THE CALCULUS OF CONSUMER PRIVACY

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This study provides the 'algebra of the consumer's mind' regarding what the consumer wants different types of professionals and companies to know about them. We look at the relevance of different insights, seeing how each is appropriate to a variety of different businesses with which the consumer interacts, ranging from personal services (physician, lawyer) to financial services (banks, brokers) to the trade (local pharmacy, larger scale department stores) and even to casual business encounters (e.g., video rental store). The large scale study identifies the relevance of different types of consumer insights, from the consumer viewpoint, establishing which types of information are thought to be freely shared, and which are held back by the individual. We then look at a more microscopic view of privacy, focusing on the consumer research business, specifically the types of interviews in which a consumer might participate, and the nature of privacy in each.

PART 1:
PRIVACY AS A SOCIAL, LEGAL AND BUSINESS ISSUE

"I've never looked through a keyhole without finding someone was looking back". Judy Garland (1967), US actress, singer

"You have no privacy anyway, get over it"
Scott McNealy, CEO Sun Microsystems, 1995

"The poorest man may in his cottage defiance to all the force of the crown. It may be frail; its roof may shake; the wind may blow though it; the storms may enter; the rain may enter – but the king of England cannot enter; all his forces dare not cross the threshold of the ruined tenement".
William Pitt, English Parliamentarian, 1765

Introduction: Definitions and demarcations

What is privacy? The most influential source of privacy as a part of American legal culture may well be an article called "The Right to Privacy" in the 1890 *Harvard Law Review*. Written by Samuel D. Warren and Louis D. Brandeis, the article was inspired by the rise of newspapers, photography, and other technologies with the potential to expose people's images and personal information to the public (Warren and Brandeis, 1890).

Privacy is an elusive, value-laden concept, changing over time, subject to the vagaries of what current technologies may promise or threaten, and formed in part by the emotional *zeitgeist* of the time. Thus it is hard to reach consensus on a definition of privacy that will satisfy all under the great variety of situations that privacy touches. For an individual, privacy is the simple right "to be left alone" (Cooley, 1888). This explanation is not particularly concrete since it covers some aspects of privacy like prevention against physical violations such as robbery and trespass. This definition, however, permits violation by observation, a violation that is becoming increasingly important in our technology-emboldened age.

Another commonly used and extremely powerful stance on privacy was submitted by Alan Westin, who stated that "(privacy is) the claim of individuals, groups or institutions to determine for themselves when, how, and to what extent information about them is communicated to others" (Westin, 1967). This definition incorporates the loss of control that individuals experience when their wish to keep their private information out of the public inspection is denied, and recognizes the importance of an alternative method to examine privacy – the definition of 'loss'. Ruth Gavison's description of loss enumerates the three basic components of privacy as "the extent to which we

are known to others; the extent to which we are the subject of other's attention; and the extent to which others have physical access to us" (Gavison, 1980).

Academic literature includes contributions from many different disciplines addressing the real meaning of privacy. However, an international consensus does exist for those elements of privacy that relate to the collection, maintenance, use, disclosure, and processing of personal information (Gellman, 2002). Many scholars have stressed the information about privacy as: "Information as lifeblood that sustains political, social, and business decisions" (Branscomb, 1983).

Consumer privacy comes in various forms (Singh, Hackler, Cowles, 2002). Although the word "privacy" is relative to an individual's perception, marketers would do well to view privacy as the containment of information that is specific to an individual. Privacy may also be used to define intrusion in a consumer's normal course of business, such as offensive e-mail targeted to a specific individual by name and telemarketing calls. Knowing that privacy is in the eye of the beholder replaces a CYA risk (Cover Your Assets) with a KYA imperative (Know Your Audience).

The issue of privacy becomes increasingly important as we begin to recognize the amount of information that can be obtained about any individual in a rather straightforward, efficient fashion. Companies like Experian Inc. or Trans Union Inc. specialize in the assemblage and sale of information arrays about individuals. Such information is legally obtained in the open market. Many individuals are not even aware of the information publicly available about them. One need only look at some of the pop-up advertisements that appear on the computer offering a free search about information regarding oneself or any other individuals. Spammers offer the promise of easy methods to erase information about one's bad debt, or other financial parties. The combination of such large amounts of information coupled with the ease with which this information can be amalgamated and then mined is certainly cause for alarm. Organizations such as CASRO have, in response to this issue, developed guidelines for privacy that members, the survey research organizations, must adhere to (CASRO, 2003).

Public opinion polls about the state of the citizen's mind concerning privacy

Surveys regularly appear about privacy concerns. Some of the studies conducted over the past several years suggest an emerging concern with privacy, but yet a concern whose dimensions and scope are neither clear nor easily articulated:

1. *Money Magazine* (1997) reported that "Nearly three-fourths (74%) of the public are somewhat or very concerned about threats to their privacy, though only 29% have experienced a serious invasion of their financial, medical or personal privacy. And roughly two-thirds (65%) are more worried than they were five years ago" (Dyson, 1999).

2. The Gallup Organization reported that as many as 78% of the people felt that it is very important that their medical records be kept confidential (Gallup Poll, 2000).

3. *Business Week* reported that more than half of all Americans favor some sort of public policy on how personal information can be collected and used (Business Week Survey, 2000).

4. A national survey of Net users was conducted in February (1999) by Opinion Research Corporation (ORC) for *Privacy & American Business*. The top-line result of the survey is both clear and decisive (Westin, 1999):

   a) Privacy advocates speaking for 12% of the adult Net user population – people who see *any* provision of personal information or click stream records to *infomediaries* or consumer-preference marketing websites as absolutely wrong (emphasis by current authors).

   b) 86% of Net users think just the opposite.

   c) 87% of Net users feel it is fair to collect information about "consumer interests and preferences and information that will be used for statistical analysis of interest and buying trends among Net users."

   d) 79% feel it is fair for persons receiving the benefits to agree that "banner-type ads for products and services can appear on the PC they are given, or at the website they visit to receive the free service."

   e) 59% feel it is fair for persons getting the benefit to agree that their "e-mail address can be provided to reputable companies, so they can send offers of products or services that reflect that person's particular interests."

   f) These P&AB survey results can be applied to the privacy group-segmentation formulated in prior Harris-Westin surveys analyzing offline privacy attitudes (Harris & Westin, 1991).

      * Here, 11% of Net users fit the Harris-Westin "Privacy Fundamentalist" profile. They feel that giving their personal information for benefits, even if informed of its uses, would violate their individual privacy boundaries.

      * At the other pole, 13% of Net users essentially say, "inform me what will be done with my information, and if I like the benefit and am not offended by the use, I'll join. I don't really care, in this marketing context, whether the website has privacy policies

favored by industry or the privacy advocates." These are the people that Harris-Westin Surveys have called the "*Privacy Unconcerned.*"

∗ In between – ever the Golden Mean – are what Harris-Westin typology calls the "*Privacy Pragmatists.*" Three out of four adult Net users (75%, representing 64 million adults) say, in this online situation, they want it all – notice, benefits and good privacy policies.

Enter public safety and concern for the general welfare

Personal information, once freely exchanged, is now viewed upon with suspicion, meted out in dribs and drabs, or withheld altogether, with rationales ranging from the civil libertarian (e.g., right to privacy) to the hawkishly paranoid (e.g., national security). Indeed, the line between a release of personal information and a breach of security has been blurred by the "orange alert" klaxons and relentless intelligence focus of the US Department of Homeland Security. For example, nowhere is the privacy vs. security tradeoff more evident than in the commercial transactions surrounding post-9/11 air transportation. In the United States, the implementation of broad-scale passenger screening (i.e. CAPPS2) (Sharkey, 2004) has elicited protest from privacy advocates, all while US airlines continue to suffer depressed ticket revenues.

Security and privacy concerns are no less prevalent in Europe, where ticket sales have largely returned to their 2001 levels. The Privium system, operational at Amsterdam's Schiphol airport, e.g., allows participants to voluntarily submit some of the most personal information imaginable – biometric data – in exchange for a high-security fast-track through airport screening. What's more, Privium charges participants 99 euros a year for this privilege. This is an excellent example of how an informed consumer parts willingly with personal information, in exchange for a particular benefit, namely perceived security. Privacy does have a price, but if the consequences are perceived to be sufficiently serious that price is willingly paid and privacy is exchanged. Unfortunately, however, the exchange of privacy for security holds only for one's personal safety.

The privacy sacrifices that consumers make for personal safety and in turn national security may not translate into tolerance for privacy abuses in less-critical areas – such as marketing (Janowski, 2004). The best evidence for such failure of privacy-as-security to translate into the marketing realm comes from the hue and cry raised by supermarket loyalty card programs that use wireless "RFID"-equipped cards to speed consumers through checkout lines. The loss of privacy in that case is not perceived to be a valid tradeoff for efficiency,

although if personal security were the issue we might not see such complaints. Wireless supermarket loyalty cards from the United States (e.g. Albertson's) to Germany (Metro) have been scrapped after privacy advocates reversed the perceived benefit of convenience and reward premiums. Their strategy was simple. They emphasized the "always-on" nature of the RFID technology as a passive, continual evasion of actively provided consumer permission. They highlighted the as-yet-unproven dangers of data mining: abuse, invasion of privacy, and an increase in unwelcome marketing messages, however well-targeted and relevant those messages may be. The privacy vs. security trade-off is even more endemic in e-commerce. Surveys suggest that a remarkable 89% of American adults have some concern about the privacy of their personal information when or even if they buy on the Internet. More specifically, 54% of respondents reported being very or even extremely concerned about the privacy of their personal information when they buy online (Cole, Suman, Schramm, Lunn and Aquino, 2003). Concerns expressed about privacy of personal information were greater even than those expressed about the security of credit card information. Simply stated, personal safety and security that is willingly traded for privacy may not translate well to the realm of marketing.

Enter the consumer in an age of technology and business aggressiveness

Consumers are becoming increasingly aware that the businesses with which they interact know a lot about them. Many, but certainly not all consumers feel that this information can help the business serve them better. Many consumers have participated in surveys, and know that knowledge about consumer trends is important and can have high influence in different areas. In today's global economy, information is currency. Companies are willing to pay for it, and consumers are willing to sell it (Arrison, 2000). *Businesses* want information about their customers, because that information has value. There are two major uses of customer information that make information valuable. First, businesses use it to learn what customers want and need. Second, they use it to more efficiently offer their products to customers. The more a business knows about its customers, the more able it is to satisfy them (Moynihan, 2000). For example, the availability of Medical Information has many benefits. Free-flowing medical information allows faster discovery of what treatments work and what do not. Medical information allows epidemiologists to quickly locate and arrest disease outbreaks and environmental illnesses (The American National Research Council Report Networking Health, 2000). *Financial services* constitute another category in which privacy may be simultaneously beneficial and counter-productive. The emotional benefit of privacy might be outweighed in some cases by practical considerations. For example, the benefits of freedom of information in the Financial Services sector include

reduced risk of fraud, improved customer service, lower cost of credit, better prices and special offers, and reduced junk mail (Pitofsky et al, 1997).

Yet, except for the popular privacy issues that crop up in the news and lead to legislation, we don't really know what consumers want other people and business to know about them. Do consumers want different businesses and professionals to know different appropriate aspects of their needs and wants? Do consumers even differentiate among the different types of insights that are developed from data, ranging from product preferences to credit scoring to service offerings? Where some consumers may have very strict senses of privacy, others have significantly fewer reservations about revealing personal information and receiving the benefits of unvarnished participation in commercial life. Researchers from AT&T Research found in a study "Beyond Concern: Understanding Net Users Attitudes about Online Privacy" that some types of data are more sensitive than others. Respondents were generally comfortable providing preference information to websites. However, they were often very uncomfortable providing credit card numbers and social security numbers (AT&T Research, 1999).

In the research world there are no clear sources of data about the mind of the consumer. This lack of data about the calculus of the consumer's mind regarding privacy does not, however, daunt the community, because in a rush to ensure privacy most research companies, as well as many other companies privy to consumer information and insights, have articulated a privacy policy. A quick scan of that policy information reveals a deep concern with the issue of privacy. Companies have rules, even in the absence of a great deal of data about specified consumer fears. The policy is drafted by lawyers more often than generated by consumers, although there are some analyses of what specifics in privacy are of consumer concern (Moskowitz, Rabino, Ciacco, Hjelleset and Asami, 2003).

A sharp debate is raging over the ultimate effect to be obtained when consumers give personal information on the Internet in exchange for various benefits. On one side of the debate stand the pragmatists, who feel that the benefits of technology to the consumer outweigh the fears about privacy. On the other side of the debate stand the defenders of personal freedom, who denounce information-for-benefits programs as a dangerous threat to online privacy – what one critic calls a "Faustian bargain." These critics warn that highly personal profiles could be created by these information-supply programs and that this information could be passed along to other companies, used for "unwanted" e-marketing and even seized by government investigators (Westin, 1999).

Privacy, corporate data mining, consumer concerns and the inevitable backlash

Data mining is one of those magic, *au courant* words, on the tips of the tongues of cognoscenti in the business community. One's first reaction is that data mining represents an esoteric information technology that can weave a coherent visual about an individual or group of individuals from disparate sources. The tools for data mining are arcane procedures devoted to pattern recognition, neural networks, discriminant function analysis and the like (e.g., Systat, 1997). The hidden message is that somehow the mathematical genie, the omniscient, technology-empowered goblin, can extract a coherent visual of the individual through these quantitative methods.

The reality of data mining is much simpler. Data mining refers to the action of going through a set of data in order to identify patterns that are relevant to marketers. In the world of statistics data mining is akin to exploratory data analysis, with the goal to create patterns that might be meaningful. Data-miners use an array of statistical tools, with common sense, to pose questions, in order to identify key patterns, and variables that co-vary with those patterns. Thus a data-mining problem might be to identify the pattern of preferences of an individual, based upon geo-demographic variables (age, income, gender, and market), previous purchase behaviors, or attitudinal behaviors. The data-miner typically works with a large array of information from many respondents, looking for the general patterns. In some respects, the data-miner is a quantitative sociologist, looking for determinants of specific behaviors, so that the marketer can increase the chances of a successful next launch by using the patterns that the data-miner uncovers.

