Word-of-Mouth Research: Principles and Applications

DEE T. ALLSOP

Harris Interactive
dallsop@harris
    interactive.com

BRYCE R. BASSETT

Harris Interactive
bbassett@harris
    interactive.com

JAMES A. HOSKINS

Harris Interactive
jhoskins@harris
    interactive.com

Word of mouth (WOM) is an important component of a complex and dynamic marketplace environment, and as such, WOM research is best undertaken as part of a holistic research program. Five principles describing the operation of WOM are discussed, supported by data, and examples drawn from recent research studies. Complexity science modeling is introduced as an effective method for simulating the real-world operation of WOM in a given market category and identifying ways in which marketers can influence it to their advantage. Key business issues where WOM research can inform decision making are listed.

INTRODUCTION

Abundant research demonstrates that word of mouth (WOM) is one of the most influential channels of communication in the marketplace. The reasons for WOM's power are evident: word of mouth is seen as more credible than marketer-initiated communications because it is perceived as having passed through the unbiased filter of "people like me." At a time of declining trust in institutions, research shows that its influence is growing stronger.

In a recent national survey (Harris Interactive, 2006a), U.S. consumers were asked which information sources they find useful when deciding which products to buy in four common product categories. WOM and "recommendations from friends/family/people at work/school" were by far the most influential sources for fast food, cold medicine, and breakfast cereal. For personal computers, a highly technical category, we saw a strong reliance on expert advice in the form of product reviews and websites, followed by WOM as the next most useful.

While WOM has always played an important role in the formation of consumer opinions, over the past decade it has become an even more powerful force, due to a technology-driven explosion in the number and types of informal communication channels. Email, the internet, cell phones, PDAs, text messaging, instant messaging, and blogs have made sharing information and opinions easier than ever before. Table 1, based on the Annual RQ^SM (Reputation Quotient) study from Harris Interactive (Harris Interactive, 2006b), shows the penetration of several new media channels.

It does not take a sophisticated research approach to confirm that WOM plays a role in a given category. But to understand *how* WOM operates and *why*—so you can leverage it to your advantage—requires digging deeper. We will argue that WOM is a complex phenomenon that must be understood not in isolation, but in the context of a dynamic marketplace. As such, WOM research is rarely a stand-alone effort, but rather part of a program of research to address a broader business problem.

Research and analyses of WOM is still an emerging field. Over the past few years, social scientists and marketing practitioners have made important strides in describing the components and structure of WOM interactions.

Our focus in consulting with clients on WOM for a number of years has been to provide our clients with insights into the components of WOM that are most important to business problems and into measuring those components effectively. Based on this experience, we have formulated a point of view and an approach to measuring and analyzing WOM activities.

TABLE 1
New Media Usage

Please Indicate How Frequently You Perform the Following Activities	Percent "Very Frequently" or "Frequently"
Forward information found on the internet to colleagues, peers, family, or friends	59%
Read newspapers online	48%
Read magazines online	25%
Read a blog	24%
Listen to radio feeds via the internet	23%
Participate in an online community, such as myspace.com or friendster.com	22%
Use PVR technology, such a TiVo or DVR	22%
View or post videos on a website, such as youtube.com	17%
Listen to satellite radio	16%
Create or participate in a blog	13%
Subscribe to a podcast	6%
Create a podcast	2%

Source: Harris Interactive Annual RQ^{sm}. Base = 6,205 U.S. adults (18+) familiar with one or more of the 10 "most visible" U.S. companies.

This article will:

- outline some general principles by which WOM operates,
- share some data from ongoing research to bring some of these principles to life,
- present a framework for understanding the major components of WOM,
- describe the use of complexity science modeling techniques to measure the relative impact of WOM and to identify actions that will maximize positive WOM, and
- identify business problems that can be solved through WOM research and analysis.

THEORY AND FOUNDATION

The consumer marketplace in which any enterprise operates is a complex, dynamic system. Word of mouth plays an important role in this system, but it is only one of many things going on, including factors you control (such as marketing and promotion) and others you can not control (like the economy and competitors). Starting with this panoramic view helps us set realistic expectations about what can and cannot be accomplished through WOM marketing.

The success of the enterprise depends on building bonds (of familiarity, favorability, loyalty, etc.) with its key stakeholders, first and foremost its customers. Those individual stakeholders, in turn, take part in multiple social networks, where they influence each other (through WOM) in the formation of attitudes and behaviors that can either strengthen or weaken these bonds. It is critical for the enterprise to understand the social networks to which its stakeholders belong and how they operate, so it can influence the spread of positive WOM and minimize the damage of negative WOM.

As we think about WOM, we are guided by the following principles. Keeping them firmly in mind can help businesses make better decisions surrounding WOM and what they should do about it, rather than blindly jumping on the "buzz" bandwagon.

PRINCIPLE #1

Not all social networks are equal, and not all individuals in a given social network have equal influence.

We have all seen headlines suggesting that 1 in 10 Americans influences the opinions of the rest of the population.

In his popular book *The Tipping Point*, Malcolm Gladwell wrote about three personality types (*mavens, connectors,* and *salesmen*) who play a key role in causing messages to spread (Gladwell, 2000).

While there do seem to be some of these "special" individuals, their existence cannot fully explain the pervasiveness or the mechanics of WOM. As Dave Balter writes in his book, *Grapevine:*

Everybody talks about products and services, and they talk about them all the time. Word of mouth is NOT about identifying a small subgroup of highly influential or well-connected people to talk up a product or service. It's not about mavens or bees or celebrities or people with specialist knowledge. It's about everybody. (Balter and Butman, 2005).

Columbia University Sociology Professor Duncan Watts agrees, arguing what he calls the "influentials hypothesis" is based on untested assumptions and in most cases does not match how diffusion operates in the real world. He observes

that "most social change is driven not by influentials, but by easily influenced individuals influencing other easily influenced individuals" (Watts and Dodds, 2007).

We have observed that those who are most influential in a given category are often not those whom you would expect. As to special roles, we have found that mavens, connectors, and salesmen are not usually separate individuals as Gladwell suggests. Rather, they are traits that can exist separately or in tandem (in various degrees) in the same individual. Furthermore, any particular individual may assume a different role (giver or receiver of WOM) in the social network, depending on the topic under consideration.

What is important is to understand how the specific social network in your category operates, and in particular, which individuals within that social network are most active in creating and spreading messages about your product category to others.

