

Part I

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Introduction to Business Research

>chapter 1

Research in Business

“For a long time, research companies have offered efficient collection of data, as well as timely and accurate reporting as their primary value propositions to clients. However, clients no longer view operational excellence as a value proposition, but rather as a basic expectation.”

Rick Garlick, Maritz Research

>learning objectives

After reading this chapter, you should understand . . .

- 1 What business research is and how it differs from decision support systems and business intelligence systems.
- 2 The trends affecting business research and the emerging hierarchy of research-based decision makers.
- 3 The value of learning business research process skills.
- 4 The different categories of firms and their functions in the industry.
- 5 The distinction between good business research and research that falls short of professional quality.

bringing research to life

Myra Wines, director of consumer affairs for MindWriter, Inc., has been charged with the task of assessing MindWriter's CompleteCare program for servicing laptops. As a result, she sent several well-respected research firms a *request for proposal (RFP)*, and she and her team are interviewing the last of those firms, Henry & Associates.

Newly promoted to her position, Wines has a TV journalism and government public relations background. She has been a MindWriter laptop owner since it came on the market decades earlier and has never personally experienced a problem. She wants a research supplier from whom she can learn, as well as one whom she can trust to do appropriate, high-quality research.

The last interviewee is Jason Henry, managing partners, Henry & Associates. H&A comes highly recommended by a professional colleague in a different industry. H&A has gained a reputation for merging traditional methodologies with some creative new approaches. Myra is interested in exploring the firm's methodology for customer satisfaction studies. As Wines approaches Henry in the waiting area, she extends her hand. "Welcome to MindWriter, Jason. I'm Myra Wines."

Henry rises, clasping Wines's hand in a firm handshake. "Pleased to meet you, Myra."

Myra directs Jason's attention to a long corridor. "My team members are gathered in our conference room just down this hall. Let's join them, shall we?"

The interview process starts with Henry's short presentation on H&A and its capabilities. As the interview progresses, Henry shares some impressive results accomplished for former clients in noncompetitive industries. The last slide in his presentation features a top industry award H&A recently won for its customer satisfaction methodology.

During the Q&A that follows, Henry demonstrates current knowledge of the computer industry (he's obviously read numerous articles), confidence, and expertise, at a level that Wines initially had not

expected given his relatively youthful appearance. At the conclusion of the interview, Wines is leaning toward hiring Henry & Associates, but wants to confer with her team.

The next day, Myra calls Jason at his office. "We've chosen Henry & Associates for the MindWriter CompleteCare assessment contract. Congratulations."

"Thank you," accepts Jason. "You've made the right choice."

"I've got two seats on a flight to Austin next Wednesday," shares Myra. "Can you join me? This will be my first look at the CompleteCare facility and my first face-to-face contact with its manager. I'd like someone along who can lay the groundwork for the project and understand the number crunching that's already been done."

The phone goes silent as Jason pauses to consult his PDA. Two internal meetings will need to be shifted, but MindWriter is an important new client. "Yes, I can work that in as long as we're back by 7 p.m. I've got an evening commitment."

"Shouldn't be a problem," shares Myra. "Those seats I mentioned are on the corporate jet. We'll be back by 5:30. I'll meet you in the lobby at the county airstrip at 8 a.m. Wednesday then."

"A quick question," interrupts Jason before Myra can disconnect. "I need some idea of what's happening at this meeting."

"The meeting is to get you started. I'll introduce you to other people you will be working with and share more details about the concerns we have with the CompleteCare program," shares Myra.

“Fine. Can you arrange a third seat? It would be best to include Sally Arens from the very beginning. Her expertise will be crucial to the success of the assessment program.”

“Yes, you mentioned her before. That shouldn’t be a problem, but I’ll check and get back to you.”

“Then Wednesday Sally and I will plan on asking probing questions and listening to discover exactly what facts management has gathered, what the managers are concerned about, what the problem is from their point of view, what the problem really is at various levels of abstraction . . .”

“Listening to people. Discussing. Looking at things from different viewpoints. Those are things I am also very good at,” shares Myra.

“Good. After we hear them out, we come to what H&A is good at: Measurement. Scaling. Project design. Sampling. Finding elusive insights. May I assume we’ll be collaborating on the report of results . . .”

“Absolutely. I’ll call you back within 10 minutes about that third seat.”

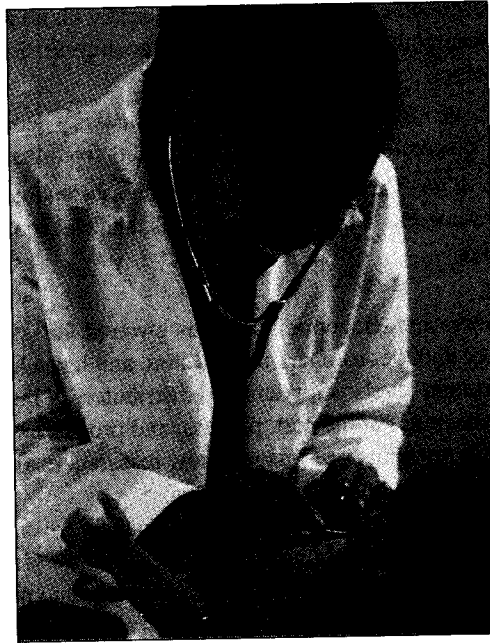
> Why Study Business Research?

You are about to begin your study of business research, both the process and the tools needed to reduce risk in managerial decision making. **Business research**, as we use the term in this text, is a systematic inquiry that provides information to guide managerial decisions. More specifically, it is a process of planning, acquiring, analyzing, and disseminating relevant data, information, and insights to decision makers in ways that mobilize the organization to take appropriate actions that, in turn, maximize business performance. A variety of different types of research projects are grouped under the label “business research,” and we will explore them all later in this chapter.

Assume for the moment that you are the manager of your favorite full-service restaurant. You are experiencing significant turnover in your waiter/waitress pool, and some long-time customers have commented that the friendly atmosphere, which has historically drawn them to your door, is changing. Where will you begin in trying to solve this problem? Is this a problem for which business research should be used?

Perhaps you are the head of your state’s department of transportation, charged with determining which roads and bridges will be resurfaced or replaced in the next fiscal year. Usually you would look at the roads and bridges with the most traffic in combination with those representing the biggest economic disaster if closed. However, the state’s manager of public information has expressed concern about the potential for public outcry if work is once again directed to more affluent regions of the state. The manager suggests using business research to assist in making your decision, as the decision is one with numerous operational, financial, and public relations ramifications. Should you authorize the recommended business research?

As the opening vignette and the early decision scenarios reveal, decision makers can be found in every type of organization: businesses, not-for-profit organizations, and public agencies. Regardless of where these decision makers are found or whether their resources are abundant or limited, they all rely on information to make more efficient and effective use of their budgets. Thus, in this book, we will take the broadest perspective of managing and its resulting application to business research.



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Eleven million children in the United States go without basic health care. And they don't need to. In 1997, a federal law funded the establishment of the State Children's Health Insurance Program to provide health care to the children of working parents without insurance or health care benefits. To be successful (enroll eligible children), it took an award-winning research program to determine the best approach. Throughout this text, you'll learn about this program, the organizations and companies involved, and the highly effective integrated communications campaign that resulted in the enrollment of hundreds of thousands of kids. For the next installment, watch for these icons.

At no other time in our history has so much attention been placed on measuring and enhancing **return on investment (ROI)**. At its most simplistic, when we measure ROI we calculate the financial return for all expenditures. Increasingly organizational managers want to know what strategies and tactics capture the highest return. In the last dozen years, as technology has improved our measurement and tracking capabilities, managers have realized they need a better understanding of employee, stockholder, and customer behavior in order to influence the desired metrics. Business research plays an important role in this new measurement environment. Not only does it help managers choose better strategies and tactics, but business research expenditures are increasingly scrutinized for their contribution to ROI.

The research methods course recognizes that students preparing to manage any function—regardless of the setting—need training in a disciplined process for conducting an inquiry of a **management dilemma**, the problem or opportunity that requires a management decision. Several factors should stimulate your interest in studying research methods:

1. *Explosive growth and influence of the Internet.* The explosive growth of company Web sites, e-commerce, and electronic publications brings extensive amounts of new information—but its quality and its credibility are increasingly suspect.
2. *Stakeholders demanding greater influence.* Customers, workers, shareholders, and the general public demand to be included in company decision making; armed with extensive information, they are more sensitive to their own self-interests than ever before and more resistant to an organization's stimuli.
3. *More vigorous competition.* Competition, both global and domestic, is growing and often coming from unexpected sources; many organizations refocus on primary competencies, while they seek to improve operations by reducing costs and converting customers to advocates.

4. *More government intervention.* Government continues to show concern with all aspects of society, becoming increasingly aggressive in protecting its various publics by posing restrictions on the use of managerial and business research tools.
5. *More complex decisions.* Managers have more variables to consider in every decision, increasing the manager's need for more and better information and for greater insights from that information.
6. *Maturing of management as a group of disciplines.* The quality of theories and models to explain tactical and strategic results in human resources, marketing, operations, and finance is improving, providing managers with more knowledge.
7. *Greater computing power and speed.*
 - *Lower-cost data collection.* Computers and telecommunications lowered the costs of data collection, drastically changing knowledge about consumers at both store and household levels; employees at the position, team, and department levels; suppliers and distributors at the transaction, division, and company levels; and machines at the part, process, and production-run levels.
 - *Better visualization tools.* High-speed downloads of images allow researchers to help people visualize complex concepts, which enriches measurement capabilities.
 - *Powerful computations.* Sophisticated techniques of quantitative analysis are emerging to take advantage of increasingly powerful computing capabilities.
 - *More integration of data.* Computer advances permit businesses to create and manage a **data warehouse**, an electronic storehouse where vast arrays of collected, integrated data are ready for mining.
 - *More and faster access to information.* The power and ease of use of today's computers offer us the capability to analyze more data more quickly to deal with complex managerial problems. Yet the quantity of collected raw data overwhelms users, necessitating a means to manage it. Early efforts to provide a flow of information to managers used a management information system (MIS). As time passed, the challenge of database management from an MIS perspective included removing obstacles like resistance to use, reluctance of managers to disclose fully their information needs and decision criteria, costs of single-user report generation, system design time, slow adaptation to changing organization structures, and decision relevance (standard versus tailored reports).
 - *Advanced analytical tools for enhanced insights.* Organizations increasingly practice **data mining**, applying mathematical models to extract meaningful knowledge from volumes of data contained within internal databases. Enormous quantities of research data are reduced to relatively straightforward equations with statistical models. Expert systems, an outgrowth of artificial intelligence, and data mining entered the 21st century as important tools for research. Advanced analytical tools are available to answer a variety of research questions. Traditional topics open to modeling—market share, price elasticity, the cannibalization of one product's sales by the introduction of another product, the effects on productivity of changing an employee compensation system, to name a few—create decision support models that reflect the behavior of individuals, households, and industries. Programs that combine modeling and decision support systems evolved in the latter part of the 20th century to provide the most utility to users.
 - *Customized reporting.* While routine MIS reports are useful for well-structured problems and those amenable to a standardized set of procedures, data must be more than timely and standardized; reporting must be customized to be truly meaningful to the user.
8. *New perspectives on established research methodologies.* Older tools and methodologies once limited to exploratory research are gaining wider acceptance in dealing with a broader range of managerial problems.

To do well in such an environment, you will need to understand how to identify quality information and to recognize the solid, reliable business research on which your high-risk decisions as a manager can be based. You also will need to know how to conduct such research. Developing these skills requires understanding the scientific method as it applies to the decision-making environment. This book addresses your needs as information collector, processor, evaluator, and user.

> Planning Drives Business Research

Managers have access to information other than that generated by business research. Understanding the relationship between business research and these other information sources—decision support systems and business intelligence—is critical for understanding how information drives decisions relating to organizational mission, goals, strategies, and tactics.

Goals

A local bakery would have different goals than Nabisco, but each likely has goals related to sales (membership), market share, return on investment, profitability, customer acquisition, customer satisfaction, customer retention, employee productivity, machine efficiency, maximization of stock price (or owner's equity), and so on—whether codified in a written plan or detailed only in an entrepreneur's brain. To assist in making increasingly complex decisions on goals, strategies, and tactics, managers turn first to information drawn from the decision support system, combined with that generated by business intelligence on competitive and environmental activity.

Decision Support

The need to complete one or many exchanges with its prospective customers drives every organization. No matter how we define an *exchange*—a purchase, a vote, attendance at a function, a donation to a cause—each exchange, along with the strategic and tactical activities designed to complete it, generates numerous elements of data. If organized for retrieval, collectively these data elements constitute a **decision support system (DSS)**. During the last two and one-half decades, advances in computer technology made it possible to share this collected transactional data among an organization's decision makers, over an intranet or an extranet.

An **intranet** is a private network that is contained within an enterprise (not available to the public at large). While an intranet typically includes connections to the outside Internet, its main purpose is to share company information and computing resources among internal audiences. An **extranet** is a private network that uses the Internet protocols and the public telecommunication system to share an organization's information, data, or operations with external suppliers, vendors, or customers. An extranet can be viewed as the external portion of a company's intranet. Through both intranets and extranets parties can access proprietary relational databases containing managerial decision-related information. Today, sophisticated managers have developed DSSs where data can be accessed in real time (as transactions are completed). Catalog managers (for example, casual clothing firm Lands' End) know exactly what tactics generate a transaction from a particular individual within their prospect and customer databases, as well as just how profitable each customer is to the company and an estimate of that customer's lifetime value to the company. Such managers have a distinct advantage in strategic and tactical planning over those without real-time access to transactional data.

Business Intelligence

As no decision exists in a vacuum, the decision maker must have a broad knowledge of the firm's environment. A **business intelligence system (BIS)** is designed to provide the manager with ongoing information about events and trends in the technological, economic, political and legal, demographic, cultural, social, and, most critically, competitive arenas. Such information is compiled from a variety of sources, as is noted in Exhibit 1-1.

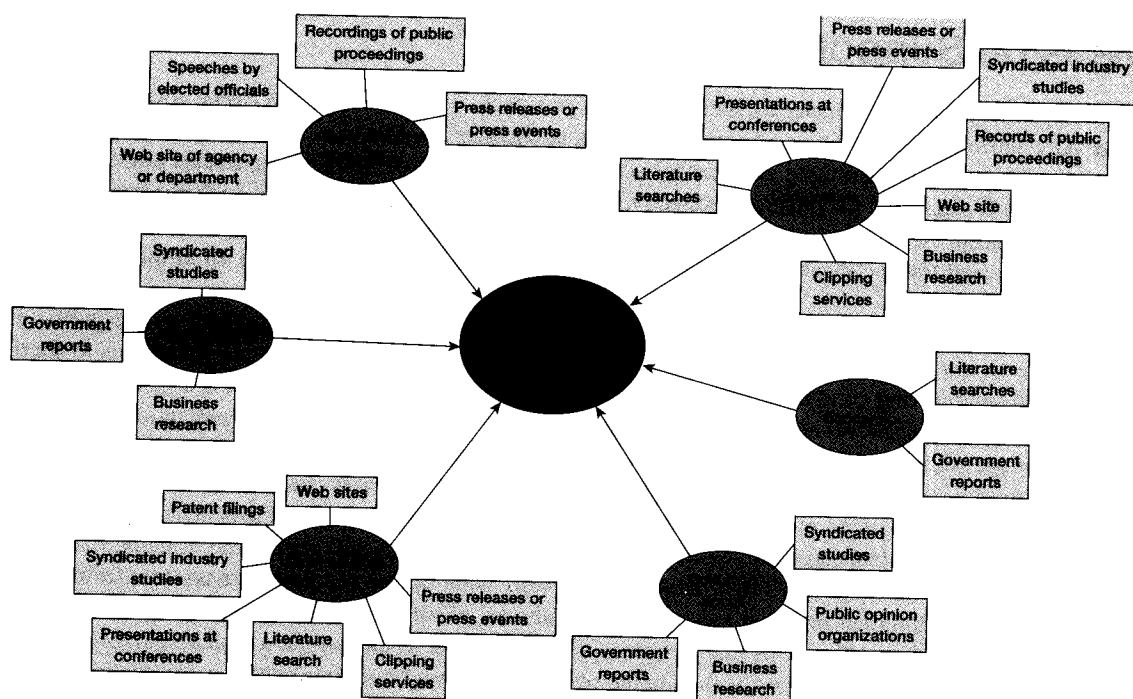
It is often data from a DSS or BIS that stimulate the question, Should we do business research? In the MindWriter example, this might be data collected about laptop problems needing repair. Or, for our restaurant whose friendliness quotient is changing, it might be customer comments collected by the wait staff.