With the looming presence of these data-capabilities the issue of privacy is not simply one of public policy to be argued in classrooms and courtrooms, in the splendid isolation of social thought and social theory. There is the ever-present motivation provided by corporate profits, which serves as the engine to find out more about individuals in the effort to sell more 'stuff', more efficiently. Prescient point-cast marketing, the 'Holy Grail' of data mining, would allow marketers to accurately predict, offer and satisfy consumer desire through fine-grained commercial profiling, aided and abetted by a total data-driven awareness of the consumer. Consumers who presume their privacy to be a sacred constitutional legacy may be put off when addressed, by name, with any message, even an accurately targeted one. They may be appalled to learn the degree to which their personal and commercial information has been gathered for mining (Givens, 2003), or offended to learn that ad agency anthropologists are stalking them when they shop and when they communicate on the Internet in chat rooms (Tischler, 2004). Marketers count on consumers' openness, permissiveness and honest communication to optimize the

communication and the product. Such permissiveness may be headed for rougher waters.

Data mining reduces the assumed opacity of consumers' daily life. No longer insulated by secrecy, by common courtesy or by anonymity, consumers begin to view any untoward collection of personally identifying information with "Big Brother" suspicion – and with good cause. Few would choose transparency; yet no one can opt-out of a fishbowl society, awash in personal information. People who live in glass houses … have no privacy. In this fishbowl society, consumers are more sensitized to the misuse of their information (Hunter, Rowsell-Jones, 2003). Aided by law, they demand control over the use of their information. Marketers mining personal information will thus be exposed to escalating privacy risks. In a fishbowl society, the meaning of privacy changes, from secrecy of personal information to control over that information. This privacy-as-control bargain changes the rules for marketers.

Two out of three Americans now say that they are "constantly bombarded with too much" advertising (Ruskin, 2004), and react with vigor: by removing corporate brands from sports venues and banning marketing messages from schools. The backlash plays out in a rash of frivolous lawsuits alleging that cigarettes and fast food don't kill people; rather, it's the *ads* for such products that cause ultimate harm. This retreat from openness and a corresponding rise in a consumer's attitude of "*commercial-callous*" is demonstrated in several concurrent commercials featuring anti-identity theft campaigns sponsored by financial and medical institutions. Indeed the volume of privacy-related messaging appears to be increasing, and becoming more pointed.

What is the bottom line for all this? Combine together the zeitgeist of "loose lips crash planes" with the regulatory onus of the HIPAA, DMCA, PATRIOT, DNC, and CAN-SPAM Acts (all of which control the trafficking of personal information) and the message is clear: consumers are becoming *less willing* to give up some information in order to gain something of benefit – either a benefit to society or a benefit to themselves. Marketing, which has always been about an exchange of information, is faced with a uniquely post-information-age challenge. First, marketers must shout in order to be heard above the din of competing messages. Second, marketers must listen with acute precision to tease meaningful commercial signals from the cacophony of consumer noise. The marketer's task is made that much harder when consumers actively or even passively turn away from the fray, and let their willingness to participate in the marketing dialogue fade into indifference or grow into outright hostility and activism.

When the intangible risk of *privacy breach* is weighted above a tangible risk of security breach, marketers should pay attention, because something important is unfolding. Consumers might be heard to profess a variety of opinions and prospective actions, ranged from the rational ("*I'll give you my zip code for a mortgage quote*") to the paranoid ("*I'd rather use subway tokens than fare cards so I won't be tracked all over town*"). The lesson of Privium and Albertson's is clear; demonstrating responsible privacy management for one's consumers ensures consumer perception of security and engenders confidence (Janowski, 2004).

Marketers engaged in consumer data-mining need to strike the appropriate balance between having a dataset as rich as possible to drive personalization efforts, and at the same time ensuring, communicating and demonstrating that they do not overstep the perceived boundaries of privacy concerns. Adhering to the four simple guidelines below may help achieve that success:

1. *Permission is critical*. Collect and use data, but only with permission. It is acceptable to track and manipulate consumer data; it is not acceptable to do so without consumer knowledge. A more-proactive approach to privacy is to assume that all consumer data is off limits unless the consumer has explicitly opted in.

2. *Communicate the value proposition first*. Define the exchange of value before gathering personal information. Determine whether or not the value of what the consumer is getting in return is sufficiently high to offset the perceived value of the information he or she is offering.

3. *Modest wins*. Modesty in one's knowledge goes a long way to ensure one's survival in the information business. Do not blatantly display how much information is known. The prudent marketer tempers the broadcast of that information. The goal of prescient point-cast marketing must be perceived as comforting serendipity – to appear to have just happened to deliver a relevant message at the right time. In U.S. parlance, it is the statement of 'aw shucks' after an amazing performance.

4. *Enforce privacy policies throughout the enterprise*. Take steps to audit and control what consumer data the enterprise has, where it is and who can access it. Good fences around knowledge make good neighbors of the consumer and the knowledge possessor.

PART 2: THE MIND OF THE CONSUMER
WITH RESPECT TO PRIVACY ISSUES

Probing the mind of the consumer respondent: Questionnaires versus behavior (stimulus-response)

Over the past century a rather large industry has grown up dealing with the measurement of attitudes in public policy. These attitudes are generally measured through questionnaires that the respondent completes. The questionnaire comprises a set of statements that the respondent rates on some type of anchored scale (e.g., agree vs. disagree; irrelevant vs. important, etc.). The nature of the questions, the types of scales used, and the subsequent analysis all vary by the problem, and by the predilections of the researcher. In the end, however, the data generates a profile of the respondent on key measures, and the researchers use that profile to classify the respondent into one of a limited number of groups. This paradigm of questionnaire and analysis typifies a great deal of the research done to understand the consumer mind. The goal is to understand how nature divides people by their mind-set, and what attitudes are held by the total population, and by different groups. The paradigm is inherently non-experimental, and non-operational. The paradigm looks for patterns in data based upon responses of a variety of consumers, using statistics, from simple to complicated, in order to ferret out these patterns.

Behavioral psychology with its background in experimentation has introduced the notion of S-R or stimulus-response. The subject is given a stimulus, and responds. The mind-set of experimentation teaches the researcher a great deal about the behaving organism, especially when the researcher systematically varies the test stimulus and measures the changes in response, looking for patterns that correlate with the changed stimulus. The power of S-R analysis is substantially greater than the power of standard questionnaires, because in questionnaires the stimuli are questions. In S-R analysis the stimuli can be phrases or visuals, interpreted by the respondent, and reacted to (McLauchlan, 1992). In the end, questionnaire research about attitudes leads to insights and suggestions for next steps that have to be interpreted in the world of stimulus communications. Contrast that with behavioral, S-R research, which identifies what particular stimuli drive a specific response. Both insights and immediate next steps emerge.

Conjoint analysis, the study of systematically varied stimuli, represents one increasingly popular form of S-R research. The stimuli in conjoint analysis are phrases or phrases + visuals; the responses are ratings on a criterion scale, such as interest, believability, uniqueness, etc. In conjoint analysis the researcher creates a bank of test stimuli (e.g., a set of phrases and visuals), mixes/matches

these stimuli creating test combinations, presents the combinations to the respondent, and obtains ratings. Each respondent in a conjoint study sees a relatively large set of concept elements, from which one can deduce which particular elements drive acceptance versus rejection. The statistical analysis is quite simple, generally one or another form of regression modeling. Besides its operational elegance, another benefit of conjoint analysis is that it forces the respondent away from the role of evaluating separate stimuli, and into the role of evaluating mixtures, which is the more normal case in the everyday world. Finally, the respondent cannot adopt a stance of being politically correct, because in the combinations (so-called test concepts), there are different messages, some of which the respondent may like, and others which he may dislike. The respondent must make an immediate judgment and move on to the next test combinations. The elements inside the concept 'fight it out' to drive the respondent's rating.

In the world of consumer research, conjoint analysis methods occupy a venerable role. Tracing the history back to 1964 (Luce and Tukey, 1964), conjoint approaches have become increasingly popular among researchers, both in academia and in the business world. For the most part, conjoint analysis has seen its greatest acceptance among those researchers who seek to define the features of products or services. Through the systematic variation of these features the researcher rapidly identifies which particular feature drives up acceptance, and by how much. It should come as no surprise, therefore, that conjoint analysis is becoming increasingly popular among applied researchers who avail themselves of the powerful methods to identify an optimal product rather quickly and efficiently (Cattin and Wittink, 1989; Wittink and Cattin, 1982).

The heritage of conjoint analysis has been in consumer oriented research in the for-profit sector. Conjoint has found use in the creation of products varying from relatively simple physical products (Green and Srinivasan, 1978; Moskowitz and Martin, 1993), to entire systems such as hotels (Wind, Green, Shifflet and Scarbrough, 1989). Conjoint analysis also finds use advertising, where it can be a powerful method to identify messages that break through the clutter in a deconstruction of advertising messages (Moskowitz, Itty, Shand and Krieger, 2002). Finally, conjoint analysis has been used to better understand the way people process messages, with dependent variables being both rating of acceptance and actual behavior response time (Moskowitz, Cohen, Krieger and Rabino, 2001). In all of these examples, however, the effort has focused on the creation of stimuli or messaging that can be sold to consumers, and that fit different needs.

During the past several years, conjoint analysis has begun to find a home in public sector research, where the issues are more of public policy. For example, one can use the same approach of systematic variation to identify what particular features of an anxiety-provoking situation drive the respondent to state that he is more anxious (Ashman, Teich and Moskowitz, 2004). Other applications in public policy deal with the charitable giving sector, where the research has focused on the drivers of charitable giving and the differentiation of those drivers by the different charities, and different mind-sets of respondents (O'Grady, Beckley and Moskowitz, 2003). Finally, work by the senior author deals with the application of conjoint analysis to political messaging, and to the treatment of the presidential candidate as a consumer product (Moskowitz, Gofman, Tungaturthy, Manchaiah and Cohen, 2000). The current study on privacy issues is done in this spirit of research on public policy, and continues some of the earlier privacy-focused research for Internet privacy (Moskowitz, Rabino, Ciacco, Hjelleset and Asami, 2003).

One of the hallmarks of public policy research and conjoint analysis is the change in the focus of the question. In consumer products and services research the question is easy to frame; i.e., some version of 'are you interested in this product/service'. In public policy research the question is harder to frame. What exactly is the objective of the research? For political polling, it is 'would you vote for this candidate'. In anxiety-focused research, the question is harder to frame. It is 'how hard is it to deal with the situation described in this vignette'. For example, dealing with privacy issues changes the question. The question in this study is '*how willing are you to share this information with your (e.g.,) doctor?*' This is rather different from '*would you buy this product*'?

The genomics metaphor, mind-genomics, and conjoint-based 'mega-studies'

Genomics, the science of how genes express themselves in physiology and behavior, provides an interesting organizing principle that has promise to advance consumer and public policy research. In genomics the researcher performs simultaneous, parallel tests on many thousands of genes in order to develop a pattern of responses across the different tests. One test alone, the traditional scientific approach, gives way to multiple linked tests. This strategy offers the researcher a holistic view of the nature of the gene, in terms of how it will express itself. With thousands of genes, and with a specific limited set of behaviors, the learning becomes more profound when the researcher can identify the specific gene and behavior correlated with an issue, such as obesity or specific types of birth defects (Moskowitz, German and Saguy, 2004). The genomics approach is a powerful metaphor for the type of research presented here, providing both an inspiration and an organizing principle.

The genomics metaphor has been recently adapted to consumer and public policy research, through the It! Studies (Beckley and Moskowitz, 2002). The It! approach uses a set of linked conjoint studies with the property that each study has the same type of elements, and the same classification questionnaire. Each of the elements in the study has a *raison d'etre*. The wording of the element in a particular study varies by the nature of the topic. Occasionally, as is the case here with studies on privacy, the same set of elements can be used for all of the individual studies. Only the study topic varies.

A key benefit of the It! approach comes from the ability to compare results directly from one study to another. Rather than having the studies stand as independent units, whose results must be interpreted and synthesized, and then comparisons made on the synthesized 'general results', the It! studies allow for comparison of specific elements, especially when the elements are identical. Thus each of the studies provides its own set of data, with conclusions, but there are larger-scale conclusions to be drawn from the pattern of responses across all of the studies. When it comes to privacy, therefore, the comparisons will be easy across the different topic areas.

The It! approach with elements modified to be appropriate for the topic has been previously presented for issues dealing with anxiety (Ashman, Teich and Moskowitz), charitable giving (O'Grady, Beckley and Moskowitz, 2003), and food/beverage (Ashman, Beckley, Adams and Mascuch, 2002; Luckow, Moskowitz, Beckley, Hirsch and Benchi, 2004). The It! approach with the exact same elements has been used to study the patterns of product features for coffee (Cappuccio, Krieger, Katz, Itty and Moskowitz,. 2002) and for carbonated beverages (Moskowitz, Itty, Katz and Fink, 2004). The present study represents the first foray into social issues, using the same exact set of elements for different studies, and follows the structure of the earlier work on coffee and carbonated beverages.

Internet tools, It! mega-studies, and the empowerment of a new form of public policy research

For many years conjoint analysis was relegated to the very powerful methods that a researcher might use on special occasions. In the minds of many practitioners as well as business school students, conjoint analysis often represented a high powered method reserved for important projects. The Internet-era, however, has changed much of the nature of conjoint to where it is a tool that can provide rapid feedback (McArdle, 2000), and as a tool can be authored by a non-researcher, albeit with some instruction in the approach. Conjoint analysis has become a self-authoring Internet tool. Self-authoring refers to the ability of a researcher to design the study, type in the text and visuals using a template, and then launch the study. Rather than waiting a

while for a professional to do the design, the researcher can do it himself, even if not technically capable. This approach, called the ASP model for research (applications service provider), represents a major step in progress. Although one does not have to author the study himself, one can contract with many different people who are familiar with ASP approaches, to use the technology. Thus, the power of conjoint analysis can be further brought to the world of low-budget public policy research because the projects are attached to social issues, instead of to profit-oriented product designs and launches.

The research tool used in this study is called IdeaMap.Net® (Moskowitz, Gofman, Itty, Katz, Manchaiah and Ma, 2001). IdeaMap.Net's particular attraction is its ease of use, and the ability to use one of several different basic designs which can accommodate various research problems. Although the researcher is not free to choose an ad hoc, custom design, there are enough compiled designs available to make most research tasks feasible. For example, with the need for a reasonably short interview and 36 elements, there are a number of feasible designs offered by IdeaMap.Net that fit the role. One specific design, 36 elements and 48 combinations, makes the interview sufficiently short to maintain respondent interest and reduce drop-outs, a problem endemic to Internet-based research because there is no direct supervision of the respondent (MacElroy, 2000).

