Enterprise Systems for Management, 2e **(Motiwalla/Thompson)**
Chapter 3 Enterprise Systems Architecture

1) Implementing a new ERP system is mainly a question of installing ERP software.
Answer: FALSE
Diff: 2 Page Ref: 59

2) The hard part of installing an ERP system is changing the business processes of the people who will use the system.
Answer: TRUE
Diff: 2 Page Ref: 59

3) An ERP system architecture should adapt to future business challenges.
Answer: TRUE
Diff: 1 Page Ref: 59

4) ERP systems need both current and historical data.
Answer: TRUE
Diff: 2 Page Ref: 59

5) Understanding the enterprise architecture is helpful because it helps everyone understand the various components of the enterprise system better.
Answer: TRUE
Diff: 1 Page Ref: 59

6) The functional view of the enterprise system architecture defines the physical components of the system.
Answer: FALSE
Diff: 3 Page Ref: 60

7) The databases used are components of the ERP system architecture.
Answer: TRUE
Diff: 3 Page Ref: 60

8) Organizations rarely selectively implement different ERP modules.
Answer: FALSE
Diff: 3 Page Ref: 60

9) ERP software provides business functionality for everything except human resources.
Answer: FALSE
Diff: 2 Page Ref: 61

10) In ERP software, the procurement module includes the best practices on purchasing.
Answer: TRUE
Diff: 2 Page Ref: 61

11) Logistics is an example of a typical ERP module.
Answer: TRUE
Diff: 2 Page Ref: 61

12) Marketing automation is an example of a typical ERP module.
Answer: FALSE
Diff: 3 Page Ref: 61

13) Production modules have evolved from MRP II into ERP systems.
Answer: TRUE
Diff: 3 Page Ref: 62

14) ERP vendors generally use the same names for all their different modules.
Answer: FALSE
Diff: 1 Page Ref: 62

15) The purchasing module must be tightly integrated with the inventory control and the sales logistics modules.
Answer: FALSE
Diff: 3 Page Ref: 62

16) The inventory module helps maintain the appropriate level of stock in a warehouse.
Answer: TRUE
Diff: 1 Page Ref: 63

17) Most ERP vendors offer an online storefront as part of the sales module.
Answer: TRUE
Diff: 2 Page Ref: 63

18) Sales modules have to be closely integrated with the organization's network module.
Answer: FALSE
Diff: 2 Page Ref: 63

19) The HR module is usually the last module implemented by companies.
Answer: FALSE
Diff: 3 Page Ref: 63

20) When a new employee is hired and enrolled in the company benefits plan, this would involve using the human resources module.
Answer: TRUE
Diff: 2 Page Ref: 63

21) Project management is an example of a non-traditional ERP module now being offered by some vendors.
Answer: TRUE
Diff: 3 Page Ref: 64

22) A performance management module is useful for empowering employees and managers by giving them easy access to all their relevant information.
Answer: FALSE
Diff: 3 Page Ref: 64

23) One benefit of using a financial module is that it provides strong support for Sarbanes-Oxley reporting.
Answer: TRUE
Diff: 2 Page Ref: 65

24) The procurement and logistics module benefits the organization by helping to reduce transportation costs.
Answer: TRUE
Diff: 2 Page Ref: 65

25) In an ERP architecture, hardware layering has had a significant impact on scalability.
Answer: TRUE
Diff: 3 Page Ref: 65

26) ERP applications are most commonly deployed in a distributed and often widely dispersed manner.
Answer: TRUE
Diff: 2 Page Ref: 65

27) ERP system architectures are organized in layers or tiers to help manage the complexity of the system.
Answer: TRUE
Diff: 2 Page Ref: 65

28) Legacy systems and third party applications can be linked to ERP systems through the GUI.
Answer: FALSE
Diff: 3 Page Ref: 65

29) Middleware provides generic interfaces with which integrated applications pass messages to each other.
Answer: TRUE
Diff: 2 Page Ref: 66

30) SAP developed its own platform for systems integration called OASIS.
Answer: FALSE
Diff: 2 Page Ref: 67

31) A web-based portal allows users to get access to their ERP applications through their browser.
Answer: TRUE
Diff: 2 Page Ref: 67

32) OLAP is the foundation of the business intelligence module in ERP systems.
Answer: TRUE
Diff: 2 Page Ref: 71

33) Today's IT infrastructure focuses on integrating the corporate architecture with the GUI and extending it beyond the organization.
Answer: FALSE
Diff: 2 Page Ref: 71

