Measuring Effectiveness and Value of Email Advertisements In Relationship–Oriented Email Messages

by

Dinesh Shenoy

B.S. Electrical Engineering and Computer Sciences, University of California at Berkeley, 1997

Submitted to the
System Design and Management Program and the Engineering Systems Division
in Partial Fulfillment of the Requirements for the Degrees of

Master of Science in Engineering and Management

and

Master of Science in Technology and Policy

at the
Massachusetts Institute of Technology
Feb 2008

Signature of Author……………………………………………………………………………………..
System Design and Management Program, and Technology and Policy Program
January 18, 2008

Certified by…………………………………………………………………………………………
Catherine Tucker
Douglas Drane Career Development Professor in IT and Management
Thesis Supervisor

Accepted by…………………………………………………………………………………………
Pat Hale
Director
System Design and Management Program

Accepted by…………………………………………………………………………………………
Dava J. Newman
Director
Technology and Policy Program

1

Measuring Effectiveness and Value of Email Advertisements In Relationship–Oriented Email Messages

by

Dinesh Shenoy

Abstract

This thesis explores the value of email advertisements in relationship-based communication by measuring click-through rates. Advertisements were embedded within standard electronic mail messages in a template. The results are discussed in aggregate to better understand this medium and value in an advertising context, but the analysis also breaks down how six factors affect click behavior by recipients. The factors include the impact of a privacy statement, type of organizational recipients, click timing, recent advertisements, advertisement frequency, and advertisement relevance. The results are also analyzed using a chi-squared statistical test to determine whether the individual factor is significant in this analysis.

This paper also discusses the privacy implications of advertising in a social-medium with comparisons to social ads using Facebook's Beacon as a benchmark. A discussion of how these results apply in an email environment where anti-SPAM infrastructure is a large part of the overall system is evaluated as well.

Results show that internal recipients are an effective target market for relationship messaging and that emails often generate clicks days or weeks after the original message was delivered. The research is very relevant to email and targeted advertising, but also applies in a broader context to social advertising where there is a existing relationship between a sender and recipient.

Thesis Supervisor: Catherine Tucker
Title: Douglas Drane Career Development Professor in IT and Management

Acknowledgements

I feel very fortunate to have had an opportunity to work with Professor Catherine Tucker on this research. Her guidance and input in developing the topic and defining the scope where I could capture and communicate valuable information and build insights was a tremendous help. There was more than one occasion where the complexity of the task or the challenges in collecting data caused me concern and seemed overwhelming. However, every email and every meeting with Prof. Tucker left me more confident and excited about the research area and my ability to be successful. I'd also like to thank her for her patience and understanding in completing this work.

There are many individuals in the System Design and Management Program and Technology and Policy Program administrations who provided me with a valuable and enriching learning opportunity. Both programs were extremely supportive in helping me put together a curriculum that spanned both disciplines.

Eric Cahill, the individual who first interviewed me for the System Design and Management program through the admissions process, both introduced and encouraged me to pursue this unique and valuable dual-degree combination. I'm happy to follow in his footsteps.

I would also like to thank my classmates at MIT and friends in the Boston area for their support, encouragement, friendships and for making this endeavor special. My experiences in Cambridge were an important part of my overall education.

My parents, Rajesh, Lisa, and my extended family have been a constant source of inspiration and encouragement to me, not only in this endeavor but in so many others. This support has not always been explicitly recognized but an integral part of this accomplishment and many others.

Table of Contents

List of Figures

List of Tables

1.0 Introduction

Whether confirming an appointment, getting in touch with an old friend, or letting a customer know about an interesting article, email has been a key communication driver that has been driving business and personal relationships for over a decade. While the scope of email messages has extended significantly to include transactional emails, newsletters, notifications, workflow automation, and notoriously spam, relationship-based email continues to proliferate and increasingly replace the postal service and phone calls to keep in touch and communicate information.[1]

This research aims to analyze the realization of relationship-based advertising to better understand the effect that various parameters contribute to effectiveness by analyzing click-through rates in this medium. While the number of email users exceeds 200 million in the United States alone for both personal and business settings, the vast majority of email messages have minimal graphical-based advertising. Using a pilot group of 45 email users who send email primarily for business purposes, I measured click-through rates to build insights that email providers and businesses can use in using this new medium for advertising or corporate communication needs.

Over a 35-day trial period, I measured 77 clicks for 6704 email messages sent to 10,215 individual recipients. Using this sample set, I extrapolated how a privacy statement, colleagues

receiving email, timeliness of click-through, advertising timing, relevancy, and frequency impacted the behavior of recipients when they received an email with an embedded advertisement. I found that privacy did have a slight negative effect on click-through rates and that advertising timing had little impact on the click-through rates. While relevant ads and ads to colleagues generated higher interest, I found that the usefulness of embedded advertising has two purposes: the first to provide immediate information and a sizeable percentage clicked through on the first touch or within hours of receiving the message. I also found that stored email messages or messages that have been delivered over a week or multiple times were also used in a reference fashion so that the advertisement was easily available to those who needed the information at a future date.

2.0 Background

2.1 Electronic Mail

One of the earliest software applications on a computer network[2], email's role has expanded significantly to become a key component of marketing campaigns, advertisements, and commercial messaging. In this section, I will review other methods of email advertising and compare how the concept of relationship-based emails differs from existing email methods and tools that are popularly used.

Email has recently become more sophisticated as an advertising platform. As a dominant application, early attempts to monetize this application included web-based email (utilizing

banner ads) that built on an early concept by Qualcomm's Eudora which embedded downloadable ads to users who preferred the free version rather than Eudora Pro which omitted advertisements.[3] While not a large-scale commercial success, Eudora did demonstrate the effectiveness of banner advertising in applications, a scheme that's been replicated in large scale (although the distribution platform was primarily browser-based). While applied to the email application, this form of advertising primarily focused on the application and emphasizing frequent use of an application rather than analyzing content. While some basic demographic information is collected by web-based email providers[4], email content is not utilized to determine which ads are more applicable for a given user – in essence ad are deployed as a "broadcast" based on rough demographics, not utilizing the specific knowledge that's evident in an individual's communication. Since there are privacy issues regarding reading or accessing a personal email account, larger email providers have chosen to use mass-media techniques when advertising in this application.

Google's Gmail was the first email provider with significant volume (even though initially their market share was less than 3%[5]) to utilize email content to improve the targeted nature of email. Combined with their Adwords technology, Google provides ads that are relevant to the email message received[6]. Compared to traditional banner-based ad solutions, Gmail provides an advertising platform that significantly increases the ability for a niche advertiser to reach their demographic, albeit with privacy complaints that while notable and widely covered in the press[7] has not seemed to significantly impact the growth of the Gmail service.[8] Because the service varies significantly from comparable web-based email applications, it's not apparent whether the advertising service, referral-based signup process, or differentiated features is the primarily result

that market share growth is significantly lower than comparable services from Yahoo, Microsoft or AOL. (As an aside during recent weeks, social networking sites like Facebook are building advertising platforms that allow a mass media consumer application to develop targeted advertisements for its user base using information known through their activities[9]).

Google's Gmail product uses information *received* by the user and applies advertising based on email content. While this information can be more relevant than a conventional banner ad, the context is applied by a third party on behalf of the recipient. In a two-party communication, it seems less likely that a third party can knowledgeably insert advertisements without instructions or feedback from one or both of the parties involved in the communication.

So far, all the advertising solutions described have been an extension of banner advertising – communication that is developed by the application provider (or supplied through an advertising partner) and distributed to application users. In some cases (i.e. Yahoo, MSN) this is done on a mass-media scale without regard for the actual messaging content within a particular email message. With others (i.e. Google) the advertising is still supplied by the email application provider, but uses email content to provide advertising that is much more targeted. In the latter, the automated technology is leveraging the textual content of an email message and is inexact at best.

There is a second form of advertising in an email context that doesn't have a direct corollary in typical browser-based applications. Content-based advertising in email are targeted promotions and communication that is chosen by the sender of the email message. My research focuses on

the value derived when a sender or group of senders advertises within an email message. A corollary to offline advertising would be a direct mail promotion. While less common today, credit card companies would routinely send promotions or coupons to solicit a partner's products or tangential services when mailing the monthly credit card statement in the late 1990s.[10] (Note: It's not apparent why this practice is less common, it may be because many bills are sent online today and the value of this channel has diminished). In the direct-mail example, credit card companies (i.e. the sender of the message) would choose the promotional package that would accompany their message – this allowed an organization to target communications to their customers and one would imagine that this was much more effective (to target opportunities) then a delivery conduit such as the US Postal service advertising using a broad-brush approach.

Over the past few years, the increased capabilities of email programs to handle HTML-based email has allowed companies and individuals to enhance the richness of their communication as well as utilize this medium to provide targeted messaging to email recipients.[11] Individuals and companies send email for a variety of purposes including keeping interested parties updated (i.e. newsletters), communicate product announcements, and provide communication regarding transactions, or communicating with colleagues or friends in a social or operational context. With the enactment of CAN-SPAM 2003, the classification of emails has become more precise to allow unsolicited email to be managed and regulated to ease consumer burden, but still allow transactional and relationship email to continue unadulterated.[12]

Newsletter emails, facilitated by bulk e-mailers with embedded HTML links have shown that content or advertisement can be just as valuable or even more valuable than a banner-based

advertisement on a web-page.[13] Because the recipient is known and established a pre-existing

relationship with the sender, real-estate costs to advertise on email newsletters can in many cases

be higher than the associated website. Newsletter emails typically have high volume and allow

advertisers and senders to maintain a regular communication pattern with a valued constituency.

The challenge of newsletter-based emails is intrinsically the bulk-nature of this email set. With

databases sending emails regularly and more and more companies subscribing to this practice of

email-based customer contact, many recipients only read these messages when they have the

time available. The "open rate" is an established trademark and is indicative that many emails

sent to recipients are deleted or marked as junk mail without even opening the message.[14] In

some cases, this is a result of a lack of time; in other cases a recipient may no longer be

interested in the subject and simply deletes the message rather than taking the extra step of

unsubscribing (or in some cases, fear the spam issues or phishing issues that plague bulk emails).

Nevertheless, newsletter emails are enormously popular and the large volumes of emails

combined with the low-cost (marginally close to zero) allow an acceptable rate of deletions to

maintain this channel as an extremely valuable communication tool.[15] While most newsletter

usage tends to be modeled after broadcast media (an identical email sent to all recipients

regardless of their past purchases or browsing traffic patterns), an increasing number of

organizations are data-mining their customer databases to send recommendations or suggestions

to recipients based on their specific interests. An example of a newsletter email is shown in

Figure 1 below.

Figure 1 - Example of Newsletter Email

A second major type of email includes transactional email.[16] When making purchases (usually online, but via offline channels as well), email has become the primary method to communicate confirmations. Receiving a transactional email confirms that an order has been processed, has been shipped, requires additional action, or provides details on use and/or retrieval of the product. While newsletter emails are often reviewed thoroughly for content because of the large recipient base and consistency of message, transactional email templates are often reviewed in a similar fashion. These emails (templates that are combined with a database to provide

15

purchasing information or additional content) differ in content and are less of a broadcast

medium and often provide information that is useful to the recipient (i.e. tracking number,

estimated ship date, etc). These emails are used to verify a purchase and are specific to the

recipient. In recent years, transactional emails are increasingly becoming a communication

channel to send targeted advertisements.[17] These emails serve a dual function – primarily they

communicate transaction information. However, they have a secondary purchase which allows

companies to up-sell products or promote partners based on the recipient's recent web activity.

