ADAPTIVE EXPERIMENTATION IN INTERACTIVE MARKETING: THE CASE OF VIRAL MARKETING AT PLAXO

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This case study shows how interactive marketing campaigns can be systematically fine-tuned and made more productive through adaptive experimentation. It details the use of adaptive experimentation in a viral marketing campaign at Plaxo, Inc., a company that provides Internet-based updating of personal contact information. The experiences of Plaxo highlight that even for a product that is amenable to viral marketing, growth is not guaranteed. To achieve a desired level of growth, Plaxo identified the product features that contributed to greater adoption conversion of recipients of its marketing message and improved them through continuous experimentation. To overcome potential negative side effects of aggressive viral growth, the company used a carefully crafted feedback loop via internet alert services that tapped into the blogging community. This practice allowed management to better understand negative perceptions of the product and take timely corrective actions.

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INTRODUCTION

One of the virtues of direct marketing is the ability to undertake some degree of experimentation with test mailings. This case study of Plaxo, Inc., an Internet service that updates changes in personal contact information across users' electronic address books, shows how continuous adaptive experimentation¹ focused on a viral marketing concept generated a tight feedback loop with its customers. This practice enabled the company to go beyond a tipping point of customer adoption into spiraling growth.

Viral marketing is a seductive concept. In a viral marketing campaign, a company uses the influence of its own customers to promote a product or service to prospective customers (Hanson & Kalyanam, 2006; Leskovec & Huberman, 2006). Viral marketing is an Internet adaptation of marketing using the word-of-mouth effects, a phenomenon originally identified by Rogers (1995) in the context of the diffusion of innovations. Viral marketing models promise hockey stick growth with little or no marketing expenditures (Jurvetson, 2000). The availability of a large network of users, coupled with a low-cost communication mechanism, drives the realization of this promise. Hotmail is one of the earliest cited examples of a successful viral marketing campaign (Montgomery, 2001). Viral marketing used to be restricted to online companies, but it is now increasingly used by marketing managers at Fortune 500 companies.² However, what seems less understood is that most viral attempts are likely to fail (Wilson 2000). Unless a viral engine reaches a point of "internal combustion," the effort is not likely to generate sustained growth (Gladwell, 2000).

This article takes the reader behind the scenes at Plaxo, Inc. We collected information by interviewing managers and examining the company's archival

records, including its patent applications. Due to this unique access, we are able to piece together the sequence of events behind Plaxo's successful viral marketing campaign.

Plaxo launched its product with a viral marketing campaign that ultimately attracted 5 million users in 3 years. However, although Plaxo's product is amenable to viral marketing, the company quickly learned it did not guarantee high growth. Months after a launch and a brief spurt in growth, daily adoptions dropped to just a handful of new users per day.

Given lackluster growth and a declining cash position, Plaxo used a viral growth equation concept and an experimentation process for optimizing its "viral engine." The equation helped explicitly identify features of the product that impact viral growth. Experimentation and natural selection were used to improve product features that impacted viral growth. This highly reasoned approach raised the viral index beyond a "magic" threshold and helped the company move beyond a tipping point in its market. Within 3 months of implementing the concept, its user growth increased to a desired level of 5,000 new users per day.

However, as the viral engine took off, it set off red flags among the Internet community. Criticism of Plaxo in blogs, chat forums, and press articles tarnished it as an invasion of privacy and a generator of spam. It seemed that Plaxo had become like the myth of the Ebola virus, growing so aggressively that it was in danger of killing its hosts. At that point, Plaxo was faced with a painful dilemma, abandon the viral approach or ignore the negative press, risking further damage to its brand.

In the end, Plaxo found a way to strike the right balance between spiraling viral growth and being a good net citizen. The company hired a privacy officer to get a fresh perspective and to investigate the privacy concerns that naturally occur with an address book updating service. Plaxo changed product features to moderate viral growth and established an active outreach program to turn its critics around.

The next section describes the problem of managing contact information and Plaxo's solution. Following that, the product launch is discussed together with

¹ The term "adaptive experimentation" is defined in the AMA Marketing Dictionary as an approach (and philosophy) for management decisions, calling for continuous experimentation to establish empirically the market response functions.

