

ELEVENTH EDITION

EXPLORING  
**Marketing** Research



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# Chapter 2

# Harnessing Big

# Data into

# Better Decisions

# LEARNING OUTCOMES

*After studying this chapter, you should*

1. Know why concepts like data, big data, information, and intelligence represent value
2. Understand the four characteristics that describe data
3. Know what a decision support system is and the technology tools that help make it work
4. Recognize some of the major databases and how they are accessed
5. Understand the basic concept of marketing analytics and its potential to enhance decision-making
6. Be sensitive to the potential ethical issues of tracking consumers' behavior electronically

# Introduction

- Data
  - Facts or recorded measures of certain phenomena (things or events)
- Big data
  - Large quantities of data taken from multiple, varied sources that:
    - ❖ Were not intended to be used together
    - ❖ Are available to be analytically applied to provide input to organizational decision making

# Data, Information, and Intelligence Equal Value

- Information
  - Data formatted (structured) to support decision making or define the relationship between two or more data points
- Market intelligence
  - The subset of data and information that actually has some explanatory power enabling effective decisions to be made

# Survey This!

The image shows a screenshot of a Qualtrics survey interface. At the top, the Qualtrics logo and "qualtrics.com" are visible. Below this, a question is displayed: "Do you blog/have your own Myspace/Facebook-type (or other social networking) page?". Two radio button options are shown: "Yes" (unchecked) and "No" (unchecked). Below the question, a blue box contains the instruction: "Using the face scale, please adjust the face until it matches the way you feel about your university experience.". To the right of this text is a yellow smiley face icon with a neutral expression, positioned next to a vertical gray slider bar.

Do you blog/have your own Myspace/Facebook-type (or other social networking) page?

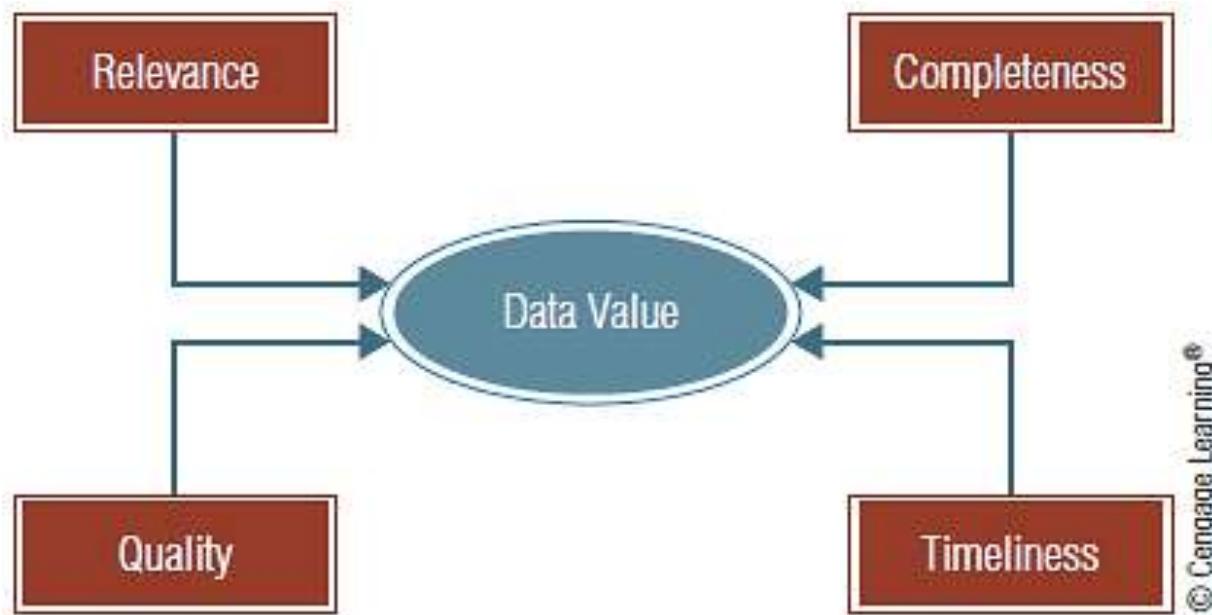
Yes

No

Using the face scale, please adjust the face until it matches the way you feel about your university experience.

