Online consumers can be divided into two types: individual consumers (who get much of the media attention) and organizational buyers, who do most of the actual shopping in cyberspace in terms of dollar volume of sales. Organizational buyers include governments, private corporations, resellers, and public organizations. Purchases by organizational buyers are generally used to create the new major portion of our model by adding value to material or products. Also, organizational buyers may purchase products for resale without any further modifications. We will discuss organizational purchasing in detail in Chapter 5 (e-procurement) and focus on the individual consumer in this chapter.

The purpose of a consumer behavior model is to show factors that affect consumer behavior. Exhibit W4.1.1 shows the basic factors of a consumer behavior model. The model is composed of two major parts: influential factors and the
consumer decision process. Influential factors are those that may affect consumers’ intention to buy and their behavior, as shown in the center of the diagram.

- **Influential factors.** Five dimensions are considered to affect consumer behavior. They are consumer characteristics, environmental characteristics, merchant and intermediary characteristics (which are at the top of the diagram and are considered uncontrollable from the seller’s point of view), product/service characteristics (which include market stimuli), and EC systems. The last two are mostly controlled by the sellers. Exhibit W4.1.1 identifies some of the variables in each influential dimension.

- **The attitude-behavior process.** This is shown in the center of the exhibit and is influenced by the five factors just discussed. This process starts with a positive attitude (intention to buy) and ends with the buyers’ decisions to purchase and/or repurchase (dependent variables).

### Major Influential Factors

These are grouped as follows:

- **Consumer Characteristics**
  
  Consumer characteristics, which are shown in the top-left portion of Exhibit W4.1.1, refer to demographic factors, individual preferences, and behavioral characteristics. The major demographics that such sites track are gender, age, marital status, educational level, ethnicity, occupation, and household income, which can be correlated with Internet usage and EC data. Psychological variables such as personality and lifestyle characteristics are studied by marketers.

- **Product/Service Characteristics**
  
  The second group of characteristics is related to the product/service itself, which may include the price, quality, design, brand, and other related attributes of the product.

- **Merchant and Intermediary Characteristics**
  
  Online transactions may also be affected by the merchant that handles the product/service. This group of factors includes merchant reputation, size of transaction, trust in the merchant, and so on.

- **EC Systems**
  
  The EC platform for online transactions (e.g., security protection, payment mechanism, and so forth) offered by the merchant may also have effects. EC design factors can be divided into motivational and hygiene factors. Motivational factors are the functions available on the Web site to provide direct support in the transactional process (e.g., search engine, shopping carts, multiple payment methods). Hygiene factors are functions available on the Web site whose main purpose is to prevent possible trouble in the process (e.g., security and product tracking).

- **Environmental Characteristics**
  
  The environment in which a transaction occurs may affect a consumer’s purchase decision. As shown in Exhibit W4.1.1, environmental variables can be grouped into the following categories:

  - **Social variables.** People are influenced by family members, friends, coworkers, and “what’s in fashion this year.” Therefore, social variables (such as customer endorsement, word of mouth) play an important role in EC.

  - **Cultural/community variables.** It makes a big difference in what people buy if a consumer lives near Silicon Valley in California or in the mountains in Nepal. Chinese shoppers may differ from French shoppers, and rural shoppers may differ from urban ones.

  - **Other environmental variables.** These include aspects such as available information, government regulations, legal constraints, and situational factors.

### The Behavior Process Model

Several influential factors affect buying decisions. A classic model for describing advertising effectiveness is the Attention-Interest-Desire-Action (AIDA) model. This hierarchical model, developed by E. St. Elmo Lewis in 1898, was used to describe the process consumers employ when making decisions based on an advertising message and includes the following four stages:

1. **A–Attention (Awareness):** Attract the attention of the customer.
2. **I–Interest:** Raise customer interest by demonstrating features, advantages, and benefits.

(continued)
Chapter Four: Online Consumer Behavior, Market Research, and Advertisement

Online File W4.1 (continued)

3. D—Desire: Convince customers that they want and desire the product or service and that it will satisfy their needs.
4. A—Action: The consumer will take action toward purchasing.
   Some researchers also add another letter to form AIDA(S), where:
5. S—Satisfaction: Customer satisfaction will generate higher loyalty and lead to repurchase after using a product/service.

Questions

1. Describe the major components and structure of the consumer online purchasing behavior model.
2. List some major personal characteristics that influence consumer behavior.
3. List the major environmental variables of the purchasing environment.
4. List and describe five major merchant-related variables.
5. Explain the major stages in the AIDA model.

Online File W4.2 From Mass Marketing to One-to-One Marketing

Three basic approaches are used in marketing and advertising: mass marketing, market segmentation, and one-to-one marketing.

Mass Marketing
Marketing efforts traditionally were targeted to everyone (the “masses”). For example, using a newspaper or TV ad usually means one-way, interpersonal communication to whoever sees it. Such an effort may be effective for brand recognition or for introducing a new product or service. It can be conducted on the Internet as well.

Although mass marketing can be effective in many cases, it is not good in all cases. As a matter of fact, it can be a waste. Oftentimes targeted marketing—marketing and advertising efforts targeted to groups (market segmentation) or to individuals (one-to-one)—is a better approach.

Market Segmentation
As consumers began purchasing and using products online, more data became available about them. Data analysts began associating products with the customers who were buying them. And it was through these analysis activities that companies began to understand that their customer data could be valuable.

Market segmentation refers to the practice of promoting a product or service to a subset of customers or prospects.

Market segmentation is the process of dividing a consumer market into logical groups for conducting marketing research and analyzing personal information.

Modern companies assign a variety of segments to their customers, often dynamically defining segments and temporarily regrouping customers for specific campaigns. By segmenting customers, companies could begin more specialized communications about their products. Much of this relies on the company’s understanding its business strategies to the extent that they know their most desirable segments. Segmenting customers based on their preferred line of business or desired product features can reveal interesting facts about their different preferences and behaviors.

A simple way to segment online is to go to a specialized site or portal and advertise to its visitors. For example, by going to ivillage.com, you reach mostly women. Advertising in Internet communities and social networks usually provides you with market segmentation. Large social networks are divided into specialized sections, usually by area of interest. Increasingly, advertising is being placed on social networking sites (e.g., myspace.com, facebook.com, and xanga.com). U.S. spending on social network advertising is expected to increase from $865 million in 2007 to $2.15 billion in 2010 (eMarketer.com 2006). Some Weblogs that focus on specific niches (e.g., paidcontent.org and fark.com) have received a generous amount of dollars from advertisers (Sloan and Kaihla 2006).

(continued)
One advantage of market segmentation is that advertising and marketing efforts match the segments better than the “mass,” providing a better response rate. Also, the expense of reaching the segments is lower, and marketing efforts can be faster (e.g., e-mails are sent to fewer people or banner ads are placed on fewer Web sites). The Internet enables more effective market segmentation (see Section 4.2), but it enables an even better approach, that of true relationship marketing, or one-to-one.

Relationship and One-to-One Marketing

Instead of selling a single product to as many customers as possible, marketers are trying to sell as many products as possible to one customer—over a long period of time and across different product lines. To do this, marketers need to concentrate on building unique relationships with individual customers on a one-to-one basis. Relationship marketing is a way for marketing departments to get to know their customers more intimately by understanding their preferences and thus increasing the odds of retaining them.

One-to-one means not only communicating with customers as individuals, but possibly developing custom products and tailored messages based on the customer’s spoken and unspoken needs. The major characteristics of one-to-one marketing as compared to mass marketing and market segmentation are illustrated in Exhibit W4.2.1.

How One-to-One Relationships Are Practiced

Although some companies have had one-to-one marketing programs for years, it might be much more beneficial to institute a corporate-wide policy of building one-to-one relationships around the Web. This can be done in several ways. For

<table>
<thead>
<tr>
<th>Factor</th>
<th>Mass Marketing</th>
<th>Market Segmentation</th>
<th>Relationship Marketing (One-to-One)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interactions</td>
<td>Usually none, or one-way</td>
<td>Usually none, or with a sample</td>
<td>Active, two-way</td>
</tr>
<tr>
<td>Focus</td>
<td>Product</td>
<td>Group (segment)</td>
<td>Customer-focused (one)</td>
</tr>
<tr>
<td>Recipient</td>
<td>Anonymous</td>
<td>Segment profiles</td>
<td>Individuals</td>
</tr>
<tr>
<td>Campaigns</td>
<td>Few</td>
<td>More</td>
<td>Many</td>
</tr>
<tr>
<td>Reach</td>
<td>Wide</td>
<td>Smaller</td>
<td>One at a time</td>
</tr>
<tr>
<td>Market research</td>
<td>Macro in nature</td>
<td>Based on segment analysis or demographics</td>
<td>Based on detailed customer behaviors and profiles</td>
</tr>
</tbody>
</table>

EXHIBIT W4.2.1 From Mass Marketing to Segmentation to One-to-One
example, Gartner Inc., an IT consulting company, proposed what it calls “the new marketing cycle of relationship building” (see Marcus 2001). This proposal, illustrated in Exhibit W4.2.2, views relationships as a two-way street: The process can start at any point in the cycle. Usually, though, it starts with “Customer receives marketing exposure” (at the top of the figure). The customer then decides how to respond to the marketing exposure (e.g., whether to buy the product online or offline; if online, whether to buy as an individual or to use group purchasing). When a sale is made, customer information is collected (lower-right corner) and then placed in a database. Then, a customer’s profile is developed, and the so-called four P’s of marketing (product, place, price, and promotion) are generated on a one-to-one basis. Based on this individualized profile, appropriate advertisements are prepared that will hopefully lead to another purchase by the customer. Once a purchase is made, the detailed transaction is added to the database, and the cycle is repeated. All of this can, and should, be done in the Web environment.

One of the benefits of doing business over the Internet is that it enables companies to better communicate with customers and better understand customers’ needs and buying habits. These improvements, in turn, enable companies to enhance and frequently customize their future marketing efforts. For example, Amazon.com can e-mail customers announcements of the availability of books in their areas of interest as soon as they are published; Expedia.com will ask consumers where they like to fly and then e-mail them information about special discounts to their desired destination. Details on these key concepts are discussed in Section 4.2.

Questions
1. Define mass marketing.
2. Define market segmentation.
3. Define one-to-one marketing.
4. Describe the marketing relationship process.

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REFERENCES FOR ONLINE FILE W4.2


Online File W4.3 Factors That Affect Customer Satisfaction with Internet Shopping

EXHIBIT W4.3.1

Information Quality
- Accuracy of Content
- Up-to-Date Content
- Information Presentation (Visual representation of products)
- Completeness of Content (Detailed description of products)

System Quality
- Privacy and Security
- Simple Design
- Ease of Navigation
- Ease of Use
- Consistency of Web Site

Service Quality
- Flexibility (Billing and Delivery Option)
- Timeliness of Order Delivery
- Accuracy of Order Delivery
- Condition of Products Received
- Responsiveness
- Fairness of Policies and Procedures
- Empathy (Compensation and Apologies)

Consumer Satisfaction with an Internet Store

Online File W4.4 How to Increase Trust in EC

Consumer trust is fundamental to successful online retailing. Lee and Turban (2001) examined the various aspects of EC trust and developed the model shown in Exhibit W4.4.1.

Urban et al. (2000) advocated that trust is the currency of the Internet. The following are several guidelines for building consumer trust in EC (Cheung and Lee 2006; Jeanson and Ingham 2006).

(continued)
Affiliate with an Objective Third Party

This approach aims at building consumer trust by affiliating with trusted third parties. Internet stores can put hypertext links on their Web sites to other trusted targets, including reputable companies or well-known portals. These reputable companies are able to transfer brand equity to the Internet stores because companies with brand names induce trust. Internet stores can also use the third-party seals of approval such as TRUSTe (truste.com) and BBBOnline (bbbonline.org) (the online version of the Better Business Bureau). Escrow providers and reputation finders (e.g., cyberalert.com and cymfony.com) also are useful. These agencies provide business-critical intelligence on how brands are being used on the Internet as well as research about spying on businesses.

Working against EC trust are stories of a considerable amount of fraud on the Internet, especially when unknown parties are involved. Chapter 9 presents measures to reduce fraud and increase trust.

