



CHAPTER **5**

Business Intelligence

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1. Managers and Decision Making
 2. What Is Business Intelligence?
 3. Business Intelligence Applications for Data Analysis
 4. Business Intelligence Applications for Presenting Results
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1. Identify the phases in the decision-making process, and use a decision support framework to demonstrate how technology supports managerial decision making.
2. Describe and provide examples of different ways that organizations use business intelligence (BI).



3. Specify the BI application available to users for data analysis, and provide examples of how each application can be used to solve a business problem at your university.
4. Describe three BI applications that present the results of data analyses to users, and offer examples of how

OPENING



• **How Much Rent Can You Charge?**

1. What additional sources of data could RentRange collect to enhance its predictive accuracy? Provide examples to support your answer.
2. What other companies or institutions could utilize RentRange's predictions?



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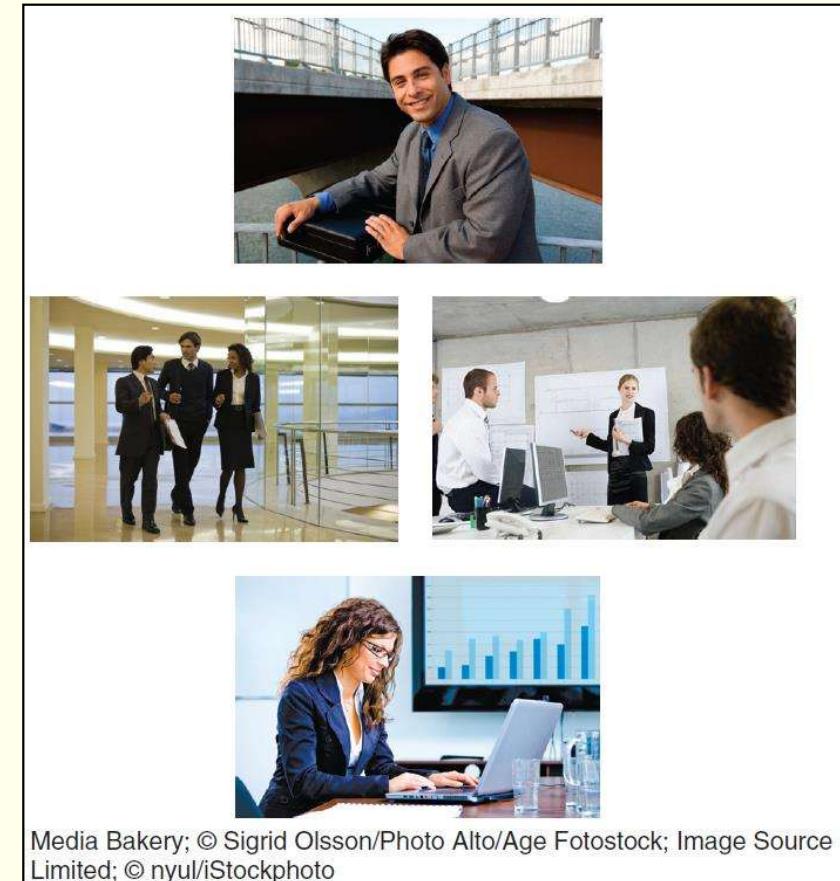


5.1 Managers and Decision Making

- The Manager's Job and Decision Making
- Why Managers Need IT Support?
- What Information Technologies are Available to Support Managers
- A Framework for Computerized Decision Analysis