² Burger King's The Subservient Chicken and Coq Roq, Ford Motor Company's Evil Twin campaign, Heinz's Ketchup Against Tomato Cruelty campaign, McDonald's "McRib Farewell Tour," Office Max's Elfyourself campaign—see http://en.wikipedia.org/wiki/Viral_marketing for many examples of major corporations moving into viral marketing campaigns.

the development of the viral equation and its implementation. Data on viral growth is presented, followed by an analysis of the negative effects of rapid viral growth and how Plaxo learned to strike the right balance. In closing, the article highlights some key lessons learned.

CONTACTS JUST KEEP ON MOVING

In 2001, Todd Masonis and Cameron Ring were roommates at Stanford University. They saw the need for a service to update e-mail addresses and other contact information that many individuals were struggling to maintain on their own computers. They found that many of their own personal contacts were constantly out of date as college friends graduated, took jobs, got married, and frequently moved.

Maintenance of up-to-date contact information between friends, family, business associates, clients, and customers has always been a challenging task. In a typical year, most people change at least some item of contact information such as a phone number, a fax number, an e-mail address, or a physical address. One study indicated that in a typical year, approximately 35% of Internet users change an e-mail address and 33% of mobile phone users change one of their numbers (Weidlich, 2000). Also, approximately 40 million people change physical addresses in a given year. Furthermore, out-of-date contact information leads to losses of friendships or business opportunities for productivity and revenue. Hence, a self-updating address book appeared to be a desirable service.

Services Based on Symmetric versus Asymmetric Networks

In 2002, several conventional services did provide online storage and maintenance of contact information. However, these services were only able to provide updates to the contact information of other users of the same service—a situation where the value of the service depended on the size of the installed customer base of the service (Shankar & Bayus, 2003). Plaxo management termed such services “symmetric,” in that they required both parties of the information exchange to be members of the service network. Another crucial issue with these conventional services was that they required the user to switch from their current address book to the one provided by the service.

This step involved considerable switching costs for new users.

The founders believed that the symmetric nature of these existing networks limited their initial value. In turn, that limited value inhibited rapid growth. Therefore, the lack of rapid growth meant that the networks could not support their value proposition. Instead they tended to fall into disuse and ultimately fail.

The founders thus saw the need for a system that (1) does not require membership in a private network as a prerequisite for providing substantial benefits, (2) does not impose significant switching costs on adopters, (3) increases the value of its service by rapidly acquiring new members, and (4) provides a global address book of members *and* nonmembers.

Plaxo used e-mail to create an asymmetric updating service. In the Plaxo system, a user initiated update requests using e-mail. Since e-mail traverses proprietary networks, it enables updating across asymmetric networks. The melding together of a proprietary network and other networks using e-mail differentiated Plaxo from previous approaches.

The inherently viral property of the Plaxo service suggested that viral marketing would be a good fit (Kempe, Kleinberg, & Tardos 2003). In 2002, the Plaxo management team decided that instead of paid advertising, a viral campaign would establish the product and grow the user base. The company reasoned that as Plaxo users initiate update requests to contacts in their address books, they would expose and potentially convert these contacts to use Plaxo.

WE HAVE BUILT IT. WILL THEY COME?

Plaxo launched its service with a PR campaign. Next, attention was focused on seeding the network from the “top” (Weidlich, 2000; Kempe, Kleinberg, & Tardos 2003). Venture capitalists, who had big Rolodexes and were considered influential, were signed up as the first users of the product.³ When

³ This relates to the issue of effective product sampling to introduce a new product and generate word of mouth. Jain, Mahajan, and Muller (1995) conclude that target sampling to opinion leaders should be more effective than neutral sampling.

FIGURE 1

New Users per Day

these venture capitalists became Plaxo users, they sent out e-mails requesting updates to the contacts in their address books.

Figure 1 graphs new users gained per day over the first 6 months after the launch date of the product. As can be seen, there was a spike in new users that accompanied the product launch. However, this spike in new users soon dropped to a trickle. As people returned to work in January, there was another brief spurt in new users. But this soon settled down to an average of 50 new users per day. At this rate, the company would acquire only 18,000 new users per year. Viral adoption of the product would not meet Plaxo's expectations, and Plaxo might never reach the tipping point (Gladwell, 2000). Management was left wondering whether the initial strategy to rely on viral marketing was flawed.

