Chapter 3

# Capturing Marketing Insights and Forecasting Demand

**In this chapter, we will address the following questions:**



## Marketing Management at Campbell Soup Company

*The Campbell Soup Company's iconic red-and-white soup can represents one of the most famous U.S. brands. Recently, though, overall consumption of canned soup has declined 13 percent, and the firm's market share has dropped from 67 percent to 53 percent. To help stop the sales slide, Campbell's set out to better understand the habits and tastes of 18- to 34-year-olds. Executives visited "hipster market hubs" to observe Millennials during "live-alongs," where they shopped and ate at home with young consumers, and "eat-alongs," where they dined with them in restaurants. The key insight: Millennials love spices and eat more exotic food than their parents—they just can't cook it at home! The solution: a new line of Campbell's Go! Soup—ready-to-eat, boldly-flavored meals sold in pouches (and at a price more than three times the basic red-and-white line). Since the target market is tech-savvy, the product line was promoted entirely online on music and humor sites, gaming platforms, and social media.*[1]

Virtually every industry has been touched by dramatic shifts in the economic, sociocultural, natural, technological, demographic, and political-legal environments. In this chapter, we consider how Campbell's and other firms can collect and store information, conduct marketing research, develop good forecasts to support marketing management, and analyze trends in the macroenvironment.

## The Marketing Information System and Marketing Intelligence

The major responsibility for identifying significant marketplace changes falls to the company's marketers. Marketers have two advantages for the task: disciplined methods for collecting information and time spent interacting with customers and observing competitors and other outside groups. Some firms have marketing information systems that provide rich detail about buyer wants, preferences, and behavior.

Every firm must organize and distribute a continuous flow of information to its marketing managers. A **marketing information system (MIS)** consists of people, equipment, and procedures to gather, sort, analyze, evaluate, and distribute needed, timely, and accurate information to marketing decision makers. It relies on internal company records, marketing intelligence activities, and marketing research.

### Internal Records and Database Systems

To spot important opportunities and potential problems, marketing managers rely on internal reports of orders, sales, prices, costs, inventory levels, receivables, and payables.

***The Order-to-Payment Cycle*** The heart of the internal records system is the order-to-payment cycle. Sales representatives, dealers, and customers send orders to the firm. The sales department prepares invoices, transmits copies to various departments, and back-orders out-of-stock items. Shipped items generate shipping and billing documents. Because customers favor firms that can promise timely delivery, companies need to perform these steps quickly and accurately.

***Sales Information Systems*** Marketing managers need timely and accurate reports on current sales. Walmart operates a sales and inventory data warehouse that captures data on every item for every customer, every store, every day and refreshes it every hour. Marketers must carefully interpret sales data, however, to avoid drawing wrong conclusions.

***Databases, Data Warehousing, and Data Mining*** A **customer database** is an organized collection of comprehensive information about individual customers or prospects that is current, accessible, and actionable for lead generation, lead qualification, sales, or customer relationship management. **Database marketing** is the process of building, maintaining, and using customer databases and other databases (products, suppliers, resellers) to contact, transact with, and build relationships with customers. Information captured by the company is organized into a **data warehouse** where marketers can capture, query, and analyze data to draw inferences about individual customers' needs and responses. Marketing analysts use **data mining** to extract from the mass of data useful insights about customer behavior, trends, and segments.

The explosion of data brought by the maturation of the Internet and mobile technology gives companies unprecedented opportunities to engage customers. It also threatens to overwhelm decision makers. "Marketing Insight: Digging into Big Data" describes opportunities and challenges in managing massive data sets.[2] On the other hand, some customers may not want a relationship with the company and may resent having personal data collected and stored. The use of *behavioral targeting* to track customers' online behavior for marketing purposes allows advertisers to better target online ads—but some consumers object to the practice. Chapter 17 discusses database marketing in the context of direct marketing.

marketing insight

## Digging into Big Data

In one year, people store enough data to fill 60,000 Libraries of Congress. YouTube receives 24 hours of video *every minute*. Manufacturers are putting sensors and chips into appliances and products, generating even more data. However, more data are not better unless they can be properly processed, analyzed, and interpreted. And therein lies the opportunity and challenge of Big Data, data sets that cannot be effectively managed with traditional tools.

One industry expert, James Kobielus, sees Big Data as distinctive because of: *Volume* (from hundreds of terabytes to petabytes and beyond); *Velocity* (up to and including real-time delivery); *Variety* (encompassing structured, unstructured, and semi-structured formats such as messages, images, and GPS signals); and *Volatility* (with hundreds of new data sources in apps, Web services, and social networks).

Some companies are harnessing Big Data. UK supermarket giant Tesco uses the 1.5 billion pieces of data it collects every month to set prices and promotions; U.S. kitchenware retailer Williams-Sonoma uses its customer data to customize versions of its catalog. Amazon reports generating 30 percent of its sales through its recommendation engine ("You may also like"). On the production side, GE set up a team of developers in Silicon Valley to improve the efficiency of the jet engines, generators, locomotives, and CT scanners it sells. Even a 1 percent improvement in the operation of commercial aircraft would save $2 billion for GE's airline customers.

**Sources**: Schumpeter, "Building with Big Data," *The Economist*, May 28, 2011; Jessica Twentyman, "Big Data Is the 'Next Frontier,'" *Financial Times*, November 14, 2011; Jacques Bughin, John Livingston, and Sam Marwaha, "Seizing the Potential of Big Data," *McKinsey Quarterly* 4 (October 2011); "Mining the Big Data Goldmine," Special Advertising Section, *Fortune*, 2012; "Financial Brands Tap Big Data," www.warc.com, September 13, 2012; Thomas H. Davenport, Paul Barth, and Randy Bean, "How 'Big Data' Is Different," *MIT Sloan Management Review* 54 (Fall 2012), pp. 43–46; Andrew McAfee and Erik Brynjolfsson, "Big Data: The Management Revolution," *Harvard Business Review*, October 2012, pp. 60–68; Ashlee Vance, "GE Tries to Make Its Machines Cool and Connected," *Bloomberg Businessweek*, December 10, 2012, pp. 44–46.