Establish Trustworthiness

Trustworthiness can be achieved through three key elements: integrity, competence, and security. Integrity conveys an overall sense of the ability of the Internet store to build an image of strong justice and fulfill all the promises that have been made to the customers (i.e., offering a money-back guarantee with the products and clearly stating the guarantee policy on the Web site). Another indicator of trustworthiness is an Internet store’s competence. Stores can promote the perception of
Part 2: Internet Consumer Retailing

Online File W4.5 Online Market Segmentation Research

For years, companies used direct mail to contact customers. However, they frequently did so regardless of whether the products or services were appropriate for the specific individuals on the company’s mailing list. For example, ABC Company sends out four mailings of 1 million pieces each year. The cost of the direct mailings is $1.25 per customer, and they have only a 1 percent response rate. This means the cost per responding customer is $125. Obviously, this type of direct marketing usually is not cost-effective.

Markets can be segmented to increase the percentage of responses and to formulate effective marketing strategies that appeal to specific consumer groups. Market segmentation is the process of dividing a consumer market into logical groups for conducting marketing research, advertising, and sales. A consumer market can be segmented in several ways, for example, by geography, demographics, psychographics, and benefits sought, as shown in Exhibit W4.5.1. For a description, see Chan (2005).

A company can separate even millions of customers into smaller segments and tailor its campaigns to each of those segments. Brengman et al. (2005) segmented Internet shoppers based on their Web-usage-related lifestyle, themes of Internet usage, Internet attitude, and psychographic and demographic characteristics. They identified four online shopping segments (tentative shoppers, suspicious learners, shopping lovers, and business users) and four online nonshopping segments (fearful browsers, positive technology muddlers, negative technology muddlers, and adventurous browsers). By isolating and identifying combinations of attributes that make markets, prospects, and customers unique, marketers use strategies developed to appeal to targeted segments. One segment that is being targeted is the so-called Internet generation, or NetGen, the generation that has been raised with the power of the Internet. Internet marketing and advertising is more appropriate to NetGen than traditional advertising (Mirror99.com 2006).

(continued)
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Market segmentation is done with the aid of tools such as data modeling (Oh et al. 2003) and data warehousing. Using data mining (Gregg and Walczak 2006) and Web mining (see Online File W4.7), businesses can look at consumer buying patterns to slice segments even finer. This is not an easy process, and it requires considerable resources and computer support. Most of the market segmentation success stories involve large companies. For example, Royal Bank of Canada segments its 10 million customers at least once a month to determine credit risk, profitability, and so on. This market segmentation has been very successful: The response to Royal Bank of Canada advertising campaigns has increased from 3 to 30 percent (Bennett Gold 2001). Market segmentation can be very effective in the Web environment, especially when used with appropriate statistical tools. For more on market segmentation surveys, see sric-bi.com/VALS/presurvey.shtml.

### EXHIBIT W4.5.1 Consumer Market Segmentation in the United States (a partial list)

<table>
<thead>
<tr>
<th>Market Segmentation</th>
<th>Bases/Descriptors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geographic</td>
<td>Region; size of city, county, or Standard Metropolitan Statistical Area (SMSA); population density; climate; language.</td>
</tr>
<tr>
<td>Demographic</td>
<td>Age, occupation, gender, education, family size, religion, race, income, nationality, urban (or suburban or rural).</td>
</tr>
<tr>
<td>Psychographic (lifestyle)</td>
<td>Social class, lifestyle, personality, activities, VALS typology (see sric-bi.com/VALS/presurvey.shtml).</td>
</tr>
<tr>
<td>Cognitive, affective, behavioral</td>
<td>Attitudes, benefits sought, loyalty status, readiness stage, usage rate, perceived risk, user status, innovativeness, usage situation, involvement, Internet shopping experience.</td>
</tr>
<tr>
<td>Profitability</td>
<td>Valued customers are placed in a special category.</td>
</tr>
<tr>
<td>Risk score</td>
<td>Low risk customers are placed in a special category.</td>
</tr>
</tbody>
</table>

Market segmentation is done with the aid of tools such as data modeling (Oh et al. 2003) and data warehousing. Using data mining (Gregg and Walczak 2006) and Web mining (see Online File W4.7), businesses can look at consumer buying patterns to slice segments even finer. This is not an easy process, and it requires considerable resources and computer support. Most of the market segmentation success stories involve large companies. For example, Royal Bank of Canada segments its 10 million customers at least once a month to determine credit risk, profitability, and so on. This market segmentation has been very successful: The response to Royal Bank of Canada advertising campaigns has increased from 3 to 30 percent (Bennett Gold 2001). Market segmentation can be very effective in the Web environment, especially when used with appropriate statistical tools. For more on market segmentation surveys, see sric-bi.com/VALS/presurvey.shtml.

### REFERENCES FOR ONLINE FILE W4.5

Online File W4.6 Spyware

Advertisers use spyware to spy on your movements on the Internet and send you e-mail ads or pop-ups based on what they learn about you. Authors of shareware and freeware often use spyware in order to make money on their products, which are often offered free to users. Shareware authors may insert banner ads of advertisers into their products in exchange for a portion of the revenues generated by the banners. This way, end users do not have to pay for the software, and the developers get paid for their efforts. End users who find the banners to be annoying can usually obtain a banner-free copy of the shareware by paying a regular licensing fee to the developer. Increasingly, however, spyware is being embedded in purchased software.

Spyware threats come in different flavors. One variety of spyware is malware. This type of spyware can modify the system settings on the user’s computer (see Chapter 9) and perform other undesirable tasks. A hijacker is a piece of spyware that redirects the user’s browser to a particular Web site. A dialer is spyware that dials a service, most likely porn sites, without the user’s knowledge. In many cases, the user will be held responsible for the bill! A Trojan horse is spyware that is attached to a program and performs undesirable tasks on the user’s system. Collectware is spyware that collects information about the user. This information is then provided to a third party without the user’s knowledge.

The following are types of spyware:

- **Adware networks.** Ad-serving networks such as DoubleClick, Web3000, Radiate, SaveNow, and GAIN pay publishers of games, utilities, and music/video players per download to include their ad-serving programs.

- **Stalking horses.** These programs collect information on the user and facilitate adware networks to function on desktops. These programs are bundled in many popular programs and often are presented in installation disclosure screens as desirable add-ons to Trojan horse hosts. Examples include TopText, Cydoor, OnFlow, Medialoads, Delfin, WebHancer, and New.net.

- **Trojan horses.** These are popular Internet downloads that usually come with the ad-serving network basic software and at least one stalking horse. They are contained in Kazaa, Grokster, Morpheus, LimeWire, AudioGalaxy, iMesh, and DivX.

- **Backdoor Santas.** These are stand-alone programs that incorporate similar approaches as those just discussed. However, they have no links to ad-serving networks, although their purpose is to collect information from users. They are located in Alexa, Hotbar, Comet Cursor, eWallet, CuteFTP, and BonziBUDDY.

- **Cookies.** Netscape Navigator and Internet Explorer still send out cookies even after cookies have been disabled in the browser settings. Any and all cookie files must be manually deleted on your system in order to eliminate being tracked by third-party ad networks or spyware or adware providers.

For more information about spyware, see spywareguide.com, en.wikipedia.org/wiki/Spyware, and nospysoftware.com.

Online File W4.7 Business Intelligence: From Data Collection to Data Mining and Analysis

Data for EC organizations can be viewed as either transactional or analytical. Transactional data are those pieces of information that are collected in traditional transaction processing systems (TPSs), are organized mainly in a hierarchical structure, and are centrally processed. Newer systems that contain transactional data are usually Web based; in medium to large organizations they may be part of an ERP system. These are known as operational systems, and the results of the processing are mainly summaries and reports (see Turban et al. 2011).

Today, the most successful companies are those that can respond quickly and flexibly to market changes and opportunities (i.e., they are agile). The key to this response is the effective and efficient use of data and information. EC transactions frequently must be done online in real time. This is done not only via transaction processing, but also through the supplementary activity of analytical processing, which involves analysis of accumulated data, mainly by end users.

Analytical processing includes Web applications, market research, data mining, CRM activities, and decision-support
systems. Placing strategic information in the hands of decision makers aids productivity, empowers better decision making, and improves customer service, leading to greater competitive advantage.

Collecting, Organizing, and Storing Data for Analytical Processing

Analytical processing basically can be done in two ways. One is to work directly with the operational systems (the “let’s use what we have” approach), using software tools and components known as front-end tools and middleware. This option can be optimal for companies that do not have a large number of end users running queries and conducting analyses against the operating systems. Since the mid-1990s, a wave of front-end tools that allow end users to conduct queries and report on data stored in operational databases have become available. The problem with this approach, however, is that the tools are effective only with end users who have a medium- to high-degree of knowledge about databases.

These limitations call for a second, improved, option of analytical processing, which involves three concepts:

1. A business representation of data for end users
2. A user-friendly, Web-based environment that gives the customers and corporate employees query and reporting capabilities
3. A single, server-based data repository—a data warehouse (DW)—that allows centralized analysis, security, and control over the data

Data Warehouses

The purpose of a data warehouse is to establish a repository that makes operational data accessible in a form readily acceptable for analytical processing activities, such as EC applications, decision support, and other end-user applications. As part of this accessibility, detail-level operational data must be transformed into a relational form, which makes them more amenable to analytical processing. Thus, data warehousing is not a concept by itself, but is interleaved with data access, retrieval, analysis, and visualization. The process of building and using a data warehouse is shown in Exhibit W4.7.1. The organization’s data are stored in operational systems (left side of the figure). Not all data are transferred to the data warehouse; frequently, only a summary of the data is transferred in a process of extraction, transformation, and load (ETL). The data that are transferred are organized within the warehouse as a relational database so that it is easy for end users to access. Also, the data are organized by subject, such as by product, customer segment, or business partner. EC data also can be organized according to a business process, such as ordering, shipping, or available inventory. The data then can be optionally replicated in data marts (explained later). Data access is provided through Web browsers via middleware software. On the right side of the figure are various applications that may use the data.

The activities conducted during much of the process described in Exhibit W4.7.1 are generally referred to as business intelligence. The major reason for the name is that these activities not only collect and process data, they also enable analysis that results in useful—intelligent—solutions to business problems. The concept of business intelligence originated from executive information system (EIS) activities, but today it is used to describe online analytical processing and data mining activities as well.

Data warehouses provide for the storage of metadata, which are data about data. Metadata include software programs about data, rules for organizing data, and data summaries that are easy to index and search, especially with Web tools.

Characteristics of Data Warehousing

The major characteristics of data warehousing include the following:

- **Organization.** Data are organized by detailed subject (e.g., by customer, vendor, product, price level, and region) and only contain information relevant for decision support.
- **Consistency.** Data in different operational databases might be encoded differently. For example, gender data might be encoded 0 and 1 in one operational system and m and f in another. They will be coded in a consistent manner within each warehouse.
**Time variant.** The data are kept for 5 to 10 years so that they can be used for trends, forecasting, and comparisons over time.

**Nonvolatile.** Once entered into the warehouse, data are not updated. However, new, related data may replace or supplement old data.

**Relational.** The data warehouse typically uses a relational structure (organized into tables of rows and columns).

### Benefits of Data Warehouses

The major benefits of data warehouses are (1) the ability of users to reach data quickly, because data are located in one place and organized properly, and (2) the ability to reach data easily, frequently by end users themselves, using Web browsers. Another benefit is that a data warehouse provides a consolidated view of corporate data, which is better than providing many smaller (and differently formatted) views. For example, separate production systems may track sales and coupon mailings. Combining data from these different systems may yield insights into the cost efficiency of coupon sales promotions that would not be immediately evident from the output data of either system alone. Integrated within a data warehouse, however, such information can be easily extracted.

Data warehouses allow information processing to be off-loaded from expensive operational systems onto low-cost servers (or processed by application service providers, ASPs). Once this is done, end-user tools can handle a significant number of end-user information requests. Furthermore, some operational system reporting requirements can be moved to Web-based decision-support systems, thus freeing up production processing.

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In addition, accessibility to data warehouse content by decision makers is provided throughout the enterprise via an intranet. Users can view, query, and analyze the data and produce reports using Web browsers. This is an extremely economical and effective method of delivering data.

The various benefits offered by data warehouses can improve business knowledge, provide competitive advantage, enhance customer service and satisfaction, facilitate decision making, and help in streamlining business processes.