THE VIRAL EQUATION

The management team decided to take a closer look at their execution of viral marketing. Intuitively, it seemed that as long as every new user was able to bring at least one other new user, the user base would continue to grow. The number of new users that a current user could bring to the user base, in turn, depended on the number of update requests sent out by the user (N) and the conversion rate (Cr) of those

requests into new users. This intuition was formalized into the following equation:

$$\text{Viral Index} = V = N * Cr \geq 1 \quad (1)$$

This simple equation proved to be a powerful diagnostic for Plaxo managers. The Viral Index V indicates the relative size of each new generation of customers compared to the previous period. For example, when $V = 1.1$, each new generation of customers is 1.1 times the size of the previous generation. When $V < 1.0$, each new generation is smaller than the previous one and the number of new customers eventually goes to zero. V is indeed a magic number, and $V = 1$ a magic threshold. In an Internet marketing context, the viral equation can be implemented by regularly collecting information on N and Cr from the company's information systems. Managers at Plaxo calculated V at regular intervals and thereby monitored the traction of the viral engine.

We can confirm that viral growth requires by $V \geq 1$ generating cumulative adopter curves for different values of V . The cumulative adopter curve can be generated using N and Cr in the viral equation.⁴ Let us suppose that on average each Plaxo user sends out

⁴ Godin (2001) provides a similar example in the context of a greeting card company.

FIGURE 2

Graph of Cumulative Number of Adopters

update requests to 5 people ($N = 5$). Suppose also that each recipient of an update request has a 50% chance ($Cr = 0.5$) of signing up to use the service. In this example, $V = 5 \times 0.5 = 2.5$. If Plaxo starts with 10 people, then the size of the successive generations of new adopters and their activities are as follows:

Generation 1: 10 new users sign up and send 50 update requests

Generation 2: 25 new users sign up and send 125 update requests

Generation 3: 63 people sign up and send 315 update requests.

Notice that the second generation is 2.5 times the first generation and that the third generation is 2.5 times the second. This is consistent with a V of 2.5.

Figure 2 uses this approach to generate and graph data on the cumulative number of new customers for each time period based on four different viral equations. For $V = 0.99$ the cumulative growth curve peaks out and growth stalls. This would be the case for all $V < 1$. For $V = 1$ the user base grows, but in a linear fashion. For values of $V > 1$ we see nonlinear growth. In fact, even for a value of $V = 1.01$, which is barely greater than 1, we get exponential growth.

In this sense $V = 1$ is indeed a magic threshold. Finally, Figure 2 shows the difference between two curves, both with $V = 1.1$, but one with $Cr = 0.202$ (20.2%) and the other with $Cr = 0.35$ (35%). Even though the viral index is the same for both curves, the curve with a higher Cr grows much faster, indicating that the conversion rate is very important.

This viral equation is very simple. It does not explicitly model more detailed effects such as clustering or the possibility that an e-mail today might result in a lagged conversion over several time periods into the future. However, even with this simple equation, it is possible to forecast the number of new users that sign up in each successive generation due to referrals from current users. This forecast would be analogous to the number of new adopters due to imitation effects in the Bass new product diffusion model (Bass, 2004 [1969]).⁵

⁵ Following Mahajan, Muller, & Bass (1995), if $a(t)$, the number of new adopters at time t , is given by

$$a(t) = p[m - A(t)] + \frac{q}{m} A(t)[m - A(t)]$$

where p is the coefficient of innovation, m is the total number of potential adopters, $A(t)$ is the cumulative number of adopters in time t and q is the coefficient of imitation. The second term in the equation is the number of new adopters in time t due to internal influences or imitation effects. This is analogous to the forecast provided by the viral equation.

However, Plaxo management focused on using the viral equation as a tool for assessing alternative page treatments, the focus of this case study.

