interests

* Information obtained by following this sequence of sourcing: direct email with website's media relations; on the website itself; doing a Google search using "[website name] launched" and then verifying across multiple sources.

** Information inferred from the website's main webpage, "About Us" webpage, and (if applicable) Wikipedia entry.

TABLE 3
Selected Connector Websites*
Monthly Unique Visitors, June 2006

WEBSITE	JUN-06 No. Unique Visitors (000)
MYSPACE	52,342
CLASSMATES.COM	13,963
FACEBOOK	13,752
MSN SPACES	8,720
XANGA	6,822
FLICKR	5,913
LIVEJOURNAL	4,135
HI5	2,102
TAGGED	1,760
BEBO	1,713
FRIENDSTER	1,356
LINKEDIN	342
ORKUT	279
U.S Internet Usage	172,907

* Data provided by comScore Media Metrix: http://www.comscore.com

TABLE 4

Which are the fastest growing connector websites?*
May 2005 to June 2006

WEBSITE	MAY-05 to JUN-06 % Traffic Change
FLICKR	540.4 %
TAGGED	286.3 %
MYSPACE	236.0 %
MSN SPACES	177.7 %
ORKUT	145.8 %
FACEBOOK	97.5 %
LINKEDIN	74.6 %
FRIENDSTER	6.8 %
BEBO	-14.9 %
CLASSMATES.COM	-17.7 %
XANGA	-18.8 %
HI5	-29.0 %
LIVEJOURNAL	-44.4 %
U.S. Internet Usage	4.5%

* Raw data provided by comScore Media Metrix: http://www.comscore.com

TABLE 5

Does the connector website demonstrate exponential change?
May 2005 to June 2006

WEBSITE	Based on trend estimation, did the connector website demonstrate exponential change over the observed time period? (Y/N)		
	MAY-05 to JUN-06 % Traffic Change	Goodness of Fit Exponential Function (R^2)	Final Estimation
FLICKR	540.4 %	0.9083 = STRONG	Y
TAGGED	286.3 %	0.7826 = MODERATE	N
MYSPACE	236.0 %	0.9849 = STRONG	Y
MSN SPACES	177.7 %	0.8662 = STRONG	Y
ORKUT	145.8 %	0.6493 = MODERATE	N
FACEBOOK	97.5 %	0.8743 = STRONG	Y
LINKEDIN	74.6 %	0.6541 = MODERATE	N
FRIENDSTER	6.8 %	0.0047 = WEAK	N
BEBO	-14.9 %	0.0396 = WEAK	N
CLASSMATES.COM	-17.7 %	0.4598 = WEAK	N
XANGA	-18.8 %	0.6126 = MODERATE	N
HI5	-29.0 %	0.5325 = MODERATE	N
LIVEJOURNAL	-44.4 %	0.8416 = STRONG	Y

FIGURE 2

Exponential Function Tests for Connector Website Trends
May 2005 to June 2006

FLICKR

$y = 5E\text{-}67e^{0.1263x}$
$R^2 = 0.9083$

TAGGED

Chart titled "TAGGED" showing Monthly Unique Visitors (000) by Month from May-05 to Jun-06.

Legend:
- TAGGED.COM
- Expon. (TAGGED.COM)

$y = 1E-55e^{0.1053x}$
$R^2 = 0.7826$

MYSPACE

Chart title: MYSPACE

Legend:
- MYSPACE.COM
- Expon. (MYSPACE.COM)

$y = 6E\text{-}49e^{0.0956x}$
$R^2 = 0.9849$

Y-axis: Monthly Unique Visitors (000), ranging from 0 to 60,000 in increments of 5,000.

X-axis: Month — May-05, Jun-05, Jul-05, Aug-05, Sep-05, Oct-05, Nov-05, Dec-05, Jan-06, Feb-06, Mar-06, Apr-06, May-06, Jun-06

MSN SPACES

ORKUT

Chart showing Monthly Unique Visitors (000) for ORKUT.COM from May-05 to Jun-06, with an exponential trendline.

Legend:
- ORKUT.COM
- Expon. (ORKUT.COM)

$y = 5E\text{-}48e^{0.0893x}$
$R^2 = 0.6493$

FACEBOOK

Chart: FACEBOOK.COM — Monthly Unique Visitors (000) vs Month (May-05 to Jun-06)

Legend:
- FACEBOOK.COM
- Expon. (FACEBOOK.COM)

Trendline equation:
$$y = 1\text{E-}31e^{0.0632x}$$
$$R^2 = 0.8743$$

LINKEDIN

Chart: LINKEDIN.COM Monthly Unique Visitors (000) by Month (May-05 to Jun-06)

Legend:
- LINKEDIN.COM
- Expon. (LINKEDIN.COM)

$y = 3E\text{-}27e^{0.0527x}$
$R^2 = 0.6541$

Y-axis: Monthly Unique Visitors (000)
X-axis: Month

BEBO

$$y = 3\text{E-}05e^{0.0137x}$$
$$R^2 = 0.0396$$

Legend:
- BEBO.COM
- Expon. (BEBO.COM)

Y-axis: Monthly Unique Visitors (000)
X-axis: Month

CLASSMATES.COM

Monthly Unique Visitors (000) vs Month

$$y = 2E+16e^{-0.0218x}$$
$$R^2 = 0.4598$$

Legend:
- CLASSMATES.COM
- Expon. (CLASSMATES.COM)

FRIENDSTER

Chart titled "FRIENDSTER" showing Monthly Unique Visitors (000) versus Month from May-05 to Jun-06.

Y-axis: Monthly Unique Visitors (000), scale 0 to 2,000 in increments of 200.

X-axis: Month (May-05, Jun-05, Jul-05, Aug-05, Sep-05, Oct-05, Nov-05, Dec-05, Jan-06, Feb-06, Mar-06, Apr-06, May-06, Jun-06)

Legend:
- FRIENDSTER.COM
- Expon. (FRIENDSTER.COM)

$y = 16188e^{-0.002x}$
$R^2 = 0.0047$

XANGA

Chart titled "XANGA" showing Monthly Unique Visitors (000) by Month from May-05 to Jun-06.