Source: [www.Qualtrics.com](http://www.Qualtrics.com)

EXHIBIT 2.1 Characteristics of Valuable Data



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# The Characteristics of Valuable Information

- Relevance
  - Reflects the pertinence of the particular facts
- Completeness
  - Having the right amount of information
- Data quality
  - Degree to which data represent the true situation
  - How to enhance data quality
    - ❖ Automate data collection and entry when feasible
    - ❖ Inspect the data and cleanse for obvious errors
    - ❖ Be mindful of the costs and benefits of efforts at improving data quality

# The Characteristics of Valuable Information (cont'd.)

- Timeliness
  - Data are current enough to still be relevant
  - Market dynamism
    - ❖ Represents the rate of change in the environmental and competitive factors
- Global marketplace
  - The potential marketplace is the entire world
  - Large companies use technology to keep track of business details globally

# Decision Support Systems

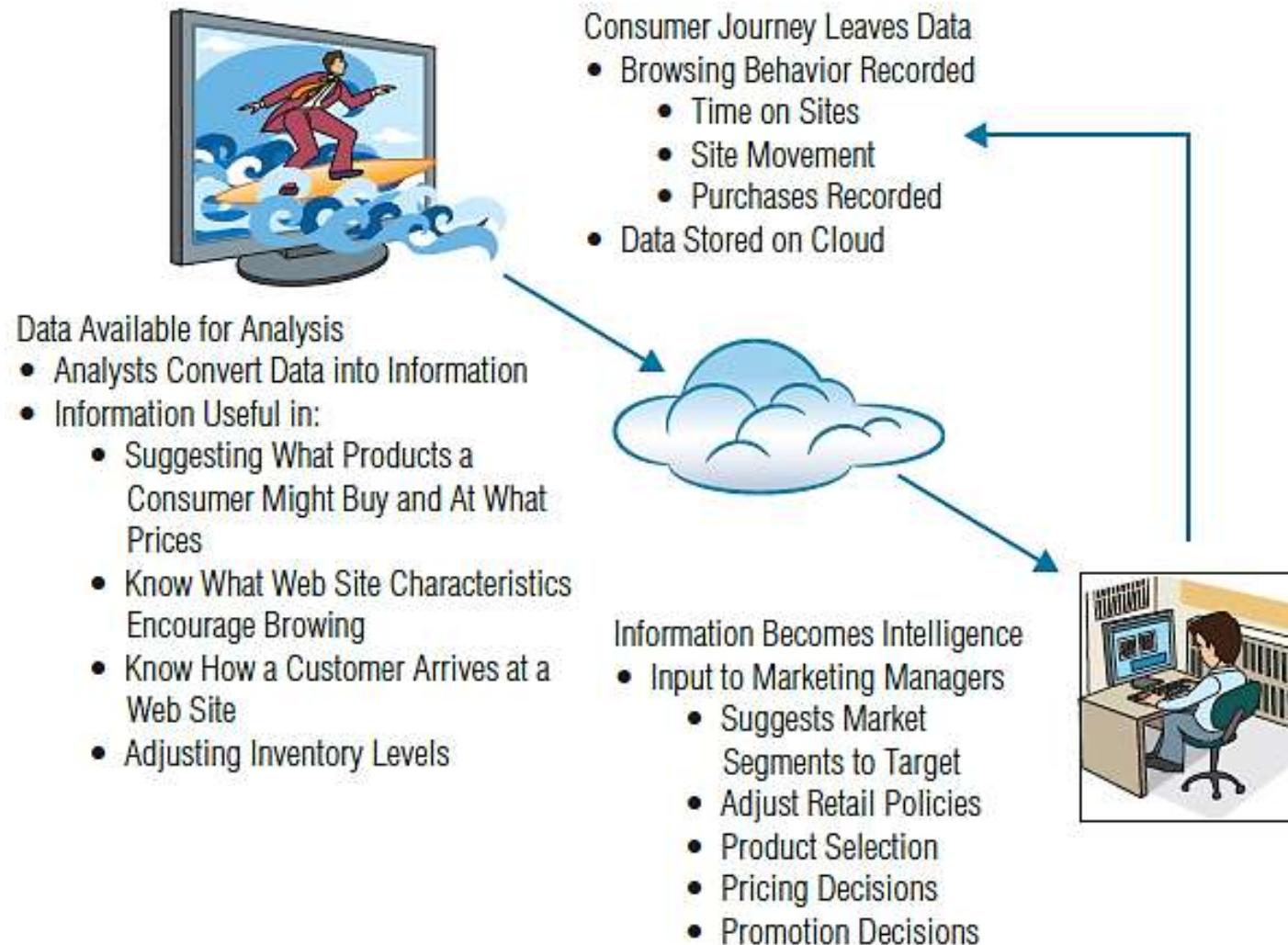
- Marketing research serves four possible functions
  - Foundational—answers basic questions such as what consumer segments should be served and with what types of products
  - Testing—addresses items such as new product concepts or promotional ideas, and their effectiveness
  - Issues—examines how specific issues impact the firm, such as organizational structure
  - Performance—which metrics are critical in real-time management and what insights can be gained from “what-if” analyses of policy changes?

