

# Can Old Media Enhance New Media?

## How Traditional Advertising

## Pays off for an Online Social Network

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Allocating marketing budgets in the most efficient way remains one of the key challenges for any marketing executive. Especially in cases of online pure plays such as social networks, the trade-off between online channels (display advertising and search engine marketing) versus classic communication (television, radio, print) has been fervently discussed during the last decade. In practice, online channels are often being favored for their direct accountability in terms of cost per click. To prove the actual value of various channels, the authors present a marketing mix modeling case study examining the business impact of various communication channels and the role of other external factors that influence usage of the website.

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### INTRODUCTION AND REVIEW

Advertising spend is experiencing its biggest decline in history. Online advertising has also been affected by an expected 5.4 percent year-to-year decrease in revenue in Q3 2009 (Interactive Advertising Bureau [IAB], 2009a). Online advertising budgets, however, are expected to experience major increases in the coming years. Today, in the United Kingdom (and six months ago in Denmark), Internet has overtaken television as the biggest advertising sector by market share (IAB, 2009b).

In the academic world, the development of Internet advertising has led to a broad stream of studies that focus on the economic perspective of display advertisements (Evans, 2009) and implementation-oriented questions ranging from recall success factors (Danaher and Mullarkey, 2003) to design and implementation of banner ads (Spalding, Cole, and Fayer, 2009; Hong, Thong, and Tam, 2004). Furthermore, there is existing research on single-medium effectiveness within online advertising and comparative studies of the effectiveness of online and traditional advertising (Manchanda, Dubé, Goh, and Chintagunta, 2006; Robinson, Wysocka, and Hand, 2007; Lin and Chen, 2009, Rosenkrans, 2009).

Insights on how cross-media campaigns are using online and offline advertising to create value for brands, however, are limited. One recent study indicates potential advantages of cross-media advertising over single-medium advertising but focused on a single-medium approach that used only one online (banner ads) and one non-Internet advertising medium (print; Wakolbinger, Denk, and Oberecker, 2009).

Although these results provide very helpful insights for the single medium, a brand's success often is driven by many different communication channels—online and offline—at the same time. More specifically, companies using Internet display advertisements typically also use search-engine marketing tools. For example, display-related advertising and search advertising together accounted for more than 80 percent of the U.S. Q2 2009 online advertising revenues (IAB, 2009a).

Another factor that seems to have a major impact on the need for cross-media campaigns combining Internet and non-Internet advertising means is the type of company (pure-play Internet vs. classic “brick-and-mortar”). Looking at the specifics of Internet pure-plays from a decade ago, classic marketing communication budgets represented a major share of the total investments within a

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typical business plan of an Internet venture. At the time, J. G. Sandon, a director at Ogilvy, postulated that “you can’t build a brand simply on the Internet. You have to go offline” (Freeman, 1999). Typically, the early Internet players had been allocating 65 percent to 75 percent of their communication budgets to offline media to create awareness for their brand and drive traffic to their Web site (Freeman, 1999).

In recent years, many new pure-play ventures have been following the same approach, balancing their spend between the different varieties of online marketing and communication activities and their classic TV, radio, print, or billboard campaigns. Still, many practitioners believe that commercial pure-plays need to rely on classic channels—especially TV—to overcome the limitations of online advertising, such as the limited access to new target groups to create awareness for the brand and support of their online marketing activities (McMains and Morrissey, 2009).

Consideration of cross-media effects for Internet pure plays is significant for two reasons.

- Internet pure-plays are becoming increasingly important, accounting for almost 60 percent of e-commerce revenue opposed to multi-channels (ComScore, 2009).
- Pure-play marketers can measure the direct impact of all communication channels on registrations and other metrics along the customer purchase funnel

in a direct way. With the click-through rate (CTR) becoming a dominant form of measurement, data tracks the active response to the advertising, clearly indicating cost-per-conversion (Hollis, 2005) and, therefore, enabling a much better comparison of campaign efficiency compared to TV ratings and print readership estimates.

