CHAPTER 5

Business Analytics

1. Managers and Decision Making
2. The Business Analytics Process
3. Business Analytics Tools
4. Business Analytics Models: Descriptive Analytics, Predictive Analytics, and Prescriptive Analytics

1. Use a decision support framework to demonstrate how technology supports managerial decision making at each phase of the decision-making process.
2. Describe each phase of the business analytics process.
3. Describe each of the various analytics tools and examples of their uses.

4. Provide a definition and a use case example for descriptive analytics, predictive analytics, and prescriptive analytics.

Opening Case

- **Rent the Runway**
  1. Describe the descriptive analytics applications of Rent the Runway's business model.
  2. Describe the predictive analytics applications of Rent the Runway's business model.
  3. Describe a possible prescriptive analytics application for Rent the Runway.
  4. What companies and industries are in danger of being disrupted by Rent the Runway? (Hint: Will Rent the Runway change the way that women buy clothes?)

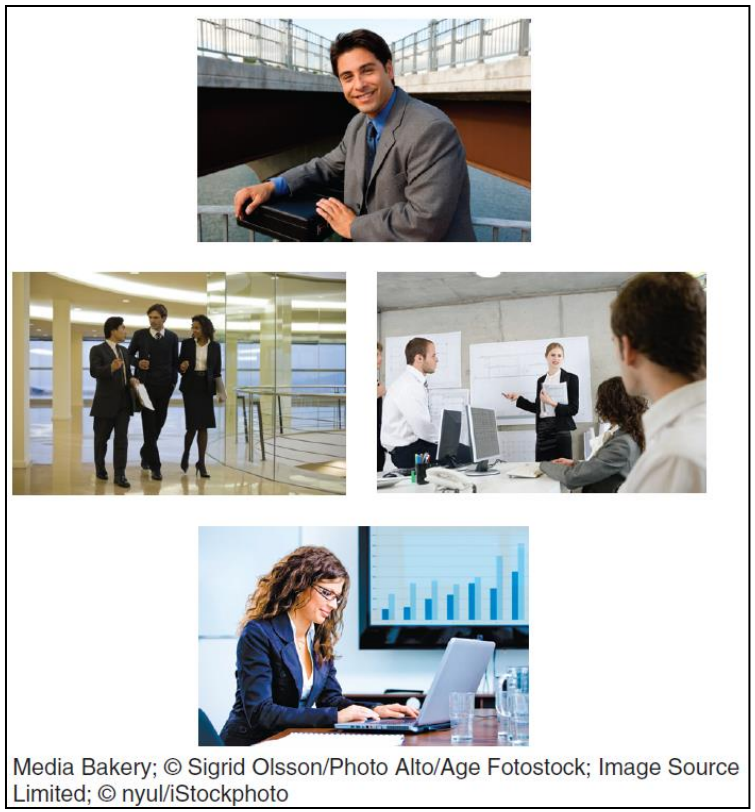
- Business Analytics (BA)
- Business Intelligence (BI)
- BA versus BI

5.1 Managers and Decision Making

- The Manager's Job and Decision Making
- Why Managers Need IT Support
- A Framework for Computerized Decision Analysis

The Manager's Job and Decision Making

- Management
- Productivity
- Three Basic Roles of Managers
- Decision
- Four Phases of Decision Making



