

Business Intelligence, 3e (Sharda/Delen/Turban)

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: 6-7

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: 7

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: 8

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

Answer: TRUE

Diff: 1 Page Ref: 8

5) 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: 8-9

6) 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: 10

7) 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: 12

8) Data warehouse and BI initiatives typically follow a process similar to that used in military intelligence initiatives.

Answer: TRUE

Diff: 2 Page Ref: 13

9) The two critical partnerships required for BI governance are (a) a partnership between functional area users and/or product/service area employees, and (b) a partnership between representatives of the marketing and vendor sides.

Answer: FALSE

Diff: 3 Page Ref: 13

10) The term *intelligence* in a BI context is used to describe clandestine operations dedicated to stealing corporate secrets, in the manner of the government's CIA and other covert agencies.

Answer: FALSE

Diff: 2 Page Ref: 14

11) Information systems that support such transactions as ATM withdrawals, bank deposits, and cash register scans at the grocery store represent transaction processing, a critical branch of BI.

Answer: FALSE

Diff: 2 Page Ref: 15

12) Many business users in the 1980s referred to their mainframes as "the black hole," because all the information went into it, but little ever came back and ad hoc real-time querying was virtually impossible.

Answer: TRUE

Diff: 2 Page Ref: 15

13) The success of BI is assured not because of which personnel would be the most likely to use it, but as a result of pervasive adoption across the organization.

Answer: FALSE

Diff: 2 Page Ref: 16

14) BI represents a bold new paradigm in which the company's business strategy must be aligned to its business intelligence analysis initiatives.

Answer: FALSE

Diff: 2 Page Ref: 16

15) Traditional BI systems use a large volume of static data that has been extracted, cleansed, and loaded into a data warehouse to produce reports and analyses.

Answer: TRUE

Diff: 2 Page Ref: 17

16) Almost all BI applications are constructed with shells provided by an outsourcing provider who may themselves create a custom solution for a vendor or work with another client.

Answer: FALSE

Diff: 3 Page Ref: 18

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: 29

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: 4-5

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
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Answer: B

Diff: 3 Page Ref: 4-5

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: 7

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: 7-8

25) 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: 9

26) 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: 11

27) 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: 11

28) 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: 11-12

- 29) Once a data warehouse is in place, the general process of intelligence creation begins with
- A) end-user examinations of decision-making impacts.
 - B) identifying and prioritizing specific BI projects.
 - C) estimating the cost-benefit ratio of the ROI.
 - D) establishing the critical partnerships required for BI governance.

Answer: B

Diff: 3 Page Ref: 13

- 30) When middle managers look across an organization to ensure that project priorities reflect the needs of the entire business, what is their main concern?

- A) that their proprietary BI methods are protected from industrial espionage
- B) that additional information available through an enterprise data warehouse should assist in decision making
- C) that a project does not just serve to sub-optimize one area over others
- D) that return on investment (ROI) and total cost of ownership justify the cost—benefit ratio

Answer: C

Diff: 2 Page Ref: 13

- 31) Online transaction processing (OLTP) systems handle a company's routine ongoing business. In contrast, a data warehouse is typically

- A) the end result of BI processes and operations.
- B) a repository of actionable intelligence obtained from a data mart.
- C) a distinct system that provides storage for data that will be made use of in analysis.
- D) an integral subsystem of an online analytical processing (OLAP) system.

Answer: C

Diff: 2 Page Ref: 15

- 32) The very design that makes an OLTP system efficient for transaction processing makes it inefficient for what?

- A) end-user ad hoc reports, queries, and analysis
- B) transaction processing systems that constantly update operational databases
- C) the collection of reputable sources of intelligence
- D) transactions such as ATM withdrawals, where we need to reduce a bank balance accordingly

Answer: A

Diff: 2 Page Ref: 15

- 33) What can the BI users in an organization help guide and direct?

- A) how to implement and deploy a BI initiative that can be lengthy, expensive, and failure prone
- B) how the DW is structured and the types of BI tools and other supporting software that are needed
- C) how to decompose the planning and execution into business, organization, functionality, and infrastructure components
- D) how the DW is structured and the costs and the appreciation for different classes of potential users

Answer: B

Diff: 2 Page Ref: 16

34) If a company's strategy is properly aligned with DW and BI initiatives, and if the company's IS organization can be made capable of playing its role in such a project, and if the requisite user community is in place and has the proper motivation, then

A) it is no longer necessary to start BI within the company.

B) it is wise to start BI and establish a BI Competency Center (BICC) within the company.

C) the organization is ready for the introduction of new data-generating technologies, such as radio-frequency identification (RFID).

D) business leaders are required to document their business processes and to sign off on the legitimacy of the information they rely on.