An example of the advertising potential of transactional based email is a flight-confirmation

from an airline:
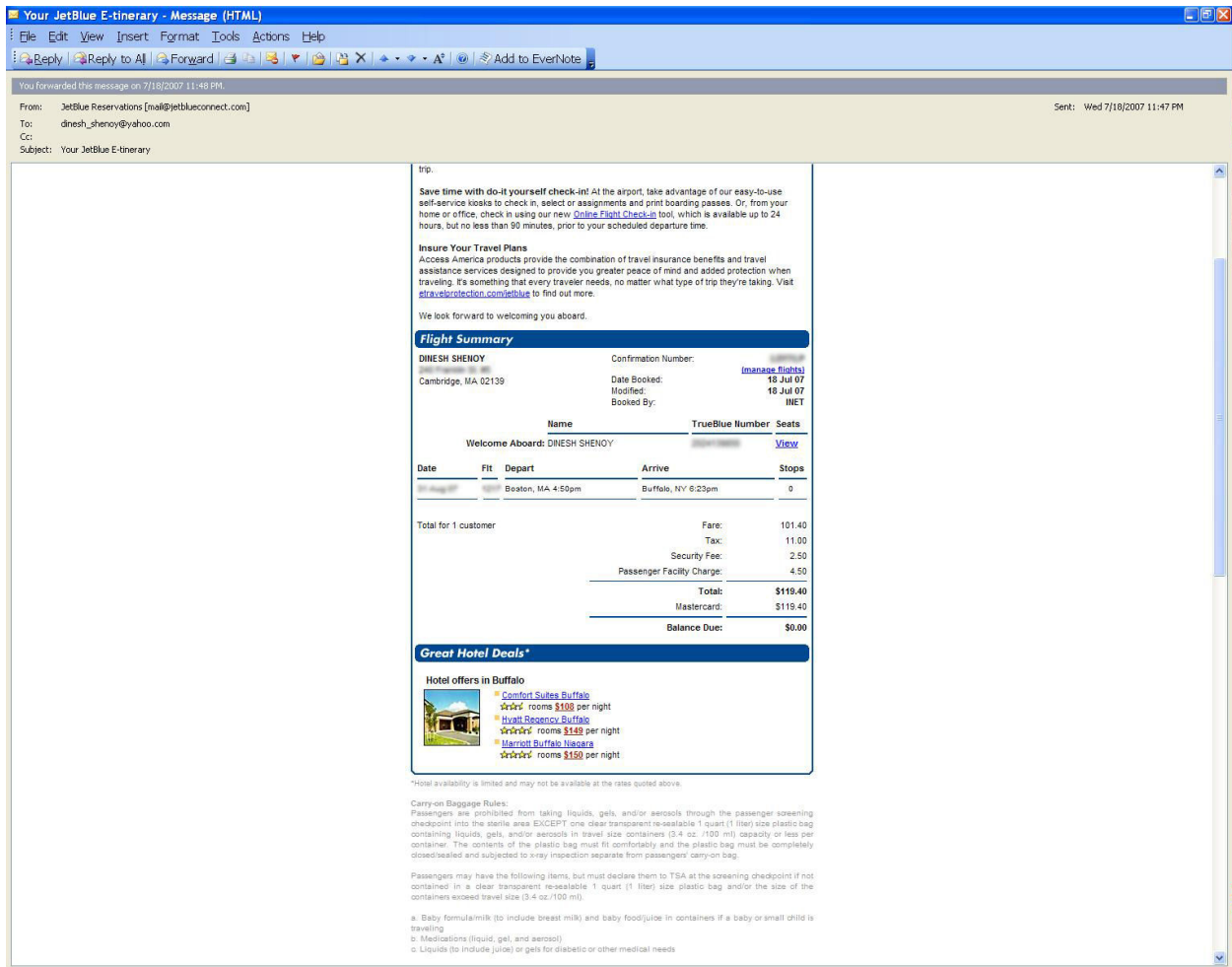
Figure 2: Example of Advertising in a Transactional Email

In the above email, JetBlue has sent accommodation information based on a destination city via their advertising partner. Using information about the recipient (the airline purchase), the sender (JetBlue) has provided an advertisement that is extremely relevant. While transactional emails are less in volume, the recent transaction, or pattern of transactions, can be quite effective in advertising and be targeted in a way that is more timely or targeted than a traditional newsletter email.[18]

2.2 Relationship Emails

A third classification of email is known as relationship emails. Relationship emails include operational and social emails that allow office workers to communicate with vendors, suppliers, partners, investors, and service providers to run a business. In a social context, an email to a high school classmate, a best friend, or one's grandmother would qualify as a relationship email. This is the class of messages that most people associate with email. In a personal context, use varies widely from planning a vacation to exchanging gossip to organize a group dinner. In a business context, uses are equally varied. Colleagues communicate with users that are both internal and external to the organization and use email for work-product and company-oriented social interactions. A key differentiator of relationship emails (compared to the earlier two classes) is that the primary purpose of this message is a personal message (of some sort). Since largely composed by individuals, the volume of this channel is limited. However, recipients often prioritize relationship mail because it impacts their ability to perform job tasks or impacts social situations that is considered important. Advertising in this channel can be defined to supplement the primary communication goal (the actual message) with a secondary purpose.

In most situations, advertising in relationship-based email is non-existent – even advertising one's own company or identity. In a personal context, Gmail shows that predicting relevant advertising based on email content is challenging at best and in a corporate context, individual signatures are the only additional content that's added to a relationship email apart from the message's primary context. Before analyzing some of the reasons that advertising within

relationship emails is minimal, let's first understand the value of relationship-based emails and whether advertising in such a disparate set of messages is valid or useful. In other words, is advertising in such a channel useful, who is it useful to, and if it has some intrinsic value, why isn't this path being pursued? Understanding the value of advertising in relationship-based email is the core of this dissertation.

Relationship emails can be broadly categorized into two segments, personal and business email. Personal email, where individuals send personal correspondence to communicate with friends, but also to communicate with companies that offer products and services for personal needs is one segment. While personal email is commonly social correspondence, an email to the dentist, an email to a child's teacher, or an invitation to a play can be categorized in this segment. Providers for personal mail commonly include web-based email providers (AOL, Yahoo, MSN) as well as Internet service providers who provide email services as part of a connectivity package (i.e. cable broadband and DSL providers).[19] While there are many individuals who manage their own domain and email services, most personal email is usually provided by a small number of high-volume mailbox providers. The advertising opportunity in this segment requires understanding email usage patterns and finding segments to broadly classify users. In this paper, personal email use will be considered as a broadcast medium where large groups of users can be exposed to advertising without necessarily targeting information based on information about the sender.

Business (or corporate email) includes emails that are used to create work-product, are essential to daily operations, and play a role in the corporate culture and planning activities between

colleagues. According to Ferris Research, there were 225 million corporate email seats world-wide, with approximately 71 million in the United States alone.[20] With an average of ten emails sent by each individual daily, the number of impressions is easily in the billions or tens of billions.[21] The implications of this research will help understand whether relationship emails are a viable platform for advertising.

While new customer acquisition is an important goal of marketing programs, keeping existing customers and expanding communication is valuable as well. Newsletter emails provide one channel to add another customer touch point. Similarly, contractors, suppliers, distribution partners and new employees would find it valuable to receive an added nugget of information with every email received.

2.3 Advertising

In recent years, the advertising industry has significantly changed in landscape, created from new forms of media, new measurement systems to evaluate effectiveness, and a creation of niche demographics.

Targeted advertising over the Internet allows new forms of communication and slicing of demographics to provide specific messaging almost to an individual basis. While most prevalent in Google's AdSense system in the search-engine market, banner advertising, pre-roll video clips, and online marketing partnerships have revolutionized an industry that has been primarily broadcast-oriented as recently as the 1990s.

Prior to the rise of the Internet, a broadcasting approach was the primary vehicle that provided very inexact measurements to gauge the effectiveness of advertising programs. In the last five years, search-engine marketing (paid-search), banner advertising for a wide variety of niche websites and social networking platforms have emerged to create new techniques to narrowly target consumers in ways where recipients are more carefully selected.[22]

Internet advertising and innovations in this media has been dominated by the web experience. Mass-media on the internet (defined as a communication channel) lets advertisers reach a large number of users via conduits such as MSN, Yahoo, and AOL. These new portals are thrust into a role that major networks fulfill in the television channel. Products that have a large-advertising

budget and own products that have a mass-market appeal such as movies or automobiles can use this channel effectively to generate awareness or buzz-appeal.

Similarly, specialty web sites (i.e. www.gillsnfinz.com for fishing) focus on narrow-interest constituencies allows smaller organizations to target their message to a specific demographic. Again, the corollary in traditional offline media includes trade magazines or specialty cable channels. However, the global reach of the Internet and low publishing costs inherent in the medium, allows these specialties to become very specialties and creates new markets and interests that were previously ignored in offline media because these consumers were previously too expensive to reach because of geographic reach or the limited market size couldn't support the publishing and distribution operations needed to sustain a print magazine or cable channel.[23]

Outside of web-based advertising solutions, utilizing the Internet's other applications of communications has been limited at best. While the web is by far the dominant vehicle of communicating across the Internet, other applications including electronic mail and newsgroups have an older history than the web itself. Because of a limited ability (possibly based on a young market) to utilize advertising in non-browser based applications, consumers are encouraged to use a sub-optimal solution for browsing or accessing their content. Whether it includes text-based articles, images, audio, or video – the delivery platform is primarily web-based. Recently, companies such as Apple (iTunes[24]) and instant-messaging companies[25] have developed downloadable applications to extend banner advertising to a custom-built application that is optimized for a specific task. The direction and growth of these applications will be important to understand how content-selection impacts advertisements.

Because of these recent developments, studying the use of advertising and click-through rates through non-web channels is important and can yield valuable insights towards the future of monetizing and targeted advertising inventory.

3.0 Privacy and Policy Implications

3.1 Market Structure Overview

The results of this research have profound privacy implications for personal email users, corporate employees, and corporations that contract email services from outside providers. Monetization of email can result in different emails having different values to advertisers and the ability to extract different prices may require the knowledge of both content and meta-data (header information) of a company or individual's email habits. Similar to how casinos "rate" gamblers based on the amount of time they spend in a casino, email providers may find the ability to rate email users based on their frequency, recipient base, and email habits to have different values.[26]

In the United States, consumer based email is provided free of charge to a large audience.[27] These email users are segmented into two broad classes. The first group uses email services provided by their Internet service provider. While this used to include a wide variety of dial-up providers, those providing residential internet service is consolidating to a handful of dial-up providers (AOL, NetZero, Juno, Earthlink) and broadband service providers (cable companies,

phone companies). By paying for internet connectivity, service providers traditionally include

basic email services allowing customers to use email to communicate immediately.[28]

Traditionally providing email services has been a cost center for service providers, although the

variable costs to provision and support email use are relatively small. Relationship-based

advertising could increase the value of a subscriber. When valuing a service provider, the value

of a subscriber is based on the revenue and profit derived from the subscriber. A second revenue

source where the value of a subscriber includes advertising revenue could increase the value of

email service providers. In addition, by receiving a new source of revenue, some of the gains by

the provider can result in consumer subsidies to lower the cost of internet access. This research

primarily aims to understand the value and utility of relationship-based email. Distribution of

this potential new revenue stream and whether it will benefit service providers or consumers is a

topic for future research.   Since email service connects to the public internet and are provided by

several regulated industries (cable, phone, phone service providers)[29] that fall under the auspices

of the FCC, the agency and Congress have the capability to weigh in for both revenue and

privacy purposes to dictate both the social optimal distribution of revenue as well as how email

content and usage statistics can be used and still protect individual rights.[30]

The second group of email service providers for consumer email users include "free email

providers" that are most commonly associated with large portal sites. Hotmail (by Microsoft),

Yahoo Mail, AOL Mail, Microsoft Hotmail and Gmail (by Google) are the most popular

providers but a number of niche players exist that cater to specific vertical industries (i.e.

lawyer.com, et al.).[31] These web-based email providers derive revenue primarily from

advertising within the email client.   As discussed above, Gmail is the only mainstream provider that analyzes content and provides context-sensitive ads that apply directly to a user's personal content.[32] Since these providers are completely private enterprises (although they do rely on the public internet for operations), the FCC has less oversight on their business operations. Unlike hosted email provided by service providers, web-based email is a profit center since it drives significant traffic to both the email website as well as affiliated properties to generate additional ad-based revenue. Inserting context-based relationship advertising in its outgoing emails allows the provider to be a platform for advertising services and extend the advertiser's reach, not only to its current user base but also to recipients who might host their email on other email systems.