Suitability
Data warehousing is most appropriate for organizations in which some of the following apply:

- Large amounts of data need to be accessed by end users.
- The operational data are stored in different systems.
- An information-based approach to management is in use.
- The company has a large, diverse customer base (such as in a utility company or a bank).
- The same data are represented differently in different systems.
- Data are stored in highly technical formats that are difficult to decipher.
- Extensive end-user computing is performed (many end users performing many activities).

Hundreds of successful applications have been reported (e.g., see client success stories and case studies at Web sites of vendors such as MicroStrategy Inc., Business Objects, Cognos Corp. (now part of IBM), Information Builders, NCR Corp., Platinum Technology, Software A&G, and Pilot Software). For further discussion, see Turban et al. (2011) and Inmon et al. (2000). Also, visit The Data Warehouse Institute (tdwi.org).

Although data warehouses offer substantial benefits, the cost of a data warehouse can be very high, both to build and to maintain. Furthermore, it can be difficult and expensive to incorporate data from obsolete legacy systems. Finally, there may be a lack of incentive among departments within a company to share data. Therefore, a careful feasibility study must be undertaken before a commitment is made to data warehousing. Alternatively, one or more data marts can be used.

Data Marts
The high cost of data warehouses confines their use mostly to large companies. An alternative used by many other firms is the creation of a lower-cost, scaled-down version of a data warehouse called a data mart. A data mart is a small warehouse designed for a strategic business unit (SBU) or department. A data mart can be fully dedicated to EC.

The advantages of data marts over data warehouses include the following:

- The cost is low (prices under $100,000 versus $1 million or more for large data warehouses).
- The lead time for implementation is significantly shorter, often less than 90 days.
- They are controlled locally rather than centrally, conferring power on the using group.
- They contain less information than the data warehouse. Hence, they have more rapid response and are more easily understood and navigated than an enterprise-wide data warehouse.
- They allow an EC department to build its own decision-support systems without relying on a centralized IS department.

Data marts are either replicated (dependent) or stand-alone. Replicated data marts are those in which functional subsets of the data warehouse have been replicated (copied) into smaller data marts. The reason for using replicated data marts is that sometimes it is easier to work with a small subset of the data warehouse. Each of these replicated data marts is dedicated to a certain area. The replicated data mart is an addition to the data warehouse. (This is why it is also called dependent—its existence depends on the data warehouse.) Alternatively, a company can have one or more stand-alone data marts without having a data warehouse. Stand-alone data marts are typically used for marketing, finance, and engineering applications.
Operational Data Stores

An operational data store is a database for transaction processing systems that uses data warehouse concepts to provide clean data. That is, it brings the concepts and benefits of the data warehouse to the operational portions of the business, often at a lower cost. It is used for short-term decisions involving mission-critical applications rather than for the medium- and long-term decisions associated with the regular data warehouse. Short-term decisions often require current information. For example, when a customer sends an e-mail query to a bank, the bank will quickly need to access all of the customer’s current accounts. The operational data store can be viewed as situated between the operational data (legacy systems) and the data warehouse. A comparison of the two is provided by Gray and Watson (1998).

Successes and Failures of Data Warehousing

Since their early inception, data warehouses have produced many success stories. However, many failures have also occurred. Carbone (1999) identified several types of warehouse failures:

- Warehouse did not meet the expectations of those involved.
- Warehouse was completed, but went severely over budget in relation to time, money, or both.
- Warehouse failed one or more times, but eventually was completed.
- Warehouse failed and no effort was made to revive it.

Carbone identified a number of reasons for failures (which are typical for many other large information systems):

Data Problems
- Not enough summarization of data
- Failure to align data marts and data warehouses
- Poor data quality (e.g., omitted information)
- Incomplete user input
- Incorrectly using data marts instead of data warehouses (and vice versa)
- Insecure access to data manipulation (users should not have the ability to change any data)
- Poor upkeep of information (e.g., failure to keep information current)

Technology Problems
- Inappropriate architecture
- Using the warehouse only for operational, not informational, purposes
- Poor upkeep of technology
- Inappropriate format of information—a single, standard format was not used

Other Problems
- Training and management issues
- Vendors overselling capabilities of products
- Lack of or inappropriate training and support for users
- Inexperienced/untrained/inadequate number of personnel
- Unrealistic expectations—overly optimistic time schedule or underestimation of cost
- Lack of coordination (or requiring too much coordination)
- Cultural issues were ignored

(continued)
Improperly managing multiple users with various needs
Unclear business objectives; not knowing the information requirements
Lack of effective project sponsorship
Interfering corporate politics

Suggestions on how to avoid data warehouse failure are provided by Griffin (2001).

Data Analysis and Knowledge Discovery
Once the data are in the data warehouse and/or data marts, they can be accessed by end users. Users can then conduct several types of analytical activities with the data, ranging from decision support and executive support analyses to ad-hoc queries, online analytical processing (OLAP), and data mining.

Ad-Hoc Query
Ad-hoc queries allow users to request real-time information from the computer that is not available in periodic reports. Such answers are needed to expedite decision making. The system must be intelligent enough to understand what the user wants. Simple ad-hoc query systems are based on menus. More intelligent systems use SQL (structured query language) and query-by-example approaches or Web-based applications.

Web-Based Ad-Hoc Query Tools
Web-based ad-hoc query tools allow users to access, navigate, and explore relational data to make key business decisions in real time. For instance, users can gauge the success of a Web marketing campaign according to the number of Web hits received last month, last week, or even yesterday, in relation to products or services purchased. This insight helps companies better target marketing efforts and forge closer, more responsive relationships with customers. Several vendors offer such tools. For example, Cognos Corp. (see ibm.com/software/data/cognos/products/series7/query) offers Web users powerful ad-hoc exploration of corporate data assets, with little or no user training needed.

Advanced query tools can be connected to intranets and extranets for B2B and CRM querying. Also, a drill-down from multidimensional analysis to DSS and other tools are available. Answers to queries can be delivered to visualization tools.

Online Analytical Processing
Online analytical processing (OLAP) refers to such end-user activities as DSS modeling using spreadsheets and graphics, which are done online. OLAP is an information system that enables the user to query the system, conduct an analysis, and so on, while the user is at a PC. The result is generated in seconds. Unlike online transaction processing (OLTP) applications, OLAP involves many data items (frequently many thousands or even millions) in complex relationships. One objective of OLAP is to analyze these relationships and look for patterns, trends, and exceptions. Another objective is to answer user queries.

A typical OLAP query might access a terabyte, multiyear sales database in order to find all product sales in each customer segment (female, male, young people, etc.). After reviewing the results, an analyst might further refine the query to find sales volume for each sales channel by hours of the day or by product type. As a last step, the analyst might want to perform year-to-year or quarter-to-quarter comparisons for each sales channel. This whole process must be carried out online with rapid response time.

Thus, OLAP queries are able to analyze the relationships between many types of business elements (e.g., sales, products, regions, and channels) involving aggregated data over time (e.g., sales volumes, budgeted dollars, and dollars spent, on a monthly, quarterly, or yearly basis). The ability to present data in different perspectives involving complex calculations between data elements (e.g., expected profit calculated as a function of sales revenue for each type of sales channel in a particular region) enables users to pursue an analytical thought process without being stymied by the system.

Many vendors provide ready-made analytical tools, mostly in finance, marketing, and operations (e.g., productivity analyses, profitability analyses). Such packages include built-in Web-based DSSs. For example, Cognos Finance (from IBM ibm.com/software/data/cognos) is an enterprise-wide financial application for monitoring the financial performance of a
business organization. It provides a framework for completing financial processes in a timely manner: monthly and quarterly closes, the budget process, and integration of the latest actual data with user-supplied forecasts. Users also can integrate Web information for a single view of the organization.

However, although OLAP can be quite useful, it is retrospective in nature and cannot provide the automated and prospective knowledge discovery that is done by advanced data mining techniques.

Knowledge Discovery

The process of extracting useful knowledge from volumes of data is known as knowledge discovery in databases (KDD), or just knowledge discovery (KD). The objective of KDD is to identify valid, novel, potentially useful, and ultimately understandable patterns in data. KDD is useful because it is supported by three technologies that are now sufficiently mature to produce meaningful data: massive data collection, powerful multiprocessor computers, and data mining algorithms.

Formal computer-based knowledge discovery has been done since the 1960s. However, the enabling techniques have been expanded and improved over time. KDD processes have appeared under various names and have shown different characteristics. KDD tools have evolved over time. KDD has become able to answer more complex business questions. For details, see Fayyad (1996).

Data Mining

Data mining derives its name from the similarities between searching for valuable business information in a large database and mining a mountain for a vein of valuable ore. Both processes require either sifting through an immense amount of material or intelligently probing it to find exactly where the value resides. In some cases, the data are consolidated in a data warehouse and data marts; in others, they are kept on the Internet and intranet servers.

Given databases of sufficient size and quality, data mining technology can generate new business opportunities by providing the following capabilities:

- **Automated prediction of trends and behaviors.** Data mining automates the process of finding predictive information in large databases. Questions that traditionally required extensive hands-on analysis can now be answered directly and quickly from the data. A typical example of a predictive problem is targeted marketing. Data mining can use data on past promotional mailings to identify the targets most likely to respond favorably to future mailings. Other predictive examples include forecasting bankruptcy and other forms of default and identifying segments of a population likely to respond similarly to given events.

- **Automated discovery of previously unknown patterns.** Data mining tools identify previously hidden patterns in one step. An example of pattern discovery is the analysis of retail sales data to identify seemingly unrelated products that are often purchased together, such as baby diapers and beer. Other pattern discovery problems include detecting fraudulent credit card transactions and identifying invalid (anomalous) data that may represent data entry keying errors.

When data mining tools are implemented on high-performance, parallel-processing systems, they can analyze massive databases in minutes. Often, these databases will contain several years’ worth of data. Faster processing means that users can experiment with more models to understand complex data. High speed makes it practical for users to analyze huge quantities of data. Larger databases, in turn, yield improved predictions.

Data mining also can be conducted by nonprogrammers. The “miner” is often an end user, empowered by “data drills” and other power query tools to ask ad-hoc questions and get answers quickly, with little or no programming skill. Data mining tools can be combined with spreadsheets and other end-user software development tools, making it relatively easy to analyze and process the mined data. Data mining appears under different names, such as knowledge extraction, data mining, data archeology, data exploration, data pattern processing, data dredging, and information harvesting. “Striking it rich” in data mining often involves finding unexpected, valuable results.
Chapter Four: Online Consumer Behavior, Market Research, and Advertisement

Data mining yields five types of information:

1. **Association.** Relationships between events that occur at one time (e.g., the contents of a shopping cart, such as orange juice and cough medicine)
2. **Sequences.** Relationships that exist over a period of time (e.g., repeat visits to a supermarket)
3. **Classifications.** The defining characteristics of a certain group (e.g., customers who have been lost to competitors)
4. **Clusters.** Groups of items that share a particular characteristic that was not known in advance of the data mining
5. **Forecasting.** Future values based on patterns within large sets of data (e.g., demand forecasting)

Data miners use several tools and techniques: case-based reasoning (using historical cases to recognize patterns); neural computing (a machine-learning approach by which historical data can be examined for patterns through massive parallel processing); association analysis (using a specialized set of algorithms to sort through data sets and express statistical rules among items); and intelligent agents (expert or knowledge-based software embedded in information systems).

A Sampler of Data Mining Applications

According to a 2000 Gartner Group report (see Linden 2002), more than half of all Fortune 1000 companies worldwide are using data mining technology. Data mining can be very helpful, as shown by the representative examples that follow. Note that the intent of most of these examples is to identify a business opportunity in order to create a sustainable competitive advantage.