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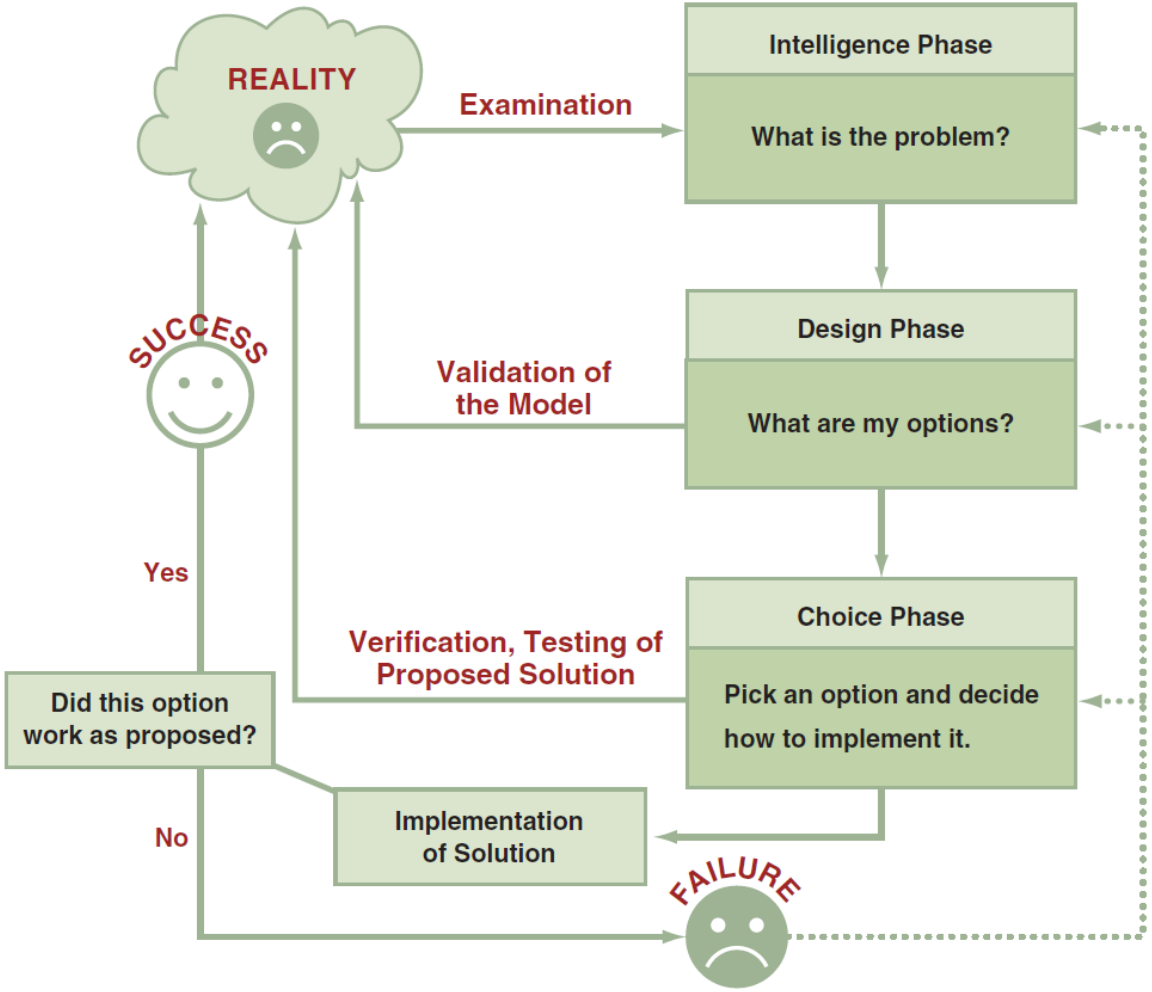
Three Basic Roles of Managers