For the business market, email service is provided in many diverse ways. Many small businesses outsource email services to hosting companies that provide added services including website hosting, managing databases, and other IT-related tasks. Many larger companies host their own email infrastructure using mail server technologies available from Microsoft, IBM and others to own the entire infrastructure for confidentiality, ownership, or other reasons.[33] Regardless of the approach, email service is typically allocated as a cost of business, contracted to on a monthly basis in the former or financed in the latter. Using email as a platform for relationship-based advertising creates the opportunity to subsidize this cost or even generate revenue based on the number of corporate email users, their email patterns, and the industry which they work within. While there are numerous precedents that demonstrate that employee email is considered property of the employer[34], the prospect of email as an advertising platform can lead to increased scrutiny of one's email usage, their communication with personal contacts, and the impact that this behavior has on workplace productivity. However, corporations may benefit by having a

reduction in price for email services. Service providers can aggregate a number of smaller email organizations to provide a useful inventory to advertise industry-related products or services. Analyzing email usage, meta-data, recipient domains and other meta-data of email messages may require firms to give up some level of privacy (or specifically state which portions of an email message can be analyzed in aggregate or individually). Similarly, larger corporations who own their own infrastructure may have enough emails to manage and run valuable advertising campaigns on their internal network. These companies have less privacy risk in exposure but are likely limited to the Fortune 1000 to have the required size and capability to take advantage of this medium on a cost-effective basis. There is a break-even point where the number of emails that an organization sends is sufficient to warrant the fixed cost of developing the advertisement.

3.2 Social Advertising

When this research topic was first conceived, social networks were in its infancy and an individual's social graph, while quite real, was private, not portable, and not easily sharable.[35] When I talk about one's social graph, I include people that an individual communicates with whether they are classmates, friends, church groups, colleagues, or a professional relationship. An individual's social graph includes a wide variety of people, many who know of each other and varies from my dry cleaner and barber to my grandparents and significant other. Prior to 2003, an online social graph was an online address book, email addresses, and various contacts on an IM network. Today, with the rapidly growing social networks (i.e. Facebook, MySpace and others)[36], social graphs are sharable, public (depending on individual privacy settings) and

browse-able. The recent creation of the Beacon advertising network shows an early industry

example of how privacy issues and opt-in/opt-out strategies are important to successfully use

relationship to implicitly send advertising or other product messaging.[37]

Social ads are becoming more and more relevant as a large number of companies attempt to

determine how social relationships impact behavior decisions. In fact, an entire discipline

defined as social shopping has emerged looking at relationships form buying decisions in an

online community (as well as offline shopping behavior).[38] Viral advertising campaigns such

as Vonage's "refer-a-friend"[39] (and BMG music club in the 90's[40]) as well as coupons such as

buy one, get one free are early examples of bridging the gap between social bonds and commerce

activity. As social graphs migrate online and become more accessible in building virtual

communities, the opportunity to leverage social relationships for advertising and purchasing

becomes more commonplace. Email can be considered as the first online social network and

monetizing these relationships is an emerging research area.

This experiment acts as a research study to independently validate the utility of the social ad (as

demonstrated by Facebook) using another platform. Social ads are advertisements that are sent

(using a broadcast feed) from one individual to their social graph. The same effect is in play

with relationship emails: individuals are sending messages to people on their intrinsic social

graph. Facebook Beacon project demonstrated the cautious approach needed when

communicating information implicitly to social graph recipients.[41] These lessons apply closely

to relationship email advertising as well and it's instructive to include some of the primary

lessons learned and discuss its implications with advertising in a relationship emails context. Similar lessons can be applied for other social networks such as advertising using social ads in an instant messaging conversation or even VOIP systems, but that discussion will be omitted to keep this topic focused on electronic mail. As described below, social advertising (the broader term for relationship-based email advertising) can be a tremendous opportunity, but one must be careful in the implementation strategies.

3.2.1 Opt In Strategy

In Beacon, social ads were generated unknown to the user by activity that took place on its own site or affiliated sites.[42] While the results below indicate that social ads are strongly relevant, the awareness and source of advertisements that are included and affiliated with the sender creates strong emotions. With Beacon, the backlash was a result that some aspect of a user's activity or lifestyle may prefer to be private or personal.[43] With advertising, the source of advertising partners, affiliation with a user's public interests or values, and allowing users to choose the types of advertising or information permitted is a critical factor to success. Giving email users the ability to opt-out of certain types of advertisements may create stronger targeting and value in social ads.

This criterion is especially significant in the consumer space. Yahoo and other large email providers have very sophisticated tools to target their user community including location, news interests, favorite television programs, and travel/shopping preferences.[44] Using a personal example, I may be very open to publicize my interests in a favorite sports team, particular technology, or favorite automobile, but more cautious about publicizing medical purchases or

political beliefs in a wide fashion. Individuals have different interests that they consider confidential or personal and vary in the willingness to share different types of information. The lesson here is not to say that companies can't or shouldn't use information they know about a user to target advertising. However, when the information is gathered in subtle ways and publicized to social recipients, the willingness to opt-in (via some incentive) and choose which parts of an individual's profile is used is an important point.

3.2.2 Segmenting social graphs: (Context-appropriate)

I mention earlier in this document about the value of targeting advertisements and the usefulness of context-sensitive advertisements to deliver strong value and using targeted advertisements is one metric that is analyzed in detail in this study. However, broadcast and targeted approaches are not two discrete states, but rather a continuum. Beacon uses a pure broadcast approach where all members of a social graph are exposed to social ads from an individual. At the other extreme is using individual ads to customize the message to each recipient (using the recipient's interests and profile to determine the appropriate message). This is more closely related to the banner-ad approach used by many web mail providers including Yahoo. In banner ads, the recipient is shown ads that are based on the recipient's profile without using any information about the sender. The in-between approach is the basis of the social ad that uses information from the sender, recipient and possibly overlapping information that shows common interests between two individuals. While the details of how to use this information effectively to develop a new advertising strategy is left for future research, much of the controversy with Beacon arose from the fact that one's social graph reflected various relationships and not all aspects of an individual were always exposed to all members of the graph. For example, a relationship with a

29

work colleague may be very different than that of a college friend, sharing one's drink of choice or dating interests may be frequent with a friend but less appropriate in a professional context. While the distinction is blurring, many people still maintain distinct identities at work, at home, with family, and with friends. Choosing which interests and events to publicize in each segment of a social graph has strong implications in consumer acceptance and user's privacy concerns.[45]

3.2.3 User vs. Media Concerns

It's interesting to note that Facebook continues to claim that social ads are widely accepted in its user community and that most of the objections and criticisms originate from media sources and privacy advocacy groups.[46] Given that Facebook's demographic is primarily based on individuals in their teens and twenties[47], it's unknown whether acceptance of Beacon is based on a generational shift (those who have been raised in the Internet generation are used to a more public profile in all their activities), whether youth have a different type of social graph[48] and as they form new relationships and participate in new forums their viewpoint will change, or whether media and privacy groups are more progressive than the general population with respect to privacy issues in general. The key question is what causes this discrepancy and how it affects the growth and emergence of the social ad.

The answer to this question (and it may be too early in the lifecycle of the social ad to get solid answers today) based on limited research is still unknown. In many cases, privacy advocates work on behalf of the general user community to prevent corporate or government abuse in a variety of contexts including telephone records, purchasing activity or other personal information. The challenge here is that many online tools are creating a more public society

where individuals are eager to share and publish personal information with blogs, photo sharing, or personal web sites and seem less concerned with privacy concerns as that from a generation ago.[49] Whether this is a technological or cultural shift has important implications in the social ads and the acceptance of social ads long-term whether through social networks, email, mobile ads, or other media platforms. This paper focuses on the effectiveness of the social ad related to email which is a much more diverse platform regarding user demographics but the cause and reasons are still applicable. This is an issue that needs to be better understood and is very closely related to this topic.

3.3 Spam Implications

No analysis of email technology is complete without a full discussion of unsolicited email which creates an enormous part of today's email infrastructure.[50] In general, SPAM is defined as unsolicited email that is received in email inboxes and unwanted by the recipient.[51] Because of the low-cost structure of email[52], a very low response rate is required for spam emails to provide a return on their investment and therefore a large number of people are inconvenienced with large volumes of email that is intrusive and impedes the progress or accessibility to wanted emails. Legislative approaches including CAN-SPAM have proved less effective primarily because of the global and unregulated internet architecture[53] and spam-filters, blacklists and other technology tools are the primary modus-operandi in dealing with this issue.

Because there are many legitimate uses for bulk email including newsletters that cater to specific interests, promotional coupons by legitimate companies, transactional emails (communication

for shopping experiences), etc, identifying legitimate emails from SPAM emails is a challenge. Because one person's trash is another's treasure, CAN-SPAM legislation attempts to require that legitimate bulk email includes a method to opt-out of a distribution list and allow users to unsubscribe from receiving this email.[54] As expected, this only curbs the issue of legitimate email sent by ethical companies to maintain their lists accurately. Today's SPAM problem is largely generated from automated bots[55] that send copious amounts of email in the hopes that the small amount of responses will generate a profit. Given the rise of SPAM messages[56], it appears that this business is still profitable at the cost to numerous users who are forced to tolerate this activity.

Up to now, the granularity of SPAM is at the message-level. An entire message is considered to be wanted or unwanted and filters and users deal with it by diverting entire messages to Junk mail folders and using message headers to "white-list" individuals who are trusted and black-listing others to reduce the volume of email that is delivered to their inbox. Relationship-based emails introduce a concept that portions of a message may be useful while others may be unwanted (essentially SPAM). While content within a useful email message may not initiate the same backlash as the volume of unwanted messages, the challenge of how emails are classified is relevant in regard to CAN-SPAM legislation. The bill classifies email into different categories and requires certain classes of emails to be treated in certain ways. Without advertising, relationship based emails are straightforward with the primary message being the content communicated from sender to recipient. However ,with the introduction of advertising or other messaging within emails, we now have two types of content within a single message, that sent from the sender and that added by the corporation or email provider. Defining the primary

purpose for email that has dual-content may be an issue.[57] Using a relationship-advertising

platform to skirt around SPAM rules opens up an area for abuse, the spamming operation is very

sophisticated and advertising within personal relationship email may be a SPAM opportunity if

not restricted.

Given the increased popularity of receiving email on mobile devices and limited bandwidth[58],

this may be an important issue. The issue is best described as analogous to ad-blockers in a web-

based environment.   Pop-up ad blockers and other tools that block banner ads within web pages

can be employed in an email based environment and restrict display of graphical based content to

deal with limited bandwidth or unwanted corporate/advertising content. In fact, many emails

(i.e. Outlook 2003, AOL) already block images for security reasons as a default setting.[59] This

approach gives users tools to limit display of advertising content, but doesn't determine whether

this is primarily bulk email to be treated as SPAM or provides some useful content. While pop-

up blockers have become commonplace, they limit the functionality of many websites and

universal image blocking in emails may prevent display of photo sharing or other useful

graphical information forcing users to use attachments or external viewers and limiting the

usefulness of email in some regard.

3.4 Spam Filters

In thinking about electronic mail as a system, the standard Internet protocols (RFC 821[60] et al.)

are not sufficient to introduce new components or processes into the system. While the

fundamental technical architecture still closely follows Internet standards, security mechanisms

that are implemented to reduce the impact of unsolicited mail play a large role in successful deployments. Since advertising within email alters the original message content and possibly the transit path of the message, the advertising and corporate messaging content should be inserted accordingly.