How we designed this study on privacy

The study objective was to identify the types of information that the respondent would be willing to share with another, *specifically defined* individual. We designed the study to encompass 30 different topic areas dealing with privacy. Table 1 below shows the 30 types of individuals, classified into groups. The groups range from individuals considered to be most important in one's life (e.g., one's doctor), to individuals those considered almost casual acquaintances (e.g., employees at a local health spa). In this way we could get a sense of the range of information that a respondent would like to share with specific types of individuals, and in turn a sense of the span of privacy.

Table 1
THE TOPIC AREAS FOR THE 30 PRIVACY STUDIES

Group 1 – Medical			
Doctor	Dentist	Pediatrician	Hospital
Group 2 – Insurance			
Health insurance	Life insurance	Car insurance	
Group 3 – Financial			
Bank	Investment broker	Credit card	Real estate broker
Mortgage broker	Accountant		
Group 4 – Children's Issues			
Child's daycare	Child's school	University - college	
Group 5 – Casual Acquaintances			
Health club	Health spa	Hairstylist	Library
Video rental store	Auto mechanic		
Group 6 – Stores			
Pharmacist	Local supermarket	Wholesale club store	Department store
Group 7 – Miscellaneous			
Lawyer	Employer	Religious institution	Dept. Motor Vehicles

Specific information to be shared: Five categories of information and a category of visuals

Each study comprised five categories of information, each category comprising of six elements. The five categories ranged from visual stimuli to information about health, purchasing patterns, financial status, etc. Each element within a category was created to be a stand-alone phrase that could be incorporated into a concept. The eventual goal was to mix and match these elements into small, easy to read vignettes or test concepts. The elements had to present short, easy to understand ideas that could be combined with other ideas through an experimental design (Box, Hunter and Hunter, 1978). Table 2 shows these six categories, and the 36 elements.

Table 2
THE ELEMENTS FOR THE PRIVACY STUDY,
DIVIDED INTO SIX CATEGORIES OF SIX ELEMENTS EACH

Category 1 – Visuals (Pictures)
Set of forms
Executives
Family
Woman at a computer
Office Building
Red Forms
Category 2 - Personal Details
Family assets and property value
Family members...names, e-mail addresses and telephone numbers
Life insurance policy details ... designated beneficiaries & death benefits
Personal identification about family members...social security numbers & physical descriptions
Number of people in household ...gender, ages
Annual household income
Category 3 – Medical
Complete medical history ... family diseases, past surgeries and other ailments
Results of physical examinations and tests
Family history of alcohol or substance abuse
Medical prescriptions filled
Treatment for a particular ailment or medical condition
Victim abuse, neglect or domestic violence
Category 4 - Family Financial
Deposits and withdrawals from financial accounts
Personal details from loan applications or insurance policies
Credit line information, credit reports showing debt level
Mortgage, home equity loans, home refinancing
Copies of bank statements and IRA statements showing information about your current financial status
401K plan or company profit sharing portfolio

TABLE 2, CONTINUED

Category 5 – Housing
Property transactions, names of landlords, mortgage lending institutions & payment information
Home ownership…family home, vacation home
Housing expense information...mortgage payments, real estate taxes and insurance premiums
Income verification statements or letters
Home address
Number of years living in house
Category 6 - Credit Card & Purchasing Behaviors
Credit card information to various vendors
Contact specifics… billing address, e-mail address, work & home telephone numbers
Bonus card benefits … rebate offers and discounts
Suggestive selling…information disclosed on-line about your past purchases to other customers
Details revealed online to other customers or other vendors about your frequent purchases
Details disclosed after your participation in online surveys concerning shopping behavior

The email invitation

This first of two privacy studies reported here was conducted on the Internet, using respondents provided by a third party specializing in mailings (Digital Arrow, Inc.). Internet-based studies rely on email invitations, or postcard invitations that provide a URL link. Thus a key to a successful study is to create an attractive invitation that promises an interesting interview, and some reward. It is very expensive to remunerate each respondent for the short interview, but a workable solution provides a sweepstakes with several winners. Figure 1 shows the email invitation sent out to respondents. Note that the invitation does not tell the respondents too much about the interview, nor the reason for the study, but provides sufficient information for the respondent to go to the next step of clicking the link. Approximately 5% of the respondents who receive the invitation actually participate, making it important to find a service that can handle large numbers of e-mail invitations in a cost-effective, rapid fashion. It is also important to specify the starting and

closing times for the interview. The researcher has to give the respondents enough time to receive the e-mail, and participate at their leisure.

Our observations of the process suggest that most of the responses occur within 24 - 48 hours of receiving the e-mail invitation, but in the future this short time frame may change with the increasing frequency of Internet-based interviews. Eventually, the response rate for the interview may diminish. With the changing dynamics of the Internet as a data collection venue our observations may hold only for the next year or so, with the participation rate changing dramatically.

Figure 1
THE **E-MAIL INVITATION TO PARTICIPATE**

Subject Line:
Talk back about Your Privacy Issues and tell it like it is!
Invitation text:
How much information about your life and your family's life are you willing to share, and with whom? At I-Novation, an independent research organization, we're trying to find out what aspects of privacy, people are willing to share with their doctor, a bank, and other institutions or companies with which you might do business.
To connect to the study, simply click on the link (if your email does not support hotlinks, cut and paste the link into your browser) and choose one of the easy-to-answer surveys.
http://12.109.160.54/ESMR01/privacy.asp
Depending on your connection speed, each survey should take between 15 and 20 minutes to complete. Each survey you take will count for one entry in the prize drawing featuring **a first prize of $150, and a second prize of $50.** The more surveys you take, the more chances you have to win!!
Please participate soon, as the study will close at 9 PM (Eastern Time) on Sunday, May 23rd.
Please be assured that any information you provide will be held in the strictest confidence. You will not be contacted by any sales or other research organization as a result of your participation in this survey.
Thanks in advance for your input, and good luck!
The I-Novation team.

Selecting the study

The respondent who selects the link goes immediately to a 'wall' of studies shown in figure 2. The wall presents the different studies, with the studies situated to maximize the chances of choosing the least popular study. That is, the position of each study on the wall changes, so that the least-populated study appears at the top left where the eye alights first on the page, and the most populated study appears at the bottom right. In this way we attempt to balance the studies, by giving the less popular studies a chance to be more

visible. The respondent merely clicks on the study of interest, and is sent to the study. It is important to stress that even at this point of study selection the respondent does not know very much about the study topic, other than the information conveyed in the invitation.

Figure 2
THE 'WALL' SHOWING THE DIFFERENT PRIVACY STUDIES
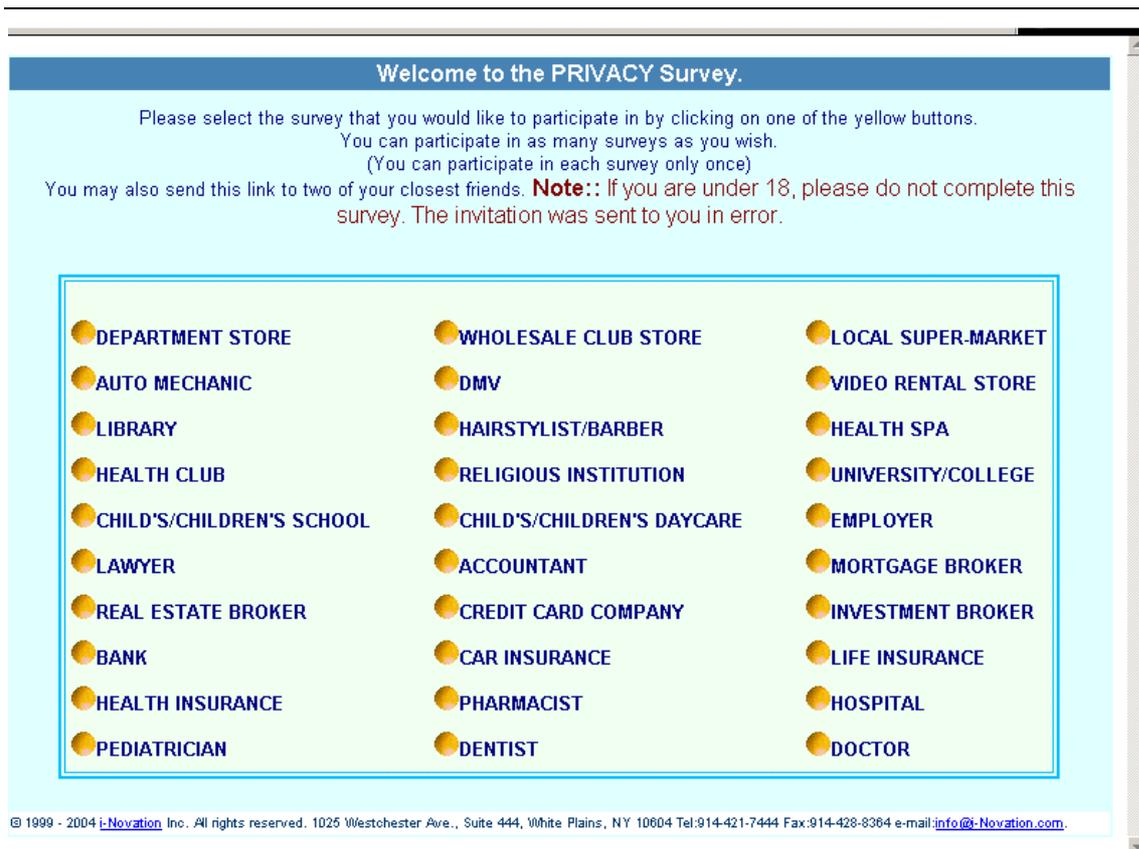
The most populated study is at the bottom right, the least populated study is at the top left. The studies are arranged in order of popularity, giving the least popular study a greater chance of being selected.

The interview

The Internet-based interview begins immediately after the respondent selects the study. The structure of the interview is identical across all of the studies, with two exceptions:

1. The orientation page, which is modified very slightly to accord with the study topic
2. The rating question

The respondent begins with a short orientation that introduces the study (figure 3). The orientation page describes the purpose of the study, the different tasks, and the subject matter, as well as the conditions of the sweepstakes. Every effort is made in the orientation to keep the information 'neutral'. Even though the invitation presented the idea of 'telling one's mind', the tonality of the actual interview itself is muted, in order to let the respondent's own feelings emerge.

Figure 3
ORIENTATION PAGE TO THE SURVEY, IN THIS CASE THE SURVEY DEALING WITH SHARING INFORMATION WITH ONE'S DOCTOR
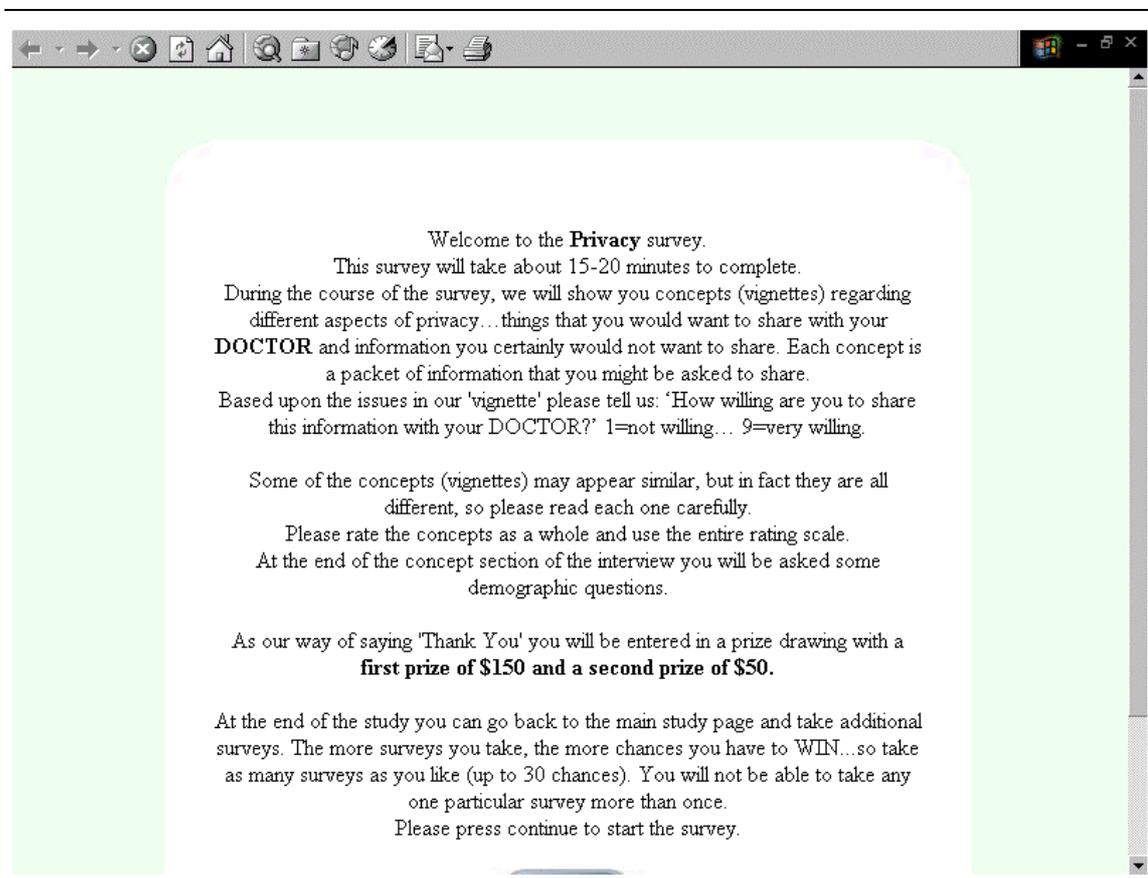

Test concepts and experimental design for individual-level modeling

Each respondent evaluated 48 different test concepts, with a concept comprising between two to four elements. A concept could have either one or no element from each category. The experimental design for the concepts ensures that across the 48 concepts each element appears statistically independently of every other element. The classification of elements into categories of like-minded members ensures that the concept does not contain

any mutually contradictory statements, which could occur if two elements from the same category were to appear. However, the experimental design is created so that when the regression analysis is done after the interview each element is treated as a separate, independent predictor. Figure 4 shows an example of a test concept comprising three text elements and a visual.