34) Three-tier architectures are scalable in that it is easier to add, change and remove applications and hardware.
Answer: TRUE
Diff: 2 Page Ref: 73

35) With the addition of the extra tier, the three-tier architecture is considerably less complex than the two-tier architecture.
Answer: FALSE
Diff: 1 Page Ref: 73

36) The ERP system _____ determines the relationships between all the complex IT components.
A) network
B) layout
C) architecture
D) middleware
Answer: C
Diff: 1 Page Ref: 59

37) The IT components of an ERP system architecture include the hardware, software and the:
A) security.
B) data.
C) organization.
D) middleware.
Answer: B
Diff: 2 Page Ref: 59

38) The enterprise system architecture can be viewed from two different angles; the functional angle and the _____ angle.
A) system
B) network
C) decisional
D) logical
Answer: A
Diff: 2 Page Ref: 60

39) ERP vendors break the software up into _____ which organizations can selectively implement to support their different functional areas.
A) programs
B) systems
C) applications
D) modules
Answer: D
Diff: 2 Page Ref: 60

40) ERP vendors embed their best business _____ in their software to help businesses improve their productivity and performance.
A) decisions
B) products
C) practices
D) tasks
E) functions
Answer: C
Diff: 2 Page Ref: 61

41) If the ERP vendor's software and best practices do not match the organization's needs, it may be necessary to _____ the ERP software.
A) proceduralize
B) customize
C) compartmentalize
D) individualize
E) upgrade
Answer: B
Diff: 2 Page Ref: 61

42) Manufacturing capacity is planned and optimized using the _____ module.
A) purchasing
B) sales & marketing
C) production
D) accounting
Answer: C
Diff: 2 Page Ref: 62

43) If a company wants to streamline their procurement processes, they would probably choose to implement the _____ module.
A) inventory management
B) purchasing
C) logistics
D) finance
E) asset management
Answer: B
Diff: 3 Page Ref: 62

44) Order placement and schedule is handled in the _____ module.
A) sales and marketing
B) purchasing
C) logistics
D) finance
E) asset management
Answer: A
Diff: 2 Page Ref: 63

45) Employee data is managed in the _____ module.
A) database
B) purchasing
C) sales and marketing
D) credit management
E) human resource
Answer: E
Diff: 2 Page Ref: 63

46) The core of many ERP systems is the _____ module.
A) sales and marketing
B) purchasing
C) logistics
D) finance
E) process management
Answer: D
Diff: 3 Page Ref: 63

47) The _____ module provides tools and data warehousing capabilities.
A) self-service
B) project management
C) business intelligence
D) database
E) asset management
Answer: C
Diff: 3 Page Ref: 63

48) One benefit of the _____ module is that it helps companies comply with the government rules of the Sarbanes-Oxley Act.
A) accounting
B) sales and marketing
C) production
D) finance
Answer: D
Diff: 3 Page Ref: 64

49) A _____ module helps customers get more direct access to applications such as tracking the status of their orders.
A) self-service
B) project management
C) business intelligence
D) database
E) sales management
Answer: A
Diff: 3 Page Ref: 63

50) The _____ module uses data collection technologies such as RFID and bar codes to improve resource allocation for cross-docking processes.
A) procurement
B) production
C) transportation
D) sales
E) accounting
Answer: A
Diff: 3 Page Ref: 64

51) The _____ tier acts as the intermediary between the client applications and the database.
A) presentation
B) business
C) logical
D) middleware
Answer: B
Diff: 3 Page Ref: 65

52) Users input data in the _____ tier.
A) presentation
B) business
C) logical
D) application
E) database
Answer: A
Diff: 2 Page Ref: 65

53) In the ERP system, user _____ are set up to define access right for every user in the portal.
A) security
B) web-services
C) roles
D) application
Answer: C
Diff: 2 Page Ref: 67

54) Research shows that large companies lose up to _____ per minute every time their ERP system goes down.
A) $3K
B) $3.6M
C) $18K
D) $13K
E) $218K
Answer: D
Diff: 3 Page Ref: 68

55) A fully functioning ERP system needs a high availability _____ in order to support the growth of the user population and its expansion out to the supply chain partners.
A) database
B) application server
C) network
D) API
E) GUI
Answer: C
Diff: 3 Page Ref: 68

56) Online Analytical Processing is the foundation of the _____ module in ERP.
A) e-Commerce
B) business intelligence
C) performance management
D) project management
Answer: B
Diff: 2 Page Ref: 69

