

Beyond Consumer Segmentation:

NEW TECHNOLOGIES,
NEW MARKET LENSES



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NEW MARKET LENSES

Institute for the Future

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INTRODUCTION



Today's world of increasing market fragmentation calls into question the effectiveness of the segmentation methods companies use to understand their markets and address consumer needs. In this report, *Beyond Consumer Segmentation: New Technologies, New Market Lenses* (IFTF SR-784 A), we forecast that in order to be successful in the next decade, companies need to move beyond traditional market segmentation methods and develop a dynamic portfolio of approaches that respond to the diversity, dynamism, and rapid change of the consumer market.

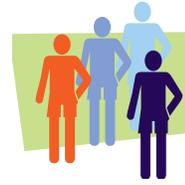
Two significant trends are driving the need to re-invent how businesses approach their markets. First, fragmentation of consumer populations, product offerings, and communications channels is making it more difficult to identify and reach markets with appropriate offerings. Traditional market segmentation systems are increasingly being undermined by escalating household diversity, abundant connectivity, more media channels, and new media technologies.

Second, new technologies are promising exponential growth in data about people, places, and things—making previously invisible consumer behavior patterns visible. Many physical places and devices, such as stores, public spaces, automobiles, and appliances will be embedded with technologies that will enable them to sense, observe, capture, and transmit data, and even respond to people and things in the various environments in which they operate.

Not having enough data on consumers will no longer be an issue. However, companies will need to become better at navigating the expanding sea of consumer information. Market leaders in the next 5-10 years will develop and use a variety of different “lenses” to view and understand their consumer markets. Some of these lenses will be similar to the ones companies use now—they may seek to segment their markets into large groups (the Segments Lens), provide offerings for individual customers (the Individual Lens), or understand how customers actually use their products and services (the Experience Lens). New lenses will emerge in tandem with new technologies, allowing companies to remotely sense the identity, location, or mood of consumers (the Context Lens), understand how consumers are affected by their network of friends and family (the Social Networks Lens), or capitalize upon emergent patterns of consumer behaviors (the Swarms Lens).

But essential to using these lenses is having better decision processes to identify the 20% of the information that provides 80% of the value. The new lenses will present multiple opportunities—and risks—for companies looking to respond to a fragmented market. Companies will need to develop new capacities to track emergent phenomena, provide “just-in-time” responses, and manage data-rich and data-poor markets. They must also find new ways to negotiate privacy and build trust with consumers. The good news is that added value and new revenue streams await the winners.

1. INCREASING MARKET FRAGMENTATION



The markets most companies serve are becoming increasingly fragmented. This trend is likely to accelerate in the next ten years as a result of demographic, social, economic, and technological forces. These phenomena will result in a growing diversity of lifestyles, consumer preferences, and choices, breaking down traditional market segments into smaller and more idiosyncratic niches. Market fragmentation will play out along three core dimensions—fragmentation of consumer populations, product offerings, and communication channels.

CONSUMER FRAGMENTATION: FROM MAJORITIES TO NICHES

Populations in developed and many developing countries are becoming increasingly diverse as a result of migration, extended life spans, shifting household arrangements, increasing levels of educational attainment, and new access to technologies and information. As a result, the individual choices and social pathways through life are far less predictable than they were 10-20 years ago and are not as useful as guides to understanding future choices, needs, and desires as they once were.

INTERNATIONAL MIGRATION

International migration is changing the ethnic composition of populations in most developed countries. It will accelerate over the next decade, with more than 17 million people per year expected to leave their native countries. Many of these people will be seeking the jobs and better pay that the economies in developed countries offer. Even some developed countries (for example, Finland) will lose a substantial share of younger workers to other developed countries. In the United States, more than 28 million residents are foreign-born. This number has grown from about 5% of the total population in 1970 to about 10% today.

Immigration and higher fertility rates among some ethnic groups are profoundly changing the diversity of American youth. Latinos, for example, are expected to grow from 16% of the American youth population in 2001 to 19% in 2010 and 25% in 2030. This points to growing ethnic diversity in the future.

EXTENDED LIFE SPANS

Extended life span in virtually every country in the world leads to more niches within elderly populations (see Table 1–1). The elderly populations are likely to break into more niches based on education level, health status, work arrangements, and financial situation. The elderly will create new and more varied life styles and demand a greater variety of product and service choices targeted to their specific needs.

GREATER HOUSEHOLD DIVERSITY

Changing household composition is leading to a greater diversity of family configurations and living arrangements in developed countries. It is no longer possible to point to the typical American household. In fact, households consisting of married couples with children account for less than 25% of all households, and so-called “traditional households” with a working father, a stay-at-home mother, and kids, make up less than 7% of all households. As these household configurations have declined we have seen increases in others. Today, the fastest growing types of households are non-traditional—single-person households, unmarried couples, extended families, and the like (see Figure 1–1).

Fragmentation, however, is also occurring within the household itself as roles, responsibilities, and decision-making power become more diverse and complex. Thus, segmenting households by type or by roles within the household becomes increasingly difficult. Institute for the Future (ITF) research has found that many different people—neighbors, grandparents, babysitters, friends—are sometimes performing functions traditionally performed by moms, dads, or children. What constitutes a particular household, the different roles in the household, and who plays them are becoming highly idiosyncratic.

ABUNDANT CONNECTIVITY

Today’s ubiquitous communications infrastructure allows people to connect to many worlds and exposes them to influences well beyond their immediate family, geographic location, or social milieu. Thus it is becoming more and more difficult to infer people’s preferences and lifestyles by looking at basic characteristics like their age, ethnic background, and where they live. These are increasingly not the only factors that shape people’s identity or purchasing preferences. The new world of abundant connectivity has enabled people to have lives beyond their immediate physical surroundings, and to have multiple identities and sets of preferences. Indeed, as consumers are connecting to each other and to business in new ways, they are constantly in a process of “becoming” someone new as they live their lives in digital space. As the number of dimensions along which people live their lives grows, and these dimensions become superimposed on each other in new ways, it becomes increasingly difficult to combine people into large fairly homogeneous groups. Their preferences and choices may vary depending on the context they are in at a particular time, the role they are playing at that specific time, and their social setting (see Figure 1–2).

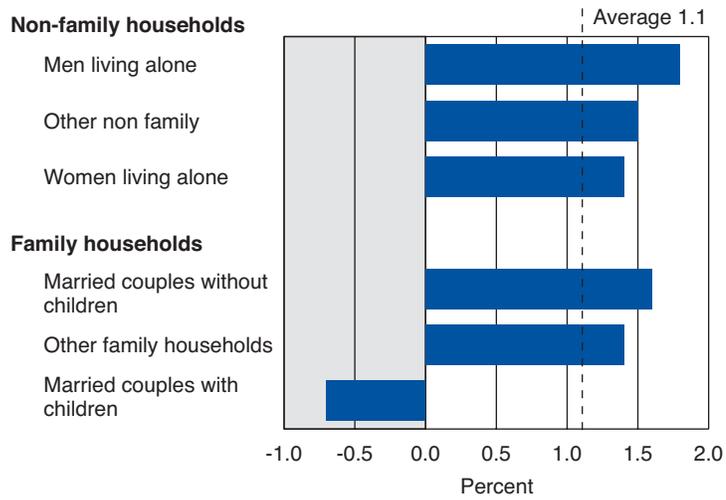
*Table 1–1
People Are Living Much Longer
(Life expectancy at birth, in years)*

	Men		Women	
	c 1900	2000	c 1900	2000
Chile	29	72	33	78
Japan	43	8	43	84
United Kingdom	46	5	50	80
United States	48	74	51	80
Sweden	53	77	55	82

Note: Data for Chile is 1910 and 1998.