However, recent research has shown that assessing only the click success rate does not provide a true picture. Banner advertising can increase a site’s traffic even with low direct CTR (Fulgoni and Mörn, 2009). This brand-building effect has been at the center of many studies, first and foremost a 2008 Google study. Furthermore, CTR as a measure of success are biased as users intrinsically avoid online advertising during their Web site interactivity (Drèze and Hussherr, 2003). Following research on Web site effectiveness by Song and Zinkhan (2008), further research on online advertising, therefore, should apply a more multi-dimensional construct of success. This has been an essential imperative for the development of our dependent construct.

In addition to classic online advertising (display ads), other communication formats and activities such as affiliate programs, online sponsorships, couponing, and referrals have become everyday tools for online marketers. And search-engine marketing (SEM) has become a major area of investment for driving traffic to Web sites, building on the integral role

of search engines for online activity, trust, and buying decisions of consumers. Sponsored search-engine advertising is widely used, following the shift from mass advertising to more targeted advertising. Critics argue that such efforts are less effective compared to non-sponsored advertising (Sen, 2005). It is widely accepted, however, that sponsored search-engine advertising has positive long-term effects by increasing a consumer’s exposure and awareness of a brand or product, which eventually can lead to purchase and adoption (Ghose and Yang, 2009).

**KEY RESEARCH QUESTIONS AND MODEL**

Tools such as SEM or search-engine optimization (SEO), which ensures a top position placement in native search results, are primary examples of how the Internet has opened up new opportunities for companies to raise awareness and relevance with target groups and thereby drive sales and increase brand equity. The means to reach a relevant target group also have become more sophisticated in the past few years. Although the decision-making process for budget allocation has not changed significantly, the increase in complexity has led to confusion about how to best create efficiencies in marketing spending. Hence, efficient allocation of communication budgets to various channels—offline and online—remains a key mystery to marketers and advertising experts, including most Internet pure-plays.

For online brands, the decision to rely only on digital marketing (SEM, SEO, and banner advertising) or to invest in classic communication channels (TV, print, outdoor, and radio) often is solved by management experience and intuition. Online brand marketers must consider the following tradeoffs:

- How should we balance our investments in traditional media versus online

advertising (knowing that both can drive either direct behavior or brand-equity building)?

- How should we allocate budgets within the classic non-Internet advertising (between TV, print, radio, and billboards) when compared to Internet display ads and SEM?
- What is the absolute impact of each of these channels on user behavior on a variety of output measures (from first-time registrations to repeat sales)?

These tradeoffs have formed the guiding objectives for a major “marketing-spend effectiveness” effort we have developed for a leading international social network. Our client wanted to use advanced statistical measures to investigate actual efficiency of their communication activities. Beyond the obvious goal to increase overall efficiency, the mix model was expected to deliver concrete insights per communication channel.

On the basis of commercial data and the communication spending of an Internet social networking site, we have investigated actual business effects of various communication channels to draw general conclusions regarding the relevance of classic channels for pure-plays. This was completed on the basis of a communication-mix logic, which has been a major area of research in classical non-Internet advertising for many years (Naik and Raman, 2003; Naik, Raman, and Winer, 2005).

In our research, we did not consider any effects on key brand performance indicators, such as building brand awareness or image, or any other relevant purchase drivers (Rubinson and Pfeiffer, 2008). Nevertheless, we still were able to prove the potential brand-building success of online versus offline advertising activities based on brand-equity data that the company measures continuously. Although the

existing data series must be extended to provide more detailed insights into these efficiencies affecting early stages of the brand funnel, our conclusion briefly will address the results of this comparison.