Legend:
- XANGA.COM
- Expon. (XANGA.COM)

$$y = 1E+12e^{-0.0149x}$$
$$R^2 = 0.6126$$

Y-axis: Monthly Unique Visitors (000), scale 0 to 10,000

X-axis: Month — May-05, Jun-05, Jul-05, Aug-05, Sep-05, Oct-05, Nov-05, Dec-05, Jan-06, Feb-06, Mar-06, Apr-06, May-06, Jun-06

HI5

Chart titled "HI5" showing Monthly Unique Visitors (000) by Month from May-05 to Jun-06 for HI5.COM with exponential trendline.

$$y = 5E+18e^{-0.0277x}$$
$$R^2 = 0.5325$$

LIVEJOURNAL

$$y = 2E+29e^{-0.0465x}$$
$$R^2 = 0.8416$$

Legend: LIVEJOURNAL.COM, Expon. (LIVEJOURNAL.COM)

Y-axis: Monthly Unique Visitors (000), 0 to 10,000

X-axis: Month — May-05, Jun-05, Jul-05, Aug-05, Sep-05, Oct-05, Nov-05, Dec-05, Jan-06, Feb-06, Mar-06, Apr-06, May-06, Jun-06

TABLE 6

How volatile are the connector websites in the sample?
May 2005 to June 2006

WEBSITE	MAY-05 to JUN-06 Volatility*
MYSPACE	.0044
XANGA	.0052
LIVEJOURNAL	.0125
FACEBOOK	.0153
HI5	.0154
MSN SPACES	.0177
CLASSMATES.COM	.0180
FRIENDSTER	.0242
LINKEDIN	.0497
FLICKR	.0508
BEBO	.0636
TAGGED	.0885
ORKUT	.1097
U.S. Internet Usage	.0001

LESS VOLATILE

MORE VOLATILE

*Volatility defined here as the variance of "monthly percentage change" for a website over the fourteen month time period.

See Appendix G for the visual trends demonstrating volatility.

FIGURE 3

Seasonal Snapshot
May 2005 to June 2006
(N=13)

How many connector websites are "winners" and "losers" from one month to the next month?

TABLE 7

Emerging Norms for Connector Websites

- Understand community in terms of needs, interests, and priorities. (i.e. context)
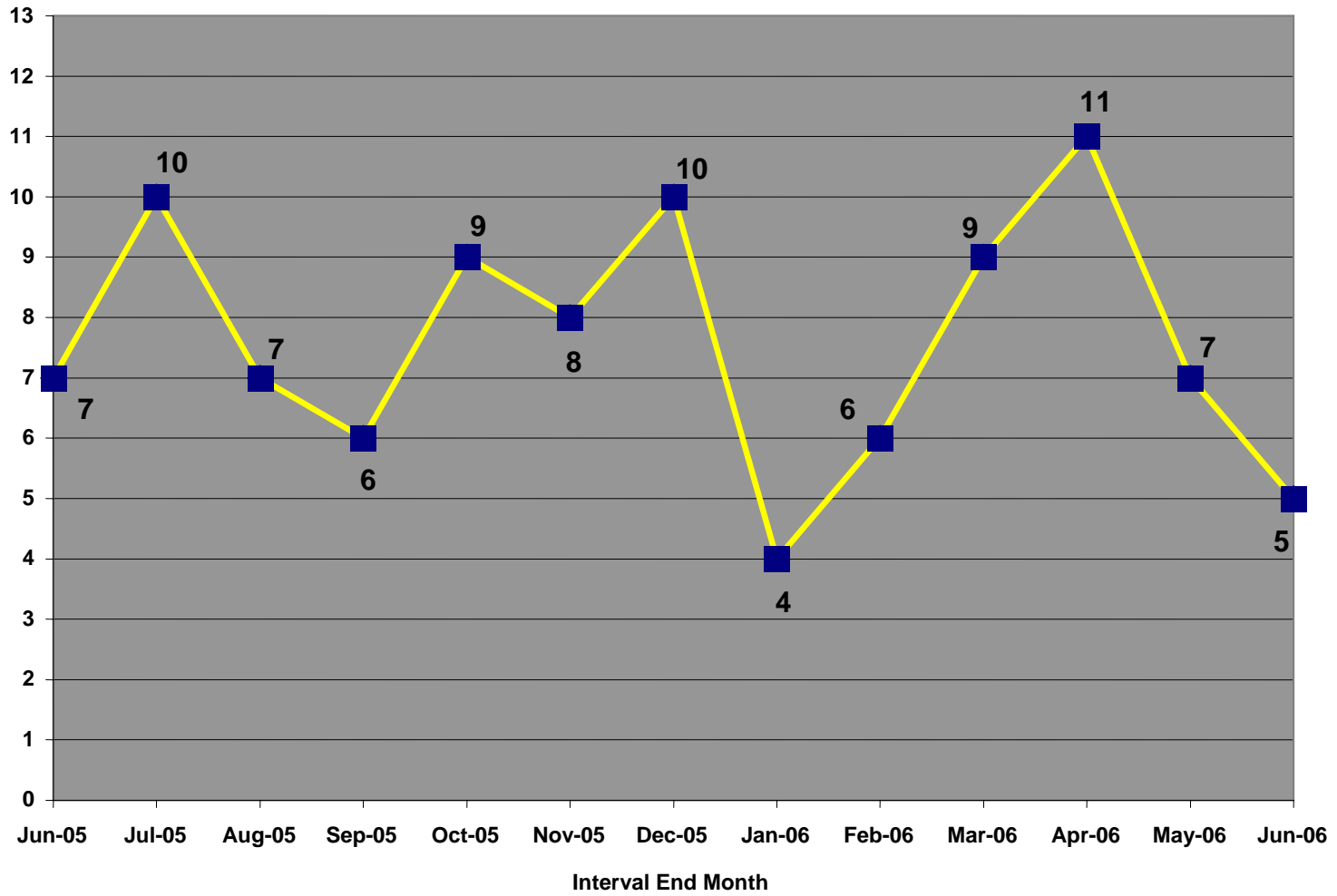
- Plan early for community scale.

- Clearly set rules of the game to cultivate website norms and values.

- Manage user expectations.

- Institute accountability systems and trust-building mechanisms.

- Structure online incentives to support the website's norms and values.

- Encourage community self-regulation.

- Develop infrastructure and capacity as quickly as possible.

- Make the website sticky.

- Create webpages that are both simple and functional.

- Mix content: Content is created by the host, individual users, and host-user collaborations. Features could include user profile pages, blogs, wikis, discussion boards, ratings, reviews, rankings, lists, bookmarks, classifieds, chat sessions, interviews, surveys, polls, and downloadable files.

- Keep pace with fast changing website technologies.

- Commit to marketing by word-of-mouth referrals, partnerships, and advertisements.

- Establish a brand as quickly as possible.

APPENDIX A

Survey Research on Online Communities

Useful data exist on the behavior of Americans participating in online communities. The Pew Internet & American Life Project conducted a survey in January-February 2001 to measure and describe involvement in online communities.[1] According to the survey, approximately 23 million Americans were "very active" in online communities.[2] In a report released early in 2005, Pew offered the following research update:

> "The Internet is more than a bonding agent; it is also a bridging agent for creating and sustaining community. Some 84% of Internet users, or close to 100 million people, belong to groups that have online presence. More than half have joined those groups since getting Internet access; those who were group members before getting access say their use of the Internet has bound them closer to the group. Members of online groups also say the Internet increases the chances that they will interact with people outside social class, racial group or generational cohort." [3]

Of the nearly 100 million people who have participated in an online community…[4]

- 50% belonged to a trade association or professional group
- 50% belonged to a group for people who share a hobby or interest
- 29% belonged to a local community group or association
- 28% joined a group of people who share the same lifestyle
- 28% joined a support group for a medical condition or personal problem
- 24% joined a group of people who share the same beliefs
- 22% joined a political group

In December 2005, the Center for the Digital Future (CDF) released a comprehensive report on Internet activities. For this fifth annual survey, they introduced question regarding online communities. According to CDF polling research:

> "The largest number of respondents who participate in online communities say their participation involves a hobby-oriented community. The next largest group reports

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[1] John Horrigan, *Online Communities: Networks That Nurture Long Distance Relationships and Local Ties*, (Pew Internet & American Life Project, 2001).