### Marketing Intelligence

A **marketing intelligence system** is a set of procedures and sources that managers use to obtain everyday information about developments in the marketing environment. The internal records system supplies *results* data, but the marketing intelligence system supplies *happenings* data. Marketing managers collect marketing intelligence by reading books, newspapers, and trade publications; talking to customers, suppliers, distributors, and other company managers; and monitoring online social media. Table 3.1 shows eight ways to improve the quality and quantity of marketing intelligence.

Companies that make good use of "cookies," records of Web site usage stored on personal browsers, are smart users of targeted marketing. Many consumers are happy to cooperate: Not only do they *not* delete cookies, but they also expect customized marketing appeals and deals once they accept them.

## The Marketing Research System

Marketing managers often commission formal marketing studies of specific problems and opportunities, like a market survey, a product-preference test, a sales forecast by region, or an advertising evaluation. It's the job of the marketing researcher to produce insight to help

**TABLE 3.1** Improving Marketing Intelligence

| Action | Example |
|---|---|
| Train and motivate the sales force to spot and report new developments. | Have sales representatives observe how customers use products in innovative ways, which can lead to new product ideas. |
| Motivate distributors, retailers, and other intermediaries to pass along important intelligence. | Intermediaries are closer to the customer and can offer helpful insights, such as observing that certain consumers switch to different products during specific seasons. |
| Hire external experts to collect intelligence. | Use mystery shoppers to uncover problems with quality, services, and facilities. |
| Network internally and externally. | Buy competitors' products, attend open houses and trade shows, read competitors' published reports, and collect competitors' ads. |
| Set up a customer advisory panel. | Invite the company's largest, most outspoken, most sophisticated, or most representative customers to provide feedback. |
| Take advantage of government data. | Check U.S. Census Bureau data to learn about population swings, demographic groups, regional migrations, and changing family structure. |
| Buy information from outside research firms and vendors. | Obtain data from well-known suppliers such as Nielsen and NPD. |
| Collect marketing intelligence on the Internet. | Check online forums, distributor feedback sites, customer complaint sites, blogs, and social media for comments and opinions about competing goods and services. |

the marketing manager's decision making. *Marketing insights* provide diagnostic information about how and why we observe certain effects in the marketplace and what that means to marketers.[3]

Gaining marketing insights is crucial for marketing success. To improve the marketing of its $3 billion Pantene hair care brand, Procter & Gamble researched women's feelings about hair, using surveys with mood scales from psychology, high-resolution EEG research to measure brain waves, and other methods. As a result, the company reformulated Pantene products, redesigned packages, pared the line down, and fine-tuned the ad campaign.[4]

## Defining Marketing Research

The American Marketing Association defines **marketing research** as "the function that links the consumer, customer, and public to the marketer through information—information used to identify and define marketing opportunities and problems; generate, refine, and evaluate marketing actions; monitor marketing performance; and improve understanding of marketing as a process. Marketing research specifies the information required to address these issues, designs the method for collecting information, manages and implements the data collection process, analyzes the results, and communicates the findings and their implications."[5]

Most companies use multiple resources to study their industries, competitors, audiences, and channel strategies. They normally budget marketing research at 1 percent to 2 percent of company sales and spend much of that on outside firms. Marketing research firms fall into three categories. Syndicated-service research firms such as Nielsen gather consumer and trade information, which they sell for a fee. Custom marketing research firms design studies, implement them, and report the findings. Specialty-line marketing research firms provide specific services such as field interviewing.

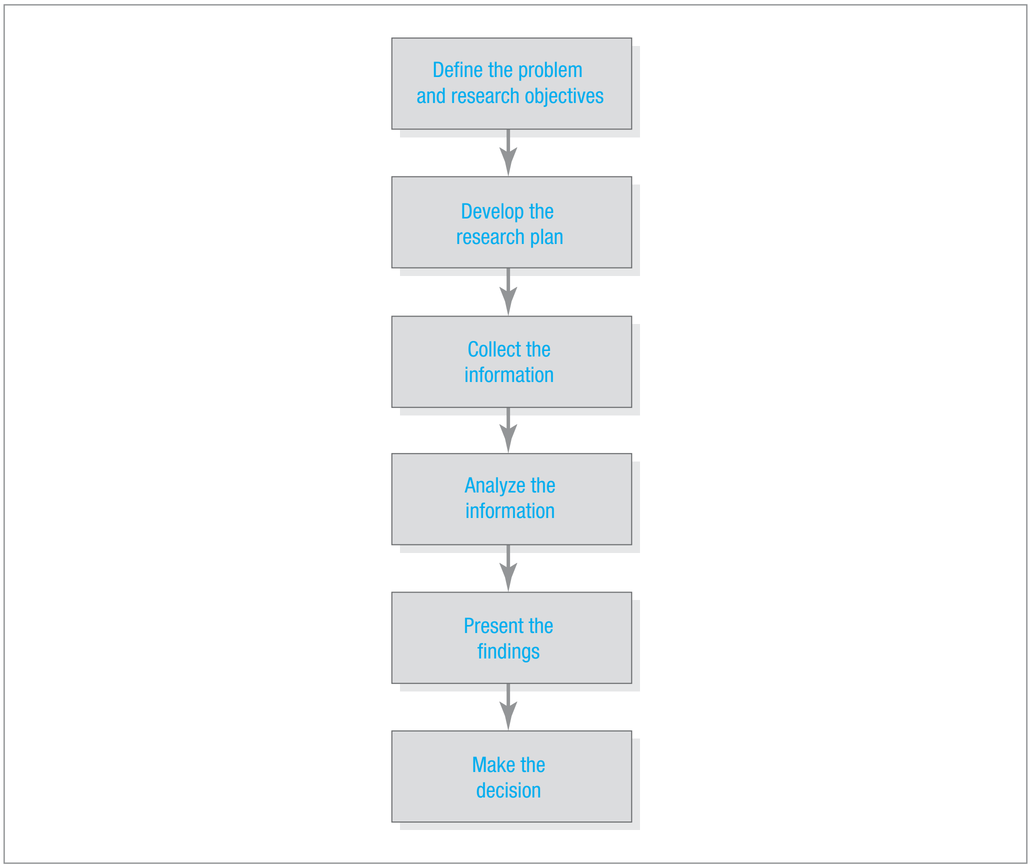
## The Marketing Research Process

To take advantage of all the resources and practices available, good marketers adopt a formal marketing research process that follows the six steps shown in Figure 3.1. We illustrate these steps in the following situation. Assume that American Airlines is reviewing new ideas for serving first-class passengers on very long flights, mainly businesspeople whose high-priced tickets pay most of the freight. Among these ideas are: (1) ultra high-speed Wi-Fi service, (2) 124 channels of high-definition satellite cable TV, and (3) a 250-CD audio system that lets each passenger create a customized in-flight playlist. The marketing research manager will investigate how first-class passengers would rate these services, specifically ultra high-speed Wi-Fi, and how much extra they would be willing to pay.