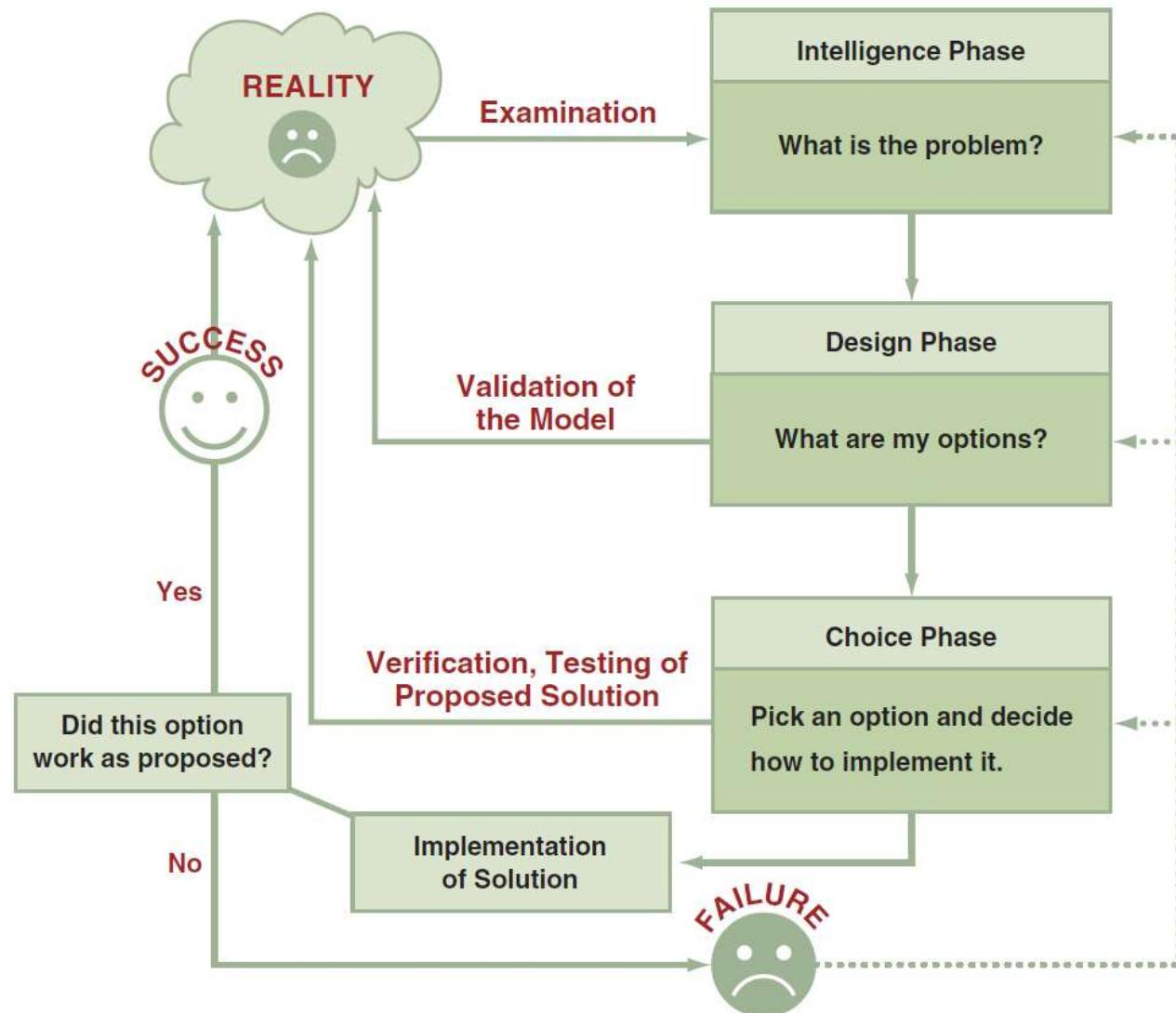
The Manager's Job and Decision Making

- Management
- Three Basis Roles of Managers
- Four Phases of Decision Making



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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
- Uncertainty in the decision environment
- Group decision making required

What IT are Available to Support Managers

- Business Intelligence



A Framework for Computerized Decision Analysis

- Problem Structure
- The Nature of Decisions
- The Decision Matrix
- Computer Support for Structured Decisions

Figure 5.2: Decision Support Framework

	Operational Control	Management Control	Strategic Planning	IS Support
Structured	Accounts receivable, order entry 1	Budget analysis, short-term forecasting, personnel reports, make-or-buy analysis 2		MIS, statistical models (management science, financial, etc.) 3
Semistructured	Production scheduling, inventory control 4	Credit evaluation, budget preparation, plant layout, project scheduling, reward systems design 5	Building a new plant, mergers and acquisitions, planning (product, quality assurance, compensation, etc.) 6	Decision support systems, business intelligence 7
Unstructured		Negotiating, recruiting an executive, buying hardware, lobbying 8	New technology development, product R&D, social responsibility planning 9	Decision support systems, expert systems, enterprise resource planning, neural networks, business intelligence, big data 9

5.2 What is Business Intelligence?

The Scope of Business Intelligence

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

IT'S ABOUT BUSINESS 5.1

- **Predicting Airplane Arrivals More Accurately**
 1. Do you think that satellite-based navigation will meet resistance among air traffic controllers? Why or why not?
 2. Do you think that pilots will object to having “smart assistants” help them make decisions? Why or why not?
 3. Do you think the overall response of the airlines to satellite-based navigation and smart assistants for pilots will be positive or negative? Support your answer.
 4. What is the relationship between analytics and smart assistants for pilots?

IT'S ABOUT BUSINESS 5.2

- **Cardlytics Analyzes Customer Buying Behaviors**

1. Discuss the advantages and disadvantages of Cardlytics's data analyses for the customer. Use specific examples in your answers.
2. Discuss the advantages and disadvantages of Cardlytics's data analyses for the merchants. Use specific examples in your answers.