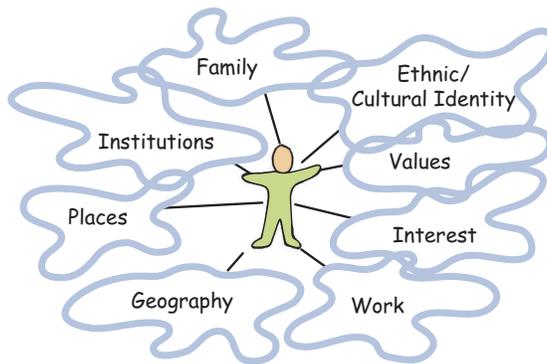
Source: World Health Organization, *The World Health Report, 1999*; U.S. Department of Health and Human Services, *An Aging World: 2001*, November 2001.

Figure 1-1
 Nontraditional Households Will Grow Faster
 (Average annual percent change in household types)



Source: Institute for the Future; U.S. Census Bureau, *Households Projections Series 1*.

Figure 1-2
 Multidimensionality of Relationships Complicates
 Segmentation Efforts



Source: Institute for the Future

PRODUCT FRAGMENTATION: AN ABUNDANCE OF CHOICES

Consumer markets over the last 50 years have moved from a world of scarcity to a world of abundance—an abundance of products and choices about these products. For example, the number of products in a typical American grocery store has grown from 7,000 to nearly 30,000 since 1980. This is partially the result of a vicious cycle of over-saturation and differentiation. As mass markets become saturated with offerings, companies offer ever more and different products to avoid commoditization.

As a result of this increasing variety, people no longer look exclusively for functionality when purchasing things. Instead, they look at such intangibles as the product's symbolic meaning, the experience associated with it, and its value in one's social network. This can be true whether people are buying cars, telecommunications services, soap, or washing machines.

Market abundance is forcing consumer goods companies to compete not only on the basis of lower-cost quality products but also on the basis of intangibles—the ability to create excitement, have a novel design, or unique experience. Companies' products must capture attention in an increasingly crowded marketplace, with anywhere from 10 to 50 similar products sitting next to their own. The result is that companies must understand their customers' needs and desires in a much deeper way than traditional segmentation has allowed to distinguish themselves from the myriad of other offerings and competitors.

CHANNEL FRAGMENTATION: INTEGRATED AND INTERACTIVE

Media fragmentation is an important part of the market fragmentation story and is also a driver behind increasing consumer diversity. The media is one of the key institutions shaping people's values, lifestyles, and preferences. In the age of mass media, with few

■ **CHANNEL FRAGMENTATION: REACHING YOUR CUSTOMERS IS MORE DIFFICULT**

Peter Sealey, marketing professor at the University of California, Berkeley Haas School of Business, shared this story with IFTF's Business Horizons members at their April 2003 Conference: "In Procter & Gamble in 1965, I was on Crisco shortening. I could reach, with three 60-second black and white commercials on soap operas (*As the World Turns*, *Search for Tomorrow*, and *Guiding Light*), 80% of the women in the United States between 18 and 49 years of age. Three commercials! I had that calculation redone last year and it takes 97 prime time commercials today to get that same reach. ... Back then, people were sitting there in the living room tuned to a single channel from 7 o'clock to 11 o'clock and they didn't move as a family unit—mom, dad, and kids, watching this stuff. It was an incredible period. There are people who still think that model is still out there. We are so far beyond that."

information channels, everyone was exposed to similar information and ideas. In today's age of more personalized media, when people can access multiple sources of information through numerous channels and targeted specifically to their interests and needs, media is a force for increasing fragmentation rather than a unifying force. Media channel fragmentation leads to a greater diversity of values, lifestyles, and product preferences.

Channel fragmentation has increased both across and within channels. For example, businesses can now communicate with their customers in a variety of ways—direct mail, telephone, television, radio, catalogs, magazines, in-store promotions, sales representatives, and so on. And these options have grown over the past decade, as new channels—Web sites, short text messages, e-mail, instant messaging—have come into being. Furthermore, businesses must also contend with an increasing number of options within channels. For example, according to Nielsen

Media Research, the average American home received approximately 19 television channels in 1985. Today the average American home receives well over 50 television channels, and the number is growing.

As channels such as television fragment, it becomes more and more difficult to reach sizeable groups of consumers. Table 1–2 shows the share of U.S. households watching broadcast network television stations in February 2003. Today, the most popular networks only garner a 6-10% share of homes—compared to 25-27% 40 years ago.

Where did the audiences go? In the world of television, they are scattered across the hundreds of cable and satellite channels available today. In the wider world of communications, they are increasingly spread out across a mix of channels. For example, IFTF's 2002 Household Survey found that the average consumer uses three communication channels to get information before making a major household or financial services purchase, and

*Table 1–2
Television Audiences Fragment
(Percent of U.S. households and adults that watched broadcast television networks;
February 17–23, 2003)*

<i>Network</i>	<i>Percent of Households</i>	<i>Number of Households (000s)</i>	<i>Percent of Adults 18–49</i>	<i>Number of Adults 18–49 (000s)</i>
CBS	9.9	10,530	5.2	6,753
FOX	8.7	9,296	6.9	8,821
NBC	8.1	8,630	4.6	5,866
ABC	6.6	7,000	4.1	5,038
WB	2.4	2,581	1.7	2,188
UPN	2.3	2,401	1.5	1,899

Source: Nielsen Media Research

approximately 25% of the population uses five or more channels. These channels include sales personnel, family and friends, magazine advertisements, and Web sites, among others.

Furthermore, consumers are using an increasing range of consumer-to-consumer (C2C) communications methods to communicate with each other about products and services. IFTF survey research consistently shows that friends and family are an important source of information about products and services. With online communities and chat rooms, Web logs (blogs), peer-to-peer (P2P) networks, instant messaging, and short text messaging, consumers have even more ways to easily communicate with each other—and have it enhanced with pictures, photos, data, Web pages, or other information. These technologies are also facilitating new social connections. For example, a recent survey by Look-Look, a youth market research company, found that 69% of teens claimed they had made at least one new friend online.

COMMERCIAL TELEVISION REST IN PEACE: THE DAWN OF THE PVR ERA

New advertising models will also fragment the context and format of messages that consumers receive. Peter Sealey proposes that the next four years will see a tremendous shift in television advertising away from sponsored commercials toward advertising that is increasingly woven into programming content. Many companies have already begun to move toward such “embedded” advertising. For example, Coca-Cola announced that is moving away from spots in “pods” (groups of four to six commercials that run during commercial breaks). Instead, it will increasingly focus on embedded advertising within programming, and has invested \$15 million into a college sports network for this purpose. Similarly, Pepsi and Visa plan to sponsor a commercial-

free television series on the WB Network, with their products integrated into the program. MTV is currently airing the series *Surf Girls* that prominently features Roxy clothing (swimsuits and casual apparel for young girls)—and Roxy is not paying anything for the exposure. McDonald’s has signed a multi-million dollar placement deal with Electronic Arts to allow players of “The Sims Online” to buy McDonald’s franchises and products (see Figure 1–3). BMW and Budweiser have even made their own mini movies that run on their Web sites and feature their products.

One key reason for this shift to embedded advertising is the rise of personal video recorders (PVRs) such as TiVo and Replay TV (see Figure 1–4). PVRs are essentially a hard drive with software that is connected to a television, allowing PVR owners to customize their television programming while skipping or greatly reducing the number of commercials they view.

Today there are about 1.7 million homes with PVRs, and the number is expected to grow to 37 million to 2007, according to Forrester Research. PVRs, especially TiVo, have garnered praise from a wide audience of early adopters—including Michael Powell, Chief of the Federal Communications Commission, who proclaimed, “TiVo is God’s machine.” On a recent episode of her television show, Oprah also enthused about TiVo, and gave a TiVo to each of her audience members.

However, by skipping commercials, PVR owners decrease the value of these commercials, thus threatening the revenue model for the shows themselves. And as PVR penetration grows, more consumers will be able to skip television commercials—further decreasing the audience for commercials beyond the effects of channel fragmentation. Sealey esti-

mates that as PVRs become ubiquitous, up to 70% of pod-based commercials will be skipped by consumers. (Watch for increasing push-back from television companies who want to continue to rely on the revenue from commercials. Jamie Kellner, former CEO of TBS, recently claimed, “Any time you skip a commercial ... you’re actually stealing the programming.”)