### Step 1: Define the Problem, Decision Alternatives, and Research Objectives

Marketing managers must not define the problem too broadly or too narrowly for the marketing researcher. In this case, the researcher and the marketing manager are defining the problem as follows: "Will offering ultra high-speed Wi-Fi service create enough incremental preference and

**FIGURE 3.1** The Marketing Research Process



profit to justify its cost against other service enhancements American might make?" They specify five research objectives: (1) What types of first-class passengers would respond most to ultra high-speed Wi-Fi service? (2) How many are likely to use it at different price levels? (3) How many might choose American because of this new service? (4) How much long-term goodwill will this service add to American's image? (5) How important is ultra high-speed Wi-Fi service to first-class passengers relative to other services, such as a power plug?

Not all research can be this specific. Some is *exploratory*—its goal is to identify the problem and to suggest possible solutions. Some is *descriptive*—it seeks to quantify demand, such as how many first-class passengers would purchase ultra high-speed Wi-Fi service at $25. Some research is *causal*—its purpose is to test a cause-and-effect relationship.

## Step 2: Develop the Research Plan

To design a research plan, marketing managers need to make decisions about the data sources, research approaches, research instruments, sampling plan, and contact methods.

***Data Sources*** The researcher can gather secondary data, primary data, or both. *Secondary data* are data that were collected for another purpose and already exist somewhere. *Primary data* are data freshly gathered for a specific purpose or project. Researchers usually start by examining secondary data. If the needed data don't exist or are dated, inaccurate, incomplete, or unreliable, the researcher will need to collect primary data.

***Research Approaches*** Marketers collect primary data in five main ways: through observation, focus groups, surveys, behavioral data, and experiments.

- **Observational research.** Researchers can gather fresh data by observing unobtrusively as customers shop or consume products or by holding informal interview sessions at a café or bar.[6] **Ethnographic research** uses concepts and tools from anthropology and other social science disciplines to provide deep cultural understanding of how people live and work.[7] The American Airlines researchers might meander around first-class lounges to hear how travelers talk about different carriers or sit next to passengers on planes.
- **Focus group research.** A **focus group** is a gathering of 6 to 10 people selected for demographic, psychographic, or other considerations and convened to discuss various topics at length, with a professional moderator, for a small payment. In the American Airlines research, the moderator might start with a broad question, such as "How do you feel about first-class air travel?" Questions then move to how people view different airlines, existing services, proposed services, and, specifically, ultra high-speed Wi-Fi service.
- **Survey research.** Companies undertake surveys to assess people's knowledge, beliefs, preferences, and satisfaction and to measure these magnitudes in the general population. Cash register receipts from Walmart, Petco, and Staples include an invitation to fill out a survey with a chance to win a prize.[8] American Airlines might prepare its own survey questions, or it might add questions to an omnibus survey that carries the questions of several companies at a much lower cost. It can also pose questions to an ongoing consumer panel, have researchers survey people in a shopping mall, or add a survey request at the end of customer service calls.
- **Behavioral data.** Customers leave traces of their purchasing behavior in store scanning data, catalog purchases, and customer databases. Actual purchases reflect consumers' preferences and often are more reliable than statements they offer to market researchers. American Airlines can analyze ticket purchase records and online behavior.

- **Experimental research.** The most scientifically valid research is **experimental research,** designed to capture cause-and-effect relationships by eliminating competing explanations of the findings. American Airlines might introduce ultra high-speed Wi-Fi service on one of its international flights, charging $25 one week and $15 the next week. If the plane carried approximately the same number of first-class passengers each week and the particular weeks made no difference, the airline could relate any significant difference in the number of passengers using the service to the price charged.

***Research Instruments*** Marketing researchers use three main research instruments in collecting primary data: questionnaires, qualitative measures, and technological devices. A *questionnaire* consists of a set of questions presented to respondents. Because of its flexibility, it is by far the most common instrument used to collect primary data. The form, wording, and sequence of the questions can all influence the responses, so testing and de-bugging are necessary. *Closed-end questions* specify all the possible answers, and the responses are easier to interpret and tabulate. *Open-end questions* allow respondents to answer in their own words. They are especially useful in exploratory research, where the researcher is looking for insight into how people think.

Some marketers prefer qualitative methods for gauging consumer opinion because they feel consumers' actions don't always match their answers to survey questions. *Qualitative research techniques* are relatively indirect and unstructured measurement approaches, limited only by the marketing researcher's creativity, that permit a range of responses. They can be an especially useful first step in exploring consumers' perceptions because respondents may be less guarded and reveal more about themselves in the process.

Technological devices are also used for marketing research. Galvanometers can measure the interest or emotions aroused by exposure to a specific ad or picture. The tachistoscope flashes an ad to a subject with an exposure interval that may range from a fraction of a second to several seconds. After each exposure, respondents describe everything they recall. Researchers have also benefited from advances in visual technology techniques studying a consumer's eyes and face.[9] Technology now lets marketers use skin sensors, brain wave scanners, and full-body scanners to get consumer responses.[10] For example, biometric-tracking wrist sensors can measure electrodermal activity, or skin conductance, to note changes in sweat levels, body temperature, and so on.[11]

***Sampling Plan*** After choosing the research approach and instruments, the marketing researcher must design a sampling plan. This calls for three decisions:

1. *Sampling unit: Whom should we survey?* In the American Airlines survey, should the sampling unit consist of first-class business travelers, first-class vacation travelers, or both? Should it include travelers under age 18? With the sampling unit chosen, marketers must next develop a sampling frame so everyone in the target population has an equal or known chance of being sampled.
2. *Sample size: How many people should we survey?* Large samples give more reliable results, but it's not necessary to sample the entire target population to achieve reliable results. Samples of less than 1 percent of a population can often provide good reliability with a credible sampling procedure.
3. *Sampling procedure: How should we choose the respondents?* Probability sampling allows marketers to calculate confidence limits for sampling error and makes the sample more representative.