As background, SPAM filters look at a variety of factors to determine whether a particular message is considered SPAM.[61] With the majority of email messages in the email ecosystem being SPAM[62], reducing the occurrences of false positives (legitimate messages tagged as SPAM) when applying advertising or external content to email messages is an important factor to consider in relationship-based email advertising.

There are two primary mechanisms in how an email message is analyzed to determine SPAM probability, message content, and message delivery.   Message content includes the information in the message and analyzing key words within the body of the message to match against existing known patterns that are used by spammers. Examples of this approach includes reducing the message by stemming key words, removing pronouns and articles and then making a determination based on the remaining content.[63] In addition to text content, use of HTML, images, location of hosted images, image attachments, and spelling and other characteristics are analyzed to determine if the user is intentionally trying to mislead the reader or using techniques to actively escape SPAM filter processes.[64] This cat and mouse game where content is filtered results in spammers changing their approach and escalates costing users indirectly through time wasted receiving SPAM as well as frequent updates to filters. Bayesian analysis is utilized but still results in a solution that is less than ideal.[65]

The second mechanism includes the delivery mechanism and message header information to analyze whether the source of message information looks suspicious. With the advent of phishing attacks (social scam that tries to fool individuals that emails coming from companies or individuals incorrectly)[66], matching the sender's information with the host server is becoming an effective technique. SPF and reputation services are not widely used but matching registered email servers with outbound email is often advocated as a way to reduce the probability that legitimate emails result in false-positives.[67]

As relationship-based email becomes more popular, inserting ads and ensuring that the additional content doesn't classify the message as SPAM and is a factor in both determinations. In the first instance, hosted images that don't match an organization's domain can be rendered suspicious in addition to the increased formatting that an advertisement layout may require. While white-lists and similar processes exist for advertisers of bulk database email[68], the industry has not yet considered how external advertising should be validated to reduce the false positives in this area.

Similarly, message processing should occur within an organization using advertising servers or external resources to reduce the suspicion of an intercepted message path. When message formatting is applied internally, an organization can match the delivery server with the registered email server. This poses an issue to scenarios where advertisers need to integrate with local mail servers rather than apply formatting or additional content along the delivery path.

With some estimates showing that SPAM makes up 90% or more of all email being delivered[69], a solution that is compatible and works with the prevalent and future solutions, advertising within an email message needs to be cognizant of growing trends. Anti-spam technology should consider this use case in future developments.

4.0 Literature Overview

The existing literature for this research can be characterized into a few broad categories: two-sided networks, effectiveness of email advertising, and legal precedents highlighting consumer protections and regulation of internet service providers.

Two sided network media platforms have primarily focused on platform owners and the pricing decision associated with the platform.[70] Understanding which side should be charged and flexible pricing strategies have been a key focus in this area. The usefulness of advertising in relationship emails allows many of the existing knowledge and lessons learned to be applied to a different framework.

Email advertising via newsletters where the advertisement is a primary message is well documented in Kinard's book Marketing with Email and responsible newsletter advertising focuses on developing email lists, creating facilities for users to unsubscribe, handling bounce-backs. List management tends to be a big focus on this area as well as developing compelling editorial and advertising content. While relationship email was one of the first uses of email, the development of using this medium as an advertising platform is still in its infancy.

The advent of SPAM marketing and the impact it has had on productivity has recently caused

Congress to develop legislation to curb its impact (CAN-SPAM). Current debates in net

neutrality[71] are relevant in that they protect the internet to maintain a competitive marketplace.

The legislation precedent in regulating Internet activity are important developments to protect

consumers and businesses as the understanding of individual email practices and their recipients

become more valuable in relationship email marketing.

5.0 Methodology

In order to measure the effectiveness of advertising within email, the primary metrics included

impressions generated and the corresponding clicks produced. Using data from 12 distinct

organizations and 4 email service providers, I tracked the effectiveness of email advertising for

45 individual email users and analyzed the number of impressions being generated over a 30-day

period. Each email was delivered with a unique tracking ID and included two clickable areas.

While all emails included a standard footer (to simulate a broadcast advertisement that didn't had

no targeting component), only 41% of the 10,215 impressions generated included a secondary

form of advertisement. Some companies who were in the test program chose not to participate in

the secondary form of advertising to supplement their brand identity with a corporate

advertisement.

An example of the emails generated is shown below in Figure 3.
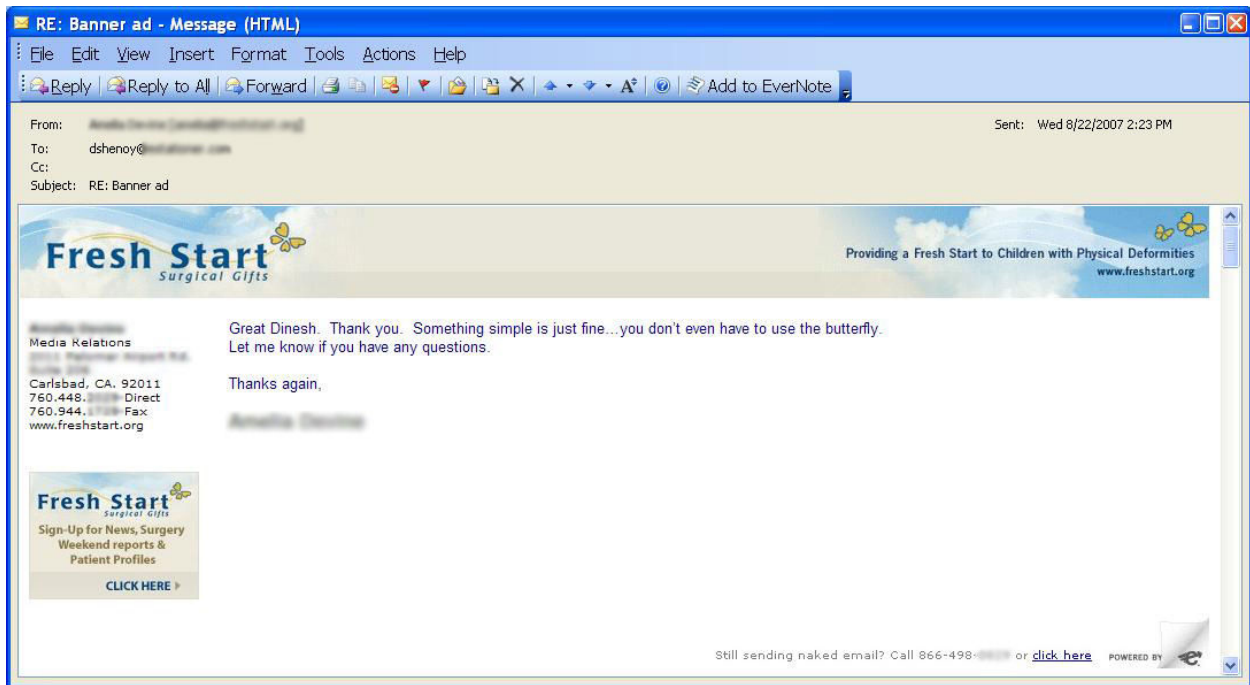
Figure 3: Example of Relationship Email with Advertising

The graphic on the left is an example of an embedded advertisement and is universally located to the left or rights side of the message (depending on the template design). This graphic is not universally used but provided by the sender. In this experiment, I am assuming that the sender's choice of advertisement is relevant to their recipients. The footer graphic highlights the benefit of rich email and is a generic advertisement. This advertisement is identical for all 45 email users. This example shows the use of a broadcast approach to embedded email messages without regard to recipient type. The effectiveness of this footer compared to that of the targeted advertisements will be analyzed below.

The experiment is designed to demonstrate how advertisements in relationship emails will be received and the click-through effectiveness of individual ads. New ads are added to create a new promotion and analysis will be presented to determine if the relative freshness of a graphic

or promotion affects consumers' willingness to find out more information by clicking on the ad. A key measure of advertising effectiveness includes the number of <u>unique recipients</u> who are exposed to a promotion as well as the <u>frequency of</u> the promotion. I will determine if multiple impressions to the same user impacts the willingness to click on an ad.

6.0 Aggregate Results

Email usage was tracked for a limited period of time to better understand how advertisements in relationship-based email are received by recipients. The experiment group included 45 individual email users who sent graphical email at their place of business or for personal email communication with friends and acquaintances. Although not all users used this email platform as a primary tool, most users had no secondary email tool for this platform and I believe that the results is representative of email usage for a typical home or office user who sends email for interpersonal communication. All data points were collected from August 15, 2007 through September 20, 2007.

Over the 35-day period, 6704 email messages were sent to 10,215 recipients resulting in an average of 1.5 recipients/email message. This accounts for both cc and bcc recipients who would have received a copy of the mail message. Although there were 10,215 recipients in total, understandably many of these recipients had multiple interactions in the email exchange. 1,966 unique recipients received electronic communication with the target group. With a total of 77 clicks, I found a 3.9% click-through rate ignoring the effects of multiple impressions. While

some recipients viewed multiple advertisements, the majority of viewers saw a single set of advertisements over the trial period and therefore I used the distinct recipient as the total reach of the various campaigns.

Because of the small sample size, the below assumption assumes that recipients of one email user may share correspondents with other individuals at their organization; however, recipients who communicate with company A are unlikely to communicate with company B. The small sample size makes the probability that recipients remain unshared as a strong likelihood.

7.0 Key Variables and Analysis

The aggregate data above is further drilled down to understand how embedded advertisements in email behaves and to build an understanding whether certain variables impact the click-through rate and also whether the frequency, recipient attributes, or context impact and how that effects the success of the advertising. By identifying specific attributes, I will describe the experiment/variable, its relevance, and how the data could provide insight into how embedded email advertising can be used in industry.

To determine whether the attribute had a significant impact on the click-through rate, I applied a standard statistical technique, the chi-squared test of independence, to measure the independence of the click rates. Since the null hypothesis is that the two streams are independent, a low p-value (i.e. $p < 0.05$) indicates that the measured attribute did have a significant effect on behavior. This finding will be further discussed in each of the data streams in more detail below.

7.1 The Impact of Privacy Disclaimers in Email Communication

In what has become common practice in legal professions as well as many other businesses, companies often attach a legal disclaimer in each and every email message that releases the company from being held liable for the contents of any email message, i.e. a "recipient-beware". Since email is permeated widely throughout an organization, the fear is that libel or slanderous remarks by a mistaken employee or an embedded viruses within an email message could hold the email provider (often the company or a proxy for the company) to be responsible. A typical privacy statement is shown as follows:

This email and any files transmitted with it are confidential and intended

solely for the use of the individual or entity to which they are addressed.

If you have received this email in error please notify the system manager.

Please note that any views or opinions presented in this email are solely

those of the author and do not necessarily represent those of the company.

The recipient should check this email and any attachments for the presence

of viruses. The company accepts no liability for any damage caused by any

virus transmitted by this email.

The question raised is whether the recipient of an email message that contains a privacy statement changes their behavior and become more or less likely to click on an embedded ad. One could argue that a company that choose to advertise has more carefully vetted its advertising partners and therefore it is safer to click on these ads. Alternatively, the existence of the statement could cause hesitation and make the recipient less likely to click through an

advertisement since the sender has explicitly disavowed any accountability for the embedded link.

To understand this phenomenon, I had one organization that used a privacy statement and sent emails to 520 distinct recipients over the trial period. The remaining 1446 email recipients used templates that did not have any disclaimer language. To maintain the test case, I only compared the click-through for the generic footer. In the experiment the standard ad footer was physically very close to the disclaimer statement on-screen. In addition, the graphical ad was identical in both cases with and without the disclaimer.