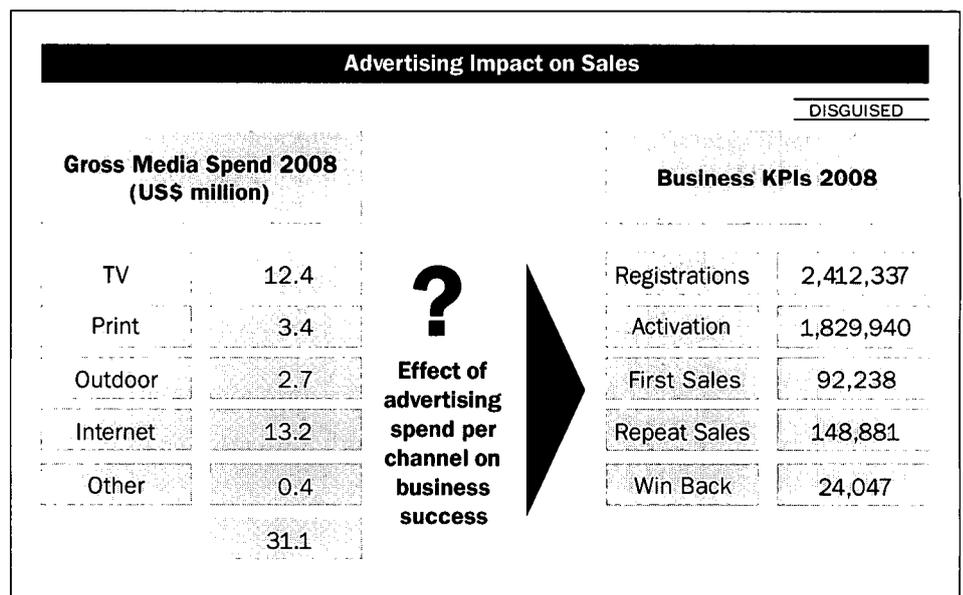
Our key objective was to understand effects on business success by using actual registrations (number of newly signed users on basic free memberships) and actual sales in Euros (number of sold premium memberships for a monthly fee) of the social network as dependent variables. By using this broad spectrum of efficiency metrics, we were able to assess not only the varying impact of different media but also how different media impact the success at different stages of the conversion funnel (Figure 1). Focusing on registrations is in line with related research on pure plays (e.g., Pauwels and Weiss, 2008).

From a basic statistical perspective, we aimed to understand how the dynamic movements of the company’s media spend over time correlated with the business key performance indicators shown below. Because many online advertising activities

were either driven by affiliate programs or acquired through bartering deals, we relied exclusively on externally measured gross media volumes (e.g., GRPs for TV or estimated gross online marketing spending based on Nielsen NetRatings data) rather than using actual investments.

The underlying data sources enabled us to analyze not only the impact of the company’s spending on their business success but also the spillover effects of competitors spending. Although these effects are well researched in the classic advertising field (Rust, Lemon, and Zeithaml, 2004; Roehm and Tybout, 2006), there has been no research into the spillover effects in classical advertising for Internet pure-plays, wherein brand awareness and differentiation typically are extremely low and, therefore, the risk of spillover effects respectively high.

In our case, the underlying data allowed us to build a valid advertising-impact time series across the relevant players, as external observations and estimations not only reflected the actual impact on the target



**Figure 1** Measuring Marketing Effectiveness against Key Business KPIs

group more accurately but provided a comparable basis across various competitors' spending.

To build a holistic and valid framework, it also was important to account for all relevant factors that have a potential moderating influence on actual sales in addition to the advertising activities across the different channels. Only then our statistical model would be able to residualize actual effects of communication activities. For this case of a social-networking platform, we decided to consider a set of relevant variables that should have an expected impact on the need for meeting people online. Specifically, we decided to account for seasonal effects, special events (e.g., highly relevant sports events drawing people to their TV sets), holiday seasons, unemployment rates (as another indicator

for general available buying power), or even such basic factors as weather conditions (sunny vs. rainy days) that also influence the likelihood of time spent in front of the PC within an online community. This leads to a very broad underlying framework encompassing all relevant factors that would influence our client's key performance indicators (KPIs) (Figure 2).