- Interpersonal Roles
- Informational Roles
- Decisional Roles

Figure 5.1: The Process and Phases in Decision Making



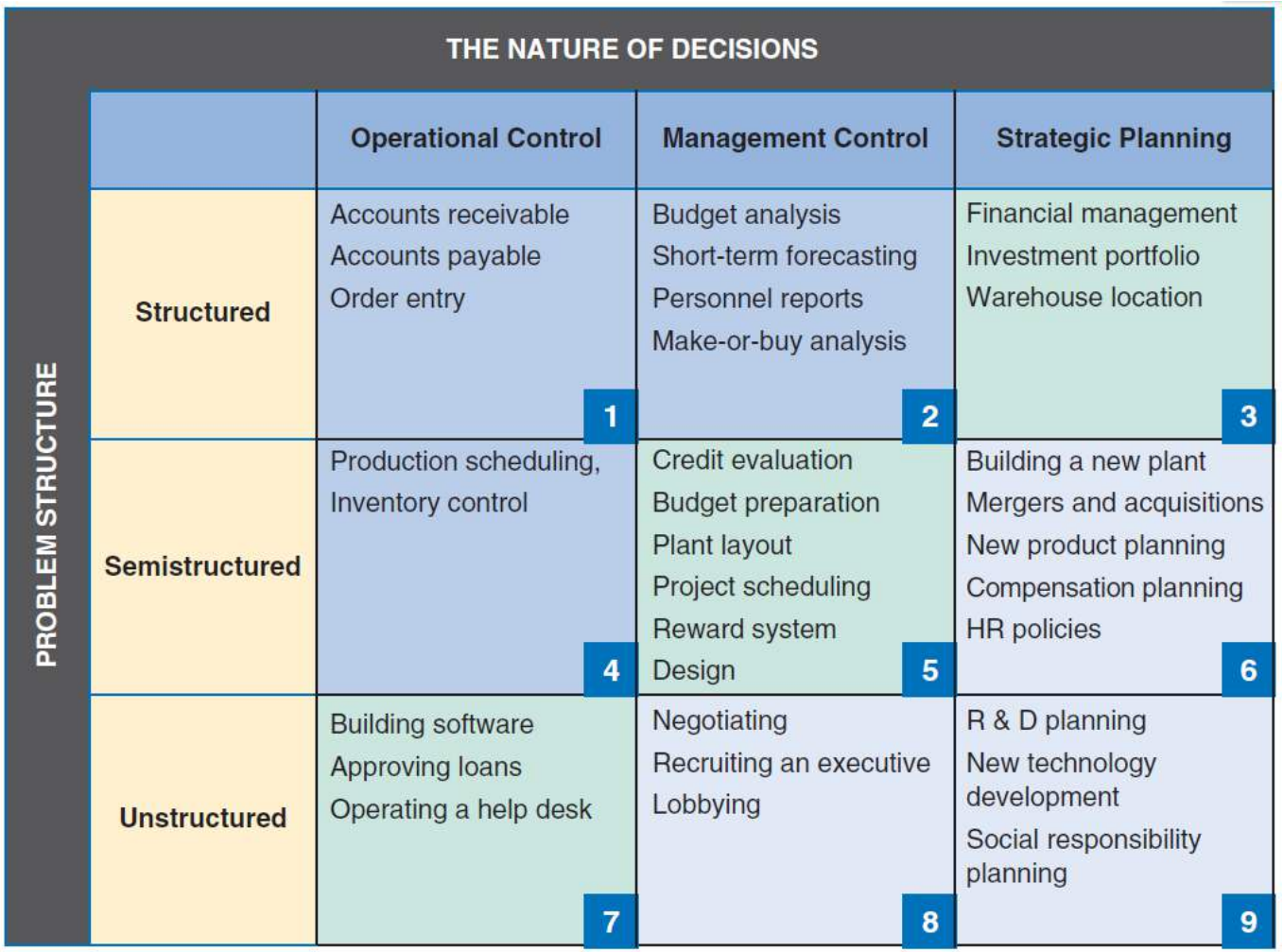
Why Managers Need IT Support

- The number of alternatives is constantly increasing
- Most decisions are made under time constraints
- Increased uncertainty requires sophisticated analyses
- Group decision making required without incurring major expenses

A Framework for Computerized Decision Analysis

- Problem Structure
- The Nature of Decisions
  - Operational Control
  - Management Control
  - Strategic Planning
- Decision Matrix

Figure 5.2: Decision Support Framework



PROBLEM STRUCTURE	THE NATURE OF DECISIONS: Operational Control	Management Control	Strategic Planning
Structured	Accounts receivable Accounts payable Order entry 1	Budget analysis Short-term forecasting Personnel reports Make-or-buy analysis 2	Financial management Investment portfolio Warehouse location 3
Semistructured	Production scheduling, Inventory control 4	Credit evaluation Budget preparation Plant layout Project scheduling Reward system Design 5	Building a new plant Mergers and acquisitions New product planning Compensation planning HR policies 6
Unstructured	Building software Approving loans Operating a help desk 7	Negotiating Recruiting an executive Lobbying 8	R & D planning New technology development Social responsibility planning 9