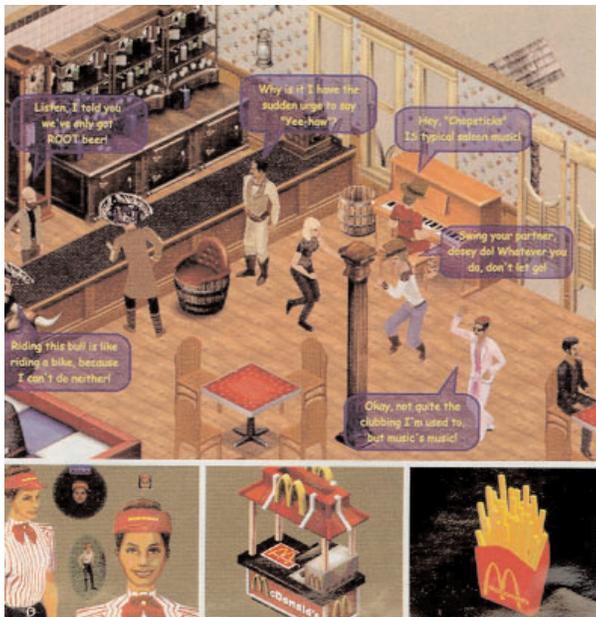
However, the news is not all bad. New technologies will likely improve the effectiveness of ads, as the pod-based commercials that remain will increasingly be trackable for return on investment. The Association of National Advertisers and American Association of Advertising Agencies have announced that they will use an Advertising Digital Identification (Ad-ID) system to identify individual advertisements. Ad-ID attaches an identifying number to every television, radio,

print, and Internet advertisement, similar to UPC codes on grocery products. As Sealey explains, “Once we have that tag, I can begin to trace that ad eventually down to your household, if not you, the person. And once we can do that, for the first time, advertising is going to become accountable for its return on investment.” Whoever is in a position to control this data will have the power associated with access to a tremendous amount of valuable consumer information.

PERMISSION-BASED AND INTERACTIVE MARKETING

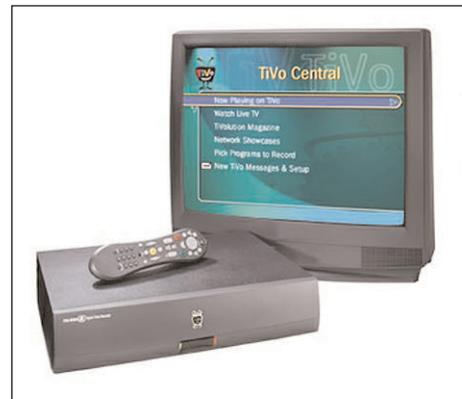
In the future, advertisements will become even more fragmented and individualized. Peter Sealey forecasts a widespread shift toward permission-based marketing, noting “I believe we’re moving to a model where we will give permission to advertisers in categories we have an interest in or for advertising we

Figure 1–3
McDonald’s Products Placed in “The Sims Online”



Source: Advertising Age

Figure 1–4
Personal Video Recorders Will Change the World of Advertising



Source: TiVo, Digital Networks North America.

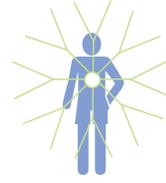
enjoy.” IFTF has tracked the rise of permission-based marketing since 1998; more recently, we forecasted the rise of interactive marketing—the “next generation” of permission-based marketing. In our 2002 report, *The Posts: A Decade of Challenge* (IFTF SR-760), we had this to say about both models:

Permission-based marketing as it exists today has several limitations. It relies too heavily on digital communication channels and short-term benefits like prizes, and doesn't focus enough on tracking the timeliness of the information companies receive from consumers. To eliminate these weaknesses, businesses are beginning to move toward a new model of exchanging information—interactive marketing.

Interactive marketing has some similarities with permission-based marketing, because both rely upon consumers' explicit statement of their interests and consent to receive relevant information. But interactive marketing takes it several steps further, tracking consumers' interests over time, so that the business can understand which products and services consumers are currently interested in—and which ones they are not. In other words, interactive marketing incorporates learning and information sharing throughout the purchasing cycle instead of only at traditional marketing phases.

Market fragmentation in all of its' forms will make it increasingly difficult for companies to find and reach large groups of consumers. And consumers' diversity, dynamism, and rapid change will make it harder for businesses to paint meaningful pictures of their customers. Even more interesting, however, are emerging technologies that promise to both magnify the amount of fragmented consumer data, and, more importantly, decipher new meanings in the data. We assess these technologies in the next chapter.

2. NEW TECHNOLOGIES ENABLE NEW MARKETS



In the next 5-10 years, new technologies will allow exponential growth of data about people, places, flows, and behaviors. Many physical places and devices, such as stores, public spaces, automobiles, and appliances, will be embedded with technologies. They will be able to sense, observe, capture and transmit data, and even respond to people and things in the various environments in which they operate. They will enable new ways for companies to understand their consumers as well as create new product offerings to suit their needs. Table 2–1 (on page 12), describes 12 emerging technologies that will transform how companies track and communicate with their markets.

Over the next decade, these technologies will provide companies with vast amounts of new data about consumers. The new data layer will be in addition to the plethora of existing data companies already have about customers’ demographic characteristics, transaction histories, and communication channel preferences. The new data, however, will have several important characteristics that will force companies to re-think their strategies for understanding and responding to consumers. It will:

- *Make the invisible visible and quantifiable.* Some of the data will be completely new—such as that generated by biometrics and biosensors. These technologies provide information on people’s biological makeup and responses (for example, speech patterns, pulse, skin temperature, heart rate, and facial characteristics) and will be correlated with people’s emotional states. Such data could enable companies to, for example, understand their customers’ biological or emotional responses to products without a salesperson or a consumer researcher observing and making inferences. Similarly, location technologies, combining GPS and wireless, will not only track individuals but also the flows of people (or cars, or computers, or cell phones) through particular locations—hot spots—providing insights into social phenomena that were previously invisible. Companies will see people and things congregating and moving in ways they could not before.
- *Provide immediacy and context.* Companies are used to building their strategies on past data—data about consumers’ demographics, past preferences, communication patterns, and so forth. Many of the new technologies provide companies with data that is immediate (at the moment a particular customer interaction is taking place) and in context (that is, with information about the setting or environment in which the interaction is taking place). While such information is immediate, the challenge for companies is to provide the same level of response—immediate and in context. To provide such a response, companies will need to organize their core functions in new ways.

2. NEW TECHNOLOGIES ENABLE NEW MARKETS

Table 2–1
Twelve Key Emerging Technologies

Key technology	Transformative quality	Interesting Players
Agent-based modeling	Agent-based modeling (ABM) is a simulation technique and tool that allows the study and modeling of emergent phenomenon—phenomenon that result not from a single cause but from the interactions of many individuals.	BiosGroup; Brookings Institute; DecisionPower, Inc.; WETA Digital; Nomura Research Institute
Biometrics	Biometrics allow companies to capture biological data about consumers (e.g., voice and facial recognition; retinal scanning) that could be used to either identify individual consumers, or identify customers who need special attention based upon their inferred emotional states (e.g., frustration, anger).	IBM's Blue Eyes; Predictive Networks
Collaborative filtering	Collaborative filtering technologies (also known as recommender systems) use product evaluations, stated tastes, clickstreams, transaction histories, or other data about specific individuals to create a user profile that can be compared to others' profiles to generate customized cross-selling or up-selling opportunities.	Amazon; Google; NetPerceptions
Digital printing	Digital printing uses digital files to transfer images and text onto paper, allowing printers to create large batches of multiple customized documents based on information received from a database.	Heidelberg; the Print on Demand Initiative (PoDI); Scitex; Xerox
Intelligent algorithms	Intelligent algorithms can be used to automate data mining activities, discover emergent phenomena in large volumes of data, and automatically "learn" customers' interests from their database.	ABLE; Retech; WebFountains
Peer-to-peer architectures	Peer-to-peer (P2P) architectures demonstrate a computing model in which there is truly no center: storage and processing resources are distributed over the Internet. Some uses of P2P architectures have been controversial (e.g., Napster). However, P2P architectures will be important for capturing consumer data from distributed sensors and for managing the massive amounts of data that sensors will generate in the future.	Gnutella; GRID/Globus; Groove; IBM Autonomic Computing; Kazaa; SensorNet