On the basis of historical data for a three-year time span for each of the independent and dependent variables, we deployed the open-source statistical package GRETL to estimate an autoregressive time-series model. Owing to the nature of the online business, all relevant business indicators could be provided as data streams with a daily frequency. The same quality was accessible for Internet marketing spend and most external factors (e.g., weather).

For monthly data points such as print-advertising spend, we applied the average daily value as a proxy or used linear regression to estimate daily development from one month to another (e.g., evolution of unemployment rate). Overall, the accessible data provided us with a statistically sufficient frequency of data points to calculate a robust model. As the industry is known to be quite responsive to communication efforts, the significance of the estimates for the beta coefficients was further supported by the high variance in key business variables (Figure 3).

**IMPACT OF VARIOUS ADVERTISING CHANNELS**

The models provided a valid overview of the impact of the company's own communication activities, activities of key

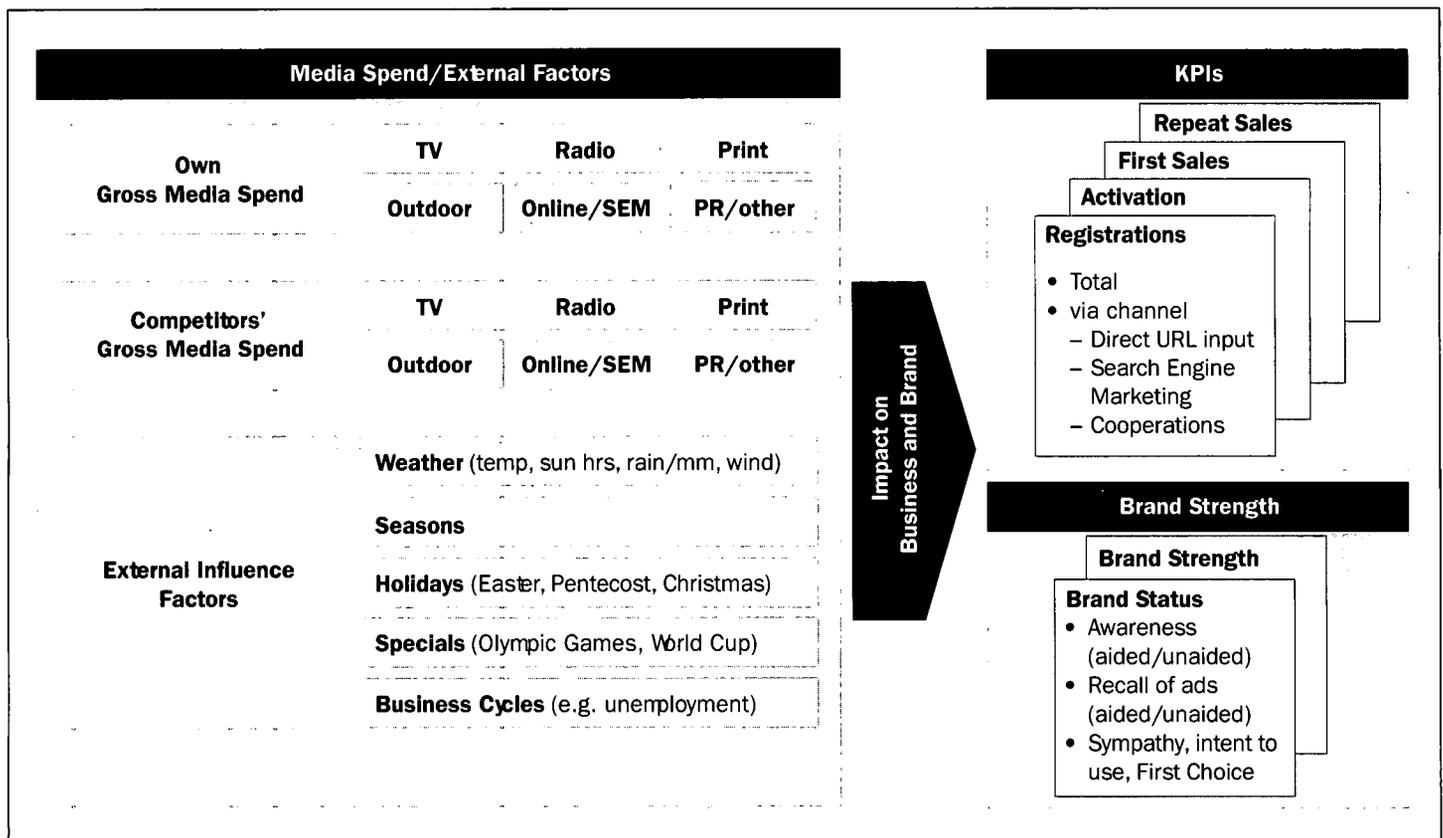
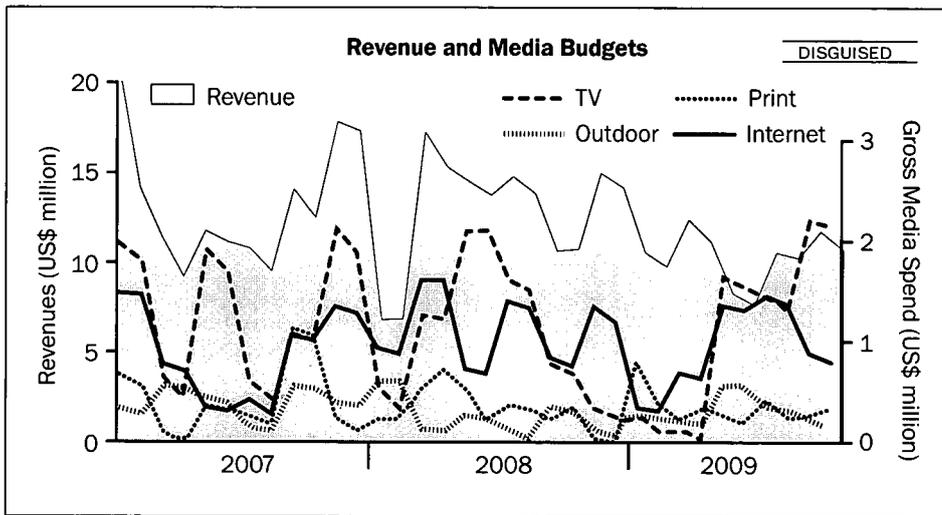


