

Advertising Pricing Models for the World Wide Web

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Introduction

The advertiser supported Web site is one of several business models vying for legitimacy in the emerging medium of the World Wide Web on the Internet (Hoffman, Novak, and Chatterjee 1995). Advertising on the Web takes on a number of forms. Currently, the two most dominant forms of advertiser-supported Web sites include *sponsored content* sites such as Hotwired, CNN, and Salon and *entry portal sites* (for example, Yahoo, Netscape, and Excite), that function as gateways to the Web and provide search and directory features to Web browsers.

The sponsorship model has attracted management attention because advertising is expected to be an increasingly significant source of growing levels of revenues in the new medium of the World Wide Web (Rebello 1996).

Sponsored sites are of interest because they are well suited to the Web environment (Hoffman & Novak 1996), yet also retain important parallels to existing media in the physical world. In theory, institutional advertising practices and metaphors may be borrowed from traditional media environments to assist initial commercial efforts. Additionally, although the online storefront model is beginning to take off, many Web managers are hedging their bets by relying on advertising revenue streams as a source of profitability for on line ventures.

Against this backdrop, firms are trying to understand the elements that make a sponsored site successful. As advertisers and marketers debate the best ways to measure and to track visits and use on commercial Web sites, most firms remain largely in the dark about the number of customers for their online offerings. The Web advertising industry currently lacks standards for measuring activities and use by potential customers on the Web. As a result, it is having difficulty envisioning the Web as an advertising medium. There is also no assurance that firms will be successful in generating significant revenues from Web advertising in the future, particularly as electronic commerce efforts gain momentum. Ultimately, we believe that this lack of standardization is likely to limit the long-term viability of the Web advertising sponsorship model.

The lack of standardization exists on four fronts. First, there are no established principles for measuring traffic on commercial Web sites that seek to generate revenues from advertising sponsorship. Secondly, there is no standard way of measuring consumer response to advertisement. Third, there are no standards for optimal media pricing models. Finally, the complexity of the medium in general hinders the standardization process.

From an advertising perspective, the Web medium has some similarity to radio in that there are many different markets and they are clearly segmented theoretically. But, the standardization of the radio media buy, that is purchasing advertising time on a particular program on a particular radio station, eases considerably the process of advertising in that medium. In contrast, the Web presents a "nightmare" buy for agencies and their clients. For example, Focalink's 1996 database of over 600 commercial Web sites (Focalink 1996) showed that

there are more than 90 sizes for Web advertisement banners, that sites use many different metrics to price advertising, that there is no consistency in definitions even among the same or similar metrics, and that consumer demographic information is virtually nonexistent. In the ensuing two years, the situation has actually increased in complexity, as new advertising forms like so-called rich media evolve from static banner ads.

Despite the lack of information in this chaotic emerging environment, there is no dearth of activity. Total Internet advertising revenues approached \$2 billion in 1998 (Forrester Research 1999) and the category appears to be growing faster than traditional mass media advertising vehicles like television and print. From a comparatively insignificant \$550 million in 1997, the Internet advertising industry has now logged over two years of revenue growth. Forecasts have online advertising revenues surpassing \$3 billion by 1999 and doubling to \$6 billion by the year 2000 (Internet Advertising Bureau 1999). At this rate, Internet advertising will exceed billboard advertising expenditures (estimated at over \$2 billion) by the end of 1999 and surpass all forms of outdoor advertising (logging revenues of over \$4 billion) by the turn of the century. Note that total United States advertising expenditures were forecast to top \$285 billion in 1998 (Competitive Media Reporting 1999).

As industry forces point toward advertising as an increasingly significant source of revenues in the new online medium and with online shopping revenues expected to reach almost \$40 billion by the year 2002 (Forrester Research 1999), it is no wonder that the advertising sponsorship business model is attracting greater management attention, especially in traditional circles.