# Decision Support Systems (cont'd.)

- Help decision makers confront problems through direct interaction with computerized databases and analytical software programs
  - Store data and transform them into organized information that is easily accessible to marketing managers
  - A customer relationship management (CRM) system is the part of the DSS that addresses exchanges between the firm and its customers

EXHIBIT 2.2

## Decision Support Systems Create Intelligence



# Databases and Data Warehousing

- **Database**
  - A collection of raw data arranged logically and organized in a form that can be stored and processed by a computer
- **Data warehousing**
  - The process allowing important day-to-day operational data to be stored and organized for simplified access

# Databases and Data Warehousing (cont'd.)

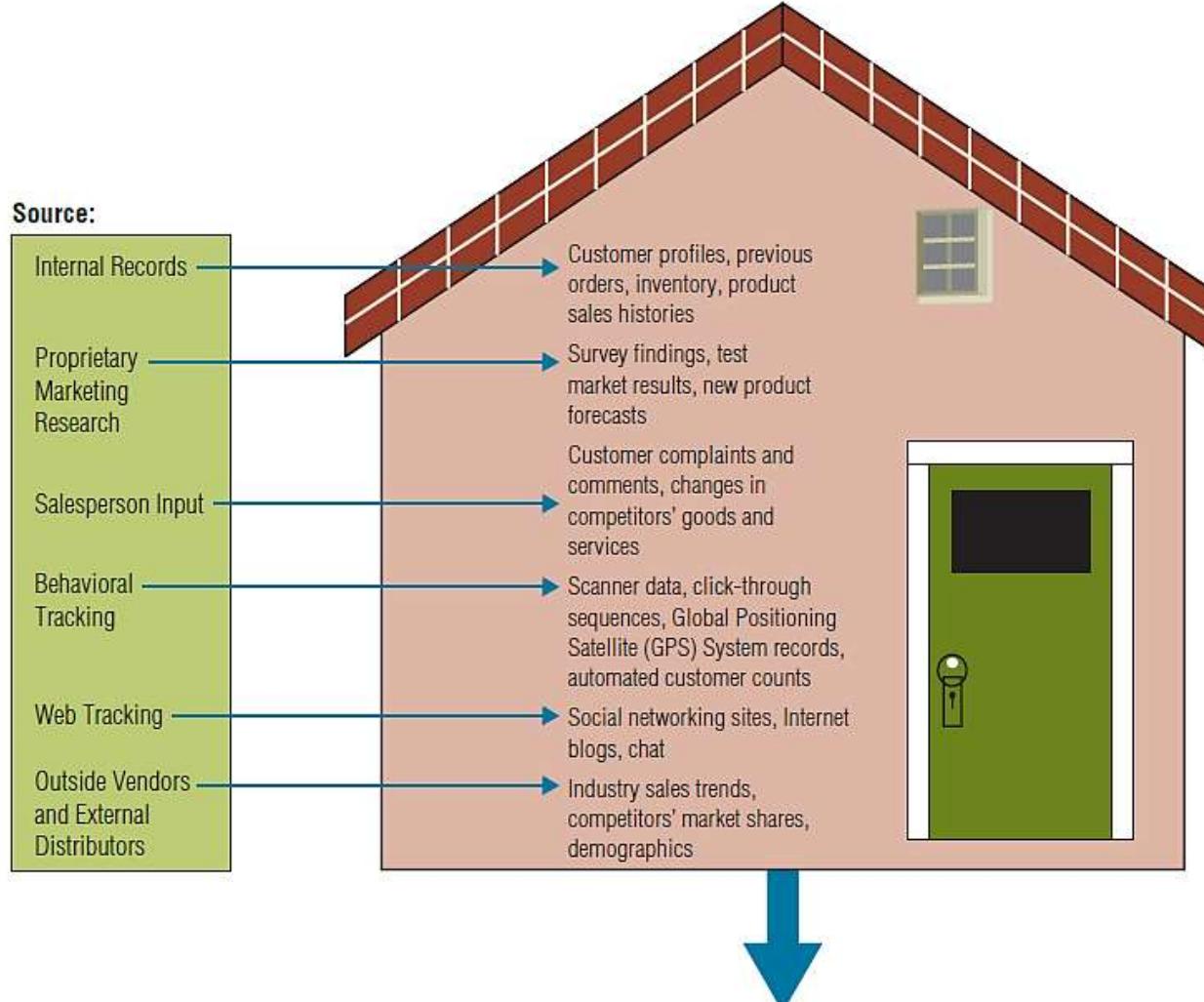
- **Data warehouse**
  - The multi-tiered computer storehouse of current and historical data
- **Cloud storage**
  - Data files stored on devices that make them directly accessible via the internet

# Input Management

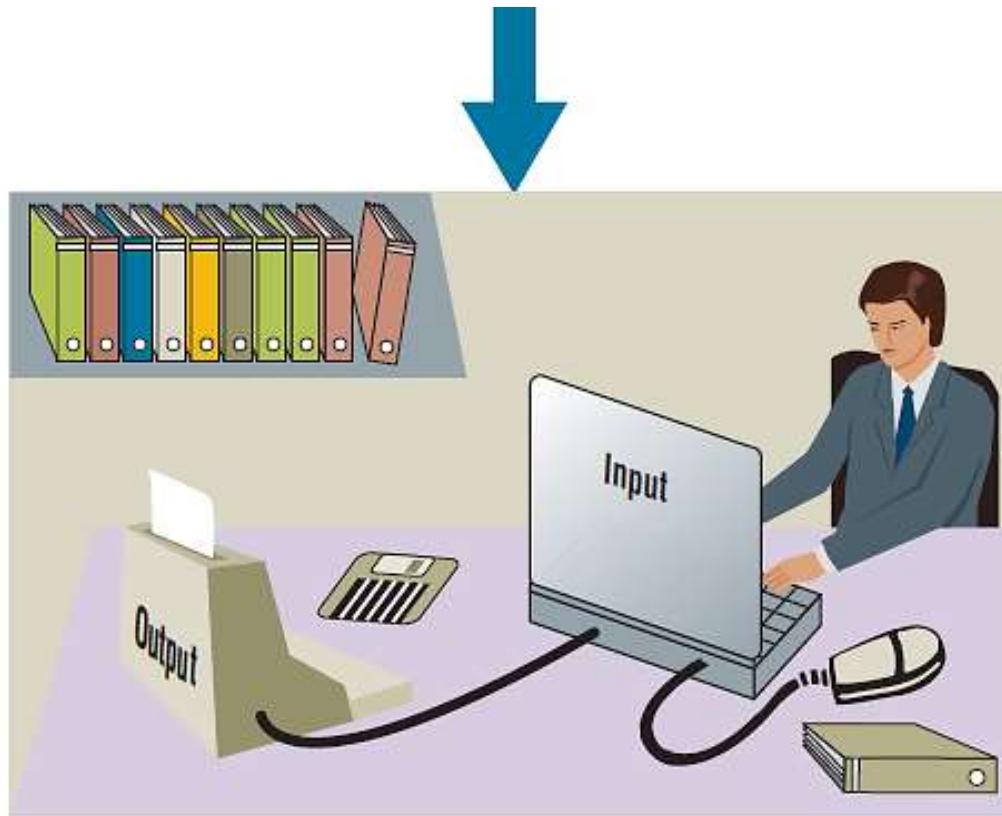
- Input
  - All numerical, text, voice, behavioral, and image data entered into the decision support system
- Major sources of input
  - Internal records
  - Proprietary marketing research
  - Salesperson input
  - Behavioral tracking
  - Web tracking
  - Outside vendors and external distributors of data