57) In a typical two-tier architecture, the server handles both the _____ and database duties.
A) network
B) security
C) protocol control
D) application
E) user access
Answer: D
Diff: 3 Page Ref: 70

58) In the three-tier architecture, the application, database, and _____ layers are separated into independent operating units.
A) network
B) security
C) protocol control
D) application
E) presentation
Answer: E
Diff: 3 Page Ref: 70

59) In the newer Web-based architecture, the _____ layer is split into the Web Services tier and the Web Browser tier.
A) network
B) security
C) database
D) application
E) presentation
Answer: E
Diff: 3 Page Ref: 72

60) In _____ environments, clients only need access to the Internet and a standard browser like Internet Explorer with a few plug-ins to interact with ERP applications.
A) server-centric
B) web-based
C) client-centric
D) n-tier client/server
Answer: A
Diff: 3 Page Ref: 72

61) The term _____ refers to system architectures that can have any number of distinct tiers including 4-tiers and more.
A) frontier
B) m-tier
C) n-tier
D) 4 tier
E) none of the above
Answer: C
Diff: 3 Page Ref: 65

62) The GUI resides on the _____ tier.
A) logical
B) presentation
C) GUI
D) Application
E) none of the above
Answer: B
Diff: 2 Page Ref: 65

63) The _____ tier consists of a web browser and a reporting tool.
A) GUI
B) logical
C) presentation
D) application
E) database
Answer: D
Diff: 3 Page Ref: 66

64) The global organization that helps to promote the use of a common language is called _____.
A) NCAA
B) OASIS
C) ICANN
D) Netweaver
E) none of the above
Answer: B
Diff: 3 Page Ref: 67

65) The web-based portal is part of the _____ tier.
A) application
B) presentation
C) GUI
D) Application
E) none of the above
Answer: B
Diff: 2 Page Ref: 67

66) In the ERP system, user _____ are set up to define the access rights for each and every functional user of the system.
A) accounts
B) GUIs
C) applications
D) roles
E) none of the above
Answer: D
Diff: 2 Page Ref: 67

67) Many ERP implementations fail to realize all the benefits because they don't provide the system with enough network _____.
A) bandwidth
B) traffic
C) software
D) hardware
E) none of the above
Answer: A
Diff: 3 Page Ref: 68

68) Because of the tremendous load that an ERP system places on the corporate LAN and WAN, it is crucial that companies go through network _____, when deploying an ERP system.
A) implementations
B) upgrades
C) downtime
D) capacity planning
E) none of the above
Answer: D
Diff: 3 Page Ref: 68

69) Third party system integration can be done in either the portal or the _____ layer.
A) presentation
B) logical
C) GUI
D) application
E) none of the above
Answer: D
Diff: 3 Page Ref: 70

70) The IT infrastructure in organizations has moved from centralized to client-server and _____.
A) distributed
B) recentralized
C) siloed
D) unmanageable
E) none of the above
Answer: A
Diff: 2 Page Ref: 71

71) The first generation of the distributed IT architecture involved _____ tiers.
A) one
B) two
C) three
D) n
E) none of the above
Answer: B
Diff: 2 Page Ref: 71

72) A drawback of the two-tier ERP architecture is that it requires expensive _____ for integrating other systems.
A) middleware
B) 1 tier systems
C) 3 tier systems
D) n-tier systems
E) none of the above
Answer: A
Diff: 3 Page Ref: 71

73) The GUI resides on the _____ layer of the three-tier system architecture.
A) logical
B) presentation
C) GUI
D) application
E) none of the above
Answer: B
Diff: 2 Page Ref: 72

74) The _____ client/server architecture has been shown to improve performance for groups with a large number of users.
A) one-tier
B) two-tier
C) three-tier
D) four-tier
E) none of the above
Answer: C
Diff: 3 Page Ref: 73

75) The next generation web-based architectures will help to deliver _____ access to ERP systems.
A) limited
B) centralized
C) short term
D) ubiquitous
E) none of the above
Answer: D
Diff: 2 Page Ref: 74

76) What are the typical modules available in an ERP system?
Answer: While the names of the modules may vary between ERP vendors, the main modules are: MRP, Sales and Marketing, Purchasing, Accounting, Finance, Human Resources, and production. These modules, along with some other miscellaneous modules, are designed to support all the functional areas in an organization.
Diff: 2 Page Ref: 60