Source: Institute for the Future

Table 2–1 continued

Key technology	Transformative quality	Interesting Players
Physical tagging	Physical tagging will allow objects to carry more information on them as they move from place to place, allowing companies to monitor products and processes more closely. Radio frequency identification (RFID) tags—which communicate to a receiver through short-range radio waves—will allow products to efficiently contain large amounts of updateable information (e.g., product location, movement history, or freshness).	Alien Technologies; MIT; UC Berkeley (Subramanian)
Positioning technologies	Positioning technologies will allow companies to obtain more information on the geographical position of people or things. Networked-based and satellite-based systems (e.g., GPS) can be used to help understand shopping patterns as well as communicate location-relevant messages.	Carnegie-Mellon (Smailagic); University of Houston (Junglas)
Sensors	New sensors will allow companies to cheaply and easily identify and track consumers, and continuously evaluate the quality of products. These sensors will be cheap and small, and can expedite identification and tracking, monitor the healthiness of products and environments, or even monitor physical changes within consumers' bodies.	Dust Inc; Intel Research Lab @ Berkeley (Tiny OS); UCLA (Estrin)
Soft tags	Soft tags will generate electronic identities for pieces of data that are standardized and sharable across systems and companies. Technologies such as XML will provide a method to track and access specific data, thereby facilitating data exchange across formats and languages.	Electronic Commerce Workshop; RosettaNet; SemanticWeb.org; VoiceXML.org
Web services	Web services are a collection of software applications that will allow companies to quickly integrate different software systems without the need for individually coding interfaces between systems.	IBM; Microsoft; Sun
Wireless technologies	There is no single "wireless" technology: it's a mélange of technologies. Some cover large areas (e.g., cellular phone networks), while others extend a few yards (e.g., Bluetooth) or even hundreds of feet (e.g., 802.11b, or Wi-Fi). Pervasive wireless technologies will allow companies and consumers alike to move information faster, easier, and into new places and spaces unhindered by the need for physical connections.	China Mobile; NTT DoCoMo; Openwave Systems; Palm; Proxim

2. NEW TECHNOLOGIES ENABLE NEW MARKETS

- *Be based on data from many sources and in many forms.* Information about consumers will come from many different databases, be coded in different ways, and identify different parameters. Today companies are overloaded with data that they don't effectively use. In the future, soft tags, intelligent algorithms, and web services will be used to integrate diverse databases and they will enable companies to share data across organizations and departments to streamline a host of business processes. However, data integration will remain a daunting challenge for many companies in the immediate future, until such technologies are developed and widely adopted in the marketplace.
- *Allow for greater customization.* Many of these new technologies—such as biometrics, collaborative filtering, and sensors—can help companies easily identify individuals and map their behaviors against others' behaviors. Overlapping similarities

among consumers, such as having comparable taste in books or similar reactions to music, point to learning areas where companies can generate customized offerings. Other technologies, such as agent-based modeling, intelligent algorithms, or P2P architectures, will allow companies to identify entire communities or crowds that may have unique needs. A primary challenge for companies will be to identify the correct markets and genuine needs within the vast amount of new data.

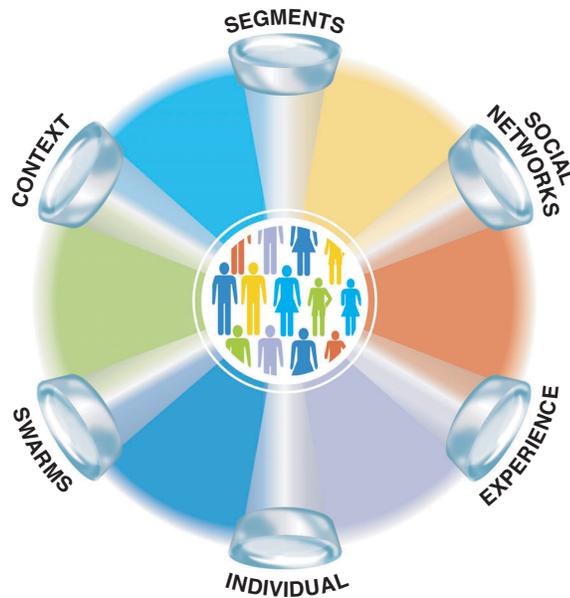
The data generated by these technologies will allow companies to adopt entirely new perspectives on their markets—perspectives that are not possible today. But this new data will also revitalize the paradigms that companies already use, allowing companies to use creative combinations of perspectives to get at the information they need. In the next two chapters, we propose a framework for understanding these new perspectives.

3. TODAY'S MARKET LENSES



Market leaders in the next 5-10 years will need to develop and use a variety of different perspectives to view and understand their consumer markets. These perspectives can be likened to the lenses used by optometrists to determine a patient's prescription—the optometrist might ask the patient to compare multiple lenses to see which provides the best clarity (“Do you like number 1? Or number 2?”). Similarly, companies will need to use multiple “lenses” to determine which gives them the clearest perspective on their customers (see Figure 3–1).

Figure 3–1
Six Market Lenses



Source: Institute for the Future

3. TODAY'S MARKET LENSES

Table 3–1 describes the six lenses. Some of them are in use today—Segments, Individual, and Experience—while the others are just now emerging—Context, Social Networks, and

Swarms. In this chapter, we focus on the lenses that companies can and do use today.

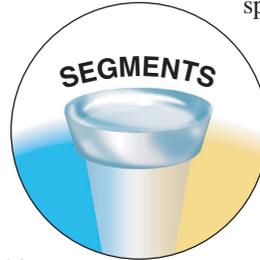
Table 3–1
Market Lenses Summary

Lens	Development Status	Main Use	Importance
Segments	Current	Identify homogenous groups that share product or service preferences	Useful for reaching large markets
Individual	Current	Identify customers' unique preferences and purchasing behaviors	A traditional focus of customization
Experience	Current	Identify practices and experiences related to actual product or service use	Crucial for getting optimal design, features, or form factor
Context	Emerging	Identify customer's identity, location, and/or emotions	Will generate contextual data for environments that are not "face-to-face"
Social Networks	Emerging	Address the effect of other people upon consumers' purchasing behaviors	Will allow marketing to entire networks of people
Swarms	Emerging	Identify and predict patterns of emergent consumer behavior	Will find new patterns of consumer behavior; predict sudden shifts in demand

Source: Institute for the Future

THE SEGMENTS LENS

The Segments Lens is used by companies to identify large, homogenous groups of customers that share product or service needs or preferences. Ideally, companies using the Segments Lens should be able to create groups that are reachable, responsive, profitable, and interested in their products or services. The characteristics that are used for segmentation can vary, but most typically involve demographic characteristics, psychological and attitudinal variables, purchasing behavior, or perceived and desired product benefits.



ADVERTISING:

GENERATIONS AND LIFE STAGES AS SEGMENTS

Allstate Insurance is a good example of a company that uses segmentation as an important part of its sales strategy. It segments its customers by life stages—getting a first job, car, or house; graduating from college; getting married—as well as by generation, to determine whom to pitch insurance to, when to make the pitch, and what kind of insurance is most appropriate. Recently it focused its efforts on Generation Xers as an underserved market, and created a marketing strategy to appeal to this group. Pop-up ads with trendy Gen Xers in dreadlocks and retro garb—and a matching State Farm agent—appear on Web sites targeted to young adults, like *Rollingstone.com*. Allstate's strategy is to start by selling car insurance to Gen Xers (because that is typically the first kind of insurance that people purchase), then work within that relationship to cross-sell other forms of insurance as the customers enter subsequent life stages. Thus Allstate gains customer trust, and then uses a life-stage segmentation system to decide which other offerings to cross-sell.