In fact, each of us belongs to multiple social networks. The people to whom we talk about automobiles are not necessarily the ones to whom we talk about laundry soap. In addition, the size and composition of our social network vary from one category to the next. Some are larger, with most people participating, while others are more specialized. What is important is to understand how the specific social network in your category operates, and in particular, which individuals within that
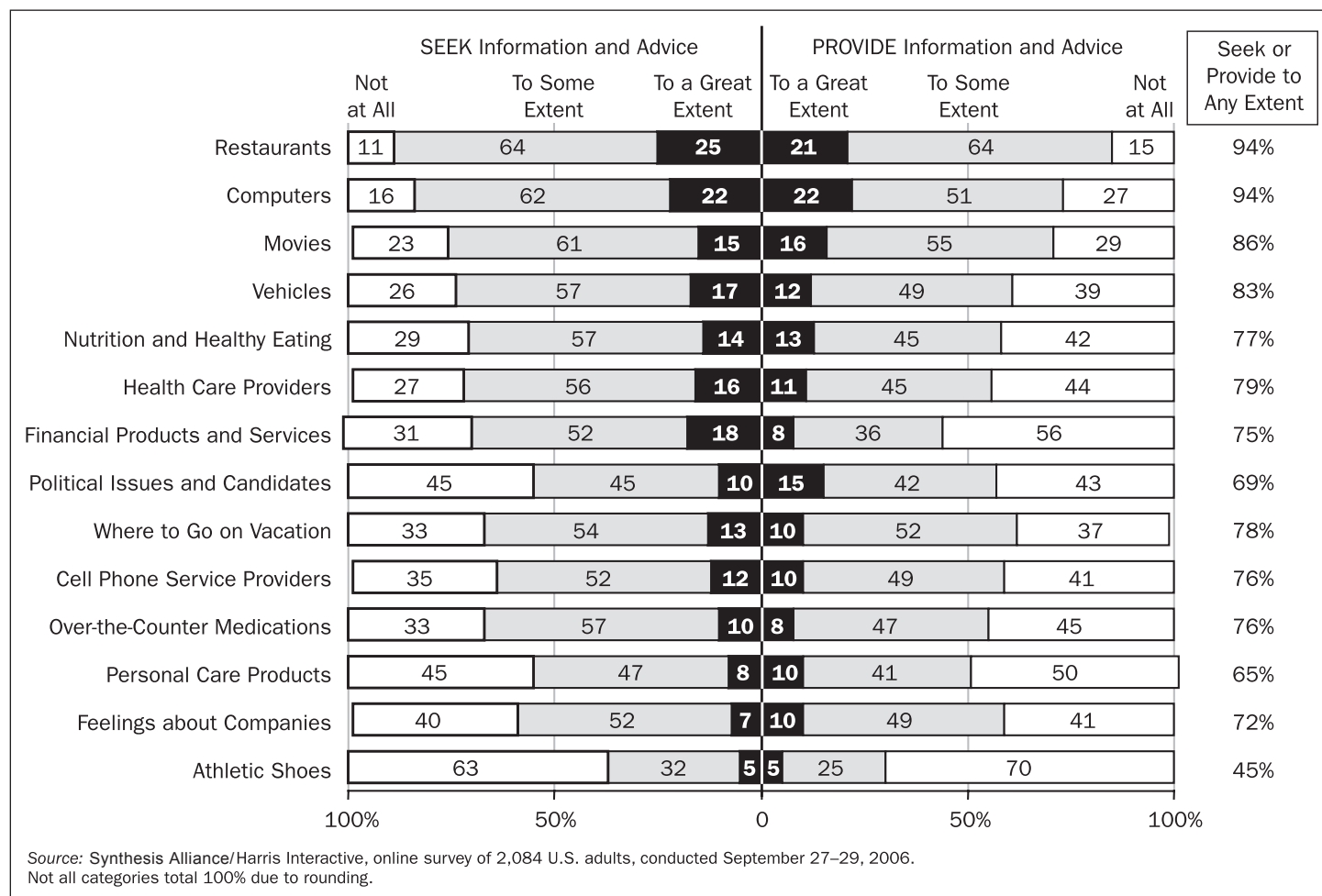
	SEEK Information and Advice			PROVIDE Information and Advice			Seek or Provide to Any Extent
	Not at All	To Some Extent	To a Great Extent	To a Great Extent	To Some Extent	Not at All	
Restaurants	11	64	25	21	64	15	94%
Computers	16	62	22	22	51	27	94%
Movies	23	61	15	16	55	29	86%
Vehicles	26	57	17	12	49	39	83%
Nutrition and Healthy Eating	29	57	14	13	45	42	77%
Health Care Providers	27	56	16	11	45	44	79%
Financial Products and Services	31	52	18	8	36	56	75%
Political Issues and Candidates	45	45	10	15	42	43	69%
Where to Go on Vacation	33	54	13	10	52	37	78%
Cell Phone Service Providers	35	52	12	10	49	41	76%
Over-the-Counter Medications	33	57	10	8	47	45	76%
Personal Care Products	45	47	8	10	41	50	65%
Feelings about Companies	40	52	7	10	49	41	72%
Athletic Shoes	63	32	5	5	25	70	45%

100%   50%   0   50%   100%

Source: Synthesis Alliance/Harris Interactive, online survey of 2,084 U.S. adults, conducted September 27–29, 2006.
Not all categories total 100% due to rounding.

Figure 1 Word of Mouth: A Two-Way Exchange

social network are most active in creating and spreading messages about your product category to others.

Our research bears this out. In a study conducted for Synthesis Alliance (Synthesis/Harris 2006), U.S. adults were asked to characterize the extent to which they *seek or use information and advice from other people,* as well as the extent to which they *offer or are asked to* **provide** *information and advice to other people*—on 14 different categories, including goods, services, and intangibles.

The results in Figure 1 illustrate how the proportion of the population involved in WOM varies from one category to another. More of us talk about restaurants (94 percent) and computers (94 percent) than about personal care products (65 percent) or athletic shoes (45 percent). A closer look at the data shows that there is a lot of overlap; the vast majority of information providers are also information seekers, and vice versa. That is how social networks operate: we gather opinions from others, we incorporate them into what we know and feel, and we pass that along to others.

This study also confirms that virtually everybody participates in one or more social networks. In fact, only 1 percent of respondents said they do not participate at all in providing or seeking information in any of our 14 measured categories.

Another interesting observation is that the "supply and demand" of information and advice varies by category, which may give us clues as to the nature of WOM in that category. If we look at the middle of the chart, 18 percent of respondents say they seek information on financial products and services *to a great extent*, yet only 8 percent provide financial information *to a great extent*, suggesting this is a topic where people are more likely to turn to experts. Conversely, 15 percent actively provide information about politics, whereas

only 10 percent actively seek it, so politics is a topic where some people share information even when others are not asking. Active providers also outnumber active seekers, although to a lesser extent, when it comes to movies, personal care products, and companies.

By zeroing in on the most active participants in the social network, those who seek or provide information and advice *to a great extent*, we can learn much:

1. We see significant differences in social network activity based on demographic traits, such as age and gender. For example, the majority of those who provide *to a great extent* on vehicles, financial services, computers, and politics are men, while active providers on personal care, OTC medications, nutrition, and health care providers are more likely to be women. Gender differences, interestingly, are much less pronounced when it comes to seeking information.
2. There is a lot more social network/WOM activity in some categories than

others. Harris Interactive's Social Network Commerce Index™ (Synthesis/Harris, 2006) provides another useful way to quantify the level of WOM activity within a given category. See Figure 2. By focusing only on the level of active seeking and providing, the index portrays the multiplier effect of WOM and keeps our focus on those most likely to have an impact on the spread of WOM.

The index is also a useful means for comparing the relative involvement of different subgroups in WOM within a given category. For example, when calculating the index scores for "nutrition and healthy eating," we can see varying degrees of activity among age groups, educational attainment groups, income groups, and household sizes (see Figure 3). This can help marketers to prioritize their activities and segment their target audiences to make sure they are reaching those most likely to engage in WOM.