Strategy

Knowing that it costs less to retain a customer than to capture a new one, most managers place a high value on keeping their customers buying repeatedly. This explains why customer satisfaction, customer loyalty, and customer assessment studies represent a significant portion of business research studies. For example, Microsoft recently completed a major corporate restructuring. It decided to tie its 600 managers' compensation not to sales and profits but to levels of customer satisfaction as measured by periodic customer satisfaction surveys.¹

Strategy is defined as the general approach an organization will follow to achieve its goals. In an earlier example, a restaurant was receiving comments that the friendly atmosphere was changing. This perception may have been the result of a change in strategy. Perhaps the restaurant decided to switch from an atmosphere where patrons were encouraged to linger over their meal (occupying a table for a long period of time, not

> **Exhibit 1-1** Some Sources of Business Intelligence



adding incremental revenues with each additional course) to a new strategy of turning each table over in a shorter time frame by changing food preparation and the menu.

A firm usually implements more than one strategy at a time. With regard to training, one organization might train its data warehouse employees with mostly classroom activities, while another will use on-the-job training. Another strategy might describe how an organization handles maintenance on its machines—rigorous periodic maintenance versus repairs only when a machine breaks down. A strategy might describe how an organization can best position its particular goods and services to fulfill customer needs. For example, Ralston Purina might position a dog food for active, small-breed puppies versus overweight, adult, large-breed dogs. Yet another strategy might define the general approach to establishing brand equity—or the value of the organization’s offerings—as Häagen-Dazs did when it established its superpremium ice-cream strategy.

The discovery of opportunities and problems and the resulting strategies is often the task of the BIS in combination with business research.

Tactics

Business research also contributes significantly to the design and selection of **tactics**, those specific, timed activities that execute a strategy. Häagen-Dazs designs its superpremium ice cream to be rich-tasting and creamy in texture with 19 grams of fat per serving (product tactics) and brings it out in dozens of flavors with names like “Peanut Butter Fudge Chunk,” “Bananas Foster,” and “Vanilla Fudge Brownie” (product tactics), packaged primarily in pint containers with the signature gold and burgundy colors (packaging tactic). It distributes prepackaged Häagen-Dazs through freezer cases in grocery stores (distribution tactic) or hand-packed drums (packaging tactic) through its own and franchised stores—700 cafes in 54 countries, with 240 shops in the United States—as well as on cruise ships and through other restaurants (distribution tactics).²

In our earlier example, our restaurant manager might have changed the menu (a product tactic) so that entrees could be prepared faster (production tactic) and delivered to a table more quickly. The manager might also have instituted a new sales program (a promotion tactic), one that discouraged the wait staff from making small talk with patrons and rewarded efficiency. Business research is often used to help a manager decide which of several tactics is likely to successfully execute the desired strategy.

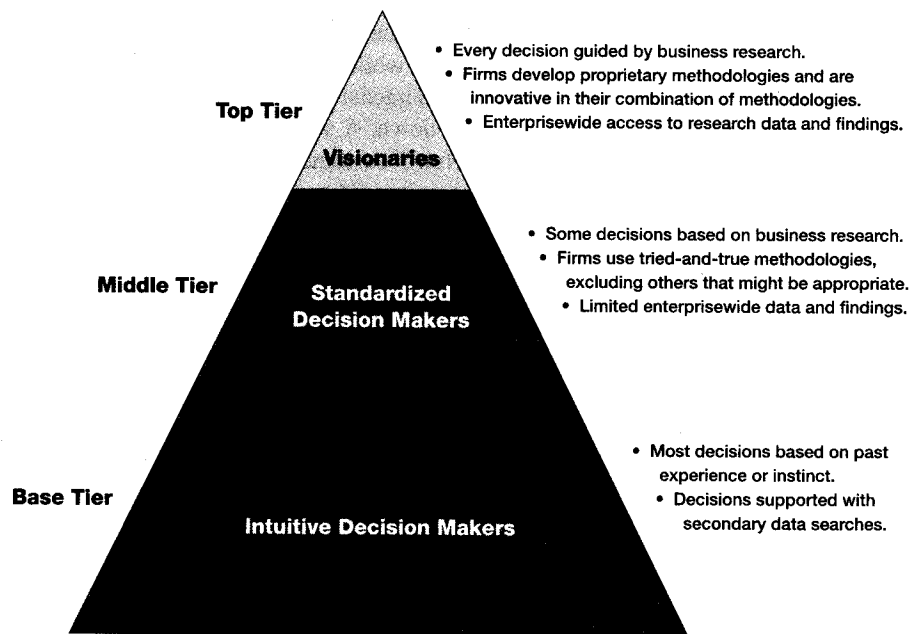
All of the above examples demonstrate the purposes of business research:

- To identify and define opportunities and problems.
- To define, monitor, and refine strategies.
- To define, monitor, and refine tactics.
- To improve our understanding of the various fields of management.³

Emerging Hierarchy of Information-Based Decision Makers

While not all organizations use business research to help make planning decisions, increasingly the successful ones do. Exhibit 1-2 shows an emerging hierarchy of organizations in terms of their use of business research.

In the top tier, organizations see research as the fundamental first step in any venture. They go beyond the tried-and-true methodologies and use creative combinations of research techniques to gain deep insights to aid in their sophisticated decision making. Some even develop their own proprietary methodologies. These firms may partner with a small group of outside research suppliers that have the expertise to use innovative combinations of research methods to address management dilemmas. These visionary managers can be found

> **Exhibit 1-2** Hierarchy of Information-Based Decision Makers

in research firms, service firms, nonprofit organizations, and product and service manufacturers and distributors. Minute Maid, the manufacturer that brings us fresh and frozen juice-based products, fosters decision making at this level. Its vice president of Consumer and Marketing Knowledge is a member of the firm's highest strategic planning team.⁴ As the Minute Maid Consumer and Marketplace Knowledge model shows (Exhibit 1-3), implementation and activation of research are the critical stages for decision makers in this tier. Design Forum, an architectural and graphic design firm specializing in retail design and positioning for such firms as Lexus, Dunkin' Donuts, and McDonald's, is another firm operating at this level; every recommendation to each client is based on data drawn from the use of extensive proprietary research.

In the second tier of the hierarchy are those decision makers that rely periodically on research information. They usually turn to business research primarily when they perceive the risk of a particular strategy or tactic to be too great to proceed without it. They rely heavily on those methodologies that proved themselves in the last several decades of the 20th century—surveys and focus groups—often choosing the methodology before fully assessing its appropriateness to the dilemma at hand. This tier is occupied by many large, medium, and small organizations of all types. Some of the firms newly arrived to this tier are in transition from the base tier. They have realized that failing to collect information prior to decision making or failing to extract insight from information that has been collected in their DSS puts them at a distinct competitive disadvantage.

Finally, the base tier comprises those managers who primarily use instinct and intuition rather than formal business research to facilitate their decisions. These firms may or may not have sophisticated DSSs or BISs. They believe themselves to be so close to customers and distribution partners, as well as to employees and other stakeholders, that they rarely need business research. When they do collect information, they use a limited amount of qualitative research, often in the form of an informal group discussion or a small number of individual interviews, to confirm their ideas. Especially in the business-to-business arena, they often rely on feedback filtered by members of the sales force. Following guidelines for adequate sampling or other procedures of scientific inquiry is not fundamental to this group. Larger firms that occupy this tier are influenced

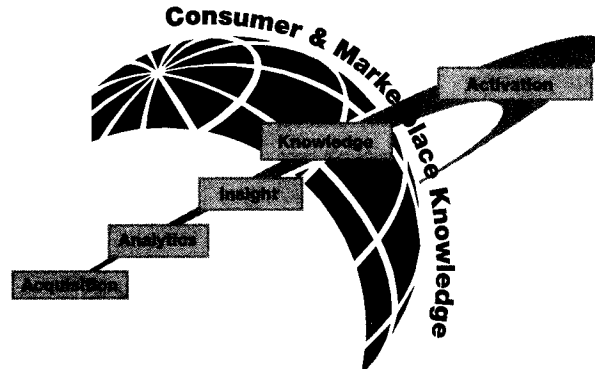
> **Exhibit 1-3** Minute Maid and the Role of Research

Minute Maid's Consumer and Marketplace Knowledge team demonstrates that effective research doesn't end once the collected data are reported. Organizations in the top tier of research-based decision making see activation of strategies and tactics based on research-supported insights as the highest priority. www.minutemaids.com

Minute Maid CMK Mission

Our Mission Is To . . .

- Leverage consumer, customer and marketplace knowledge to identify, develop and influence business strategies and tactics that will generate growth in operating income year after year



>snapshot

Mary Kay: Enticing Managers to Use Research-Based Decision Making

Cosmetics firm Mary Kay, like many companies facing rapidly changing technology, is in transition—from relying on instinct, anecdotal evidence, and qualitative data to relying on quality quantitative information. When Teri Burgess moved from a product marketing position at Mary Kay to director of marketing analysis, her task was to create a database from mounds of consumer data. Now that the database is as user-friendly as demanded, she faces a new task, and one surprisingly familiar to business researchers worldwide: enticing decision makers to rely on the insights available to them. “Part of the reluctance is cultural,” shared

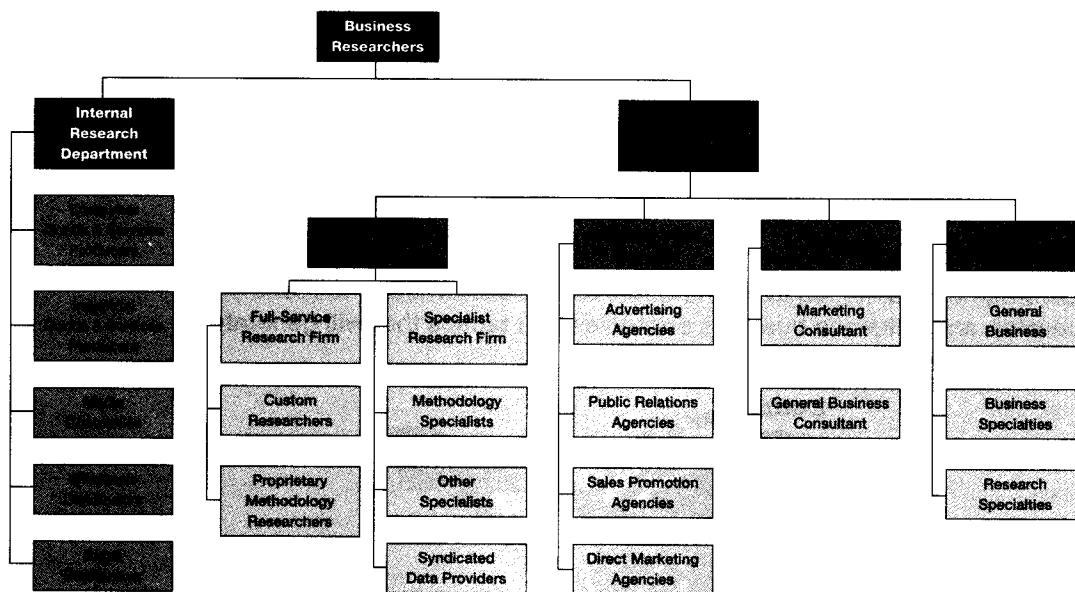
Burgess. Without this information, seasoned managers have made the hard decisions: to discontinue once-popular products, to introduce new fashion colors, to position stable products for alternative benefits. “And part of it may be lack of motivation. Until upper management demands that managers support their ideas and proposals with information from research and the decision support system, no amount of training—in how the system works and can be helpful—will make it happen.”

www.marykay.com

as much by organizational culture as by resources. Many small companies find themselves in this tier not because of an unwillingness to use business research but based on a perception that any more formalized research is too expensive to employ and that their resources won't accommodate this mode of decision making.

The trends of the past two decades, especially the technology that has been driving research methodologies of data collection and dissemination, make it likely that managers who do not prepare to advance up the hierarchy will be at a severe competitive disadvantage.

> Exhibit 1-4 Who Conducts Business Research?



> How the Research Industry Works

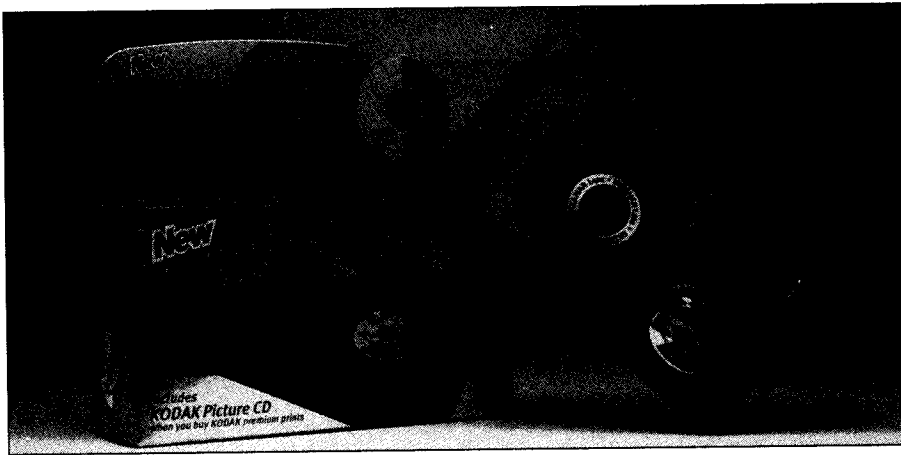
The picture of the research industry is one of extremes. Very large suppliers account for the largest portion of the sales in the industry, but smaller firms and one-person shops dominate when you look at the number of research firms. Exhibit 1-4 provides an overview of the suppliers within the research industry.

Internal Research Suppliers⁵

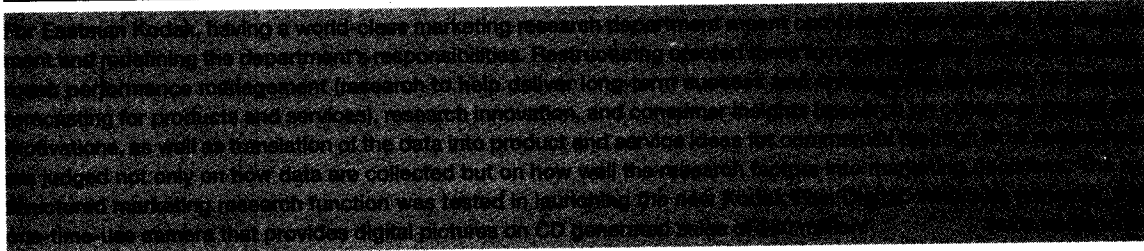
Not all decision makers rely on research to make decisions. Those firms that do are likely to have an internal research department or an individual who coordinates research initiatives. The structure and scope of these operations are as diverse as the management dilemmas that they research. They range from one-person operations, where the individual primarily coordinates the hiring of external research suppliers, to small-staffed operations that do some survey or qualitative studies, to large-staffed divisions that more closely approximate the structures of research companies.