MARKETING:

SEGMENTATION SHIFTS THE MARKETING MIX

Sometimes adopting the Segments Lens perspective can generate surprises that affect product-positioning strategy. When Time (now AOL Time Warner) launched the hip-hop magazine *VIBE*, the company identified the magazine's target audience as primarily inner-city teens. However, a segmentation analysis showed it was also attracting white-collar suburbanites, with more disposable income. Based on what was known about that segment's interests, Time changed the ad mix in *VIBE* to reflect the products (such as consumer electronics) that would appeal to that group.

MARKET RESEARCH:

TRACK EMERGING SEGMENTS

In the future, intelligent algorithms will make it increasingly possible to dynamically segment markets after products are already re-leased. Ford has already experimented with dynamic segmentation by generating clusters based upon the combinations of features (e.g., 8-cylinder engine, power windows, and CD player) that customers purchase with their vehicles. This segmentation system allows Ford to track the evolving interests of their customers and find new groupings of preferences, rather than relying upon pre-determined, standard demographic segments (e.g., soccer moms or baby boomers). Dynamic segmentation will enable companies to release a new product, then identify its market and immediately respond with the appropriate communications.

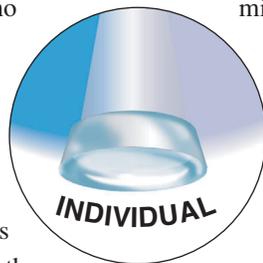
THE FUTURE OF THE SEGMENTS LENS

As we become more varied, how many different segments will be needed to capture our diversity, and when will there be too many to be useful? The Segments Lens itself is unlikely to disappear in the next decade; however, companies may find that, over time, specific segmentation systems allow only incremental improvements in their ability to distinguish between important groups of consumers.

There will be, however, new ways to use this lens, such as by tracking emerging segments. In addition, companies may find it useful to creatively combine the Segments Lens with other lenses. For example, everybody has their own networks of friends and family, but are there characteristics of these networks that can be segmented? These possibilities represent a way to breathe new life into this oldest of market lens.

THE INDIVIDUAL LENS

Although every market is composed of individuals, the Individual Lens is the only lens to focus upon the ways in which an individual is different from others. Companies who can find out more about their individual customers are in a good place to offer customized products and experiences. Consumers win because they get something that fits their needs and helps them to express themselves. Companies win because the customization becomes a point of differentiation that consumers will often pay extra for.



Amazon, who creates customized Web pages for its customers by using collaborative filtering to recommend products bought by like-minded customers. Based on the specific books that customers view, Amazon can also create customized coupons for particular book combinations. In the future, Amazon intends to use its customer data to identify customers who would be the most interested in specific books that have yet to be published, thus creating a market for publishers before the books even hit the stores.

MARKETING:

CUSTOMIZED OFFERINGS

Companies today are using a variety of different strategies to make targeted offerings to individual customers. One of the best-known examples of personalized marketing is

COMMUNICATIONS:

PROFILE MATCHING

Some companies use indirect methods to identify their customers. Predictive Networks, a software company in Cambridge, MA, ana-

■ "MY TIVO THINKS I'M GAY": ADVENTURES IN COLLABORATIVE FILTERING

Collaborative filtering promises to improve the relevance of companies' cross-sell and up-sell offerings to consumers. However, it is not perfect. A 2002 *Wall Street Journal* article discussed the trials that some TiVo and Amazon customers go through to correct erroneous elements of their profile. For example, one film studio executive reported that his TiVo kept automatically recording shows with gay themes, apparently because his previous recordings suggested he might be gay. The self-described "straightest guy on Earth" responded to the new programming by recording compensatory war movies—which in turn led the machine to begin automatically recording documentaries on Third Reich figures. (Other individuals in a similar situation began recording Playboy Channel programming in order to revise their profiles). And then there is the Jewish lawyer from Philadelphia whose TiVo, for some inexplicable reason, assumed he would like Korean-language shows. Although collaborative filtering technologies offer most consumers more relevant materials, they also place a greater burden on consumers to manage their profile—sometimes to humorous effect.

lyzes the unique manner in which TV viewers interact with their remote controls and delivers TV programming tailored to that individual. According to Predictive Networks, 80% of a person's profile can be deduced from unique individual initialization routines—for example, the things people do when they initially pick up a remote control (hit the mute button, click channel 40, adjust the volume, and so on). The company's SmartNavigator engine matches that data to a person's profile, and displays a list of prioritized entertainment options featuring programming likely to be favored by that person.

CUSTOMER SERVICE:

PERSONALIZED INFORMATION AND SERVICE

Prada, a haute couture clothing company, recently opened a retail store in New York City's SoHo district that uses cutting-edge technology to create personalized customer service. All of Prada's products are hard-tagged with RFID tags; Prada salespeople are equipped with wireless RFID readers that give them up-to-date access to inventory and customer information stored in a centralized database. The RFID readers also control video screens throughout the store, which can be used by the salespeople to demonstrate specific products on the runway, show collections of photographs and designer sketches, and provide more in-depth information about the color, cut, fabric, and materials used to create Prada merchandise. Shoppers put the items they are considering into "smart closets" in the dressing rooms, and the smart closets read the RFID tags and display information about the clothes on a liquid crystal screen with a touch-screen overlay. Salespeople can also use the screens in the dressing room to up-sell by showing other items that match their current choices.

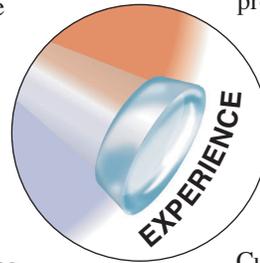
THE FUTURE OF THE INDIVIDUAL LENS

One of the chief obstacles to utilizing this lens has been creating one organized system of customer data across multiple points of contact and perhaps even different platforms. And consumers have been quick to respond negatively to gaps in the system, for example, when their conversations with customer service agents are not accessible to sales representatives. However, help is on the way in the form of soft tags and Web services. Companies using these technologies will be able to integrate all of their customer data and get new leverage from contact points they currently underutilize.

For example, imagine a customer who unsuccessfully searches a store for a pair of pants in her size. Today, a salesperson might be able to call other stores to search for a size or direct the customer to their Web site—but these strategies are inconvenient for the customer and too often turn into a missed opportunity for a sale. However, if that company uses soft tag and Web service technologies, the sales representative can identify in real-time exactly where the pants are (for example, at another store or still at the factory) and can arrange to have them mailed to the customers' address, culled directly from her account. In this scenario, an average retail store is transformed into a custom boutique, and the convenience of the interaction increases the likelihood of a sale.

THE EXPERIENCE LENS

The Experience Lens focuses attention on consumers' daily use of physical and virtual products and services—including the physical, multi-sensory aspects of use, the meanings that shape and support that use, and the range of interactions people have with products, services, and messaging. This lens helps companies understand what is it like to buy or use their products—what people are hearing, seeing, feeling, smelling, or even tasting—what kinds of interactions are possible, and what drives them. A focus on use and meaning requires companies to ask how their products get “bundled” with other experiences and products during the course of daily life.



PRODUCT AND ENVIRONMENT DESIGN: TAILORING SPACES AND THINGS TO USERS

Studies of people's experiences and uses of space have helped a range of designers (industrial, interaction, experience, and information designers) develop human-centered spaces for museums, airports, and retail environments. These new designs facilitate better experiences and increased revenues. Interaction designers at firms like IDEO use experience as the base of their designs, often putting themselves through the experience from the consumer's or user's point of view. When innovating a new patient care model for the DePaul Health Center, for instance, IDEO designers lived in the health care center as patients. And in their award-winning “ideal cubicle” designed in collaboration with Scott Adams, the creator of the comic strip “Dilbert,” IDEO designers set up cubicles and worked in them for two months as part of the design process.