LINKING THE VIRAL EQUATION TO PRODUCT FEATURES

This decomposition of viral growth was a powerful breakthrough for Plaxo. It allowed management to focus on the product features that influenced N and Cr . Figure 3 links the two key metrics in the viral equation to different product features. The viral marketing problem was transformed into a product feature and design problem—aspects under the control of management.

Figure 4 is “The Address Book Status” screen that motivates the user to send out e-mails (Phelps, Mobilio, David, & Raman, 2005) for contact update information. It provides a crucial statistic, namely the percent of contacts that are currently out of date. This screen also informs the user with notification of any pending update requests and the status of these requests. These features serve to motivate the user and are a call to action. They influence N in the viral equation.

The “Personalizing Message” screen (not shown) affects conversion rates (Cr), which is the other crucial

metric in the viral equation. The effect is two-fold: First, it comes from a friend or associate of the individual (rather than from Plaxo), and, second, it contains a customized message that is composed directly for that individual by someone who knows him well (certainly better than Plaxo, anyway). Rogers (1995) has argued that mass media channels are relatively more important in generating awareness of an innovation, whereas interpersonal communications are important for persuasion. Hence, the persuasive value of person to person e-mails and the potential value of personalization.

The “Update Contact Wizard” (not shown) is Step 1 in Plaxo’s update sequence. A Plaxo member uses this screen to select who should be sent an update request. Users can select contacts on a “one by one” basis, but there is also a “check all” feature, the latter of which maximizes the number of update requests sent out (maximizing N).

Plaxo also has a feature that scans e-mails to find addresses in the headers and footers of e-mails. Syntax-checking algorithms are applied to eliminate invalid e-mails, and to avoid duplication with e-mail addresses already present in the address book. The edited set of e-mail addresses is presented as an additional set of contacts under the address book.

FIGURE 3
Plaxo's Viral Equation

FIGURE 4

Address Book Status

This feature provides the Plaxo user the convenience of automatically extracting e-mail addresses that are not in the address book. This set of contacts extracted from e-mail would typically be incomplete, not including other relevant information such as addresses and telephone numbers. Hence, this set of contacts would benefit significantly from an update request. From a viral marketing perspective, this feature has the powerful effect of expanding N .

While maximizing N is desirable from a viral spreading perspective, it does lead to the possibility of many inappropriate e-mails being sent out. As one of the founders points out:

There is a lot of junk in peoples' address books. By "junk" I mean people that the individual barely knows. Over time old entries may be people the individual doesn't even remember any more. When Plaxo users decide to send out update requests to their whole address book that includes e-mails to the junk part of the address list.

To offer the user a way of checking on the number of e-mails being sent out, Plaxo provided a bar chart that ranks the frequency of past communications with each contact. The frequency chart feature also allows Plaxo to capitalize on the "strength of strong ties" (Barabasi, 2003). The logic is that contacts with a high frequency of communications could be strong ties and that the update requests would potentially have a high impact on them, thereby providing a higher conversion rate (Cr).

Plaxo also provided a "Review Selected Contacts" screen (not shown) that reconfirmed to users the contacts (names and number) being updated. This allowed users to catch and fix unintended errors before they sent the update requests.

TINKERING AT THE MARGIN WITH NATURAL SELECTION

Figure 5, Screen A, shows one alternative of the "Presentation of Update Request" screen. This is the

Screen A

Staying in touch
 Todd Masonis [todd-gs43@plaxo.com]
To: Todd Test

Todd,

I'm updating my address book. Please take a moment to update your latest contact information. Your information is stored in my personal address book and will not be shared with anyone else. Plaxo is free, if you'd like to give it a try.

Thanks,
 Todd Masonis
 todd-gs43@plaxo.com

Click the buttons below to change or confirm your info

Todd Test no title	no company no work address
todd-test544@plaxo.com no web page IM: none	work: none fax: none mobile: none pager: none

Is this information correct? **Change** **Confirm**

[Why did I get this e-mail?](#) [Who will see my information?](#)

Screen B

Staying in touch
 Todd Masonis [todd-gs@plaxo.com]
To: Todd Test
Attachments: Todd Masonis.vcf (199 B)

TEST Todd,

TEST

Thanks,
 Todd Masonis

Todd Test no title	no company no work address
todd-234234@plaxo.com no web page IM: none	work: none fax: none mobile: none pager: none
Personal Information no home address	
no email no web page IM: none	home: none fax: none mobile: none birthday: none

[Click to update your info](#) → **Update**

P.S. I've attached my current information in a vcard. If you [get Plaxo](#) too, we can stay connected without the hassle of sending emails back and forth.