[2] John Horrigan, *Online Communities: Networks That Nurture Long Distance Relationships and Local Ties*, (Pew Internet & American Life Project, 2001), p. 3.

[3] Pew Internet & American Life Project, *Internet: The Mainstreaming of Online Life: Trends 2005*, (Pew Internet & American Life Project, 2005).

[4] John Horrigan, *Online Communities: Networks That Nurture Long Distance Relationships and Local Ties*, (Pew Internet & American Life Project, 2001).

involvement in an online community focused on social issues, followed by those who participate in a community for professional reasons… More than 70 percent say that their online community is very important or extremely important for them."[5]

The CDF findings appear to be consistent with the prior Pew research – online communities are an important vehicle for social engagement. Polling research indicates that millions of Americans feel this way. As it stands now, online communities encompassing hobbies or professional needs have the highest participation rates.

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[5] Center for the Digital Future, *Highlights: Digital Future Project 2005*, (Los Angeles: Center for the Digital Future, 2005). Available online at the following URL: http://www.digitalcenter.org/pdf/Center-for-the-Digital-Future-2005-Highlights.pdf .

APPENDIX B

Brief Definitions of Online Community Terms
(some terms adapted from Wikipedia[*])

Blog (short for Weblog) - A frequent and chronological publication of comments and thoughts on the Internet. It is a journal that may be instantly published to a host web site.

Chat Room - A chat room is an online forum where people can communicate online by broadcasting messages to people on the same forum in real time. Sometimes these venues are moderated either by limiting who is allowed to speak (though not common), or by having volunteer moderators patrol the venue watching for disruptive or otherwise undesirable behavior.

Chat Session - More structured than a chat room; normally moderated by a host. For example, this format of online chat is often used by for Q & A sessions on news media websites.

Content Management System (CMS) - is a computer software system for organizing and facilitating collaborative creation of documents and other content. A content management system is frequently a web application used for managing websites and web content, though in many cases, content management systems require special client software for editing and constructing articles. The market for content management systems remains fragmented, with many open-source and proprietary solutions available.

Discussion Board (also called Message Board, Bulletin Board) - For the purpose of exchanging information only. A website location where users may post text communication for one another, and it is not time sensitive. It does not intended to be in real time.

Feedback - Website "currency" that builds or detracts reputation for users or specific content. Within a website's feedback system, for example, a user may give positive or negative point(s) to another user or that user's posted content based on some interaction. See eBay, Amazon.com, Omidyar Network.

Folksonomy - A word combining "folk" and "taxonomy," meaning the "people's classification management". Refers to the collaborative but unsophisticated way in which information is being categorized on the web. Instead of using a centralized form of classification, users are encouraged to assign freely chosen keywords (called tags) to pieces of information or data, a process known as tagging. See the websites del.icio.us and Flickr.

Instant Messenger - An online service that alerts users when friends or colleagues are online and allows them to communicate with each other in real time on a private online chat window.

Online Community (also called Virtual Community) – A group of people communicating or interacting with each other by means of information technologies, typically the Internet, rather than face to face. Online communities can be used loosely for a variety of social groups

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[*] Wikipedia is an online encyclopedia found at the following URL: http://en.wikipedia.org/wiki/Main_Page

interacting via the Internet. The concept does not necessarily mean that there is a strong bond among the members. The term *virtual community* is attributed to the book of the same title by Howard Rheingold in 1993.

Rating - Net feedback; an indicator of reputation on a particular website. See eBay.

Review (also called Testimonial or Bulletin) - A structured discussion board that allows users to submit critical text about an idea, user, product, or message. Often supplements ratings. See Amazon.com.

RSS - A family of XML file formats for Web syndication used by news websites and blogs.

Stickiness - Two definitions. Short-term stickiness describes a website's ability to keep a user on the website for as long as possible This can be measured by the metric "user session". Long-term stickiness refers to a website's ability to motivate a user to return to that particular website.

Tag - In the practice of collaborative categorization using freely chosen keywords, these are descriptors that individuals assign to objects. Tags can be used to specify properties of an object that are not obvious from the object itself. They can then be used to find objects with some desired set of properties, or to organize objects. A feature used in folksonomy and other social software.

Trading Board – For the purpose of exchanging things other than information. Typically in the form of discussion board or online classifieds. See eBay, Craigslist, Tribe.net.

User - One who uses a computer system, software application, or website. Users may need to identify themselves for the purposes of accounting, security, logging and resource management. In order to identify oneself, a user has a *user account* and a *user name*, and in most cases also a *password*. Users employ the user interface for access to a system or website, and the process of identification is often referred to as *log in***.**

Webmail - Email received and sent only locally on a particular website. The user's other email accounts remain unaffected.

Wiki - A series of web pages that allows users to add content, but also allows others (often unrestricted) to edit the content. See Wikipedia.

APPENDIX C

FINANCIAL ACTIVITIES & PROSPECTS FOR SUSTAINABILITY

Venture capitalists and acquisition companies have poured millions of dollars into connector websites. The size of recent investments and acquisitions are considerable: Friendster received $13 million from Benchmark Capital and Kleiner Perkins Caufield & Byers in late 2003; Monster Worldwide bought Tickle for $92 million in May 2004; eBay founder Pierre Omidyar invested in both Meetup an undisclosed amount of money (believed in the millions); LinkedIn received nearly $15 million in venture funding from Sequoia Capital and Greylock Partners; Tribe.net received $6.3 million from the Washington Post Company and Knight Ridder, Inc.; Accel Partners have invested $13 million in Facebook; News Corporation acquired MySpace for $580 million in mid-2005; and Google recently obtained exclusive search provider and advertising services rights on MySpace for $900 million.[1] A wide range of investors are increasing the market value of connectors. However the community potential of these websites seems more evident than the economic value, at least for now. Observers in the private sector are still trying to fully understand the return-on-investment in these enterprises.