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5.3 Business Intelligence Applications for Data Analysis

- 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

Decision Support Systems (DSS)

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



5.4 Business Intelligence Applications for Presenting Results

- Dashboards
- Data Visualization Technologies
- Real-Time BI

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 that highlight deviations larger than certain thresholds. Reports may include only deviations.

Figure 5.3: Sample Performance Dashboard

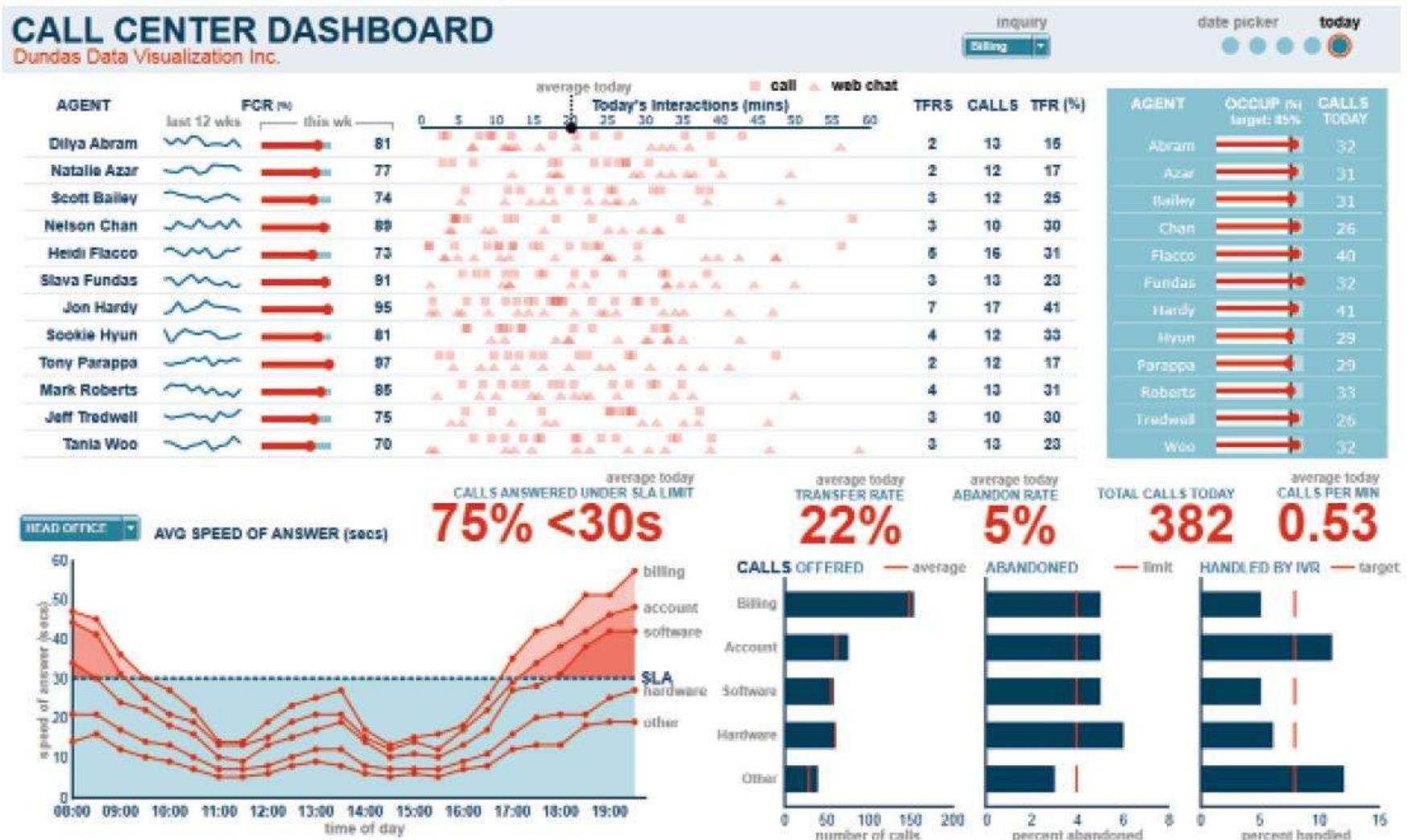


Figure 5.5: Management Cockpit