FIGURE 5

Subtle Differences in Update Request Screens

screen that the contact sees when he or she receives the update request. The user's information was provided in a business card format that includes reply buttons to "change" or "confirm" the information.

Figure 5 shows the subtle differences between alternative screens (Screen A vs. Screen B) for "Update Request" e-mail messages. The Screen B alternative showed a card with business and personal information and a stand-alone "update" button. These messages are examples of many more subtle changes that altered different features of the pages. Many versions of these pages were deployed simultaneously and the company used field experimentation to select the winning combination of features.

Once the contact finished updating or confirming the information, he or she is shown a confirmation page. Plaxo used this page not only to confirm that the update was complete, but also to present a message

inviting the contact to join the Plaxo service. This was the one opportunity Plaxo had to display an explicit marketing message and hence was referred to as a "sell page."

The Plaxo sell page (not shown) is crucial for viral adoption. Plaxo experimented with a number of versions of this page to discover pages with high conversion rates. As these descriptions show, many of these changes were subtle and are "tinkering at the margin." A priori, it would be difficult to determine which versions would work better. Plaxo's approach was very data driven. The company experimented with the alternative versions to see which performed better over the short term and the medium term.

Figure 6 presents a conversion rate table for different Web page versions. The company measured conversion rates over a short duration (1–2 days), medium duration (7–14 days), and longer durations

Combo Conversion Rates by Template	1-2 Day Conv. Rate		7-14 Day Conv. Rate		7-35 Day Conv. Rate		Total Conv. Rate
su_default_nlp.hdf1	0.78%	37928	1.93%	173387	1.88%	619840	2.93% 2192938
su_htmlsimple_web.hdf1	0.88%	136475	1.55%	662155	1.25%	2073468	1.98% 8064819
su_htmlsimple3_web.hdf1	0.19%	12377	1.02%	11650	0.92%	44951	2.02% 379673
su_htmlsimple4_web.hdf1	0.87%	115560	1.61%	576875	1.44%	1683112	1.81% 3284360
su_htmlsimple5_web.hdf1	0.67%	13937	1.12%	75152	1.06%	212550	1.25% 319162
su_htmlsimple_footer_noadd_nobanner_web.hdf1	0.47%	6528	1.33%	18449	1.33%	18449	1.15% 48518
su_htmlsimple_footer_noadd_web.hdf1	0.78%	4382	1.39%	16169	1.39%	16169	1.18% 44832
su_htmlsimple_footer_web.hdf1	0.34%	6116	1.23%	16116	1.23%	16116	1.06% 49633
su_default_aol.hdf1	0.37%	2414	1.03%	12186	0.84%	37778	1.07% 102845
su_htmlsimple_aol.hdf1	0.23%	7033	0.40%	41119	0.36%	117479	0.53% 385866
su_htmlsimple3_aol.hdf1	0.36%	276	0.30%	328	0.29%	2049	0.61% 11875
su_htmlsimple4_aol.hdf1	0.16%	6796	0.49%	36678	0.43%	104433	0.52% 194136
su_htmlsimple5_aol.hdf1	0.23%	882	0.46%	4106	0.45%	11938	0.45% 19362
su_htmlsimple_footer_aol.hdf1	0.41%	246	0.16%	1248	0.16%	1248	0.36% 3312
su_htmlsimple_footer_noadd_aol.hdf1	0.82%	243	0.23%	878	0.23%	878	0.33% 3074
su_htmlsimple_footer_noadd_nobanner_aol.hdf1	0.60%	334	0.69%	1018	0.69%	1018	0.48% 3120

FIGURE 6

Conversion Rates for Versions of Web Pages over Different Time-Frames

(7–35 days). For these Web pages, conversion was measured based on the degree of accomplishment of the intended purpose of each Web page. For example, the “Presentation of Update Request” pages were intended for users to request updated information via e-mail to nonusers and possibly download the client software and launch the service. On the other hand, alternative pages for updating information were for the user to update their own contact information.