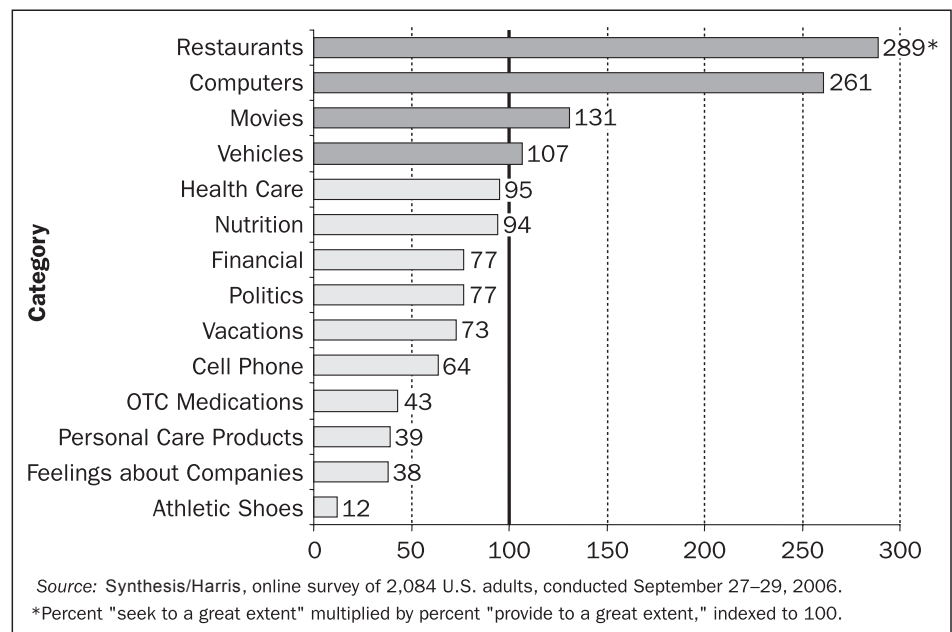3. The notion that there is a monolithic block of cross-category influentials

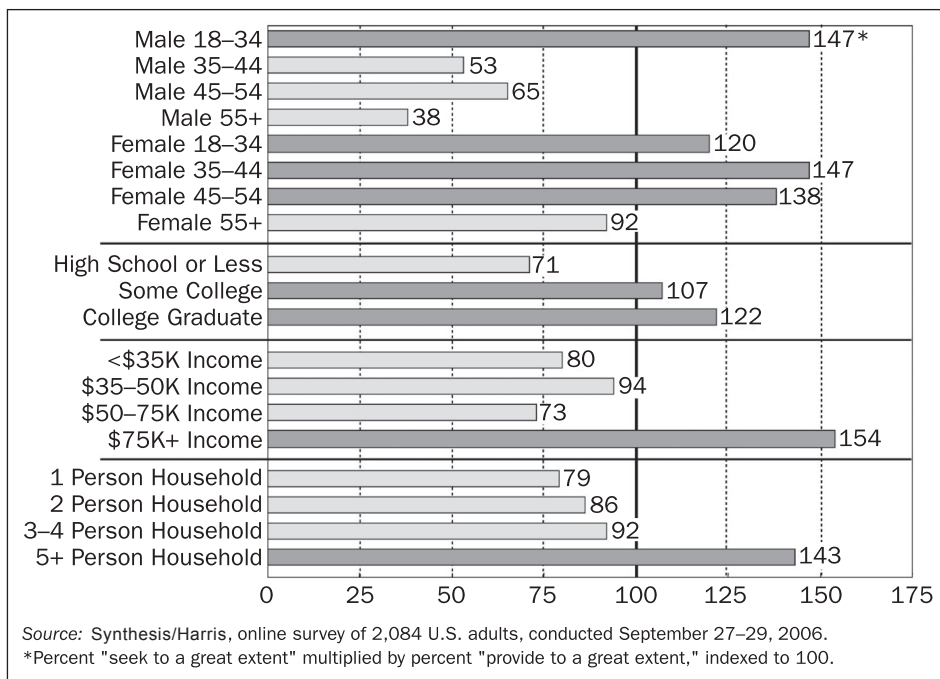**Figure 2** Social Network Commerce Index ™

Source: Synthesis/Harris, online survey of 2,084 U.S. adults, conducted September 27–29, 2006.
*Percent "seek to a great extent" multiplied by percent "provide to a great extent," indexed to 100.

Figure 3 Social Network Commerce Index™ for "Nutrition and Healthy Eating" among Demographic Subgroups

comprising 10 percent of the population is not supported by our data. While it is not unusual for people to be a source of WOM for several categories, as shown below, the 10 percent who are most active in providing information only do so in about five categories. We turn to different people for information on different topics. (See Figure 4).

There does appear to be a handful of true "market mavens" who provide information and advice *to a great extent* on all 14 of the categories measured, but they number fewer than 2 percent of respondents. Most of us rarely encounter this kind of person—our day-to-day interactions are with average consumers like ourselves. Rather than spend resources trying to find and target these supposed influentials, marketers should work to understand who has the greatest impact on the spread of WOM in their particular category and figure out ways to give

them a positive experience with the brand, so they will be more likely to pass that along.

PRINCIPLE #2

Word-of-mouth happens in the context of a specific situation and occasion.

Source: Synthesis/Harris, online survey of 2,084 U.S. adults, conducted September 27–29, 2006.
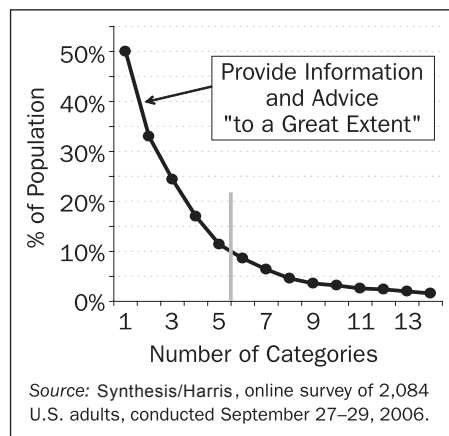
Figure 4 Few Influence a Large Number of Categories

WOM has a number of dimensions that affect how it spreads for your particular category or brand. For example, how many people does an individual communicate with about the topic? How frequently? How relevant is the message to them personally? How accurate is the information that is passed along? Are we talking about positive or negative messages? These and other dimensions determine whether WOM will spread quickly or slowly, to a broad group or to a narrow group, or not at all. To understand how WOM works, we need to account for these different dimensions and how they are interconnected.

Figure 5 illustrates some of the key dimensions we focus on as we do WOM research, and the fact that they all affect each other. In analyzing WOM for our clients, we try to understand as many of these dimensions as possible so as to produce insights that are both accurate and actionable.

Current WOM research has given us ways to operationalize many of these dimensions. For example:

- Under *Attributes of the Source*, we look at credibility and persuasiveness of the person providing the message, because these affect whether or not the message will be acted on or passed along to others.
- Under *Rate of Activity*, we measure how likely someone is to activate the social network (either to seek or provide information), and how quickly and how often they share opinions about the product or service under study.
- Under *Personal Relevance*, we consider the rational and emotional components of the message, using our expertise in Means-Ends theory research, which teaches us that value-laden emotionally-charged appeals are much more relevant and therefore persuasive.
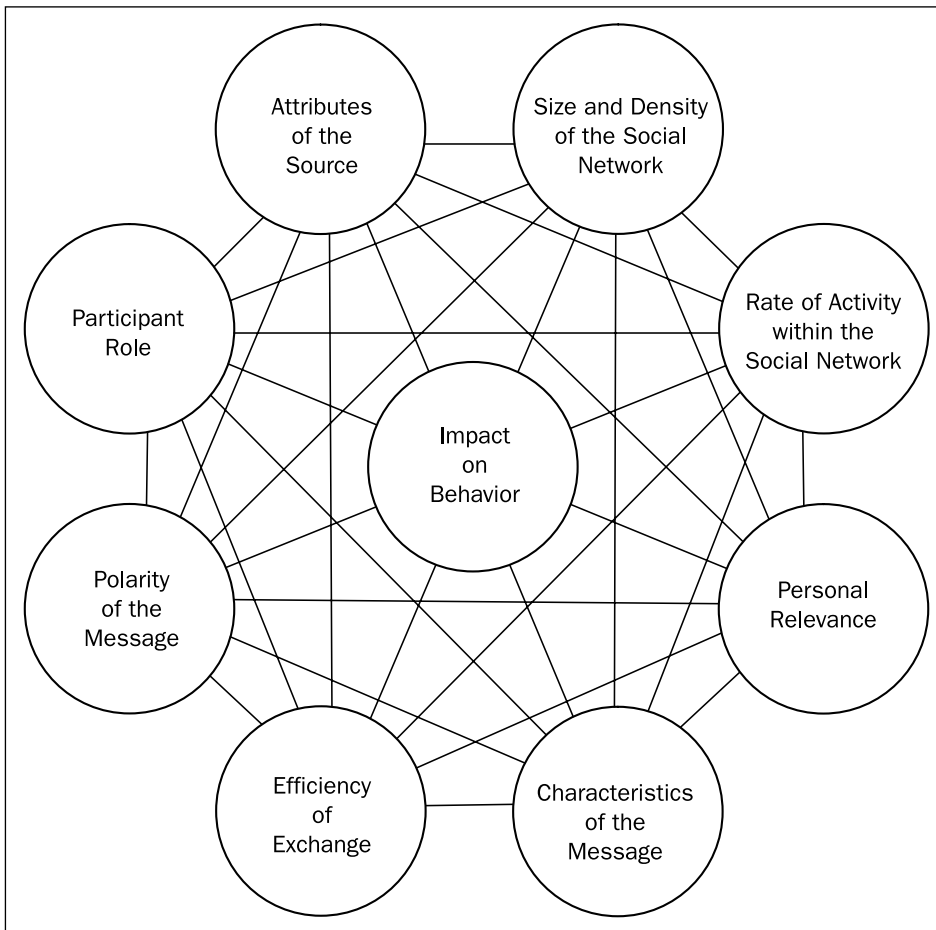- Under *Polarity*, we look at whether the tone of the communication is negative

Figure 5 Dimensions of a Social Network

or positive, and whether it contributes to what we call the perceptual equities or the perceptual disequities of the subject brand/product/company.

But with other of these dimensions, we are just beginning to understand how they influence WOM activity within social networks, and the resulting impacts on consumer behavior. We believe that the future of WOM research will largely focus on finding ways to better understand these dimensions, developing reliable methods to measure them, and accumulating experience in translating those insights into action imperatives for business and marketing decision makers.

In addition to ongoing efforts to better measure the above constructs, we have started to develop alternative approaches to modeling their complex interactions. One such formulation is shown in Figure 6.

- The probability of a *selected consumer* holding a high, medium, or low perception of the reputation of a firm is conditionally dependent on the *influence* and *credibility* of a set of information channels that impact the various dimensions of the reputation quotient (RQ).
- Each information channel has a direct impact (high, medium, or low) on each of the six dimension of reputation. In

turn, that level of impact is dependent on the probability of a consumer believing whether or not that information is **credible**.

- Sensitivity analyses have been run on reputation for each of four sample companies:
  ○ relative impact of each information channel on WOM,
  ○ relative impact of each information channel on each of the six dimensions of reputation, and
  ○ impact of each reputation dimension on overall reputation.

In the example shown at the end of this article (see Figure 7), we apply this model to a proprietary data set from the RQ study (Harris Interactive, 2006b) using Bayesian Belief Networks.

PRINCIPLE #3

People make decisions based on a complex interplay of cognitive preferences and emotional benefits.

We have a tremendous amount of experience showing that human beings make decisions about products based on three levels: (1) the attributes of a product, (2) the functional benefits and emotional consequences derived from those attributes, and (3) the personal values that those consequences reinforce. Values are by definition deeply emotional, highly personal, and powerfully motivating. The best way to persuade someone to do something is to appeal to the values that matter deeply to them. When a message succeeds in doing that, we say it has high *personal relevance.*

For example, I buy Brand X because it cleans better, which leaves fewer germs in my house, so my kids will not get sick, which makes me a better parent. If you want to sell me Brand X, don't just tell me
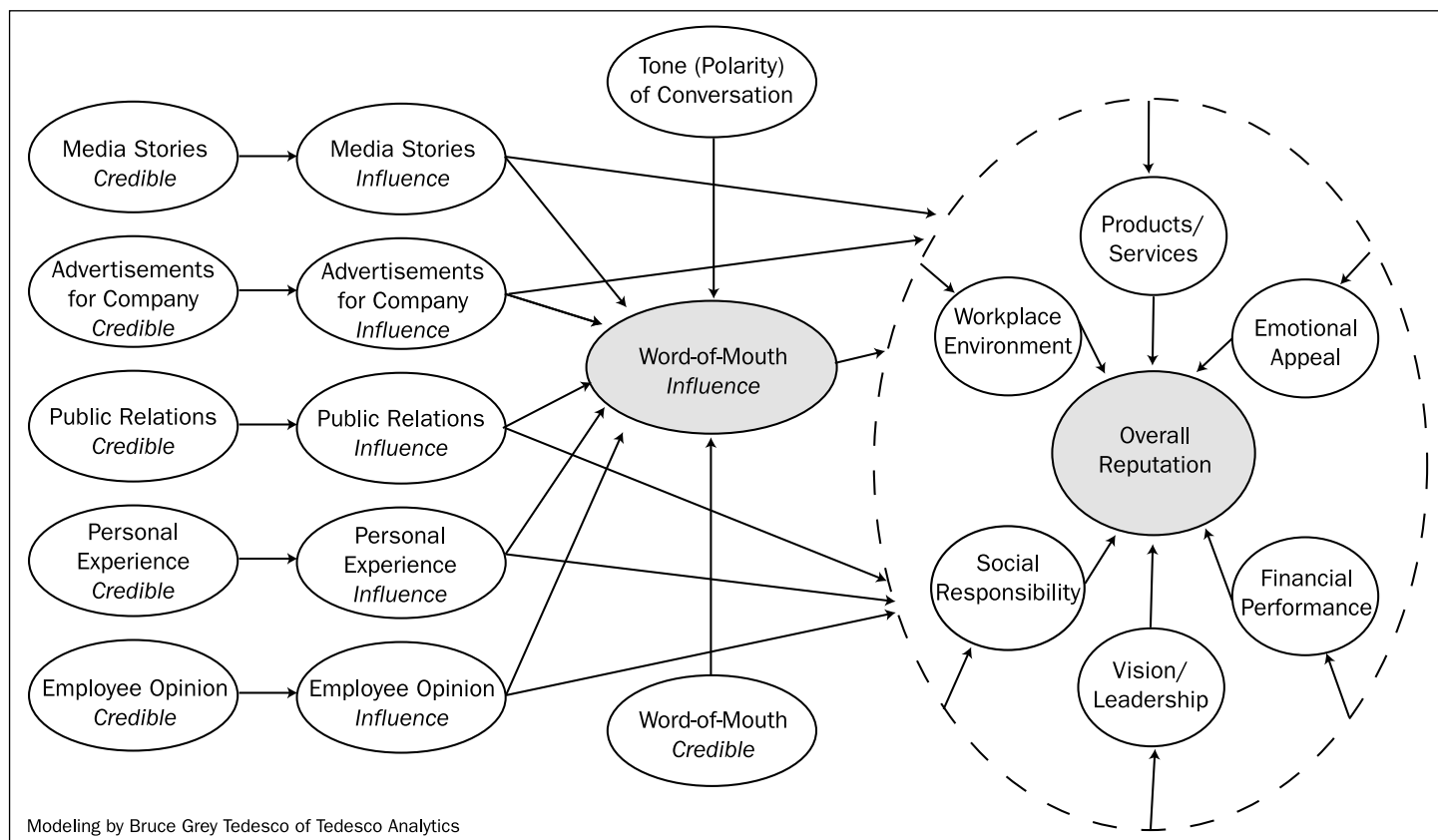
Figure 6 RQ^{SM} WOM Model Structure

it cleans better. Show me why I should care about that, by linking that attribute in a credible way to the consequences and values that make me tick—in this case, my deep desire to be a good parent. Now you've got my attention.