How do connectors generate enough revenue to be sustainable and to grow? This is a huge question on the minds of people monitoring connectors. Match.com, Craigslist, Classmates.com, and eBay have weathered years of development, and they continue to meet the changing demands of their investors and users. How have they done this? In the case of Match.com and most other dating websites, a subscription service is offered to users. People have been willing to pay about $25 per month. LinkedIn also charges a periodic subscription fee for some premium social networking services. Market forecasters expect LinkedIn to be in the

black by spring of 2006 – within about four years after its launch. eBay tacks on a fee for selling items on the website. eBay has been profitable since its early days.[2] Craigslist uses another method to stir revenue, charging employers for job vacancy postings at below-market rates, but in only three cities – New York, Los Angeles, and San Francisco. Craigslist revenue, estimated at $10 million in 2005, supports free classifieds services to the overwhelming majority of its users.[3] Online advertisements are another way to foster cash flow. Internet advertising rose 34 percent in the third quarter of 2005 compared to a year earlier. The online advertising market could exceed $12 billion this year.[4]

Website companies are continuing to discover what kinds of advertisements work best, when should they appear, where should they be displayed, and figuring out how web-based applications accommodate their bottom line. MySpace, Friendster, and others have started to post ads on webpages. One connector, Tickle, gets about one-quarter of its revenue from online ads.[5] It appears the most effective form is linking ads with keywords that are entered by the user, called "search-engine marketing". Merchants pay websites only when people click on their advertisements. Google and Yahoo! have capitalized on the technique, but have also run into much controversy because of their methods.[6] The next few years will likely determine the importance of advertising revenue in a connector's business model.

[1] S. Morrison, "Google and MySpace Ink $900M Deal," *Red Herring*, August 7, 2006, available online at: http://www.redherring.com/article.aspx?a=17878 ; Steven Levy and Brad Stone, "The New Wisdom of the Web," *Newsweek*, April 3, 2006, pp. 47-53; Gary Rivlin, "Skeptics Take Another Look at Social Sites," *The New York Times*, May 9, 2005, p. C1; Eric Pfanner, "Craigslist Circles the Globe," *The New York Times*, January 17, 2005, p. C3; Associated Press, "Investors Flock to Web Networking Sites," *Associated Press*, October 13, 2004; Joseph Menn, "The Personal Links of Three Social Networking Sites: The Founders of Tribe, Friendster, and LinkedIn Share a History and Financial Ties," *Los Angeles Times*, December 29, 2003, p. C1; Jim Hopkins, "Investors Court Social Networking Sites," *USA Today*, December 9, 2003, p. 3B; Stefanie Olsen, "Publishers Bet on Friendster-like Service," *c|net NEWS.COM*, November 25, 2003; Joanna Glasner, "Social Nets Find Friends in VCs," *Wired News*, November 17, 2003.

[2] Leslie Walker, "E-Commerce's Growing Pains: Competition Intensifies as Industry Turns 10 Years Old," *Washington Post*, June 25, 2005, p. A1.

[3] Janet Kornblum, "Web Board Craigslist Makes a Name for Itself," *USA Today*, September 28, 2004.

[4] Reuters, "Web Advertising Up 34 Percent," *Reuters Online*, November 21, 2005.

[5] Saul Hansell, "Getting to Know Me, Getting to Know All About Me: Web Personality Tests," *The New York Times*, March 8, 2004, p. C5.

[6] Leslie Walker, "E-Commerce's Growing Pains: Competition Intensifies as Industry Turns 10 Years Old," *Washington Post*, June 25, 2005, p. A1; Leslie Walker, "In Game of Click and Mouse, Advertisers Come Up Empty," *Washington Post*, March 16, 2006, p. D1.

APPENDIX D

Snapshot Profiles of Selected Connector Websites °

Selected Connector Websites Updated: July 31, 2006		
Website	**Online Since…** (approximation)*	**Brief Description** (target demographic – themes – focus)**
43Things	2005	Folksonomy/Tagging – Reference Links to Things
43Places	2005	Folksonomy/Tagging – Reference Links to People
43People	2005	Folksonomy/Tagging – Reference Links to Places
AIM Pages	2006	Instant Messaging
AsianAvenue.com	1997	Asian-Americans – Social Networking – Multiple Features
aSmallWorld	2004	Travel Enthusiasts
Babbello	2005	Australia – Teens – Social Networking – Multiple Features
Bebo	2005	United Kingdom – Teens – Schools, Colleges, Music Bands
BibleLounge.com	2006	Christians – Social Networking
BlackPlanet.com	1999	African-Americans – Social Networking – Multiple Features
Blurty	2002	Blogging (based on open-source LiveJournal code)
Bolt	2004	Teens – Exploring/Sharing Links, Photos, Videos
Bolt2	1997	Teens /early 20s – Exploring/Sharing Links, Photos, Videos
Campusbug	2006	Online Education, E-Commerce
Care2	2004	Activists

° I used the following Wikipedia webpage as a starting point for research, found at this URL:
http://en.wikipedia.org/wiki/List_of_social_networking_sites

* Information obtained by following this sequence of sourcing: on the website itself; doing a Google search using "[website name] launched", and verifying across multiple sources.

 ** Information inferred from the website's main webpage, "About Us" webpage, and (if applicable) Wikipedia entry.

Selected Connector Websites Updated: July 31, 2006		
Website	**Online Since…** **(approximation)***	**Brief Description** **(target demographic – themes – focus)****
CarSpace	2006	Auto Enthusiasts
Catster	2004	Cat Owners and Enthusiasts – Social Networking
Christianvibes.com	2006	Christians – Social Networking
claimID	2006	Folksonomy/Tagging – Online Identity and Organizing Personal Links
Classmates.com Sites	1995	School, Work, Military Connections
Connect.ee	2005	Estonia – Social Networking – Multiple Features
Craigslist	1995	Online Trading - Searchable User Classifieds
Cyworld Sites	2001	South Korea, China – Exploring/Sharing Links, Photos, Videos
del.icio.us	2003	Folksonomy/Tagging – Organizing, Exploring/Sharing Links
DeadJournal	2001	"Dark" Blogs (based on open-source LiveJournal code)
DeviantArt	2000	Graphic Artists – Blogging – Exploring/Sharing Links, Art
Digg	2004	Folksonomy/Tagging – Organizing, Exploring/Sharing News Links
Dogster	2004	Dog Owners and Enthusiasts – Social Networking
DowneLink	2004	Gay and Lesbian Community – Social Networking
DWC Faces	2006	Female Professionals; Part of DowntownWomensClub.com

	Selected Connector Websites	
	Updated: July 31, 2006	
Website	**Online Since…** **(approximation)***	**Brief Description** **(target demographic – themes – focus)****
Draugiem.lv	2004	Latvia – Social Networking – Multiple Features
eBay	1995	E-Commerce, Online Trading – Auctions
Ecademy	1998	Business Networking
Evite	1998	Setting up/Sharing Announcements and Events
Facebook	2004	College and High School Students
Faceparty	2000	Great Britain – Teens/early 20s – Social Networking – Multiple Features
Famoodle.com	2006	Family-based Networks – Sharing Photos, Events, Discussion Boards
FarmersOnly.com	2005	Farmers/Rural Interests – Online Dating
Flickr	2004	Folksonomy/Tagging – Organizing/Sharing/Suggesting Images
Friendster	2002	20s – Social Networking – Multiple Features
Frühstückstreff	2001	International – Multi-lingual Social Networking
Gaia Online	2003	Video Gamers – Creating Avatars – Sharing Music, Photos, Videos
Gather	2005	Folksonomy/Tagging – Writers – Exploring/Sharing News Links and Blogs – Social/Public Affairs
GolfBuzz	2005	Golfers and Courses – Host and Peer-to-Peer Content
GreatestJournal	2003	Exploring/Sharing Blogs (based on open-source LiveJournal code)