Figure 4
EXAMPLE OF A TEST CONCEPT
COMPRISING FOUR OF THE SIX CATEGORIES
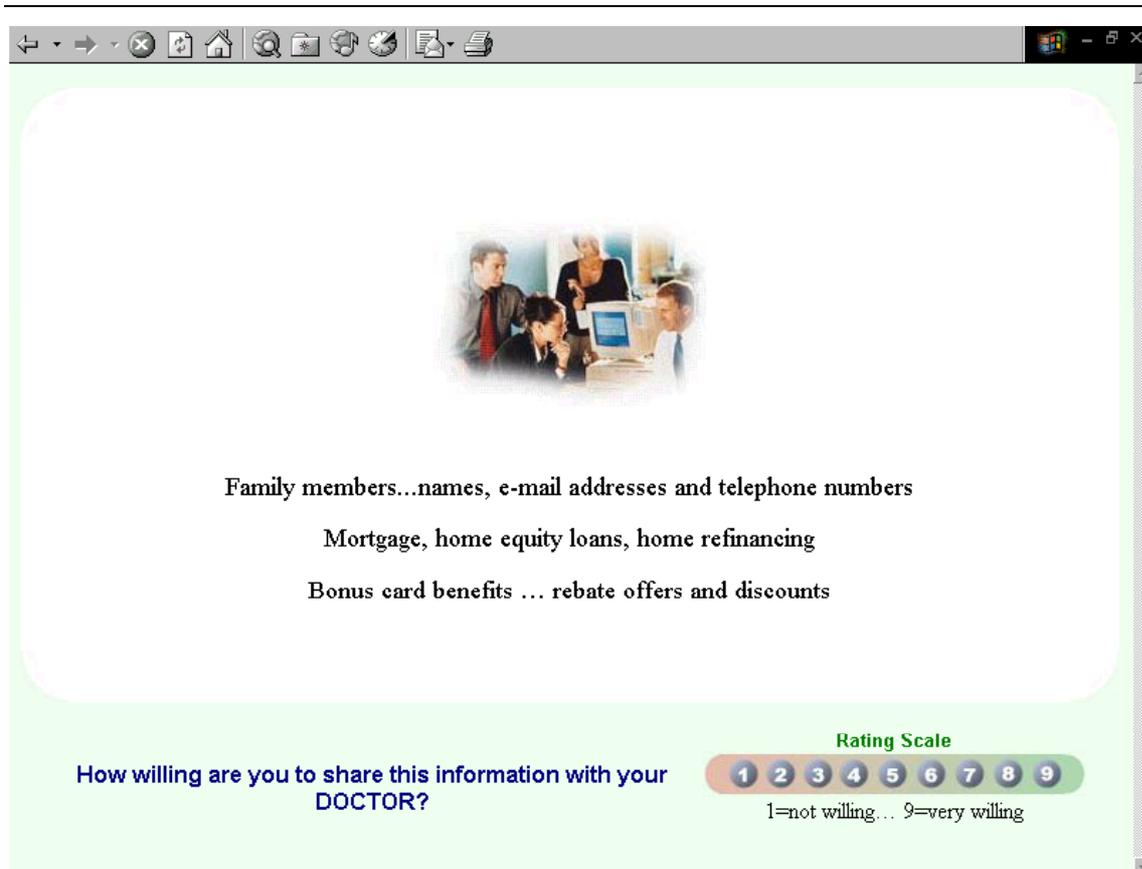
The rating scale is at the bottom of the concept.

The rationale for selecting 48 test concepts is worth discussing in a little detail. Much of the received wisdom in consumer research holds that the shorter the interview can be made, the better the data will be. To some extent this point of view is quite correct. Short interviews do not bore as much as long interviews. However, short interviews do not provide very much information either, and so they are not particularly valuable to answer complex questions that need patterns of responses. Longer interviews may not be interesting, but can

provide a lot of information, assuming that the respondents pay attention and do not 'turn off'.

For S-R research of the type done in conjoint analysis, the same issue of interview length versus results quality also holds, but is even more important. In conjoint analysis much of the useful information is obtained from the pattern of responses to systematically varied concepts. The greater the number of concept elements the more valuable the information, everything being held equal. Assuming no prior knowledge ahead of time, a researcher learns more from 36 elements than from 24 elements, and more from 24 elements than from 12 elements. Thus there is the perennial dynamic tension between incorporating more concept elements into the study to create better data versus one's desire to shorten the interview. Furthermore, the number of concepts tested must always be somewhat greater than the number of concept elements, because the system is based on regression (ordinary least squares, dummy variable modeling). Hence in the current study with 36 elements, a statistically valid database for a single respondent can be created by working with all 36 concepts in small combinations of two to four elements, presented in 48 concepts. There are sufficient degrees of freedom for valid statistical modeling by ordinary least squares, and the efficient design does not unduly tax the respondent's patience. Furthermore, to reduce any possibility of bias due to an unexpected interaction among elements, the experimental design structure is maintained for each respondent (i.e., 36 elements in 48 combinations) but the specific combinations are varied so that across all of the respondents there are different combinations of the same element. This permutation design strategy reduces the possibility of unforeseen problems that might occur because some elements do not really work together, even though they are from different categories.

Quite often researchers insist that a concept contain one element from each category. They aver, often vehemently and without proof, that the respondent is incapable of dealing with incomplete concepts, so that the respondent must always be presented with a complete concept. Practical experience over 25 years belies this concern. Respondents have no trouble integrating the partial information in a test concept to arrive at an answer. Furthermore, respondents do not need connective words to combine the different portions of the concept into an appropriate paragraph. Indeed, observing respondents doing this in person and talking to them reveals that most responses scan the concept, pick out what's relevant to them and make a decision.

When respondents participate in these studies they generally see concepts that appear as a set of simple phrases (i.e., bulletized, but without the bullets). Exit interviews conducted over 25 years, from 1979, among respondents who participate in this type of concept evaluation research reveal no dramatic
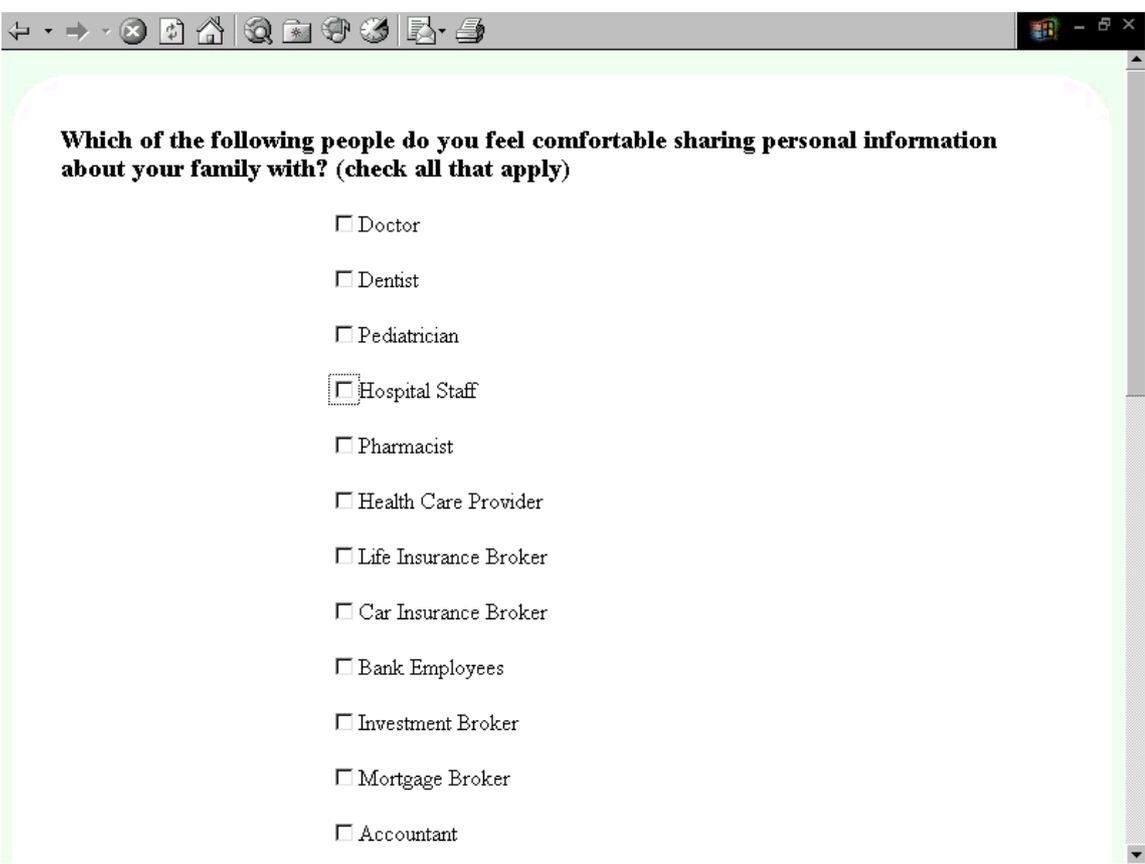
problems with the concept format. Respondents mention that they notice the difference between this concept format and more conventional text concepts, comprising connected prose. Respondents do not, however, say that they find the concepts either disconcerting to read or difficult to evaluate, respectively.

This strategy of presenting respondents with combinations of elements, in 'bulletized format' (or at least in short declarative statements), either with or without a visual, thus stands in stark contrast to many concept studies which emphasize complete concepts, finished to appear as small test advertisements. Those latter concepts tend to be long, not particularly interesting to read, and require the respondent to review the concept once or twice more in order to answer many of the subsequent questions. The in-going assumption here is that the researcher, marketer, social scientist and advertising agency is lucky to have the respondent give the material a passing glance. Anything that breaks through the clutter and attracts some attention in the 'real world' of competing information is what needs to be discovered. Furthermore, the careful attention paid to concepts in focus groups, the deliberate discussion, and the vehement championing of positions for and against the concept simply does not occur in an information-rich, hurried environment of competing stimuli.

Self-profiling questionnaire (Classification)

The self-profiling questionnaire allows the respondent to provide personal information, separate from the response to the concept elements. The questions deal both with standard geo-demographics, and with attitudes towards privacy and media. Each study in the set of 30 studies used the same self-profiling questionnaire, so that the data could be compared from one study to another. Figure 5 shows an example of one of the questions from the classification, the question dealing with a checklist of individuals or groups with whom the respondent would feel comfortable sharing personal information. Table 3 shows the questionnaire. It is important to note that the classification questionnaire can be expanded, but only at the risk of making the Internet-study a lot longer. The key information for this study lies in the pattern of utilities of the elements in the studies, not in the data from the classification.

Figure 5
SCREEN SHOT OF CLASSIFICATION QUESTION

Question specifically dealing with a checklist of individuals or groups with which the respondent would feel comfortable sharing personal information.

Table 3
THE CLASSIFICATION QUESTIONNAIRE

1	Which of the following best describes your age?
2	What is your gender?
3	With which of the following people do you feel comfortable sharing personal information about yourself? (check all that apply)
4	With which of the following people do you feel comfortable sharing personal information about your family? (check all that apply)
5	Which of the following methods do you feel comfortable using when you share personal information? (check all that apply)
6	How important is MEDIA IN GENERAL as an information source to YOU?
7	How important are MAGAZINES as an information source to YOU?
8	How important is TELEVISION as an information source to YOU?
9	How important are FRIENDS as an information source to YOU?
10	How important is RADIO as an information source to YOU?
11	How important is the INTERNET as an information source to YOU?
12	How satisfied are you with the government?
13	How important is your privacy to you?
14	Which of the following best describes your employment status?
15	Which of the following best describes your annual income?
16	Which of the following best describes your ethnic background?
17	In which of the following regions do you reside in?
18	Are you interested in future participation as a member of our panel?

Creating the model from the ratings at the individual level

Prior to the modeling, the individual respondent ratings were transformed to a binary scale, with ratings of 1-6 transformed to 0, and ratings of 7-9 transformed to 100. This binary transform reduces some of the information in the ratings but follows the approach used by consumer researchers who look for a simple classification of a response as reject or accept, or belong to a group or do not belong. In this way the subsequent analysis will focus on how individual concept elements about privacy 'drive' a respondent to feel like he would either share or not share specific information. This analysis of binary

responses differs from the conventional psychological analysis, which looks at the intensity of a respondent's feeling towards sharing information (i.e., along the continuum of *definitely would not share* to *definitely would share*). The difference between analysis of the binary variable share/not share and continuum of desire to share mirrors the differences in the intellectual histories of consumer research and experimental psychology.

Modeling the ratings by ordinary least squares regression creates a simple additive equation of the form: Utility = k_0 + k_1(Element #1) + k_2 (Element #2) … k_{36}(Element #36). Since the elements were combined according to an experimental design, it is straightforward to do a regression analysis on the ratings at the individual respondent level. The design was set up to allow analysis by ordinary least squares, with the intercept allowed to enter the equation. By ensuring that some concepts lacked certain categories (i.e., the so-called zero condition), the experimental design ensured that there would be no collinearity among the six different elements in any category. Thus the regression analysis would accurately estimate the part-worth contribution or utility value for each element, for each category. The intercept, in turn, would be estimated from the regression analysis, and would correspond to the estimated utility value if the concepts had no elements present. This is a purely hypothetical value, but worth considering in the analysis, as will be done below.

Two regression analyses were run for the data for each respondent, both using the method of ordinary least squares (OLS). The first OLS analysis related the presence/absence of the concept elements to the 9-point rating assigned by the respondent. The 'persuasion' model was used to establish the goodness of fit of the model to the individual's data. The second OLS analysis was done after the respondent's ratings were recoded so that ratings of 1-6 on the 9-point scale were recoded to 0, and ratings of 7-9 were recoded as 100. This analysis is similar to the top two-box recoding of purchase interest scales. *The recoding changes the data from a measure of intensity of concept acceptance to membership in an acceptor group.* Other cutoff levels could be used (e.g., 8-9 on the 9-point scale) but experience suggests that this type of recoding works quite well, and yields similar findings to recoding of only 8-9. We will focus on this second OLS analysis, because the focus here is on the conditional probability of wanting versus not wanting to share information with a specific individual, not on the intensity of the desire to share the information.