Historically, in the 1960s, as business research entered a new era of quantification and respectability, the number of firms with internal research departments grew. The research function gained acceptance as a formal part of the organization. When the decade of the 1970s arrived, researchers were often assigned to a particular functional area (for example, marketing or human resources) and reported directly to the executive in charge of that area. The researchers' influence at the strategic level was constrained by the rather narrow definition of their role—order takers who reacted to the demand for research projects and reports. This perception of a researchers' role as having limited strategic contribution continued through the 1990s. The results of one Advertising Research Foundation (ARF) study in 1999 indicated that "according to the CEOs surveyed, the accuracy and actionability of the information provided by research was thought to be low."⁶

In a 2001 quantitative study conducted with the aid of the Cambridge Group, ARF sought to identify ways to redefine the research function, thereby making it more relevant to senior management. The opinions of



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CEOs, senior-level managers, and researchers at over 100 Fortune 500 companies were solicited to discover the core competencies possessed by an ideal management decision support function and to learn which decisions and activities were most important for research support. While results from executives revealed generally positive ratings for research, a gap still existed between researchers and senior-level managers and CEOs on their perceptions of the researchers' role. Based on the executive's responses, research began to expand into such areas as providing actionable insights, reducing risk in marketplace actions, and improving return on investment.⁷ This evolution of the research industry is consistent with scholar and consultant Philip Kotler's contention that as costs rise, CEOs and board members demand greater accountability for decisions and expenditures.⁸

For budget, equipment, facilities, and expertise reasons, the trend in the industry is clearly not to staff large internal research departments. In poor economic times, many firms eliminate their internal research operations altogether, feeling that such services are expendable or are readily available from external suppliers. In some ways the growth in prominence of the role of information technology manager or officer (the person who manages the DSS and BIS functions) has forced the researcher to an even more subordinate staff role. While both information technology management and research are critical, in most organizations the two functions have little directly to do with one another.

External Research Suppliers

Within the category "research specialists," more than 2,000 research firms operate in the United States.⁹

Research Firms

Full-Service Firms Full-service researchers include some of the largest research firms in the world and some of the smallest. Exhibit 1-5 identifies some of the largest firms. Full-service firms are often involved in research

> Exhibit 1-5 Some of the World's Largest Research Companies

Organization	Type of Research	Research Revenues, 2003	
		U.S. (\$ millions)	Worldwide (\$ millions)
VNU Inc. www.vnu.com	A global leader in market research, providing measurement and analysis of marketplace dynamics and consumer behavior, as well as audience measurement with several leading brands, including ACNielsen market data.	\$1,609.0	\$ 3,045.0
Information Resources Inc. www.infores.com	Provides UPC scanner-based business solutions to the consumer packaged goods (CPG) industry.	388.0	554.3
Taylor Nelson Soles USA www.tnssoles.com	Provides custom research, omnibus studies, and attitudinal polling in a variety of industries, as well as drug sample monitoring.	366.3	1,290.1
Arbitron Inc. arbitron.com	Provides information services used to develop the local marketing strategies of the electronic media and their advertisers and agencies.	265.7	273.6
Ipsos www.ipsos.com	Explores market potential and market trends, tests products and advertising, studies audiences and their perceptions of various media, and measures public opinion trends around the globe.	176.1	644.2
Synovate (formerly Market Facts, Inc.) www.synovate.com	Provides global marketing research and consulting to business, government, and associations.	161.1	367.7

(continued)

planning for their clients from the moment of discovery of the management dilemma or, at the very least, from the definition of the management question. Such firms usually have expertise in both quantitative and qualitative methodologies, and they often have at their disposal multifaceted facilities capable of serving a wide variety of

> **Exhibit 1-5** Some of the World's Largest Research Companies (*concluded*)

Organization	Type of Research	Research Revenues, 2003	
		U.S. (\$ millions)	Worldwide (\$ millions)
J.D. Power and Associates jdpower.com	Conducts independent surveys of customer satisfaction, quality, and buyer behavior; best known for its marketing information for the automotive and hospitality industries.	\$119.1	\$144.8
The NPD Group Inc. www.npd.com	Provides tracking studies (comprehensive overview of product movement and consumer behavior) in numerous industries, including apparel, fashion, beauty, home, and electronics.	96.8	117.6
C&R Research Service Inc. www.cresearch.com	Provides qualitative and ethnography studies; known for its KidsEyez panel and research with Latino-market segments.	48.1	48.1
Burke Inc. www.burke.com	Provides full-service research and consulting services in customer satisfaction, quality, and employee engagement; its Burke Institute provides continuing education for those in the research industry.	31.5	39.4

Source: Data were developed from the companies' Web sites and from "Honomichl Top 50," *Marketing News* (American Marketing Association), August 15, 2004, accessed December 29, 2004 (http://www.marketingpower.com/ama_custom_honomichl50.php).

research designs, including both fieldwork and laboratory operations. Some are capable of working in worldwide venues, while others offer their services to only one industry or one geographic region. While these firms may have one or more areas of noteworthy expertise, they are truly multidimensional in terms of both research planning and execution. In a research environment where clients increasingly demand managerial insights, not just research reporting, these firms are often a combination of research and consulting operations. NFO WorldGroup is an example of a full-service research firm. It describes itself as "marketing minds who specialize in research."¹⁰ Taylor Nelson Sofres Intersearch is another full-service firm. It describes its approach as, "We combine category knowledge with research expertise in our cross-functional research teams."¹¹

Custom Researchers Such phrases as "ad hoc research" or "custom-designed research" are often used to describe custom full-service research firms. A **custom researcher** crafts a research design unique to the

decision maker's dilemma. In essence, such research firms start each project from ground zero. This does not mean, however, that they fail to apply lessons learned from previous projects. What is implied is that such firms do not assume that a given methodology is appropriate for each client's research, even if the research to be done is in an arena in which the research firm has considerable expertise, for example, customer satisfaction or copy testing or product evaluation or employee motivation research. While a custom researcher might not always be a full-service research firm, by definition, a full-service researcher would always fit into the custom research category. Taylor Nelson Sofres (TNS) Intersearch describes its custom research operations this way: "[Our custom research capability] allows us to design approaches that truly meet [the client's] needs if proprietary research solutions do not."¹²

Proprietary Methodology Researchers A **proprietary methodology** is a research program or technique that is owned by a single firm. It may be a slight twist on an established methodology or may be a method developed by that firm. Firms often brand these methodologies to establish distinction in the minds of prospective clients, as ACNielsen did with its Homescan[®] syndicated panel. Proprietary methodologies often grow from significant expertise in a given methodology or a given industry and develop over many years and thousands of client projects.

With the development of its customer engagement methodology, The Gallup Organization has reinvented itself using the proprietary research model, moving from public opinion pollster and custom researcher to research-based consulting firm. While Gallup is capable of doing and still does custom research, it captures a significant portion of its revenue from management consulting based on proprietary methodologies. One of its proprietary methodologies is called *Q12*. This survey methodology uses 12 questions to measure customer engagement. Gallup uses these same questions with all clients, so Q12 serves as a benchmark diagnostic for its subsequent consulting work. Gallup has copyrighted its questions and the survey instrument that incorporates them to guarantee that its intellectual property remains protected. Having a proprietary research methodology allows Gallup to charge its clients significant premiums for its research and consulting services.¹³ Without proprietary methodologies, all research firms essentially offer the same research services—although we accept that some perform such services with far more skill and expertise than others.

Specialty Research Firms **Specialty researchers** represent the largest number of research firms and tend to dominate the small research firms operated by a single researcher or a very small staff. These firms may establish a specialty in one or several different arenas:

- **Methodology.** The firms (methodology specialists) may conduct only one type of research (for example, survey research, customer satisfaction research, ad copy testing, packaging evaluation, focus groups, retail mystery shopping, or retail design research).
- **Process.** The firms usually contribute to only a portion of the research process (for example, sample recruiting, telephone interviewing, or fielding a Web survey).
- **Industry.** The firms become experts in one or a few industries (for example, pharmaceutical research or entertainment research or telecommunications research).
- **Participant group.** The firms become experts in a particular participant group (for example, Latino-Americans, or children, or doctors, or country club golfers).
- **Geographic region.** The firms may operate in only one region of a country—as is true for many mystery shopping firms—or a single country or group of countries.

One large group in this specialty research category includes firms that conduct focus groups. These firms not only offer the trained moderators who manage the small-group discussions, many of whom hold a PhD in psychology, but also provide the sample screening procedures, the specially designed facilities, and the

>snapshot

Product managers of consumer packaged goods (CPG) are facing increasing pressure for strong return-on-investment metrics for media buys, yet they still heavily rely on advertising recall or click stream analysis. "The thinking is that no one goes online to search out information on paper towels. But that doesn't mean that internet ads can't significantly lift in-store sales," explained Ken Mallon, Yahoo's director of insights products. What was needed were new metrics that could showcase internet ads' targeting efficiency and sales responsiveness. Yahoo teamed its extensive database of internet visitors with the ACNielsen Homescan panel (126,000 global households that provide extensive demographic and lifestyle data and allow their purchases to be tracked). What resulted is *Yahoo! Consumer Direct powered by ACNielsen*. More than 40 percent of active internet users use broadband or high-speed internet access. This enables such households to be tested for exposure to standard media banner ads and also to the more interactive rich-media ads that are increasing on the internet. For each advertiser, *Consumer Direct* tracks

two metrics on each test group: effectiveness of ad targeting (Are the visitors being exposed to the ads most likely to purchase?) and persuasiveness of the advertising (What percentage of households exposed to the advertising actually purchase the advertised product?). Yahoo then compares this information to that on a group not exposed to the banner ads. Yahoo, with the assistance of Dynamic Logic, also provides advertisers with five more metrics critical for CPG success: ad awareness, brand awareness, brand favorability, message association with advertiser, and purchase intent.

"Using the browsing patterns of high-purchase households in the *Consumer Direct* research to model behavior, we then apply this knowledge to the Yahoo! database to identify 10 million households that exhibit similar browsing behavior," explained Mallon. These Yahoo visitors see ads to which they are most likely to respond. Every *Consumer Direct* CPG client has experienced sales lift.

www.yahoo.com; www.acnielsen.com;
www.dynamiclogic.com

technical communications equipment for making this qualitative research as insightful as possible. Specialty researchers may also perform a subset of a methodology specialty. For example, numerous firms offer focus group moderators but not the focus group facilities. Others provide the recruiting of focus group participants and the facilities but not the moderators.

Firms doing observation studies constitute another subset of specialty researchers. These researchers are often found studying retail shoppers, tracing their footsteps or recording the amount of time a shopper spends reading labels or interacting with displays. EnviroSell and Design Forum both do observation studies: EnviroSell's research is designed to make retail environments and processes more productive; Design Forum uses research to create the external and internal environments that establish and reinforce the retailer's image. *Ethnography* is a type of study that combines observation and communication studies. The Context-Based Research Group describes itself as "an ethnographic research and consulting firm." It combines the backgrounds and skills of cultural anthropologists (more than 3,000 around the world) with the communication and business experts to serve a diverse client base, including retailers, software manufacturers, food manufacturers, hotels, pharmaceutical companies, and even proponents of social causes.¹⁴

Firms providing Web page optimization research and Web performance metrics are an emerging group of methodology specialists. Such firms as Yahoo!, NetIQ (with WebTrends), and NetConversions are examples of methodology specialists in metrics related to Web content development.

One of Britain's fastest-growing research firms, MORInsight, is a specialist in employee research. It claims, "MORInsight contains benchmarking data from over 200 employee surveys covering a wide range of subjects from job satisfaction to employee engagement and advocacy."¹⁵ Mercer HR Consulting, with offices in more than 41 countries, also specializes in employee research. Mercer claims, "Advancements in quantification and measurement now make it possible to enhance this process by linking what employees say to what they actually do—and measuring the impact on business performance."¹⁶ IBM's operations research

specialists were able to design and introduce a new Web-based procurement auction process for Mars, Incorporated, that paid for itself in increased cost savings in just one year and wins accolades from suppliers for “increased efficiency, transparency, and fairness.”¹⁷

Collectively, specialty researchers often assist other research firms to complete projects. One large group in the process specialist category is sampling specialists. These firms provide the screening and recruiting of probability samples for a wide range of survey studies, as well as studies employing in-depth interviews, laboratory and in-home product testing, laboratory experiments, home ethnographies, and so on. Survey Sampling Inc. is one of the largest suppliers of samples for telephone, mail, and online surveys and also offers specialty samples for industrial and health care research.¹⁸ Greenfield Online specializes in assisting research firms by providing online samples that fulfill a variety of characteristics. Greenfield claims to have compiled the largest panel of opt-in participants in the online community. It has also partnered with Microsoft to build recruited online samples drawn from MSN.com membership.¹⁹

With the increase of online research, many researchers—especially internal research departments and small custom research firms—want to offer this methodology but do not have the capability to field such a study themselves. Qualtrics Labs, with its array of software and service products (surveypro.com for designing and fielding simple surveys, QuestionPro.com for more complex surveys, PerfectSurveys.com for intranet and e-mail surveys), promises researchers without online capabilities the ability to deliver professional-quality online survey results.²⁰ Training Technologies, Inc., also designs, fields, tracks, and posts survey results for researchers without the necessary technical capabilities.²¹

Syndicated Data Providers When managers want comparative performance and opinion data, pitting themselves against their competitors in sales, market share, share of voice, image as a corporate citizen or employer, or salary and benefit levels, they turn to researchers that are syndicated data providers. For a substantial fee, often millions of dollars per year, managers subscribe to receive the periodic data as well as the interpretation of these data. A **syndicated data provider** tracks the change of one or more measures over time, usually in a given industry. For example, a syndicated data provider might track product movements through various retail outlets and wholesale environments. The tracking of sales performance measures during promotional events like coupon drops, distribution of product samples, special events (like the appearance of a celebrity at a charity event), and advertising is often the key to successful strategic planning. These research firms are also responsible for providing decision makers with measures of price elasticity. In consumer packaged goods, the first research company to provide scanner-based tracking through grocery outlets was Information Resources Inc. (IRI), in 1987.²² Other firms providing syndicated research are noted in Exhibit 1-6.

Each syndicated data provider determines the frequency of data collection and reporting based on the needs of the members in the syndicate. While some studies provide data monthly or weekly, not all such studies are done as frequently as sales tracking studies. Some syndicated data are collected only once per year or once every few years. Other syndicated data are collected several times per year during designated collection periods. One example is the tracking of media consumption. Nielsen Media Research is well known for its *People Meter* research that mechanically records and then reveals the viewing habits of a panel of television watchers. Data are collected four times per year during so-called *sweep weeks*. These are times when the TV networks often substitute special programming for their regular shows to increase viewership. Advertising rates for the whole season of advertising slots are determined by a show's audience size and composition during a sweep week. Arbitron collects similar data on radio listening habits. Typically the firm subscribing to the syndicate has full access to its data and the composite data, but not to an individual competitor's data.