PRODUCT DESIGN: INTERACTIVE DESIGN AS BRANDED EXPERIENCE

Firms that provide mass customization of their products also place experience at the heart of their offerings—here, the experience of designing your own purchase. For example, Customatix.com is a shoe company that allows customers to design their own shoes online. At

Customatix's Web site, consumers are greeted with a step-by-step process for building their own shoes from the soles on up. Customers design a pair of shoes by choosing from a range of styles, leather colors and finishes, sole and lace colors—they can even choose the color of the metal grommets and the logo they'd like to have on the side and sole (see Figure 3–2 on page 22). It's an experience so enjoyable that some people return to play on the Web site even when they don't need to buy another pair of shoes.

MARKETING: THE THRILL OF INVESTING VIRTUAL MONEY

The Internet continues to be a laboratory of sorts, where interaction designers, anthropologists, and information designers create experience-rich products and environments for consumers. Many consumers will try out something just for the fun of the experience, and companies are creating new fun things to get consumers to spend time on their Web sites. Wells Fargo Bank recently lured new customers with an online ad that offered the “thrill” of investing a \$100,000 “virtual portfolio”—complete with access to the bank's proprietary research and investment tracking tools. If consumers could beat the S&P 500 Index with their portfolios, they were also eligible to win a new car. Here, the experience

3. TODAY'S MARKET LENSES

markets the company, drawing in new customers and exposing them to a range of Wells Fargo's products and services.

THE FUTURE OF THE EXPERIENCE LENS

As new technologies reach the market, qualitative interpretations of experience and meaning will become more important. Wireless hard tags on products like toys will provide new sources of information on consumer-use patterns, powerful digital video cameras linked to software that interpret human expressions will track people in public spaces, and biometric technologies will deliver unprecedented glimpses into physical responses such as temperature and pulse. But it's not likely that machines will be able to interpret such data in the same way as an astute salesman might, picking up all the different clues from the customer. Competent researchers will still be needed to provide rich interpretations of experience and meaning from new data.

These technologies will also raise the bar of consumer expectations around product experiences. Consumers will expect more vivid and immediate experiences with products and services. Successful businesses will need to step up their level of interactivity and customizability for their products and services—even for products we now think of as experience-poor. In experience-rich virtual and in-store environments, consumers will be able to participate in the design and creation of products. They'll be able to personalize along the way—and their choices and decisions will be new sources of data.

As creative as these options are, they only scratch the surface of what will be possible. We project that companies will be able to use emerging technologies to identify entirely new kinds of consumer information. The next chapter describes promising emerging market lenses that companies will use in the future.

Figure 3-2
Customatix Offers Interactive Design



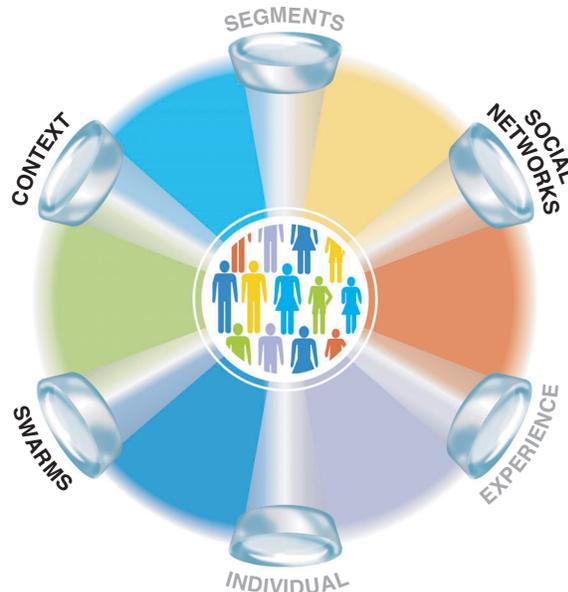
Source: Customatix

4. EMERGING MARKET LENSES



Navigating the new world of more and qualitatively different types of consumer information will be difficult. The new information is enabling and, at the same time, calls for new lenses on the markets. Instead of optometrist’s lenses, it is almost as if we were given a pair of night vision goggles and sent into a dark forest. Suddenly we see all kinds of strange animals doing things that we could never see with the naked eye. Similarly, new technologies are enabling new lenses on the market that allow companies to “see” characteristics and behaviors of the customers that they weren’t able to see before. We consider three of the most promising new lenses—the Context Lens, Social Networks Lens, and the Swarms Lens (see Figure 4–1).

Figure 4–1
Emerging Market Lenses

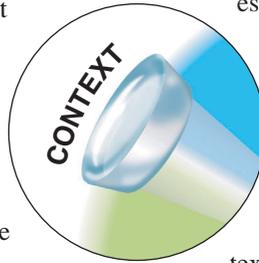


Source: Institute for the Future

THE CONTEXT LENS

The Context Lens looks at clues in the environment that can provide companies with an understanding of the setting, environment, or *context* a consumer is in. The Context Lens is used to understand people's identity (who is the person, and what role is he or she in?), location (where is the person?), emotions (how does he or she feel?), and immediate needs (what does he or she need right now?).

This understanding is increasingly necessary, as more and more exchanges—especially business–consumer exchanges—are taking place at a distance in online and computer-mediated environments where traditional contextual clues are missing. As many places and devices become embedded with technologies such as sensors, RFID tags, and wireless connectivity, companies will increasingly be able to sense, observe, and capture data and respond to customers in context.



ADVERTISING: TARGETING CONTEXT-SPECIFIC MESSAGES

Realtor.com, a Web site that provides real estate information, includes advertisements for many products and services that people need when buying or selling a home—mortgage loans, home inspection services, moving companies, and so on. The ads are targeted to a particular context—visitors are likely to be in the “home buyer or seller” context and thus are more receptive to such messages. This type of context-specific messaging fits well with the realities of today, where people juggle multiple roles or contexts—mother, worker, rock music fan, and Aikido enthusiast—sometimes all in the same day.

SERVICE OFFERINGS: DELIVERING LOCATION-BASED INFORMATION

The GUIDE project in England is developing hand-held-computer based tourist guides for visitors to the city of Lancaster. These guides are context-sensitive—that is, they have knowledge of their physical location and their user's preferences. The device uses this knowledge to display information and perform services specific to the user and her particular location. For example, if a user is interested in history, the device constructs an appropriate historical walking tour, and then displays directions on how to get from one location to the next. And as the user arrives at each destination, the device displays the historical importance of the location.

**REMOTE SERVICES:
RESPONDING TO EMOTIONAL CUES**

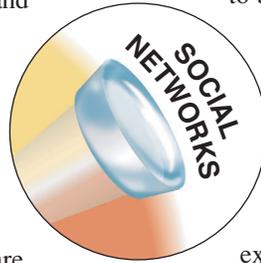
Today, several research facilities are trying to build emotional context sensing into computer-mediated exchanges. For example, researchers at the IBM Almaden Research Center are working to enable computers to recognize and respond to facial expressions. Work is also ongoing at SRI International, MIT, and other research labs to improve voice recognition technologies, develop tools to analyze biometric data, and correlate the data with actual emotional states. Mitel Knowledge Corporation in Kanata, Canada, was recently granted a patent for a system that searches customers' interactions with automated phone systems. The system searches for rapid speech, stuttering, profanity, or particular patterns of entering touch-tone digits (e.g., deliberately pressing buttons for a long time) as indications of consumer frustration. Once the system has determined that a caller may be angry, the call is routed to an operator trained to handle "annoyed customers."