Website	Online Since… (approximation)*	Brief Description (target demographic – themes – focus)**
		Selected Connector Websites
		Updated: July 31, 2006
Grono.net	2004	Poland – Social Networking – Multiple Features
Gusto.com	2006	Travel Enthusiasts – Tagging, Blogging, Reviews
Hi5 Networks	2003	Latin America, Caribbean, Europe, North America, Australia – Teens – Social Networking – Multiple Features
HotSoup	Forthcoming	American Politics – Campaigns and Elections
Hyves	2004	Netherlands – High School and College Students
Insider Pages	2004	20s/30s – Reviews of Local Attractions and Interests
IRC-Galleria	2000	Finland – Social Networking – Multiple Features
iWiW	2002	Hungary – Social Networking – Multiple Features
Joga.com	2006	Football (soccer) and Nike-sponsored players – World Cup
Jookster.com	2005	Social Networking – Emphasizes Search Rankings
JudysBook	2004	Local Area Reviews/Articles/Interests – Emphasizes TrustScore and Social Search
Last.FM	2002	Teens/20s – Exploring/Sharing Music Tracks/Files – Use of "Scrobbling" Feature
Lazona.com	2006	Teens/20s – Musicians, Bands, Musical Interests – Spanish Language (MTV-sponsored)
LinkedIn	2003	Business Networking (in more than 130 industries)
LinkUp Central	2003	Emphasis on Social Search – Local Contacts for Offline Interests and Goals

Selected Connector Websites Updated: July 31, 2006		
Website	**Online Since…** **(approximation)***	**Brief Description** **(target demographic – themes – focus)****
Listography	2006	Organizing Personal Lists – Social Bookmarking/Tagging
LiveJournal	1999	Blogging – Social Search and Networking
LunarStorm	1996	Sweden, Denmark, United Kingdom – Teens/early 20s – Social Networking
Match.com	1995	Online Dating – Social Search
Meetup.com	2002	Social Search – Making Local Contacts to Cultivate Offline Interests and Goals
Miaplaza	2005	Photos, Recommendations, Discussion Boards, Chat, Internet Phone, Classifieds
MiGente.com	2000	Second, Third Generation Latino Americans – Social Networking
Mixi	2004	Japan – Exploring/Sharing Blogs, Reviews, Photos, Music Downloads
MOBANGO	2006	Exploring/Sharing Files and Content for Cell Phones
MOG	2006	Teens/20s – Blogging and Tagging – Exploring/Sharing Files; Content Based on Musical Tastes
MSN Spaces	2004	Social Search and Networking – Blogging and Sharing Photos
Multiply	2004	Teens/20s – Social Networking – Organizing/Sharing Media - Blogs, Photos, Videos, Music
MyGamma	2002	Teens/20s – International Social Networking – Mobile Phone Features
MyNetSpot.org	2006	Teens/20s – Social Networking – Multiple Features
MySpace	2003	Teens/20s – Social Networking – Multiple Features

Selected Connector Websites		
Updated: July 31, 2006		
Website	Online Since… (approximation)*	Brief Description (target demographic – themes – focus)**
myYearbook	2005	Teens – Social Networking – Multiple Features
Neurona	2003	Spain, Latin America – Business Networking
Nexopia	2002	Canada – Teens – Social Networking
NHLConnect	Forthcoming	Official Online Community of the National Hockey League – Host and Peer-to-Peer Content
Omidyar Network	2004	Social Entrepreneurship/Activism – Extranet
OkCupid	2004	Online Dating – Social Search
openBC	2003	Business Networking – Emphasis on International Networks (16 Languages)
Opinity	2002	Folksonomy/Tagging – Online Identity – Online Reputation Profile
orkut	2004	Social Networking (Google affiliate)
Passado	2001	Social Networking, Business Networking
PetBoogaloo.com	2006	Pet Owners
Piczo	2004	Teens – Social Networking – Exploring/Sharing Photos
Platial	2006	Folksonomy/Tagging – Online/Shared Mapping Tool – Emphasis on Places
ProfileHeaven	2005	Great Britain – Teens – General Social Networking – Ratings
RealMentalHealth.com	2006	Mental Health Issues – Provides Profiles, Blogs, Forums – Host and Peer-to-Peer Content

| Selected Connector Websites |
| Updated: July 31, 2006 |

Website	Online Since… (approximation)*	Brief Description (target demographic – themes – focus)**
Rediff Connexions	2005	India – Social Networking
Reunion.com	2002	Sharing Contacts/Important Announcements and Events – Life Transitions
Ryze	2001	Business Networking
SchoolParentNet	2005	Parents, Teachers – Schooling Affairs
Sconex	2004	High school Students – Encourages Keeping Online Class Schedules, Photos, Journals
Shareweddings.com	2006	Bridal Social Networking – References for Weddings
Sisterwoman.com	2006	"Girlfriendships" – Feminism
Stardoll.com	2003	Ages 7-17 – "Dress", Share Personal Avatar (called a MeDoll)
Studybreakers	2005	High School Students – Social Networking (formerly Classface.com)
Stylefeeder	2006	Folksonomy/Tagging – Reference Shopping Items
Sulekha	1998	India – Searchable Blogs, Classifieds, Discussion Boards
Tagged	2004	Teens – Social Networking, Tagging – Exploring/Sharing Photos, Videos, Bookmarks
TagWorld	2005	Social Networking, Tagging – Exploring/Sharing Blogs, Photos, Videos, Bookmarks
TakingITGlobal	2006	Youths Interested in Social Initiatives – Blogs, Discussion Boards – Host and Peer-to-Peer Content
Thefamilylog.com	2006	Family-based Networks – Sharing Photos, Events, "Family Blogs"

	Selected Connector Websites	
	Updated: July 31, 2006	
Website	**Online Since…** (approximation)*	**Brief Description** (target demographic – themes – focus)**
[The Student Center](#)	2000	Teens/early 20s – Social Networking
[Tickle](#)	1999	Teens/20s – Topic-based Social Networking – Features Polls, Quizzes – Host and Peer-to-Peer Content
[Tribe.net](#)	1999	Online Trading – Searchable Local/City User Classifieds – Forums, Events, Reviews, Recommendations
[True.com](#)	2003	Online Dating – Social Search
[Vampire Freaks](#)	2004	Social Search – Gothic Industrial Culture
[WAYN](#)	2003	Social Search – Travel Enthusiasts – Worldwide Focus
[Xanga](#)	1999	General Social Search and Networking – Blogging, Sharing Photos
[Xuqa](#)	2005	Teens/earl 20s – United States, United Kingdom, Ireland, Canada – College Students
[Yahoo! Personals](#)	1997	Online Dating – Social Search
[Yahoo! 360°](#)	2005	General Social Search and Networking (integrated with multiple Yahoo! Properties)

APPENDIX E

comScore Media Metrix Methodology
(cited directly from comScore Media Metrix[*])

With more than 2 million participants under continuous measurement, the comScore Global Network is the largest consumer panel of its kind, and delivers the most comprehensive view available of consumer activity – both online and offline.

comScore has developed a statistical methodology to ensure the accuracy and reliability of projections to the total population based on its network. Ultimately this provides comScore clients with confidence in the quality of information that drives important business decisions every day.