There is both an art and a science to crafting these kinds of communications that "persuade by reason and motivate through emotion." If we do our homework (which involves well-designed research into consumer motivations and the decision-making process as it applies to your particular category), we can maximize personal relevance on both the cognitive and emotional dimensions.

This values-based approach provides deep strategic insights for developing marketing communications that produce measurable results in the real world. Over the

past decade, six national advertising campaigns on which we have worked, where values research provided the strategic framework, have won the Advertising Research Foundation's David Ogilvy Research Award, which recognizes the role of research in contributing to successful advertising campaigns, as judged by demonstrable in-market results.

While personal relevance is a foundation of any type of marketing, it is especially important when talking about WOM. The more personally relevant our product and our messages are, the more likely consumers are to engage with the product, and more likely to pass along messages to others. When you know what emotional chords your product and your messages are touching within your audience, you can appeal in subtle but pow-

erful ways, building loyalty, while at the same time facilitating sharing.

For example, Hard Rock Café knows their patrons take pride in bragging about having eaten at the restaurant in far off places. Part of their deliberate strategy is to appeal to that sense of belonging to a special group. Therefore, they sell T-shirts so you can come back and show everybody you ate at the Hard Rock Café in Tokyo. Not only are they reinforcing the sense of pride, they are facilitating WOM because others will see the T-shirt and naturally strike up a conversation about their experiences.

PRINCIPLE #4

The consumer environment in which word of mouth takes place is constantly changing.

While personal relevance is a foundation of any type of marketing, it is especially important when talking about WOM.

Earlier we described the consumer marketplace as a complex, dynamic system. WOM, more so than other types of information exchange in the marketplace, can change quickly. Because of that, it is important to continually measure and monitor what is going on, so you can spot developments as they occur, and quickly make course corrections or take other actions that will positively influence the system.

For example, many companies and organizations routinely monitor blogs about their products, services, and reputation. More than a few employ full-time bloggers, who not only report on negative WOM, but actively participate by posting messages to correct facts and counter misperceptions that arise. These professional "blog monitors" do not try to hide the company for whom they work. This transparency is vital to keep this kind of activity from backfiring. We have found that accurate, unassailable facts can trump people's normal skepticism toward information that comes from the company. This is just one example of how marketers can become part of the dynamic exchange of ideas, rather than just helpless observers on the sidelines.

PRINCIPLE #5

The diffusion and impact of messages within the social network varies based on the polarity (positive/negative) of the messages being communicated.

Your business plan should encompass not only how to influence and leverage positive WOM, but also how to neutralize negative WOM. Recognizing the differences between how the social network deals with positive and negative messages is important.

In general, we know that negative messages tend to spread more quickly within a social network. For example, studies by Burson-Marsteller have found that "techfluentials" will pass along positive messages to an average of 13 people, but they will share negative messages with an average of 17 people (Deitz and Çakim, 2005).

The reasons people choose whether or not to pass along a negative message are entirely different from those that influence them when the message is positive. A WirthlinWorldwide study published in 2004 showed that email users are most likely to forward negative news about financial fraud, health, or safety, all of which have high personal relevance. Consumers seem to be motivated not by spite, but rather by a genuine desire to save others from making bad decisions (WirthlinWorldwide, 2004). Marketers can use that insight to their advantage in combating negative WOM.

There are different types of negative WOM, depending on how it originates, each of which requires a different kind of response:

- Where negative WOM arises from dissatisfied customers, negative reviews or products that fail to meet expectations, work to fix the problems and improve products.
- Negative WOM sparked by attacks from critics or competitors usually contains alarmism, half-truths, or outright lies.

Today's technology and the media's appetite for controversy give these detractors a bigger spotlight than they deserve. Here we want to respond aggressively and get out the facts to try to turn the tide of negative WOM.

- WOM also spreads rapidly when there is an unexpected product failure, safety issue, or scandal that has its basis in truth, but may be blown out of proportion. Crisis management is a topic for another article, but again, honest response and quick action to fix the problem are paramount.

As a company comes to understand the components of the social network surrounding its products and brands, and establishes mechanisms to "listen in" on WOM, it will be in a better position to respond quickly, specifically, and candidly to negative WOM, minimizing harm to sales and reputation, and often enhancing its image in the process because consumers give companies and organizations credit for honestly handling problems.

PRACTICAL APPLICATIONS OF WORD-OF-MOUTH RESEARCH: AN EXAMPLE

An example of the practical application of WOM research can be found in Harris Interactive's Annual RQ^{SM} study (Harris Interactive, 2006b), already cited.

Along with rankings on components of reputation, the study includes a series of questions about media usage and social network activity, to shed light on the relative impact of WOM versus other sources of information in formulating the opinions that drive the reputation of these companies. While this is not as comprehensive an analysis as could be done for any single company, it does illustrate some of the key dimensions of WOM (described early under Principle #2), and how we approach measuring those to gain a

fuller understanding, in this case, of the drivers of corporate reputation.

Using data from the RQ, and the model shown in Figure 6, we built a series of Bayesian Belief Networks, one for each of four example firms. Here are just a few of the things we learned, which reinforce some of the five principles we have discussed:

1. WOM plays a significant role—often more than any other source—in influencing perceptions, yet its significance varies from one dimension of reputation to another and from company to company. Of the six dimensions of reputation we measured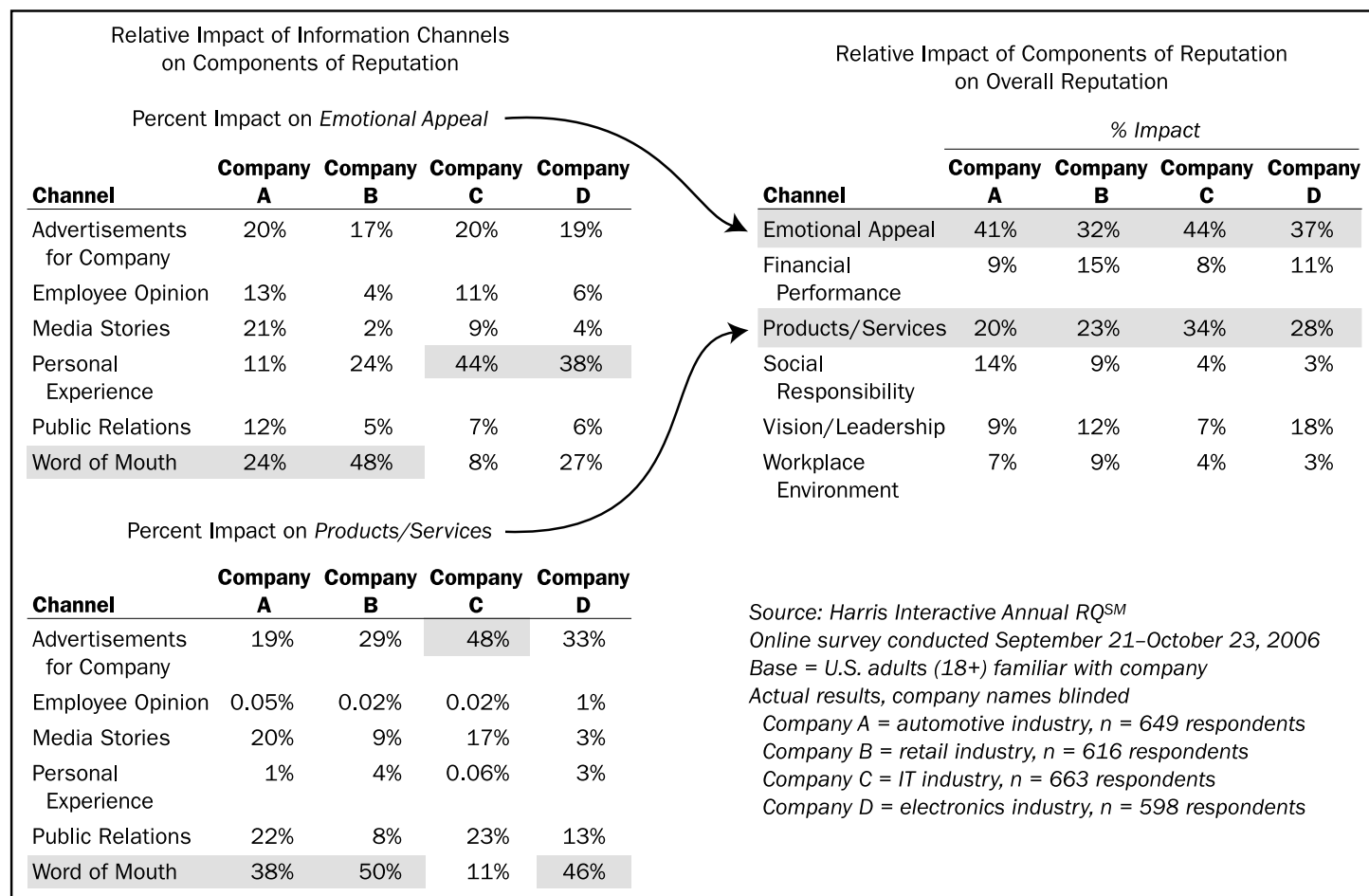, *emotional appeal* (trust, good feelings, and respect) consistently has the strongest influence on corporate reputation, followed by perceptions about the company's *products and services*. Those two dimensions, in turn, are driven heavily by WOM, which accounts for as much as half of each dimension. (See Figure 7.) Among the four example companies analyzed, the only exceptions are companies C and D, where *emotional appeal* is driven mostly by personal experience, and company C, where perceptions about *products and services* are driven mainly by advertising.

2. As shown above, WOM has a strong influence along *both* rational and emotional dimensions (Principle #3). *Products and services* is a rational attribute, while *emotional appeal* gets at personal emotions and higher-level values.

3. The probability of a given consumer holding a high, medium, or low perception of the reputation of a firm is conditionally dependent on the *influence* and *credibility* of the six information channels measured. Next to personal experience, WOM is the source with the highest positive influence and credibility. (See Table 2.)

4. While we have spoken about the influence of WOM, it is itself influenced by other sources of communication. In that sense, WOM acts as a sort of multiplier. As shown in Figure 6, each information channel has a direct impact on each of

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Relative Impact of Information Channels on Components of Reputation

Percent Impact on *Emotional Appeal*

Channel	Company A	Company B	Company C	Company D
Advertisements for Company	20%	17%	20%	19%
Employee Opinion	13%	4%	11%	6%
Media Stories	21%	2%	9%	4%
Personal Experience	11%	24%	44%	38%
Public Relations	12%	5%	7%	6%
Word of Mouth	24%	48%	8%	27%

Percent Impact on *Products/Services*

Channel	Company A	Company B	Company C	Company D
Advertisements for Company	19%	29%	48%	33%
Employee Opinion	0.05%	0.02%	0.02%	1%
Media Stories	20%	9%	17%	3%
Personal Experience	1%	4%	0.06%	3%
Public Relations	22%	8%	23%	13%
Word of Mouth	38%	50%	11%	46%

Relative Impact of Components of Reputation on Overall Reputation

	% Impact			
Channel	Company A	Company B	Company C	Company D
Emotional Appeal	41%	32%	44%	37%
Financial Performance	9%	15%	8%	11%
Products/Services	20%	23%	34%	28%
Social Responsibility	14%	9%	4%	3%
Vision/Leadership	9%	12%	7%	18%
Workplace Environment	7%	9%	4%	3%

Source: Harris Interactive Annual RQ[SM]
Online survey conducted September 21–October 23, 2006
Base = U.S. adults (18+) familiar with company
Actual results, company names blinded
  Company A = automotive industry, n = 649 respondents
  Company B = retail industry, n = 616 respondents
  Company C = IT industry, n = 663 respondents
  Company D = electronics industry, n = 598 respondents

Figure 7 Influence of WOM on Company Reputation

TABLE 2
Word of Mouth Seen as Influential, Credible Source

Information Source	My Perceptions are Influenced to a Positive Extent by This Source	This is a Very Credible Source
WOM	81%	34%
Advertising for the company	77%	16%
Company public relations activities	67%	15%
My own personal experience with the company	85%	70%
Opinions of the company's employees	66%	33%
Media stories about the company	68%	15%

Source: Harris Interactive Annual RQ^SM. Online survey conducted September 21–October 23, 2006. Base = 6,205 U.S. adults who rated the top 10 companies.

the six dimension of reputation, but each also has an *indirect* influence by coloring the WOM that is received and passed along.

Our analysis allows us to quantify this indirect influence. As shown below, personal experience has the greatest influence on WOM, but other sources are also significant. For example, media stories about company A had nearly

as much influence on WOM as personal experience. (See Table 3.)

5. Polarity (negative versus positive) of the WOM message is significant, as discussed in Principle #5. As part of the RQ study, respondents were asked to characterize their WOM communications about each company on a scale from "very positive" to "very negative." From 2005 to 2006, we saw a significant in-

TABLE 3
Information Channel Influence on Word of Mouth

Channel	% Impact			
	Company A	Company B	Company C	Company D
Advertisements for company	9%	10%	13%	25%
Employee opinion	12%	14%	13%	26%
Media stories	34%	12%	14%	2%
Personal experience	36%	43%	38%	37%
Public relations	10%	20%	22%	10%

Source: Harris Interactive Annual RQ^SM. Online survey conducted September 21–October 23, 2006. Base = U.S. adults (18+) familiar with company. Actual results, company names blinded:
  Company A = automotive industry, n = 649 respondents
  Company B = retail industry, n = 616 respondents
  Company C = IT industry, n = 663 respondents
  Company D = electronics industry, n = 698 respondents

crease in company C's overall reputation score, while company A's score went down. A closer look at the data suggests that the tone of conversation about these two companies may be playing a strong role in driving the perceptions leading to this outcome: For company C, the ratio of very positive to very negative WOM rose from 4:1 in 2005 to $6\frac{1}{2}$:1 in 2006. Over the same period, company A's very positive to very negative ratio fell from 5:1 down to 1:1.

UNDERSTANDING WORD-OF-MOUTH USING COMPLEXITY SCIENCE

To fully understand WOM, with all of its moving parts, requires a sophisticated analytical approach that is beyond the reach of traditional marketing research methods. However, a new generation of tools now makes this possible.