5.2 The Business Analytics Process

- The Scope of Business Analytics

Figure 5.3: The Business Analytics Process

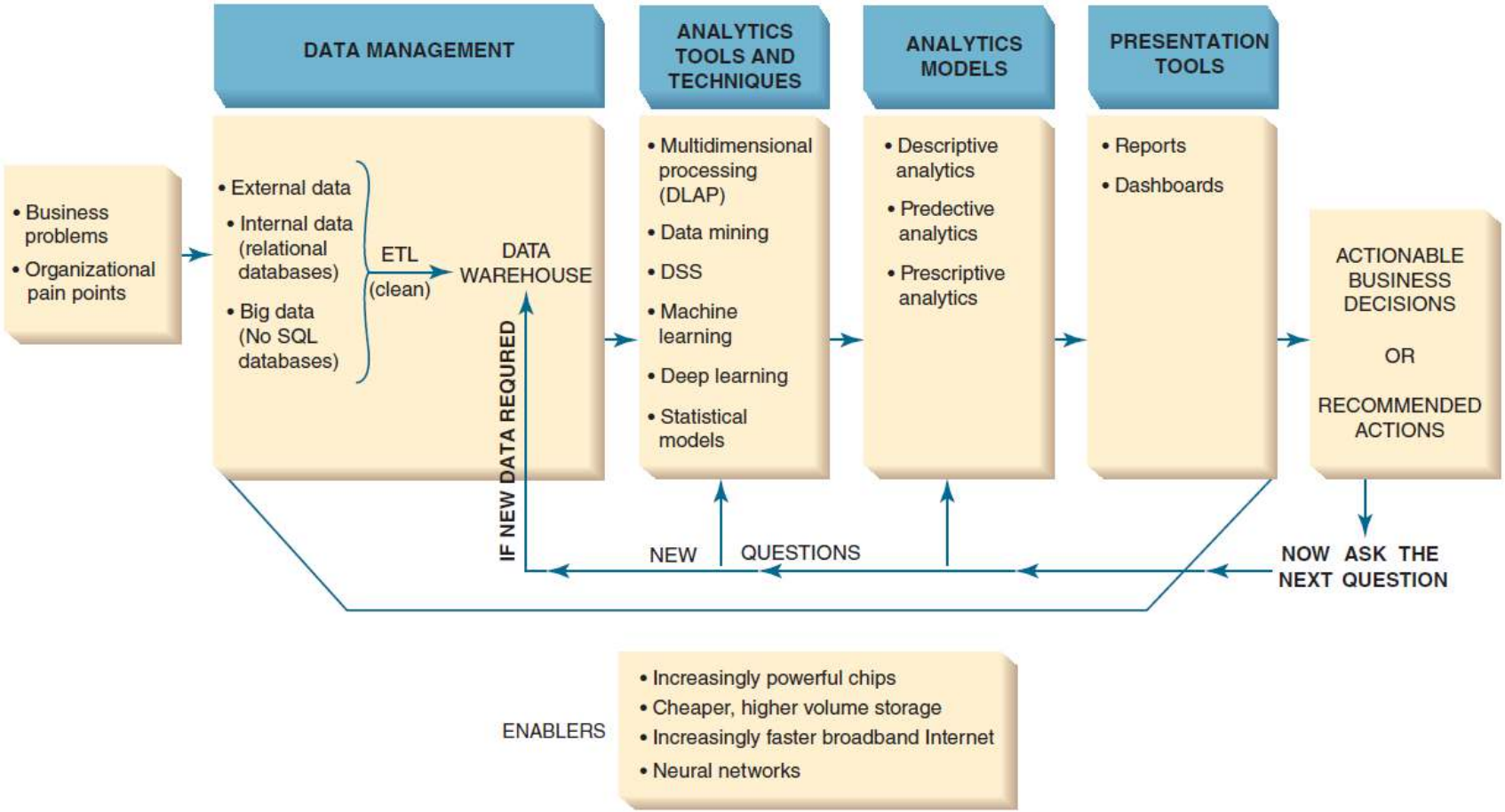


FIGURE 5.3 The Business Analytics Process

The Scope of Business Analytics

- The Development of One or a Few Related Analytics Applications
- The Development of Infrastructure to Support Enterprisewide Analytics
- Support for Organizational Transformation