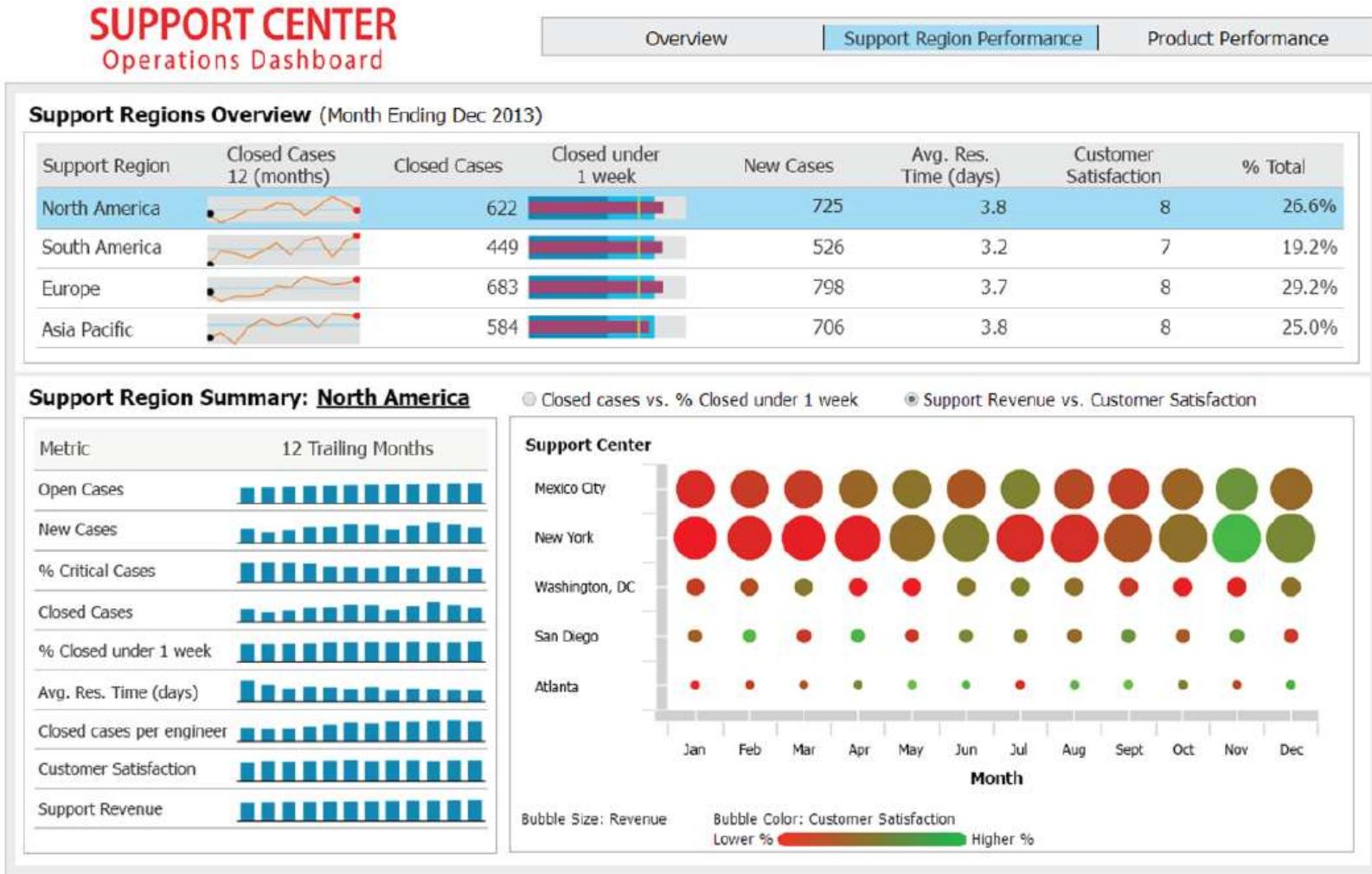
The Management Cockpit is a registered trademark of SAP, created by Professor M. Georges.

Data Visualization Technologies

- Geographic Information Systems
- Reality Mining



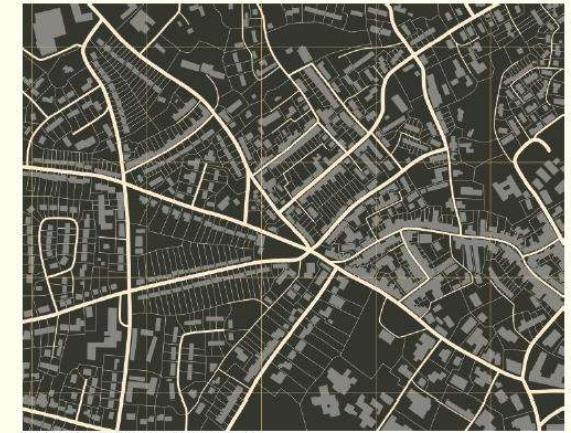
Figure 5.6: Support Center Operations Dashboard



IT'S ABOUT BUSINESS 5.3

- **Geographic Information Systems Have Many Uses**

1. Describe how your university might use GIS. Provide specific examples in your answer.
2. What are potential disadvantages of GIS? Provide specific examples in your answer.



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