

Business Intelligence and Analytics: Systems for Decision Support, 10e (Sharda)
Chapter 1 An Overview of Business Intelligence, Analytics, and Decision Support

1) Computerized support is only used for organizational decisions that are responses to external pressures, not for taking advantage of opportunities.

Answer: FALSE

Diff: 2 Page Ref: 5

2) The complexity of today's business environment creates many new challenges for organizations, such as global competition, but creates few new opportunities in return.

Answer: FALSE

Diff: 2 Page Ref: 6

3) In addition to deploying business intelligence (BI) systems, companies may also perform other actions to counter business pressures, such as improving customer service and entering business alliances.

Answer: TRUE

Diff: 1 Page Ref: 6-7

4) The overwhelming majority of competitive actions taken by businesses today feature computerized information system support.

Answer: TRUE

Diff: 1 Page Ref: 7

5) PCs and, increasingly, mobile devices are the most common means of providing managers with information to directly support decision making, instead of using IT staff intermediaries.

Answer: TRUE

Diff: 2 Page Ref: 7

6) In today's business environment, creativity, intuition, and interpersonal skills are effective substitutes for analytical decision making.

Answer: FALSE

Diff: 2 Page Ref: 8

7) In a four-step process for decision making, managers construct a model of the problem before they evaluate potential solutions.

Answer: TRUE

Diff: 2 Page Ref: 9

8) Due to the fact that business environments are now more complex than ever, trial-and-error is an effective means of arriving at acceptable solutions.

Answer: FALSE

Diff: 2 Page Ref: 9

9) Group collaboration software has proved generally ineffective at improving decision-making.

Answer: FALSE

Diff: 3 Page Ref: 9-10

10) Due to the fact that organizations seek to store greater amounts of data than ever before, the cost per byte of computer-based data storage devices is rapidly rising.

Answer: FALSE

Diff: 3 Page Ref: 10

11) Computerized information systems help decision makers overcome human cognitive limitations in assembling and processing varied information. However, this is of little use in most analytical applications.

Answer: FALSE

Diff: 3 Page Ref: 10

12) In the Gorry and Scott-Morton framework of structured, semi-structured, and unstructured decisions, computerized decision support can bring benefits to unstructured decisions.

Answer: TRUE

Diff: 2 Page Ref: 12

13) The term *decision support system* is a very specific term that implies the same tool, system, and development approach to most developers.

Answer: FALSE

Diff: 3 Page Ref: 13

14) The access to data and ability to manipulate data (frequently including real-time data) are key elements of business intelligence (BI) systems.

Answer: TRUE

Diff: 2 Page Ref: 14

15) One of the four components of BI systems, business performance management, is a collection of source data in the data warehouse.

Answer: FALSE

Diff: 3 Page Ref: 15

16) Actionable intelligence is the primary goal of modern-day Business Intelligence (BI) systems vs. historical reporting that characterized Management Information Systems (MIS).

Answer: TRUE

Diff: 3 Page Ref: 17

17) The use of dashboards and data visualizations is seldom effective in finding efficiencies in organizations, as demonstrated by the Seattle Children's Hospital Case Study.

Answer: FALSE

Diff: 2 Page Ref: 21

18) The use of statistics in baseball by the Oakland Athletics, as described in the *Moneyball* case study, is an example of the effectiveness of prescriptive analytics.

Answer: TRUE

Diff: 2 Page Ref: 23

19) Pushing programming out to distributed data is achieved solely by using the Hadoop Distributed File System or HDFS.

Answer: FALSE

Diff: 2 Page Ref: 28

20) Volume, velocity, and variety of data characterize the Big Data paradigm.

Answer: TRUE

Diff: 2 Page Ref: 28

21) In the Magpie Sensing case study, the automated collection of temperature and humidity data on shipped goods helped with various types of analytics. Which of the following is an example of prescriptive analytics?

A) real time reports of the shipment's temperature

B) warning of an open shipment seal

C) location of the shipment

D) optimal temperature setting

Answer: D

Diff: 3 Page Ref: 4

22) In the Magpie Sensing case study, the automated collection of temperature and humidity data on shipped goods helped with various types of analytics. Which of the following is an example of predictive analytics?

A) real time reports of the shipment's temperature

B) warning of an open shipment seal

C) location of the shipment

D) optimal temperature setting

Answer: B

Diff: 3 Page Ref: 4

23) Which of the following is NOT an example that falls within the four major categories of business environment factors for today's organizations?