- **Retailing and sales distribution.** Predicting sales, determining correct inventory levels and distribution schedules among outlets
- **Banking.** Forecasting levels of bad loans and fraudulent credit card use, predicting credit card spending by new customers, predicting which kinds of customers will best respond to (and qualify for) new loan offers
- **Manufacturing and production.** Predicting machinery failures, finding key factors that control optimization of manufacturing capacity
- **Brokerage and securities trading.** Predicting when bond prices will change, forecasting the range of stock fluctuations for particular issues and the overall market, determining when to buy or sell stocks
- **Insurance.** Forecasting claim amounts and medical coverage costs, classifying the most important elements that affect medical coverage, predicting which customers will buy new policies
- **Computer hardware and software.** Predicting disk-drive failures, forecasting how long it will take to create new chips, predicting potential security violations
- **Police work.** Tracking crime patterns, locations, and criminal behavior; identifying attributes to assist in solving criminal cases
- **Government and defense.** Forecasting the cost of moving military equipment, testing strategies for potential military engagements, predicting resource consumption; improving Homeland Security by mining data from many sources
- **Airlines.** Capturing data on where customers are flying and the ultimate destination of passengers who change carriers in hub cities so that airlines can identify popular locations that they do not service, checking the feasibility of adding routes to capture lost business
- **Health care.** Correlating demographics of patients with critical illnesses, developing better insights on symptoms and their causes, learning how to provide proper treatments
- **Broadcasting.** Predicting the most popular programming to air during prime time, predicting how to maximize returns by interjecting advertisements
- **Marketing.** Classifying customer demographics that can be used to predict which customers will respond to a mailing or buy a particular product

Text Mining

**Text mining** is the application of data mining to nonstructured or less-structured text files. Data mining takes advantage of the infrastructure of stored data to extract predictive information. For example, by mining a customer database, an analyst may discover that everyone who buys...
product A also buys products B and C, but does so six months later. Text mining, however, operates with less-structured information. Documents rarely have strong internal infrastructure, and when they do, it is frequently focused on document format rather than document content.

Text mining helps organizations find the “hidden” content of documents, as well as additional useful relationships. It also helps them group documents by common themes (e.g., identify all the customers of an insurance firm who have similar complaints).

**Web Mining**

The previous discussion of data mining refers to data that usually are stored in a data warehouse. However, to analyze a large amount of data on the Web, one needs different mining tools. **Web mining** is the application of data mining techniques to discover meaningful patterns, profiles, and trends from Web sites. The term Web mining is used to describe two different types of information mining. The first, Web content mining, is the process of discovering information from millions of Web documents. The second, Web usage mining, is the process of analyzing what customers are doing on the Web—that is, analyzing clickstream data.

In Web mining, the data are clickstream data, usually stored in a special clickstream data warehouse (see Sweiger et al. 2002) or in a data mart. The strategies used may be the same in both. Several companies provide tools for Web mining; for example, iOpus (iopus.com), KDnuggets (kd nuggets.com), Megaputer (megaputer.com), and SPSS (spss.com).

**Web mining**
The application of data mining techniques to discover meaningful patterns, profiles, and trends from both the content and usage of Web sites.

**REFERENCES FOR ONLINE FILE W4.7**


### Online File W4.8 From Mass Advertising to Interactive Advertising

<table>
<thead>
<tr>
<th>Desired outcomes</th>
<th>Mass Advertising</th>
<th>Direct-Mail Advertising</th>
<th>Interactive Advertising</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Volume sales</td>
<td>Targeted reach, more sales, customer data</td>
<td>Volume sales, CRM, customer feedback, acquire new customers, improve target marketing ROI</td>
</tr>
<tr>
<td>Consumer activities</td>
<td>Passive</td>
<td>Passive</td>
<td>Active</td>
</tr>
<tr>
<td>Leading products</td>
<td>Food, personal care products, beer, autos, cameras, computers, appliances</td>
<td>Credit cards, travel, autos, some appliances</td>
<td>Upscale apparel, banking, books, travel, insurance, computers, autos, jewelry, office supplies</td>
</tr>
<tr>
<td>Market strategy</td>
<td>High-volume products</td>
<td>Targeted goods to segments</td>
<td>Targeted individual or groups</td>
</tr>
<tr>
<td>Nerve centers (command centers)</td>
<td>Madison Avenue (advertisers)</td>
<td>Postal distribution centers, warehouses</td>
<td>Cyberspace, logistics companies, online marketers</td>
</tr>
<tr>
<td>Preferred media vehicle</td>
<td>Television, newspapers, magazines</td>
<td>Mailing lists</td>
<td>Online services, e-commerce, banners</td>
</tr>
<tr>
<td>Preferred technology</td>
<td>Storyboards, TV</td>
<td>Databases</td>
<td>Servers, on-screen navigators, the Web</td>
</tr>
<tr>
<td>Worst outcome</td>
<td>Channel surfing</td>
<td>Recycling bins</td>
<td>Log off</td>
</tr>
</tbody>
</table>

### REFERENCES FOR ONLINE FILE W4.8

## Online File W4.9 Advantages and Limitations of Internet Advertising

<table>
<thead>
<tr>
<th>Medium</th>
<th>Advantages</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>TV</td>
<td>• Intrusive impact—high attention-getter</td>
<td>• Fragmented ratings, rising costs, “clutter”</td>
</tr>
<tr>
<td></td>
<td>• Ability to demonstrate product and to feature “slice of life” situations</td>
<td>• Heavy “downscale” audience skew</td>
</tr>
<tr>
<td></td>
<td>• Very “merchandisable” with media buyers</td>
<td>• Time is sold in multiprogram packages; networks often require major up-front commitments; both limit the advertiser’s flexibility</td>
</tr>
<tr>
<td>Radio</td>
<td>• Highly selective by station format</td>
<td>• Audience surveys are limited in scope, do not provide socioeconomic demographics</td>
</tr>
<tr>
<td></td>
<td>• Allows advertisers to choose the time of day or the day of the week to</td>
<td>• Difficult to buy with so many stations to consider</td>
</tr>
<tr>
<td></td>
<td>exploit timing factors</td>
<td>• Testing of copy is difficult because there are few statistical guidelines</td>
</tr>
<tr>
<td>Magazines</td>
<td>• Offer unique opportunities to segment markets, both demographically and</td>
<td>• Reader controls ad exposure, can ignore campaign</td>
</tr>
<tr>
<td></td>
<td>psychographically</td>
<td>• Difficult to exploit “timing” aspects</td>
</tr>
<tr>
<td></td>
<td>• Ads can be studied and reviewed at leisure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• High impact can be attained with good graphics and literate, informative copy</td>
<td></td>
</tr>
<tr>
<td>Newspapers</td>
<td>• High single-day reach opportunity</td>
<td>• Lack of creative opportunities for “emotional” selling campaigns</td>
</tr>
<tr>
<td></td>
<td>• Reader often shops for specific information when ready to buy</td>
<td>• High cost for large-size ads</td>
</tr>
<tr>
<td></td>
<td>• Portable format</td>
<td>• Lack of demographic selectivity; despite increased zoning, many markets have only one paper</td>
</tr>
<tr>
<td>Internet</td>
<td>• Internet advertisements are available 24 hours a day, 365 days a year</td>
<td>• Low-quality reproduction, lack of color</td>
</tr>
<tr>
<td></td>
<td>• Costs are the same regardless of audience location</td>
<td>• No clear standard or language of measurement</td>
</tr>
<tr>
<td></td>
<td>• Accessed primarily because of interest in the content, so market</td>
<td>• Immature measurement tools and metrics</td>
</tr>
<tr>
<td></td>
<td>segmentation opportunity is large</td>
<td>• Although the variety of ad content format and style that the Internet allows can be considered a positive in some respects, it also makes apples-to-apples comparisons difficult for media buyers</td>
</tr>
<tr>
<td></td>
<td>• Opportunity to create one-to-one direct marketing relationship with</td>
<td>• Difficult to measure size of market, therefore it is difficult to estimate rating, share, or reach and frequency</td>
</tr>
<tr>
<td></td>
<td>consumer</td>
<td>• Audience is still small</td>
</tr>
<tr>
<td></td>
<td>• Multimedia will increasingly create more attractive and compelling ads</td>
<td></td>
</tr>
</tbody>
</table>
Chapter Four: Online Consumer Behavior, Market Research, and Advertisement

Click-Throughs

Consider the following example. Of the people who showed an interest in an advertising link, 4 percent clicked through. Of those 4 percent, 6 percent made a purchase. Four percent is a very high click-through rate. Let’s use the same percentages and say that about 5 percent of all visitors will hover over a link—that is, 5 percent will at least read the ad.

Given these statistics, about 5 percent of visitors read an add, around 0.2 percent (5 percent × 4 percent) click on an ad, and around 0.012 percent (0.2 percent × 6 percent) actually make a purchase. During the initial Internet boom of 1995–2000, online advertisers paid for each eyeball. That means that 99.988 percent of their money was wasted. Advertisers finally figured that out, stopped paying for eyeball ads, and the dot-com boom went bust.

A new model came along, of which Google is the biggest success. Instead of paying for eyeballs, advertisers pay for click-throughs. This model is much more efficient than the old one. How efficient is it? Well, now only 94 percent (100 percent – 6 percent) of advertisers’ money is thrown away. That is a great deal better, but it is still miserable. At least now the buckshot-as-dollars are aiming at a target, but only $6 out of every $100 is hitting the target.

Click-Through Rate (CTR)

The click-through rate is the ratio of page views to clicks. For example, it may be expressed as the percentage of total visitors to a particular page who actually clicked on the banner ad. However, CTRs can also be determined through keyword searches, as expressed by Kintz (2006).

To determine how many searches were conducted on more than 600,000 keywords, a keyword sample was created from the data that allowed the calculation of an estimated click-through rate (CTR). These terms were checked against the Overture Keyword Selector to estimate total searches conducted. By dividing reported searches by clicks received (from all engines), the effective click-through rate was found to be 4.7 percent (Kintz 2006).

The Kelsey Group forecasts that the global online local search market, which includes Internet Yellow Pages, local search, and wireless, will grow from the $3.4 billion it brought in last year to nearly $13 billion by 2010. The company’s report projects a 30.5 percent growth rate over the next four years (Burns 2006).

REFERENCES FOR ONLINE FILE W4.10


Online File W4.11 Pop-Up Advertising Methods

- **Mouse-trapping.** Disables the user’s ability to go back, exit, or close while viewing the page.
- **Typo-piracy and cybersquatting.** Uses misspellings and derivations of a popular brand name to divert traffic to an unintended site.
- **Unauthorized software downloads.** Leaves behind software that contains embedded advertising or tracking capabilities. Sometimes coupled with mislabeling of buttons so that the download occurs regardless of whether “yes” or “no” is selected.

(continued)
In 2007, countless companies discovered the many uses of e-mail marketing. They saved money, improved efficiency, and effectively tracked their results simply by getting on board with e-mail marketing software. The five top uses (and why) of e-mail marketing were:

1. **Sending e-mail newsletters to customers** is an effective communication tool.
2. **Special promotions or eCoupons** can be sent to mailing list subscribers.
3. **E-mail is an easy and cost-effective way** to spread the word about events, as well as tracking responses.
4. **Customers feel appreciated** when they receive personalized e-cards at holidays throughout the year.
5. **Making business announcements and sending press releases** through e-mail reaches a large audience.

The following are a few examples of e-mail advertising methods:

**Visible seeding.** Visibly places popular brands, slogans, and proprietary content into a site to optimize search engine rankings.

**Invisible seeding.** Hides content to optimize search service rankings.

**Changing homepage or favorites.** Substitutes a new homepage setting or makes changes to the user's “favorites” list.

**Framing.** Keeps customer on the original site while the customer views content of another site through the original site's window; the site can then use higher visit time statistics to attract advertisers.

**Spoof or magnet pages.** Seeds site content with select words, brands, slogans, and personalities to draw traffic.

**Mislabeling links.** Falsely labels hyperlinks that send the shopper to an unintended destination.

**Online File W4.11 (continued)**

**Visible seeding.** Visibly places popular brands, slogans, and proprietary content into a site to optimize search engine rankings.

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**Online File W4.12 E-Mail Advertising Methods**

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4. Customers feel appreciated when they receive personalized e-cards at holidays throughout the year.
5. Making business announcements and sending press releases through e-mail reaches a large audience.

The following are a few examples of e-mail advertising methods:

**E-Mail Promotions.** E-greetings (egreetings.com) produces digital postcards and animations for its customers, who are both individuals and corporations. For a modest membership fee ($13.95 annually in 2008), members have access to more than 5,000 e-greeting cards, plus designs for flyers, fax covers, and envelopes. Through its free membership trial and its members list, E-greetings has compiled a database of millions of recipients. E-greetings' goals for its e-mail promotion campaign include bringing value to its customers, driving traffic and transactions at the customer's site, stimulating involvement with the site, expanding customer relationships, offering added means of sponsorship, and supporting brand affinity. E-greetings' main relationship-building tool is its newsletter, “What's Up @ E-greetings!” Key factors in its success are the fact that the mailing list is totally voluntarily (opt-in); newsletters are distributed on a regular, biweekly schedule; the content is relevant; and it handles unsubscribe difficulties and customer service in a timely manner.