Omnibus Researchers Sometimes the decision maker needs the answer to one or a few questions to make a quick tactical decision, such as when it faces a crisis caused by a product recall or the indictment of

> **Exhibit 1-6** Some Syndicated Data Providers

Company	Syndicated Service	What It Measures
ACNielsen www.acnielsen.com	Scantrack	Provides sales tracking across grocery, drug, and mass merchandisers
	Homescan	Provides consumer panel service for tracking retail purchases and motivations
ComScore www.comscore.com	Internet Confidence Index	Measures consumer confidence in products and services
Scarborough Research (a service of Arbitron, Inc., and VNU) www.scarborough.com		Provides a syndicated study to print and electronic media, new media companies, outdoor media, sports teams and leagues, agencies, advertisers, and radio. Pages on local, regional, and national levels—including local market shopping patterns, demographics, media usage, and lifestyle activities.
Information Resources www.infores.com	BehaviorScan	Collects store tracking data used with consumer panel data to track advertising influence in consumer packaged goods.
NOP World www.nopworld.com	Starch Ad Readership Studies	Provides raw readership scores collected via individual depth interview; records the percent of readers who saw the ad and read the copy. The ad is ranked not only against other ads in the issue but also against other ads in its product category over the last two years.
DoubleClick www.doubleclick.com	Diameter	Provides online audience measurement services for Web publishers, advertisers, and agencies.
Taylor Nelson Sofres Intersearch www.tns-i.com	Global eCommerce	Measures e-commerce activity in 27 countries, providing insights into 37 marketplaces via interviews.
J.D. Power Associates www.jdpower.com	PowerReport, PowerGram, etc.	Publishes in-depth analytical reports on automotive, travel, health, and other industries.
		media consumption habits

Source: This table was constructed from descriptions published on each company's Web site.

a company executive for fraud. Within the world of survey research, several research firms provide such a service, some even with a 24- to 48-hour turnaround. Exhibit 1-7 offers some examples. An **omnibus researcher** fields research studies, often by survey, at regular, predetermined intervals. An **omnibus study** combines one or a few questions from several decision makers who need information from the same population. Typically, the manager pays by the number of questions, usually between \$700 and \$1,500 per question. Many omnibus studies are still done by phone, but as online participants increasingly mirror the general population, an increasing number are being offered via the Internet. NOP World uses a representative sample of 1,000 adults for its Telebus study.²³ NOP contacts participants during the weekend and provides the decision maker with feedback on Monday morning. For a firm facing a public relations crisis, the quick turnaround is

> **Exhibit 1-7** Some Omnibus Studies

Company	Sample Size	Sample Characteristics	Turnaround (from question to delivery)	Details
LightSpeed Research Online Omnibus www.lightspeedresearch.com	2,000	Adults	8 days	No more than 5 questions, with overall survey size 15-20 questions; \$750 per question
JupiterDirect Research Online Omnibus www.jupiterdirect.com	Up to 80,000	IT/IS experts	NA	\$1,995 for up to 5 questions
Synovate TeenNation Online Omnibus www.synovate.com	500	12- to 17-year-olds	1 week	\$1,500 per question
ICM Phone Omnibus (RDD) www.icmresearch.co.uk	1,000	Persons 16 or 18 years old or older	3 days	Midweek and weekend; £400 per question, £800 for each free-response question
NFO WorldGroup Online Omnibus www.nfoctgroup.com	1,000	Online Canadians, aged 18 and older	7 days	Up to 6 questions; weekly

Source: This table was constructed from descriptions published on each company's Web site.

invaluable, and the data are available at a fraction of the cost of a custom-designed study. NOP does omnibus studies with automobile drivers, parents, youth, and other population segments in Great Britain, using telephone and online surveys as well as face-to-face interviews. Medical Marketing Research Inc. conducts omnibus studies with physicians in all the medical specialties, while TNS offers the PhoneBus survey, interviewing 1,000 to 2,000 participants, twice per week, with results within four days.²⁴

Communication Agencies

It is difficult for an advertising agency to recommend advertising in a particular medium (for example, television) or on a particular program (for example, *Survivor* or *CSI*) without fully understanding the demographics and lifestyles of the viewing audiences of each show. This explains why advertising, public relations, sales promotion, and direct marketing agencies are heavy users of syndicated research data, especially from media industry suppliers. It is even more difficult to develop a creative strategy without research on target audience knowledge, motivations, attitudes, and behavior. Agencies are also voracious consumers and providers of custom and proprietary research. Within communication agency circles, there is some debate on whether a research division within an agency can maintain the objectivity needed to do custom research or whether, with conflicting demands from numerous clients, an internal research operation can be efficient and timely, so clients sometimes request that the research needed by these communication specialists be done by an external supplier.

Some agencies do extensive basic research to identify influences on ad recall and ad wear-out, on ad placement effectiveness, on the effectiveness of various creative approaches (for example, celebrity endorser versus animated product as spokesperson), on the effectiveness of communication strategies (for example, humor, violence, or sexuality in advertising), on the ROI for various media buys, and on the comparative effectiveness of different action stimulants (such as coupons versus samples), to name a few. For direct marketing agencies every single client's project is actually an experiment, with the offer, the action stimulants, the creative strategy, or even the mailing envelope modified in split-sample tests. All agencies do extensive copy testing as a development tool in building a campaign and effectiveness testing with postplacement recall, knowledge, and behavior measures. Such measures combine custom research with syndicated research to explain why a campaign was a success.

Consultants

Business consultants offer a wide range of services at the strategic and tactical levels. All are involved in doing extensive secondary data research for their clients. Such consultants may also be major influencers in research design, of both custom research and the selection of proprietary models. Even when they don't do the actual data collection themselves, they are often involved in the interpretation of results. Depending on the size of the firm, some consultancies conduct both qualitative studies (notably focus groups and expert interviews) and quantitative studies (usually through surveys) on knowledge, attitudes, opinions, and motivations as they seek new opportunities or solutions to their client's problems.

Trade Associations

Generally trade associations have as their purpose to promote, educate, and lobby for the interests of their members. While many commission pure research that advances trade interests, not all conduct or supply research services.

Check the comprehensive list of business sources on your CD for a list of relevant trade associations.

> What Is Good Research?

The nine criteria summarized in Exhibit 1-8 profile desirable, decision-oriented research, especially when managers perform the research themselves. These criteria create barriers to adjusting research findings to meet desired ends.

Good research generates dependable data that are derived by professionally conducted practices and that can be used reliably for decision making. In contrast, poor research is carelessly planned and conducted, resulting in data that a manager can't use to reduce his or her decision-making risks. Good research follows the standards of the **scientific method**: systematic, empirically based procedures for generating replicable research.

We list several defining characteristics of the scientific method in Exhibit 1-8 and discuss below the managerial dimensions of each.

1. *Purpose clearly defined.* The purpose of the business research—the problem involved or the decision to be made—should be clearly defined and sharply delineated in terms as unambiguous as possible. Getting this in writing is valuable even in instances where the same person serves as researcher and decision maker. The statement of the decision problem should include its scope, its

> Exhibit 1-8 What Actions Guarantee Good Business Research?

Characteristics of Research	What a Manager Should Look For in Research Done by Others or Include in Self-Directed Research	Chapter
Purpose clearly defined	<ul style="list-style-type: none"> • Researcher distinguishes between symptom of organization's problem, the manager's perception of the problem, and the research problem. • Researcher provides complete research proposal. 	3
Research design thoroughly planned	<ul style="list-style-type: none"> • Exploratory procedures are outlined with constructs defined. • Sample unit is clearly described along with sampling methodology. • Data collection procedures are selected and designed. • Sampling design data to collect study variables. • The study's methodology and limitations sections reflect a constraint and concern for accuracy. 	2, 3, 4, 6–15
Limitations frankly revealed	<ul style="list-style-type: none"> • Desired procedure is compared with actual procedure in report. • Desired sample is compared with actual sample in the report. • Impact on findings and conclusions is detailed. • Clearly defined findings are tied to relevant conclusions. 	6, 15, 16, 21
Findings presented unambiguously	<ul style="list-style-type: none"> • Findings are clearly presented in words, tables, and graphs. • Findings are logically organized to facilitate reaching a decision about the manager's problem. • Executive summary of conclusions is outlined. • Detailed table of contents is tied to the conclusions and findings presentation. • Detailed conclusions are matched with detailed findings. 	16–21
Researcher's experience reflected	<ul style="list-style-type: none"> • Researcher provides experience/credentials with report. 	21

limitations, and the precise meanings of all words and terms significant to the research. Failure of the researcher to do this adequately may raise legitimate doubts in the minds of research report readers as to whether the researcher has sufficient understanding of the problem to make a sound proposal attacking it. This characteristic is comparable to developing a strategic plan for achieving an objective before developing a tactical plan or an action map.

2. *Research process detailed.* The research procedures used should be described in sufficient detail to permit another researcher to repeat the research. Except when secrecy is imposed, research reports should reveal with candor the sources of data and the means by which they were obtained. Omission of significant procedural details makes it difficult or impossible to estimate the validity and reliability of the data and justifiably weakens the confidence of the reader in the research itself as well as any recommendations based on the research. This characteristic is comparable to developing a tactical plan.

3. *Research design thoroughly planned.* The procedural design of the research should be carefully planned to yield results that are as objective as possible. When a sampling of the population is involved, the report should include evidence concerning the degree of representativeness of the sample. A survey of opinions or recollections ought not to be used when more reliable evidence is available from documentary sources or by direct observation. Bibliographic searches should be as thorough and complete as possible. Experiments should have satisfactory controls. Direct observations should be recorded in writing as soon as possible after the event. Efforts should be made to minimize the influence of personal bias in selecting and recording data. This characteristic is comparable to developing detailed action plans for each tactic.

4. *High ethical standards applied.* Researchers often work independently and have significant latitude in designing and executing research projects. A research design that includes safeguards against causing mental or physical harm to participants and makes data integrity a first priority should be highly valued. Ethical issues in research reflect important moral concerns about the practice of responsible behavior in society.

> We discuss ethical research issues at length in Chapter 5.

Watch for this icon throughout the text.



Researchers frequently find themselves precariously balancing the rights of their subjects against the scientific dictates of their chosen method. When this occurs, they have a responsibility to guard the welfare of the participants in the studies and also the organizations to which they belong, their clients, their colleagues, and themselves. Careful consideration must be given to those research situations in which there is a possibility of physical or psychological harm, exploitation, invasion of privacy, and/or loss of dignity. The research need must be weighed against the potential for adverse effects. Typically, you can redesign a study, but sometimes you cannot. The researcher should be prepared for this dilemma.

5. *Limitations frankly revealed.* The researcher should report, with complete frankness, flaws in procedural design and estimate their effect on the findings. There are very few perfect research designs. Some of the imperfections may have little effect on the validity and reliability of the data; others may invalidate them entirely. A competent researcher should be sensitive to the effects of imperfect design. The researcher's experience in analyzing data should provide a basis for estimating the influence of design flaws. As a decision maker, you should question the value of research where no limitations are reported.

6. *Analysis adequate for decision maker's needs.* Analysis of the data should be extensive enough to reveal its significance, what managers call "insights." The methods of analysis used should be appropriate. The extent to which this criterion is met is frequently a good measure of the competence of the researcher. Adequate analysis of the data is the most difficult phase of research for the novice. The validity and reliability of data should be checked carefully. The data should be classified in ways that assist the researcher in reaching pertinent conclusions and clearly reveal the findings that have led to those conclusions. When statistical methods are used, the probability of error should be estimated and the criteria of statistical significance applied.

7. *Findings presented unambiguously.* Some evidence of the competence and integrity of the researcher may be found in the report itself. For example, language that is restrained, clear, and precise; assertions that

are carefully drawn and hedged with appropriate reservations; and an apparent effort to achieve maximum objectivity tend to leave a favorable impression of the researcher with the decision maker. Generalizations that outrun the evidence on which they are based, exaggerations, and unnecessary verbiage tend to leave an unfavorable impression. Such reports are not valuable to managers wading through the minefields of organizational decision making. Presentation of data should be comprehensive, easily understood by the decision maker, and organized so that the decision maker can readily locate critical findings.

8. *Conclusions justified.* Conclusions should be limited to those for which the data provide an adequate basis. Researchers are often tempted to broaden the basis of induction by including personal experiences and their interpretations—data not subject to the controls under which the research data were gathered. Equally undesirable is the all-too-frequent practice of drawing conclusions from a study of a limited population and applying them universally. Researchers also may be tempted to rely too heavily on data collected in a prior study and use it in the interpretation of a new study. Such practice sometimes occurs among research specialists who confine their work to clients in a small industry. These actions tend to decrease the objectivity of the research and weaken readers' confidence in the findings. Good researchers always specify the conditions under which their conclusions seem to be valid.

9. *Researcher's experience reflected.* Greater confidence in the research is warranted if the researcher is experienced, has a good reputation in research, and is a person of integrity. Were it possible for the reader of a research report to obtain sufficient information about the researcher, this criterion perhaps would be one of the best bases for judging the degree of confidence a piece of research warrants and the value of any decision based upon it. For this reason the research report should contain information about the qualifications of the researcher.

Good business research has an inherent value only to the extent that it helps management make better decisions that help achieve organizational goals. Interesting information about consumers, employees, competitors, or the environment might be pleasant to have, but its value is limited if the information cannot be applied to a critical decision. If a study does not help management select more effective, more efficient, less risky, or more profitable alternatives than otherwise would be the case, its use should be questioned. Alternatively, management may have insufficient resources (time, money, or skill) to conduct an appropriate study or may face a low level of risk associated with the decision at hand. In these situations, it is valid to avoid business research and its associated costs in time and money. Business research finds its justification in the contribution it makes to the decision maker's task and to the bottom line.

In the chapters that follow, we discuss scientific research procedures and show their application to pragmatic problems of the manager. At a minimum, our objective is to make you a more intelligent consumer of research products prepared by others as well as to enable you to perform quality research for your own decisions and those of others to whom you report.

>summary

- 1 Research is any organized inquiry carried out to provide information for solving problems. Business research is a systematic inquiry that provides information to guide decisions. More specifically, it is a process of determining, acquiring, analyzing and synthesizing, and disseminating relevant data, information, and insights to decision makers in ways that mobilize the organization to take appropriate actions that, in turn, maximize business performance.
- 2 Not all managers have established research as a priority in their process of decision making. Consequently, a hierarchy of research-based decision makers is emerging. The top tier contains those managers who use research as a fundamental step in all decisions and who use creative vision to establish proprietary methodologies. The middle tier includes those managers who occasionally turn to research but rely only on the tried-and-true methods. The

bottom tier is those managers who by choice or economic circumstance choose to rely on intuition and judgment rather than business research.

- 3 The managers of tomorrow will need to know more than any managers in history. Business research will be a major contributor to that knowledge. Managers will find knowledge of research methods to be of value in many situations. They may need to conduct research either for themselves or for others. As buyers of research services managers will need to be able to judge research quality. Finally, they may become research specialists themselves.
- 4 The structure of the research industry can be described in terms of internal or external suppliers to the firm. Internal research suppliers range from one-person operations, to small-staffed operations that do some survey or qualitative studies, to large-staffed divisions that more closely approximate the structures of external research companies. External research suppliers may be further categorized by the depth and scope of services they provide. This group is composed of full-service firms including custom and

proprietary methodology researchers; specialty researchers including methodology specialists, companies engaged in subsets of the research process, syndicated data providers, omnibus researchers, and communication agencies; consultants; and trade associations. Each contributes in its own way to the overall industry and conducts or sponsors research to expand the client's knowledge base.

- 5 What characterizes good research? Generally, one expects good research to be purposeful, with a clearly defined focus and plausible goals; with defensible, ethical, and repeatable procedures; and with evidence of objectivity. The reporting of procedures—their strengths and weaknesses—should be complete and honest. Appropriate analytical techniques should be used; conclusions drawn should be limited to those clearly justified by the findings; and reports of findings and conclusions should be clearly presented and professional in tone, language, and appearance. Managers should always choose a researcher who has an established reputation for quality work. The research objective and its benefits should be weighed against potentially adverse effects.

>keyterms

business intelligence system (BIS) 8

business research 4

custom researcher 15

data mining 6

data warehouse 6

decision support system (DSS) 7

extranet 7

full-service researcher 13

intranet 7

management dilemma 5

omnibus researcher 20

omnibus study 20

proprietary methodology 16

return on investment (ROI) 5

scientific method 22

specialty researcher 16

strategy 8

syndicated data provider 18

tactics 9

>discussionquestions

Terms in Review

- 1 What is business research? Why should there be any question about the definition of research?
- 2 Distinguish between omnibus studies and syndicated research studies.
- 3 Distinguish between full-service researchers and specialty researchers.

Making Research Decisions

- 4 A sales force manager needs to have information in order to decide whether to create a custom motiva-

tion program or purchase one offered by a consulting firm. What are the dilemmas the manager faces in selecting either of these alternatives?

- 5 You are the manager of the retail division of a major corporation. Your firm has 35 stores scattered over four states. Corporate headquarters asks you to conduct an investigation to determine whether any of these stores should be closed, expanded, moved, or reduced. Is there a possible conflict between your roles as researcher and manager? Explain.