***Contact Methods*** Now the marketing researcher must decide how to contact the subjects: by mail, by telephone, in person, or online. The advantages and disadvantages of each method are shown in Table 3.2.

**TABLE 3.2** Marketing Research Contact Methods

| Contact Method | Advantages | Disadvantages |
|---|---|---|
| By mail | Good for reaching people who would not give personal interviews or whose responses might be biased or distorted by the interviewer. | Response rate is usually low or slow. |
| By telephone | Good for gathering information quickly and clarifying questions if respondents do not understand. Response rate is typically higher than for mailed questionnaires. | Interviews must be brief, not too personal. Telephone contact getting more difficult because of consumers' growing antipathy toward telemarketers. |
| In person | Most versatile because researcher can ask more questions and record additional observations about respondents, such as dress and body language. | Most expensive method, subject to interviewer bias, and requires more planning and supervision. |
| Online | Inexpensive, fast, versatile. Responses tend to be honest and thoughtful. Firms can post questionnaires online, host a consumer panel or virtual focus group, sponsor a chat room or blog, analyze clickstream data, use text messaging. | Samples can be skewed and small. Online research can suffer from technological problems and inconsistencies. Online panels can suffer from excessive turnover. |

## Step 3: Collect the Data

The data collection phase of marketing research is generally the most expensive and error-prone. Some respondents will be away from home, offline, or otherwise inaccessible; they must be contacted again or replaced. Others will refuse to cooperate or will give biased or dishonest answers.

## Step 4: Analyze the Information

The next step in the process is to extract findings by tabulating the data and developing summary measures. The researchers now compute averages and measures of dispersion for the major variables and apply some advanced statistical techniques and decision models to try to discover additional findings. They may test different hypotheses and theories, applying sensitivity analysis to test assumptions and the strength of the conclusions.

## Step 5: Present the Findings

Now the researcher presents the findings. Researchers are increasingly asked to play a proactive, consulting role in translating data and information into insights and recommendations. They're also considering ways to make the findings understandable and compelling. In the American Airlines situation, management learns that about 5 of 10 first-class passengers would use Wi-Fi service during a flight if priced at \$25; at \$15, about 6 would. Thus, a fee of \$15 would produce less revenue (\$90 = 6 × \$15) than \$25 (\$125 = 5 × \$25). Assuming the same flight takes place 365 days a year, American could collect \$45,625 (= \$125 × 365) annually. Given an investment of \$90,000 per plane, it would take two years for each to break even. Offering ultra high-speed Wi-Fi service would also strengthen American Airlines' image as an innovative carrier and earn it some new passengers and customer goodwill.

## Step 6: Make the Decision

The American Airlines managers who commissioned the research need to weigh the evidence. If they have little confidence in the findings, they may decide against introducing the new Wi-Fi service. If they are predisposed to launching it, the findings support their inclination. They may even decide to study the issue further. The decision is theirs, but the research has provided them with insight into the problem.

## Forecasting and Demand Measurement

Conducting marketing research and collecting marketing intelligence can help to identify marketing opportunities. The company must then measure and forecast the size, growth, and profit potential of each new opportunity. Sales forecasts prepared by marketing are used by finance to raise cash for investment and operations; by manufacturing to establish capacity and output; by purchasing to acquire the right amount of supplies; and by human resources to hire the needed workers. If the forecast is off the mark, the company will face excess or inadequate inventory. Because it's based on estimates of demand, managers need to define what they mean by market demand.

### The Measures of Market Demand

There are many productive ways to break down the market:

- The **potential market** is the set of consumers with a sufficient level of interest in a market offer. However, their interest is not enough to define a market unless they also have sufficient income and access to the product.
- The **available market** is the set of consumers who have interest, income, *and* access to a particular offer. Eligible adults constitute the *qualified available market*—the set of consumers who have interest, income, access, and qualifications for the market offer.
- The **target market** is the part of the qualified available market the company decides to pursue.
- The **penetrated market** is the set of consumers who are buying the company's product.

These definitions are a useful tool for market planning. If the company isn't satisfied with current sales, it can try to attract a larger percentage of buyers from its target market. It can lower the qualifications for potential buyers. It can expand its available market by opening distribution elsewhere or lowering its price, or it can reposition itself in the minds of its customers.