**Discussion Lists.** Internet Security Systems (ISS), with $1 billion in sales per year, provides software that detects weaknesses in systems and gives detailed corrective measures for fixing security holes. Its success began when its founder, Chris Klaus, posted a notice about his security software on a newsgroup. He then offered a shareware version of the program to the newsgroup members and received 200 e-mail responses the following day. His company's discussion list program includes approximately 80 specialized e-mail lists reaching more than 100,000 people through discussions, partner lists, customer lists, and product announcement lists. Sponsorship of discussion groups, communities, and newsletters is becoming quite popular on the Web (see sponsorship.com).

**E-Mail List Management.** L-Soft's LISTSERV (lsoft.com/products/listserv.asp), the leader in software for e-mail list management and marketing, is known for its electronic newsletters, discussion groups, and direct e-mail messaging. According to Kinnard (2002), the company understands that 9 out of 10 customer interactions are not transactions, so it offers database integration, mail merges, and customizable Web interfaces that allow companies to send pertinent information, such as product details or advertising, to specific customers. Listserv delivers 30 million messages each weekday and 1 million messages per hour from a single server. For e-mail challenges, see Berkowitz (2004).
Chapter Four: Online Consumer Behavior, Market Research, and Advertisement

REFERENCES FOR ONLINE FILE W4.12


Organizations that exercise thought leadership rather than traditional advertising and product promotion are today’s success stories. Effective Web content in all Web 2.0 forms (blogs, media-rich Web sites, online videos, podcasts, and social networking) is critical for any business. Rather than trying to coerce people into paying attention to products and services by dreaming up messages and ad campaigns, advertising is now created with or even by people and for people. We now have a tremendous opportunity to directly publish good content online, content that people want to consume and that they are eager to share with their friends, family, and colleagues. For additional coverage of these topics, see Chapter 7.

E-Mail 2.0
E-mail marketing has been going through a renaissance as marketers experiment with integrating new innovations into e-mail to make it more effective and useful. Today’s e-mail campaigns are designed to reach out to new potential customers—even to youngsters (see Chapter 4’s Closing Case)—and get them involved.

E-Mail Newsletters
E-mail newsletters are comprised of user-generated content (UGC). (Note that UGC also stands for University Grant Commission.) For example, a newsletter targeted toward professional women highlights UGC such as consumer-submitted recipes. A newsletter called the Daily Shoe Digest, by the shoe e-tailer Zappos, includes only UGC. UGC in e-mail newsletters works best with segmentation. For example, AbeBooks’ (abebooks.com) newsletters are effective in creating a sense of community. When consumers subscribe, they choose an area like cooking or science fiction, and then they receive relevant content related to their interest. Consumers are then asked to contribute relevant book reviews and participate in poetry contests.

Another popular form of UGC is blogs. Companies are establishing blogs to nurture ties with customers, and retailers are promoting their blogs in their e-mail newsletters. In 2007, PETCO launched its blog (petconews.com) and alerted subscribers to its existence in a PETCO newsletter. PETCO has been using its e-mail newsletter and blogs in tandem in order to keep people updated on issues such as pet food recalls.

Marketers also are promoting their RSS feeds through e-mail newsletters. Retailer eBags (ebags.com) entices e-mail recipients to subscribe to its frequent brand alert RSS feeds, so consumers can see new styles as soon as they arrive.

Video in E-Mail Campaigns
Companies are connecting videos to social networking. For example, Bass Pro Shops (basspro.com) has video tutorials on fishing and trips, including UGC. Response rates for e-mails with video links are 3 to 10 times higher than those for static e-mail. More importantly, these e-mail messages tend to increase traffic and conversion rate. E-mail videos may have two problems: spamming and insufficient broadband. One solution for distributing video via e-mail is offered by magnify.net, which created a branded site to showcase UGC that can be used mainly for marketing videos.

Use of Social Media Tools in E-Mail 2.0
Web 2.0 innovations also look at how users can promote and rate content that is important and relevant to them. Marketers can exploit this trend in their e-mail campaigns to induce consumers to indicate what is important to them.

(continued)
Part 2: Internet Consumer Retailing

For example, Dell, in its campaign to increase customer acquisitions, sent an e-mail that had a four-point rating system, requesting the recipients to rate its products and provide feedback.

Blogging as a Marketing Strategy
Companies should consider adding blogs to their marketing plans to complement their search engine marketing. Active blogs can rank well in search engines, provide quality links to the main domain, and expand traffic and presence on the Web. Blog marketing and advertising content should be short, simple to read, and updated frequently with unique and attractive content that is helpful to users.

The top 50 most popular blogs tracked by Technorati.com (technorati.com), an online buzz tracker, are drawing more than 20 million visitors a day.

Optimizing Blogs for Search Engines
Southwest Airlines joins a growing number of companies looking to improve search engine ranking with the use of blogs. Blogs are fabulous for search because of the way they are set up. Many are template driven, so they are reasonably search friendly. They also satisfy a search engine’s need for frequency, timeliness, and good, solid material. Blogs are typically keyword rich, too. People are more likely to click on a regular search link than a paid search link.

Although blogging may cost a lot less than a print or banner ad campaign, it still requires resources and commitment; companies need to put effort into their ads so that the ads get indexed by search engines. The blogs need to be interesting enough that people will frequently visit them. Bloggers must be passionate about their topics and willing to commit to regular postings. The more people who blog, the better, which may be why the Southwest Airlines blog has done so well. More than 30 Southwest employees are blogging, from executives to pilots to marketing personnel.

Corporate Blogging
A growing number of business are opening up their corporate blogs to provide an outlet for the same kind of uncensored commentary and interaction that have made personal blogs such a popular medium. The goal is to raise the profile of a company. Corporate blogs often tackle unconventional topics that may not have an obvious effect on businesses’ bottom lines. To be successful, blogs should be anchored by content that is free of traditional marketing flavor.

Example 1. PitneyBowes (pb.com) in its first blog tackled topics such as public funding for research on Alzheimer’s disease. Blogs require companies to turn conventional marketing wisdom on its head by investing time, effort, and money without the promise of a tangible return on investment.

Example 2. SmugMug (smugmug.com) posted an interesting review of how Sun Microsystems Sun Fire T1000 servers were performing in SmugMug’s data center. The posting made the front page of the news aggregator Web site digg.com. From then on, SmugMug has continued to blog about issues that the company thinks will engage readers, such as the differences in how the colors of photos appear on Windows PC versus Macintosh systems.

Example 3. New Day Trust Mortgage’s blog is aimed at establishing New Day Trust as a knowledgeable and trustworthy voice within the mortgage industry. The postings on the blog have been very up front about the recent “black eye” that the mortgage industry has received over the increase in defaults that have occurred as a result of loans being made to borrowers who may not have been financially qualified. The blog has helped the lender increase the network of real estate agents who work with the company. A blog can be a good way for a corporation to make itself more “human.” It has to include a realistic discussion about the industry trends and issues that are important, potentially even issues that are controversial or troublesome.

Many companies are embarking on or experimenting with advertising and marketing in enterprise and public social networks.

Example 1. Del Monte (delmonte.com) is hoping to capitalize on social networking as a marketing tool to help the company get closer to its customers and create the kind of products consumers want. The company is sponsoring two networks. “I Love My Dog” offers a platform where dog lovers and owners can interact and share ideas; “Mom Online Community” lets mothers exchange ideas and information. Both networks help Del Monte glean insights into market psychology and put its finger on the pulse of emerging trends. Social networking tools help in identifying the most pressing issues for customers and in understanding the topical matters that factor into buying decisions.

(continued)
Example 2. Meetup (meetup.com) facilitates offline and online gatherings in several cities. Meetup helps kindred spirits, scrabble buffs, atheists, and origami lovers around the world connect online and plan real-world restaurant meals, bike rides, and other healthy activities. It has 3 million registered members who belong to one or more of its 24,000 groups (as of winter 2009). Meetup is approaching car companies, financial services firms, and packaged goods makers about sponsoring groups that might be interested in the products these companies sell. Meetup is offering to help companies by setting up brand-focused Meetup groups. Marketers like the idea of face-to-face access to potential customers. As of 2006, ads from Google's AdSense network appear regularly on Meetup pages.

Advertisement in Social Networking
Social networks are proving to have the kind of stickiness of which marketers have long dreamed. People willingly give all kinds of details in the name of furthering friendships. For example, YouTube has had some notable B2B successes: IBM's “Mainframe: Art of the Sale” video has increased traffic to its associated blog tenfold. Social networks are now springing up in many professional communities.

Despite some evidence of success, public social networks have remained stubbornly resistant to promotional campaigns. Many experts believe that it is because the intensely personal interactions among members prohibit traditional interruption marketing. Yet, things are changing: MySpace has made the most progress. *eMarketer* estimated MySpace generated $820 million in advertising in 2008 (reported by Interactive Advertising Bureau 2007), nearly four times the estimate for Facebook. Social media thus stands at an awkward transition stage. Businesses overwhelmingly understand its importance but are unsure of how to take advantage of it.

B2B marketers are finding that employees can be powerful and persuasive advocates of the company's products and services. Microsoft and Sun both claim to have more than 5,000 employee bloggers, and corporations like Southwest Airlines and Kodak have structured their blogging initiatives around ordinary employees and even customers.

Social News/Bookmarking and Podcasting Can Facilitate Advertising
*Digg.com*, *reddit.com*, *del.icio.us*, *newsvine.com*, *blog.netscape.com*, and *stumbleupon.com* are social news/bookmarking sites that attract millions of visitors. Visitors can submit links to their favorite bookmarked sites. Depending on how popular their stories and bookmarks become, their recommendation can initiate extensive viral marketing. The same is true with blogs. For example, there are an estimated 27 million “influential” people on social networking sites who express opinions on products and brands.

Another popular social media tool is podcasting. General Motors, Purina, HP, IBM, Kodak, Wells Fargo Bank, and many others are using podcasting to reach business influencers.

Opportunities Provided by Social Network Marketing
Social networking can be a place to create a brand and communicate about it. The best thing about social media marketing is that if companies do not talk about their brands, their customers do. A recent study commissioned by Isobar Corp. and MySpace shows that incorporating social media into marketing programs can increase advertising exposure by more than 70 percent. It also improves the purchasing intent and builds a positive brand image. A whole new lexicon has emerged to describe the new social network marketing opportunities:

- **Online word-of-mouth marketing**: Giving people a reason to talk about products online.
- **Buzz marketing**: Using high-profile entertainment, games, or news to get people talking about products online.
- **Online viral marketing**: Creating messages designed to be passed along by e-mail, blogging, or networking with others.
- **Online community marketing**: Forming online niche communities to share interests about brands.
- **Online grassroots marketing**: Organizing volunteers or paying people to reach out to their friends online.
- **Influencing marketing**: Finding people in online communities who are opinion leaders or key influencers.
- **Conversation marketing**: Interesting or fun online advertising to start word-of-mouth campaigns via e-mail, blogs, and networking profiles.
- **Brand blogging**: Creating blogs, or participating on blogs, or hiring bloggers to share and promote the value of brands.

(continued)
Part 2: Internet Consumer Retailing

Limitations and Risks

There are risks in social networking, however. For instance, a company cannot control what bloggers, chatters, and networkers say about brands or products, and although they may provide valuable feedback that is useful for product design and improvement, unfair characterizations of products, intentions, or policies can kill sales (see Chapter 7 for details).

To solve the lack of control problem, Nielsen’s BuzzMetrics (blogpulse.com) is using search engines to browse the Internet for phrases, opinions, keywords, sentences, and images that impact its customers’ brands. It then analyzes the vocabulary, language patterns, and phrasing to determine if the comments are positive or negative; it also analyzes the demographics of the people making the comments whenever possible. It is also using the Internet as an online focus group. Other firms performing similar services are cymfony.com and biz360.com. Coca-Cola has used BuzzMetrics, for example, to gauge responses to a video it posted on YouTube; ConAgra has used these techniques to anticipate lifestyle and food trends; Sony has used such services to track interest in its computer games.

The online brand intelligence field is also moving toward real-time monitoring of the social network ecosystem. For example, Adidas received complaints from the blogosphere about fading colors on its Predator, a new soccer shoe. As a result, Adidas began to tell its customers, at the point of purchase, to treat the leather before wearing the shoes. Then Adidas changed the formulation of dyes used in the coloring process to rectify the problem.

Use of Social Networking for Marketing Research

Many companies are starting to use social networking to support market research.