- 6 The new president of an old, established company is facing a problem. The company is currently unprofitable and is, in the president's opinion, operating inefficiently. The company sells a wide line of equipment and supplies to the dairy industry. Some items it manufactures, and many it wholesales to dairies, creameries, and similar plants. Because the industry is changing in several ways, survival will be more difficult in the future. In particular, many equipment companies are bypassing the wholesalers and selling directly to dairies. In addition, many of the independent dairies are being taken over by large food chains. How might business research help the new president make the right decisions?
- 7 You have received a business research report done by a consultant for your firm, a life insurance company. The study is a survey of customer satisfaction based on a sample of 600. You are asked to comment on its quality. What will you look for?
- 8 As area sales manager for a company manufacturing and marketing outboard engines, you have been assigned the responsibility of conducting a research study to estimate the sales potential of your products in the domestic (U.S. or Canadian) market. Discuss key issues and concerns arising from the fact that you, the manager, are also the researcher.

Bringing Research to Life

- 9 In the Bringing Research to Life vignette, what evidence is presented of data warehousing? Of data mining?

From Concept to Practice

- 10 Apply the principles in Exhibit 1-8 to the research scenario in question 7.

>wwwexercises

- 1 Visit the Advertising World portal (sponsored by Leo Burnett and housed at the University of Texas Web site): http://advertising.utexas.edu/_world/index.asp. Choose "marketing research," and then link to one or more of the research companies listed on the site. How do they demonstrate the quality of their experience or their high ethical standards—two of the characteristics of good research summarized in Exhibit 1-8?
- 2 Ad Track is a weekly survey of how much consumers like or dislike a major advertising campaign compared with other ads. Who sponsors this poll, and who collects the data?

>cases*

HeroBuilders.com

*All cases appear on the text CD; you will find abstracts of these cases in the Case Abstracts section of this text.

>chapter 2

Thinking Like a Researcher

“If we ignore supernatural inspiration, intuition is based on two things: experience and intelligence. The more experience I have with you, the more likely I am to encounter repetition of activities and situations that help me learn about you. The smarter I am, the more I can abstract from those experiences to find connections and patterns among them.”

Jeffrey Bradshaw, creator of the software that searches databases

>learning objectives

After reading this chapter, you should understand . . .

- 1 The need for sound reasoning to enhance business research results.
- 2 The terminology used by professional researchers employing scientific thinking.
- 3 What you need to formulate a solid research hypothesis.

>bringingresearchtolife MindWriter

“Myra, have you had any experience with research suppliers?” asks Jason.

“Some. Actually, I worked for one of your competitors for a short time after college, on a project with the U.S. Army. That project helped me decide that research wasn’t my life’s work—not that it wasn’t and isn’t an important field and an important part of my new responsibilities.”

“No need to apologize. Some of us have what it takes and others don’t.”

“Actually, there wasn’t anything missing in my ability to observe data, or build rapport with study participants, or find insights,” shares Myra. “The project made all the papers; you probably read about it.”

“Refresh my memory.”

“The death rate near one Army munitions testing area was unexplainably high. Local activists were trying to shut it down, fearing it was an environmental hazard. The Army had a vested interest in keeping it open. Besides, it didn’t think the civilian deaths had anything to do with the firing range. U.S. Senator Sly forced the Army to investigate. Since the Army thought it had a public relations job on its hands, my firm was a logical choice; PR campaigns were a specialty.

“The firing range was a played-out mine, strip-mined until it was worse than a moonscape. The area had once been a prosperous mining region, where the people were known for fearlessly and proudly going out to dig and produce. The nearest town was so severely economically depressed that, for the pitifully few jobs the Army provided, the

folks welcomed the military in to bomb their backyard to cinders.

“The cannon the Army was testing was impressive. Troops armed it with 3-inch shells, put on ear protectors and goggles, and lobbed shells into the range. There would be a tremendous flash and boom, and the shells would go roaring and soaring out of sight. We would soon hear a tremendous boom coming back to us and see dust and ash kicked up several hundred feet. We were all very happy not to be downrange. When we went downrange later, we found a huge crater and a fused puddle of iron, but nothing else but slag and molten rocks.

“There was one problem. About every 20th shell would be a dud. It would fly off and land, and maybe kick up some dust, but explode it would not.

“On paper, this was not supposed to be a problem. The Army sent an officious second lieutenant to brief us. He showed us reports that the Army had dropped such duds from hundred-foot platforms, from helicopters, had applied torches to them—everything—and had discovered them to be completely inert. The only thing he claimed would ignite one of these duds was to drop another, live bomb on it.

“Regrettably, this proved not to be the case. My team had barely finished its initial briefing, when in the middle of the night we heard one of these so-called duds explode. We rushed out at dawn and, sure enough, found a new crater, molten slag, molten rock, and so forth. It was quite a mystery.

“Our team took shifts doing an all-night observation study. During my two-hour stint, my partner and I saw people with flashlights moving around in there.

“We didn’t know if the people were military or civilian. We learned later that locals were coming in at night, intending to crack open the bombs and scavenge for copper wire or anything they thought was salvageable. Except, of course, their actions occasionally ignited one of the beauties and erased any evidence of a crime being committed by vaporizing the perpetrators on the spot.

“Part of our research was to measure public sentiment about the firing range among the locals. During our stay in the area, we discovered the locals were involved in every kind of thrill sport. It was not unusual to see a 50-mile auto race with four ambulances on hand on the edge of the oval, to cart off the carnage to the surgical hospital in the next county. I saw men leap into cars with threadbare tires, loose wheels, malfunctioning brakes, with brake fluid and transmission fluid drooling all over the track. They could wheel their cars out onto the track on a tire they knew was thin as tissue, and if it blew out and put them in the hospital, their reaction was ‘Some days you can’t win for losin.’ Nobody thought anything of this. If we asked, their answer was, ‘I’ll go when my number is up,’ or ‘It’s no: in my hands.’

“Their attitude made sense, from a cultural-economic view. That attitude had permitted the men

to go down in the mines year after year. Even the local sheriff wouldn’t stop their daredevil behavior. ‘They are going to die anyway,’ he was overheard remarking. ‘We all are going to die. People die every month that never go out on that dirt track.’ Of course, unlike driving a car, messing with a potentially live bomb didn’t leave much to skill but left everything to chance.

“The Army had considered an educational campaign to keep the scavengers out but, given our findings, decided it couldn’t deal with such thinking by applying logic. Instead, it changed its procedure. The troops would now fire the shells in the morning and spend the afternoon finding the duds, to which they attached kerosene lanterns. At dusk, a fighter-bomber would fly over the area and bomb the lanterns—and the duds—to a molecular state. It was neat and it worked. And the death rate of the locals dropped dramatically.”

As Myra finished her story, Jason asks, “It sounds like a successful project. By studying the locals’ attitudes and behavior, you could discard the alternative of the education campaign. Why did you decide research wasn’t for you?”

“My boss didn’t like the idea that I broke confidentiality and told a local reporter what the locals were doing. I’d seen someone’s dad or brother blown to pieces and felt I had to act. My dismissal taught me one of the rules of good research—the client always gets to choose whether to use, or release, the findings of any study.”

> Research and the Scientific Method

Good business research is based on sound reasoning. Competent researchers and astute managers alike practice thinking habits that reflect **sound reasoning**—finding correct premises, testing the connections between their facts and assumptions, making claims based on adequate evidence. In the reasoning process, induction

and deduction, observation, and hypothesis testing can be combined in a systematic way. In this chapter we illustrate how this works and why careful reasoning is essential for producing scientific results.

The scientific method, as practiced in business research, guides our approach to problem solving. The essential tenets of the scientific method are:

- Direct observation of phenomena.
- Clearly defined variables, methods, and procedures.
- Empirically testable hypotheses.
- The ability to rule out rival hypotheses.
- Statistical rather than linguistic justification of conclusions.
- The self-correcting process.

An important term in this list is *empirical*. Empirical testing or **empiricism** is said “to denote observations and propositions based on sensory experience and/or derived from such experience by methods of inductive logic, including mathematics and statistics.”¹ Researchers using this approach attempt to describe, explain, and make predictions by relying on information gained through observation. This book is fundamentally concerned with empiricism—with the design of procedures to collect factual information about hypothesized relationships that can be used to decide if a particular understanding of a problem and its possible solution are correct.

The scientific method, and scientific inquiry generally, is described as a puzzle-solving activity.² For the researcher, puzzles are solvable problems that may be clarified or resolved through reasoning processes. The steps that follow represent one approach to assessing the validity of conclusions about observable events.³ They are particularly appropriate for business researchers whose conclusions result from empirical data. The researcher:

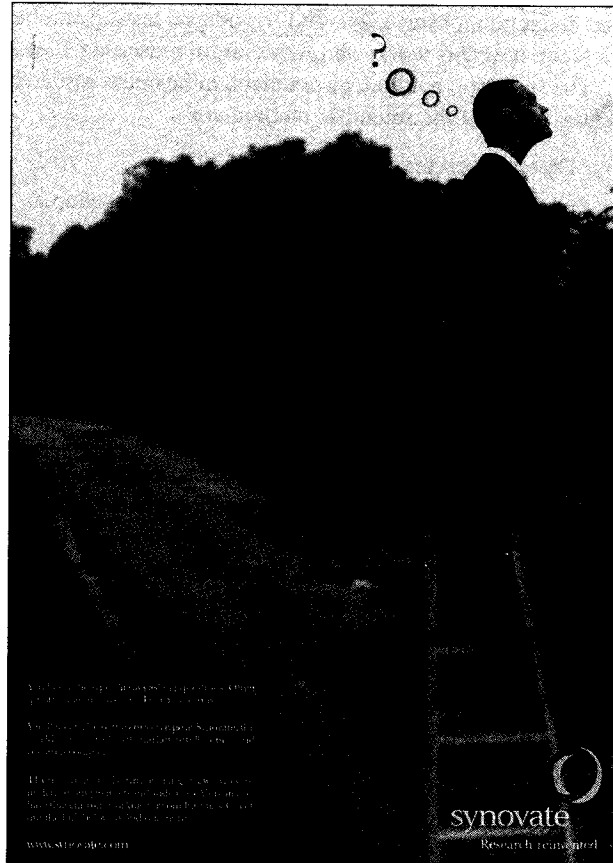
1. Encounters a curiosity, doubt, barrier, suspicion, or obstacle.
2. Struggles to state the problem—asks questions, contemplates existing knowledge, gathers facts, and moves from an emotional to an intellectual confrontation with the problem.
3. Proposes a hypothesis, a plausible explanation, to explain the facts that are believed to be logically related to the problem.
4. Deduces outcomes or consequences of the hypothesis—attempts to discover what happens if the results are in the opposite direction of that predicted or if the results support the expectations.
5. Formulates several rival hypotheses.
6. Devises and conducts a crucial empirical test with various possible outcomes, each of which selectively excludes one or more hypotheses.
7. Draws a conclusion (an inductive inference) based on acceptance or rejection of the hypotheses.
8. Feeds information back into the original problem, modifying it according to the strength of the evidence.

Clearly, reasoning is pivotal to much of the researcher’s success: gathering facts consistent with the problem, proposing and eliminating rival hypotheses, deducing outcomes, developing crucial empirical tests, and deriving the conclusion.

Sound Reasoning for Useful Answers

Every day we reason with varying degrees of success and communicate our meaning in ordinary language or, in special cases, in symbolic, logical form. Our meanings are conveyed through one of two types of discourse: exposition or argument. **Exposition** consists of statements that describe without attempting to

This Synovate ad reinforces that one trait—curiosity—is necessary to be a good researcher.
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explain. **Argument** allows us to explain, interpret, defend, challenge, and explore meaning. Two types of argument of great importance to research are deduction and induction.

Deduction

Deduction is a form of argument that purports to be conclusive—the conclusion must necessarily follow from the reasons given. These reasons are said to imply the conclusion and represent a proof. This is a much stronger and different bond between reasons and conclusions than is found with induction. For a deduction to be correct, it must be both true and valid:

- Premises (reasons) given for the conclusion must agree with the real world (true).
- The conclusion must necessarily follow from the premises (valid).

A deduction is valid if it is impossible for the conclusion to be false if the premises are true. Logicians have established rules by which one can judge whether a deduction is valid. Conclusions are not logically justified if one or more premises are untrue or the argument form is invalid. A conclusion may still be a true statement, but for reasons other than those given. For example, consider the following simple deduction:

- | | |
|--|--------------|
| All employees at BankOne can be trusted to observe the ethical code. | (Premise 1) |
| Sara is an employee of BankOne. | (Premise 2) |
| Sara can be trusted to observe the ethical code. | (Conclusion) |

If we believe that Sara can be trusted, we might think this is a sound deduction. But this conclusion cannot be accepted as a sound deduction unless the form of the argument is valid and the premises are true. In this case, the form is valid, and premise 2 can be confirmed easily. However, more than a billion dollars each year in confirmed retail employee theft will challenge the premise “All employees can be trusted to observe an ethical code.” And instances of employee fraud among professionals make any specific instance questionable. If one premise fails the acceptance test, then the conclusion is not a sound deduction. This is so even if we still have great confidence in Sara’s honesty. Our conclusion, in this case, must be based on our confidence in Sara as an individual rather than on a general premise that all employees of BankOne are ethical.

As researchers, we may not recognize how much we use deduction to understand the implications of various acts and conditions. For example, in planning a survey, we might reason as follows:

- Inner-city household interviewing is especially difficult and expensive. (Premise 1)
- This survey involves substantial inner-city household interviewing. (Premise 2)
- The interviewing in this survey will be especially difficult and expensive. (Conclusion)

On reflection, it should be apparent that a conclusion that results from deduction is, in a sense, already “contained in” its premises.⁴

Induction

Inductive argument is radically different. There is no such strength of relationship between reasons and conclusions in induction. In **induction** you draw a conclusion from one or more particular facts or pieces of evidence. The conclusion explains the facts, and the facts support the conclusion. To illustrate, suppose your firm spends \$1 million on a regional promotional campaign and sales do not increase. This is a fact—sales did not increase during or after the promotional campaign. Under such circumstances, we ask, “Why didn’t sales increase?”

One likely answer to this question is a conclusion that the promotional campaign was poorly executed. This conclusion is an induction because we know from experience that regional sales should go up during a promotional event. Also we know from experience that if the promotion is poorly executed, sales will not increase. The nature of induction, however, is that the conclusion is only a hypothesis. It is one explanation, but there are others that fit the facts just as well. For example, each of the following hypotheses might explain why sales did not increase:

- Regional retailers did not have sufficient stock to fill customer requests during the promotional period.
- A strike by the employees of our trucking firm prevented stock from arriving in time for the promotion to be effective.
- A category-five hurricane closed all our retail locations in the region for the 10 days during the promotion.

In this example, we see the essential nature of inductive reasoning. The inductive conclusion is an inferential jump beyond the evidence presented—that is, although one conclusion explains the fact of no sales increase, other conclusions also can explain the fact. It may even be that none of the conclusions we advanced correctly explain the failure of sales to increase.

For another example, let’s consider the situation of Tracy Nelson, a salesperson at the Square Box Company. Tracy has one of the poorest sales records in the company. Her unsatisfactory performance prompts us to ask the question “Why is she performing so poorly?” From our knowledge of Tracy’s sales practices, the nature of box selling, and the market, we might conclude (hypothesize) that her problem is that



These young men are part of a toy-testing study. They are being observed playing with a kit that makes paper airplanes. Apply deductive and inductive reasoning to this image, and develop your own conclusions concerning what will happen when they send their paper airplanes flying.

she makes too few sales calls per day to build a good sales record. Other hypotheses might also occur to us on the basis of available evidence. Among these hypotheses are the following:

- Tracy's territory does not have the market potential of other territories.
- Tracy's sales-generating skills are so poorly developed that she is not able to close sales effectively.
- Tracy does not have authority to lower prices and her territory has been the scene of intense price-cutting by competitive manufacturers, causing her to lose many sales to competitors.
- Some people just cannot sell boxes, and Tracy is one of those people.