About Business 5.1

- Darden Restaurants
  1. What is the scope of business analytics for each company?
  2. Describe how Darden Restaurants might employ predictive and prescriptive analytics.
  3. Describe how Twiddy & Company might employ predictive and prescriptive analytics.
  4. Describe how Point Defiance might employ prescriptive analytics.

5.3 Business Analytics Tools

- Excel
- Multidimensional Analysis or Online Analytical Processing
- Data Mining
- Decision Support Systems

Multidimensional Analysis or Online Analytical Processing

- Online Analytical Processing
- Multi-dimensional Analysis

Data Mining

- Two Basic Data Mining Operations
  - Predicting trends and behaviors
  - Identifying previously unknown patterns

Data-Mining Applications Used in Business and Other Fields

- Retailing and Sales
- Banking
- Manufacturing & Production
- Insurance
- Policework
- Healthcare

Data-Mining Applications Used in Business and Other Fields

- Marketing
- Politics
- Weather
- Higher Education
- Social Good

Decision Support Systems (DSS)

- Sensitivity Analysis
- What-If Analysis
- Goal-Seeking Analysis

5.4 Business Analytics Models: Descriptive, Predictive, and Prescriptive Analytics

- Descriptive Analytics
- Predictive Analytics
- Prescriptive Analytics
- Presentation Tools

About Business 5.2

- Esurance Uses Analytics to Provide Personalized Quotes
  1. Describe how Esurance's CRE analytics package contributes to the customer's experience.
  2. Provide an example of a predictive analytics application that Esurance could implement.
  3. Provide an example of a prescriptive analytics application that Esurance could implement.

About Business 5.3

- TaKaDu's Dashboard Helps to Conserve Water
  1. How does the TaKaDu system utilize the Internet of Things? (Hint: See Chapter 10.)
  2. Provide an example of how TaKaDu uses its system for predictive analytics.
  3. Provide an example of how TaKaDu could use its system for prescriptive analytics.
  4. Refer to Chapter 2. Is the TaKaDu system a strategic information system for Jerusalem? Why or why not?

About Business 5.4

- Simpa Networks Provide Solar Energy to India's Poor

1. Describe how Simpa Networks uses descriptive analytics to further its mission.
2. How does predictive analytics help Simpa Networks provide solar energy to India's underserved population?
3. Describe how Simpa Networks could use prescriptive analytics to further its mission.

Predictive Analytics: Examples…

- Drive the coupons you receive at the grocery store register
- Website predict which ads you will click on
- President Obama was re-elected in 2012 with the help of voter prediction
- Leading online dating companies match compatible individuals

Predictive Analytics: Examples (Continued)

- Automatic grading of student essays
- Wireless carriers predict customer churn
- Insurance companies predict body injury liability from car crashes
- Better diagnosis of breast cancer
- Predict the likelihood a convict will offend again

Predictive Analytics: Examples (Continued)

- Financial Service Firms produce credit scores
- Predict sales based on which products are purchased together
- Sentiment analysis

Presentation Tools

- Dashboards
- Geographic Information Systems

Table 5.1: The Capabilities of Dashboards

TABLE 5.1 The Capabilities of Dashboards

Capability	Description
Drill down	The ability to go to details, at several levels; it can be done by a series of menus or by clicking on a drillable portion of the screen.
Critical success factors (CSFs)	The factors most critical for the success of business. These can be organizational, industry, departmental, or for individual workers.
Key performance indicators	The specific measures of CSFs.
Status access	The latest data available on KPI or some other metric, often in real time.
Trend analysis	Short-, medium-, and long-term trend of KPIs or metrics, which are projected using forecasting methods.
Exception reporting	Reports highlight deviations larger than certain thresholds. Reports may include only deviations.