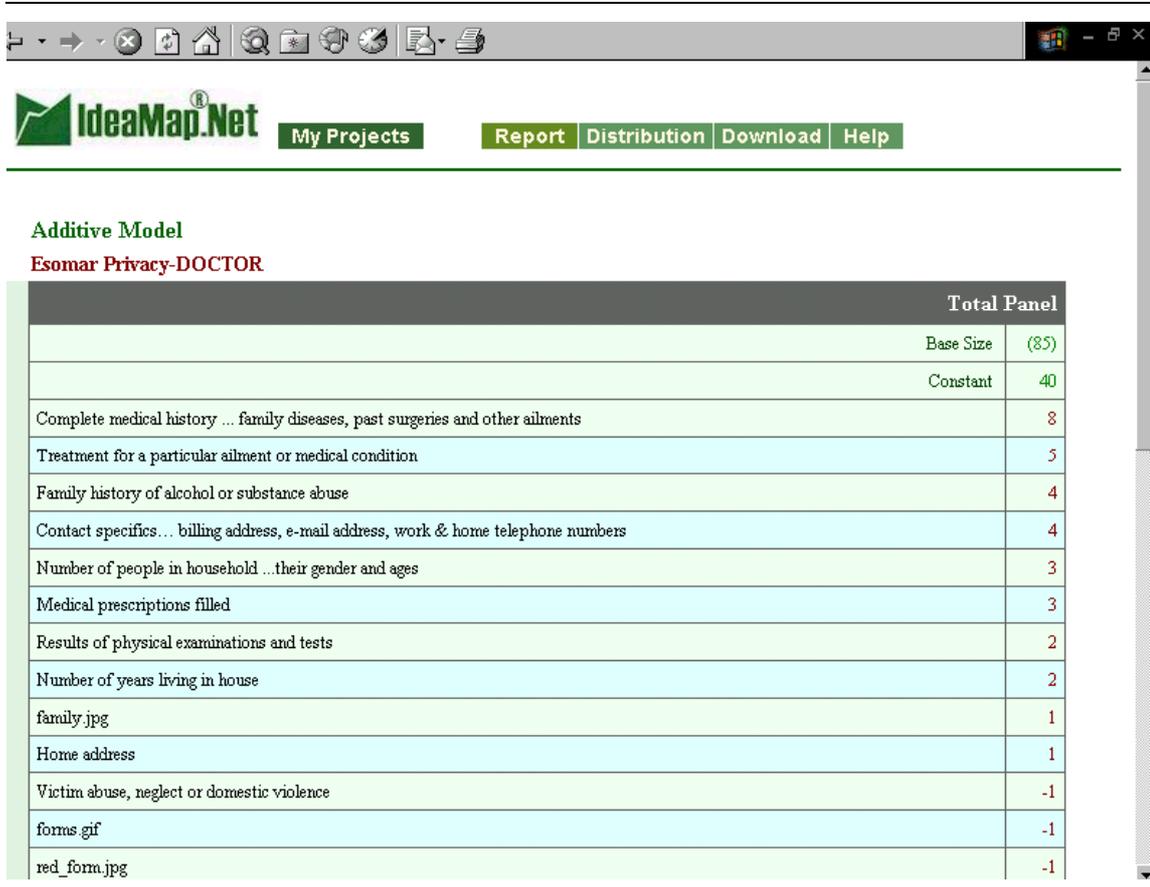**Monitoring the results: Looking at intermediate data**

A key benefit of conjoint analysis is the power of the data, even at a base size of one respondent, although it is certainly preferable to have a representative sample. Even at the base size of one respondent, however, the researcher can begin to see which elements drive the respondent away from sharing personal information (negative utilities in the output), and which elements drive the respondent towards sharing personal information (positive utilities). From previous results, the authors have found that as the number of respondents increases beyond 20 or more the data begin to stabilize, and a pattern emerges (Moskowitz, Gofman, Tungaturthy, Manchaiah and Cohen, 2000).

Internet-based tools such as the conjoint analysis of the type used here (IdeaMap.Net®) provides the researcher with intermediate reports 'on-line', any time. That is, during the course of the interviews the researcher can obtain an intermediate report, both of how the different elements are performing, and the distribution of respondents on the classification questionnaire. Figure 6 shows such an on-line report, this for doctors, but during the course of the study also available for each of the studies. Although the ability to monitor data might seem a frivolous benefit of Internet-based studies, in actuality real-time reporting of research data holds great promise. For many years quantitative methods such as that represented by conjoint analysis were considered to be 'ballistic', and unchanging. That is, once the study was launched, the process to acquire data, analyze the results, and make decisions was thought to be fixed, lengthy, and costly. With Internet-based tools, however, comprising study set-up, design, and intermediate analysis, conjoint analysis can become iterative and cost-effective at the level of each iteration, in the same way that focus groups are iterative and cost-effective at the level of an individual focus group. (See figure 6.)

Interpreting the conjoint utilities, and normative data for comparison

As noted above, the experimentally varied concepts are designed to allow dummy variable regression. Each respondent's data generates an equation, with an additive constant, and 36 utility values, one utility value for each of the 36 elements. The corresponding values (e.g., all additive constants) are averaged across the respondents in a specific study to generate an average value representing the total population.

Figure 6
SCREEN SHOT OF ON-LINE REPORT
FOR THE STUDY DEALING WITH DOCTORS AND PRIVACY

These 37 numbers can be interpreted as follows:

1. The additive constant. This estimated parameter can be interpreted as the conditional probability that a respondent would be interested in sharing private information with the individual named in the rating questionnaire. *The additive constant can be considered to be the baseline level of interest.* An additive constant of 20, for instance, means that without any additional elements present in the concept, only 20% of the respondents say that they would be willing to share information with the individual named in the rating question. An additive constant of 50, in contrast, means that without any additional elements being present, 50% of the respondents would be willing to share private information with the individual named in the rating question. The additive constant is computed using ordinary least-squares regression after the ratings at the individual respondent level have been converted from a 1-9 anchored scale to a binary scale (1-6 transformed to 0; 7-9 transformed to 100).

2. *The individual utility values*. There are 36 such values, one per concept element. The six visuals are treated as six concept elements. The regression model returns with a utility value for each respondent. *The value can be interpreted as the additive conditional probability that the respondent would be interested in sharing personal information.* The utility values differ by specific element, and by specific study.

Results

Analytic strategy

One of the key issues in the mega study with 30 types of individuals is the organization of data, and the systematic exploration of different issues. The database generated by a mega study is quite large, so the most productive strategy is to look at the issues in a systematic way. We will follow this set of analyses to make the database coherent.

1. *Likely and unlikely recipients of private information*: With whom would respondents say that they would feel comfortable sharing information – direct selection versus inferred level?

2. *Participation statistics*: What do log-ins and drop-outs tell us about privacy issues?

3. *What types of information are shared*: The limits of information that a person will give – to whom, by category.

4. *Visuals as passive indices of information sharing*: In light of the importance of emotional elements, how do visuals perform in these concepts and do they add much, if anything?

5. *Prior cognitive involvement and information sharing*: What is the effect of participation in a prior conjoint analysis on subsequently selecting information to share?

Are respondents comfortable sharing personal information – and with whom?

Two of the questions in the self-profiling classification dealt with a respondent's comfort in sharing information with outside individuals or groups. It is important to note that in the classification questionnaire the question was phrased in a general way *[Which of the following people do you feel comfortable sharing personal information about yourself with? (Check all that apply)]*. The data from the 30 studies provide a clear answer to this question, at least when respondents think about the question in its most general form (see table 4). First, there is a hierarchy of individuals with whom the respondent will feel comfortable sharing information, without, however, the type of information being specified by the question. At the top is the doctor,

with 74% of the respondents feeling comfortable sharing information about oneself, and 69% feeling comfortable sharing information about one's family. Dropping to half or less is the lawyer, and health care provider. Below that, however are dentists, pharmacists and hospital staff. At the very bottom of the pile are the casual contacts with whom respondents do not want to share confidential information. The results for information about one's family parallel the information about oneself, except that on a consistent basis slightly more respondents feel comfortable sharing information about themselves versus about their family.

Table 4
PERCENT OF RESPONDENTS SAYING THAT THEY FEEL COMFORTABLE SHARING PERSONAL INFORMATION WITH AN INDIVIDUAL OF A CERTAIN TYPE (E.G., DOCTOR, PHARMACIST, ETC.).

	Self	*Family*
Doctor	74%	69%
Lawyer	37%	31%
Health Care Provider	34%	28%
Dentist	26%	23%
Pharmacist	25%	21%
Hospital Staff	25%	24%
None/ I do not like to share personal information	22%	26%
Pediatrician	22%	25%
Religious institution staff	17%	15%
Life Insurance Broker	16%	12%
Accountant	15%	10%
Employer	13%	9%
Mortgage Broker	9%	6%
Child's/children's school staff	8%	11%
Bank Employees	8%	5%
Investment Broker	7%	4%
Car Insurance Broker	7%	5%
DMV (Department of Motor Vehicles) employees	6%	4%
Other	6%	4%

TABLE 4, CONTINUED

	Self	*Family*
University/college staff	5%	4%
Child's/children's daycare staff	4%	7%
Hairstylist/barber	3%	3%
Health club employees	1%	1%
Health spa employees	1%	1%
Library staff	1%	1%
Warehouse or wholesale club store employees	1%	1%
Local Super market employees	1%	1%
Department store employees	1%	1%
Video rental store employees	1%	1%
Auto Mechanic	1%	1%

Baseline interest in sharing personal information versus direct selection

We get a different visual of one's willingness to share information from the results of the conjoint analysis study, which is based upon the principles of experimental design and stimulus-response. Rather than asking the respondent to identify individuals with whom they would share information, as done in the classification questionnaire, we present the same individuals with the test concepts or vignettes, listing the types of information, and ask the respondent to rate likelihood of sharing all the information in the scenario. The conjoint analysis thus goes beyond simple classification questionnaires, because it presents a more concrete scenario.

Armed with this point of view, let us look at the results. The additive constant can be construed as basic interest in sharing information. Keep in mind that when a respondent selected a study and participated in that study, the respondent was focusing only on that particular individual, and was rating the different concepts with respect to sharing the information in the concepts. The actual additive constants appear in table 5. The additive constant differs by study, and the results differ from what respondents say they would do when asked about sharing information in the most general terms (see figure 7).

The surprising results occur when the additive constant is high. As table 5 shows, a respondent would be most willing to share information with a lawyer (additive constant = 61), less so with an accountant (additive constant=50), and significantly less so with a doctor (additive constant = 40). Yet, when asked in

a general way to select individuals with whom they would share sensitive information (table 4), 74% of the respondents say that they would share it with their doctor. The differences might well be due to the mental framework in which the question is answered, and the depth of information on which the statistical index is based. In polling questions the respondent is not provided with a scenario, but rather simply asked a general question to the effect of 'would you share information with 'so and so'?).

Figure 7
**COMPARISON OF DIRECT RATING OF SHARE INFORMATION BY
SELECTING THOSE WITH WHOM ONE WOULD SHARE (ABSCISSA;
CLASSIFICATION QUESTIONNAIRE) VS. PROPENSITY TO SHARE OBTAINED
USING THE ADDITIVE CONSTANT FROM CONJOINT ANALYSIS (ORDINATE)**
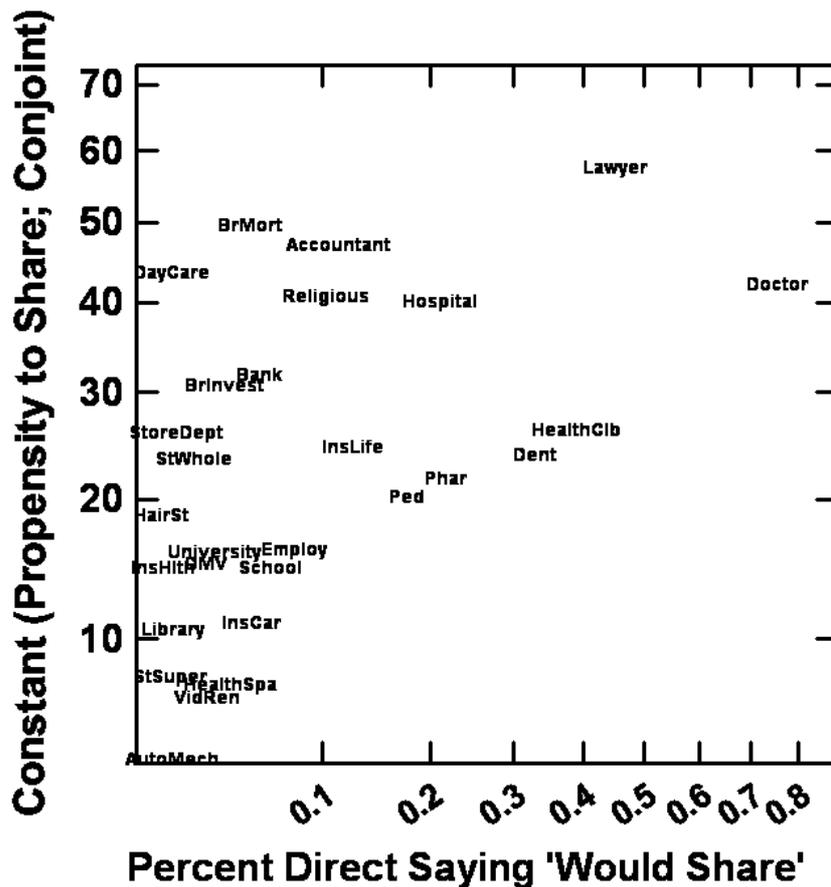
Table 5
ADDITIVE CONSTANT (PROPENSITY TO SHARE INFORMATION), LOG-INS, COMPLETE, AND RATIO OF LOGINS TO COMPLETE

Study Name:	Additive Constant	Logins:	Completed:	Ratio
Lawyer	61	60	34	57%
Accountant	50	48	33	69%
Mortgage Broker	49	46	34	74%
Child's Daycare	41	68	40	59%
Doctor	40	129	85	66%
Hospital	39	116	71	61%
Religious Institution	37	142	85	60%
Bank	35	96	59	61%
Investment Broker	34	67	33	49%
Real Estate Broker	32	56	34	61%
Health Club	27	66	43	65%
Wholesale Club Store	26	87	50	57%
Life Insurance Broker	26	47	36	77%
Dentist	25	70	41	59%
Department Store	24	80	51	64%
Pharmacist	21	64	38	59%
University-College	20	73	41	56%
Pediatrician	20	57	35	61%
Hairstylist	18	82	52	63%
Dept. Motor Vehicles	18	77	58	75%
Health Insurance	17	78	47	60%
Child's School	14	111	62	56%
Employer	14	109	69	63%
Credit Card	14	88	57	65%
Car Insurance	13	61	42	69%
Library	12	106	69	65%
Local Supermarket	9	129	75	58%
Video Rental Store	7	93	60	65%
Health Spa	7	72	40	56%
Auto Mechanic	5	58	37	64%

The direct comparison of the constant (a measure of interest in sharing information with the specific individual) and the percentage saying they would share (an overall measure) reveals discrepancies, which in turn suggests a different way of looking at the data. Figure 7 shows this direct plot. The different types of individuals are shown as abbreviated labels in the scatter-plot. Altogether 28 of the 30 different types of individuals appeared in both as a specific conjoint study, and in the self-profiling classification.