Yet, despite these heady forecasts, there still exists doubt among advertisers about advertising sponsorship as a business model. This skepticism may be traced to the fact that few have specified conclusively the precise manner in which advertising on the Web might and should further a firm's strategic marketing objectives. Clearly, standardizing the Web measurement process is a critical first step on the path toward the successful commercial development of the Web. Without standardization, ad hoc Web advertising pricing models will continue to hinder the sponsorship model as a legitimate revenue stream.

This chapter examines current practice for advertising pricing models on the Web and proposes models based on constructs that are arguably more suited to the Web environment. The policy considerations that are likely to affect the development of Web advertising standards are then addressed. Finally, the chapter concludes with some thoughts on the best means to develop optimal Web advertising pricing models.

Current Web Advertising Pricing Models

There is considerable confusion regarding the terminology currently in use for Web advertising. The first step is the development of a common vocabulary. If there is terminology from traditional media that is appropriate to use in the context of Web-based advertising, it should be employed to avoid confusion and to ease the adoption process of standards formation.

The current document forms of Web-based advertising are "banner advertisements" and "target communications." A *banner advertisement* is a small, typically rectangular, graphic image that is linked to a *target communication*.

Banner advertisements appear in various sizes, with 90 percent of banner advertisements ranging from 120 to 500 pixels wide (with a median of 460 pixels) and from 45 to 120 pixels high (with a median of 60 pixels) (Focalink 1996).

Banner advertisements typically provide little information beyond the identification of the sponsor and serve as an invitation for the visitor to click on the banner to learn more.

Target communications, in contrast may be fairly detailed, ranging from a single Web page with basic HTML to a Web page enhanced by technologies such as Java applets (a program written in the Java programming language that can be included in a Web page to enhance functionality), streaming media (real-time broadcasting of audio or video over the Internet), Shockwave (multimedia playback over the Internet), or Web fill-out forms, to a series of linked pages, or to complete corporate "Internet presence," "content," or "online storefront" site (Hoffman, Novak, and Chatterjee 1995).

Banner advertisements are a primitive type of Web-based advertising and are not likely to ultimately be the most effective new media form. However, as the most prevalent form, it is appropriate to discuss Web pricing in this context. Although additional Web-based advertising efforts will evolve, making more general recommendations that can encompass other online advertising forms yet to be developed is difficult.

Chatterjee (1998) considers banner ads to be a form of *passive advertising exposure*, in that the consumer does not consciously decide to view the banner advertisement. Rather, the banner advertisement is presented as an outcome of accessing a particular Web content page or of entering a series of key words into a

search engine. Conventional market segmentation theory would lead to the prediction that the more targeted the banner advertisement, the higher the click rate.

Advertisements placed on home pages of general-interest sites or on the entry page of a search engine would have lower click rates, therefore, than advertisements that are consistent with the content of a narrowly targeted web site or banner advertisements that are presented by a search engine in response to specific keywords (e.g., ads for Lionel trains presented every time a visitor searches for "model railroad" or for "Neil Young").

Paid links are a different form of passive advertising, and may be most simply viewed as a text version of a banner advertisement. Paid links are often incorporated in directories, which may contain large numbers of such paid links.

Chatterjee (1998) considers target communications, on the other hand, to be a form of *active advertisement exposure*, since the consumer actively decides to access the target communication by clicking on the banner advertisement, after being passively exposed to the banner. *Active advertisement exposure is under the consumer's control; passive advertisement exposure is under the marketer's control.* The distinction between passive advertisement active advertisements implies a crucial difference, therefore, between banner and target communications. Furthermore, the concept of an active advertisement is a feature that differentiates Web advertising from advertising in traditional media.

To date, most of the focus in Web advertising measurement has been upon banner advertisements, most likely because banners advertisements, by their passive nature, have many more parallels with traditional media planning than do

active advertisements. The factors that affect consumer attention to an advertisement, so-called perceptual selection, in print media should also influence perceptual selection of Web banner advertisements. These factors are closely tied to the creative function in advertising and include size, position, motion, color, and novelty (e.g. Wilkie 1990), all of which are considered relevant for predicting the likelihood that a visitor will click on a banner advertisement.