## EXHIBIT 2.3

## Six Major Sources of Marketing Input for Decision Support Systems



## EXHIBIT 2.3 Six Major Sources of Marketing Input for DSSs (cont'd.)



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# Internal Records

- Contain data that may become useful information for marketing managers
  - Accounting reports of sales and inventory figures
  - Costs, orders, shipments, inventory, sales, and other aspects of regular operations
  - Customer profiles

# Proprietary Marketing Research

- Research projects conducted to study specific company problems generate data
  - Emphasizes the gathering of new data

# Salesperson Input

- Sales representatives' reports:
  - Can alert managers to changes in competitors' prices and new product offerings
  - May involve the types of complaints salespeople are hearing from customers
- As trends become evident, this data may become marketing intelligence

# Behavioral Tracking

- Modern technology provides new ways of tracking human behavior
  - Global positioning satellite (GPS) systems
  - Scanner data—the accumulated records resulting from in-store point-of-sale data
  - Universal product code (UPC) —the bar-coded information that contains product information

# Web Tracking

- Performed to monitor trends and information posted by consumers that pertains to the company's brand or products
  - Google tracks the “click-through” sequence of customers
  - Alexa—provides information about which sites consumers visit
  - Chat rooms
  - Search-engine optimizer—mines Internet data to provide consulting to firms who wish to move up the listing of hits for their product-related terms

# Networks and Electronic Data Interchange

- **Electronic data interchange (EDI)**
  - Type of exchange that occurs when one company's computer system is integrated with another company's computer system
- **Open source information**
  - Structured data that is openly shared between companies

# Database Sources and Vendors

- Data archives
  - Data wholesalers
  - Data retailers
  - Statistical databases
  - Financial databases
  - Video databases

# Database Sources and Vendors (cont'd.)

- The Internet and research
- Information technology
  - Push or pull?
  - Near field communication (NFC) devices
  - Cookies
  - Intranets

# Data Archives

- Data wholesalers
  - Companies that put together consortia of data sources into packages that are offered to municipal, corporate, and university libraries for a fee
  - Examples: Wilson Business Center, Hoovers, ProQuest, INFOTRAC, and LexisNexis
- Data retailers
  - Companies that provide access to data directly to the end consumer for a fee

# Types of Databases

- Statistical databases
  - Contain numerical data for market analysis and forecasting
  - Geographic information systems use geographical databases and powerful software to prepare computer maps of relevant variables
  - Scanner data are a common source
- Financial databases
  - Include competitors' and customers' financial data, such as income statements and balance sheets
  - Example: CompuStat

# Types of Databases (cont'd.)

- Video databases

- Video databases and streaming media are having a major impact on the marketing of many goods and services
- Example: movie studios provide clips of upcoming films