Answer: B

Diff: 2 Page Ref: 17

35) What has caused the growth of the demand for instant, on-demand access to dispersed information?

A) the increasing divide between users who focus on the strategic level and those who are more oriented to the tactical level

B) the need to create a database infrastructure that is always online and contains all the information from the OLTP systems

C) the more pressing need to close the gap between the operational data and strategic objectives

D) the fact that BI cannot simply be a technical exercise for the information systems department

Answer: C

Diff: 3 Page Ref: 17

36) Today, many vendors offer diversified tools, some of which are completely preprogrammed (called shells). How are these shells utilized?

A) They are used for customization of BI solutions.

B) All a user needs to do is insert the numbers.

C) The shell provides a secure environment for the organization's BI data.

D) They host an enterprise data warehouse that can assist in decision making.

Answer: B

Diff: 2 Page Ref: 18

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: 20-23

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: 22

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: 27-28

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: 27-28

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: 7

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

Answer: societal

Diff: 2 Page Ref: 7

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: 8

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

Answer: Business intelligence (BI)

Diff: 2 Page Ref: 8

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

Answer: data warehouse

Diff: 2 Page Ref: 10

46) 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: 10

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

Answer: Business

Diff: 2 Page Ref: 10

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

Answer: detection

Diff: 2 Page Ref: 11

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

Answer: dashboards

Diff: 2 Page Ref: 11

50) Some organizations refer to the project prioritization process as a form of BI _____.

Answer: governance

Diff: 2 Page Ref: 13

51) Applications based upon sensor and location data that contribute to the exponential growth of collected raw data is called _____ identification.

Answer: radio-frequency

Diff: 2 Page Ref: 14

52) Data warehouses are intended to work with informational data used for online _____ processing systems.

Answer: analytical

Diff: 2 Page Ref: 15

53) Many BI consultants and practitioners involved in successful BI initiatives advise that a framework for _____ is a necessary precondition.

Answer: planning

Diff: 2 Page Ref: 16

54) As the number of potential BI applications increases, the need to justify and prioritize them arises. This is not an easy task due to the large number of _____ benefits.

Answer: intangible

Diff: 2 Page Ref: 18

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: 20

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

Answer: Prescriptive

Diff: 2 Page Ref: 22

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

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 programing 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: 7

62) 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
4. A **user interface** (e.g., a dashboard)

Diff: 3 Page Ref: 10

63) What is a typical set of issues, as described in section 1.4, that the BI governance team needs to address?

Answer:

- Creating categories of projects (investment, business opportunity, strategic, mandatory, etc.)
- Defining criteria for project selection
- Determining and setting a framework for managing project risk
- Managing and leveraging project interdependencies
- Continually monitoring and adjusting the composition of the portfolio

Diff: 2 Page Ref: 13-14

64) What is the intent of the analysis of data that is stored in a data warehouse?

Answer: The intent of the analysis is to give management the ability to analyze data for insights into the business, and thus provide tactical or operational decision support whereby, for example, line personnel can make quicker and/or more informed decisions.

Diff: 2 Page Ref: 15

65) Mention four possible functions that a BI Competency Center (BICC) would serve within an organization, and give a brief description of each.

Answer:

- The center can demonstrate how BI is clearly linked to strategy and execution of strategy.
- A center can serve to encourage interaction between the potential business user communities and the IS organization.
- The center can serve as a repository and disseminator of best BI practices between and among the different lines of business.
- Standards of excellence in BI practices can be advocated and encouraged throughout the company.
- The IS organization can learn a great deal through interaction with the user communities, such as knowledge about the variety of types of analytical tools that are needed.
- The business user community and IS organization can better understand why the data warehouse platform must be flexible enough to provide for changing business requirements.
- It can help important stakeholders like high-level executives see how BI can play an important role.

Diff: 3 Page Ref: 17

66) Business applications can be programmed to act on what real-time BI systems discover. Describe two approaches to the implementation of real-time BI.

Answer:

- One approach to real-time BI uses the DW model of traditional BI systems. In this case, products from innovative BI platform providers provide a service-oriented, near—real-time solution that populates the DW much faster than the typical nightly extract/transfer/load (ETL) batch update does.
- A second approach, commonly called business activity management (BAM), is adopted by pure play BAM and or hybrid BAM-middleware providers (such as Savvion, Iteration Software, Vitria, webMethods, Quantive, Tibco, or Vineyard Software). It bypasses the DW entirely and uses Web services or other monitoring means to discover key business events. These software monitors (or intelligent agents) can be placed on a separate server in the network or on the transactional application databases themselves, and they can use event- and process-based approaches to proactively and intelligently measure and monitor operational processes.

Diff: 3 Page Ref: 18

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: 20-23

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: 21-22

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

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: 27-28