

Internal Assessment Test 1 – September 2018 – Answer Key

Sub:	Enterprise Resource Planning						Code:	17MCA352	
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Total marks: 50

1. a Define ERP. Explain benefits of ERP.

ERP stands for enterprise resource planning. ERP is the technique and concepts for integrating business as whole with the objective of efficient use of management resources and to improve the efficiency of enterprise management.

Enterprise: An enterprise is a group of people with common goal, which has certain resources to achieve this goal.

Benefits of ERP:

- Information Integration
- Reduction of Lead-time
- On-time Shipment
- Cycle-time reduction
- Better Customer satisfaction
- Improved supplier performance
- Increased flexibility
- Reduced quality cost
- Improved resource utilization
- Better analysis and planning capabilities
- Improved information accuracy & decision making capabilities
- Use of latest technology

2. a Explain ERP and Related Technology with an example

BPR has been around for quite some time and a lot has been written about it in both the practitioner trade magazines and the academic research journals. However, the controversy still remains if there is any accurate description of BPR, or if BPR is just a fad-an appealing label to tag on to whatever your company is doing to suggest that your latest and greatest work is 'in vogue.' But if reengineering is to continue in the long run, then it must do more than advertise its considerable successes to date. It must become more proactive and inclusive with regard to human, organizational, and motivational change issues.

Dr. Michael Hammer defines BPR as U ••• the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance such as

cost, quality, service and speed." One of the main tools for making this change is information technology (IT). Any BPR effort that fails to understand the importance of IT and does the pre-BPR analysis and planning phases without considering the various IT options available and the effect of the proposed IT solutions on the employees and the organization is bound to crash before takeoff.

We have discussed how ERP systems help in integrating the various business processes of the organization with the help of the latest developments in IT. With a good ERP package, the organization will have the capability of achieving dramatic improvements in critical areas such as cost, quality, speed, and so on. Thus, many BPR initiatives end up in the ERP implementation.

BUSINESS Intelligence (BI)

Business intelligence (BI) represents the tools and systems that play key role in the strategic planning process of the corporation. These systems allow a company to gather, store, access, and analyze corporate data to aid in decision-making. Generally, these systems will display business intelligence in the areas of customer profiling, profitability, statistical analysis, and inventory and distribution analysis, to name a few. customer support, market research, market segmentation, product .

Most companies collect large amount of data from their business operations. To keep track of that information, a business would need to use a wide range of software programs such as spreadsheets, databases, and different database applications for various departments throughout their organization. Using multiple software programs makes it difficult to retrieve information in a timely manner and to perform analysis of the data.

BUSINESS ANALYTICS (BA)

Business analytics (BA) is the practice of iterative, methodical exploration of an organization's data with emphasis on statistical analysis. Business analytics is used by companies committed to data-driven decision-making. BA is used to gain insights that inform business decisions and can be used to automate and optimize business processes. Data-driven companies treat their data as a corporate asset and leverage it for competitive advantage. Successful business analytics depends on data quality, skilled analysts who understand the technologies, and the business and an organizational commitment to data-driven decision-making. Examples of BA uses include:

- Exploring data to find new patterns and relationships
- Explaining why a certain result occurred
- Experimenting on previous decisions
- Forecasting future results

Once the business goal of the analysis is determined, an analysis methodology is selected and data is acquired to support the analysis. Data acquisition often involves extraction from one or more business systems, cleansing, and integration into a single repository such as a data warehouse or data mart. The analysis is typically performed against a smaller sample set of data. Analytic tools range from spreadsheets with statistical functions to complex data mining and predictive modeling applications. As patterns and relationships in the data are uncovered, new questions are asked and the analytic process iterates until the business goal is met. Deployment of predictive models involves scoring data records (typically in a database) and using the scores to optimize real-time decisions within applications and business processes. BA also supports tactical decision-making in response to unforeseen events; and in many cases the decision-making is automated to support real-time responses.

DATA WAREHOUSING

If operational data is kept in the databases of the ERP system, it can create a lot of problems. As time passes, the amount of data will increase and this will affect the performance of the ERP system. Thus, it is better to archive the operational data once its use is over. The phrase 'the use is over', does not mean that the archived data is useless. It is one of the most valuable resources of the organization. However, once the operational use of the data is over it should be removed from the operational databases. For example, once the financial year is over, the daily transactional data can be archived. Figure 8.2 shows what happens if the data is not archived.