A) globalization

B) increased pool of customers

C) fewer government regulations

D) increased competition

Answer: C

Diff: 2 Page Ref: 5-6

24) Organizations counter the pressures they experience in their business environments in multiple ways. Which of the following is NOT an effective way to counter these pressures?

A) reactive actions

B) anticipative actions

C) adaptive actions

D) retroactive actions

Answer: D

Diff: 2 Page Ref: 6

25) Which of the following activities permeates nearly all managerial activity?

- A) planning
- B) controlling
- C) directing
- D) decision-making

Answer: D

Diff: 2 Page Ref: 7

26) Why are analytical decision making skills now viewed as more important than interpersonal skills for an organization's managers?

- A) because interpersonal skills are never important in organizations
- B) because personable and friendly managers are always the least effective
- C) because analytical-oriented managers produce better results over time
- D) because analytical-oriented managers tend to be flashier and less methodical

Answer: C

Diff: 3 Page Ref: 8

27) Business environments and government requirements are becoming more complex. All of the following actions to manage this complexity would be appropriate EXCEPT

- A) hiring more sophisticated and computer-savvy managers.
- B) deploying more sophisticated tools and technique.
- C) seeking new ways to avoid government compliance.
- D) avoiding expensive trial and error to find out what works.

Answer: C

Diff: 2 Page Ref: 9

28) The deployment of large data warehouses with terabytes or even petabytes of data been crucial to the growth of decision support. All the following explain why EXCEPT

- A) data warehouses have enabled the affordable collection of data for analytics.
- B) data warehouses have enabled the collection of decision makers in one place.
- C) data warehouses have assisted the collection of data for data mining.
- D) data warehouses have assisted the collection of data from multiple sources.

Answer: B

Diff: 2 Page Ref: 10

29) Which of the following statements about cognitive limits of organizational decision makers is true?

- A) Only top managers make decisions where cognitive limits are strained.
- B) The most talented and effective managers do not have cognitive limitations.
- C) All organizational decision-making requires data beyond human cognitive limits.
- D) Cognitive limits affect both the recall and use of data by decision makers.

Answer: D

Diff: 2 Page Ref: 10

30) For the majority of organizations, evaluating the credit rating of a potential business partner is a(n)

- A) strategic decision.
- B) structured decision.
- C) unstructured decision.
- D) managerial control decision.

Answer: D

Diff: 2 Page Ref: 11

31) For the majority of organizations, a daily accounts receivable transaction is a(n)

- A) strategic decision.
- B) structured decision.
- C) unstructured decision.
- D) managerial control decision.

Answer: B

Diff: 2 Page Ref: 11

32) All of the following may be viewed as decision support systems EXCEPT

- A) an expert system to diagnose a medical condition.
- B) a knowledge management system to guide decision makers.
- C) a system that helps to manage the organization's supply chain management.
- D) a retail sales system that processes customer sales transactions.

Answer: D

Diff: 2 Page Ref: 13

33) Business intelligence (BI) can be characterized as a transformation of

- A) data to information to decisions to actions.
- B) Big Data to data to information to decisions.
- C) actions to decisions to feedback to information.
- D) data to processing to information to actions.

Answer: A

Diff: 3 Page Ref: 14

34) In answering the question "Which customers are most likely to click on my online ads and purchase my goods?", you are most likely to use which of the following analytic applications?

- A) customer profitability
- B) propensity to buy
- C) customer attrition
- D) channel optimization

Answer: B

Diff: 3 Page Ref: 17

35) In answering the question "Which customers are likely to be using fake credit cards?", you are most likely to use which of the following analytic applications?

- A) channel optimization
- B) customer segmentation
- C) fraud detection
- D) customer profitability

Answer: C

Diff: 3 Page Ref: 17

36) When Sabre developed their Enterprise Data Warehouse, they chose to use near-real-time updating of their database. The main reason they did so was

- A) to provide a 360 degree view of the organization.
- B) to aggregate performance metrics in an understandable way.
- C) to be able to assess internal operations.
- D) to provide up-to-date executive insights.

Answer: D

Diff: 3 Page Ref: 17

37) How are descriptive analytics methods different from the other two types?

- A) They answer "what-if?" queries, not "how many?" queries.
- B) They answer "what-is?" queries, not "what will be?" queries.
- C) They answer "what to do?" queries, not "what-if?" queries.
- D) They answer "what will be?" queries, not "what to do?" queries.