At the heart of the comScore Global Network is a sample of consumers enlisted via Random Digit Dial (RDD) recruitment - the methodology long endorsed by many market and media researchers. comScore also employs a variety of online recruitment programs, which have been time-tested through the years in which the comScore Global Network has been in operation. The reliance upon comScore services by hundreds of clients stands as testament to the strength and reliability of this combined approach.

Participants in the comScore Global Network receive a package of benefits that have proven to be broadly appealing to all demographic segments:

- Server-based virus protection
- Attractive sweepstakes prizes
- Opportunity to impact and improve the Internet

Participants are protected by industry-leading privacy policies that ensure anonymity of personal information. Membership is provided through an efficient sign-up process.

All demographic segments of the online population are represented in the comScore Global Network, with large samples of participants in each segment. For example, our network includes hundreds of thousands of high-income Internet users - one of the most desirable and influential groups to measure, yet also one of the most difficult to recruit.

comScore determines the size and characteristics of the total online population via a continuous survey spanning tens of thousands of persons over the course of a year. The sample of participants in this enumeration survey is selected via RDD methodology. Respondents are asked a variety of questions about their Internet use, as well as descriptive information about themselves and their households. The result is an accurate and up-to-date picture of the universe to which the comScore sample is projected.

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[*] See the following comScore Media Metrix URL: http://www.comscore.com/method/method.asp

The resulting combination of large samples across all segments, and a reliable view of the total universe, allows comScore to eliminate the effects of over- or under-representation of any group in the network.

comScore services are based either on the complete Global Network database or from components relevant to client needs. For example, comScore's industry-leading, RDD-based Media Metrix 2.0 audience measurement system is founded upon 120,000 U.S. panelists. Media Metrix Global Services are produced using the behavior of 500,000 panelists outside of the U.S. And Media Metrix XPC (eXPanded Coverage) adds visibility of smaller Web sites and local market activity through data captured from the balance of the comScore panel.
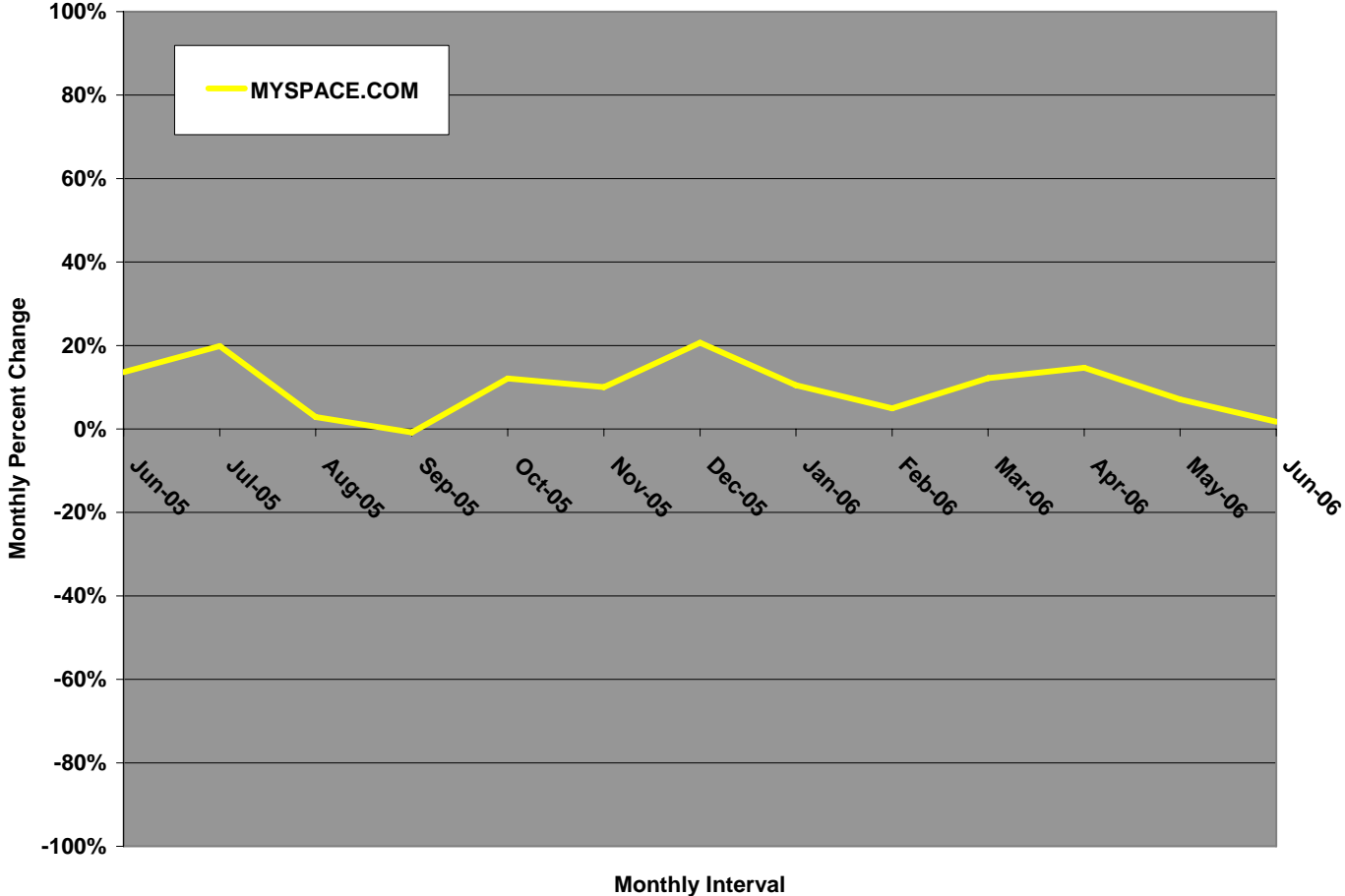
APPENDIX F