Below are my findings:

Table 1: Results comparing the use of a disclaimer in messages

	Distinct Recipients (Impressions)	Click-through (for generic footer)	Percentage
With Disclaimer	520	6	1.15%
Without Disclaimer	1446	20	1.38%

P-value = 0.69

My results show that the disclaimer had a relatively small effect and insignificant effect on the overall click-through rate. Overall, the disclaimer did restrict the click-through behavior for its recipients. A p-value of 0.69 indicates that there is a 31% chance that the privacy statement was the key-cause of the difference in the click-through behavior. This is a very low confidence value. Given this result, it can be concluded that the price that advertisers are willing to pay for firms that insist on a disclaimer in their emails cannot vary significantly from companies that don't use a specific privacy statement.

The result can also be early indications that other components in the body of an email message may be inserted without significantly affecting the click-through rate. This is an area for further research. One implication is that the privacy statement could be one way to price segment this industry and have corporations evaluate the lawsuit risk quantitatively with the benefit of using this advertising mechanism either for their communication or communication in an email advertising network. While the privacy statement doesn't impact click-through behavior in a meaningful way, it may be email real-estate to insert other messaging or advertising.

7.2 The Impact of Internal vs. External emails for advertisements

In most environments, email between colleagues is much more frequent, often informal in nature, and facilitate group discussion. In this analysis, internal email is an important distinction in the messaging opportunity. In even small businesses, messaging can be an important morale booster and a message from the CEO to various departments can be considered an "internal advertisement" in the email medium. Just like paper-based internal newsletters helps disseminate information within an organization, internal advertisements can reinforce best practices, raise morale from a recent victory, or focus the company on an upcoming milestone. Just as in external email (to be discussed below), this research tries to understand whether email advertisements are effective and their potential as a communications tool. However, the segment is identified separately because email patterns differ significantly and the strategy and audience for this segment should be considered independently.

External emails are defined as emails by corporate workers that are sent outside the organization. These emails include communication with customers, vendors, suppliers, contractors, potential employees, service providers and others. These recipients all have a vested relationship with the sender and the hypothesis is that these constituents make up a high-value group that is interested in the sender's product line, new product information or other corporate bulletins. Since corporate relationship emails imply a connection with a specific individual, is there an opportunity to send additional information or communication in addition to the primary message?

To understand how this phenomenon affects click-through rates, I separated the clicks and impressions generated for those internal to the organization and those to external recipients. This analysis is only valid for corporations that use specific domain names. Companies that use Gmail, yahoo or another public email provider were excluded from this analysis since a fellow yahoo or Gmail email user is unlikely to be part of the same organization.

One immediate result is that the number of impressions generated internally can be quite large. While this opportunity wasn't analyzed in detail, the generated impressions for internal users approached 13 recipients received over 100 impressions during my 35-day period and in some cases approached 300 or 400 impressions. This implies that advertisements and use of embedded emails for internal emails can still be effective, but may require a more varied approach in terms of messaging given the frequency and opportunity of frequent communication is strong via the email environment (in addition to other communication channels). Rather than a

traditional advertisement, reinforcing of company values, ethics, mission statement can be channeled through the internal email channel.

While analyzing the data franchisees (i.e. independent real estate agents) as well as internet service providers were treated to always communicate externally.   For example I assume that a user who uses Yahoo's email service communicates with other people from Yahoo.com who are not direct colleagues. Similarly, independent franchises are treated similarly where one real estate agent may send emails to others but do not engage in frequent communication with that individual.

The data and results are shown below:

Table 2: Results comparing External and Internal Organization emails

	Emails	Unique Emails	Clicks	Click Rate
Internal Emails	4492	84	9	10.7%
External Emails	5737	1889	53	2.8%

P-value = 0.000047
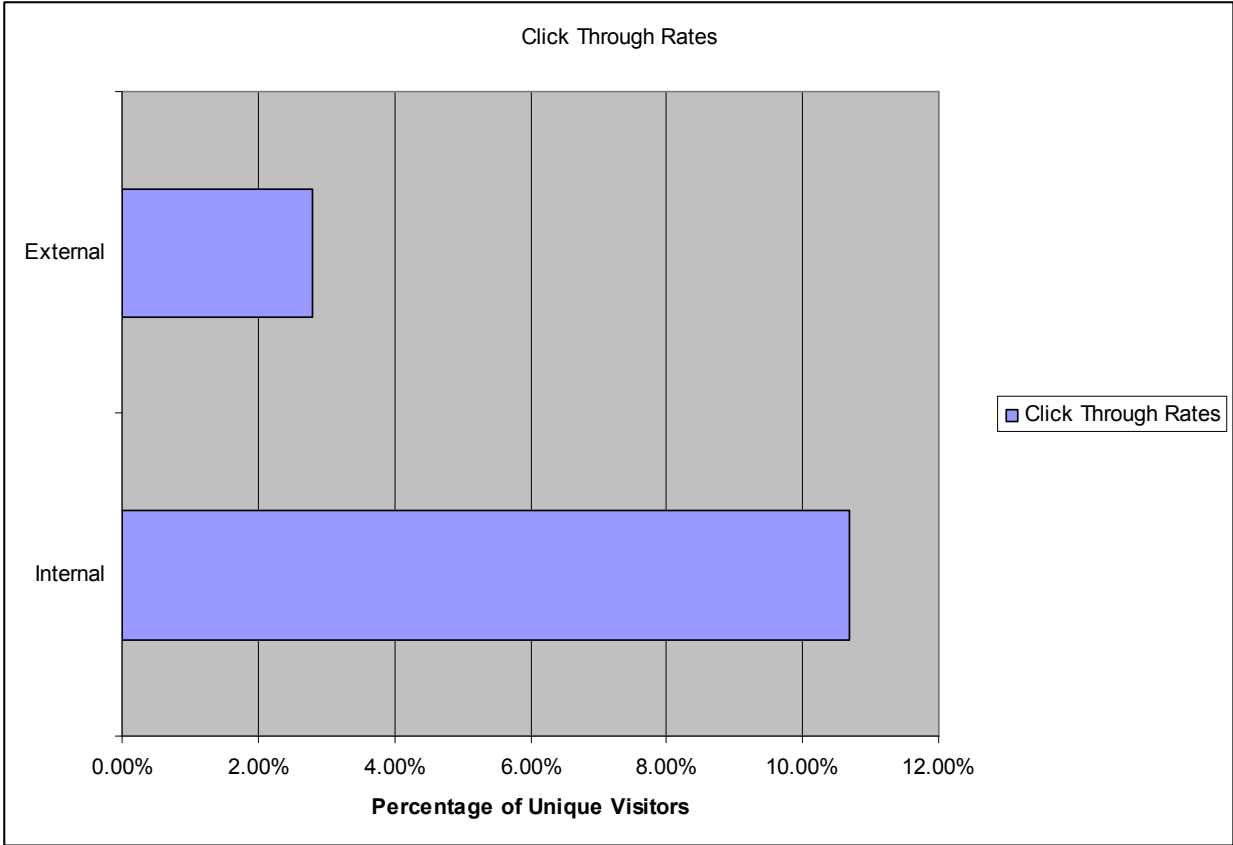
Figure 4: Comparison of Internal and External Click-through Rates

The extremely low p-value calculated shows that click-through behavior varies significantly between internal and external recipients as expected. Not only did the percentage vary significantly for clicks, but the reach of the two different email types varied significantly as well.

This data demonstrates that while the reach of internal emails is relatively small in terms of unique visitors, colleagues are very willing to click on embedded emails from their colleagues to find out about new activities within the company. In my test case, some of the internal click-through activity included broadcast emails, but still shows that internal based emails are an effective means of communication. As alluded to above, the frequency of internal emails is also much higher and the impact of multiple touches will be further analyzed below in section 5.

In contrast, external email generated a higher quantity and greater reach for marketers and could be used as a channel to generate new business, new sources of revenue or other messaging. Sine much of marketing and communication is oriented towards new customers or current customers, the high level of interest and click-through results for internal mail suggest that internal communication and messaging is an area that is valuable but treated with lower importance – understandable since most internal marketing and communication doesn't generate revenue or sales leads for the business. However, in knowledge businesses where personnel assets is critical, whether in technical know how, processes, or sales generation, cultivating high employee morale and communication with staff could be very effective using embedded email advertisements.

7.3 Temporal Insights – The reaction of an email advertisement measured by time

A third variable that I considered included analyzing the time differential between when a message was sent and when the actual click-through occurred. The attractiveness of an advertisement can be quantified by the willingness of the consumer to be distracted/swayed away from their current environment to learn new information. Because email is fundamentally an offline medium, where recipients do not always read the communication when the message is sent, I separated the results into the following three time constants.

Table 3: Temporal Reactions to email advertisements

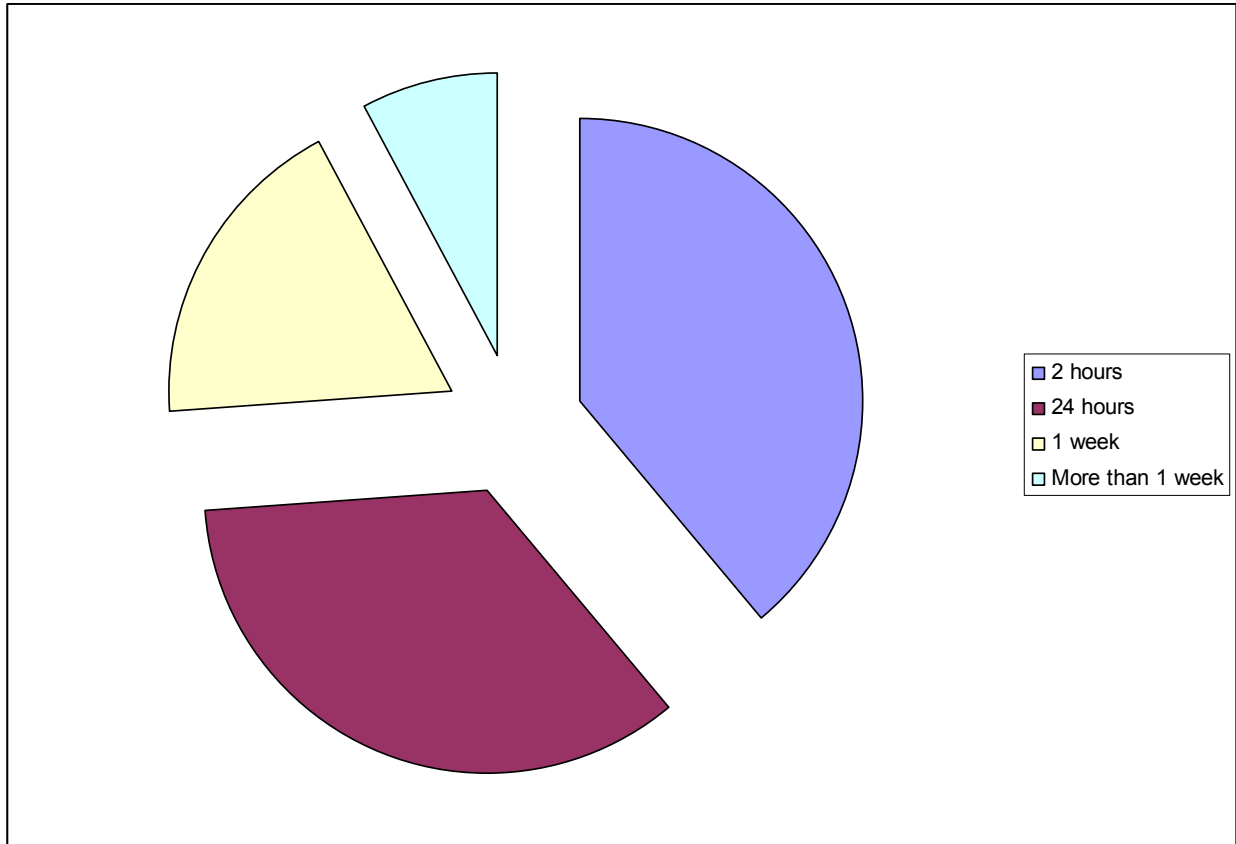| Time Interval	Clicks	Percent of Total Clicks
Within 2 hours	30	38.9%
Between 2 hours and 24 hours	27	35.0%
Between 24 hours and 1 week	14	18.0%
More than 1 week	6	7.7%

Figure 5: Breakdown of Temporal Reaction to Advertisements

There are two key insights that I learned by looking at this data. The first is what was expected, that those who click-through and are interested in the advertisement do so as soon as they receive

the email. Over 75% of the click-through occurrences occurred within the first 24 hours when the message was received. While the overall percentage is close to 4% for click-through rates, those who are interested react immediately. This shows that interested recipients will act on the communication within 24 hours in most cases.