The data from the self-profiling classification suggest that when respondents are to select the individuals with whom they would share information, most of the individuals mentioned are not perceived as being appropriate to share the information. That is, the proportion of respondents selected is quite low when asked the question: Which of the following people do you feel comfortable sharing personal information about yourself with? (Check all that apply).

In contrast, the conjoint study reveals a range of additive constants with a pattern that differs from the pattern one might have expected from the classification questionnaire. Recall that the additive constant can be interpreted as the conditional probability of sharing information with a person, without any additional information being presented about the nature of the information to be shared. Some of the additive constants are low; these correspond to the incidental groups of people that have no right to an individual's private information. Thus it is not surprising that individuals both say they would not share information with their health spa and auto mechanic, and would not rate them as appropriate to share data with when they are the topic of a concept test. In some other cases, such as one's accountant and mortgage broker (MortBr) there is a willingness to share information, even though the self-profiling classification would suggest that a person would not share information (see table 4).

Latent interest in privacy: Log-ins, completes, and the additive constant

One of the features of the mega study is the freedom to choose a study and to drop out of the study. Given this freedom, an interesting question is the number of respondents who choose to participate in the study, and what this number might mean. We have already seen the additive constant in table 5. Table 5 also shows the log-ins, the completes, and the ratio of log-ins to completes. Our focus here is on the latter three measures, which give a sense of latent interest. Without knowing anything more about the topic, we can hypothesize that the more frequently chosen study should be one in which there is either the greatest latent interest or perhaps is the least emotionally threatening. We see some verification of this hypothesis in the table. The studies with the greatest number of log-ins are religious institutions (142),

doctor (129), local supermarket (129), hospital (116), and child's school (111). These may be interesting for two reasons:

1. The doctor, hospital and child's school deal with a person's own welfare, or the welfare of those close to him. Welfare here can be religious, health or children.
2. Participation in the privacy study with supermarkets may be done out of curiosity.

When it comes the topic chosen least frequently we see three financial people emerging at the bottom: accountant (48), life insurance broker (47) and mortgage broker (46). These individuals may be uncomfortable as interview topics because they are 'close-to-home'. Perhaps the respondent may feel as though these three individuals have a right to invade privacy without giving anything back in return, such as the peace of mind for doctors/hospitals, or the welfare of a child.

Drop out rates are also interesting. In this privacy study more than half the respondents who began a study completed it. The greatest proportion of the respondents dropping out concerned the college/university study (54% complete), and child's school (56% complete). The lowest proportion of dropouts occurs with mortgage brokers (74%), life insurance brokers (77%), and department of motor vehicles (75%). Why the difference? One possible reason is that whereas a child's education is relevant to most parents, it is not a pressing concern, except at the last moment. In contrast, both brokers deal with something that a respondent wants, and the motor vehicles bureau deals with the respondent's fears. In all three cases the typical individual who will be involved with these individuals spends time 'rehearsing' a plausible story. There is greater emotional involvement, and more play-acting. Some of that play-acting includes trying to anticipate questions, whose correct answer can gain a mortgage, life insurance, or avoid punishment. In contrast, with schools and education there is probably not as much anticipatory 'play-acting' going on to ensure that one says the 'right thing' at a meeting.

THE LIMITS OF SHARING SPECIFIC TYPES OF INFORMATION

There are limits to the information that respondents will give. The discrepancies between the selection of people to give private information and the basic interest in sharing information from the conjoint analysis point to the fact that sharing private information is more complicated than one might imagine. The complication comes from two things:

1. The information people share varies in the degree of sensitivity.
2. We expect some individuals to be privy to certain types of information, but not others.

To explore the limits of sharing information let us consider the utilities of six concepts across the 30 studies. Recall that there were six different categories of concept elements, corresponding to a visual (category 1), and five different categories of private information. It does not matter which concept element in each category we choose, but it is instructive to consider in depth one concept element from each category.

The results of this analysis appear in table 6.

1. The columns show the additive constant (column A), a visual element (column B) and one element from each of the five types of information (columns C, D, E, F and G, respectively).
2. The rows correspond to the individuals with whom the information is shared. Keep in mind that the additive constant shows the respondent's estimated predisposition to share information with that individual, independent of the type of information to be shared. In more technical terms, the additive constant is the conditional probability of sharing information, all other factors being equal. The remaining columns give the type of information to be shared, and a concrete example conveyed by the specific element.
3. The numbers in the body of the table corresponding to the elements are the utility values, or the additive (or subtractive) conditional probability of the particular information in the element being shared with the particular individual at the left. Positive numbers mean that there is an increased likelihood of sharing that particular information with that particular individual. Negative numbers, in contrast, mean that there is a decreased likelihood of sharing that particular information with that particular individual. Both positive and negative utilities can be added to the additive constant, or baseline, to estimate the overall likelihood of sharing.
4. Thus for a lawyer, and without any other information being conveyed, the conditional probability of sharing information is 61, or 61%. However, there is a reduced likelihood of sharing information about the number of people in the household, their gender and their ages (-7), so the net effect is about 54 for a lawyer with that particular information. In contrast, there is an increased likelihood of sharing information with one's lawyer about credit line information … credit reports showing debt level (+7), so the net effect is about 68 for a lawyer with that particular information.

We see from this analysis that there are two aspects of privacy, and not simply one rating or proportion as might be thought based upon a questionnaire.

1. *Basic predilection*: The first aspect is one's predilection to share information with a specific individual, which is revealed by the additive constant. This additive constant may be construed as one's baseline likelihood, but that is not sufficient. The baseline level requires content.

2. *Contribution of content*: The second aspect deals with the content, and is shown by the utility value. The utility value reveals the additional increase or decrease in likelihood of sharing information, and must be added to the constant to arrive at an overall measure of total likelihood.

Strong negative performers or privacy enhancers are shown in gray shading in table 6. These are elements whose utility values are -6 or higher, meaning that they substantially decrease the basic interest in sharing. In contrast, the hatched boxes show those types of information that respondents feel that they would like to share, and can be construed as privacy reducers. These are elements whose utilities are +6 or higher.

The patterns that emerge from table 6 are quite simple but persuasive.

1. There is a clear hierarchy of individuals with whom one wishes to share information. This comes from the additive constant.

2. Respondents clearly know the types of information that they would like to share with each individual. The respondents want to share information about Medical Issues with the Life Insurance or Health Insurance and definitely not with the Financial Sector.

3. Some individuals are trusted advisors such as a lawyer or a doctor, others are trusted with a limited amount of information, such as a mortgage broker. But among these trusted advisors can be information that an individual simply is not willing to share. Some individuals are both a very trustful advisor and an institution the respondent would definitely not share personal information (Real Estate Broker and Health Insurance).

4. There is a whole class of less trusted individuals showing low constants. These individuals are not trusted with anything, as evidenced by the low utilities. There is really little or no information one wishes to share with them.

5. In general there is a lot more 'non-trusting' than 'trusting'.

Table 6
**ADDITIVE CONSTANT (PROPENSITY TO SHARE INFORMATION), AND
UTILITY VALUES FOR 1 ELEMENT FOR EACH OF THE 6 TYPES
OF INFORMATION**

	A	B	C	D	E	F	G
					Type of Information To Be Shared		
	A	**B**	**C**	**D**	**E**	**F**	**G**
		Visual	Standard Geo Demo-graphics	Medical	Financial	House	Store Purchase Behavior
Individual with whom to share information	Additive Constant	Visual of Family	Number of people in household ...gender, ages	Medical prescriptions filled	Credit line information. credit reports showing debt level	Housing expense information.. .mortgage payments, real estate taxes and insurance premiums	Details disclosed after your participation in online surveys concerning shopping behavior
Lawyer	61	-1	-7	-1	7	1	-7
Accountant	50	-2	4	-12	-3	12	-6
Mortgage Broker	49	-5	2	-26	6	-1	-17
Child's Daycare	41	-2	-10	-13	-19	-11	-7
Doctor	40	1	3	3	-13	-15	-2
Hospital	39	-7	2	3	-10	-12	-11
Religious Institution	37	-2	2	-2	-6	-6	-5
Bank	35	1	2	-16	-2	0	-5
Investment Broker	34	4	-3	-15	2	4	-8
Real Estate Broker	32	-6	7	-19	-5	11	-9
Health Club	27	-2	-4	-10	-3	-2	-3
Life Insurance	26	3	9	4	-4	6	-8
Wholesale Club Store	26	-1	1	-5	-6	-3	-1
Dentist	25	2	2	1	-1	-1	-4
DPT Store	24	2	0	-5	-2	-6	-1
Pharmacist	21	-6	4	4	-9	-6	-3
Pediatrician	20	-1	2	12	-9	-12	-2
University-College	20	3	3	-1	-7	0	-2
Hairstylist	18	-2	4	-2	-8	-6	-3
Dept. Motor Vehicles	18	-1	-1	-4	-7	-7	-3
Health Insurance	17	6	8	14	-8	-5	-6
Credit Card	14	1	2	-7	0	1	-1
Employer	14	-3	0	0	-3	-4	-4
Child's School	14	-2	2	-3	-10	-4	-2
Car Insurance	13	1	4	-3	-6	-5	-2
Library	12	-2	2	-3	-5	-1	-2
Local Supermarket	9	3	1	0	-3	-1	0
Health Spa	7	2	1	2	-2	-1	1
Video Rental Store	7	-2	0	-2	-5	-5	-1
Auto Mechanic	5	1	0	-2	0	0	0

Each box shows the utility value for the type of information, and for the particular individual with whom the information is to be shared.

How elements drive the response to share information – which elements are polarizing?

A key benefit of a mega study is the ability to compare the utility values of the same element across all the studies. One way to increase the insight about the elements identifies the maximum and minimum utility values for each element, as well as the range, and the degree of asymmetry (more towards the negative, positive, or equal).

From table 7 we see the following:

1. No element is always negative or always positive. This means that the respondents are willing to share each of the types of information with someone.

2. There are a number of high sensitive elements that are very willingly shared with the right people, and kept to oneself with the wrong people. An example is 'victim abuse, neglect, or domestic violence'. This information is very willingly shared (+17) or very strongly kept to oneself (-28). It is all context, i.e., the person with whom the information will be shared.

3. One's purchase behavior and credit card behavior tends to be kept to oneself. One's patterns of purchases, and the like, grist for the mill of marketers, is something rarely desired to be shared, as seen by the very low positive utility values, and the moderate negative utility values.

4. One finding that is upsetting, however, is the asymmetry involved with the element *'Suggestive selling … information disclosed on-line about your past purchases to other customers'*. This information is part of the backbone of companies like Amazon, and a basis for collaborative filtering. It has virtually no positive aspect at all (maximum utility = +1), but a significant negative aspect (minimum utility = -14).

5. An analysis of the signs of the utility values across the 30 studies suggest that most of the utility values are negative, meaning that the respondents don't want to share the information.

6. Respondents are prepared, however, to share the information about number of people in house, gender, age, number of years living in the house, home address, and contact specifics. This type of information tends to be the most innocuous. Yet the information is not universally shared.

7. The bottom line here is that in many instances incorrectly offering the information can be quite damaging in terms of respondents. The rule of thumb here is 'when in doubt, don't'.

Table 7
**PERCENT OF TIMES ACROSS 30 CONJOINT STUDIES WHEREIN THE
SPECIFIC ELEMENT HAS A UTILITY VALUE GREATER THAN 0,
AS WELL AS THE MAXIMUM, MINIMUM AND UTILITY RANGE
FOR EACH ELEMENT ACROSS THE 30 STUDIES**

	Utility			
	% >0 in 30 studies	*Maxi-mum*	*Mini-mum*	*Range*
Specific Concept Element				
Number of people in household ...gender, ages	83%	9	-10	19
Number of years living in house	67%	10	-12	22
Home address	63%	9	-16	25
Contact specifics… billing address, e-mail address, work & home telephone numbers	50%	6	-6	12
Annual household income	43%	15	-8	23
Home ownership…family home, vacation home	40%	7	-8	15
Complete medical history ... family diseases, past surgeries and other ailments	37%	16	-21	37
Family assets and property value	33%	11	-17	28
Medical prescriptions filled	33%	14	-26	40
Treatment for a particular ailment or medical condition	33%	8	-29	37
Housing expense information...mortgage payments, real estate taxes and insurance premiums	30%	12	-15	27
Income verification statements or letters	30%	11	-12	23
Victim abuse, neglect or domestic violence	27%	17	-28	45
Results of physical examinations and tests	23%	10	-22	32
Family history of alcohol or substance abuse	23%	12	-27	39
Mortgage, home equity loans, home refinancing	23%	13	-17	30
Family members...names, e-mail addresses and telephone numbers	20%	5	-10	15
Life insurance policy details ... designated beneficiaries & death benefits	20%	9	-17	26

TABLE 7, CONTINUED

	Utility			
	% >0 in 30 studies	*Maxi-mum*	*Mini-mum*	*Range*
Copies of bank statements and IRA statements showing information about your current financial status	20%	8	-21	29
401K plan or company profit sharing portfolio	20%	9	-15	24
Bonus card benefits … rebate offers and discounts	20%	2	-11	13
Credit line information, credit reports showing debt level	17%	7	-19	26
Property transactions, names of landlords, mortgage lending institutions & payment information	17%	6	-12	18
Personal identification about family members...social security numbers & physical descriptions	13%	7	-13	20
Deposits and withdrawals from financial accounts	13%	4	-22	26
Credit card information to various vendors	13%	2	-13	15
Details disclosed after your participation in online surveys concerning shopping behavior	10%	1	-17	18
Personal details from loan applications or insurance policies	7%	7	-17	24
Details revealed online to other customers or other vendors about your frequent purchases	7%	3	-13	16
Suggestive selling…information disclosed on-line about your past purchases to other customers	3%	1	-14	15

The elements are ranked by the percent of positive utilities. All utilities come from the mean values from each study.

What do visuals add to concepts about privacy?