Example. Hilton hotels (hilton.com) is tapping into the power of an online community to augment its traditional market research and respond more quickly to travelers’ needs in its hotels. The company’s use of a full-service online networking service provider has enhanced its approach to measuring and understanding customer satisfaction. Its service provider helps recruit guests as community members, suggests ways to ask questions, jump-starts discussions, and invents novel tactics to probe for information. Community members are viewed as a standing focus group. Members are controlled and profiled, and members receive modest rewards for participating in network activities, mostly points in the Honors loyalty program. One benefit of the community is the speed of response to promotions.

Social Media Marketing

Social media marketing is a form of online advertising that uses the cultural context of social networks, virtual worlds, social news sites (e.g., Digg and del.icio.us), and social opinion sharing sites (e.g., Epinions) to facilitate branding and communication objectives. Social media marketing encourages interaction between consumers and brands. It can enhance perceptions of the “brand as person,” thereby strengthening a brand’s personality, differentiating a brand from its competitors, and setting the stage for a perceived relationship. It can extend the exposure time for a brand’s message by encouraging sticky interactions that last far beyond a 30-second spot and repeat visits to the brand’s site. It enhances opportunities for word-of-mouth communication to friends about the brand.

Virtual Worlds, Marketing, and Advertisement

Virtual worlds (see Chapter 2) also provide an opportunity to conduct market research and advertising as well as actual sales.

Marketing and Advertising in Second Life

It is not difficult to understand why brands are interested in Second Life. Its sheer size warrants attention, and it has received enormous media attention ranging from mainstream media to blog postings. Second Life plays host to a materialistic set of avatars with a zest for branded virtual goods. For example, residents can travel anywhere in Second Life by flight, arriving instantaneously at another geographic location. Yet, many residents do own cars. Toyota, Mercedes, and Pontiac have responded to the avatars’ need for virtual transportation. Many residents own property and have built lavish homes, resorts, or popular restaurants (in some, reservations must be made far in advance).
Virtual worlds offer many business opportunities; these opportunities include sales, brand engagement, market research, publicity generation, and facility utilization and management. Brands need to match marketing strategy to virtual world culture, offering interactivity and providing customization options.

Example 1. Toyota not only sells virtual Scions in Second Life, but the cars are also customizable (see Chapter 4’s Closing Case).

Example 2. Dell offers engagement devices but also provides a direct sales link for real-world computers. Dell has developed a virtual personal computer factory in Second Life. Residents can buy virtual and real versions and arrange for the real computer to be shipped to their workplace or home. Dell transferred the primary principles of sponsorship marketing to its social media marketing strategy.

Businesses are also using virtual space as conference facilities. Employee avatars can meet at virtual conference tables around the globe. For example, Crown Plaza Hotels offers free conference space to those who need virtual meeting space.

Implementation

Virtual worlds give companies an opportunity to offer products that meet the functional needs of a target audience. For example, a Web programming company could develop a line of virtual conference rooms to be leased by companies that periodically need virtual meeting and presentation space but do not wish to own and develop private conferencing facilities. There is more business promise in virtual worlds than just marketing and promotion. They are also used for training and education (see Chapter 6), communications, and more. Sun Microsystems is using virtual environments for business and personal use. Its Project Wonderland (lg3d-wonderland.dev.java.net) enables organizations to build their own 3D virtual worlds. The eventual goal is to support content creation within the virtual world; in the shorter run, the goal is to support importing art from open-source 3D content creation tools as well as to support professional 3D modeling and animation applications.

For instance, Rivers Run Red (riversrunred.com), a marketing agency, uses a virtual facility in Second Life to meet with clients and partners around the world in real time. Meeting in a virtual world saves time and travel expenses.

Benefits of Participation in Global Virtual Worlds

Participation in a new virtual world is considerably less risky than participation in a new global physical market. There are fewer barriers to entry for companies to contend with when entering virtual markets than when entering markets in a new country. Entry into a virtual world can be done by offering branded virtual products through a virtual world retailer. Exporting also might be delegated to companies that offer services and products for use in virtual worlds. This is a possible entry strategy for Web developers, programmers, and marketing consultants. Companies may pursue globalization through joint ventures and strategic alliances. One example is Coke’s Virtual Thirst campaign, which was designed, hosted, and managed as part of an alliance with Coke’s virtual ad agency, Crayon.

In virtual worlds, there are the brands that have bought land, designed and developed infrastructure, staffed their facilities, and continued to invest in developing the brands’ business opportunities. For example, the brands that follow this entry strategy include Reuters, Sony, Toyota, and Dell.

Limitations of Virtual World Marketing for Businesses

There are several limitations to virtual world marketing. Let’s look at those of Second Life.

- Second Life is complex and user unfriendly. Time magazine called it a case of Fortune 500 companies’ trying too hard to be hip.
- Second Life requires users to install its software. Software installation could be a deterrent to growth beyond the innovators.
- Second Life has struggled to provide security to the real-life people behind the avatars. In 2006, hackers obtained credit card information for some residents.
Part 2: Internet Consumer Retailing

Online File W4.13 (continued)

- Second Life's infrastructure limits the capacity at some events. The system crashes when more than 70 avatars are present at a time.
- Some brands have sold digital versions of their products, like Toyota, Reebok, Adidas, and Dell. No brand has yet announced success at using the in-world branding site as a direct response tool for real-world sales.

REFERENCE FOR ONLINE FILE W4.13

Online File W4.14 How to Attract Web Surfers

Advertisers use dozens of innovative techniques to lure consumers into viewing online ads. The following list is only a sample of the many interesting ideas companies have used to attract Web surfers. For more on promotions, visit promomagazine.com.

- Retailers can provide online shoppers with special offers while they are purchasing or “checking out.” If a shopper’s profile or shopping history is known, the ads can be targeted.
- Webstakes (webstakes.com) runs sweepstakes that require no skill. Users register only once and win prizes at random. Sponsors pay Webstakes to send them traffic. Webstakes also runs online ads, both on the Web and through e-mail lists that people subscribe to.
- Sometimes a catchy name draws Web surfers. For example, an old-economy seller of hard-to-find lightbulbs changed its name to topbulb.com and created an online catalog, called “The Bulbguy,” through which it sells lightbulbs online at a discount. The Web site is advertised both online and offline, and business is booming!
- PromotionWorld (promotionworld.com) is a magazine-format site dedicated to Web site promotions. Users can find rich resources and promotions on how to increase Web traffic.
- To promote its sport utility vehicle, the 4Runner, Toyota wanted to reach as many Internet users as possible. The company displayed Toyota banners on the search engine AltaVista (altavista.com). Whenever someone used AltaVista to search for anything related to automotives, they would see the Toyota banner. Also, Kelley Blue Book's new-car pricing catalog (kbb.com) had links to Toyota's car. In the first two months of the campaign, more than 10,000 potential car buyers clicked on the banner ads looking for more detailed information about the Toyota 4Runner.
- Web surfers can play games, win prizes, and see “e-tractions” at uproar.com. Special promotion campaigns are also featured.
- To promote its job-recruiting visits on U.S. college campuses, IBM created more than 75,000 college-specific banners such as, “There is life after Boston College: click to see why.” The students clicked on the banners at a very high rate (5 to 30 percent). As a result of this success rate, IBM restructured its traditional media plans using the “Club Cyberblue” scheme.
- Each year, almost 500,000 brides-to-be use theknot.com to plan their weddings. A "Knot Box" with insert folders is sent to users by regular mail. Each insert is linked to a corresponding page at theknot.com. Advertisers underwrite the mail campaign. The Web site provides brides with information and help in planning the wedding and selecting vendors. Orders can be placed by phone or online (not all products can be ordered online). A similar service is offered by weddingschannel.com, which operates primarily online.

(continued)
Chapter Four: Online Consumer Behavior, Market Research, and Advertisement

Online File W4.14 (continued)

Bargain hunters can find lots of bargains on the Internet. Special sales, auctions, and downloading of coupons are frequently combined with ads. Of special interest are sites such as coolsavings.com, hotcoupons.com, supercoups.com, clickrewards.com, and mypoints.com. A popular lottery site is worldwidelotto.com. In addition to lotteries and coupons, free samples are of interest to many consumers, and “try-before-you-buy” gives consumers confidence in what they are buying. Freesamples.com began to offer free samples in June 2000. By 2008, the company was finding free samples, brand name coupons, and special promotions and deals all across the Web.

Online File W4.15 Economics of Advertising

One of the major issues in advertising is the cost–benefit (the relationship of its cost to the benefits it provides) it provides to the advertisers. The cost depends mostly on the method of payment.

Pricing of Advertising

Justifying the cost of Internet advertising is more difficult than doing so for conventional advertising for two reasons: (1) the difficulty in measuring the effectiveness of online advertising and (2) disagreements on pricing methods. Several methods are available for measuring advertising effectiveness, conducting cost-benefit analyses, and pricing ads.

Pricing Based on Ad Views, Using CPM

Traditional ad pricing is based on exposure or circulation. So far, this model has been the standard advertising rate-pricing tool for Web sites as well, usually using ad views to measure circulation. Because advertisers pay an agreed-upon multiple of the number of “guaranteed” ad views using a CPM formula, it is very important that ad views are measured accurately in the context of the advertising business model. Generally, CPMs seem to average on the order of $40 (per 1,000 ad viewers), resulting in a cost of $0.04 per impression viewed (per ad view).

Some companies, such as USA Today Online, charge their clients according to the number of hits (about $0.035 per hit in 2005). However, hits are not an accurate measure of visitation, because one ad view may have several hits.

Pricing Based on Click-Through

Ad pricing based on click-through is an attempt to develop a more accountable way of charging for Web advertising. In this model, the payment for a banner ad is based on the number of times visitors actually click on the banner. Payment based on click-through guarantees not only that the visitor was exposed to the banner ad, but also that the visitor was sufficiently interested to click on the banner and view the target ad (Hoffman and Novak 2000).

However, a relatively small proportion of those exposed to a banner ad (about 1 to 3 percent of viewers) actually click on the banner. Therefore, space providers usually object to this method, claiming that simply viewing a banner ad may lead to a purchase later or to an offline purchase, much as newspaper or TV ads do. Advertisers, however, do not like to pay for ad views; they prefer the click-through method, which they feel is more accurate. Only large advertisers such as Procter & Gamble can pressure space sellers to accept click-through payment methods, or even better, interactivity.

Payment Based on Interactivity

Although payment based on click-through guarantees exposure to target ads, it does not guarantee that the visitor liked the ad or even spent a substantial time viewing it. The interactivity model (Hoffman and Novak 1996) suggests basing ad pricing on how the visitor interacts with the target ad. Such an interactivity measure could be based on the duration of time spent viewing the ad, the number of pages of the target ad accessed, the number of additional clicks generated, or the number of repeat visits to the target ad. Obviously, this method is more complex to administer than the previous methods.

(continued)
Payment Based on Actual Purchase: Affiliate Programs

Many advertisers prefer to pay for ads only if an actual purchase has been made. Such arrangements usually take place through affiliate programs. Merchants ask partners, known as affiliates, to place the merchant's logo on the affiliate's Web site. The merchants promise to pay the affiliate a commission of 5 to 15 percent whenever a customer clicks on the merchants’ logo (banner) on the affiliate's Web site and eventually moves to the merchant site and makes a purchase. For example, if a customer saw Amazon.com’s banner at AOL’s Web site, clicked it, moved to amazon.com, and completed the purchase, AOL would receive a referral fee of, say, 5 percent of the purchase price of the book. This method works only at sites where actual purchases can be made (e.g., see cdnow.com at Amazon.com, and cattoys.com). At the Ritchey Design or Coca-Cola (coca-cola.com) sites, users only get information and brand awareness, thus this method would be inappropriate for these types of merchants.

Which Is the Most Appropriate Pricing Method?

In addition to the four major methods just described, still other methods can be used to pay for ads. For example, some space providers charge a fixed monthly fee to host a banner, regardless of the traffic. Others use a hybrid approach, a combination of some of the previous methods. The question is: Which is the most appropriate method?

Web space providers, such as Yahoo!, push for CPM. They argue that the problem with activity-based measures, such as click-through or interactivity, is that the Web space provider cannot be held responsible for activity related to an advertisement. (If the customer sees an ad, but it is a poor ad that does not inspire further activity, it is not the fault of the Web space provider.) They also argue that traditional media, such as newspapers or television, charge for ads whether or not they lead to sales. So why should the interactive condition be applied on the Web?