77) Describe one potential benefit related to each of the main ERP modules.
Answer: The main modules in an ERP system go by different names with each of the main ERP vendors. In general, the Financial module helps to automate both the financial and managerial accounting tasks along the financial supply chain. Procurement and logistics modules reduce the supply chain costs by automating the supply chain processes. Sales and service modules help increase sales by increasing customer satisfaction. The Product Development and Manufacturing modules help to shorten the time to bring new products to market. Performance management modules help managers keep track of key performance statistics. Some companies also implement self-service modules to help employees and managers get access to pertinent information.
Diff: 2 Page Ref: 63

78) List and describe the three different layers of a traditional ERP architecture.
Answer: Traditionally, ERP architectures have been designed and developed with three layers or "tiers" in mind. The first layer is called the "data tier" and is responsible for managing the system data. The second layer is the "business tier" which is where the ERP software modules reside. The final layer is the "presentation tier" which is where the GUI or the interface resides.
Diff: 2 Page Ref: 66

79) What resides on the application tier of an ERP architecture? Give an example from a real system of what resides on the application tier.
Answer: The most important part of the application tier is that it is where the actual ERP applications reside. This also means that this is where the middleware and API tools reside in order to connect this layer or server to any legacy systems that must be integrated into the ERP system and any relational databases that will supply the data. This layer also makes use of a report writer and a Java interface layer to help connect it to the client.
Diff: 3 Page Ref: 67

80) Why are infrastructure considerations so important when implementing an ERP system?
Answer: With respect to ERP infrastructure, considerations such as network speed, availability and bandwidth are very important since more and more users will be logging onto the ERP system via a combination of different networks. This places a heavy burden on the networks as the number of users grows. And because they are doing more and more critical functions with their ERP systems on the networks, any time the systems go down means that the company will lose, on average, $13K/minute of downtime. This is a lot of money.
Diff: 2 Page Ref: 68

81) Why is the decision about which architecture to use when implementing an ERP system so important and complex?
Answer: An information system architecture is important because it describes how computing resources will be accessed and shared throughout the organization. This is especially important for the design of the integrated information systems. Originally, users had to connect to a mainframe computer with a variety of terminals in what was a very centralized IS architecture. With the advent of personal computers on everyone's desktop, computing became very decentralized since they had limited connections to other computers. Eventually, these personal computers were all linked up together in Client/Server networks in what is now known as a distributed IS architecture. This current model provides huge improvements in speed, power and access to data and applications, and does so for lower costs.
Diff: 2 Page Ref: 81

82) Briefly describe three different drawbacks of using an SOA for an ERP implementation.
Answer: Because SOAs are so new there are a number of different drawbacks in using them for ERP systems. First, they may be difficult to totally debug and their performance may be inconsistent. It also makes security considerations and maintenance more complex; especially since some of the services used will be coming from third party vendors and/or partners. In order to be successful it also requires that senior people at the enterprise level have to support the implementation. Initial costs are also high as the services need to be revised frequently.
Diff: 3 Page Ref: 76

83) Briefly describe three different benefits of using an SOA for an ERP implementation.
Answer: Potential SOA benefits can be classed as short-term, long-term and overall business value contributions. In the short-term, SOA can be used to link up incompatible technologies. In the longer term, it provides a platform for creating innovative composite applications which can generate real competitive advantages in the industry. Overall, an SOA should make the business much more agile in responding to a wide variety of changes in the business environment.
Diff: 3 Page Ref: 76

84) What is a Service Oriented Architecture? How is this being used to implement ERP systems?
Answer: SOA refers to a software development model that is based on a contract between a consumer and a provider of services. From an ERP perspective, SOA decomposes the business logic into smaller, distinct units of services. An example of a service might be a print routine, or a service to calculate the tax on a purchase. When deployed on the Web these can also be considered to be Web services. The difficult question with ERP systems is that each service must be integrated with all the other, related services to provide seamless support for users.
Diff: 3 Page Ref: 76

85) What is a Web-based Architecture? What impact will it have on ERP systems?
Answer: The Web is sometimes referred to as the "fourth tier" of the three-tier ERP architecture. As ERP vendors raced to link their systems with the Web, they broke the presentation tier into a Web Services tier and a Web Browser tier. This allows ERP systems to connect to the Internet to provide powerful new functionality for Internet-based access and integration. This helps provide ubiquitous access to all the powerful ERP modules and data using technology that is commonly known and used by users.
Diff: 2 Page Ref: 73