Figure 2 Underlying Model



**Figure 3** Development of Revenues and Gross Media Spending

competitors, and their effect on the external factors from registrations to actual first sales or repeat sales. Typical information criteria—such as AIC, Bayesian, or Hannan-Quinn—were used to identify the most appropriate model. Overall goodness of fit measures indicated the validity of the model (e.g., adj.  $R^2$  for modeling the entry point of the funnel with registrations was 0.93, and down-the-funnel for repeat sales was 0.67). As expected, pure communication cannot fully explain the actual behavior in the loyalty phase, as the personal perception and usage experience also drives behavior to a large degree.

By examining the impact of classic advertising channels on registrations, we investigated whether TV, radio, print, or outdoor showed a positive return on investment (ROI), generating relatively more leads and new sales than purchasing qualified traffic via standard online marketing channels.

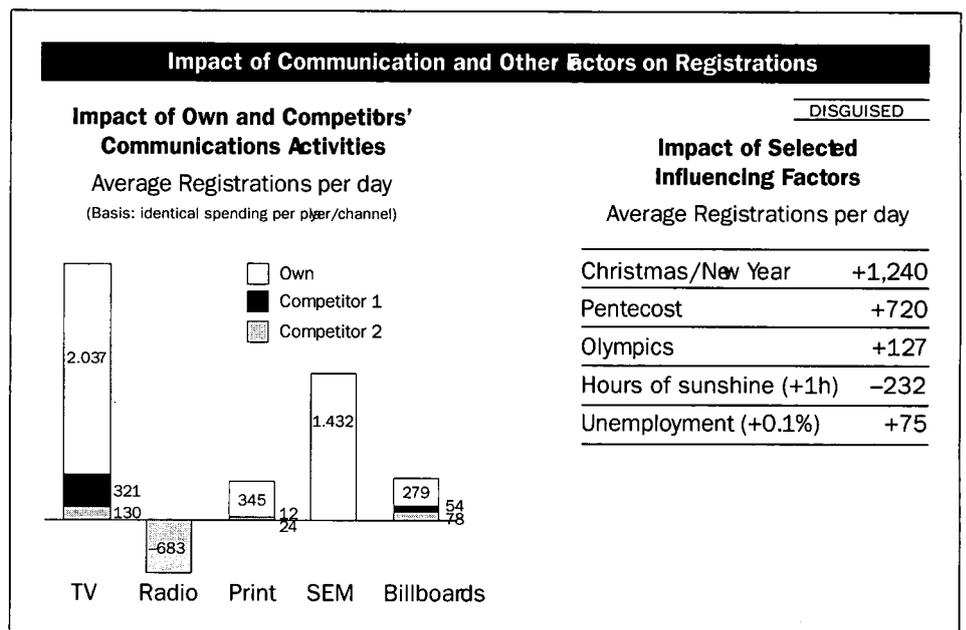
Most noticeably, it became obvious that TV campaigns have the highest efficiency levels when compared with all classic advertising channels. To account for the actual market structure, our analyses also integrated the effects of communication

activities of the two key competitors. Both competitive networks are also pure-plays of similar size and provide nearly exchangeable services (shown in Figure 4 as competitor 1 and competitor 2). Additionally, TV campaigns tend to strongly affect the success of all players in the

relevant category and, thereby, increase competitors' sales (see Figure 4). In-depth analyses showed that this effect can be reduced significantly when one company's campaigns are not being aired in parallel with a competitor's TV commercials. In contrast, print and poster both show weak efficiency levels and cannot significantly increase a Web site's traffic.

Overall, we found that classical advertising with a clear focus on TV clearly pays off and outperforms pure search-engine marketing with regards to generating new registrations. However, this only holds true until the point where the marginal utility, which follows an S-curve function, starts to diminish below what search-engine marketing (in our case, mainly Google adwords) can bring in.

Our findings also analyze the quality of the traffic generated by various channels—how often leads are being converted into registrations and then, most important, into EBIT-relevant subscriptions at later stages of the funnel. The



**Figure 4** Impact of Communication Channels on Registrations (basis: identical spending)

**To build a holistic and valid framework, it also was important to account for all relevant factors that have potential moderating influence on actual sales.**

trade-off calculations have then been based on the total generated value per US\$ spent on a specific channel compared to the cost per funnel stage when buying traffic.

This analysis showed that, though TV brings in more users onto the site and fills the registration pipeline, conversion is much weaker; the same budget leads to 42 percent more registrations (2,037 vs. 1,432) through TV (see Figure 4). We found that conversion to revenue-affecting stages down the funnel to first and repeat sales was much weaker in comparison (overall 97 vs. 210 new or reinstated subscriptions). Therefore, data proved that SEM sends more product-affine users to the platform, which leads to twice the amount of cash-affecting memberships. Hence, SEM shows approximately three times the conversion success from a registration to a paying membership than TV leads do (in other words, a conversion rate of 5 percent for TV as compared to 15 percent for SEM). This is in line with findings from the automotive industry, wherein TV advertising also has proven to be effective especially in terms of upper-funnel metrics (Briggs, Krishnan, and Borin, 2005).