THE FUTURE OF THE CONTEXT LENS

The Context Lens will become more important as computing becomes ubiquitous, and information is embedded in physical objects, making it possible for the objects to respond and interact with humans and with other devices around them. With RFID tags, sensors, and ubiquitous wireless connectivity, companies will have more and more data about the context of their customers, and where and how their products are being used. Consumers will increasingly demand context-specific responses. Companies will increasingly be called on to provide context-specific offerings, be they messages, products, or service offerings. They will have to use the Context Lens to design and deliver these offerings.

THE SOCIAL NETWORKS LENS

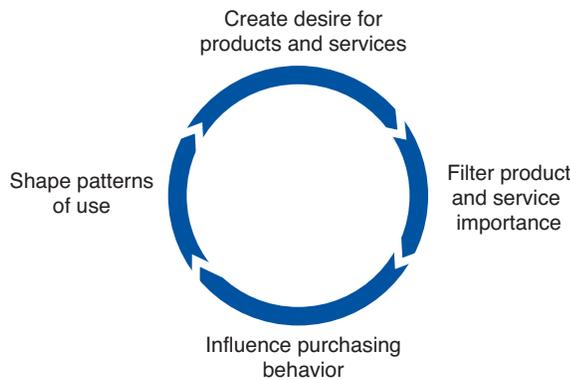
The Social Networks Lens helps companies understand how purchasing behavior is shaped by consumers’ social networks: the web of relationships between an individual and other people (friends, colleagues, family members, neighbors, and so on), as well as with organizations, institutions, and communities. What people watch, listen to, wear, buy or visit—for that matter, which lifestyles are desirable, which ideas are acceptable, and what product or service offerings have use and meaning—are often defined inside social networks. Social networks shape the entire purchasing cycle by creating desire for new products and services, filtering product and service information, influencing the actual decision to purchase, and shaping the use of the product or service itself (see Figure 4–2). What’s more, social networks serve as powerful vehicles for the diffusion of new ideas, products, and social practices.



**CUSTOMER RELATIONSHIPS:
BUILDING BRAND COMMUNITY**

Many companies are sitting on opportunities to build community around their products and their consumers. Daimler-Chrysler is a good example of a company that recognized this opportunity. Its brand festivals—Jeep Jamborees where Jeep owners gather for food, drink, and off-road excursions—build community around the brand. The social ties created among Jeep owners are based on similar experiences around consuming the brand. In fact, several types of relationships are facilitated: relationships between the customer and the brand, between the customer and the firm, between the customer and product in use, and among fellow customers themselves. The payoffs are brand loyalty, referrals, and repeat business.

Figure 4–2
Social Networks Shape the Purchasing Cycle



Source: Institute for the Future

**MARKETING:
GENERATING BUZZ**

In their role as communication channels, social networks hold tremendous power to get the attention of consumers and to sell products. After all, recommendations from a trusted friend and family member (or even an acquaintance!) are the best way to convince potential customers to purchase a new product or service. A lot of companies have experimented with “buzz,” viral, or word-of-mouth marketing, particularly around new product launches. Essentially, companies try to generate interest and demand within target markets by seeding conversations among opinion leaders—with the intention of tipping demand in their favor.

One example is the launch of Sony and Ericsson’s camera phone in the United States. Actors were hired to pose as tourists in New York City and asked strangers to take a picture of them with their mobile phone at sites like the Statute of Liberty and the Empire State Building. The unexpected use of a mobile phone as a camera caught the passerby’s interest and on cue the actors launched into a conversation about the phone, its features, and how it works. The actors taught the passersby how to take a picture and in turn seeded the marketplace with a story and experience that was carried out into the marketplace via everyday conversation.

**MARKETING:
SOCIAL NETWORKS AS MARKETS**

Networks or communities can function as markets, if companies can understand their fundamental needs. Social networks need an identity or a purpose to bring together their members. These can be interests, ideologies, or values—even shared experiences with products. They also need infrastructure and resources to enable and sustain the ongoing interactions and activities within them. Social networks need activities and rituals to build social ties and sustain social connectivity. These can include meetings, outings, storytelling, and seasonal events. And resources—either tangible, such as money, or intangible, such as social support—must flow throughout the network. These resources are the currency behind the social interactions. By understanding their needs and then delivering products and services to satisfy them, companies can find new markets in social networks.

Microsoft is a good example of a company that is trying to make offerings for social networks. It has developed Three Degrees, an instant messaging platform for a group of up to ten people (see Figure 4–3 on page 28). In addition to instant messaging, members of the group can also share photos, video, and music files. The messaging interface itself can also be customized to the needs of the group.

THE FUTURE OF THE SOCIAL NETWORKS LENS

In the future, expect to see a lot of experimentation with the Social Networks lens. Already, companies like Yahoo! and PlanetFeedback are developing “virality indices” to determine which products and services are the most discussed among consumers, and are, in turn, selling this information to companies. Companies are also looking for ways to segment social networks to create an understanding of the various roles in social networks. For example, Nomura Research Institute in Japan has developed the concept of “B2L2C” (business-to-leader-to-consumer) marketing. This strategy leverages the idea of network as communica-

tion channel by communicating with leaders who influence the network, and actively working with these leaders to get their opinions to the other members of that network. This approach works well in Japan, where most housewives belong to some hobby or interest group such as flower arranging or cooking. This work is also expanding among online marketers as they look for ways to identify opinion leaders among online social networks or communities. These approaches will become increasingly important as companies come up with new ways to seed the marketplace with samples to increase the probability of successful product launches.

Figure 4–3
Microsoft’s Three Degrees: Designed with Social Networks in Mind



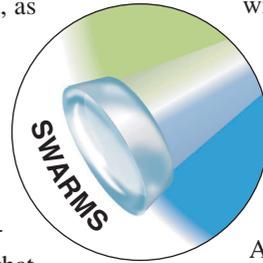
Source: Microsoft Corporation

THE SWARMS LENS

Swarms are the result of emergent phenomenon; that is, the patterns that emerge from individual consumer preferences and choices. Swarms can be spontaneous and fast, as in the self organizing behavior observed when “like-minded” people find themselves on the Internet and a new discussion forum is created. Or swarms can be slow, as in the pattern of neighborhood segregation in the United States—a pattern that emerged gradually over time out of individual choices. All of these have one thing in common: the swarming behavior emerges when consumers act in unison—often unaware of their similar actions or of the patterns they are creating. The behavior of emergent phenomenon forms from the bottom up, starting with the local interactions of different independent people. Those individuals, like drivers on the highway, alter their actions in response to what others are doing, and, together, the myriad of interactions result in a group behavior or pattern, such as a traffic jam.

The Swarms Lens helps companies understand how to model their customers and their shopping behavior for their products and services in different sales channels. This can be used to identify the best design or consumer experience for a retail environment, the position of products in that retail environment, and the features of those products that would result in increased sales.

To gain insights for business, companies need to model consumer behavior from the bottom up, that is, simulate each individual customer in context, such as a woman talking on her mobile on the streets of San Francisco or a man shopping at Wal-Mart. Using these “virtual people,” businesses can model how each person makes decisions in relationship to other people and their environment. Using



agent-based modeling—a simulation technique and tool for studying and modeling emergent phenomenon—companies can work with the diversity among consumers and uncover the collective behavior that emerges from their individual actions.

MARKET RESEARCH: SEGMENTING SWARMS OF CUSTOMERS

Although there are numerous organizations studying swarms and emergent phenomenon, including the Brookings Institute, the Santa Fe Institute, and the Bios Group, few have applied the Swarm Lens to developing consumer understanding as well as Nomura Research Institute (NRI) in Japan. NRI has leveraged the concept of swarms to create a values-based segmentation of Japanese consumers. Using the classic example of flocking birds from research on complex adaptive systems, NRI developed a flocking model of the Japanese consumer. Research from complex adaptive systems shows that each individual bird in the flock actually follows simple principles, such as “seek shelter” (fly toward large concentrations of birds) or “pursue fashion” (fly at the same speed and in the same direction as other birds).