The second insight is one that wasn't anticipated in that there is a significant number of individuals that click on the advertisement, a few days or even weeks after the email was received. The conclusion that can be drawn is that individuals do successfully receive and view the advertisement in many more cases than the click-through data indicates. Some users remember the advertisement, file the email and refer back to older emails to access the advertisement. While data points within a week can be explained by vacation patterns, there were multiple data points where individuals did go back to older emails that were sometimes two or three weeks old in order to click on an advertisement. In a brand or public relations context, the data indicates that embedded email advertisements are viewed and stored in some individuals' memory and that impression can last a few weeks. I will leave open the possibility that the communication from two or three weeks prior may have been important and referred to frequently by the user, but in this case as well the value of the advertisement increases since the impression is repeated and eventually generates enough interest to warrant a click.

7.4 Advertisement Timing

Advertisement timing looks at whether an advertisement becomes old or obsolete as recipients become used to seeing the advertisement. Using the assumption that relationship email involves communicating frequently to many of the same individuals over an extended period of time, one would suppose that a new ad that advertises a new product, service or event would result in a higher click-through rate since older ads wouldn't be clicked on multiple times by the same recipient. While email senders are constantly sending emails to new individuals, existing users would not be candidates to generate click-through hits and the value of an additional impression would be decidedly less.

The challenge of measuring advertisement timing is that newer ads that advertise a different product or event have additional variable factors in addition to the timing of the event. Comparing two campaigns necessarily requires two different graphical ads that may impact the willingness of a user to click. In addition, a different product being promoted which may be more or less appealing to the recipient. To reduce the effect of these individual variances, I analyzed the average click-through information for two sets of data – those ads that were in effect prior to the start of the study which had been running for some period of time, compared to those advertisements that were new and released only after the study began. The resulting data is shown below:

Table 4: Results comparing recent email campaigns

	Total Emails	Unique Emails	Clicks	Click Rate
Recent Ads	1125	428	8	1.9%
Older Ads	4941	1016	37	3.6%

P-value = 0.89

The resulting data indicates that older ads were slightly more successful than more recent ads and those newer ads did not result in an increased click-through rate. This was contrary to my initial expectations since I expected click-through rates to increase with new content. The high p-value indicates that the timeliness of the advertisement didn't vary significantly and the two click-through streams are independent of this attribute.

One conclusion that can be drawn from the results is that ad timeliness has a smaller affect on click-through rates compared to other factors that may affect a recipient's behavior. Given the small sample size, graphic design or seasonal impacts (i.e. more people going on vacation in August) could have impacted the study.   While the dominant variable on the variability of ads is unclear, it can be shown that ad timeliness by itself is a relatively minor factor and that more recent ads may not be necessarily more attractive to the same recipients. Another key factor is whether the original advertisement generated useful or valuable content to the recipient. If the original advertisement did not meet the consumer's needs in a meaningful way, their tendency to click on a new ad would also be sharply reduced.   More study in this area is required to build more insights into the affect of advertisement variability on click-through rates using a larger sample base.

The above result may also indicate Burke's "Theory of Weak Ties" may have a dominant effect. Given that the majority of value is to those recipients who interact with senders less frequently, the length of time when new ads were generated may not have reached those weaker links. This will be analyzed further in section 7.5 when I understand how frequency of communication affects click-through patterns.

The raw data for these advertising campaigns are shown below. The second half in yellow indicates campaigns that were started after the study began (and run for less than 30 days).

Table 5: Breakdown of Recent Campaigns (Recent campaigns shown in yellow)

Campaign	Total Emails	Unique Emails	Clicks	Click-Rate
1	178	115	3	2.6%
2	56	28	1	3.6%
3	35	12	0	0.0%
4	56	19	1	5.3%
5	91	48	1	2.1%
6	29	20	0	0.0%
7	43	31	0	0.0%
8	59	9	0	0.0%
9	4394	734	31	4.2%
10	92	48	2	4.2%
11	4	4	0	0.0%
12	43	27	0	0.0%
13	4	4	0	0.0%
14	1	1	0	0.0%
15	151	61	1	1.6%
16	17	8	0	0.0%
17	813	275	5	1.8%

7.5 Advertisement Frequency

In relationship email, email discussions often result in an advertisement being seen multiple times and give the recipient multiple opportunities to click on the advertisement. In many cases, seeing an ad while busy with other priorities may result in a missed opportunity. Additionally, the number of "touches" that a business reaches consumers is established to build brand identity, reinforce a message or remind the consumer of a new product. I see this repeatedly in the offline world with new product introductions, television spots that are repeated to reach the same demographic and so forth. The insight I am trying to gain is how many touches enable a click-through and whether repetition of the same advertisement is effective to generate clicks.

Like my results with the temporal analysis I found that multiple behaviors exist when viewing email-based advertising. A slight majority of users only needed a single touch and immediately clicked through to browse content related to the advertisement. However, there was a sizeable number of people who responded to multiple touches before showing action. The composite data is shown in the table below:

Table 6: Results of Frequency Effects on Click-through Rates

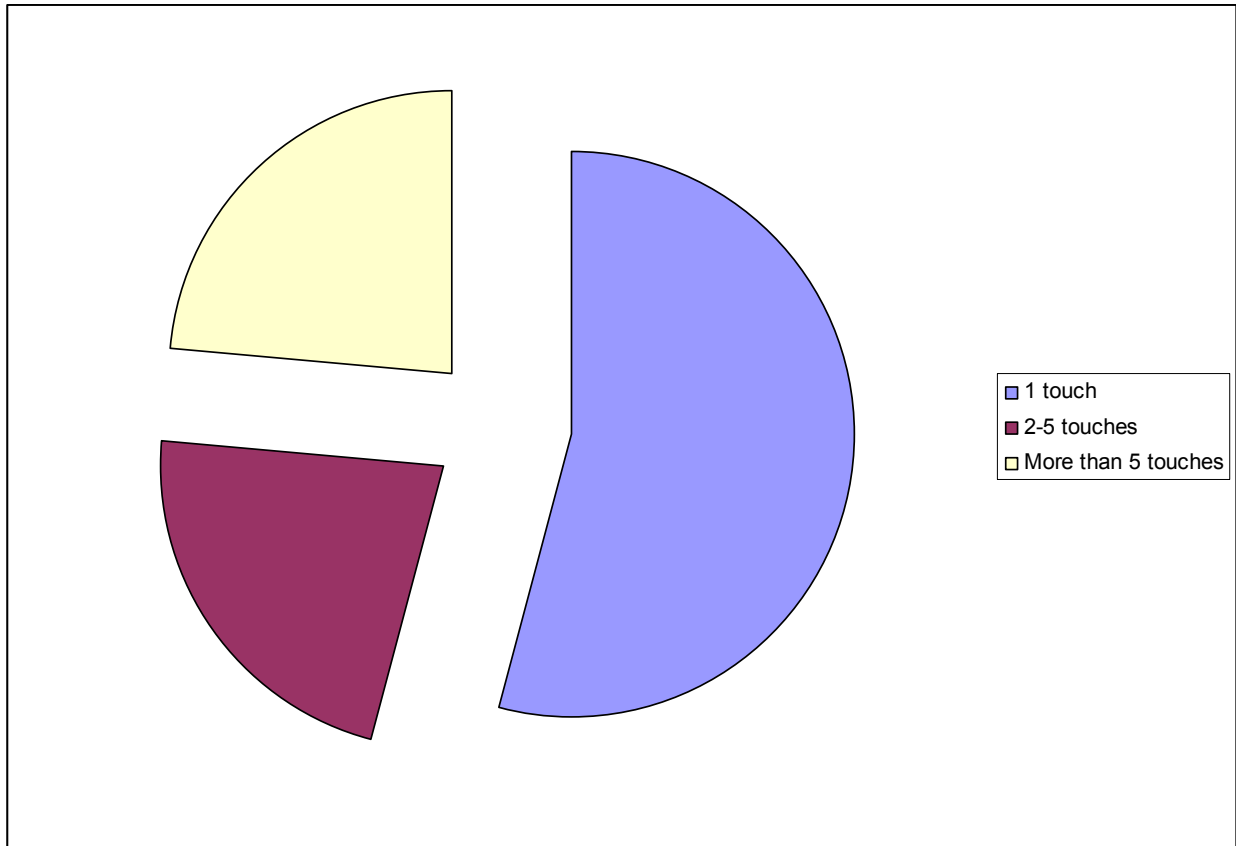| Number of Touches	Clicks	Percent of Total Clicks
1	32	54%
2-5	13	22%
More than 5	14	24%

Figure 6: Comparison of Frequency Effects on Click-through Rates

The data above shows two phenomenon and the managerial challenge is to understand these two

uses for embedded emails and use the medium in an effective way. The first classification of

people who clicked on advertisements immediately reflects a group that is typical of advertising

recipients.   Web site banner ads cater to such a demographic where a graphic or related content

appeals to them and where they are willingly distracted or find useful potential useful content to

engage in the advertisement.

The second and third classifications show some new insights in advertising within email and

show how embedded email advertising can be convenient for the consumer to learn more

information. I can classify the group that clicks after 2-5 touches as one that found the initial advertisement appealing but could not immediately engage in the promotion. The repetitive touch reflects a convenience and ability for the advertiser to take advantage of this recipient's interest by presenting another opportunity to capture their interest. This group may have skipped the opportunity (their interest was weaker than the one-touch recipients) or gone back to the original email at a future date. The results show that repetition from 2-5 touches realizes an opportunity that may have been lost earlier.

The third group of recipients, those that clicked after more than 5 views, represent those that are colleagues or parties who communicate frequently with the email senders. These recipients see the advertisement and message frequently and may be storing the advertisement information for a future date. Since the embedded advertisement doesn't' change quickly in my experiment, there is an expectation that the information will always be available to them, and they communicate frequently enough with the email sender to request more information through online or offline channels. This could be regarded as informational advertising. It's unlikely that the 31st or 44th touch resulted in a click-through as some of the data indicates. Rather, this can be explained that some external event or circumstance caused the advertisement to be more relevant and they were able to find an existing email or receive a new email that was situational relevant to the recipient. In this case, the touches and frequency was less of an impact, but an external event and the ready availability of the advertisement or promotion allowed the promoter to take advantage of a change in environment. Availability and ease of access for the promotion is shown here and can be compared to the "Bail Bonds ads" or similar ads where the frequent touch doesn't impact behavior, but availability when the situation changes can be critical.

7.6 Advertisement Relevance

This variable tries to understand whether context-sensitive ads for a business or personal context are more attractive to recipients or whether a generic advertisement that is not targeted towards a business or industry is more effective. In my experiment, I provided email senders to include an advertisement that is beneficial to their personal or business situation to promote products, advertise an event, or reveal some personal characteristic about the sender. These ads are sent in all emails where the sender chooses to participate. In addition to this "targeted ad", I include a broadcast ad or footer in every email. This will serve as my base case. The hypothesis is that he generic footer is generally appealing, but has no relation to the sender's business, industry or recipient demographics. Comparing these two advertisements yield insight into whether targeting in embedded email messages is useful and whether the impact is substantial.