In the mid 1980s, a team of interdisciplinary scientists formed the Santa Fe Institute and set out to develop a theoretical framework to describe complex systems made up of multiple interconnected elements. Drawing on systems theory, cybernetics, chaos theory, and neural networks, their efforts culminated in the fundamental concepts of *Complexity Science*: (1) everything is related, (2) nothing is linear, and (3) small changes can create unexpected and disproportionate outcomes.

These concepts are used to construct computerized models of complex systems. Rather than relying on linear statistics, Complexity Science uses an approach known as agent-based modeling (ABM). ABM models were first designed to understand phenomena such as hives of bees, flocks of birds, or traffic jams, where the observable actions of the group emerge, often unpredictably, from the interactions of its individual members. The flexibility of such models, and the fact that they can be adjusted to account for a wide variety of factors, make them ideal for describing how WOM works.

To fully understand WOM, with all of its moving parts, requires a sophisticated analytical approach that is beyond the reach of traditional marketing research methods.

The core component of an ABM model is the ability to run simulations. Much like the popular *Sims*™ games, an ABM model creates a dynamic and interactive "virtual world" where experiments on media, positioning, and WOM can all be played out in an artificial environment mathematically calibrated to represent the most probable outcome in the real world. This world is populated by individual consumers who are programmed (based on market research and other types of data) to "behave" realistically in response to changes in the marketing mix, changes in the market environment, and interactions with each other. This allows us to simulate how consumers may react over time in response to any number of combinations of these factors.

In the model illustrated in Figure 8, we have isolated a few key components of the social network: contact efficiency, number of people contacted, and level of advertising. Using the "sliders," we can vary the level of those inputs, then run a

Contact Efficiency I = 0.3

Contact Efficiency EM = 0.2

Contact Efficiency LM = 0.002

I = Innovators
EM = Early Majority
LM = Late Majority

Average Intent I = 9.5
Average Intent EM = 6.0
Average Intent LM = 2.6

Agent Interaction

Show Intent

Enable Advertising

Advertising Factor = 1.0

Persons to Contact I = 7

Persons to Contact EM = 8

Persons to Contact LM = 12

Total Market Intent

Model developed by Bruce Grey Tedesco of Tedesco Analytics, in collaboration with Harris Interactive
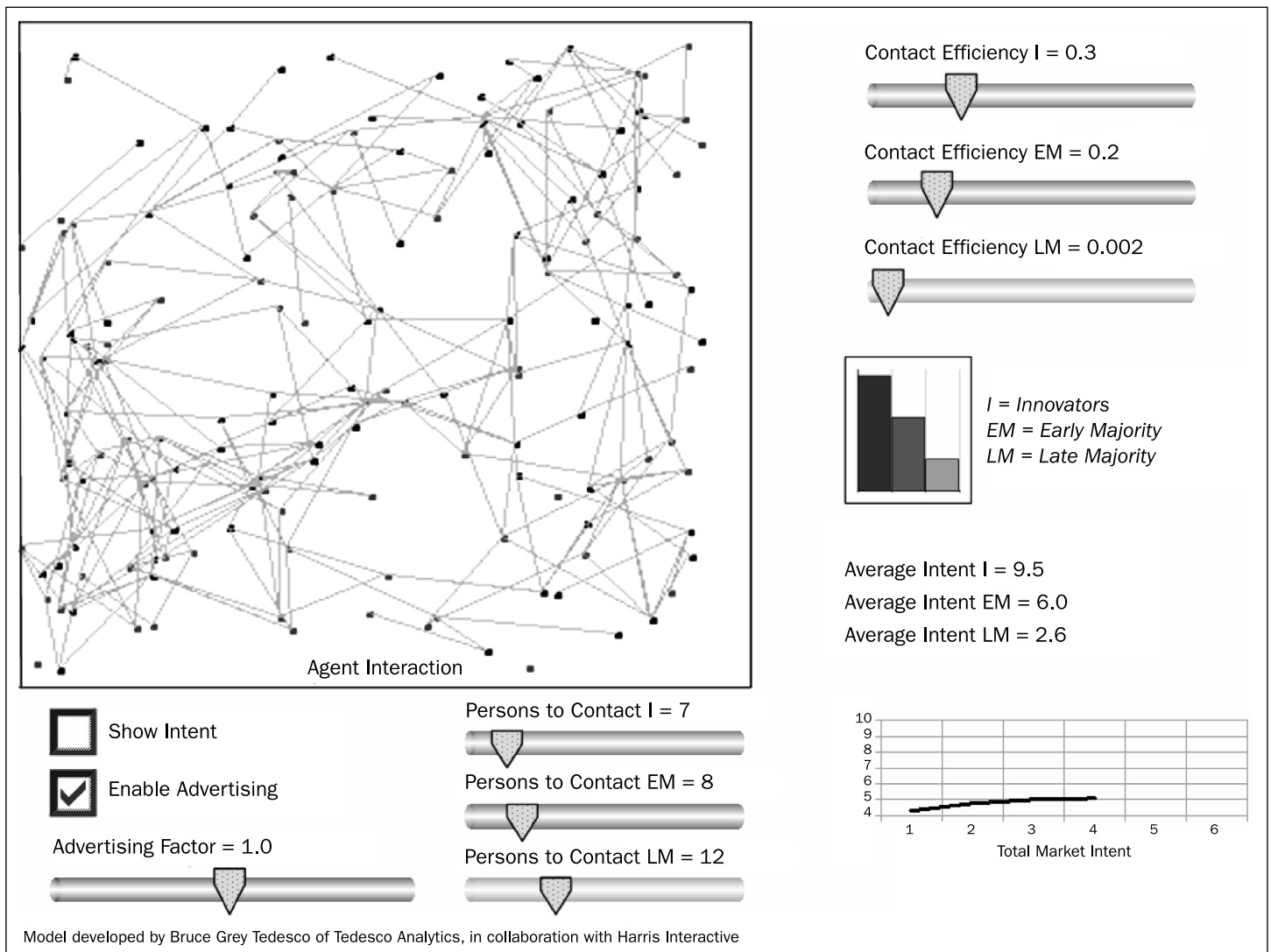
Figure 8 General WOM Diffusion Model

simulation and observe how messages (represented by gray lines) spread from one person to another (represented by dots) over time, and more importantly, the impact all those interactions had on opinions, in this case intent to purchase (shown in the lower right).

Other models for other applications would be different. Using the tools of system dynamics, neural networks, and agent-based modeling, we are able to calibrate factors such as the magnitude and velocity with which a message is adopted by a population. Further dimensions add to the realism of the model. For example, model simulations demonstrate that when a source of the message has a *higher level of trust* within the population, the message is embraced at a higher rate of acceptance and a greater intensity of belief, which can greatly accelerate the outcome.

Complexity models are highly adaptable, allowing us to incorporate easily new discoveries and new data about the dimensions of WOM, as referenced previously in the Principle #2 section. As marketers learn more about the social network that impacts their own enterprise, they can measure and build into such a model the specific components that matter most. Then they can run a series of simulations, experimenting with different inputs each time, to find the combination that maximizes the desired change of opinion or behavior they are trying to bring about. This will help focus on actions that can be taken to maximize the positive power of WOM to deliver business results.