Advertisers and their agencies, on the other hand, argue that because the Web medium allows for accountability, models can and should be developed that measure actual consumer activities. The answer to the question of the most appropriate method has not been settled.

Advertisement as a Revenue Model

Many of the dot-com failures in 2000 to 2002 were caused by a revenue model that contained advertising income as the major or only revenue source. Many small portals failed, but three large ones are dominating the field: AOL, Yahoo!, and MSN. However, even these heavy-traffic sites reported only small revenue growth in 2001 and 2002. There are simply too many Web sites competing for advertising money. For these reasons, almost all portals are adding other sources of revenue. However, if careful, a small site can survive by concentrating on a niche area. For example, NFL Rush (nflrush.com) is doing well. It pulls millions of dollars in advertising and sponsorship by concentrating on NFL fans. The site provides comprehensive and interactive content, attracting millions of visitors.

Measuring Advertising Effectiveness

Determining the cost of advertising is easier than assessing its benefits. Most of the benefits of advertising are intangible. However, more and more companies are requiring that some measure be made of the effectiveness of advertising. One financial measure is the return on investment. Another way to measure advertising effectiveness is to measure and analyze Web traffic.

Return on Investment

An increasing number of companies are requiring that the rate of return on investment (ROI) be used to measure the benefits received from their online advertising campaigns. ROI can be calculated in several ways. One popular formula for ROI is the net benefit (the total benefits minus the total cost) divided by the required investment. Obviously, the difficult part is to put a dollar amount on the total benefits. Nevertheless, Forrester Research (forrester.com) has developed an interactive ROI model (see Scheier et al. 2001) for the “word-of-mouth” ad approach. Also, ad management companies such as Worddata.com generate reports that can help an organization to calculate the ROI of its e-mail ads (see the demo at worlddata.com). Many other vendors offer ROI support services. For example, advertising.com offers optimization services that analyze campaign data in real time, helping the advertising team make necessary adjustments to the campaign.
The cost of advertising is perhaps the key component of ROI. (It certainly is the one that companies and advertisers have the most control over.) One of the ways to improve ROI is to lower advertising costs. Various vendors offer services to help do that. To reduce expenses, a company can negotiate ad purchasing at valueclick.com. In addition, companies can use reverse auctions to solicit bids from space providers.

Measuring, Auditing, and Analyzing Web Traffic

Before a company decides to advertise on someone's Web site, it should verify the number of ad views, hits, click-throughs, or other data reported by the site’s owner. A site audit validates the data claimed by the site, assuring advertisers that they are getting their money’s worth. An impartial, external analysis is crucial to advertisers to verify the accuracy of any counts claimed by sites.

The Audit Bureau of Circulation (ABC) (see abc.org.uk) is a nonprofit association created by advertisers, advertising agencies, and publishers, who came together to establish advertising standards and rules. The ABC verifies circulation reports by auditing circulation figures of newspapers, TV, radio, and now the Internet. It provides credible and objective information to the buyers and sellers of advertising. Several other independent third-party Internet auditing companies also are in operation, such as BPA Worldwide (bpaww.com), the Internet Advertisement Bureau (iab.net), and I/PRO (ipro.com).

Related to auditing is the rating of sites. This is done by companies such as Accipiter, I/PRO, Netcount, Interse, HotStats, and CNET. Rating is done by looking at multiple criteria, such as content, attractiveness, ease of navigation, and privacy protection. Sites with higher ratings can command higher prices for advertising placed on their sites. In addition to outside independent monitoring, several vendors sell software that enables Webmasters to self-monitor traffic on their own Web sites. Examples are worldata.com, webtrends.com, and netratings.com. Additionally, Webmasters can measure who is coming to a site and from where. Using such software, companies can assess if placing ads really increases traffic to their sites.

Audience Tracking

Advertisers are interested in gathering as much information as possible about the acceptance of ads, both online and offline. Arbitron Corporation has developed a portable, wearable meter (beeper-like) device. The device logs programming (including TV, radio, and streaming media Internet broadcasts) seen or heard anytime, anywhere, by whoever is wearing it. A motion detector on the device verifies that a person is wearing it (and does not just set it in front of the TV or computer screen). Each night the device is placed in a docking station in the wearer’s home from which it transmits the day’s data to Arbitron (arbitron.com).

According to the Interactive Advertising Bureau (2004), the keys to ad-serving success include:

- Gather information on all the types of ad serving units.
- Understand how much each type of ad performs on its own and in the campaign.
- Provide metrics for the advertiser to make meaningful comparisons.
- Give accurate statistics in a timely and dynamic fashion.
- Provide 24/7 information and ad management for the advertiser.

A complete ad-serving platform will measure business performance and site functioning as well as provide:

- Accurate forecasting
- Ad type management
- Traffic/audience measurement
- Reporting
As the volume of customers, products, vendors, and information increases, it becomes uneconomical, or even impossible, for customers to consider all relevant information and to manually match their interests with available products and services. The practical solution to handling such information overload is to use software (intelligent) agents. In Chapter 3, we demonstrated how intelligent agents help online shoppers find and compare products, resulting in significant time savings.

In this section, we will concentrate on how software agents can assist customers in the online purchasing decision-making process as well as in advertising. Depending on their level of intelligence, agents can do many things.

A Framework for Classifying EC Agents

Exhibit W4.1 detailed the customer’s purchase decision-making process. A logical way to classify EC agents is by relating them to this decision-making process (in a slightly expanded form), as shown in Exhibit W4.16.1. In the decision-making model in Exhibit W4.16.1, the second step was information search. Because of the vast quantity of information that software (intelligent) agents can sift through, the step has been split here into two types of agents: those that first answer the question, “What to buy?” and those that answer the next question, “From whom?” Let’s see how agents support each of the phases of the decision-making process.

Agents That Support Need Identification (What to Buy)

Agents can help buyers recognize their need for products or services by providing product information and stimuli. For example, Expedia (expedia.com) notifies customers about low airfares to a customer’s desired destination whenever they become available.

Several commercial agents can facilitate need recognition directly or indirectly. For example, FindGift (findgift.com) asks customers questions about the person for whom they are buying a gift, and helps the buyer hunt down the perfect gift.

Agents That Support Product Brokering (From Whom to Buy)

Once a need is established, customers search for a product (or service) that will satisfy the need. Several agents are available to assist customers with this task. The comparison agents cited in Chapter 3 belong in this category. An example of how these agents are used in advertising is provided in Online File W4.16.1.

Some agents can match people that have similar interest profiles. Even more ambitious agents try to predict which brands of computers, cars, and other goods will appeal to customers based on market segmentation preferences in a variety of different product categories, such as wine, music, or breakfast cereal. (See the discussion in Section 4.3 on collaborative filtering.)

(continued)
Awareness of unmet need motivation (stimuli) to buy.

What to buy? Product evaluation, match product to needs, compare alternatives, multiple criteria.

From whom to buy. Price and other criteria, comparisons.

Negotiate terms of transaction. Price and other criteria, comparisons.

Pay and take possession of product. Product is delivered.

Postpurchase service. Evaluation of overall satisfaction.
ONLINE FILE W4.16.1 Application Case

FUJITSU USES AGENTS FOR TARGETED ADVERTISING IN JAPAN

Fujitsu (fujitsu.com) is a Japanese-based global provider of Internet-focused information technology solutions. Since the end of 1996, Fujitsu has been using an agent-based technology called the Interactive Marketing Interface (iMi). The system allows advertisers to interact directly with specific segments of the consumer market through the use of software agents, while ensuring that consumers remain anonymous to advertisers. Consumers submit a personal profile to iMi, indicating such characteristics as product categories of interest, hobbies, travel habits, and the maximum number of e-mail messages per week that they are willing to receive. In turn, customers receive product announcements, advertisements, and marketing surveys by e-mail from advertisers based on their personal profile information. By answering the marketing surveys or acknowledging receipt of advertisements, consumers earn iMi points, redeemable for gift certificates and phone cards. Many other companies in Japan (e.g., nifty.com and lifemedia.co.jp) also use this technology.

Fujitsu’s recent interactive marketing for information campaigns for retailers is called Digital Media Solutions.

Sources: Compiled from fujitsu.com (accessed November 2009) and Fujitsu (2005).

Questions

1. Why would customers agree to have a personal profile built about them?
2. What is the role of the software agent in this case?

Online File W4.16 (continued)

Agents That Support Merchant Brokering and Comparisons

Once a consumer has a specific product in mind, he or she needs to find a place to buy it. BargainFinder (from Accenture) was the pioneering agent in this category. When used for online CD shopping, for example, this agent queried the price of a specific CD from a number of online vendors and returned a list of prices. However, this system encountered problems because vendors who did not want to compete on price managed to block out the agent’s requests. (Today’s version is at cdrom-guide.com.) The blocking problem has been solved by agents such as Inktomi Shopping Agent, MySimon (mysimon.com), and Junglee (of amazon.com). These agents originate the requests from whatever computer the user is accessing at the time. This way, vendors have no way of determining whether the request comes direct from a real customer or from the comparison agent.

Fraud is of major concern to buyers because buyers cannot see the products or the sellers (see Chapter 9). Several vendors offer agent-based fraud detection systems. One such system is Risk Suite (fico.com). It is based on pattern recognition driven by neural computing. Other products from Fair Isaac Corp. are FICO Risk Score and VeriComp Fraud Manager.

Comparison Agents

Part of the merchant-brokering process is determining price and other purchase criteria. Large numbers of agents enable consumers to perform all kinds of comparisons, as was shown in Chapter 3. Here are some additional examples:

- Allbookstores.com and bestwebbuys.com/books are two of several agents that help consumers find the lowest prices of books available online.
- Compare.net, shopper.cnet.com, and roboshopper.com are examples of agents (out of several dozen) that suggest brands and compare prices once consumers specify what they want to buy.
- Pricescan.com guides consumers to the best prices on thousands of computer hardware and software products.
- Buyerzone.com is a B2B portal at which businesses can find the best prices on many products and services.

(continued)
Chapter Four: Online Consumer Behavior, Market Research, and Advertisement

Agents That Support Buyer–Seller Negotiation

The traditional concept of “market” implies negotiation, mostly about price. Whereas many large retail stores engage in fixed-price selling, many small retail stores and many markets use negotiation extensively. In several cultures (e.g., Chinese), negotiation is very common. In many B2B transactions, negotiation is common, too. The benefit of dynamically negotiating a price is that the pricing decision is shifted from the seller to the marketplace. In a fixed-price situation, if the seller fixes a price that is too high, sales volume will suffer. If the price is set too low, profits will be lower. Negotiations, however, are time-consuming and often disliked by individual customers who cannot negotiate properly because they lack information about the marketplace and prices or because they do not know how to negotiate. Many vendors do not like to negotiate either. Therefore, electronic support of negotiation can be extremely useful.

Agents can negotiate in pairs, or one agent can negotiate for a buyer with several sellers’ agents. In the latter case, the contact is done with each seller’s agent individually, and the buyer’s agent can conduct comparisons. Also, customers can negotiate with sellers’ agents. One system automates the bargaining on a seller’s side. The system can bargain with customers based on their bargaining behavior. For example, if the customer starts very low, the system helps the seller know how to respond. For details, see Chapter 5 (for B2B).

Agents That Support Purchase and Delivery

Agents are used extensively during the actual purchase, often arranging payment and delivery. For example, if a customer makes a mistake when completing an electronic order form, an agent will point it out immediately. When a customer buys stocks, for example, the pricing agent will tell the customer when a stock they want to buy on margin is not marginable or when the customer does not have sufficient funds. Similarly, delivery options are posted by agents at amazon.com and other e-tailers, and the total cost of the transaction is calculated in real time.

Agents That Support After-Sale Service and Evaluation

Agents also can be used to facilitate after-sale service. For example, the automatic e-mail answering agents described in Chapter 11 usually are effective in answering customer queries. A non-Internet-based agent can monitor automobile usage and notify owners when it is time to take their car in for periodic maintenance. Agents that facilitate feedback from customers also are useful.