Currently, exposure models, based upon CPMs (cost-per-thousand impressions) or flat fees applied to site exposure or banner advertisement exposure, are the dominant approach to Web media pricing. Fees based upon actual "click-throughs" are also in use, in which the advertiser pays only when individuals actually click on the banner advertisement with their mouses. These click-throughs take the viewer to the advertiser's target communication. The following sections consider exposure models, click through models, and other possible pricing models. While it is premature to recommend any one media pricing model, it is important to understand the relative strengths and limitations of methods currently in use or that have been proposed.

Cost Per Thousand and Flat Fee Exposure Models

Flat fee pricing consists of a fixed price for a given period of time. Flat fees were the earliest Web advertising pricing model. Flat fee pricing may be implemented with or without traffic (the amount of individuals who visit a Web site) guarantees. Naturally, it would be advantageous to the advertiser to request guarantees of traffic level. The earliest advertising pricing approaches on the Web simply used flat fees, such as advertisement cost per month, without clear

specification of the traffic delivered in that period of time. At a minimum, accurate information on site traffic must be made available to the advertiser, so that the advertiser may evaluate alternative Web media vehicles.

Assuming accurate traffic information, flat fee prices may be readily converted into a CPM (cost per thousand exposures) model. CPMs may also be enhanced by providing "guarantees" of the number of impressions in a given period of time. The flat fee and CPM models are interchangeable, if traffic information, specifying the number of (possibly unique) visitors to a Web site, is available. If traffic information is not available, then flat fee pricing may still be used although its value is then impossible to evaluate.

In 1996, ninety percent of CPMs for Web advertising (Focalink 1996) ranged from \$10 to \$150, with a median of \$60. The average CPM online is currently \$36.6 (Adknowledge 1998). In comparison CPMs for advertising range from \$6-\$14 for national television, \$8-\$20 for magazines, and \$18-\$20 for magazines, and \$18-\$20 for newspapers (I/PRO 1996).

The ultimate challenge will be the identification of the business models that will be effective in the new Web environment. At present, the advertiser-supported business model is being driven largely by a broadcast paradigm, which has initially gravitated toward CPMs as the appropriate unit of measure. In this model, the belief is that exposure-based pricing takes into account different advertisers' response functions and represents a rational way to price advertising on the Web.

But, in fact, impression/exposure models go only part of the way because the Web is different from traditional broadcast media. The Web is based on a

many-to-many communication model and traditional media are based on a one-to-many communication model. In addition to exposure metrics, therefore, interactivity metrics are also required. The CPM approach places too much emphasis upon the banner advertisement and essentially no emphasis upon the target communication, which is the real marketing communication that the advertiser wishes the visitor to read.

In the CPM model, larger numbers of online visitors translate into Web sites which are bigger winners because the one to-many model seeks a mass audience for its message. The dangers of relying solely on exposure models means that interactive managers will be driven to scale their sites to larger, mass audiences with more homogeneous tastes, in order to attract more advertising revenue. This goal conflicts with solving the more difficult problems of how to measure interactivity and to price advertising according to the value of a consumer's interactive visit to the advertiser.

CPM and flat fee models do nothing more than simply count the number of visitors exposed to a particular banner advertisement on a particular site. But, since consumer behavior on the Web depends upon a whole host of measurable factors, including the type of site and the consumer's motivation for visiting it (Hoffman and Novak 1996), a simple tally of visits is not sufficient to demonstrate to the advertiser the value of their advertising expenditures. It is meaningless to compare directly between Web sites the number of visitors exposed to banner advertisements, without also taking these other factors into account.

Models Based on Click-Through

Advertising pricing based upon click-through is an attempt to develop a more accountable way of charging for Web advertising. The payment for a banner advertisement is based on the number of times a visitor actually clicked on it. In 1996, the fee was approximately \$0.25 per click (I/PRO 1996). Because click-through rates have been dropping, perhaps due to consumer boredom, the fee now ranges from \$0.04 to \$0.20 per click (see, for example, ClickQuick 1999).