A footer graphic was used to generate broadcast methodology. This link pertains to the graphical design of the email and is not context-relevant to the senders' business or work product. Below is the raw data for this advertisement:

Figure 7: Broadcast email footer used on all emails

This graphic was placed in the lower-right corner of every email delivered. During the test-period, the following table shows the composite result for the broadcast graphic and how it compares with targeted advertisements.

Table 7: Results of Targeted vs. Broadcast Ad for Click-through Rates

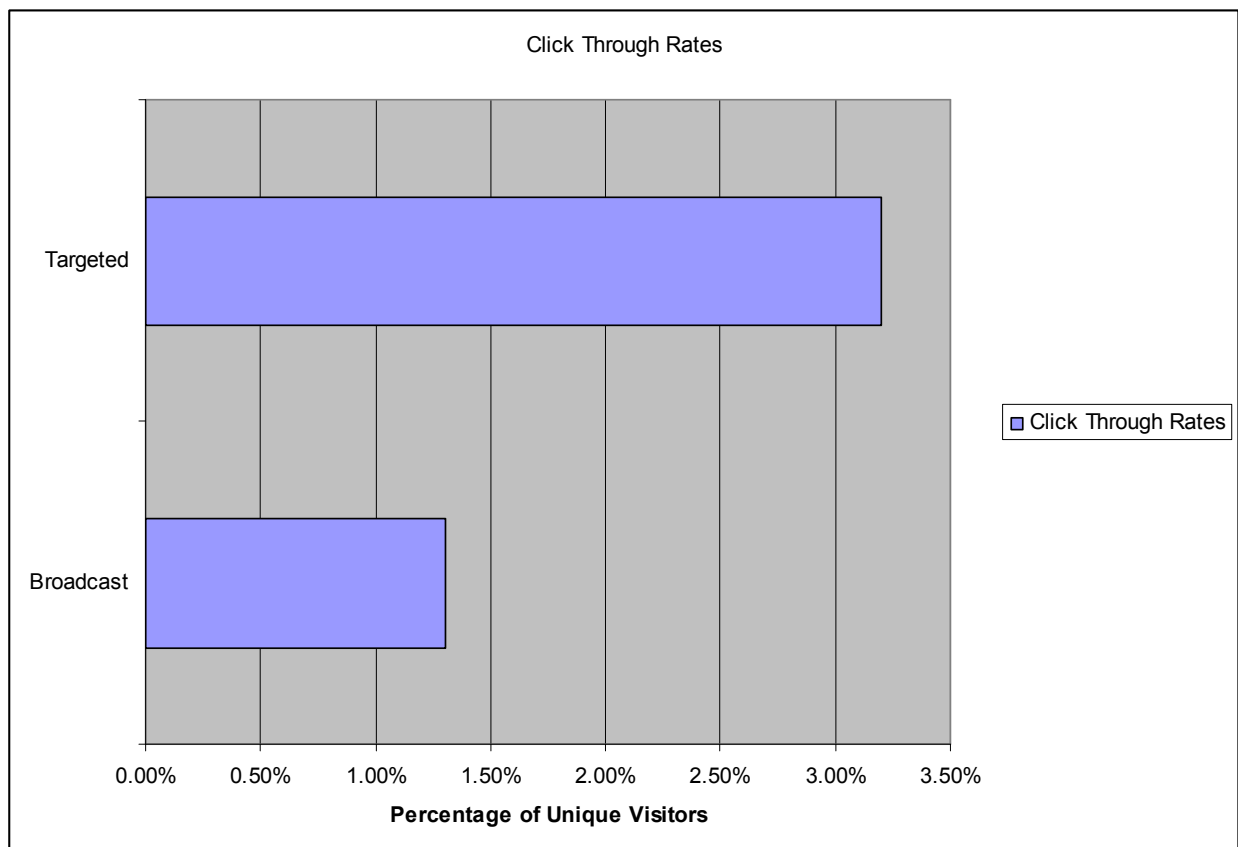|	Emails	Unique Emails	Clicks	Click Rate
Targeted Ad	6,066	1444	46	3.2%
Broadcast Ad	10,215	1966	25	1.3%

P-value = 0.000109

Figure 8: Comparison of Targeted vs. Broadcast Click-through Rates

In this data, the low p-value indicates that the measured attribute (targeting or relevance of the advertisement) was a significant factor in affecting click-through rates.

The results show how an advertisement that is related to a business results in a higher click-through rate. However, as with the advertisement timeliness results above, the appeal of the product, the graphical design of the different ads as well as the size and location are other factors that may have impacted the results. In the experiment, targeted ads were placed vertically higher to the left or right of the message content and were often in color while the general footer graphic was less "intrusive" and a smaller form factor. By analyzing the campaign data shown below (repeated from advertising timing), one can see the high level of variability between different campaigns.

Table 8: Results of Individual Targeted Ads using Click-through Rates

Campaign	Total Emails	Unique Emails	Clicks	Click-Rate
1	178	115	3	2.6%
2	56	28	1	3.6%
3	35	12	0	0.0%
4	56	19	1	5.3%
5	91	48	1	2.1%
6	29	20	0	0.0%
7	43	31	0	0.0%
8	59	9	0	0.0%
9	4394	734	31	4.2%
10	92	48	2	4.2%
11	4	4	0	0.0%
12	43	27	0	0.0%
13	4	4	0	0.0%
14	1	1	0	0.0%
15	151	61	1	1.6%
16	17	8	0	0.0%
17	813	275	5	1.8%

Some campaigns generated click-through rates of four and five percent while other campaigns were highly ineffective, even with the assumption that all ads were relevant in some way. The variations of these advertisements, the types of events and products they are promoting is outside

the scope of this analysis but an area for future research.   Disregarding the entries where no clicks were captured (primarily due to a lack of emails being sent by those users), even poorly performing targeted ads did better than the overall broadcast ad showing that targeting within this medium can be an effective strategy.

8.0 Managerial Conclusions

The data analyzed above can help managers use email, a widespread medium, to add additional organizational messaging value to a communication channel that is already very popular and fundamentally integrated in daily business operations. While traditional email advertising through newsletter or database marketing approaches increases the quantity of email, this approach supplements personal content with organizational content to either enrich or distract the recipient.

As expected, the data suggests that targeted advertising results in a much greater impact than broadcast advertising. The importance of providing relevant ads can be further refined by an organization analyzing their outbound email traffic and segmenting those recipients by sender, department, recipient domain, or other mechanism that is matched to the advertising campaigns being generated. While this analysis focused on relevant ads oriented by industry, it's likely that ads can be further targeted and segmented based on which department they interact with. For example, sales prospects can be sent a different campaign than existing customers or company suppliers.

An interesting conclusion was that frequency of a campaign did little to impact the click-through rate. Over 50% of the recipients who clicked on the ads did so the first time they saw the campaign and over 75% of those who clicked did so within the first five touches. One can conclude that timely campaigns will result in most of the click-through.

There were a number of clicks where ad campaigns were clicked on after a large number of impressions were generated. A similar result was also obtained where sometimes ad campaigns were clicked on sometimes a week or two weeks after the email sent. The conclusion from this behavior is that recipients are either using the ad as an online bookmark where they can retrieve a past email and click on an ad, or finding that a particular ad is not relevant for them during earlier impressions and later becomes applicable. While impressions were primarily used as a benchmark in this analysis to understand click-through rates, the results show that impressions are making a noticeable impact on recipients, even when they are not actively clicked. In some cases, emails from three weeks earlier were retrieved and clicked-on which implies that ad campaigns are not only valuable in real-time, but relationship-based email advertisements are stored and later retrieved when needed. Many companies use the signature concept regularly to ensure that they can easily be contacted via phone or fax as well as email. With embedded ads, the value of a signature to the organization goes up significantly since these impressions are stored and later retrieved by a significant number of recipients – stored emails become a repository for a company's ads.

Timeliness of an ad was not found be a dominant criteria. My original hypothesis was that ads that were more recent would generate higher click-through rates and older ads would become

obsolete to recipients. What the research showed is that timeliness had little impact and more recent ads actually had <u>lower</u> click-through rates. However, the one-to-one comparison of banner advertisement is somewhat problematic in my analysis since graphical design and promoted events differed. It's likely that those variants were bigger contributors to the click-through rate (i.e. appeal of the ad or appeal of the event) than the recent nature of the ad.

A valuable insight in the data is that advertisements for internal recipients were much more effective than external recipients (on a domain basis) and that internal based advertisements can be a valuable tool for employee communication.   Reinforcing a mission statement, communication from sales to engineering, announcing internal company events, and recognizing key employees are tasks that are often done using corporate newsletters, bulletin boards, or email blasts. An employee-of-the-week or other internal-advertisement can extend or reinforce this communication methodology through daily relationship-based emails that are targeted to the internal organization.   Since internal employees clicked on context-relevant ads that were designed for an external audience in my study, it's likely that reinforcing advertisements that are received by recipients can also be helpful in a complete relationship-based email strategy.

9.0 Future Areas of Research

In the scope of this research three negative factors for relationship-based email need to be considered. The analysis primarily looked at what percentage of unique recipients found the information useful enough to click-through the link. While this percentage clearly saw value, the negative impacts of receiving "bloated email" are not captured. Since relationship-based email is

not communication that can be opted-out like traditional database or newsletter email, the number of individuals who dislike the additional content is not captured in this analysis.

Another area that impacts the number of impressions is the increased number of messages that are received and responded to through text-based handheld devices. While newer devices like the iPhone enable HTML-based, graphical communication through electronic mail, many blackberry and other handheld devices continue to transmit the text-based component of email messages. It's unclear how this practice impacts impressions and this perspective is left as an additional research area.

A third area where use of relationship-based advertising can impact business operations is through the increased message size that occurs from embedded graphics within email. While many consumer email providers have radically increased mailbox size, mailbox size limits are an expense borne by the recipients and having content that adds relatively little email received on a daily basis could cause emails to be stored less often or require new technology solutions to deal with this aspect.

Notes

[11] United States, CAN-SPAM Act of 2003, Section 3.17

[2] The First Network Email, 17 Jan. 2008,

        <http://openmap.bbn.com/~tomlinso/ray/firstemailframe.html>.

[3] Charles W. Moore, "Eudora 5.0 E-Mail Client Reviewed," 17 Jan. 2008,

        <http://www.applelinks.com/mooresviews/eudora5.shtml>.

[4] Erik Larkin, "Who Best Safeguards the Privacy of Your Web Mail?", *PC World*, 17 Jan. 2008,

        <http://tech.yahoo.com/gd/who-best-safeguards-the-privacy-of-your-web-mail-/203500>.

[5] Riley, Duncan, "2007 In Numbers: More People Using Yahoo Mail This Christmas Than

        Gmail", *TechCrunch*, 25 Dec. 2007, 17 Jan. 2008,

        <http://www.techcrunch.com/2007/12/25/2007-in-numbers-more-people-using-yahoo-

        mail-this-christmas-than-gmail/>.

[6] "Google to offer free e-mail with 1GB in storage", *MSNBC*, 31 March 2004, 17 Jan. 2008,

        <http://www.msnbc.msn.com/id/4641298/>.

[7] "Thirty-One Privacy and Civil Liberties Organizations Urge Google to Suspend Gmail", (San

        Diego, CA), 19 April 2004, 17 Jan 2008,

        <http://www.privacyrights.org/ar/GmailLetter.htm>.

[8] Duncan Riley, "2007 In Numbers: More People Using Yahoo Mail This Christmas Than

        Gmail", *TechCrunch*, 25 Dec 2007, 17 Jan 2008

        <http://www.techcrunch.com/2007/12/25/2007-in-numbers-more-people-using-yahoo-

        mail-this-christmas-than-gmail/>.

[9] "Leading Websites Offer Facebook Beacon for Social Distribution", Facebook.com, 6 Nov 2007, 17 Jan 2008, <http://www.facebook.com/press/releases.php?p=9166>.

[10] "Pushing the envelope", *EDSf Report*, Sept 2007, 17 Jan 2008, <http://www.edsf.org/pdfs/EDSF6-5-WEB.pdf>.