Another key finding included the opportunity to outpace general efficiency levels and competitors when one brand can occupy one classic channel, such as radio, exclusively within an industry. By doing so, the advertisement shows a singular positive effect on the advertiser and, moreover, strongly affects registrations and sales of other players in the industry negatively. In our case, competitor 2 exclusively used radio for its special potential

to convey an emotional and a local appeal. This affected our client's registration heavily by decreasing average registrations leading to 683 fewer new members daily during the campaign (accounting for about 10 percent).

At the same time, the model showed that the market still is in development, as shown when a competitor's advertising on shared channels drives a company's growth. All players seem to develop the entire market by introducing new users to the value of this type of social networks (e.g., as shown in Figure 4, a significant number of the 321 new registered users of the own Web platform arrive per day when competitor 1 is placing its TV commercials). Furthermore, the model cannot investigate competitor success without sales data across the market, which supports the hypothesis that a company's own activities drive competitor volume.

Another useful insight for marketers was provided by the model's ability also to account for further influencing factors beyond the company's control. One intuitive and now proven example showed that the amount of registrations and overall use of the computer and Internet decrease when hours of sunshine per day increase. User numbers rapidly increase during the festive season—an effect that can be leveraged through communication by pulling disproportionate new users to the own offering. Setting the concrete impact figures of external factors into context with paid advertising provides an invaluable insight into the market mechanics, allowing marketers to fine tune the messaging

to special occasions or circumstances, such as large events.

To account for long-term brand equity effects, we further modeled the effects of specific channels on brand strength indicators. These analyses showed that even though TV lacks efficiency in terms of conversion success toward paying memberships, its broader audience and potential to convey messages in a very emotional manner has a very positive impact on general brand equity measures. TV advertising significantly increases brand perception rated on image attributes; by contrast, SEM primarily fills the customer pipeline. Although SEM produces a relevant self-selected target group owing to the nature of search mechanics, it showed no measurable or statistically significant positive effects on the brand on any dimension.

## CONCLUSIONS

The data show that an online pure-play can effectively rely on online marketing once it has gained a reasonable awareness and brand equity. Online advertising seems to drive activity, particularly in the later funnel stages and, thereby, drive premium memberships of our client, which generate actual revenues by a conversion rate three times higher than the most efficient ATL-channel TV would.

To build brand strength or to actively convey a brand's positioning relative to competitors toward a broad audience, however, classic advertising remains a necessity. Further, results of a similar modeling exercise in the apparel industry has shown that on top of the pure efficiency of a single channel, brand managers also have to take potential synergies between two or more media channels into account when coming to their final media mix decision (Naik and Raman, 2003). In the described work and model, we have not accounted for such moderating effects of a synchronous application of various

## In the context of social networks, word of mouth has a major impact on driving traffic to the Web site.

channels. This certainly opens an exciting field for further highly relevant research.

The findings seem to be of general value and can be translated to other online markets and categories. For future research, however, an extension or validation of the existing results into other Internet pure play categories beyond social networks (e.g., Internet retailers appear to be relevant) is required. With the existence and relevance of other mediating variables and the role of online-category fit as online advertising revenues differ strongly between categories (IAB, 2009a), we expect to see some differences in the results.

Moreover, it will be interesting to investigate the effects of another major source of traffic for social networks—specifically, the direct referrals on the Web site itself, other communities or through microblogging systems. In the context of social networks, word of mouth has a major impact on driving traffic to the Web site. For example, word-of-mouth-referrals for Internet social networking have substantially longer carry-over effects and, therefore, need to be actively managed as a strategic brand-building activity (Trusov, Bucklin, and Pauwels, 2009).

Conversely, we believe the marketing and advertising community will need to adapt to a situation wherein measuring and comparing the effectiveness of different communication channels are becoming increasingly complex. New channels with new KPIs—microblogging systems, the mobile Web, and related applications for smartphones—in an “always-on” world will add to that challenge. We are just at the very beginning of this fundamental change. Within this new marketing research imperative, learning from the

different fragments and experiences needs to be the everyday challenge for any marketer (Rubinson, 2009). 

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