Figure 7 shows the results obtained with this reasoned experimental approach.⁶ Eventually, around May 21, 2003, the number of e-mail update requests (N) tipped. The 7–14 day conversion rate, which initially had high variability, moved above 1.0 during the week of July 2, 2003, and developed a rising trend. This demonstrates the effect of iterative experimentation on Cr.

To summarize, Plaxo found that its viral engine did not grow automatically. Management developed a viral equation to identify the various product features⁷ that would affect the components of viral growth. Management then took a very data-driven, adaptive-experimentation approach to select among various versions of product features.

AGGRESSIVE GROWTH CREATES A BACKLASH

The infamous Ebola virus does not spread more widely because it kills off its host too quickly. In an analogous way, a reduction in trust of the Plaxo service might threaten to kill off new adoptions, which might stop the viral spread much as in the Ebola syndrome. Aspects of the Plaxo product, the viral model, and the environment combined to create trust problems for Plaxo.

In reality, Plaxo was a proxy, collecting information on behalf of its users. It was important to make sure that nonusers had the perception that they were updating their friend’s address book, and not Plaxo. However, frequent exposure to Plaxo messages and branding started to have the unintended effect of creating the wrong impression. As the founders explained:

⁶ See Montgomery (2001) for an extended analysis about applying quantitative analysis on the Internet.

⁷ Rosen (2000) identifies product features that people “buzz” about.

FIGURE 7

The Growth in the Number of Update Requests

Where the viral model can go wrong is when you get numerous requests coming close together with the same Plaxo branding on the messages. Then the nonusers start feeling that they are updating Plaxo when they really only want to update their friend.

Thus the viral engine can be too aggressive and stimulate too many outgoing e-mails. At first thought, this might be stimulating the nonuser to join Plaxo, but actually, in some instances, it serves instead as motivation to *not* join the service.

One blogger suggested that since Plaxo did not seem to have a revenue source, the company must be selling personal contact information to third parties. Other companies such as Gator, at the time, were being accused of doing this. Figure 8 provides an example of a negative blog.

Unfortunately for Plaxo, an e-mail asking for personal contact information is a key tactic for an identity thief. In fact, a special term, “phishing” (as in “fishing for

Plaxo is a mean system and should not be supported. It requires you to "opt out" separately for every person who might Plaxo you. That is ludicrous! There should be a law that requires a "global opt out" option. I've received many Plaxo requests and they are almost all from people who've never personally e-mailed me, let alone taken time to talk to me. Why on earth do they need my contact information I don't know. Especially because it's not hard to find. Plaxo is a very selfish, egocentric way to run one's personal world. It's basically a spam system fueled by vanity and self-importance that bludgeons people into participation. That's almost as bad as Google holding a cache of the entire Internet but not allowing anybody to scrape its pages. There's a simple rule: Do to others as you would have them do to you. Plaxo and Google have launched a new morality: Be so powerful as to get away with stuff that nobody can afford to let you not get away with. Oh, may you crumble and I tread on your ruins and celebrate with the free people we shall all be. I think these corporations are all nests for demons, empty shells, vehicles for eliminating responsibility, genies who have all the rights of humans with none of the moral responsibilities. Corporations - you will serve mankind in hell as the self-destructive machines that consume all wicked fictions. Thank you, and With best wishes.

Posted by: [Andrius Kulikauskas](#) | November 3, 2005 07:56 PM

Same thing happened to me this week. Someone asked me to update my info, and when I did, holy crap, it sent it to everyone I'm linked to and it's been too long for me to know who that is. And since I had changed some stuff I wouldn't have changed if I had known it was being transmitted to the Pope and his wife, I was a bit chuffed as well.

Posted by: [jeneane](#) | November 3, 2005 11:35 PM

FIGURE 8

Examples of Negative Blogs

information”), has developed to describe the practice.⁸ Therefore, when there are a number of Plaxo e-mails being sent, it is easy to get apprehensive that someone is phishing. Even if the e-mail is from a trusted contact, the information might still be hijacked by someone surreptitiously reading that e-mail. With concerns of identity theft on the rise at the time of the Plaxo launch, this concern was being magnified.