[11] Email Client HTML Capability Chart, 17 Jan 2008, <http://www.emailtools.co.uk/tips/Email-Client-HTML-Capability-Chart.htm>.

[12] CAN-SPAM Act of 2003, Section 3.17

[13] Matt Haig, *E-Mail Essentials: How to Make the Most of E-communication*, p. 114, 2001

[14] Mark Brownlow, Email Open Rates Guide, Aug 2006, 17 Jan 2008, <http://www.email-marketing-reports.com/email-open-rates/>.

[15] *2007 Retail Email Marketing Study*, silverPOP, 17 Jan 2008, <http://www.bb2e.com/2007_Retail_Email_Marketing_Study.pdf>

[16] United States, CAN-SPAM Act of 2003, Section 3.17

[17] Susan Sardone, Expedia's email Strategy, OMMA, Oct 2001, 17 Jan 2008, <http://publications.mediapost.com/index.cfm?fuseaction=Articles.showArticle&art_aid=2383>

[18] Jeanne Jennings, "Making Transactional E-Mail Better Marketing Tools, Part 1", *The ClickZ Network*, 5 June 2006, 17 Jan 2008, <http://www.clickz.com/showPage.html?page=3610616>.

[19] "Worried about Deliverability? Test to AOL, Yahoo & Hotmail Accounts", 21 Mar 2006, 17 Jan 2008, <http://www.emailhead.com/2006/03/worried_about_d.html>.

[20] Ferris Research, "The Corporate Email Market 2000-2005", March 2001

[21] *Email at Work, Pew Internet & American Life Project*, p. 7, 8 Dec2002, 17 Jan 2008

<http://www.pewinternet.org/pdfs/PIP_Work_Email_Report.pdf>.

[22] Daniel C. Fain and Jan O. Pedersen, "Sponsored Search: a Brief History," 17 Jan 2008,

<http://www.business.ualberta.ca/kasdemir/ssa2/fain_pedersen.PDF>

[23] "Online Advertising Basics", 9 June 2007, 17 Jan 2008,

<http://www.dirjournal.com/articles/online-advertising-basics/#more-24>.

[24] Heather Green, "ITunes to Add Advertising, AdAge Reports", *BusinessWeek,* 24 Apr 2006, 17

Jan 2008, <http://blogs.businessweek.com/mt/mt-tb.cgi/3717.1438413364>.

[25] Erin Coker, "Tips for IM marketing success", *iMediaConnection*, 20 Dec 2007, 17 Jan 2008,

<http://www.imediaconnection.com/printpage/printpage.aspx?id=17779>.

[26] Jonathan Barsky and Lenny Nash, How important are casino loyalty clubs?

Hotel & Motel Management, Oct 2007, 17 Jan 2008,

<http://www.marketmetrix.com/en/default.aspx?s=research&p=Howimportantarecasinol

oyaltyclubs>.

[27] Michael Arrington, "A Comparison of Live Hotmail, Gmail and Yahoo Mail", 8 Feb 2007, 17

Jan, 2008, <http://www.techcrunch.com/2007/02/08/a-comparison-of-live-hotmail-gmail-

and-yahoo-mail/>.

[28] Marguerite Reardon, "Broadband providers looking for sweeter deals?", 20 Mar 2007, 17 Jan,

2008, <http://www.news.com/Broadband-providers-looking-for-sweeter-deals/2100-

1034_3-6168695.html>.

[29] "Broadband Through a Rose-Tinted Lens ", 17 Jan 2008

<http://mediacitizen.blogspot.com/2005/08/broadband-through-rose-tinted-lens.html>.

[30] FCC, "High-Speed Services for Internet Access: Status as of December 31, 2004", Industry

Analysis and Technology Division, July 2005, 17 Jan 2008,

<http://www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/hspd0705.pdf>.

[31] Duncan Riley, "2007 In Numbers: More People Using Yahoo Mail This Christmas Than Gmail", *TechCrunch*, 25 Dec 2007, 17 Jan 2008, <http://www.techcrunch.com/2007/12/25/2007-in-numbers-more-people-using-yahoo-mail-this-christmas-than-gmail/>.

[32] "Gmail's Privacy Questioned", *CBS News*, 7 Apr 2004, 17 Jan 2008, <http://www.cbsnews.com/stories/2004/04/01/tech/main609783.shtml>.

[33] Ferris Research, "The Corporate Email Market 2000-2005", March 2001

[34] Jerry M. Hunter, "The NLRA at 70: Employer E-Mail and Communication Policies and the National Labor Relations Act", *Labor Law Journal*, 1 Oct 2005, <http://www.allbusiness.com/legal/laws-government-regulations-business/976221-1.html>.

[35] Brad Fitzpatrick, "Thoughts on the Social Graph", 17 Aug, 2007, 17 Jan 2008, <http://bradfitz.com/social-graph-problem/>.

[36] "Major Social Networking Sites Substantially Expanded Their Global Visitor Base during Past Year", (Reston, VA), 31 July 2007, 17 Jan 2008 <http://www.comscore.com/press/release.asp?press=1555>.

[37] Louise Story, "Facebook Is Marketing Your Brand Preferences (With Your Permission)", 7 Nov 2007, 17 Jan 2008 <http://www.nytimes.com/2007/11/07/technology/07adco.html?ex=1352437200&en=276a58f3d2d3aec6&ei=5124&partner=facebook&exprod=facebook>.

[38] Bob Tedeschi, "Like Shopping? Social Networking? Try Social Shopping," *The New York Times*, 11 Sept 2006, 17 Jan 2008 <http://www.nytimes.com/2006/09/11/technology/11ecom.html?n=Top/News/Business/Companies/Amazon.com%20Inc.>.

[39] "Vonage Refer-a-Friend Program", 17 Jan 2008, <http://www.vonagereferafriend.co.uk/>.

[40] David Ranii, "What's a friend worth? 25 bucks", The News & Observer, 24 Nov 2007, 17 Jan 2008, <www.newsobserver.com/print/saturday/business/story/789858.html>.

[41] William McGeveran, "Facebook Retreats Somewhat on Beacon Privacy", 2 Dec 2007, 17 Jan 2008, <http://blogs.law.harvard.edu/infolaw/2007/12/02/facebook-retreats-socialads/>.

[42] Mark Zuckerberg, "Thoughts on Beacon", Dec 5, 2007 <http://blog.facebook.com/blog.php?blog_id=company&blogger=4>.

[43] Geoff, Livingston, "Lessons from the Beacon" backlash, *iMediaConnection*, 21 Dec, 2007, 17 Jan 2008, <http://www.imediaconnection.com/printpage/printpage.aspx?id=17792>.

[44] Louise Story, "Online Customized Ads Move a Step Closer", *The New York Times*, 2 July, 2007, <http://www.nytimes.com/2007/07/02/technology/02yahoo.html>.

[45] Eric Eldon, "Facebook now lets you create lists of friends for better social management," *VentureBeat* 19 Dec 2007, 17 Jan 2008, <http://venturebeat.com/2007/12/19/facebook-now-lets-you-create-lists-of-friends/>.

[46] Ari Melber, "About Facebook", *The Nation*, 20 Dec 2007, 17 Jan 2008, <http://www.thenation.com/doc/20080107/melber>.

[47] "Facebook by the Numbers", *Fast Company,* Issue 115, Page 79, May 2007, 17 Jan 2008 <http://www.fastcompany.com/magazine/115/open_features-hacker-dropout-ceo-facebook-numbers.html>.

[48] Anita Vangelisti, <u>Handbook of Family Communication</u>, Lawrence Erlbaum, p. 353-354, 1 Oct 2003.

[49] Ari Melber, "About Facebook", *The Nation*, 20 Dec 2007, 17 Jan 2008,

<http://www.thenation.com/doc/20080107/melber>.

[50] Brad Stone, "Spam Doubles, Finding New Ways to Deliver Itself," *The New York Times*, 6 Dec 2006, 17 Jan 2008,

<http://www.nytimes.com/2006/12/06/technology/06spam.html?pagewanted=print>.

[51] Wikipedia, SPAM, 17 Jan 2008,

<http://en.wikipedia.org/wiki/Spam_(electronic)>.

[52] Saul Hansell, "Postage Is Due for Companies Sending E-Mail", *The New York Times*, 5 Feb 2006, 17 Jan 2008,

<http://www.nytimes.com/2006/02/05/technology/05AOL.html?pagewanted=print>.

[53] "The Growing Global Spam Problem"

<http://www.impactlab.com/modules.php?name=News&file=article&sid=12479>.

[54] CANSPAM, Section 5.5

[55] Stas Bekman, "How SPAM Finds you: Botnets" , 15 May 2006, 17 Jan 2008,

<http://stason.org/articles/technology/email/junk-mail/botnets.html>.

[56] Brad Stone, "Spam Doubles, Finding New Ways to Deliver Itself", *The New York Times*, 6 Dec 2006, 17 Jan 2008,

<http://www.nytimes.com/2006/12/06/technology/06spam.html?pagewanted=print>.

[57] Jeanne Jennings, "Making Transactional E-Mail Better Marketing Tools, Part 1", *The ClickZ Network*, June 5, 2006, 17 Jan 2008,

<http://www.clickz.com/showPage.html?page=3610616>.

[58] Radicati Study: Growth in Email Markets – 13 Sept 2005, 17 Jan 2008,

<http://www.imnewswatch.com/archives/2005/09/radicati_study.html?visitFrom=26>.

[59] Email Client HTML Capability Chart, 17 Jan 2008,

<http://www.emailtools.co.uk/tips/Email-Client-HTML-Capability-Chart.htm>.

[60] RFC 821, 17 Jan 2008, <http://tools.ietf.org/html/rfc821>.

[61] Eddie Machaalani, "Avoiding the Spam Filters and Other Email Marketing Tips", 5 Dec 2005,

17 Jan 2008, <http://www.interspire.com/content/articles/6/1/Avoiding-the-Spam-Filters-

and-Other-Email-Marketing-Tips>.

[62] Brad Stone, "Spam Doubles, Finding New Ways to Deliver Itself", *The New York Times*, 7

Dec 2006, 17 Jan 2008,

<http://www.nytimes.com/2006/12/06/technology/06spam.html?pagewanted=print>.

[63] N. Azam, H.A. Dar, S> Marwat, "Comparative study on Feature Space Reduction for Spam

Detection"

[64] Eddie Machaalani, "Avoiding the Spam Filters and Other Email Marketing Tips", 5 Dec 2005,

17 Jan 2008, <http://www.interspire.com/content/articles/6/1/Avoiding-the-Spam-Filters-

and-Other-Email-Marketing-Tips>.

[65] Graham, Paul, A Plan for Spam, Aug 2002, 17 Jan 2008,

<http://www.paulgraham.com/spam.html>.

[66] Wikipedia, Phishing, 17 Jan 2008, <http://en.wikipedia.org/wiki/Phishing>.

[67] Vipul Ved Prakash and Adam O'Donnell, "Fighting Spam with Reputation Systems", *Social

Computing*, vol 3. No. 9, Nov 2005

[68] Anne Mitchell, "Blacklists and Whitelists and Deliverability, Oh My!", *The ClickZ Network*,

21 June, 2004, <http://www.clickz.com/showPage.html?page=3369891>.

[69] Brad Stone, "Spam Doubles, Finding New Ways to Deliver Itself", *The New York Times*, Dec

6, 2006, 17 Jan 2008,

<http://www.nytimes.com/2006/12/06/technology/06spam.html?pagewanted=print>

[70] Goldfarb, Avi and Tucker, Catherine E. Search Engine Advertising: Pricing ads to context,

June 2007

[71] Bruce M. Owen., "The Net Neutrality Debate: Twenty Five Years After United States v.

AT&T and 120 Years After the Act to Regulate Commerce". Stanford Law and

Economics Olin Working Paper No. 336, 17 Jan 2008,

<http://ssrn.com/abstract=963623>.