Some Descriptive Statistics For Connector Websites
May 2005 to June 2006

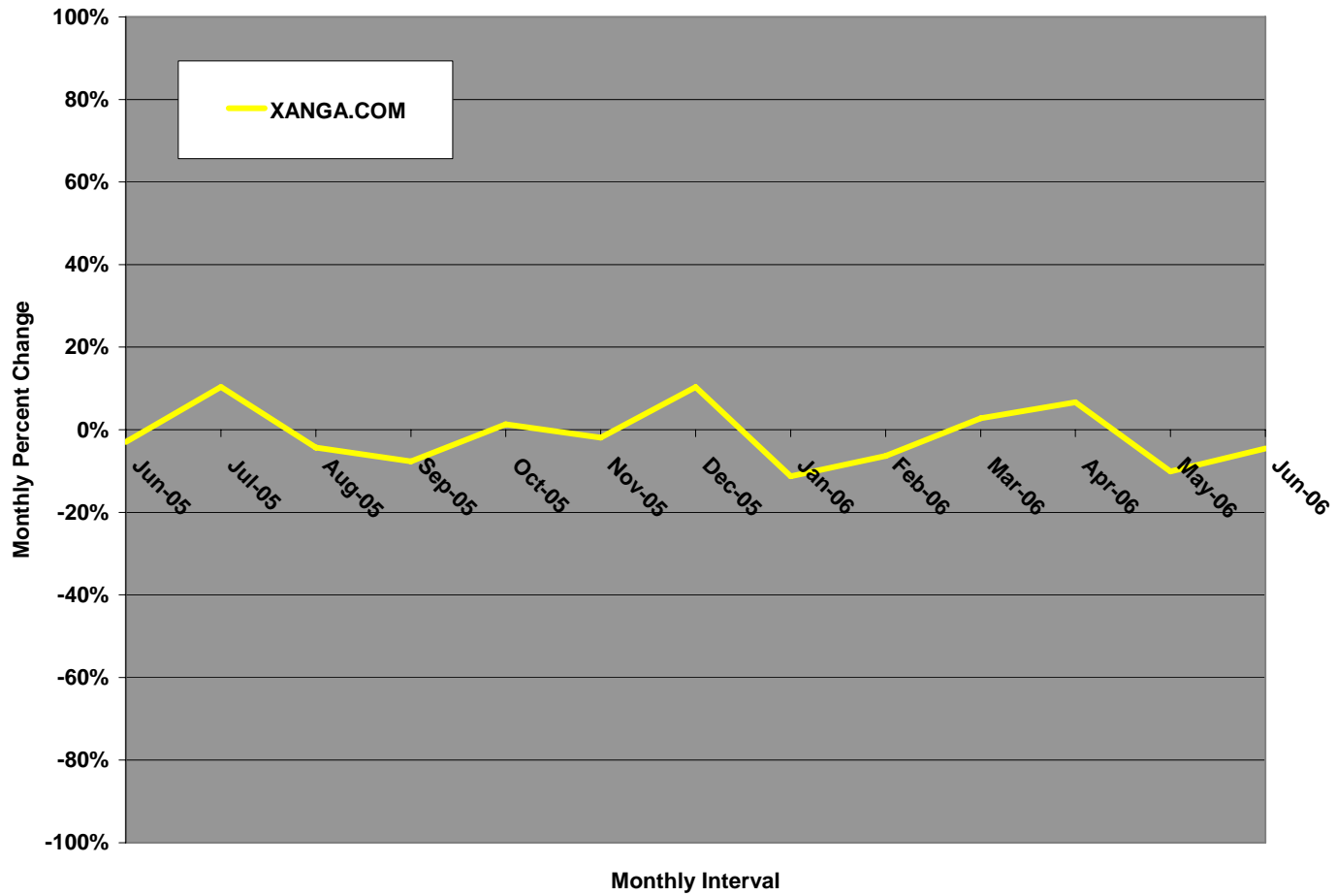| Website	MAY05 to JUN06 Avg Rate of Change	SD	VAR
BEBO	1.5%	25.2%	0.0636
CLASSMATES.COM	-0.7%	13.4%	0.0180
FACEBOOK	6.1%	12.4%	0.0153
FLICKR	17.2%	22.5%	0.0508
FRIENDSTER	1.6%	15.5%	0.0242
HI5	-1.8%	12.4%	0.0154
LINKEDIN	6.6%	22.3%	0.0497
LIVEJOURNAL	-3.8%	11.2%	0.0125
MSN SPACES	8.9%	13.3%	0.0177
MYSPACE	10.0%	6.6%	0.0044
ORKUT	12.5%	33.1%	0.1097
TAGGED	14.4%	29.8%	0.0885
XANGA	-1.3%	7.2%	0.0052

APPENDIX G

Selected Connector Websites, Monthly Change Trends
May 2005 to June 2006

MYSPACE

XANGA

Chart showing Monthly Percent Change (y-axis, ranging from -100% to 100%) versus Monthly Interval (x-axis, Jun-05 to Jun-06) for XANGA.COM.

LIVEJOURNAL

Chart showing "LIVEJOURNAL.COM" monthly percent change from Jun-05 to Jun-06. Y-axis: Monthly Percent Change (-100% to 100%). X-axis: Monthly Interval.

FACEBOOK

FACEBOOK.COM

X-axis: Monthly Interval (Jun-05, Jul-05, Aug-05, Sep-05, Oct-05, Nov-05, Dec-05, Jan-06, Feb-06, Mar-06, Apr-06, May-06, Jun-06)

Y-axis: Monthly Percent Change (-100% to 100%)

HI5

MSN SPACES

CLASSMATES.COM

Line chart titled "CLASSMATES.COM" showing Monthly Percent Change (y-axis, from -100% to 100%) against Monthly Interval (x-axis, Jun-05 to Jun-06). Legend: CLASSMATES.COM.

FRIENDSTER

Monthly Percent Change vs. Monthly Interval

Legend: FRIENDSTER.COM

LINKEDIN

Chart titled "LINKEDIN" showing monthly percent change for LINKEDIN.COM. Y-axis labeled "Monthly Percent Change" ranging from -100% to 100% in 20% increments. X-axis labeled "Monthly Interval" with months from Jun-05 to Jun-06. Yellow line plots the data.

FLICKR

BEBO

TAGGED

ORKUT

Chart titled "ORKUT" showing Monthly Percent Change (y-axis, from -100% to 100%) versus Monthly Interval (x-axis) for ORKUT.COM. Data points by month:

- Jun-05: approximately -54%
- Jul-05: approximately 58%
- Aug-05: approximately -14%
- Sep-05: approximately -23%
- Oct-05: approximately 47%
- Nov-05: approximately -1%
- Dec-05: approximately 46%
- Jan-06: approximately -14%
- Feb-06: approximately 17%
- Mar-06: approximately -6%
- Apr-06: approximately 34%
- May-06: approximately 35%
- Jun-06: approximately 32%