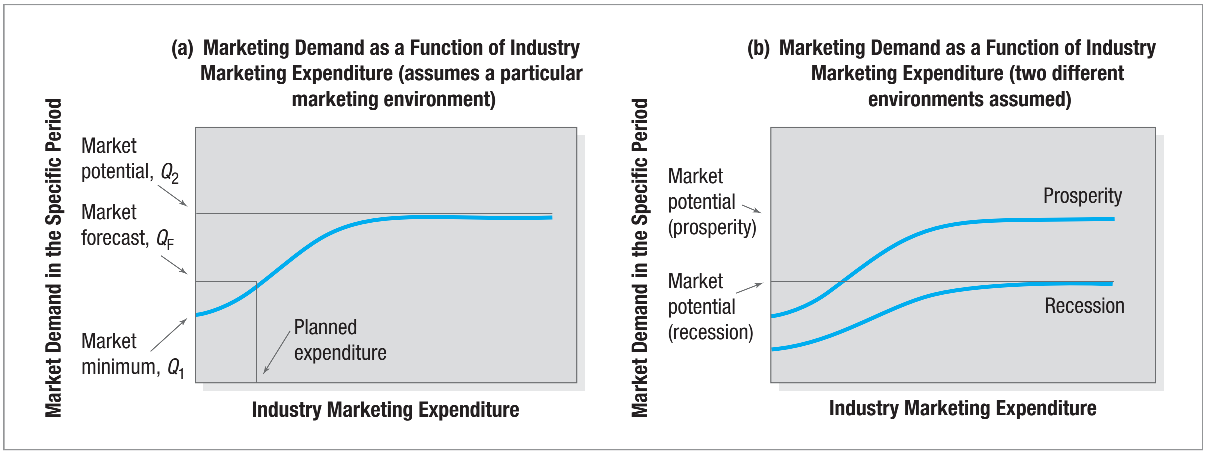
### The Market Demand Function

**Market demand** for a product is the total volume that would be bought by a defined customer group in a defined geographical area in a defined time period in a defined marketing environment under a defined marketing program. Market demand is not a fixed number, but rather a function of the stated conditions. For this reason, we call it the *market demand function*. Its dependence on underlying conditions is illustrated in Figure 3.2(a). The horizontal axis shows different possible levels of industry marketing expenditure in a given time period. The vertical axis shows the resulting demand level. The curve represents the estimated market demand associated with varying levels of marketing expenditure.

Some base sales—called the *market minimum* and labeled $Q_1$ in the figure—would take place without any demand-stimulating expenditures. Higher marketing expenditures would yield higher levels of demand, first at an increasing rate, then at a decreasing rate. Marketing expenditures beyond a certain level would not stimulate much further demand, suggesting an upper limit called the *market potential* and labeled $Q_2$ in the figure.

***Markets and Market Potential*** Two extreme types of markets are the expansible and the nonexpansible. The size of an *expansible market* is greatly affected by the level of industry marketing expenditures. As shown in Figure 3.2(a), the distance between $Q_1$ and $Q_2$ is relatively large. The size of a *nonexpansible market* is not much affected by the level of marketing expenditures,

**FIGURE 3.2** Market Demand Functions




so the distance between $Q_1$ and $Q_2$ is relatively small. Organizations selling in a nonexpansible market must accept the market's size—the level of *primary demand* for the product class—and direct their efforts toward winning a larger **market share** for their product, that is, a higher level of *selective demand* for their product.

Remember that the market demand function is not a picture of market demand over time. Rather, it shows alternate current forecasts of market demand associated with possible levels of industry marketing effort. Only one level of industry marketing expenditure will actually occur. The market demand corresponding to this level is called the **market forecast.** This forecast shows the expected demand, not the maximum demand.

**Market potential** is the limit approached by market demand as industry marketing expenditures approach infinity for a given marketing environment. The phrase "for a given market environment" is crucial. Consider the market potential for automobiles. It's higher during prosperity than during a recession, as illustrated in Figure 3.2(b). Companies cannot do anything about the position of the market demand function, which is determined by the marketing environment. However, they influence their particular location on the function when they decide how much to spend on marketing.

***Company Demand and Sales Forecast*** **Company demand** is the company's estimated share of market demand at alternative levels of company marketing effort in a given time period. It depends on how the company's products, services, prices, and communications are perceived relative to the competitors'. Other things equal, the company's market share depends on the relative scale and effectiveness of its market expenditures. Marketing model builders have developed sales response functions to measure how a company's sales are affected by its marketing expenditure level, marketing mix, and marketing effectiveness.[12]

Once marketers have estimated company demand, they choose a level of marketing effort. The **company sales forecast** is the expected level of company sales based on a chosen marketing plan and an assumed marketing environment. We represent the company sales forecast graphically with sales on the vertical axis and marketing effort on the horizontal axis, as in Figure 3.2.

A **sales quota** is the sales goal set for a product line, company division, or sales representative. It is primarily a managerial device for defining and stimulating sales effort, often set slightly higher than estimated sales to stretch the sales force's effort. A *sales budget* is a conservative estimate of the expected volume of sales, primarily for making current purchasing, production, and cash flow decisions. It's based on the need to avoid excessive risk and is generally set slightly lower than the sales forecast.

*Company sales potential* is the sales limit approached by company demand as company marketing effort increases relative to that of competitors. The absolute limit of company demand is the market potential. The two would be equal if the company captured 100 percent of the market. In most cases, company sales potential is less than the market potential, even when company marketing expenditures increase considerably. Each competitor has loyal buyers unresponsive to other companies' efforts to woo them.

## Estimating Current Demand

In estimating current market demand, marketing executives want to estimate total market potential, area market potential, and total industry sales and market shares.

***Total Market Potential*** *Total market potential* is the maximum sales available to all firms in an industry during a given period under a given level of industry marketing effort and environmental conditions. A common way to estimate total market potential is to multiply the potential number of buyers by the average quantity each purchases and then by the price. If 100 million people buy books each year and the average book buyer buys three books a year at an average price of $20 each, then the total market potential for books is $6 billion (100 million × 3 × $20). The most difficult component to estimate is the number of buyers. Marketers often start with the total population, eliminate groups that obviously would not buy the product, and conduct research to eliminate groups without interest or income to buy.

***Area Market Potential*** Because companies must allocate their marketing budget optimally among their best territories, they need to estimate the market potential of different cities, states, and nations. Two major methods are the market-buildup method, used primarily by business marketers, and the multiple-factor index method, used primarily by consumer marketers. The *market-buildup method* calls for identifying all the potential buyers in each market and estimating their potential purchases. It produces accurate results if we have a list of all potential buyers and a good estimate of what each will buy. Unfortunately, this information is not always easy to gather.

An efficient method of estimating area market potentials makes use of the *North American Industry Classification System (NAICS)*, developed by the U.S. Bureau of the Census with the Canadian and Mexican governments.[13] The NAICS classifies all manufacturing into 20 major industry sectors and further breaks each sector into a six-digit, hierarchical structure. To use the NAICS, a lathe manufacturer would first determine the six-digit NAICS codes that represent products whose manufacturers are likely to require lathe machines. Then the lathe manufacturer would determine an appropriate base for estimating the number of lathes each industry will use, such as customer industry sales. Once the company estimates the rate of lathe ownership relative to the customer industry's sales, it can compute the market potential.