Using this example as an analogy for Japanese consumers, NRI set out to model the principles that determine and shape Japanese consumer behavior. The firm found that Japanese consumers, like “flocking” birds, keep an eye on what is happening around them and make decisions in accordance with three basic principles: 1) Japanese consumers want to purchase brand name goods that have the support of people around them, 2) Japanese consumers also like it when their purchases mirror those of others, and 3) Japanese consumers have a tendency to purchase goods that

slightly differ from those of others. NRI found that these three principles shape actual purchasing behavior among different Japanese consumer markets. For example, they applied this analysis to the customers of Toyota, Nissan, and Honda and found that Toyota and Nissan owners' consumption values are shaped more by the first principle with their reliance on the brand name, while Honda owners are best described by principles two and three with their strong emphasis on pursuing fashion and preference for particular features.

DESIGN:

MODELING THE GROCERY STORE EXPERIENCE

One of the more interesting examples and applications of swarms and agent-based modeling can be found in Sainsbury's, a British grocery store chain. Using point-of-sale data, Sainsbury's created a model called SimStore that incorporates consumer data on time spent shopping in different departments, preferences for certain products and brands, and so forth. The results of the modeling were surprising. Unexpected complimentary products were identified and the new information shaped shelving and sales strategies. Some general surprises were also discovered, such as the fact that sales dropped for some items (e.g., wine) when total shoppers in the store reached a certain number. As a result of the analyses, Sainsbury's was able to easily model different store layouts and determine which designs resulted in increased sales at individual stores.

FORECASTING:

MONITORING SWARMS TO FORECAST DEMAND

A number of different companies are tracking online behavior to monitor bursts in demand and other critical mass events such as when product Web sites are suddenly overwhelmed by traffic. Yahoo!, PlanetFeedback, and

E-opinions are companies that track online flows and monitor swarms to create "virality indices" of products. Companies can use this data to predict the product's relative success before full investments in promotion, sales, and advertising are made.

THE FUTURE OF SWARMS LENS

The Swarms Lens will become more important for business for two reasons. First, companies will need to become adept at creating meaning and value out of the abundant consumer information they are capturing. The Swarms Lens offers approaches to leverage consumer information by uncovering emergent phenomenon and patterns in data sets that would otherwise remain invisible.

Second, consumer connectedness will make emergent phenomenon more prevalent. Multiple interpersonal communications systems (e.g., the Internet, e-mail, voicemail, ICQ, instant messaging, short-message systems) and devices (e.g., mobile phones, pagers) will facilitate unprecedented connectivity in people's lives. Meanwhile, human populations will continue to concentrate in rapidly expanding urban areas. As population densities and the number of interactions among people increases, so will the occurrence of swarms.

Taken together, the six market lenses represent a daunting list of opportunities, and many companies will want to focus on the benefits of one or two lenses. But this is a sure way to be blindsided by competitors who will be experimenting with other perspectives on their market. On the other hand, trying to do everything at once will only drain a company's resources. Companies will need to strategically choose where to focus their efforts, and build an appropriate portfolio of lenses.

5. IMPLICATIONS FOR BUSINESS



New technologies and market lenses will help companies be more successful in the future. But implementing them will require that companies develop new processes and competencies. In light of this, we have identified five important implications for business.

DEVELOP CAPACITIES FOR EVALUATING EMERGENT PATTERNS

Companies are already good at developing consumer understanding by selecting a set of proxy indicators (e.g., demographic data, self-reported preferences) for the behaviors they want to understand. However, this capacity needs to be balanced with the capacity to analyze how consumers self-organize into markets. For example, rather than targeting “pre-defined” segments, it may be more useful to identify market targets or segments real-time as they emerge from the data itself. Intelligent algorithms will thoroughly analyze point-of-sale data and uncover consumer behavior patterns that were once invisible, enabling companies to find new markets or niches they would have once missed. What this means is that companies need to develop the organizational capacity and the skill sets to work with both kinds of consumer data—proxy and emergent (see, “The Biases of Understanding Emerging Behavior” below).

■ THE BIASES OF UNDERSTANDING EMERGING BEHAVIOR

Opportunities for tracking emerging consumers’ behavior also come with the potential for judgment biases. Cognitive psychologists, economists, and other researchers in decision making have long noted that recent information, and information that is otherwise top-of-mind, can have an undue influence on decision making. (This also applies to consumers’ decision-making processes as well; IFTF discussed these biases in “How Do Consumers Really Process Information?” in our *2000 Ten-Year Forecast*.) Indeed, Daniel Kahneman at Princeton University was recently awarded the Nobel Prize in Economics for his work on these biases in decision making. Businesses will need to develop compensatory processes so that they are not unduly influenced by random “blips” in their data.

GIVE JUST-IN-TIME RESPONSES TO JUST-IN-TIME INFORMATION

With the knowledge that data flows in real-time to companies, consumers will be expecting a similar speed of response. We have already seen evidence that interactive media generates expectations of increased responsiveness, and consumers are readily disappointed by the gap between promise and reality. For example, a recent survey by Jupiter Media Metrix found that, although most consumers expected companies to respond to their e-mailed inquiries within six hours, only 38% of companies met this expectation, and nearly one-quarter didn't respond at all. Poor response practices undermine the customer relationship, causing customers to wonder how a company can know them so well and yet seem so uninterested in them. Companies that are considering adopting new data-capture technologies would do well to consider what new touch points might be created, and implement strategies for responses as well as data capture.

NEGOTIATE CONSUMER PRIVACY AND TRUST ISSUES

With technologies and information becoming increasingly embedded in physical objects, the Orwellian world of constantly being watched looms large in many people's minds. And the watching is not necessarily being done by "Big Brother," but by private companies collecting various streams of data about their customers. Thus companies will have to answer tough ethical and legal questions about how to collect such data, and whether or not they should link their databases with others that use the same technologies and provide multiple identifiers: ownership and driver's-license record; court

and criminal record; telecommunications records; birth, death, and marriage records; security video footage from public spaces; and even DNA databases. IFTF research consistently shows that people are less likely to be alarmed by potential privacy issues if they feel they are getting a tangible benefit from the information collected about them. But they have extremely low tolerance for mistakes. Companies will need to deliver up-front benefits to consumers if they want to utilize new data and technologies—or risk having their databases polluted by falsified data, delivered courtesy of disgruntled consumers.

MANAGE DATA-RICH AND DATA-POOR MARKETS

Uneven technology infrastructure across markets will result in the fragmentation of customer knowledge within large global companies. Future transformative technologies will not diffuse evenly across all geographic regions. Some regions will have infrastructures that enable companies to gather increasingly sophisticated data and information on their consumers. This will not be the case in many developing countries. Thus, companies will have to contend with increasing fragmentation of techniques for understanding consumers and different regional strategies. For example, markets in which mobile phones are widely adopted and where people use mobile text services regularly will provide companies with great amounts of location-based data. Such data may not be available in markets where wireless penetration is limited. Nevertheless, there are important opportunities to collect consumer data in developing markets. In fact, these markets may be where the richest opportunities lie for applying new market lenses.

FIND PLACES TO SEIZE POWER

Over the last 100 years, power has slowly shifted down the supply chain—from the Robber Barons of the 1900s and their steel and railroad monopolies, to the golden age of brand manufacturers in the 1940s-1960s, and finally to today's retail giants like Wal-Mart and Costco. This most recent shift in power is due to retailers' ability to get the closest to consumers—that is, retailers like Wal-Mart have seized power through their strategic management of customer data.

The new technologies and forms of data mean there are opportunities for new key players to emerge—whoever can identify and seize control of the most useful consumer data will win in the new data-rich environment. This could simply mean that retailers will have more power than ever, as retail environments become data-capture factories. However, there may also be some surprise winners who creatively use their advantages; for example, as consumers carry more mobile devices with them at all times, mobile telecommunication providers will be in a better position to obtain new kinds of important consumer data (e.g., consumers' physical location and direction). Even office buildings or public places could become data-capture factories. Companies will need to consider where they might be able to seize power or work with new players in this emerging landscape.