Character-Based Animated Interactive Agents

Several agents enhance customer service by interacting with customers via animated characters. Similar agents are used to facilitate advertising. As presented in Chapter 2, animated characters are software agents with personalities. They are versatile and employ friendly front ends to communicate with users. They are not necessarily intelligent. These animated agents also are called avatars. Avatars are animated computer representations of humanlike movements and behaviors in a computer-generated 3D world. Advanced avatars can “speak” and exhibit behaviors such as gestures and facial expressions. They can be fully automated to act like robots. The purpose of avatars is to introduce believable emotions so that the agents gain credibility with users. Online File W4.16.2 describes the use of avatars at a virtual mall in Korea.

Avatars are big business in South Korea. Internet users express themselves by putting clothes, shoes, and accessories on their avatars. The clothes are really pixels on the computer screen designed for avatars that represent the users and are moved around in a virtual chat room. Clothing the avatars in attire bought in virtual malls is part of the fun. Sayclub, operated by NeoWiz, was the first to introduce avatar services there in 2000. The company had more than 15 million members in 2002, who spent a total of $1.6 million a month on their avatars, dressing them in the more than 30,000 outfits from the virtual shopping mall (sayclub.com).

“It is an unusual strategy, but avatars can be very effective marketing tools,” says Chung Jae Hyung, chief executive officer at DKIMS Communications, an online marketing agency. “They are so popular with young people these days that they can get you a lot of exposure very quickly. An avatar is a given; just like everyone has a cell phone, everyone has an avatar,” says Chung.
Part 2: Internet Consumer Retailing

Online File W4.16.2 (continued)

As competition grew from the top portals, such as Yahoo!, Sayclub responded by offering more items, including hair dyes, accessories, and brands. “We needed something to differentiate ourselves and improve our brand image,” says Chang Hyun Guk, manager of the business planning team at Sayclub. “The best way to do that was to bring real-life brands to our virtual mall.” Therefore, to improve its own brand image, Sayclub sought to offer well-known consumer brands as products one could buy for one’s avatar from the Sayclub site. In addition to improving the Sayclub brand, these products would generate money from additional sales.

However, convincing top brands to go virtual was not easy. For example, because Mattel, the maker of Barbie, did not have any idea what the avatar market was all about, it needed to be educated before it would sign a licensing agreement allowing outfits from the Barbie Fashion Avenue line of doll dresses to be “avatarized” for a percentage of total sales. Numerous Barbie outfits have gone on sale at prices ranging from $4.00 to $5.35. That may not sound like much, but as of June 2002, avatar outfits made up almost 15 percent of Barbie’s licensing business in Korea. By exposing Sayclub’s users (mostly people in their teens and 20s) to Barbie paraphernalia, Mattel has been able to extend her popularity beyond children up to the ages of 8 or 9. Jisun Lee, a 23-year-old student, had not owned anything “Barbie” in over a decade but spent more than $85 in 2002 dressing her avatar in Barbie outfits.

During the Korean World Cup games in June 2002, Sayclub formed a partnership with Nike Korea and introduced avatars based on real images of Korean soccer players. They provided various soccer-related avatar items, including uniforms and Nike products. Sayclub granted uniform numbers of national soccer players to all users who bought Nike soccer items, including soccer player avatars or national team uniforms. They also gave away gifts to users with uniform numbers (selected by lottery) if the players their avatars represented scored during the games.

Sources: Compiled from sayclub.com (accessed November 2009) and neowiz.com (accessed November 2009).

Online File W4.16 (continued)

Chatterbots

A special category of animated characters is characters that can chat, known as chatterbots. A chatterbot is a program that attempts to simulate a conversation, with the aim of at least temporarily fooling a customer into thinking they are conversing with a human. The concept started with Eliza, created by Joseph Weizenbaum at MIT in 1957. In his program, users conversed with a psychoanalyst. Today’s version is very powerful (try simonlaven.com/eliza.htm; the program can be downloaded for free). The major differences are that today the programs are on the Web and they include a static or moving character. The technology is based on natural language programming (NLP), an applied artificial intelligence program that can recognize typed or spoken keywords and short sentences.

A major use of character-based interactive agents is in customer service and CRM. The following sites offer demos and the opportunity to converse with virtual representatives:

▶ Artificial-life.com. This site offers CRM and other agents. The site can be accessed by cell phones as well as traditional Web connections. This company offers e-learning applications, too.
▶ Zabaware.com. This site provides desktop assistance for answering customers’ queries. For an inventory of chatterbots and other resources, visit Simon Laven’s site (simonlaven.com).

Chatterbots can do many things to enhance customer service, such as greeting consumers when they enter a site or giving the consumer a guided tour of the site. For example, consider the following chatterbot agents: “Ed, Harmony, and Nina” are virtual guides that help visitors who wish to learn more about products and tools available at extempo.com (which specializes in avatars). “Arthur bot” helps people build their own chatterbots at ai-buddy.com. For additional information on interactive characters, see Agent Interactive (2006), microsoft.com/PRODUCTS/msagent/main.aspx, and artificial-life.com. Rehm and Andre (2005) studied communication behaviors of humans and whether these behaviors differed when conversing with an agent as opposed to talking with other humans.

(continued)
Chapter Four: Online Consumer Behavior, Market Research, and Advertisement

Online File W4.17 Ad Management and Ad Localization

Two related topics are presented in this online file: ad management and ad localization.

Ad Management

The activities involved in Web advertising, which range from tracking viewers to rotating ads, require a special methodology and software known as ad management software. Ad management software lets an advertiser send very specific ads on a schedule and target ads to certain population segments, which can be very small. For example, an advertiser can send an ad to all male residents of Los Angeles County between the ages of 26 and 39 whose income level is above $30,000. The advertiser can even refine the segment further by using ethnic origin, type of employment, or whether recipients own their home.

When selecting ad management software, a company should look for the following features, which will optimize their ability to advertise online:

- **The ability to match ads with specific content.** Being able to match ads with Web content would allow an advertiser, for example, to run an ad from a car company in an article about the Indy 500.
- **Tracking.** Of course, the advertiser will need to deliver detailed metrics (performance measures) to its customers, showing impression rates, click-through rates, and other metrics. Tracking of viewing activity is essential in providing such metrics.
- **Rotation.** Advertisers may want to rotate different ads in the same space.
- **Spacing impressions.** If an advertiser buys a given number of impressions over a period of time, the software should be able to adjust the delivery schedule so that they are spread out evenly.

A variety of ad management software packages are available, including some from application service providers (ASPs) and some freeware.

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One topic in ad management is campaign management; that is, management of an entire marketing and advertising campaign. Campaign management tools fall into two categories: those that are folded into CRM (customer relationship management), which consist mainly of marketing automation, and those that are targeted, stand-alone campaign management products. Companies such as DoubleClick provide partial management. More comprehensive management is provided by Atlas Solutions’ Ad Manager (see atlassolutions.com/publisher/solutions_premiuminventory.aspx).

Another topic in ad management is measuring the effectiveness of Web advertising, which was discussed earlier. Yet another is localization.

Localization
Localization is the process of converting media products developed in one environment (e.g., a country) to a form culturally and linguistically acceptable outside the original target market. It is usually done by a set of internationalization guidelines. Web-page translation (Insights and Additions W4.17.1) is just one aspect of internationalization. However, several other aspects also are important. For example, a U.S. jewelry manufacturer that displayed its products on a white background was astonished to find that this display might not appeal to customers in some countries where a blue background is preferred.

Many vendors offer automatic Web translation applications. However, not all automatic translations are equally good so some evaluation of these products is needed. According to Sullivan (2001), the best way to assess machine translation is to use the following three criteria: (1) intelligibility—how well a reader can get the gist of a translated document, (2) accuracy—how many errors occur during a translation, and (3) speed—how many words per second are translated. Because the quality of automatic translation has not always been as good as human translation, many experts advocate the use of the computer as a productivity booster, with human translation as a double-check. However, as time passes, automatic translation is becoming better.

There are three Web page translation methods: (1) dictionary-based translation, (2) machine translation, and (3) methods using what in linguistic jargon is called parallel corpora. Direct dictionary-based translation is the simplest method. However, it suffers from some problems, among which are: (1) the problem of inflection (a translation problem due to difference between written and spoken words); (2) translation ambiguity; (3) how to handle compound words and phrases; and (4) how to translate proper names and other untranslatable words (Hedlund et al. 2004).

Some popular translation products are:

- WorldPoint (worldpoint.com) offers a WorldPoint Passport multilingual software tool that allows Web developers to create a Web site in one language and deploy it in several other languages.
- AltaVista offers the free Babel Fish Translation (babelfish.yahoo.com) that translates Web pages, e-mail, and text. Babel Fish supports 19 language pairs. It is linked to Newstran.com (newstran.com), which translates online newspapers to English.
- Alis Technologies and Netscape developed AutoTranslate, which is offered in the Netscape browser. Available in the “view” menu (click on “translate”), users can translate a Web page to a desired language (out of 10 available languages).
- Google offers a service (google.com/language_tools) that automatically translates the content of Web pages published in French, German, Italian, Spanish, Portuguese, and more to English. All you have to do is click on the “Translate this Page” button that appears after a title in a foreign language.
- Uniscape.com (uniscape.com) offers software that does multilingual translation for companies that want to provide translated Web pages from their URLs. Product documentation, Web sites, marketing materials, and software interfaces can be localized in many languages quickly and cost effectively. The company’s site (translationzone.com) also is a portal for translation professionals worldwide and offers resources to help translators expand their customer base. Professional translators can purchase the latest releases of Trados software (trados.com) as well as create online professional profiles, through which they can market themselves to potential clients. The portal currently has more than 12,000 registered users.
- Rikai.com (rikai.com) is an online character translator that allows users to translate Japanese Web pages.
If a company aims at the global market (and there are millions of potential customers out there), it must make an effort to localize its Web pages. This may not be a simple task because of the following factors:

- Many countries use English, but the English used might differ in terminology, spelling, and culture (e.g., United States versus United Kingdom versus Australia).
- Some languages use accented characters. If text includes an accented character, the accent will disappear when converted into English, which might result in an incorrect translation.
- Hard-coded text and fonts cannot be changed, so they remain in their original format in the translated material.
- Graphics and icons look different to viewers in different countries. For example, a U.S. mailbox resembles a European trashcan.
- When translating into Asian languages, significant cultural issues must be addressed, for example, how to address older adults in a culturally correct manner.
- Dates that are written mm/dd/yy (e.g., June 8, 2007) in the United States are written dd/mm/yy (e.g., 8 June 2007) in many other countries. Therefore, “6/8” would have two meanings (June 8 or August 6), depending on the location of the writer.
- Consistent translation over several documents can be very difficult to achieve. (For free translation in six languages, see freetranslation.com.)

What Is Involved in Localization?

When companies bring their products and services to foreign markets, they may need to move away from standardization. The problem is how to do it in an efficient way. Rigby and Vishwanath (2006) provide a list of items that demand attention. Details are available in the original article.

For variables involved in localization see Exhibit W4.17.1.

EXHIBIT W4.17.1 What Is Involved in Localization?

Variables Considered in Localization

- Branding (names, language)
- Store formats (size, layout)
- Merchandise spaces and assortment (size, color, style, flavor, package design)
- Pricing (range, changes, financing)
- Promotions (types, duration, discount level)
- Vendor policies
- Management programs
- Store service levels
- Vendor services
- Operating policies

Location Variables

- Consumer characteristics
- Special demand drivers
- Competitor characteristics
- Company’s own stores’ characteristics versus others

(continued)
Part 2: Internet Consumer Retailing

Online File W4.17 (continued)

Automatic Versus Manual Web Page Translation
Certain localization difficulties result in a need for experienced human translators, who are rare, expensive, and slow. Therefore, companies are using automatic translation software, at least as an initial step to expedite the work of human translators.

Using Internet Radio for Localization
Internet radio Web sites provide music, talk, and other entertainment, both live and stored, from a variety of radio stations (PCMag.com 2006). The big advantage of Internet radio is that there are few limits on the type or number of programs it can offer, as compared with traditional radio stations. It is especially useful in presenting programming for local communities. For example, KIISFM (kiisfm.com) is a Los Angeles site that features music from up-and-coming LA bands, live concerts, interviews with movie stars, and so forth. About 40 percent of the site’s traffic comes from listeners in California, and the rest from listeners around the world. The company that powers the KIISFM Web site also operates sites focused on country music, Latin music, and so forth. Advertisers can reach fairly narrow audience segments by advertising on a particular Internet radio site.

Internet radio
A Web site that provides music, talk, and other entertainment, both live and stored, from a variety of radio stations.

REFERENCES FOR ONLINE FILE W4.17