Each of the above hypotheses is an induction we might base on the evidence of Tracy's poor sales record, plus some assumptions or beliefs we hold about her and the selling of boxes. All of them have some chance of being true, but we would probably have more confidence in some than in others. All require further confirmation before they gain our confidence. Confirmation comes with more evidence. The task of research is largely to (1) determine the nature of the evidence needed to confirm or reject hypotheses and (2) design methods by which to discover and measure this other evidence.

Combining Induction and Deduction

Induction and deduction are used together in research reasoning. Dewey describes this process as the "double movement of reflective thought."⁵ Induction occurs when we observe a fact and ask, "Why is this?" In answer to this question, we advance a tentative explanation (hypothesis). The hypothesis is plausible if it explains the event or condition (fact) that prompted the question. Deduction is the process by which we test whether the hypothesis is capable of explaining the fact. The process is illustrated in Exhibit 2-1:

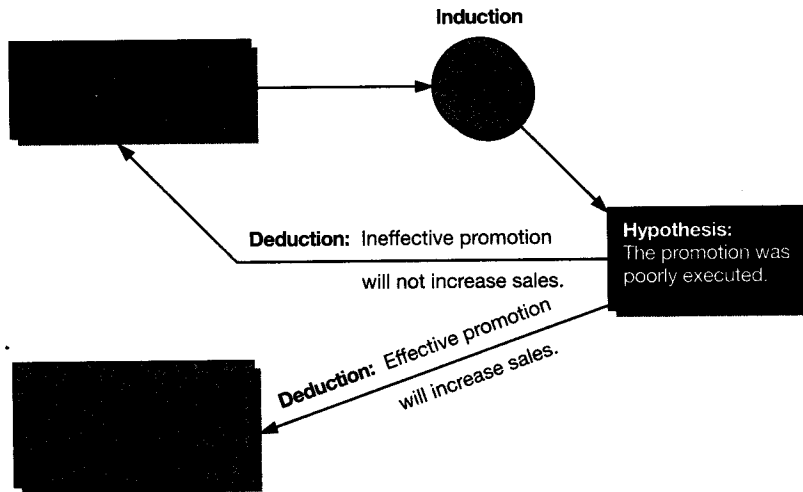
1. You promote a product but sales don't increase. (Fact₁)
2. You ask the question "Why didn't sales increase?" (Induction)
3. You infer a conclusion (hypothesis) to answer the question: The promotion was poorly executed. (Hypothesis)
4. You use this hypothesis to conclude (deduce) that sales will not increase during a poorly executed promotion. You know from experience that ineffective promotion will not increase sales. (Deduction₁)

This example, an exercise in circular reasoning, points out that one must be able to deduce the initiating fact from the hypothesis advanced to explain that fact. A second critical point is also illustrated in Exhibit 2-1. To test a hypothesis, one must be able to deduce from it other facts that can then be investigated. This is what research is all about. We must deduce other specific facts or events from the hypothesis and then gather information to see if the deductions are true. In this example:

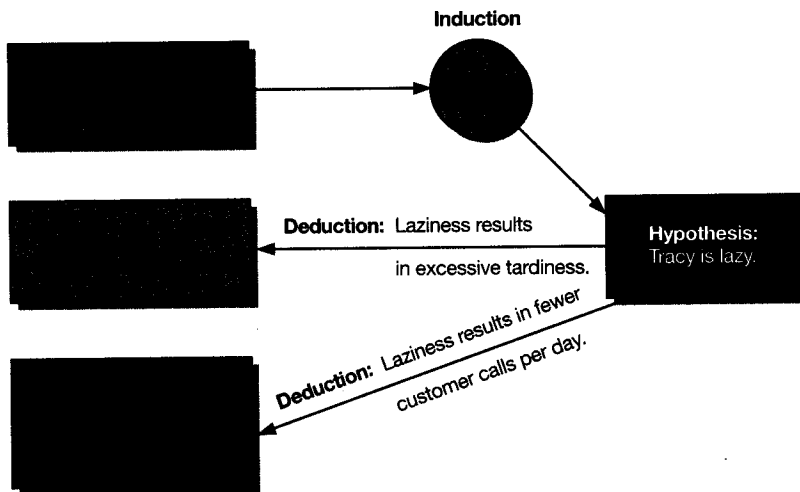
5. We deduce that a well-executed promotion will result in increased sales. (Deduction₂)
6. We run an effective promotion, and sales increase. (Fact₂)

How would the double movement of reflective thought work when applied to Tracy Nelson's problem? The process is illustrated in Exhibit 2-2. The initial observation (fact₁) leads to hypothesis₁ that Tracy is lazy. We deduce several other facts from the hypothesis. These are shown as fact₂ and fact₃. We use research to find out if fact₂ and fact₃ are true. If they are found to be true, they confirm our hypothesis. If they are found to be false, our hypothesis is not confirmed, and we must look for another explanation.

> **Exhibit 2-1** Why Didn't Sales Increase?



> **Exhibit 2-2** Why Is Tracy Nelson's Performance So Poor?



In most research, the process may be more complicated than these examples suggest. For instance, we often develop multiple hypotheses by which to explain the problem in question. Then we design a study to test all the hypotheses at once. Not only is this more efficient, but it is also a good way to reduce the attachment (and potential bias) of the researcher for any given hypothesis.

> The Language of Research

When we do research, we seek to know what is in order to understand, explain, and predict phenomena. We might want to answer the question "What will be the department's reaction to the new flexible work schedule?" or "Why did the stock market price surge higher when all normal indicators suggested it would go down?" When dealing with such questions, we must agree on definitions. Which members of the department:

clerical or professional? What kind of reaction? What are normal indicators? These questions require the use of concepts, constructs, and definitions.

Concepts

To understand and communicate information about objects and events, there must be a common ground on which to do it. Concepts serve this purpose. A **concept** is a generally accepted collection of meanings or characteristics associated with certain events, objects, conditions, situations, and behaviors. Classifying and categorizing objects or events that have common characteristics beyond any single observation creates concepts. When you think of a spreadsheet or a warranty card, what comes to mind is not a single example but your collected memories of all spreadsheets and warranty cards, from which you abstract a set of specific and definable characteristics.

We abstract such meanings from our experiences and use words as labels to designate them. For example, we see a man passing and identify that he is running, walking, skipping, crawling, or hopping. These movements all represent concepts. We also have abstracted certain visual elements by which we identify that the moving object is an adult male, rather than an adult female or a truck or a horse. We use numerous concepts daily in our thinking, conversing, and other activities.

Sources of Concepts

Concepts that are in frequent and general use have been developed over time through shared language usage. We acquire them through personal experience. Ordinary concepts make up the bulk of communication even in research, but we often run into difficulty trying to deal with an uncommon concept or a newly advanced idea. One way to handle this problem is to borrow from other languages (for example, *gestalt*) or to borrow from other fields (for example, from art, *impressionism*). The concept of gravitation is borrowed from physics and used in marketing in an attempt to explain why people shop where they do. The concept of distance is used in attitude measurement to describe degree of variability between the attitudes of two or more persons. Threshold is used effectively to describe a concept about the way we perceive.

Sometimes we need to adopt new meanings for words (make a word cover a different concept) or develop new labels for concepts. The recent broadening of the meaning of *model* is an example of the first instance; the development of concepts such as *sibling* and *status-stress* are examples of the second. When we adopt new meanings or develop new labels, we begin to develop a specialized jargon or terminology. Jargon no doubt contributes to efficiency of communication among specialists, but it excludes everyone else.

Importance to Research

In research, special problems grow out of the need for concept precision and inventiveness. We design hypotheses using concepts. We devise measurement concepts by which to test these hypothetical statements. We gather data using these measurement concepts. The success of research hinges on (1) how clearly we conceptualize and (2) how well others understand the concepts we use. For example, when we survey people on the question of customer loyalty, the questions we use need to tap faithfully the attitudes of the participants. Attitudes are abstract, yet we must attempt to measure them using carefully selected concepts.

The challenge is to develop concepts that others will clearly understand. We might, for example, ask participants for an estimate of their family's total income. This may seem to be a simple, unambiguous concept, but we will receive varying and confusing answers unless we restrict or narrow the concept by specifying:

- Time period, such as weekly, monthly, or annually.
- Before or after income taxes.
- For head of family only or for all family members.
- For salary and wages only or also for dividends, interest, and capital gains.
- Income in kind, such as free rent, employee discounts, or food stamps.

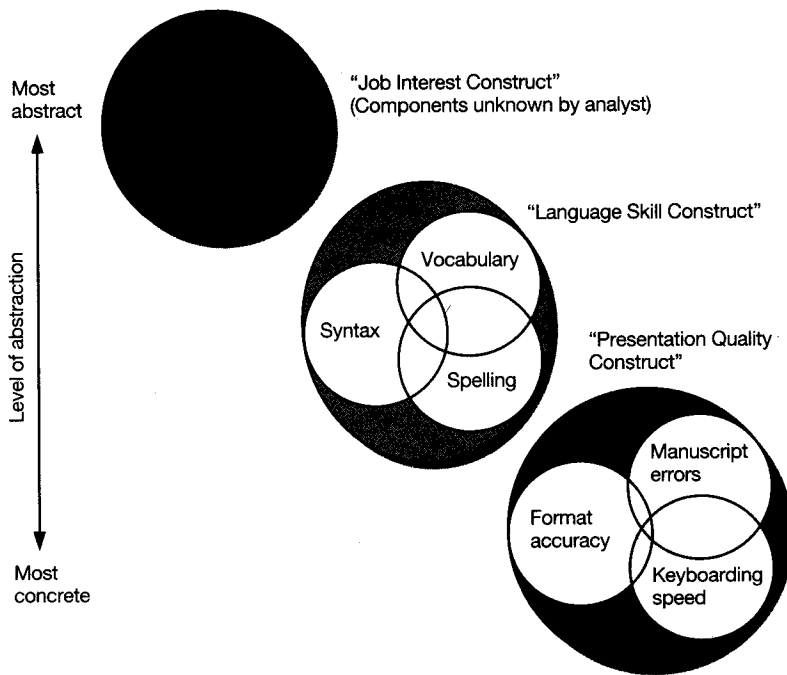
Constructs

Concepts have progressive levels of abstraction—that is, the degree to which the concept does or does not have something objective to refer to. *Table* is an objective concept. We can point to a table, and we have images of the characteristics of all tables in our mind. An abstraction like *personality* is much more difficult to visualize. Such abstract concepts are often called constructs. A **construct** is an image or abstract idea specifically invented for a given research and/or theory-building purpose. We build constructs by combining the simpler, more concrete concepts, especially when the idea or image we intend to convey is not subject to direct observation. When Jason and Myra tackle MindWriter’s research study, they will struggle with the construct of *satisfied service customer*.

Concepts and constructs are easily confused. Consider this example: Heather is a human resource analyst at CadSoft, an architectural software company that employs technical writers to write product manuals, and she is analyzing task attributes of a job in need of redesign. She knows the job description for technical writer consists of three components: presentation quality, language skill, and job interest. Her job analysis reveals even more characteristics.

Exhibit 2-3 illustrates some of the concepts and constructs Heather is dealing with. The concepts at the bottom of the exhibit (format accuracy, manuscript errors, and keyboarding speed) are the most concrete and

> **Exhibit 2-3** Constructs Composed of Concepts in a Job Redesign



easily measured. We are able to observe keyboarding speed, for example, and even with crude measures agree on what constitutes slow and fast keyboarders. Keyboarding speed is one concept in the group that defines a construct that the human resource analyst calls “presentation quality.” Presentation quality is really not directly observable. It is a nonexistent entity, a “constructed type,” used to communicate the combination of meanings presented by the three concepts. Heather uses it only as a label for the concepts she has discovered are related empirically.

Concepts at the next level in Exhibit 2-3 are vocabulary, syntax, and spelling. Heather also finds them to be related. They form a construct that she calls “language skill.” She has chosen this term because the three concepts together define the language requirement in the job description. Language skill is placed at a higher level of abstraction in the exhibit because two of the concepts it comprises, vocabulary and syntax, are more difficult to observe and their measures are more complex.

Heather has not yet measured the last construct, “job interest.” It is the least observable and the most difficult to measure. It will likely be composed of numerous concepts—many of which will be quite abstract. Researchers sometimes refer to such entities as **hypothetical constructs** because they can be inferred only from the data; thus, they are presumed to exist but must await further testing to see what they actually consist of. If research shows the concepts and constructs in this example to be interrelated, and if their connections can be supported, then Heather will have the beginning of a **conceptual scheme**. In graphic form, it would depict the relationships among the knowledge and skill requirements necessary to clarify the job redesign effort.

Definitions

Confusion about the meaning of concepts can destroy a research study’s value without the researcher or client even knowing it. If words have different meanings to the parties involved, then the parties are not communicating well. Definitions are one way to reduce this danger.

Researchers struggle with two types of definitions: dictionary definitions and operational definitions. In the more familiar dictionary definition, a concept is defined with a synonym. For example, a customer is defined as a patron; a patron, in turn, is defined as a customer or client of an establishment; a client is defined as one who employs the services of any professional and, loosely, as a patron of any shop.⁶ Circular definitions may be adequate for general communication but not for research. In research, we measure concepts and constructs, and this requires more rigorous definitions.

Operational Definitions

An **operational definition** is a definition stated in terms of specific criteria for testing or measurement. These terms must refer to empirical standards (that is, we must be able to count, measure, or in some other way gather the information through our senses). Whether the object to be defined is physical (e.g., a can of soup) or highly abstract (e.g., achievement motivation), the definition must specify the characteristics and how they are to be observed. The specifications and procedures must be so clear that any competent person using them would classify the object in the same way.

During her research project with the military, Myra observed numerous shells that, when fired, did not explode on impact. She knew the Army attached the operational definition “a shell that does not explode on impact” to the construct dud shell. But if asked, Myra would have applied the operational term *dud shell* only to “a shell that, once fired from a cannon, could not be made to explode by any amount of manipulation, human or mechanical.” Based on her operational definition, the town’s residents rarely encountered “duds” during their excursions onto the firing range.

What operational definition did the Army use for “dud” ordnance? What operational definition did Myra and her research colleagues use?

Suppose college undergraduates are classified by class. No one has much trouble understanding such terms as *freshman*, *sophomore*, and so forth. But the task may not be that simple if you must determine which students fall in each class. To do this, you need operational definitions.