Many researchers and agency professionals feel that visuals are critical to the tonality of a concept. Although there is little information about the response to visuals, their use is often assumed to add some aspect of emotion. The rules underlying the visuals are not clear; no one knows what the visuals are

supposed to add, but there is the assumption that the respondent's emotions may be more readily tapped with visuals.

This study on privacy provides an opportunity to go beyond the text, and explore visuals. The experimental design comprised six different visuals; two forms (E1, E6), two people shots where the main focus is on people (E3, E4), and two business/building shots (E2, E5). These six visuals appear in figure 8. These elements were inserted into the concepts as additional concept elements, so that they were treated as 'free agents' in the same way that text elements were treated as free agents. (This means that they appeared according to the same experimental design that dictated the appearance of the text elements). Their utilities are thus estimated within the same regression model as the utilities for the remaining 30 text elements.

Figure 8
THE E-MAIL INVITATION TO PARTICIPATE

<u>**Subject Line:**</u>
Talk back about Your Privacy Issues and tell it like it is!
<u>Invitation text</u>:
How much information about your life and your family's life are you willing to share, and with whom? At I-Novation, an independent research organization, we're trying to find out what aspects of privacy, people are willing to share with their doctor, a bank, and other institutions or companies with which you might do business.
To connect to the study, simply click on the link (if your email does not support hotlinks, cut and paste the link into your browser) and choose one of the easy-to-answer surveys.
http://12.109.160.54/ESMR01/privacy.asp
Depending on your connection speed, each survey should take between 15 and 20 minutes to complete. Each survey you take will count for one entry in the prize drawing featuring **a first prize of $150, and a second prize of $50.** The more surveys you take, the more chances you have to win!!
Please participate soon, as the study will close at 9 PM (Eastern Time) on Sunday, May 23rd.
Please be assured that any information you provide will be held in the strictest confidence. You will not be contacted by any sales or other research organization as a result of your participation in this survey.
Thanks in advance for your input, and good luck!
The I-Novation team.

The results from the visuals are shown in table 8, sorted according to the average utility by specific visual element, and by specific individual who served in the rating scale. It is clear from table 8 that on the average no visual scores well across the different studies. There are some specific combinations of visual and study that stand out, such as a visual of the family in the study on

health insurance, or an office building and the study on car insurance. There are some noticeable negatives as well, such as the visual of the family with the study on the real estate broker, the visual of the office building with accountant, or the visual of an array of forms with the mortgage broker. These combinations make sense. There is no clear pattern, however, with one visual always or never working. The effect of visuals in concepts deserves further study in a more systematic manner in order to determine the role that visuals play in driving responses in concepts.

Table 8
**HOW THE SIX SPECIFIC VISUALS PERFORM IN CONCEPTS FOR THE
30 DIFFERENT PRIVACY STUDIES AS DRIVERS OR DETRACTORS
OF INTEREST IN SHARING INFORMATION**

	Specific visual						
	E2	*E3*	*E4*	*E5*	*E6*	*E1*	
	Exec	*Family*	*Woman at compu-ter*	*Office bldg.*	*Single red form*	*Array of forms*	*Avg. utility of the 6 visuals in the study*
Average across the 30 studies	-1	-1	-1	-2	-2	-2	-2
Health Insurance	5	**6**	1	2	1	5	3
Local Supermarket	4	3	0	0	1	5	2
Car Insurance	2	1	-1	**6**	-1	3	1
Investment Broker	**7**	4	0	-1	-4	1	1
Credit Card	2	1	1	-1	4	3	1
Health Spa	-4	2	3	2	3	0	1
Department Store	0	2	-1	2	**6**	-2	1
Child's School	0	-2	0	2	4	-3	0
Pediatrician	2	-1	-1	-2	-3	3	-1
Real Estate Broker	-1	**-6**	1	1	-2	5	-1
Accountant	0	-2	5	**-7**	2	-4	-1
Lawyer	1	-1	-1	1	1	**-6**	-1

TABLE 8, CONTINUED

	Specific visual						
	E2	*E3*	*E4*	*E5*	*E6*	*E1*	
University-College	2	3	-3	-5	1	-1	-1
Auto Mechanic	0	1	0	1	-2	-1	-1
Dentist	-4	2	1	-4	-1	-4	-2
Life Insurance	5	3	-5	-5	2	**-7**	-2
Mortgage Broker	1	-5	3	-2	2	**-8**	-2
Health Club	-1	-2	0	-1	-2	-3	-2
Library	0	-2	-1	-1	-2	-1	-2
Video Rental Store	-1	-2	-1	0	-3	-1	-2
DMV	-2	-1	-2	-3	-5	1	-2
Doctor	-3	1	-4	-5	-1	-1	-3
Bank	-1	1	-3	-4	0	**-7**	-3
Employer	-2	-3	-2	-4	-3	-3	-3
Child's Daycare	-3	-2	1	-3	**-6**	-4	-3
Religious Institution	-1	-2	0	-5	-3	-3	-3
Wholesale Club Store	-3	-1	-1	-3	-5	-4	-3
Pharmacist	-4	**-6**	-3	-1	-2	-4	-4
Hairstylist	-4	-2	-4	-3	-4	-2	-4
Hospital	-5	**-7**	-4	-5	**-9**	-2	**-6**

Positive numbers denote increased interest in sharing, negative numbers denote decreased interest in sharing. The table is sorted by the average utility of the six visuals in each study.

Inadvertently desensitizing privacy concerns through exposure and research exercises

Participation in a conjoint exercise to rate sharing information appears to inadvertently reduce the level of privacy concern, suggesting that public education and even propaganda about privacy may be more effective than one thinks. This unanticipated result comes from two things specific to the design of this mega study:

1. At the start of a study the respondents rated their 'sharing response' to 48 concepts about information, with a specific individual in mind (e.g., share information with one's doctor).

2. After the conjoint portion of the study the respondents selected all individuals with whom they would share information.

We can view the conjoint portion of the study as an exercise that involved the respondent in thinking about information to share with the individual listed on the rating questionnaire. Given this way of looking at the study, one question that arises is whether after such an introductory exercise the respondent would feel more or less likely to share information with that same individual. For example, if the study concerned information to be shared with a doctor, would more respondents than average feel that they would like to share personal information with the doctor?

We can answer this question quite simply by looking at the percent of respondents who say that they would like to share private information with the individual who served as the topic of the conjoint study. In the classification questionnaire the respondent could select this individual, and 29 other individuals with whom he/she would like to share information. If the proportion of respondents saying 'yes' to sharing information is higher for the individual when that individual was the topic of the study than the proportion was for the remaining 29 studies, we can conclude that the orientation exercise had a positive effect on propensity to share information. That is, the frequency of concern with privacy in the population would be assumed to decrease after the exercise.

Table 9 shows that there is an inadvertent decrease in the frequency of concern, based on the classification questionnaire. This decrease in frequency of concerns occurs both for information about oneself and for information about one's family, respectively. For example, when it comes to lawyers, the 29 studies without lawyers show that 36% of the respondents feel comfortable about sharing personal information. The highest percentage (from one of the studies) is 52%. However, when the study concerns lawyers, and the respondent evaluates 48 vignettes about information to be shared with lawyers, the exercise reduces concern. Now 65% of the respondents feel that they would feel comfortable sharing private information with the lawyer.

The same pattern continues to recur, most clearly for lawyers, pediatricians, dentists, religious institute staff, pharmacists, and accountants. Some of the other individuals show smaller effects. The reversal, namely more frequent concern, occurs with one's employer and with the Dept. of Motor Vehicles, both of which represent potentially punitive individuals. Thus an up-front exercise conducted with individuals that are not inherently punishing or who

have no power may reduce privacy concerns. An up-front exercise dealing with individuals that are perceived to be powerful or punitive may, in contrast, increase the frequency of privacy concerns.

Table 9
FREQUENCY OF RESPONSES ABOUT WILLINGNESS TO SHARE PRIVATE INFORMATION ABOUT ONESELF OR ONE'S FAMILY

Study Name:	Information about oneself			Information about one's family		
	Same Study	Avg. % from other studies	Max. % from other studies	Same Study	Avg. % from other studies	Max. % from other studies
None/ I do not like to share personal information		22%	34%		26%	40%
Doctor	79%	74%	91%	71%	69%	88%
Lawyer	65%	36%	52%	62%	30%	43%
Pediatrician	49%	21%	42%	54%	24%	55%
Dentist	46%	26%	39%	41%	22%	31%
Religious institution staff	40%	17%	31%	45%	15%	23%
Pharmacist	39%	24%	34%	29%	20%	31%
Accountant	39%	14%	26%	30%	9%	16%
Health Care Provider	38%	34%	45%	21%	28%	41%
Life Insurance Broker	20%	16%	33%	9%	12%	27%
Hospital Staff	19%	25%	42%	21%	24%	41%
University/college staff	17%	5%	10%	12%	4%	9%
Child's/children's daycare staff	15%	4%	10%	20%	7%	13%
Bank Employees	14%	8%	18%	11%	4%	12%
Child's/children's school staff	13%	8%	14%	15%	10%	23%
Investment Broker	12%	7%	21%	6%	4%	15%
Mortgage Broker	12%	8%	17%	6%	5%	12%
Car Insurance Broker	10%	6%	15%	7%	5%	9%

Table 9, continued

Study Name:	Information about oneself			Information about one's family		
	Same Study	Avg. % from other studies	Max. % from other studies	Same Study	Avg. % from other studies	Max. % from other studies
Hairstylist/barber	10%	3%	7%	12%	2%	6%
Health club employees	7%	1%	6%	0%	1%	4%
Employer	6%	13%	24%	1%	9%	18%
Warehouse or wholesale club store employees	6%	1%	6%	2%	1%	3%
Health spa employees	5%	1%	5%	0%	1%	3%
DMV (Department of Motor Vehicles) employees	3%	7%	12%	2%	4%	12%
Video rental store employees	2%	1%	4%	0%	1%	3%
Department store employees	2%	1%	6%	2%	1%	3%
Library staff	1%	1%	4%	1%	1%	4%
Local Super market employees	1%	1%	6%	1%	1%	3%
Auto Mechanic	0%	1%	6%	0%	1%	3%

The data comes from the classification questionnaire.

PART 3: THE MIND OF THE CONSUMER RESPONDENT IN A MARKET RESEARCH INTERVIEW

Introduction to this second study

This second study deals with the same categories of private information, but this time focusing on the market research profession. For some years now market researchers have been sensitized to the privacy needs by both the legal press and by professional activities in research that presume to protect one's privacy. The question now is the degree to which respondents feel that they would be willing to share information with market researchers, who, unlike the previously studied individuals, are in the business of obtaining information for business-driven 'insights'. An understanding of the privacy issue as it affects the type of interview, rather than the type of person, provides the market researcher with a sense of what the consumer respondent wants to share, and

what is held back. We have already seen from the first study above that when asked to think about sharing information the consumer respondent clearly differentiates among different types of individuals, and among different types of information. Now let us see what happens when the study focuses on the interview venue, rather than the individual. It is the interview in market research that is critical, because the interview is the venue in which the respondent provides the information.

This second study assesses eight different types of research venues in which the consumer might be asked to provide information. The second study used the same 36 elements, combined in the same approach. The respondents were given the same type of 'general' invitation as in Study 1. The respondents selected the study most interesting to them, again through the strategy of using a 'wall' to allow the choice.

We focus here on the key results from the total panel. In contrast to the previous study, the second study with research interviews comprised approximately 100-105 respondents per study. The larger number was chosen to permit segmentation of respondents. The respondents were furnished by SSI (Survey Sampling Inc.), as part of an ongoing relation with the authors to assist in creating appropriate samples for public policy studies.

Results

The nature of the interview itself has a great deal of impact on the types of information that an individual wishes to share. We see this first in table 10, which shows the percent of respondents opting to share information with an interviewer. The data in the columns A and B are a percent of respondents from the self-profiling classification. The data in column C shows the additive constant for each study from the conjoint analysis. The data in columns D-F comprise summaries across the 36 elements for the study.

We see clearly that the interview venue plays a role in the proportion of respondents willing to share information. The self-profiling suggests two, possibly three tiers of interviews. Depth interviews, Internet-based interviews and Gallup interviews are selected as the interview formats in which respondents would provide personal information. The popularity of the Internet-based interview may be an artifact due to self-selection because the study was done on the Internet. The middle tier comprises the focus groups and mail surveys. The lowest tier comprises the telephone and mall interviews. More respondents say that they would share information about themselves than share information about their families, a result that we saw for the main study as well as reported above. These findings are cause for alarm, since in the United States telephone and mall interviewing has been a mainstay of the consumer research business.

The additive constants from the conjoint analysis show a somewhat similar picture. We see the three tiers emerging. At the top lie the Internet issue, the focus group on social issues, and the Gallup interview. These are not surprising, and agree with the results from self-profiling. The more surprising results come from the reduced performance (in rank order) shown by the Depth interview, which from self-profiling was deemed to be the most likely venue to share information. In the conjoint study it is not. Another surprise comes from the increased performance (in rank order) shown by the telephone interview. When respondents are asked about telephone interviews many respondents say they would not share information in this type of interview, but in the conjoint study they show far greater propensity to share information. Finally, the poor performance of shopping mall interviews appears again, confirming the concern about this possibly-fading venue for consumer research.

The 30 text elements provide a cross-section of information that the respondent might be asked to provide, and thus a summary of the 30 utilities sheds some light on the range of feeling towards sharing information. The average utilities are all negative, generally close to zero. The extremes are more interesting. The shopping mall and the telephone engender less resistance for sharing than do the other forms of surveying. This may result from the fact that the respondents are accustomed to these venues for surveys. The positive extreme is the most interesting, for it is here that we find information that the respondents clearly want to share. The strongest performing elements occur in in-depth interviews and new product focus groups, with utilities of +10. The strongest element for the focus group, new product is 'Number of people in household ... their gender and ages'. The strongest performing element for the depth interview is 'Number of years living in house'. These two elements do well across virtually all eight interview venues, perhaps because they are the conventional geo-demographics that respondents are accustomed to providing. They are not necessarily private because they have emotional connotation, but might be private because one doesn't wish to share this easily purchasable information on the Internet. Both of these elements show a utility value of 0 for the Internet based interview. (See table 10.)