Figure 5.3: Sample Performance Dashboard

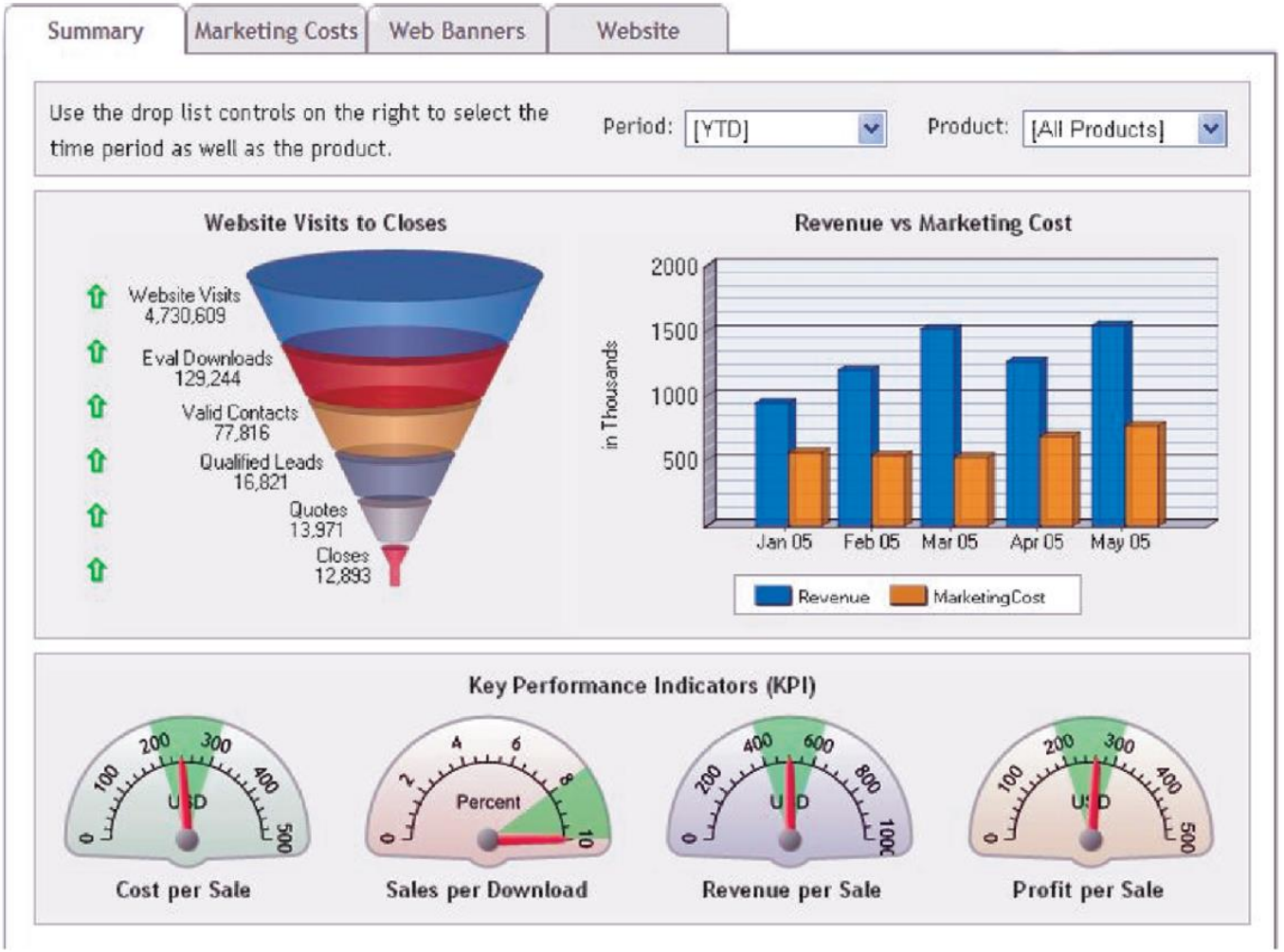


Figure 5.5: Bloomberg Terminal

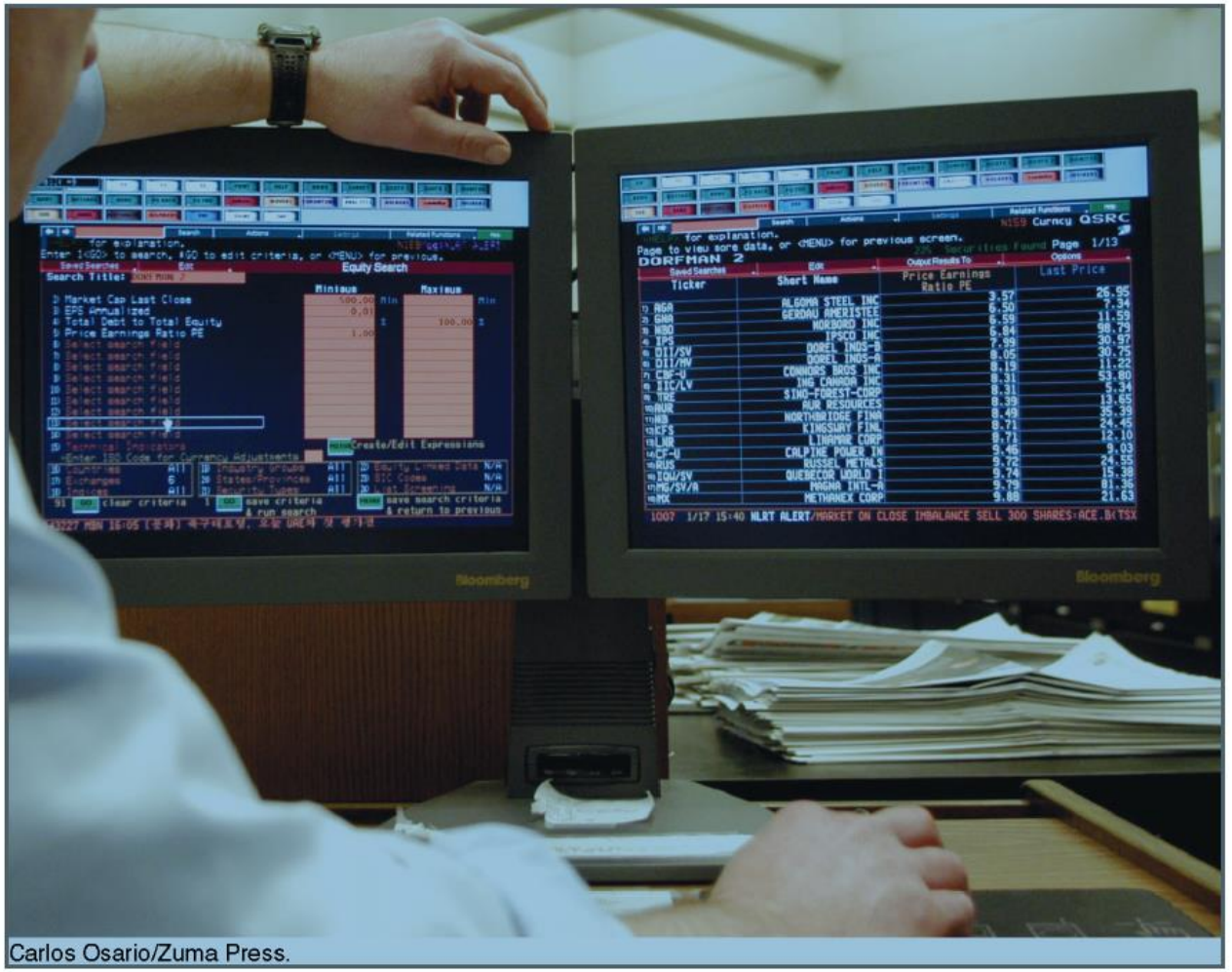


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Figure 5.6: Management Cockpit

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