## EXHIBIT 2.4

## Some Database Sources That Are Widely Available

Database	Description	Availability
Proquest	A collection of databases that include published works such as academic articles, trade periodicals, newspapers, and some statistical databases.	Widely available through university libraries. The libraries pay for the services and grant access to patrons.
LexisNexis	A wide degree of business and media-related content, including business publications, newspapers, and other media sources from 1970. Also maintain a large consumer database (half a billion consumers) including business contacts.	Publication data often available through libraries via library subscription. Consumer data and big data services available for a fee.
U.S. Census	Tremendous amounts of historic and current data about the U.S. population and trends but also a lot of information about various U.S. industries and trends.	Access at <a href="http://www.census.gov">www.census.gov</a> . Access to data tables and site is free.
CIA Factbook	Contains statistical data on the countries of the world including demographic data, lifestyle data including religious affiliations, and basic data on commerce and the economy in the country.	Access at: <a href="https://www.cia.gov/library/publications/the-world-factbook/">https://www.cia.gov/library/publications/the-world-factbook/</a> . Access is free.
Market Share Reporter	The most comprehensive source for data on the relative market share for publicly traded companies across many industries.	Published by Gale and available on a subscription fee basis. Available at some libraries.

## EXHIBIT 2.4 Some Database Sources That Are Widely Available (cont'd.)

Database	Description	Availability
Nielsen	Provides data on consumer media usage, including ratings for television programming and networks. Data from PRIZM segmentation also available among others.	Media data available on a fee for service or subscription basis. Basic PRIZM data on U.S. communities provided free with more detailed data available for a fee.
YouTube	Largest collection of videos in the world. The collection includes advertising, some of which is produced exclusively for YouTube.	YouTube.com (I think you know it). Free.
Alexa	Provides Web usage statistics for public websites. The data include visit information, United States and global rank, demographics of visitors, and more.	Alexa.com. Basic data available for free. More elaborate data and services available for a fee.

# The Internet and Research

- Navigating the Internet

- Content providers maintain websites that contain information as well as links to other sites
- Uniform Resource Locator (URL)
  - ❖ A website address that Web browsers recognize
- Keyword search
  - ❖ Takes place as the search engine searches through millions of Web pages for documents containing keywords
- Environmental scanning
  - ❖ Entails all information gathering designed to detect changes in the external operating environment of the firm

# Information Technology

- Smart agent software
  - Software capable of learning an Internet user's preferences and automatically searching out information in selected Websites and then distributing it
- Push or pull?
  - Pull technology—the consumer is essentially asking for the data
  - Push technology—sends data to a user without a request being made

# Information Technology (cont'd.)

- Near field communication (NFC) devices
  - RFID (radio frequency identification)—a tiny chip that can be affixed to virtually any product
  - NFC technology—Wi-Fi-like systems communicating with specific devices within a defined space, e.g., inside of a retail unit or near a poster or billboard
- Cookies
  - Small data files that a content provider can save onto the computer of someone who visits its website
- Intranets
  - A company's private data network

# Marketing Analytics

- Marketing analytics

➤ A general term that refers to efforts to measure relevant data and apply analytical tools in an effort to better understand how a firm can enhance marketing performance

- Predictive analytics

➤ A system linking computerized data mined from multiple sources to statistical tools that can search for predictive relationships and trends

# Data Technology and Ethics

- Is big brother watching?
- Marketing and data privacy are current issues
- Geolocation technologies
  - Allow whereabouts and/or movement of a consumer or object to be known through digital identification of some kind

# Ethics of Gathering Data by Digital Means

- Four factors for consideration
  - Has the consumer implicitly or explicitly consented to being traced?
  - Does the tracking behavior violate any explicit or implicit contracts or agreements?
  - Can researchers enable users to know what information is available to data miners?
    - ❖ Open data partnership
  - Do the benefits to consumers from tracking their behavior balance out any potential invasion of their privacy?