Answer: B

Diff: 3 Page Ref: 20-24

38) Prescriptive BI capabilities are viewed as more powerful than predictive ones for all the following reasons EXCEPT

- A) prescriptive BI gives actual guidance as to actions.
- B) understanding the likelihood of certain events often leaves unclear remedies.
- C) only prescriptive BI capabilities have monetary value to top-level managers.
- D) prescriptive models generally build on (with some overlap) predictive ones.

Answer: C

Diff: 3 Page Ref: 24-25

39) Which of the following statements about Big Data is true?

- A) Data chunks are stored in different locations on one computer.
- B) Hadoop is a type of processor used to process Big Data applications.
- C) MapReduce is a storage filing system.
- D) Pure Big Data systems do not involve fault tolerance.

Answer: D

Diff: 3 Page Ref: 28

- 40) Big Data often involves a form of distributed storage and processing using Hadoop and MapReduce. One reason for this is
- A) centralized storage creates too many vulnerabilities.
 - B) the "Big" in Big Data necessitates over 10,000 processing nodes.
 - C) the processing power needed for the centralized model would overload a single computer.
 - D) Big Data systems have to match the geographical spread of social media.

Answer: C

Diff: 3 Page Ref: 28

- 41) The desire by a customer to customize a product falls under the _____ category of business environment factors.

Answer: consumer demand

Diff: 2 Page Ref: 6

- 42) An older and more diverse workforce falls under the _____ category of business environment factors.

Answer: societal

Diff: 2 Page Ref: 6

- 43) Organizations using BI systems are typically seeking to _____ the gap between the organization's current and desired performance.

Answer: close

Diff: 2 Page Ref: 7

- 44) Mintzberg defines the _____ as a managerial role that involves searching the environment for new opportunities.

Answer: entrepreneur

Diff: 2 Page Ref: 8

- 45) Group communication and _____ involves decision makers who are likely to be in different locations.

Answer: collaboration

Diff: 2 Page Ref: 10

- 46) _____ technology enables managers to access and analyze information anytime and from anyplace.

Answer: Wireless

Diff: 2 Page Ref: 10

- 47) A(n) _____ problem such as setting budgets for products is one that has some structured elements and some unstructured elements also.

Answer: semistructured

Diff: 2 Page Ref: 12

48) A(n) _____ problem such as new technology development is one that has very few structured elements.

Answer: unstructured

Diff: 2 Page Ref: 12

49) _____ is an umbrella term that combines architectures, tools, databases, analytical tools, applications, and methodologies.

Answer: Business intelligence (BI)

Diff: 2 Page Ref: 14

50) A(n) _____ is a major component of a Business Intelligence (BI) system that holds source data.

Answer: data warehouse

Diff: 2 Page Ref: 15

51) A(n) _____ is a major component of a Business Intelligence (BI) system that is usually browser based and often presents a portal or dashboard.

Answer: user interface

Diff: 2 Page Ref: 15

52) _____ cycle times are now extremely compressed, faster, and more informed across industries.

Answer: Business

Diff: 2 Page Ref: 16

53) The fraud _____ analytic application helps determine fraudulent events and take action.

Answer: detection

Diff: 2 Page Ref: 17

54) Sabre used executive _____ to present performance metrics in a concise way to its executives.

Answer: dashboards

Diff: 2 Page Ref: 17

55) _____ analytics help managers understand current events in the organization including causes, trends, and patterns.

Answer: Descriptive

Diff: 2 Page Ref: 20

56) _____ analytics help managers understand probable future outcomes.

Answer: Predictive

Diff: 2 Page Ref: 22

57) _____ analytics help managers make decisions to achieve the best performance in the future.

Answer: Prescriptive

Diff: 2 Page Ref: 24

58) The Google search engine is an example of Big Data in that it has to search and index billions of _____ in fractions of a second for each search.

Answer: web pages

Diff: 2 Page Ref: 27-28

59) The filing system developed by Google to handle Big Data storage challenges is known as the _____ Distributed File System.

Answer: Hadoop

Diff: 2 Page Ref: 28

60) The programming algorithm developed by Google to handle Big Data computational challenges is known as _____.

Answer: MapReduce

Diff: 2 Page Ref: 28

61) The environment in which organizations operate today is becoming more and more complex. Business environment factors can be divided into four major categories. What are these categories?

Answer:

- Markets
- Consumer demands
- Technology
- Societal

Diff: 2 Page Ref: 6

62) List four of Mintzberg's Decisional roles of managers.