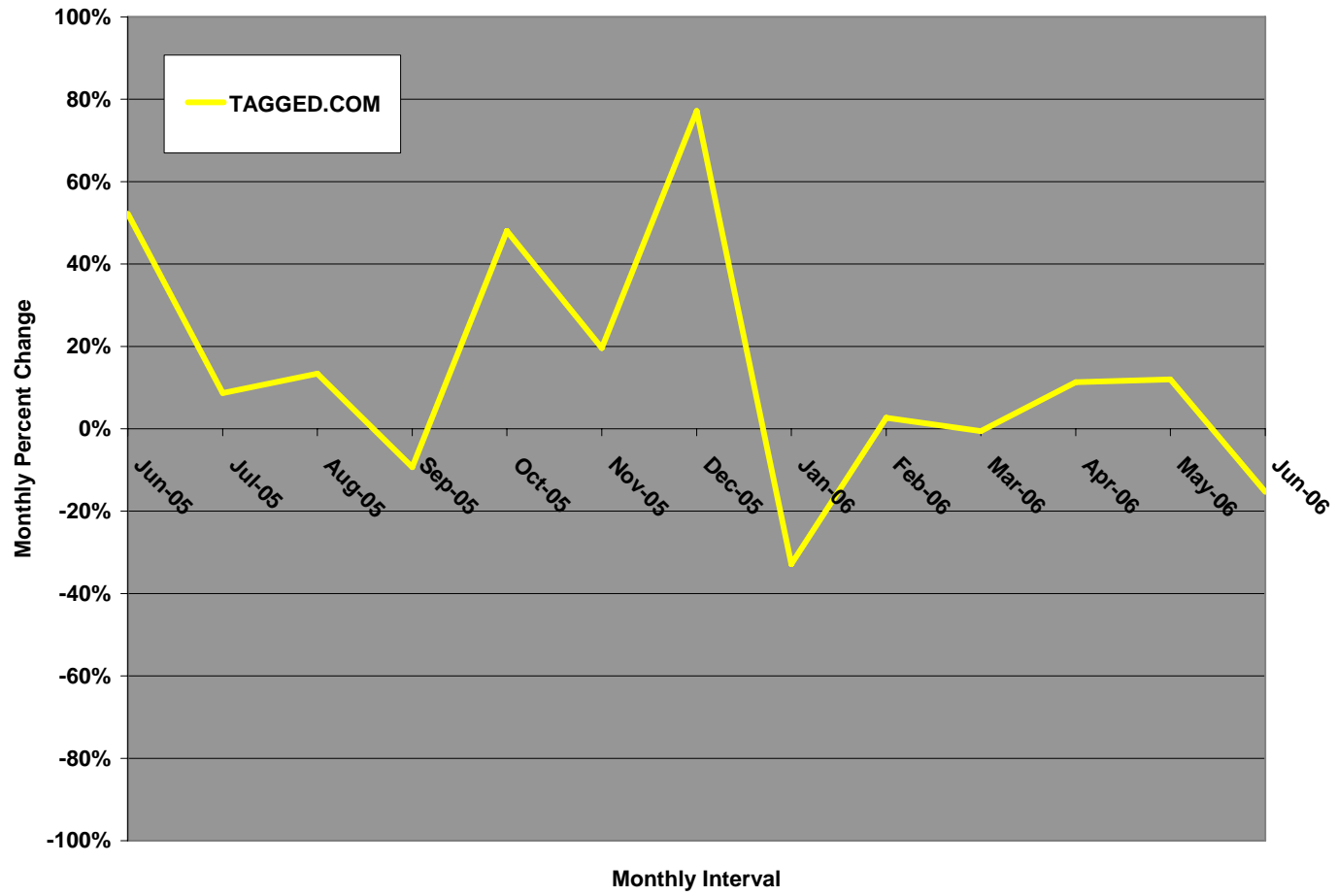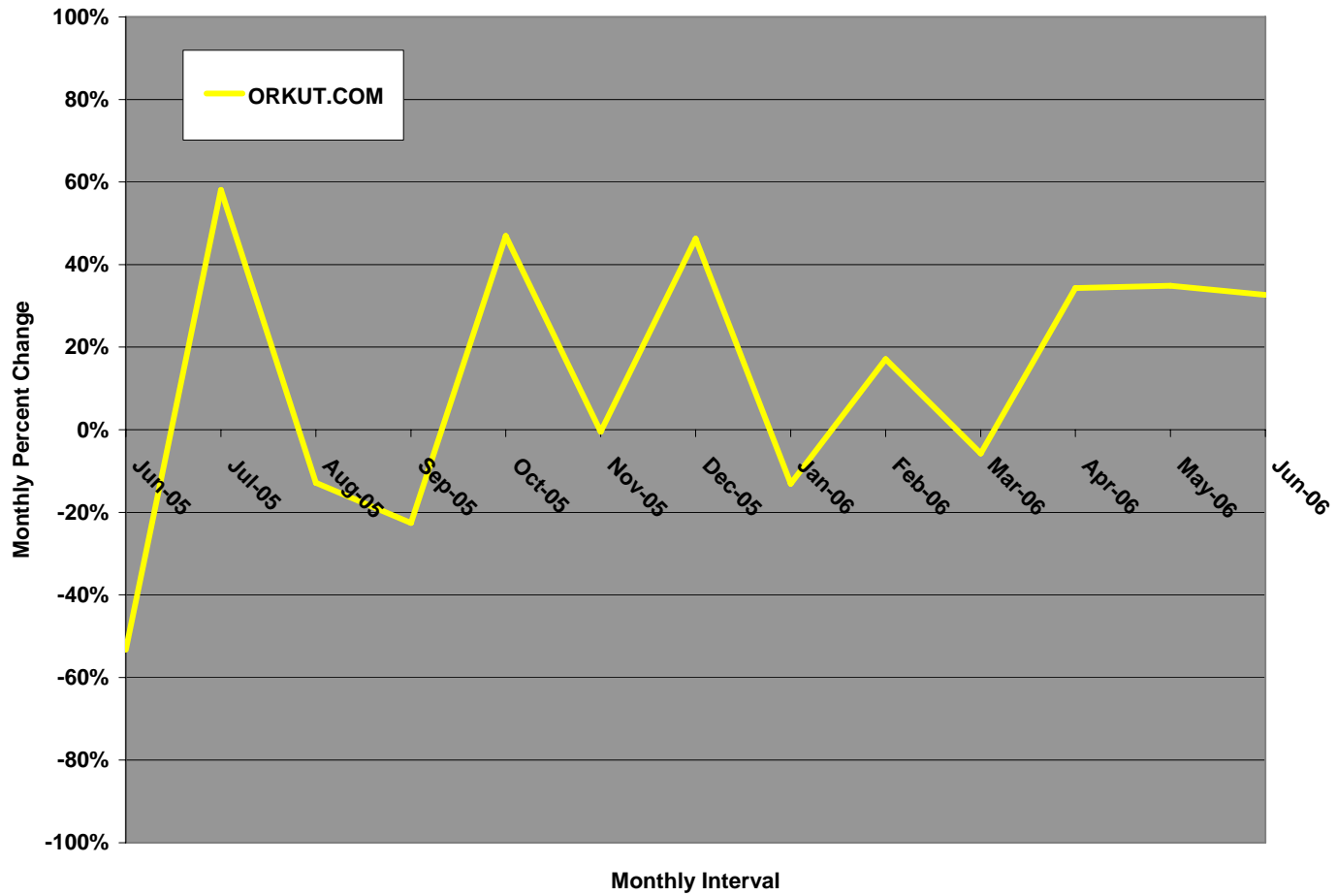**ABOUT THE AUTHOR**

Paul DiPerna recently finished a term of more than six years as a social science researcher and administrator at the Brookings Institution, a leading international think tank. Since June 2004, DiPerna has been examining websites as social organizations and online communities as evolving social systems. He has published his research in *First Monday*. DiPerna founded a new weblog project, called Blau Exchange, in July 2006.