Consumer companies also need to estimate area market potentials, but because their customers are too numerous to list, they commonly use a straightforward index. A drug manufacturer might assume the market potential for drugs is directly related to population size. If the state of Virginia has 2.55 percent of the U.S. population, Virginia might be a market for 2.55 percent of total drugs sold. Yet a single factor is rarely a complete indicator of sales opportunity. Thus, it makes sense to develop a multiple-factor index and assign each factor a specific weight. Suppose Virginia has 2.00 percent of U.S. disposable personal income, 1.96 percent of U.S. retail sales, and 2.28 percent of U.S. population, and the respective weights for these factors are 0.5, 0.3, and 0.2. The buying-power index for Virginia is then 2.04 [0.5(2.00) + 0.3(1.96) + 0.2(2.28)].

***Industry Sales and Market Shares*** Besides estimating total potential and area potential, a company needs to know the actual industry sales taking place in its market. This means identifying competitors and estimating their sales. The industry trade association will often collect and publish total industry sales, although it usually does not list individual company sales. With this information, each company can evaluate its own performance against the industry's. If a company's sales are increasing by 5 percent a year and industry sales are increasing by 10 percent, the company is losing its relative standing in the industry. Another way to estimate sales is to buy reports from a marketing research firm that audits total sales and brand sales.

### Estimating Future Demand

**Forecasting** is the art of anticipating what buyers are likely to do under a given set of conditions. The few products or services that lend themselves to easy forecasting generally enjoy an absolute level or a fairly constant trend and competition that is either nonexistent (public utilities) or stable (pure oligopolies). In most markets, good forecasting is a key factor in success.

Companies commonly prepare a macroeconomic forecast, followed by an industry forecast and then a company sales forecast. The macroeconomic forecast projects inflation, unemployment, interest rates, consumer spending, business investment, government expenditures, and other variables. The end result is a forecast of gross domestic product (GDP), which the firm uses, along with other environmental indicators, to forecast industry sales. The company derives its sales forecast by assuming it will win a certain market share. Five methods for sales forecasting are shown in Table 3.3.

## Analyzing the Macroenvironment

By learning to spot and analyze trends in the macroenvironment, marketers can identify new market opportunities. A **trend** is a direction or sequence of events with momentum and durability, revealing the shape of the future. A **fad** is a craze that is unpredictable, of brief duration, and

**TABLE 3.3** Sales Forecast Methods

| Forecast Method | Description | Use |
|---|---|---|
| Survey of buyers' intentions | Survey customers about purchase probability, present and future finances, and expectations about the economy. | To estimate demand for industrial products, consumer durables, purchases requiring advance planning, and new products. |
| Composite of sales force opinions | Ask sales representatives to estimate their future sales. | To understand developing trends and gather detailed estimates by product, territory, customer, and sales rep. |
| Expert opinion | Obtain forecasts from experts, including dealers, distributors, suppliers, consultants, and trade associations, or buy from economic-forecasting firms. | To gather estimates from knowledgeable specialists who may offer insights. |
| Past-sales analysis | Use time-series analysis, exponential smoothing, statistical demand analysis, or econometric analysis to assess past sales as the basis of sales forecasts. | To project future demand based on analyses of past demand. |
| Market-test method | Conduct a direct-market test to understand customer response and estimate future sales. | To forecast sales of new products or sales of an established product in a new channel or area. |

without long-term significance. A company can cash in on a fad, but getting it right requires luck and good timing. Marketing research and demand analyses are, as discussed earlier, necessary to determine the profit potential of new market opportunities based on macroenvironmental trends.

## Identifying the Major Forces

Firms must monitor six major forces in the broad environment: demographic, economic, sociocultural, natural, technological, and political-legal (see Table 3.4). We'll describe them separately, but remember their interactions will lead to new opportunities and threats. For example, explosive population growth (demographic) leads to more resource depletion and pollution (natural), which leads consumers to call for more laws (political-legal), which stimulate new technological solutions and products (technological) that, if they are affordable (economic), may actually change attitudes and behavior (sociocultural).

## The Demographic Environment

The main demographic factor marketers monitor is *population,* including the size and growth rate of population in cities, regions, and nations; age distribution and ethnic mix; educational levels; and household patterns.

***Worldwide Population Growth*** The global population currently tops 7 billion people and is forecasted to rise to 8.82 billion by 2040 and exceed 9 billion by 2045.[14] Developing regions house 84 percent of the world's population and are growing at 1 percent to 2 percent per year;

**TABLE 3.4** Major Forces in the Macroenvironment

| Force | Key Elements to Monitor |
|---|---|
| Demographic environment | • Worldwide population growth<br>• Population age mix<br>• Diversity within markets<br>• Educational groups<br>• Household patterns |
| Economic environment | • Consumer psychology<br>• Income distribution<br>• Income, savings, debt, and credit |
| Sociocultural environment | • World views<br>• Core cultural values<br>• Subcultures |
| Natural environment | • Shortage of raw materials<br>• Increased cost of energy<br>• Increased pollution levels<br>• Changing role of governments<br>• Corporate environmentalism |
| Technological environment | • Accelerating pace of change<br>• Unlimited opportunities for innovation<br>• Varying research and development budgets<br>• Regulation of technological change |
| Political-legal environment | • Increase in business legislation<br>• Growth of special-interest groups |

developed countries' populations are growing at only 0.3 percent.[15] In developing countries, modern medicine is lowering the death rate, but birthrates remain fairly stable. A growing population does not mean growing markets unless there is sufficient purchasing power. Education can raise the standard of living but is difficult to accomplish in most developing countries. Nonetheless, companies that carefully analyze these markets can find opportunities and sometimes lessons they can apply at home.

***Population Age Mix*** There is a global trend toward an aging population. In 1950, there were only 131 million people 65 and older; in 1995, their number had almost tripled to 371 million. By 2050, 1 of 10 people worldwide will be 65 or older.[16] Marketers generally divide the population into six age groups: preschool children, school-age children, teens, young adults age 20 to 40, middle-aged adults 40 to 65, and older adults 65 and older. Some marketers focus on *cohorts*, groups of individuals born during the same time period who travel through life together. The defining moments they experience as they come of age and become adults (roughly ages 17 through 24) can stay with them for a lifetime and influence their values, preferences, and buying behaviors.