A relatively small proportion of those exposed to a banner advertisement actually click on the banner. DoubleClick (1996) reported that 4 percent of Web site visitors who are exposed to a banner advertisement click on the advertisement the first time they see it. The top 25 percent performing advertisements in the DoubleClick Network had an average click rate of 8 percent, with some click rates as high as 12 to 15 percent. Click-through rates decline after the first exposure, falling to 2 percent for the second and third exposures, and to 1 percent or less at four exposures. Payment based upon click-through guarantees, therefore, not only that the visitor was exposed to the banner advertisement, but also actively decided to click on the banner and to become exposed to the target communication. Click-through payment may be viewed as payment for target communication exposures.

This practice is not without controversy, however. Procter & Gamble was the first to insist it would pay the Web site (Yahoo, in this case) only for the click-through by viewers rather than for gross impressions of the banner advertisements. (Associated Press, 1996). Some Internet publishers continue to feel that this pricing strategy is unfair, arguing that the click-through is at least

partially a function of the level of creativity of the advertisement and the level of interest generated in the viewer by it, which are not under the publisher's control. On the other hand, as argued above, applying only traditional media exposure models to the Web does not take into account its unique, interactive nature. Additionally, the Internet is the first commercial medium in which it is actually possible to measure consumer response, not just to assume it. Although the click-through model may not represent the optimal approach to measuring the value of interactivity, it offers a departure point from which to proceed.

Proposed Web Pricing Models

Interactivity

While payment based upon click-through guarantees that the advertiser knows that there was visitor exposure to target communications, it does not guarantee that the visitor liked the communication or even spent any substantial time viewing it. It is proposed that an additional measure of the value of an advertisement should be based upon the degree to which the visitor interacts with the target communication. An interactivity metric might be based upon the duration of time spent viewing the communication, the depth or number of pages of the target communication accessed, the number of repeat visits to the target communication, or some combination of these three elements.

Such a practice was announced for the first time in 1996 when a member of the Internet mailing list Online Advertising Discussion List (1996) posted to the list that Modem Media, the interactive advertising agency, had developed a pricing model in which its clients will pay, not for exposures or clickthrough, but

only for activity at the client's Web site. This development raised anew the controversy surrounding the best Web media pricing models, with Web publishers arguing that the problem with activity-based measures, such as click-through or interactivity, is that the Web publisher cannot be held responsible for the activity related to an advertisement. An analogy is drawn to print, with the Web publisher arguing that the print medium charges for advertisements, regardless of whether they lead to sales.

Not surprisingly, advertisers and their agencies continue to argue that, since the Web medium allows for accountability, it is possible and desirable to develop models that measure consumer behavior. In the long run, the solution will probably be found by accepting the reality that the medium and the advertisement interact and that all parties share responsibility for outcomes.

Outcomes

Ultimately, marketers are interested in outcomes, and the ultimate outcome is purchase. As Stephen Klein, former I/PRO manager, stated, "One hundred thousand people going to a site is worth something, but a site that only five people visit can be worth more if they are the right five people" (Murphy 1996).

The metrics discussed above relates to early stages of the purchase process. Banner advertisements affect the consumer's awareness and interaction with the target communication affects the consumer's comprehension and understanding. Beyond these initial stages are the marketing objectives of attitude change, purchase intention, and, ultimately, purchase.

An outcome-based approach to pricing Web advertising begins by specifying precisely the marketer's goal for the target communication. Examples of typical outcomes include influencing attitudes, motivating the consumer to provide personal information, or leading the consumer to purchase. Whatever the marketing objective, the Web provides a vehicle for integrated marketing campaigns, which allows the marketer to track and to measure the effectiveness of the advertisement.

A current example is per-inquiry (PI) advertisements. PI advertisements pay a royalty only on actual product sales and require no other payment. Consider the online affiliate programs offered by Cdnw and amazon.com, among many other advertisers. In such programs, affiliates advertise products on their Web sites that are sold by the advertiser and that the affiliates feel are appropriate to the content of their Web site. If a visitor accesses the advertiser through the affiliate's Web site and purchases the product advertised on the affiliate's site, the affiliate receives a referral fee or commission. Currently, referrals range from \$0.50 to \$5.00 or more for each lead, while commissions range from 10 to 25 percent of the purchase price of the product.