Plaxo also sent tracking information to users to convince them to join. This inadvertently created a perception of a violation of privacy. As the founders explained:

In the update that we used to send, the update request said something like “You have received 11 update requests. You should join Plaxo, and then you wouldn’t have to do all this updating.” But we learned that this just turned off the nonuser all the more because we were telling them that we kept track of how many messages they were getting. It came across as very *big brother*.

⁸ Wikipedia defines phishing as “a form of social engineering, characterized by attempts to fraudulently acquire sensitive information, such as passwords and credit card details, by masquerading as a trustworthy person or business in an apparently official electronic communication, such as an e-mail or an instant message. The term phishing arises from the use of increasingly sophisticated lures to “fish” for users’ financial information and passwords.” See www.wikipedia.org. Accessed February 26, 2006.

Plaxo’s original approach was to maximize the number of outgoing e-mails to stimulate the most growth. However, this approach created the perception of Plaxo as a spam generator. The founders explained:

When someone leaves a company they often send out their updated contact information. With Plaxo, the updating is so easy that far more contacts are included. Some sales person might have 5,000 individuals on their contact list, so imagine what happens if they change a cell phone number and decide to update everyone in the list with that information. Some of those 5,000 contacts are not going to even remember the person.

Nonusers can get annoyed because they get little perceived value from their updating efforts. This is exacerbated by the frequency of requests and heightens the perception of these requests being spam-like. Plaxo messages can also cause a workflow diversion. Many people attack their e-mail stream with a “get through it” attitude. Going through the whole updating process during an e-mail session heightens the perception of spam, it being an unwelcome interruption at that time.

STRIKING THE RIGHT BALANCE

In November, 2003, Plaxo hired a privacy officer. His assignment was to build trust among the community. The key actions taken by the privacy officer

included toning down the product features, providing a netiquette policy, addressing security concerns, and better clarifying the privacy actions and then communicating the new policies quickly and broadly.

Among the product changes was a modification to make the contact wizard less aggressive. In the initial design, when the software was installed, the “update contact wizard” was automatically launched. The initial screen came up with all the contacts highlighted and a button encouraging the user to update contacts. As users quickly went through the steps, the system would blast out an e-mail to everyone in the address book; often hundreds of messages. While this is very viral in terms of maximizing N in the viral equation, it can cause trust issues (and the Ebola syndrome) in the long run. In the newer versions of the software, this “send all” option was removed. Instead, a chart was added to inform the users of how frequently they had been contacting each person in their address book. The user was then expected to select those at the top of the frequency-of-contact list, individuals to whom they would have strong ties.

The company also developed a policy on “proper netiquette for Plaxo members,” trying to encourage them to maintain proper empathy for their contacts as they sent out update requests. Members were advised to (a) not publicize a business or event on Plaxo, (b) send update requests only to people who clearly know them and would want to receive their information, (c) personalize the update request, (d) make sure to provide plenty of information about who the requester is, and (e) respect others’ privacy and not bombard them with multiple update requests.

The company developed a “privacy and security” page, along with a privacy comparison matrix. The sell page also was changed to contain a statement to the effect that “Plaxo is very concerned with your privacy.”

To counter phishing fears and to provide a secure environment, the company implemented several security services (e.g., VeriSign and eTrust) and began to state all this clearly and often on the Plaxo Web page, to the bloggers, and in the update request e-mails themselves. The messages also informed users that privacy policies are enforced by the FTC and that not following them would lead to federal prosecution of Plaxo.

The privacy officer became very active in the blogosphere, in user forums, and on Plaxo’s own Web page. Web-alert services were used to notify the company immediately of negative posts. The privacy officer made it his practice to respond to these quickly. He was able to contact many key bloggers and journalists and succeeded in turning several of them from critics into supporters of the company.