Answer:

- **Entrepreneur:** Searches the organization and its environment for opportunities and initiates improvement projects to bring about change; supervises design of certain projects
- **Disturbance handler:** Is responsible for corrective action when the organization faces important, unexpected disturbances
- **Resource allocator:** Is responsible for the allocation of organizational resources of all kinds; in effect, is responsible for the making or approval of all significant organizational decisions
- **Negotiator:** Is responsible for representing the organization at major negotiations

Diff: 2 Page Ref: 8

63) Managers usually make decisions by following a four-step process. What are the steps?

Answer:

1. Define the problem (i.e., a decision situation that may deal with some difficulty or with an opportunity).
2. Construct a model that describes the real-world problem.
3. Identify possible solutions to the modeled problem and evaluate the solutions.
4. Compare, choose, and recommend a potential solution to the problem.

Diff: 2 Page Ref: 9

64) List three developments that have contributed to facilitating growth of decision support and analytics.

Answer:

- Group communication and collaboration
- Improved data management
- Managing giant data warehouses and Big Data
- Analytical support
- Overcoming cognitive limits in processing and storing information
- Knowledge management
- Anywhere, anytime support

Diff: 2 Page Ref: 10

65) Describe the types of computer support that can be used for structured, semistructured, and unstructured decisions.

Answer:

- **Structured Decisions:** Structured problems, which are encountered repeatedly, have a high level of structure. It is therefore possible to abstract, analyze, and classify them into specific categories and use a scientific approach for automating portions of this type of managerial decision making.
- **Semistructured Decisions:** Semistructured problems may involve a combination of standard solution procedures and human judgment. Management science can provide models for the portion of a decision-making problem that is structured. For the unstructured portion, a DSS can improve the quality of the information on which the decision is based by providing, for example, not only a single solution but also a range of alternative solutions, along with their potential impacts.
- **Unstructured Decisions:** These can be only partially supported by standard computerized quantitative methods. It is usually necessary to develop customized solutions. However, such solutions may benefit from data and information generated from corporate or external data sources.

Diff: 2 Page Ref: 12-13

66) What are the four major components of a Business Intelligence (BI) system?

Answer:

1. A **data warehouse**, with its source data;
2. **Business analytics**, a collection of tools for manipulating, mining, and analyzing the data in the data warehouse;
3. **Business performance management (BPM)** for monitoring and analyzing performance; and
4. A **user interface** (e.g., a dashboard).

Diff: 3 Page Ref: 15

67) List and describe three levels or categories of analytics that are most often viewed as sequential and independent, but also occasionally seen as overlapping.

Answer:

- **Descriptive or reporting analytics** refers to knowing what is happening in the organization and understanding some underlying trends and causes of such occurrences.
- **Predictive analytics** aims to determine what is likely to happen in the future. This analysis is based on statistical techniques as well as other more recently developed techniques that fall under the general category of data mining.
- **Prescriptive analytics** recognizes what is going on as well as the likely forecast and make decisions to achieve the best performance possible.

Diff: 3 Page Ref: 20-24

68) How does Amazon.com use predictive analytics to respond to product searches by the customer?

Answer: Amazon uses clustering algorithms to segment customers into different clusters to be able to target specific promotions to them. The company also uses association mining techniques to estimate relationships between different purchasing behaviors. That is, if a customer buys one product, what else is the customer likely to purchase? That helps Amazon recommend or promote related products. For example, any product search on Amazon.com results in the retailer also suggesting other similar products that may interest a customer.

Diff: 3 Page Ref: 22-23

69) Describe and define Big Data. Why is a search engine a Big Data application?

Answer:

- Big Data is data that cannot be stored in a single storage unit. Big Data typically refers to data that is arriving in many different forms, be they structured, unstructured, or in a stream. Major sources of such data are clickstreams from Web sites, postings on social media sites such as Facebook, or data from traffic, sensors, or weather.
- A Web search engine such as Google needs to search and index billions of Web pages in order to give you relevant search results in a fraction of a second. Although this is not done in real time, generating an index of all the Web pages on the Internet is not an easy task.

Diff: 3 Page Ref: 27-28

70) What storage system and processing algorithm were developed by Google for Big Data?

Answer:

- Google developed and released as an Apache project the Hadoop Distributed File System (HDFS) for storing large amounts of data in a distributed way.
- Google developed and released as an Apache project the MapReduce algorithm for pushing computation to the data, instead of pushing data to a computing node.

Diff: 3 Page Ref: 28