It is evident from Fig. 8.2 that even though the operational data volume is nearly the same each year, if the data is not archived the total amount of data that is stored in the operational data base will keep piling up. The-graph in Fig.8.3 shows the effect of keeping this huge amount of data in the operational database. As the volume of the data in the database increases, the performance of the database and the related applications degrades. From the above discussions, it is evident that we should separate the operational data from the non-operational data. The term archive data is consciously avoided, because if the non-operational data is archived, there is little or no use for it. But this data is a very valuable resource and is too precious to be kept in some tape archive. It is in this situation that a data warehouse comes in handy.

The primary concept of data warehousing is that the data stored for business analysis can most effectively be accessed, by separating it from the data in the operational systems. The most important reason for separating data for business analysis from the operational data has always been the potential performance degradation on the operational system that can result from the analysis processes. High performance and quick response time is almost universally critical for operational systems.

These reasons to separate the operational data from analysis data have not significantly changed with the evolution of the data warehousing systems, except that now they are considered more formally during the data warehouse building process. Advances in technology and changes in the nature of business have made many of the business analysis processes much more complex and sophisticated. In addition to producing standard reports, today's data warehousing systems support very sophisticated on-line analysis including multi-dimensional analysis.

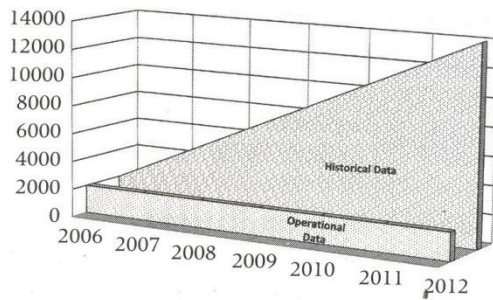


Figure 8.2 Operational data vs. archive data.

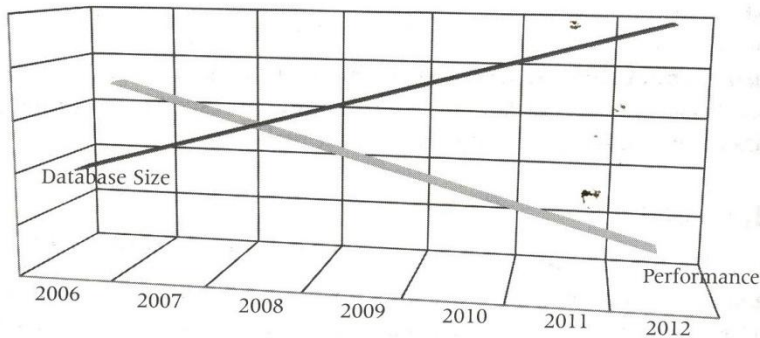


Figure 8.3 Data volume vs. performance.

3. a **What is Business Process Re-Engineering? Explain the different phases of an BPR**

Business Process Engineering means not just changes but dramatic change & improvement
 Begin Organizational change:

Activities:

- Assess the current state of the organization
- Explain the need for change
- Illustrate the desired state
- Create a communications campaign for change

Begin the reengineering organization

Activities:

- Establish a BPR organizational structure
- Establish the roles for performing BPR
- Choose the personnel who will reengineer

Identifying BPR opportunities

Activities:

- Identify the core/high-level processes
- Recognize potential change enablers
- Gather performance metrics within industry

- Gather performance metrics outside industry
- Select processes that should be reengineered
- Prioritize selected processes
- Evaluate pre-existing business strategies
- Consult with customers for their desires
- Determine customer's actual needs
- Formulate new process performance objectives
- Establish key process characteristics
- Identify potential barriers to implementation

Understanding the existing process

Activities:

- Understand why the current steps are performed
- Model the current process
- Understand how technology is currently used
- Understand how information is currently used
- Understand the current organizational structure
- Compare current process with the new objectives

Re-Engineering the process

Activities:

- Ensure the diversity of the reengineering team
- Question current operating assumptions
- Brainstorm using change levers
- Brainstorm using BPR principles
- Evaluate the impact of new technologies
- Consider the perspectives of stakeholders
- Use customer value as the focal point

Blue-print the new business system

Activities:

- Define the new flow of work
- Model the new process steps
- Model the new information requirements
- Document the new organizational structure
- Describe the new technology specifications
- Record the new personnel management systems
- Describe the new values and culture required

Perform the transformation

Activities:

- Develop a migration strategy
- Create a migration action plan
- Develop metrics for measuring performance during implementation
- Involve the impacted staff
- Implement in an iterative fashion

- Establish the new organizational structures
- Assess current skills and capabilities of workforce
- Map new tasks and skill requirements to staff
- Re-allocate workforce
- Develop a training curriculum
- Educate staff about the new process
- Educate the staff about new technology used
- Educate management on facilitation skills
- Decide how new technologies will be introduced
- Transition to the new technologies
- Incorporate process improvement mechanisms

4. a **What is supply chain management? How does SCM help to share data and GUT instincts with s partners? What are the advantages of SCM?**

The SCM encompasses all activities relating to the supply chain. This includes vendor selection, negotiation, relations and performance.

Business benefits of SCM:

Faster response to changes in supply and demand

Increased customer satisfaction (equity holders and purchaser, employees etc)

Compliance with regulatory requirement

Improved cash flow

Higher margins

Greater synchronization with business priorities

Advantages of SCM:

Supply Chain Planning & Collaboration

Supply Chain Execution

Supply Chain Visibility design & analytics

Business benefits

5. a **What are the sub systems of finance module of an ERP package? Explain the function of each of these sub system in detail.**

Finance module sub systems:

Financial accounting

Investment management

Controlling

Treasury

Enterprise controlling

Financial accounting:

General Ledger

Special Ledger

Accounts receivables & payables

Asset accounting

Legal Consolidation

Controlling:

Over-head cost controlling

Cost-Center controlling

Overhead Orders

Activity based costing

Product cost controlling

Cost-Object Controlling

Investment Management: Provides support for investment process from planning to settlement.

Treasury Module:

Cash management

Treasury management

Market risk management

Funds management

Enterprise Controlling:

Executive Information System

Calculation of ROI

Profit Center Accounting

6. a **What is the various subsystem of the Human Resource module? Explain each sub system in detail.**

HR Module

Personnel management

Organizational management

Payroll accounting

Time management

Personnel development

Personnel management

Personnel administration

Employee master data

Information system

Recruitment

Travel management

Benefits administration

Salary administration

Organizational management

Organizational structure

Staffing schedules

Job Description

Planning Scenarios

Personal cost planning

Payroll accounting

Gross/Net accounting

History function

Dialog capability

Multi- currency capabilities
International solutions

Time management
Shift planning
Work schedules
Time recordings
Absence determination

Personnel development
Career and succession planning
Profile comparisons
Qualification assessments
Additional training determination
Training and event management

7 a **List and explain the subsystem of Plant maintenance module**

Plant Maintenance Module:

- Preventive maintenance control
- Equipment tracking
- Component tracking
- Plant maintenance calibration tracking
- Plant maintenance warranty claims tracking

ERP Plant & Machine Maintenance module supports various options for structuring technical systems with its object, type and function-related views, and enables flexible navigation.

Data concerning the planning processing and history of maintenance tasks is documented in the system and complies with business verification requirements.

All maintenance tasks such as inspection, servicing and repair activities are saved in a historical database. In addition to standard indicators, diverse analysis options are also available in the system for evaluating this data.

Plant and Machine Maintenance module provides you with technical and business reports and various presentation options, according to the criteria used: for example organizational unit, location, execution period for tasks, or system manufacturer. This information helps you to reduce the duration and costs of plant down times as a result of damage and to recognize possible weak points within your technical system in good time.

8 a **What are the main objectives of the material management module**

- Pre-Purchasing activity
- Purchasing
- Vendor evaluation
- Inventory management
- Invoice verification & material inspection
- Multiple planning cycles and netting options
- Multiple item netting policies control the timing and quantities of supplies.
- Planned orders
- Distinct or repetitive/release-based supply order creation for manufactured, transferred and purchased

- Integrated with projects
- Multi-level
- Creation of manufacturing orders
- Activity planned in hours and minutes
- Overstock analysis
- Cancellations suggested