Although the pricing models most frequently applied to the Web are based on traditional, mass media models, it may make more sense to incorporate the direct response paradigm when considering outcomes.

Consider the following definition of direct marketing (Direct Marketing Association 1996): *any direct communication to a consumer or business recipient that is intended to generate a response in the form of an order (direct order), a request for further information (lead generation), and/or*

a visit to a store or other place of business for purchase of a specific product(s) or service (s) (traffic generation).¹

The concepts of "direct order," "lead generation," and "traffic generation" are immediately and obviously applicable in the many-to-many environment underlying the Web. Outcome definitions and metric developed from considering the Web as a unique hybrid of direct response and traditional communication media will lead to the optimal set of models for measurement and pricing.

Integrating Exposure, Interactivity and Outcomes

Following the creation of measurement and pricing models, it will be necessary to develop a set of integrated response measures, over time, and, possibly, over sites that relate exposure and interactivity metrics to consumer response. Exposure and interactivity metrics may take the form, for example, of purchase behavior in an online storefront, attitude change, and the number of visitors who request further information. The development of such metrics, however requires two things: 1) identified visitors, and 2) multi-site data on every Web site involved in the integrated marketing campaign. Until these data are available, the measurement of outcome remains elusive.

In addition to the metrics described above, there are several other behavioral and psychological measures that should be considered in the context of Web advertising measurement. These additional measures include: primary navigation patterns through the Web site; cross-site navigation patterns; demographic, psychographic, and behavioral characteristics of visitors to a Web

site and to specific pages within a Web site; cognitive and attitudinal measures, including flow; and visitor loyalty and repeat visits. It is anticipated that innovative future pricing models will incorporate these measures in unique ways.

Policy Considerations

When developing Web measurement standards and pricing models, a number of policy issues must be considered, including privacy and ethics. The policy considerations are particularly important because consumer protection, fraud, and deceptive claims problems are potential points of entry for government regulators into the Web marketplace.

Privacy

Although a thorough analysis of privacy issues is beyond the scope of this chapter, it is important to raise the issue in the context of Web pricing models. Networked, distributed computing environments, such as the Internet, offer unprecedented opportunities for the invasion of privacy. Information about individuals is more accessible and more easily combined and integrated than in the physical world. It is not so much that it is possible to learn things about consumers that could not be learned before, but, rather, that gaining access to such information might have been too expensive, too time-consuming, or too difficult to gather previously.

In addition, it is not clear who would be able to have access to such consumer information or what they might do with the information. In a different context, serious privacy issues have arisen regarding patient mental health information that has been entered into computer networks at the insistence of

insurance companies (Lewin 1996; Scarf 1996). This information was accessible by a class of "health information trustees," whose inappropriate use of this information in some cases has had serious and damaging consequences to consumers. A parallel class of "marketing information trustees" could potentially have access to vast databases of consumer transaction data.

In the context of Web measurement for marketing and advertising purposes, the specific issues are the information that is gathered from consumers, the awareness of consumers that it is being gathered, and the uses to which the information is put. There is a tension between the marketer's need to know information about individual consumers for the purpose of targeted marketing efforts and the consumer's right to privacy. In our opinion, the ultimate solution to this tension is the establishment of a full partnership with consumers, in which they control ownership of their demographic and behavioral data and determine the manner it will be used, if at all. This solution respects the many-to-many model underlying the World Wide Web that permits consumers also to be providers to the medium and allows consumers to remain active participants in the interactive communication process.

For a demonstration of the type of information available to marketers about visitors to Web sites, visit the Web site <http://anonymizer.cs.cmu.edu:8080/>. The "Anonymizer" site demonstrates the sort of information about the visitor that is available to the Web sites that people visit. Depending upon the platform from which the "Anonymizer" site is accessed, the information ranges from what domain you are coming from, to what kind of computer you have, to the Web browser you are using to your name and other personal details.