***Diversity within Markets*** Ethnic and racial diversity varies across countries, which affects needs, wants, and buying patterns. At one extreme is Japan, where almost everyone is native Japanese; at the other extreme is the United States, 12 percent of whose people were born in another country. In the United States, more than half the growth between 2000 and 2010 came from the increase in the Hispanic population, which grew by 43 percent, from 35.3 million to 50.5 million, representing a major shift in the nation's ethnic center of gravity. Geographically, the 2010 Census revealed that Hispanics were moving to states like North Carolina where they had not been concentrated before and that they increasingly live in suburbs.[17] Such demographic trends affect the market for all kinds of products, including food, clothing, music, and cars. Yet marketers must not overgeneralize—within each group are consumers quite different from each other.[18] Diversity also goes beyond ethnic and racial markets. More than 51 million U.S. consumers have disabilities, and they constitute a market for home delivery companies such as Internet grocer Peapod.

***Educational Groups*** The population in any society falls into five educational groups: illiterates, high school dropouts, high school diplomas, college degrees, and professional degrees. More than two-thirds of the world's 793 million illiterate adults are found in only eight countries (Bangladesh, China, Egypt, Ethiopia, India, Indonesia, Nigeria, and Pakistan); of all illiterate adults in the world, two-thirds are women.[19] The United States has one of the world's highest percentages of college-educated citizens.[20] This educational level drives strong demand for high-quality books, magazines, and travel and creates a supply of skills.

***Household Patterns*** The traditional U.S. household included a husband, wife, and children under 18 (sometimes with grandparents). By 2010, only 20 percent of U.S. households met this definition, down from about 25 percent a decade before and 43 percent in 1950. Married couples have dropped below half of all U.S. households for the first time (48 percent), far below the 78 percent of 1950. The median age at first marriage has never been higher: 26.5 for U.S. brides and 28.7 for U.S. grooms.[21] Nontraditional households are growing more rapidly than traditional households as more people divorce, separate, choose not to marry, or marry later. Other types of households are single live-alones (27 percent), single-parent families (8 percent), childless married couples and empty nesters (32 percent), living with nonrelatives only (5 percent), and other family structures (8 percent). Each type of household has distinctive needs and buying habits that marketers need to study and understand.

## The Economic Environment

Purchasing power depends on consumers' income, savings, debt, and credit availability as well as the price level. As the recent economic downturn vividly demonstrated, fluctuating purchasing power strongly affects business. Marketers must understand consumer psychology and levels and distribution of income, savings, debt, and credit.

***Consumer Psychology*** The recession that began in 2008 initiated new consumer spending patterns. Were these temporary adjustments or permanent changes?[22] Identifying the more likely long-term scenario—especially for the coveted 18- to 34-year-old group—would help managers decide how to invest their marketing money. Executives at Sainsbury, the third-largest UK supermarket chain, concluded that the recession had created a more risk-averse British consumer who now saves more, pays off debts instead of borrowing, and shops in more cost-conscious ways. Even wealthy UK consumers traded down to lower-cost items. As one executive said, "There's nobody who can afford not to try to save."[23]

***Income Distribution*** There are four types of industrial structures: *subsistence economies* like Papua New Guinea, with few opportunities for marketers; *raw-material-exporting economies* like Saudi Arabia (oil), with good markets for equipment, tools, supplies, and luxury goods for the rich; *industrializing economies* like India, where a new rich class and a growing middle class demand new types of goods; and *industrial economies* like Western Europe, with rich markets for all sorts of goods. Marketers often distinguish countries using five income-distribution patterns: (1) very low incomes; (2) mostly low incomes; (3) very low, very high incomes; (4) low, medium, high incomes; and (5) mostly medium incomes.

***Income, Savings, Debt, and Credit*** U.S. consumers have a high debt-to-income ratio, which slows expenditures on housing and large-ticket items. When credit became scarcer in the recession, especially for lower-income borrowers, consumer borrowing dropped for the first time in two decades. An economic issue of increasing importance is the migration of manufacturers and service jobs offshore, which affects incomes in the United States and the countries where jobs are relocated.

## The Sociocultural Environment

From our sociocultural environment we absorb, almost unconsciously, a world view that defines our relationships to ourselves, others, organizations, society, nature, and the universe.

- **Views of ourselves.** Some "pleasure seekers" chase fun, change, and escape; others seek "self-realization." Some are adopting more conservative behaviors and ambitions.
- **Views of others.** People are concerned about the homeless, crime and victims, and other social problems. At the same time, they seek out those like themselves, suggesting a growing market for social-support products and services such as health clubs, cruises, and religious activity as well as "social surrogates" like television, video games, and social networking sites.
- **Views of organizations.** After a wave of layoffs and corporate scandals, organizational loyalty has declined. Companies need new ways to win back consumer and employee confidence. They need to be good corporate citizens and ensure their consumer messages are honest.
- **Views of society.** Some people defend society (preservers), some run it (makers), some take what they can from it (takers), some want to change it (changers), some are looking for something deeper (seekers), and still others want to leave it (escapers).[24] Consumption

patterns often reflect these social attitudes. Makers are high achievers who eat, dress, and live well. Changers usually live more frugally, drive smaller cars, and wear simpler clothes. Escapers and seekers are a major market for movies, music, surfing, and camping.

- **Views of nature.** Business has responded to increased awareness of nature's fragility and finiteness by making more green products, seeking new energy sources, and reducing their environmental footprint.
- **Views of the universe.** Most U.S. citizens are monotheistic, although religious conviction and practice have waned through the years or been redirected into an interest in evangelical movements or Eastern religions, mysticism, the occult, and the human potential movement.

Other cultural characteristics of interest to marketers are core cultural values and subcultures.

***Core Cultural Values*** Most people in the United States still believe in working, getting married, giving to charity, and being honest. *Core beliefs* and values are passed from parents to children and reinforced by social institutions—schools, churches, businesses, and governments. *Secondary beliefs* and values are more open to change. Believing in the institution of marriage is a core belief; believing people should marry early is a secondary belief.