Plaxo also discovered that a small percentage of users was generating the most complaints and problems for the service. These “bad apples” would send update requests to thousands of users at a time and more frequently than a casual user. Since most users would use the service responsibly, a small number of bad users would generate a huge amount of e-mail and detract from the overall value of the system. Plaxo added automatic throttling features to limit the number and frequency of update requests and proactively disabled these problem users.

These sophisticated and nuanced actions allowed the company to sidestep the Ebola syndrome. In the months following these actions, negative posts about Plaxo declined dramatically compared to the previous months. The hockey stick growth continued, with the company growing to 15 million users by August 2006.

KEY LESSONS

With the decline in effectiveness of traditional advertising, and fundamental changes in the media landscape, marketing managers are turning to Internet-based techniques such as viral marketing. One of the essential benefits of the Internet environment is the ability for continuous experimentation of “word of mouth,” but now with feedback about each contact and its effectiveness. Since viral marketing does not require any media investment, it is very tempting. However, this study suggests that viral marketing is hard work. Rather than the use of just marketing dollars, it requires ingenuity, tenacity, and attention to nuances through research.

This study provides a number of important lessons about viral marketing. First and foremost, it shows even when a product is inherently amenable to viral marketing, fast growth is not guaranteed. It may need active management. Our findings support the

arguments provided by prior work (Godin, 2001; Wilson, 2000) that managerial action can impact the success of a viral campaign. For example, Godin (2001, p. 28) notes that “it is possible to dramatically improve the chances that [an] idea virus will catch on and spread.”

Second, the fact that the readiness of the viral engine is perhaps the most important and primary aspect of any viral marketing campaign. The network should be seeded after the viral engine is known to be ready through adaptive experimentation. One road to failure, as Plaxo almost learned, is to reverse any part of this priority sequence, such as seeding the network before the product features are adequate. This priority sequence does not seem to be well appreciated in the literature (see, for example, Rosen, 2000).

The concept of a viral equation is not new. It has been articulated as a mathematical description of how a virus-like spread occurs in a social system (Granovetter, 1978, 1983; Schelling, 1972, 1978; Miller, McIntyre, & Mantrala, 1993). However, this case study shows that the viral equation can be implemented to diagnose and improve the health of the viral engine in two broad steps. First, the two key metrics in the viral equation can identify the product features that impact viral growth. Next, these features can be improved quickly and incrementally using a process of iterative experimentation.

In a viral marketing campaign, a manager should focus on customer conversion rate. Anemic conversion cannot ultimately be overcome with massive messaging. Plaxo learned that turning up the volume (high N) meets resistance and further depresses conversion creating a downward spiral. While the viral index V must be greater than the magic threshold of 1.0, this can be achieved with many combinations of Cr and N , in the short run. But for longer run success, it is raising Cr that provides for healthy growth.

In the case of Plaxo, small and subtle changes in features had a big impact on growth. An important lesson here is that managers should not underestimate the effects of “tinkering at the margin.” Quick and iterative experiments seem to be well suited to identifying improvements. This tinkering at the margin requires an extreme level of synergy between marketing and product management. In Plaxo’s case this coordination

was achieved by tasking a single individual with both product development and customer growth.

Articles on viral marketing have tended to focus primarily on how to grow the customer base. They have ignored the possibility that viral campaigns can create negative effects such as perceived violations of privacy. This case study is unique in its analysis of the occurrence and nature of negative effects. The case study shows that monitoring blog postings for negative perceptions can be fruitful. Managers should appreciate the distinct and complementary nature of the information obtained from iterative experimentation versus those from blogs. The former improves product features for growth, the latter provides the feedback loop as to how growth objectives should be balanced against negative perceptions that viral campaigns can create. As the case of Plaxo demonstrates, this type of information is useful in overcoming the Ebola syndrome in viral marketing.

Aggregate diffusion models like the Bass model are based on observing only one variable—the number of new adopters at time t . The model then partitions the new adopters into external and internal influences. Viral marketing campaigns provide direct measurements on multiple variables including, but not limited to, (1) the number of new adopters that can be tracked to external influences, (2) the number of new adopters that can be tracked to internal influences, (3) the number of messages sent by the previous cohort group (N), and (4) the Conversion rate (Cr) of these messages. Incorporating these variables into the diffusion model could be an interesting topic for future research.

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