The approaches to privacy by advertisers that are most likely to attract the attention of government regulators are those that ignore consumers' rights and fail to enter into explicit agreements with consumers about their demographic and behavioral data.

A recent study (Hoffman, Novak and Peralta 1999) found that Web users value their privacy, particularly as expressed by visiting sites anonymously or by adopting various aliases, depending upon the circumstances of the visit.

Furthermore, users desire "complete control" over whether a particular Web site should receive any information about them. While users recognize that marketers may desire demographic and behavioral data on visits for business purposes, users do not feel that marketers have the right to sell these data to other firms. Web users seemed willing to provide demographic information, if marketers identify the information that is being collected and the uses that will be made of it. they

These findings suggest that privacy policies in this emerging medium should be driven by the unique characteristics of the medium, such as, interactivity, and the desires of its users, for control, for example, as they experience that medium (Hoffman and Novak 1996).

Ethics

Researchers are beginning to address the question of ethical behavior in the conduct of online research (Boehlefeld 1996; Duncan 1996; Thomas 1996). A key result of this research, that "informed consent" is a critical component of ethical research in many online environments, has general implications for the way marketers may approach gathering data from Web visitors. Much more specific consumer research is necessary, however, to determine the best ways to

develop and to implement such policies in commercially oriented Web environments.

"Disguised advertisements" are another potential ethical concern. Suppose that an advertiser-supported search agent site presented links to an advertiser's Web site at the beginning of a list produced by a search request for a set of keywords. In this case, while the person performing the research may believe a link appears at the beginning of the list because it is the most *relevant* to the search request, the top position of the link may be due to sponsor payments. Such practices must be made clear to users of the search agent, as they have the potential to deceive consumers and undermine trust in search agent sites.

Conclusion

The standardization of the Web measurement process is a necessary precursor to the development of optimal Web advertising pricing models. Indeed, without such efforts, the Web is not likely to achieve its full potential as a unique and revolutionary commercial many-to-many mass medium. Managers must now begin to address the issue of what the appropriate standards for Web advertising pricing models should be. The distinction between passive advertisements that are under the marketer's control and active advertisements that are under the consumer's control has important implications for the measurement and pricing process.

The best pricing models will be based on interactivity metrics. The rationale behind this argument is that the degree to which the visitor interacts with

the target communication is a better measure of the value and effectiveness of an advertisement than mere exposure.

Metrics based solely on impressions are necessary in the Web measurement process, but must not form the basis of Web advertising pricing efforts. Ultimately, what is required is a set of integrated response measures that relate exposure and interactivity metrics to consumer response. These "interactivity metrics" and "outcome metrics" must be included in any complete program for Web measurement and advertising pricing.

Further research will be necessary to identify those metrics that are most useful for judging the effectiveness of advertising, for determining the placement of advertisements, and for determining optimal pricing schemes for efficient media buys.

Our primary objective in writing this chapter is to stimulate further research and discussion and help facilitate the process of developing optimal pricing models for the Web. Because of the unique nature of the Web medium, this process should proceed as a partnership among all stakeholders in the industry, including advertisers, Web publishers, measurement, placement and auditing agencies, and consumers (Hoffman and Novak 1997). In particular, advertisers and commercial Web sites that sell advertising space must work together to measure consumer outcomes in the context of direct response rather than solely in terms of mass media exposure.

Only through cooperative effort among diverse constituents with often-conflicting needs are we likely to make progress on the rough path toward profitable commercial development.

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¹ **Direct Order** includes all direct response advertising communications – through any medium – that are specifically designed to solicit and close a sale. All of the information necessary for the prospective buyer to make a decision to purchase and complete the transaction is conveniently provided in the advertisement. **Lead Generation** includes all direct response advertising communications – through any medium – that are designed to generate interest in a product or service, and provide the prospective buyer with a means to request and receive additional information about the product or service. **Traffic Generation** includes all direct response advertising communication conducted – through any medium – that are designed to motivate the prospective buyer to visit a store, restaurant, or other business establishment to buy an advertised product or service.