Marketers have some chance of changing secondary values but little chance of changing core values. The nonprofit organization Mothers Against Drunk Drivers (MADD) does not try to stop the sale of alcohol but promotes lower legal blood-alcohol levels for driving. Although core values are fairly persistent, cultural swings do take place. In the 1960s, hippies, the Beatles, and other cultural phenomena had a major impact on hairstyles, clothing, sexual norms, and life goals. Today's young people are influenced by new heroes and activities: music entertainer and mogul Jay-Z, singer Lady Gaga, and snowboarder and skateboarder Shaun White.

***Subcultures*** Each society contains **subcultures,** groups with shared values, beliefs, preferences, and behaviors emerging from their special life experiences or circumstances. Marketers have always loved teenagers because they are trendsetters in fashion, music, entertainment, ideas, and attitudes. Attract someone as a teen, and you will likely keep the person as a customer later in life.

## The Natural Environment

In Western Europe, "green" parties have pressed for public action to reduce industrial pollution. In the United States, experts have documented ecological deterioration, and watchdog groups such as the Sierra Club commit to political and social action. Steel companies and public utilities have invested billions of dollars in pollution-control equipment and environmentally friendly fuels, making hybrid cars, low-flow toilets and showers, organic foods, and green office buildings everyday realities. Opportunities await those who can reconcile prosperity with environmental protection.

*Corporate environmentalism* recognizes the need to integrate environmental issues into the firm's strategic plans. Trends for marketers to be aware of include the shortage of raw materials, especially water; the increased cost of energy; increased pollution levels; and the changing role of governments.[25]

- The earth's raw materials consist of the infinite, the finite renewable, and the finite nonrenewable. Firms whose products require *finite nonrenewable resources*—oil, coal, platinum—face substantial cost increases as depletion approaches. Firms that can develop substitute materials have an excellent opportunity.

- One finite nonrenewable resource, oil, has created serious problems for the world economy. As oil prices soar, companies search for practical means to harness solar power and other alternative energies.
- Some industrial activity will inevitably damage the natural environment, creating a large market for pollution-control solutions such as scrubbers, recycling centers, and landfill systems as well as for alternative ways to produce and package goods.
- Many poor nations are doing little about pollution, lacking the funds or the political will. It is in the richer nations' interest to help control pollution, but even richer nations today lack the necessary funds.

## The Technological Environment

The essence of market capitalism is a dynamism that tolerates the creative destructiveness of technology as the price of progress. Marketers should monitor the following technology trends: the accelerating pace of change, unlimited opportunities for innovation, varying R&D budgets, and increased regulation of technological change.

- **Accelerating pace of technological change.** More ideas than ever are in the works, and the time between idea and implementation is shrinking. In the first two-and-a-half years of the iPad's existence, Apple sold a staggering 97 million units worldwide.[26] In many markets, the next technological breakthrough seems right around the corner.
- **Unlimited opportunities for innovation.** Some of the most exciting innovations today are taking place in biotechnology, microelectronics, telecommunications, robotics, and designer materials.
- **Varying R&D budgets.** The United States is the world leader in research and development, spending $436 billion in 2012. A growing portion of U.S. R&D, however, goes to the development side, not research, raising concerns about whether the nation can maintain its lead in basic science. Too many companies seem to be putting their money into copying competitors' products with minor improvements. China, Israel, and Finland all are beginning to spend a larger percentage of their GDP on R&D than the United States.[27]
- **Increased regulation of technological change.** Government has expanded its agencies' powers to investigate and ban potentially unsafe products. Safety and health regulations have increased for food, automobiles, clothing, electrical appliances, and construction.

## The Political-Legal Environment

The political and legal environment consists of laws, government agencies, and pressure groups that influence organizations and individuals. Sometimes the political-legal environment can create new business opportunities. Mandatory recycling laws boosted the recycling industry and launched dozens of new companies making products from recycled materials. On the other hand, overseas governments can impose laws or take actions that create uncertainty and even confusion for companies. Two key trends are the increase in business legislation and the growth of special-interest groups.

***Increased Business Legislation*** Business legislation is intended to protect companies from unfair competition, protect consumers from unfair business practices, protect society from unbridled business behavior, and charge businesses with the social costs of their products or production processes. Each new law may also have the unintended effect of sapping initiative and slowing growth. The United States has many consumer protection laws covering competition, product safety and liability, fair trade and credit practices, and packaging and labeling. The European Commission has established new laws covering competitive behavior, privacy, product standards, product liability, and commercial transactions for member nations.

***Growth of Special-Interest Groups*** Political action committees (PACs) lobby government officials and pressure business executives to respect the rights of consumers, women, senior citizens, minorities, and gays and lesbians. The *consumerist movement* organized citizens and government to strengthen the rights and powers of buyers in relationship to sellers. Consumerists have won many rights, including to know the real cost of a loan and the nutritional quality and freshness of food. Privacy issues and identity theft, which are key public policy issues, will remain hot buttons as long as consumers are willing to swap personal information for customized products—from marketers they trust.[28] Many companies have established public affairs departments to formulate policies and deal with important issues.

## Executive Summary

Marketing managers need a marketing information system (MIS) to assess information needs, develop the needed information, and distribute it in a timely manner. An MIS relies on: (1) an internal records system, including information about the order-to-payment cycle and sales information systems; (2) a marketing intelligence system to obtain information about the marketing environment; and (3) a marketing research system. The marketing research process consists of six steps: define the problem and objectives, develop the plan, collect the data, analyze the data, present the findings, and make the decision. Companies use forecasting and demand measurement to evaluate the size, growth, and profit potential of each new opportunity.

Marketers must monitor six major environmental forces: demographic, economic, sociocultural, natural, technological, and political-legal. In the demographic environment, they should examine worldwide population growth; mixes of age, ethnic composition, and educational levels; and household patterns. In the economic arena, they should focus on consumer psychology, income distribution, and levels of savings, debt, and credit. In the sociocultural arena, marketers must understand people's views of themselves, others, organizations, society, nature, and the universe, as well as the role of core cultural values and subcultures. In the natural environment, marketers should be aware of increased concern about the natural environment and sustainability. In the technological arena, marketers should examine the accelerating pace of change, opportunities for innovation, varying R&D budgets, and increased regulation. In the political-legal environment, marketers must work within the many laws regulating business practices and with various special-interest groups.

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