>snapshot

The Robert Wood Johnson Foundation (RWJF), established as a national philanthropy in 1972 and today the world's largest health foundation, is on a mission to improve the state of health care among American families. Many families cannot afford the copayment of employer-sponsored health premiums or work for employers who cannot offer health benefits. RWJF makes grants to achieve three goals: (1) to ensure that all Americans have access to affordable health care, (2) to improve health care delivery services to people with chronic conditions, and (3) to promote health by reducing the harm caused by substance abuse from tobacco, alcohol, and illicit drugs. In 1997, RWJF developed its Covering Kids Initiative. Its purpose was to generate state- and community-based programs that would design and simplify outreach programs to identify and enroll uninsured children from low-income families in the State Children's Health Insurance Program (SCHIP). SCHIP, a \$24 billion program included in the federal Balanced Budget Act of 1997, provides payment for prescriptions and doctor visits. "We were going to expend significant resources, more than \$47 million, on an integrated communication campaign to reach a group of people that managers spent very little time and effort serving. We wanted to be sure that what we were going to do was effective and would succeed in enrolling

the children of working families in SCHIP," shared communications officer Stuart Schear, the project's director. RWJF spent two years developing a coalition of government agencies and children's advocates to simplify enrollment forms and processes. People in the field feared that participation in government health care programs carried the negative stigma of welfare. Research was needed to determine why parents might or might not enroll their children. RWJF sought a collaborative partner that would use RWJF's extensive knowledge and understanding of working, low-income families at every stage of research design. The resulting research and its use to create advertising that enrolled kids in SCHIP earned RWJF, Wirthlin Worldwide (a strategic consulting and research provider with expertise in public issues), and GMMB (a strategic consulting firm specializing in public education and political campaigns) the 2002 David Ogilvy Research Award. One of the findings of this research is that people who worked did not realize that they could have considerable income and still have their kids eligible. Since an "SCHIP-eligible family" is defined differently from state to state, how would you devise an operational definition to remedy this problem?

www.rwjf.org; www.wirthlin.com; www.gmmmb.com

Operational definitions may vary, depending on your purpose and the way you choose to measure them. Here are two different situations requiring different definitions of the same concepts:

1. You conduct a survey among students and wish to classify their answers by their class levels. You merely ask them to report their class status, and you record it. In this case, class is freshman, sophomore, junior, or senior, and you accept the answer each respondent gives as correct. This is a rather casual definition process but nonetheless an operational definition. It is probably adequate even though some of the respondents report inaccurately.
2. You make a tabulation of the class level of students from the university registrar's annual report. The measurement task here is more critical, so your operational definition needs to be more precise. You decide to define class levels in terms of semester hours of credit completed by the end of the spring semester and recorded in each student's record in the registrar's office:

Freshman	Fewer than 30 hours' credit
Sophomore	30 to 59 hours' credit
Junior	60 to 89 hours' credit
Senior	90 or more hours' credit

Those examples deal with relatively concrete concepts, but operational definitions are even more critical for treating abstract ideas. Suppose one tries to measure a construct called "consumer socialization." We may

intuitively understand what this means, but to attempt to measure it among consumers is difficult. We would probably develop questions on skills, knowledge, and attitudes, or we may use a scale that has already been developed and validated by someone else. This scale then operationally defines the construct.

Whether you use a definitional or operational definition, its purpose in research is basically the same—to provide an understanding and measurement of concepts. We may need to provide operational definitions for only a few critical concepts, but these will almost always be the definitions used to develop the relationships found in hypotheses and theories.

Variables

In practice, the term **variable** is used as a synonym for *construct* or the property being studied. In this context, a variable is a symbol of an event, act, characteristic, trait, or attribute that can be measured and to which we assign categorical values.⁷

For purposes of data entry and analysis, we assign numerical value to a variable based on the variable's properties. For example, some variables, said to be *dichotomous*, have only two values, reflecting the presence or absence of a property: employed-unemployed or male-female have two values, generally 0 and 1. When Myra Wines observed the cannon shells, they were exploded or unexploded. Variables also take on values representing added categories, such as the demographic variables of race or religion. All such variables that produce data that fit into categories are said to be discrete, since only certain values are possible. An automotive variable, for example, where "Chevrolet" is assigned a 5 and "Honda" is assigned a 6, provides no option for a 5.5.

Income, temperature, age, or a test score are examples of *continuous* variables. These variables may take on values within a given range or, in some cases, an infinite set. Your test score may range from 0 to 100, your age may be 23.5, and your present income could be \$35,000. The procedure for assigning values to variables is described in detail in Chapter 12.

Independent and Dependent Variables

Researchers are most interested in relationships among variables. For example, does a newspaper coupon (independent variable) influence product purchase (dependent variable), or can a salesperson's ethical standards influence her ability to maintain customer relationships? As one writer notes:

There's nothing very tricky about the notion of independence and dependence. But there is something tricky about the fact that the relationship of independence and dependence is a figment of the researcher's imagination until demonstrated convincingly. Researchers hypothesize relationships of independence and dependence: They invent them, and then they try by reality testing to see if the relationships actually work out that way.⁸

Many textbooks use the term *predictor variable* as a synonym for **independent variable (IV)**. This variable is manipulated by the researcher, and the manipulation causes an effect on the dependent variable. We recognize that there are often several independent variables and that they are probably at least somewhat "correlated" and therefore not independent among themselves. Similarly, the term *criterion variable* is used synonymously with **dependent variable (DV)**. This variable is measured, predicted, or otherwise monitored and is expected to be affected by manipulation of an independent variable. Exhibit 2-4 lists some terms that have become synonyms for *independent variable* and *dependent variable*.

Moderating Variables

In each relationship, there is at least one independent variable and a dependent variable. It is normally hypothesized that in some way the IV "causes" the DV to occur. For simple relationships, all other variables are

> **Exhibit 2-4** Independent and Dependent Variables: Synonyms

Independent Variable	Dependent Variable
Predictor	Criterion
Stimulus	Response
Antecedent	Consequence

considered extraneous and are ignored. Myra sets out to discover why the locals are scavenging salvageable materials from the unexploded cannon shells. She hypothesizes:

Locals' conviction that predetermined fate dictates time and place of death (IV) leads them to undertake life-threatening behaviors—scavenging on the firing range (DV). If locals could be warned of the danger (IV) of their actions, they would change their nocturnal behavior (DV).

The sheriff's overheard remarks ultimately convince Myra and her research team that only a change in Army procedure will bring about the decline in shell-induced deaths caused by the nocturnal scavenging.

In actual study situations—for example, in a typical sales office—a simple one-on-one relationship needs to be revised to take other variables into account. Often we use another type of explanatory variable here—the moderating variable. A **moderating variable (MV)** is a second independent variable that is included because it is believed to have a significant contributory or contingent effect on the originally stated IV-DV relationship. For example, one might hypothesize:

The switch to commission from a salary compensation system (IV) will lead to increased sales productivity (DV) per worker, especially among younger workers (MV).

In this case, there is a differential pattern of relationship between the compensation system and productivity that is the result of age differences among the workers.

Whether a given variable is treated as an independent or as a moderating variable depends on the hypothesis. If Myra had been a reporter (rather than a researcher assigned to the Army project) viewing the local death and injury statistics, she might have arrived at a different hypothesis:

The loss of mining jobs (IV) leads to acceptance of higher-risk behaviors to earn a family-supporting income—race-car driving or nocturnal scavenging (DV)—especially due to the proximity of the firing range (MV) and the limited education (MV) of the residents.

Extraneous Variables

An almost infinite number of **extraneous variables (EVs)** exist that might conceivably affect a given relationship. Some can be treated as independent or moderating variables, but most must be either assumed or excluded from the study. Fortunately, these variables have little or no effect on a given situation. Most can be safely ignored. Others may be important, but their impact occurs in such a random fashion as to have little

effect. Using the example of the effect of a coupon on sales of cereal, one would normally think the imposition of a local sales tax, the election of a new mayor, a three-day rainy spell, and thousands of similar events and conditions would have little effect on cereal sales.

However, there may be other extraneous variables to consider as possible confounding variables to our hypothesized IV-DV relationship. For example, Myra might think that level of education as it impacts job skills might have an effect on the selection of income-producing activity by the locals. This notion might lead to our introducing an extraneous variable as the **control variable**, one introduced to help interpret the relationship between variables. For example:

Among residents with less than a high school education (EV-control), the loss of high-income mining jobs (IV) leads to acceptance of higher-risk behaviors to earn a family-supporting income—race-car driving or nocturnal scavenging (DV)—especially due to the proximity of the firing range (MV).

Alternatively, one might think that the *type of customers* would have an effect on a compensation system's impact on sales productivity. This might lead to our introducing a control variable as follows:

With new customers (EV-control), a switch to commission from a salary compensation system (IV) will lead to increased sales productivity (DV) per worker, especially among younger workers (MV).

In our salesperson compensation example, we would attempt to control for type of customers by studying the effect of the switch in compensation within groups having different types of customers (new versus established). In a similar way, Myra would attempt to control for employable job skills by studying the education patterns and prior employment of the scavengers who lost their lives.

Intervening Variables

The variables mentioned with regard to causal relationships are concrete and clearly measurable; they can be seen, counted, or observed in some way. Sometimes, however, one may not be completely satisfied by the explanations they offer. An intervening variable is a conceptual mechanism through which the IV and MV might affect the DV. The **intervening variable (IVV)** may be defined as “that factor which theoretically affects the observed phenomenon but cannot be seen, measured, or manipulated; its effect must be inferred from the effects of the independent and moderator variables on the observed phenomenon.”⁹

In the case of the compensation hypothesis, one might view the intervening variable to be job satisfaction, giving a hypothesis such as:

The switch to a commission compensation system (IV) will lead to higher sales productivity (DV) by increasing overall compensation (IVV).

Here are additional examples illustrating the relationships involving independent, moderating, controlled extraneous, and dependent variables: The management of a bank wishes to study the effect of promotion on savings. It might advance the following hypothesis:

A promotion campaign (IV) will increase savings activity (DV), especially when free prizes are offered (MV), but chiefly among smaller savers (EV-control). The results come from enhancing the motivation to save (IVV).

Myra's research for the army hypothesizes:

Marking dud shells with kerosene lanterns for same-evening detonation (IV) will reduce nocturnal scavenging (DV) among poorly educated local residents (MV) by eliminating the profit motive for such behavior (IVV).

>snapshot

Not all research is driven by a specific client problem. Some firms specialize in researching emerging issues when the issue is more idea than reality. Forrester Research is one such research firm. As senior analyst Mark Bunger explains, research problems often come from taking an issue in one field and transplanting it into another arena. "The genesis of Forrester's 'Making Auto Retail Lean' study was a book I was reading by James Womack and Daniel Jones, *Lean Thinking: Banish Waste and Create Wealth in Your Corporation*." In their book the authors describe lean thinking as the "elimination of unnecessary waste in business" and explain that if lean principles are applied to the whole product cycle, from suppliers to customers, firms can demonstrate significant increases in productivity and sales. "I knew lean principles were being applied in the manufacturing of cars. I wondered if such principles were applied at the level of the auto dealership and with what effect." Bunger's question led Forrester to launch a study that had Bunger and his team of research associates conducting hour-long phone interviews with vendors of products and services related to supply chain enhancement (e.g., IBM), followed by a 15-minute, 20-question phone survey of 50 auto dealer CEOs. Bunger also visited dealers in his im-

mediate area to flesh out ideas from the phone interviews. Data revealed that "dealers have the wrong cars 40 percent of the time." Yet if they applied the lean principles so effective for car manufacturers, they could lower their demand chain-related costs up to 53 percent.

The Forrester study followed a fairly standard model for the firm: approximately two weeks to define and refine the problem—a stage that involves significant secondary data analysis; two to four weeks for data collection—a stage that involves selecting at least two sample segments (usually "experts" and users; for this study, vendors and dealers); and two to thirty hours to prepare a brief or report. Forrester's research is purchased by subscription. Subscribing companies related to the automotive industry have "whole-view" access to any report on any study that Forrester develops at an approximate cost of \$7,000 per seat. When a subscriber wants numerous people to have direct access to Forrester research, a firm's subscription could be worth several million dollars.

Should auto dealers go lean? What reasoning approaches did you use to reach your conclusion? What concepts and constructs are embedded in this example? What hypotheses could you form from this example?

www.forrester.com

Propositions and Hypotheses

We define a **proposition** as a statement about observable phenomena (concepts) that may be judged as true or false. When a proposition is formulated for empirical testing, we call it a **hypothesis**. As a declarative statement about the relationship between two or more variables, a hypothesis is of a tentative and conjectural nature.

Hypotheses have also been described as statements in which we assign variables to cases. A **case** is defined in this sense as the entity or thing the hypothesis talks about. The variable is the characteristic, trait, or attribute that, in the hypothesis, is imputed to the case.¹⁰ For example, we might create the following hypothesis:

Brand Manager Jones (case) has a higher-than-average achievement motivation (variable).

If our hypothesis was based on more than one case, it would be a generalization. For example:

Brand managers in Company Z (cases) have a higher-than-average achievement motivation (variable).

A checklist for developing strong hypotheses is presented in Exhibit 2-5, p. 46.

Descriptive Hypotheses

Both of the above hypotheses are examples of **descriptive hypotheses**. They state the existence, size, form, or distribution of some variable. Researchers often use a research question rather than a descriptive hypothesis. For example:

Descriptive Hypothesis Format

In Detroit (case), our potato chip market share (variable) stands at 13.7 percent.

American cities (cases) are experiencing budget difficulties (variable).

Eighty percent of Company Z stockholders (cases) favor increasing the company's cash dividend (variable).

Seventy percent of the high school–educated males (cases) scavenge in the Army firing range for salvageable metals (variable).

Research Question Format

What is the market share for our potato chips in Detroit?

Are American cities experiencing budget difficulties?

Do stockholders of Company Z favor an increased cash dividend?

Do a majority of high school–educated male residents scavenge in the Army firing range for salvageable metals?

Either format is acceptable, but the descriptive hypothesis format has several advantages:

- It encourages researchers to crystallize their thinking about the likely relationships to be found.
- It encourages them to think about the implications of a supported or rejected finding.
- It is useful for testing statistical significance.

Relational Hypotheses

The research question format is less frequently used with a situation calling for **relational hypotheses**. These are statements that describe a relationship between two variables with respect to some case. For example, “Foreign (variable) cars are perceived by American consumers (case) to be of better quality (variable) than domestic cars.” In this instance, the nature of the relationship between the two variables (“country of origin” and “perceived quality”) is not specified. Is there only an implication that the variables occur in some predictable relationship, or is one variable somehow responsible for the other? The first interpretation (unspecified relationship) indicates a correlational relationship; the second (predictable relationship) indicates an explanatory, or causal, relationship.

Correlational hypotheses state that the variables occur together in some specified manner without implying that one causes the other. Such weak claims are often made when we believe there are more basic causal forces that affect both variables or when we have not developed enough evidence to claim a stronger linkage. Here are three sample correlational hypotheses:

Young women (under 35 years of age) purchase fewer units of our product than women who are 35 years of age or older.

The number of suits sold varies directly with the level of the business cycle.

People in Atlanta give the president a more favorable rating than do people in St. Louis.

By labeling these as correlational hypotheses, we make no claim that one variable causes the other to change or take on different values.

With **explanatory (causal) hypotheses**, there is an implication that the existence of or a change in one variable causes or leads to a change in the other variable. As we noted previously, the causal variable is typically called the independent variable (IV) and the other the dependent variable (DV). Cause means roughly to “help make happen.” So the IV need not be the sole reason for the existence of or change in the DV. Here are four examples of explanatory hypotheses:

An increase in family income (IV) leads to an increase in the percentage of income saved (DV).

Exposure to the company's messages concerning industry problems (IV) leads to more favorable attitudes (DV) by employees toward the company.

Loyalty to a particular grocery store (IV) increases the probability of purchasing the private brands (DV) sponsored by that store.

An increase in the price of salvaged copper wire (IV) leads to an increase in scavenging (DV) on the Army firing range.

In proposing or interpreting causal hypotheses, the researcher must consider the direction of influence. In many cases, the direction is obvious from the nature of the variables. Thus, one would assume that family income influences savings rate rather than the reverse. This also holds true for the Army example. Sometimes our ability to identify the direction of influence depends on the research design. In the worker attitude hypothesis, if the exposure to the message clearly precedes the attitude measurement, then the direction of exposure to attitude seems clear. If information about both exposure and attitude was collected at the same time, the researcher might be justified in saying that different attitudes led to selective message perception or non-perception. Store loyalty and purchasing of store brands appear to be interdependent. Loyalty to a store may increase the probability of buying the store's private brands, but satisfaction with the store's private brand may also lead to greater store loyalty.

The Role of the Hypothesis

In research, a hypothesis serves several important functions:

- It guides the direction of the study.
- It identifies facts that are relevant and those that are not.
- It suggests which form of research design is likely to be most appropriate.
- It provides a framework for organizing the conclusions that result.

Unless the researcher curbs the urge to include additional elements, a study can be diluted by trivial concerns that do not answer the basic questions posed by the management dilemma. The virtue of the hypothesis is that, if taken seriously, it limits what shall be studied and what shall not. To consider specifically the role of the hypothesis in determining the direction of the research, suppose we use this:

Husbands and wives agree in their perceptions of their respective roles in purchase decisions.