Table 10
SUMMARY RESULTS FROM THE EIGHT STUDIES

	A	B	C	D	E	F
	% Willing to Share	Con-joint	Summary statistics for the 30 text elements from conjoint			
Type	*Self*	*Family*	*Constant*	*Min-imum*	*Average*	*Max-imum*
Depth	26%	17%	24	-15	-1	10
Internet	24%	14%	31	-15	-5	0
Gallup Survey	24%	18%	30	-14	-4	3
Focus Group: New Product	20%	13%	27	-14	-4	10
Focus Group: Social Issue	19%	15%	31	-16	-4	3
Mail	16%	11%	22	-12	-3	5
Don't Share	10%	15%				
Phone	9%	7%	24	-10	-3	5
Shopping Mall	9%	6%	15	-8	-3	3

The data comprise information from self-profiling classification (% willing to share information about self/family from the classification), and summary results from the conjoint studies.

The conjoint study provides a more in-depth picture of how the respondents feel about providing information in different interview situations. We can follow the same six concept elements through the eight different interview venues. These results appear in table 11, sorted by the average across the eight venues. We might expect that the elements will perform more similarly across the eight interview venues than across the 30 different types of individuals, simply because the interview venues all deal with market research. This is not the case. There is a wide range of utilities across the different interviews with a suggestion of different dynamics playing their roles.

1. *Propensity to share, usually census-type information*: Sometimes the disparity in utilities comes from the increased propensity to share the information. This is especially the case for the element *'Number of people in household...their gender and ages'*. This information is readily shared in focus groups (utility = 10), but neither shared nor hidden in the Internet interview (utility=0).

2. *Desire not to share, usually information about one's personal finances or health*: Sometimes, and generally more frequently, it is a matter of degree of non-sharing, such as *Credit line information and credit reports showing debt level*. This information is kept private in phone interviews (utility = -6), and extremely private in Internet interviews (utility = -12).

3. *Mixed responses*. Occasionally we see elements that are voluntarily shared in one venue, and not in another. An example of this type of element is '*Medical prescriptions filled*'. The information is kept private on Internet surveys (utility = -3), and shared in depth interviews (utility = +4).

Table 11
ADDITIVE CONSTANT (PROPENSITY TO SHARE INFORMATION), & UTILITY VALUES FOR 1 ELEMENT FOR EACH OF 6 TYPES OF INFO

	Avg.	*Range*	*Focus grp. social issue*	*Inter- net*	*Gallup inter- view*	*Focus grp. new prod- uct*	*Phone*	*Depth*	*Mail*	*Mall inter- cept*
Additive constant			31	31	30	27	24	24	22	15
Number of people in household ... gender and ages	4	10	3	0	3	10	5	7	5	2
Medical prescriptions filled	0	7	-1	-3	1	2	-1	4	-1	0
Details disclosed after participation in online surveys re shopping behavior	-1	4	0	-4	-2	-2	-2	4	0	-1
Visual of family	-2	9	-7	-2	-3	2	-2	1	-1	1
Housing expense info ... mortgage payments, real estate taxes and ins. premiums	-2	7	-2	-2	-4	-4	-1	3	-1	-1
Credit line info and credit reports showing debt level	-9	6	-8	-12	-11	-12	-6	-7	-6	-8

Each box shows the utility value for the type of information, and for the particular individual with whom the information is to be shared. Data from study on interview venues.

Discussion

The value of conjoint analysis to go beyond conventional polling and questionnaires

We have seen from this paper that conventional research methods using polling procedures (e.g., those akin to the classification questionnaire) provide only partial answers to issues involving privacy. For instance, respondents feel that they can share a great deal of information with their doctors, at least according to a simple questionnaire. Indeed, when asked to select individuals with whom they can share information, the majority of respondents choose their doctor. Yet, when the respondents participate in the conjoint study, which deals with responses to concrete statements about privacy, the dominance of doctors for recipients of private information is not so clear. Lawyers emerge as more likely to receive private information.

The issue of sharing information is not clearly addressed nor quantified by the conventional questionnaire method, for the following three reasons:

1. *What type of information is deemed worth sharing*? Conventional polling leaves this up to the respondent's imagination. The question is presented in the most general form, without specification. The results fail to report anything beyond a statistic regarding frequency of this feeling in the general population, although presumably one could specify the types of information to be shared, and report separately on each. Conjoint analysis, in contrast, forces the researcher to develop scenarios in which different types of information are featured. The homework demanded by the conjoint exercise forces the researcher to dig more deeply into the respondent's mind, in search of specifics. Furthermore, the conjoint analysis deconstructs the responses into two portions; general predisposition to share information shown by the additive constant, and the additional effects of individual elements that add or subtract from that general predisposition as shown by the utility values.

2. *How prescriptive are the methods to guide public policy*? Conventional polling procedures rely upon a single phrase to which a respondent either agrees/disagrees or rates. There is no prescription about what type of information to share, and what type of information to avoid sharing. Conventional polling research comes from the world of descriptive sociology, which looks at masses of individuals as groups, but does not look deeply at particulars. Conjoint analysis, in contrast, emerges from the field of experimental psychology, with its strong S-R (stimulus response) *operationism*. The behavioral psychologist is interested in both describing and in engineering behavior, research and knowledge predilections picked up by and amplified through conjoint measurement. Conjoint measurement

reflects that S-R approach, and in the case of public policy, that S-R approach applied to social issues. The conjoint analysis researcher is in a better position to suggest concrete policies, because the research is grounded in details, not in fuzzy generalities.

3. *Does the frequency of selecting an answer in a polling or conventional questionnaire show the intensity of one's feeling, or just the fact that one has the feeling?* For example, we see that many people say that they feel comfortable sharing information with one's doctor, but does this mean that they feel slightly comfortable, or very comfortable? Conventional polling does not typically address this 'intensity' issue head-on, although if the issue were sufficiently important one might devote a number of questions to the issue. Conjoint analysis, however, addresses that issue. One can either measure the intensity of feeling by using the original 9-point scale or the frequency of feeling by using the conversion of the scale to a binary form.

The value of S-R analysis for complex constructs and the stimulus 'torture test'

Marketers are well aware of the fact that consumers may not be able to articulate what they want in a product, but they may 'know it when they see it'. Indeed the very immediacy of a reaction towards a product is far different from the considered opinions that respondents provide in focus groups, in-depth interviews, and even in questionnaires with open-end questions. The 'disconnect' between what people say they want in a product and to what they react most strongly when presented with the product often leads to marketing hand-wringing, frustration and occasional despair because the predictions and direction provided by research fail to materialize in the actual product. A key benefit of conjoint analysis is the ability to test many of these features of a product in a test that might, in less generous terms, be called a torture test. Since the elements in a conjoint analysis appear blended among other elements, in different combinations, and since the respondent has relatively little time to react, the respondent must react in a somewhat more truthful manner, relying on gut instinct rather than on a rational consideration. Marketers are aware of this power of conjoint analysis to force intuitive reactions in the face of lots of information (REF). Winning elements emerge by virtue of being strong performers under a variety of scenarios, and against many combinations.

The same type of torture test works with social issues of privacy. In an effort to be 'politically correct' and to appear *au courant* with current issues, many individuals try to reason through the problem of privacy. It is clear from the nature of the test stimuli that respondents have to either have a prodigious memory to ensure consistency, have to focus only on being consistent on one

or two salient elements, or react at an intuitive level. It is this intuitive, so-called 'gut level' response that provides good data, because the respondent has a hard time filtering the information through a rational system. The respondent is overwhelmed with information going in different directions, and has no time to make the choice. At this point a deeper level of validity emerges as the respondent stops trying to be consistent at a conscious level, and just goes through the study. Studies of respondent consistency using the R^2 statistic for goodness-of-fit of the modeled data at the individual respondent level show a great deal of within-subject consistency, so that respondents are consistent within their individual frames of reference (Moskowitz, Beckley, Mascuch, Adams, Sendros and Keeling, 2002).

Methodology … the value of an Internet Research Tool

Research is becoming increasingly oriented towards the Internet (Inside Research, 2004). From reports published by *Inside Research*, a trade newsletter in the market research community, it clearly appears that concept research is moving towards the web. Conjoint analysis is a form of concept research, and it too appears to be heading towards studies on the Internet.

The value of the Internet can be summarized as speed and cost, as well as simplicity. The internet can reach tens of thousands of potential respondents in an evening, making it a tool for commercial purposes, but even more strongly a tool for social research. The researcher need not wait long times to get the data; occasionally the data can be downloaded after a study is completed in as short a period as a few hours. This speed of research, itself a valuable factor, becomes even more impressive when one realizes that the respondents are scattered around the country, or even around the world, so that the study is representative of the population at large, or could be made so by proper Internet-based screening. Finally, the Internet provides cost-effective samples, always a key consideration in social research, where the budgets for research are not high, and where the profit motive is non-existent, or at least non-functional.

Even with the strong extrinsic exigencies above, we find that the Internet as a medium is uniquely suited to conjoint analysis (S-R) market research studies. Harris Interactive estimates that over 20% of market research is currently conducted online (Kirch, 2004), and will increase as telephone surveys dwindle, due to Do-Not-Call legislation, coupled with subjects equating phone research with telemarketing. The majority of online market research projects use a sample that is provided by a professionally managed panel (e.g., Survey Sampling Inc, the company that provided respondents for Study 2 on consumer research and privacy). With 67% of the US population online, demographics mirror census data in most cases, with the exception of elderly

and very low income. As the Internet population grows, so does the pool of panelists. Research on research has developed models for optimal invitation broadcast (early in the week), and gender (invitations sent from a female name yield more male respondents).

Distinguishing email invitations from spam remains a challenge, but one that is often outsourced to the panel provider. The asynchronous nature of the medium means that respondents are more likely to complete a lengthy conjoint analysis study of up to 27 minutes – a study that would be subject to many incompletes if conducted by phone, and prohibitively expensive if conducted *in-situ*. Online conjoint studies are not subject to interviewer bias or data entry error. Furthermore, conjoint tools lend themselves to robust experimental design and lowered incidence of attribution failures (Meyer and Mitchell, 1996).

Finally, server-based computing (also called the Application Service Provider or "ASP" model), where the study instrument and analytic tools reside on a common platform streamlines production while improving quality by removing intermediate "data laundry" operations. Indeed, several competing market research ASPs have survived the post-bubble Internet shake-out, and built tidy businesses for themselves – and for their clients.

The Internet becomes even more valuable when one uses it to measure selection of issues, as was done here. By presenting the respondent with a wall of alternative studies, it becomes possible to measure the frequency with which respondents participate, and the frequency of completes versus log-ins. These measures provide additional information about the latent interest in the topic, because people tend to participate in studies that somehow interest them, and have a difficult time participating in and completing a study that is boring. There is a great deal yet to be learned from understanding how log-ins, a measure of selection of a topic, co-vary with interest in the topic.

CONCLUSIONS

This paper constitutes a seminal approach to understanding research needs from the point of view of the responding consumer. A great deal has been written on insights from the point of view of the researcher; less has been written on the issue of what consumers want researchers to know about them. This paper provides a structured approach to understanding how consumers view private information, and what they are willing to share.

The first key result of this study emerges from comparing the *self-profiling* by the respondent with the "*real algebra of the consumer's mind*" by confronting the respondent with a Stimulus-Response Model. The results of the *self-profiling* suggest that most of the respondents feel comfortable sharing

personal information with a person from the "Medicare Health sector", especially with the "Doctor". Another person deemed appropriate to share confidential information with is the "Lawyer". The respondents were less likely to say they would share private information with individuals from "Religious Institution" or "Financial Service". Individuals from the "Casual Acquaintances" and "Stores" are even considered as appropriate to share private information. Nearly 25% of the respondents do not like to share personal information. Sharing information about one's family shows the same pattern, except that more respondents feel comfortable sharing information about themselves versus about their family. The only exception is the sector relevant to children (Pediatrician, Children school or daycare staff, respectively).

A similar set of differences emerges from the second study, dealing with the interview venue. The venues differ. More respondents feel comfortable sharing information in an Internet interview than one might have thought. Unexpectedly, fewer respondents said that they would share information in an interview conducted at the shopping mall, over the telephone, or by mail, three traditional interview venues.

The S-R approach embodied in the conjoint analysis suggests a somewhat different pattern from that emerging out of self-profiling. In contrast to the self-profiling, which asks in a general way about sharing information, the conjoint analysis provides concrete vignettes. The conjoint analysis provides a baseline interest in sharing (additive constant). The additive constant suggests that respondents would be most willing to share information with the "Lawyer", less with an "Accountant" and significantly less with a "Doctor". In some cases especially with respect to the Accountant or Mortgage Broker, the respondents are more willing to share personal information, even though they say at first glance in self-profiling that they would not be interested. These differences between the direct comparison of the Constant (measure of interest from S-R analysis) and the Percentage (overall measure from self-profiling) result from the mental context in which the questions were asked. Simple and general questions generate overall, possibly incorrect answers, or at least answers that do not hold up in specific situations comprising concrete actions and specific types of information.

A second key benefit of this mega study is the ability to compare the utility values of the same element across all the studies. No element in the study is either always negative (not willing to be shared) nor always positive (always willing to be shared). *This means that the respondents are willing to share each of the types of information with someone.* However, there is an asymmetry in the elements. Nearly all of the elements, except two ("Contact specifics… billing address, e-mail address, work and home telephone

numbers" and Annual household income) have more negative utilities than positive utilities. As noted in the paper the rule for privacy is simply 'when in doubt, don't share'.

The research presented above is noteworthy for at least four reasons:

1. *The perspective is unusual*. The perspective is the consumer looking at the individual in a professional practice or in a company and identifying what it wants the individual to know. This turns around the approach 180 degrees, for most researchers focus on what they want to know about the consumer.

2. *The approach is systematic*. We use a high level research tool, conjoint analysis, with the same stimuli across the different businesses. This allows comparison across businesses and within businesses, of the importance of each single element. We also use a common self-profiling questionnaire attached to the study, so that we can understand the consumer better. The systematic approach comes from the structured, identical conjoint study across all topics (i.e., only the orientation page and the rating scale anchors are changed).

3. *The scope is large*. We look at 30 different individuals in professions and businesses, so that we can identify meta-patterns across businesses for insights that consumers are willing to have companies know. We can identify specific types of insights that may be too sensitive for companies. With the approach that we have developed, using structured conjoint testing implemented on the Internet, we can create a mega-study comprising 20-35 businesses, from which the consumer respondent can choose one of interest. The expanded scope makes the results from the study much more interesting because it provides an understanding of many different facets of the consumer's view of insights about them.

4. *The approach is scalable*. The study can be run in many countries and done year after year to identify changing attitudes of consumers towards the private information, and its sharability. The approach is further scalable because it used Internet-based interviews, allowing for affordable base sizes, and ease of execution.

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