Below is a simple example of how this might be used. A model of WOM relating to the adoption of a new telecom service was constructed. Then a series of simulations was run to observe the effect of four different action strategies designed to raise purchase intent: (1) do nothing, (2) initiate

WOM research is rarely an end unto itself, but should be part of a broader program of strategic research for solving business problems and informing day-to-day business decisions.

communications to increase WOM activity generally within the total marketplace, (3) boost traditional advertising, or (4) energize early majority adopters. The simulation showed that an energized early majority would have a greater impact on purchase intent among nonsubscribers than a boost in advertising. We advised the marketer to supply more information about its new services to the early majority, using knowledge about their media habits and lifestyle preferences gained through marketing research, in order to stimulate an increase in discussion among this group. (See Figure 9.)

WORD-OF-MOUTH INSIGHTS LEAD TO SMARTER BUSINESS DECISIONS

So how do we turn theory into action? It is one thing to acknowledge that WOM exists and to list its general principles. However, it is quite another to be able to quantify how it operates in your particular category and what impact it has on your enterprise. Research can help provide this deeper level of understanding about the "who, what, when, where, how, and why" of WOM.

As we said at the outset, WOM research is rarely an end unto itself, but should be part of a broader program of strategic
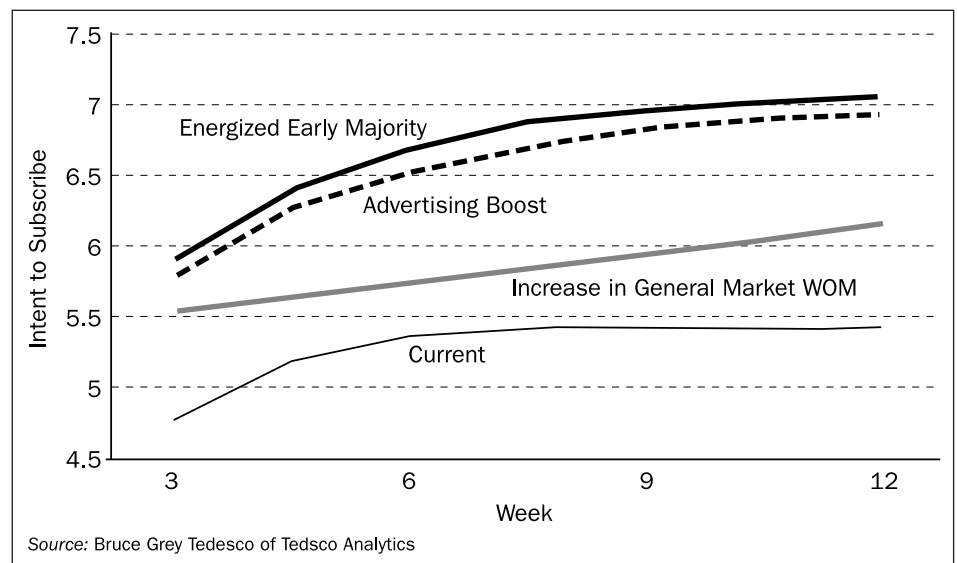

Source: Bruce Grey Tedesco of Tedsco Analytics

Figure 9 Example of Learning from Model Simulations: Alternative Paths to Growing Interest in Telecom Services

WOM is a complex phenomenon and generally not something that can be controlled directly.

research for solving business problems and informing day-to-day business decisions.

Listed below are eight business issues where we believe WOM research has the greatest potential to contribute to the success of an enterprise, along with examples of the kinds of specific questions that can be answered:

- Role of corporate reputation in brand strategy
  ○ What impact is WOM having on my corporate reputation and brand equities?
  ○ How much of a halo effect does my corporate image have on my individual brands?
- Consumer segmentation based on WOM activity
  ○ Which stakeholder groups have the most influence within the social networks that affect my brand?
  ○ What is my best brand positioning strategy to reach these category influentials?
  ○ Through what channels can I best reach them, and what will the cost and payoff be?
  ○ How does customer loyalty translate into, and/or derive from, positive WOM in my category?
- Efficiency and effectiveness of the social network in shaping behavior
  ○ Do stakeholders see me as a "credible" and "trusted" source, and does that translate into positive attitudes toward my brands?
  ○ What can I do to become a more effective source, so my messages are more persuasive, influencing choice and behavior?
- Timeline and resource investment required to shape opinion

  ○ Is my current marketing investment leading to positive WOM?
  ○ What is the minimum/optimum level of spending in a given channel required to "tip" opinion and behavior my way?
  ○ How long will that take?
- Identification of leadership classes with the marketplace
  ○ Who are the primary agents of WOM in my product category?
  ○ How do I market to those groups so as to maximize positive WOM?
  ○ Who are my early adopters, and will their experiences create positive WOM, leading to mass market acceptance?
  ○ Who are my best product/brand advocates, and what can I do to increase their level of advocacy?
- Interaction of WOM with the portfolio of communication channels
  ○ How big a role does WOM play in changing opinion and behavior among my stakeholders, relative to traditional media exposure?
  ○ What media mix strategy will give the biggest boost to positive WOM about my products and brands?
- Understanding the life cycle of trends
  ○ What new trends are on the horizon that I could take advantage of through brand/product innovations?
  ○ Are there any signs that my product is in danger of losing sales because a trend is ending, or is only a short-term fad?
  ○ Are my products getting positive WOM in the marketplace?
- New-product planning
  ○ Based on consumer buzz, what are the up-and-coming hot products?

  ○ How will my planned new product be accepted and talked about in the marketplace?

CONCLUSION

The temptation is strong for marketers to try to "create buzz" through viral campaigns and other forms of "word-of-mouth marketing." However, it is not clear how productive these activities really are. As we have discussed, WOM is a complex phenomenon and generally not something that can be controlled directly. Over the past few years, there have been significant advances in approaches to measure and understand WOM, but much remains to be discovered about how social networks operate and how they can be influenced in a positive fashion. Our role as researchers begins with helping marketers understand the principles by which WOM operates, including not only what we know, but also what we do not know yet, so they can set realistic expectations.

In the meantime, current WOM research, as part of an overall research program, provides insights for a host of business initiatives. Armed with a greater understanding of how WOM operates in their particular product category, marketers can make more confident decisions with regard to branding and positioning, segmenting and targeting, media strategy, monitoring programs to listen to the voice of the customer, and products and services improvements. All of this leads to measurable and enduring improvements in performance. **JAR**

DEE T. ALLSOP is president of US Solutions Research Groups at Harris Interactive, the world's 13th largest market research firm. He was CEO and chairman of WirthlinWorldwide at the time it was acquired by Harris Interactive in 2004. Over his 25 year career, Dr. Allsop has provided research-based market positioning and communications consulting to some of the world's leading corporations and organizations. He has a strong academic background in quantitative

survey research and advanced statistical analysis and holds both an M.A. and a Ph.D. in political science from The Ohio State University, where he was active in teaching, writing, and survey research.

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BRYCE R. BASSETT is vice president of US Solutions Research Groups at Harris Interactive. He has worked in the opinion research industry for over 20 years, including positions in marketing, knowledge management, secondary research, website development, corporate branding, and communications. He has written hundreds of corporate newsletters, research reports, white papers, sales collateral pieces, and press releases, and currently serves as editor of *The Harris Report*. He holds a B.A. in communications and an M.A. in international relations from Brigham Young University.

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JAMES A. HOSKINS, formerly division president of the brand and strategy consulting practice at Harris Interactive, now focuses on major client engagements and on enhancing and developing approaches for corporate, industry, and product branding and strategy. He has more than 35 years of experience in research and counseling senior government and corporate leaders in a variety of global industries. Mr. Hoskins' academic background is as an economist. He is published in a number of professional journals and is co-author of an award-winning book examining recruiting and manning alternatives for the U.S. Air Force.

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