9 a **Explain the 4 major alternatives for implementing OLAP applications.**

Multi-dimensional OLAP – MOLAP (multidimensional online analytical processing) is online analytical processing (OLAP) that indexes directly into a multidimensional database. In general, an OLAP application treats data multidimensional; the user is able to view different aspects or facets of data aggregates such as sales by time, geography, and product model. If the data is stored in a relational data base, it can be viewed multidimensional, but only by successively accessing and processing a table for each dimension or aspect of a data aggregate. MOLAP processes data that is already stored in a multidimensional array in which all possible combinations of data are reflected, each in a cell that can be accessed directly. For this reason, MOLAP is, for most uses, faster and more user-responsive

Hybrid OLAP – HOLAP can use varying combinations of ROLAP and OLAP technology. Typically it stores data in a both a relational database (RDB) and a multidimensional database (MDDDB) and uses whichever one is best suited to the type of processing desired. The databases are used to store data in the most functional way. For data-heavy processing, the data is more efficiently stored in a RDB, while for speculative processing; the data is more effectively stored in an MDDDB.

Desktop OLAP – Desktop On-Line Analytic Processing (DOLAP) is single-tier, desktop-based OLAP technology. It is able to download a relatively small hypercube from a central point, usually from data mart or data warehouse, and perform multidimensional analyses while disconnected from the source. Data sets are limited to the boundaries defined by the user with no access to granular data.

Relational OLAP - Relational online analytical processing (ROLAP) is a form of online analytical processing (OLAP) that performs dynamic multidimensional analysis of data stored in a relational database rather than in a multidimensional database (which is usually considered the OLAP standard). Data processing may take place within the database system, a mid-tier server, or the client. In a two-tiered architecture, the user submits a Structure Query Language (SQL) query to the database and receives back the requested data. In a three-tiered architecture, the user submits a request for multidimensional analysis and the ROLAP engine converts the request to SQL for submission to the database.

10 a **Explain the major components for Data Warehousing**

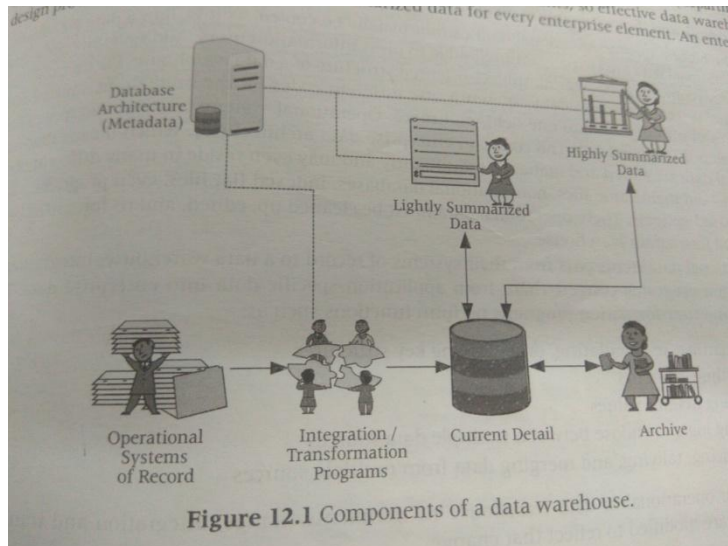
Data Warehouse- Designed to support decision making.

Data warehousing: The primary goal is to provide access to the data of organization.

Data warehouse Components:

1. Summarized data'

2. Operational Systems of records
3. Integration/ transformation programs
4. Current detail
5. Data warehouse architecture/ metadata
6. Archives



Summarized Data: is divided into two – lightly summarized and highly summarized. Lightly summarized data are the hallmark of a data warehouse. Highly summarized data are primarily for enterprise executives.

Current detail: The heart of the source of the data that feed the datawarehouse. Data in a data warehouse differ from operational data and be stored as raw data or as aggregations of raw data.

System of Records: A system of record is the source of data that feed the data warehouse. Data in data warehouse differ from data in operational systems, in that they can only be read, not modified.

Integration and Transformation Program performs the following functions:

1. Reformatting, re-calculating, or modifying key structures
2. Adding time elements
3. Identifying default values
4. Supply logic to choose between multiple data sources
5. Summarizing, tallying and merging data from multiple resources

Archives: Data warehouse contains old data of significant, continuing interest and value to the enterprise.

Metadata: The physical implementation of a data warehouse is defined using a naming convention and syntax rules. It is a required that a separate data definition language is implemented which provides a meaningful description of information contents.