The hypothesis specifies who shall be studied (married couples), in what context they shall be studied (their consumer decision making), and what shall be studied (their individual perceptions of their roles).

The nature of this hypothesis and the implications of the statement suggest that the best research design is a communication-based study, probably a survey or interview. We have at this time no other practical means to ascertain perceptions of people except to ask about them in one way or another. In addition, we are interested only in the roles that are assumed in the purchase or consumer decision-making situation. The study should not, therefore, involve itself in seeking information about other types of roles husbands and wives might play. Reflection upon this hypothesis might also reveal that husbands and wives disagree on their perceptions of roles, but the differences may be explained in terms of additional variables, such as age, social class, background, personality, and other factors not associated with their difference in gender.

What Is a Strong Hypothesis? A strong hypothesis should fulfill three conditions:

- Adequate for its purpose.
- Testable.
- Better than its rivals.

The conditions for developing a strong hypothesis are developed more fully in Exhibit 2-5.

> **Exhibit 2-5** Checklist for Developing a Strong Hypothesis

Criteria	Interpretation
Adequate for Its Purpose	<ul style="list-style-type: none"> ○ Does the hypothesis reveal the original problem condition? ○ Does the hypothesis clearly identify facts that are relevant and those that are not? ○ Does the hypothesis clearly state the condition, size, or distribution of some variable in terms of values meaningful to the research problem (descriptive)? ○ Does the hypothesis explain facts that gave rise to the need for explanation (explanatory)? ○ Does the hypothesis suggest which form of research design is likely to be most appropriate? ○ Does the hypothesis provide a framework for organizing the conclusions that result?
Better Than Its Rivals	<ul style="list-style-type: none"> ○ Does the hypothesis explain more facts than its rivals? ○ Does the hypothesis explain a greater variety or scope of facts than its rivals? ○ Is the hypothesis one that informed judges would accept as being the most likely?

Theory

Hypotheses play an important role in the development of theory. How theory differs from hypothesis may cause confusion. We make the general distinction that the difference between theory and hypothesis is one of degree of complexity and abstraction. In general, theories tend to be complex, be abstract, and involve multiple variables. Hypotheses, on the other hand, tend to be more simple, limited-variable statements involving concrete instances.

A person not familiar with research uses the term *theory* to express the opposite of *fact*. In this sense, theory is viewed as being speculative or “ivory tower.” One hears that managers need to be less theoretical or that some idea will not work because it is too theoretical. This is an incorrect picture of the relationship between fact and theory to the researcher. In truth, fact and theory are each necessary for the other to be of value. Our ability to make rational decisions, as well as to develop scientific knowledge, is measured by the degree to which we combine fact and theory. We all operate on the basis of theories we hold. In one sense, theories are the generalizations we make about variables and the relationships among them. We use these generalizations to make decisions and predict outcomes. For example, it is midday and you note that the outside natural light is dimming, dark clouds are moving rapidly in from the west, the breeze is freshening, and the air temperature is cooling. Would your understanding of the relationship among these variables (your weather theory) lead you to predict that something decidedly wet will probably occur in a short time?

>snapshot

July 2, 2001, was a real latter-day in biomedical research when Abiomed—a developer, manufacturer, and marketer of medical products—had its AbioCor implantable replacement heart system surgically inserted in a 50-year-old man in Louisville, Kentucky. Thirty days later, the man was jogging with his dog and medical staff, taking light exercise, and surviving a flu virus infection—even though most of his nutrition was still coming by way of a feeding tube. One member of the surgical team, Dr. Robert Dowling, said, “He was facing death. He knew it and he knew it and now he is looking at the camera and he is happy to be here.” The AbioCor heart was removed by the removal of the patient’s natural heart, which weighed a minute compared to the AbioCor heart, which weighed a pound and a half. The AbioCor heart was a mechanical heart that had been implanted in the patient’s chest. It was part of the re-

search team, cautioned. “It is important to remember that this is the first chapter of many volumes that we have still to learn about the use of these devices in humans.”

Following a series of animal trials, the FDA granted Abiomed permission to implant up to five AbioCor systems. With only 2,000 heart transplants performed each year, there are up to 100,000 coronary heart disease patients who might be potential recipients of the AbioCor, a device designed for those with less than a 30-day life expectancy who are not eligible for a heart transplant. Assuming government permission should Abiomed rush into production of its AbioCor system? What reasoning approaches did you use to reach this conclusion? What concepts and constructs are embedded in this example? What hypotheses could you form from the medical trial?

www.abiomed.com

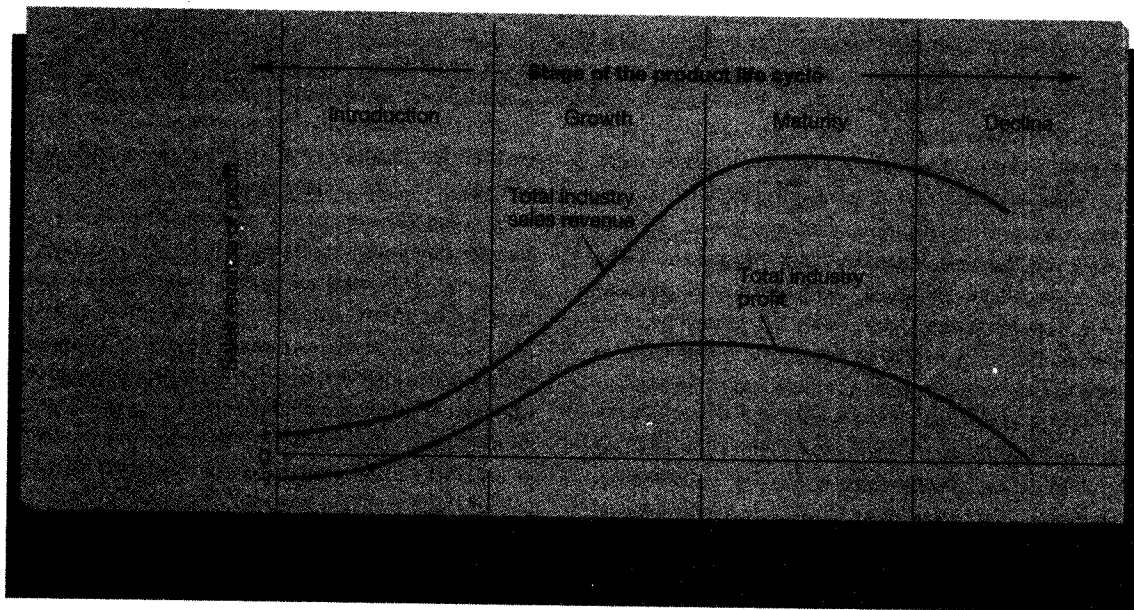
A **theory** is a set of systematically interrelated concepts, definitions, and propositions that are advanced to explain and predict phenomena (facts). In this sense, we have many theories and use them continually to explain or predict what goes on around us. To the degree that our theories are sound and fit the situation, we are successful in our explanations and predictions.

In marketing, the product life cycle describes the stages that a product category goes through in the marketplace.¹¹ The generalized product life cycle has four stages (although the length and shape of product life cycles differ): introduction, growth, maturity, and decline (Exhibit 2-6). In each stage, many concepts, constructs, and hypotheses describe the influences that change revenue and profit. Definitions are also needed for communicating about the claims of the theory and its consistency in testing to reality.

For example, in the growth stage, companies spend heavily on advertising and promotion to create product awareness. In the early period of this stage these expenditures may be made to fuel *primary demand* (construct), improving product class awareness rather than brand awareness. Also, high pricing may reflect *skimming* (concept) to help the company recover developmental costs. The product manager may alternatively use low pricing, or *penetration pricing* (concept), to build unit volume. In the growth stage, sales increase rapidly because many consumers are trying or actually using the product; and those who tried, were satisfied, and bought again—*repeat purchasers* (concept)—are swelling the ranks. If the company is unable to attract repeat purchasers, this usually means death for the product (proposition). The maturity stage is a good time for the company in terms of generating cash (proposition). The costs of developing the product and establishing its position in the marketplace are paid and it tends to be profitable. Firms will often try to use *extension strategies* (constructs). These are attempts to delay the decline stage of the product life cycle by introducing new versions of the product. In the decline stage, “products will consume a disproportionate share of management time and financial resources relative to their potential future worth”¹² (hypothesis). To make this hypothesis fully testable, we would need operational definitions for disproportionate share, time, resources, and future worth.

The challenge for the researcher in this example is to build more comprehensive theories to explain and predict how modifying the product and other variables will benefit the firm.

> Exhibit 2-6 Traditional Product Life Cycle



Source: Adapted from Roger Kerin, Eric Berkowitz, Steven Hartley, and William Rudelius, *Marketing*, 7th ed. (Burr Ridge, IL: McGraw-Hill, 2003), p. 295.

Models

The term *model* is used in business research and other fields of business to represent phenomena through the use of analogy. A **model** is defined here as a representation of a system that is constructed to study some aspect of that system or the system as a whole. Models differ from theories in that a theory's role is explanation whereas a model's role is representation.

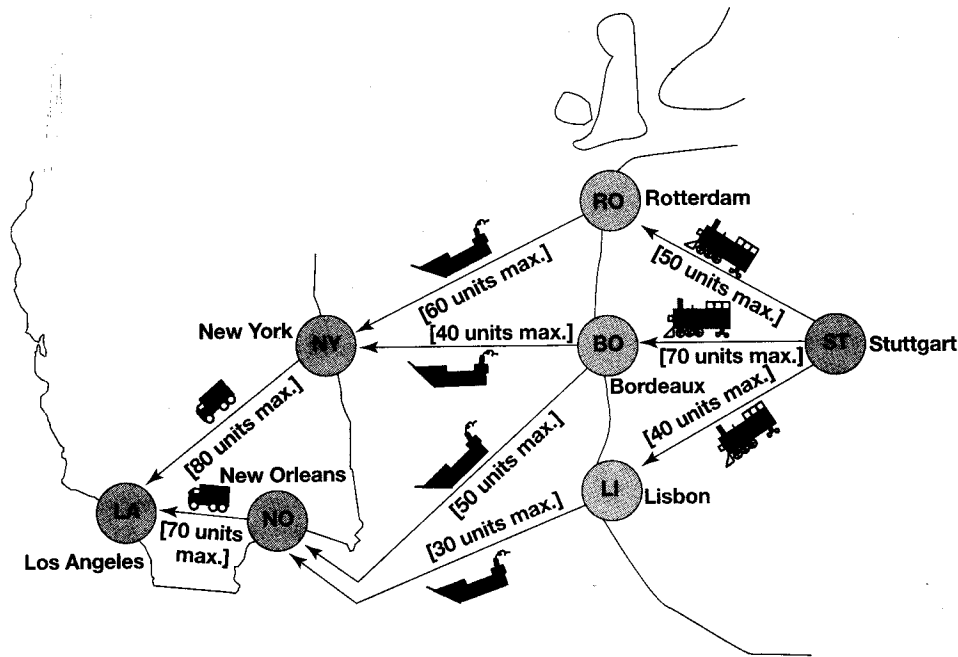
Early models (and even those created as recently as the 1990s for mainframe computers) were enormously expensive and often incomprehensible to all but their developers. Modeling software, such as Excel, has made modeling more inexpensive and accessible.

Models allow researchers and managers to characterize present or future conditions: the effect of advertising on consumer awareness or intention to purchase, a product distribution channel, brand switching behavior, an employee training program, and many other aspects of business. A model's purpose is to increase our understanding, prediction, and control of the complexities of the environment.

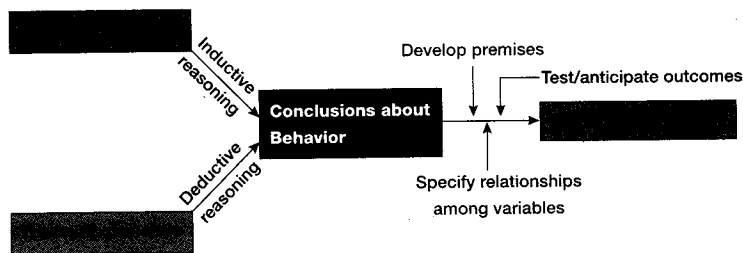
Exhibit 2-7 provides an example of a *maximum-flow* model used in management science. In this example, a European manufacturer of automobiles needs an increased flow of shipping to its Los Angeles distribution center to meet demand. However, the primary distribution channel is saturated and alternatives must be sought. Although this is a geographic model, more sophisticated network, mathematical, and path diagrams are subsequently created so that researchers can create hypotheses about the nature, relationship, and direction of causality among variables.

Descriptive, predictive, and normative models are found in business research.¹³ *Descriptive* models are used frequently for more complex systems, such as the one in Exhibit 2-7. They allow visualization of numerous variables and relationships. *Predictive* models forecast future events (for example, the Fourt and

> **Exhibit 2-7** A Distribution Network Model



> **Exhibit 2-8** The Role of Reasoning in Model Development



Woodlock model could be used to forecast basketball shoes for a market segment).¹⁴ *Normative* models are used chiefly for control, informing us about what actions should be taken. Models may also be static, representing a system at one point in time, or dynamic, representing the evolution of a system over time.

Models are developed through the use of inductive and deductive reasoning, which we suggested previously is integral to accurate conclusions about business decisions. As illustrated in Exhibit 2-8, a model may originate from empirical observations about behavior based on researched facts and relationships among variables. Inductive reasoning allows the modeler to draw conclusions from the facts or evidence in planning the dynamics of the model. The modeler may also use existing theory, managerial experience, judgment, or facts deduced from known laws of nature. In this case, deductive reasoning serves to create particular conclusions derived from general premises.

Models are an important means of advancing theories and aiding decision makers. Because the inputs are often unknown, imprecise, or temporal estimates of complex variables, creating and using models in the decision-making process can be a time-consuming endeavor.

>summary

1 Scientific inquiry is grounded in the inference process. This process is used for the development and testing of various propositions largely through the double movement of reflective thinking. Reflective thinking consists of sequencing induction and deduction in order to explain inductively (by hypothesis) a puzzling condition. In turn, the hypothesis is used in a deduction of further facts that can be sought to confirm or deny the truth of the hypothesis.

Researchers think of the doing of science as an orderly process that combines induction, deduction, observation, and hypothesis testing into a set of reflective thinking activities. Although the scientific method consists of neither sequential nor independent stages, the problem-solving process that it reveals provides insight into the way research is conducted.

2 Scientific methods and scientific thinking are based on concepts, the symbols we attach to bundles of meaning that we hold and share with others. We invent concepts to think about and communicate abstractions. We also use higher-level concepts—constructs—for specialized scientific explanatory purposes that are not directly observable. Concepts, constructs, and variables may be defined descriptively

or operationally. Operational definitions must specify adequately the empirical information needed and how it will be collected. In addition, they must have the proper scope or fit for the research problem at hand.

Concepts and constructs are used at the theoretical levels; variables are used at the empirical level. Variables accept numerals or values for the purpose of testing and measurement. They may be classified as explanatory, independent, dependent, moderating, extraneous, and intervening.

3 Propositions are of great interest in research because they may be used to assess the truth or falsity of relationships among observable phenomena. When we advance a proposition for testing, we are hypothesizing. A hypothesis describes the relationships between or among variables. A good hypothesis is one that can explain what it claims to explain, is testable, and has greater range, probability, and simplicity than its rivals. Sets of interrelated concepts, definitions, and propositions that are advanced to explain and predict phenomena are called theories. Models differ from theories in that models are analogies or representations of some aspect of a system or of the system as a whole. Models are used for description, prediction, and control.

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>discussionquestions

Terms in Review

- 1** Distinguish among the following sets of items, and suggest the significance of each in a research context:
- a** Concept and construct.
 - b** Deduction and induction.

- c** Operational definition and dictionary definition.
- d** Concept and variable.
- e** Hypothesis and proposition.
- f** Theory and model.
- g** Scientific method and scientific attitude.