Course Code : MCS-052

Course Title : Principles of Management and Information Systems

Assignment Number : MCA(5)/052/Assign/2012
Maximum Marks : 100

Weightage : 25%

Last Dates for Submission : 15th October, 2012 (For July 2012 Session)
15thApril, 2013 (For January 2013 Session)

This assignment has seven questions. Answer all questions, carries 80 marks. Rest 20 marks are for viva voce. You may use illustrations and diagrams to enhance the explanations. Please go through the guidelines regarding assignments given in the Programme Guide for the format of presentation. Answer to each part of the question should be confined to about 350 words.

Q.1a)What are the different phases of decision making process? Explain.
Solution : Block 1 unit 4

Q1 b) Describe the role of ERP in contemporary business environment? Explain, how an ERP is different from conventional packages? Also, explain different components of an ERP.

Solution : Block 2 Unit 2 2.7

Q2 a) Explain the concept of data warehousing. Also, discuss its need in modem business.

Solution : The Data Warehouse

Bill Inman is father of data warehouse concept introduced in 1981. He writes that " one cornerstone of client/server applications is the notion of the difference between and separation of operational and decision support processing."

Bill Inman defines a warehouse as a separate database for decision support, which typically contains vast amount of information. Richard Hackthorn defines a warehouse as " a collection of data objects that have been intentioned for distribution to a business community." Data warehouse gather data from multiple sources under a unified schema at a single site. In general warehouse is an intelligent store of data that can manage and aggregate information from many sources, distribute it as and when necessary.

Elements of data warehousing

1 The Data replication manager

Manages the copying and distribution of data across databases as defined by the information users. The users defines the data that needs to be copied, the source and destination platforms. Update and data transforms. Refresh involves copying over the entire data source; update only generates the changes.

The informational database

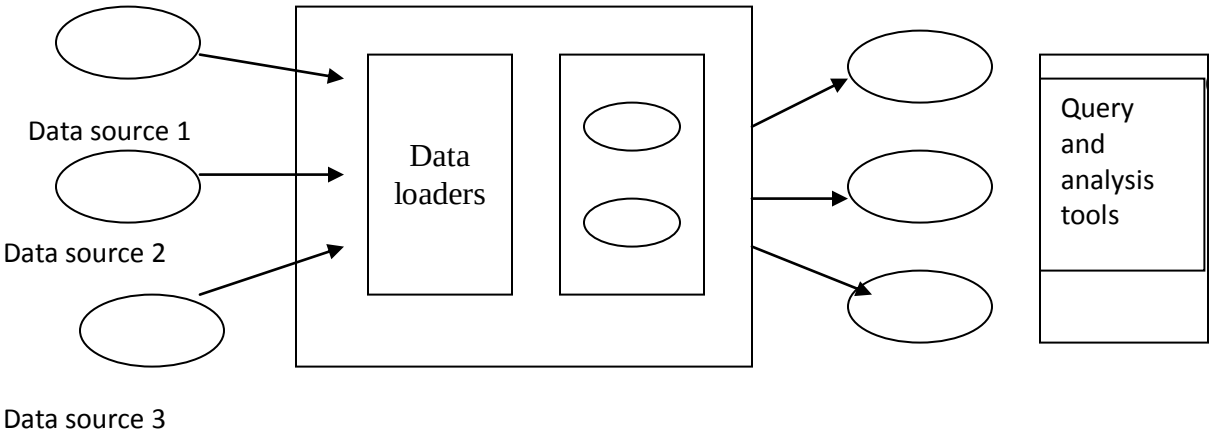
Is Database that organizes and stores copies of data from multiple data sources? We can assume a decision support server that transform, aggregates and add values to data from various sources. It also stores metadata, System level and semantic level metadata.

The information directory

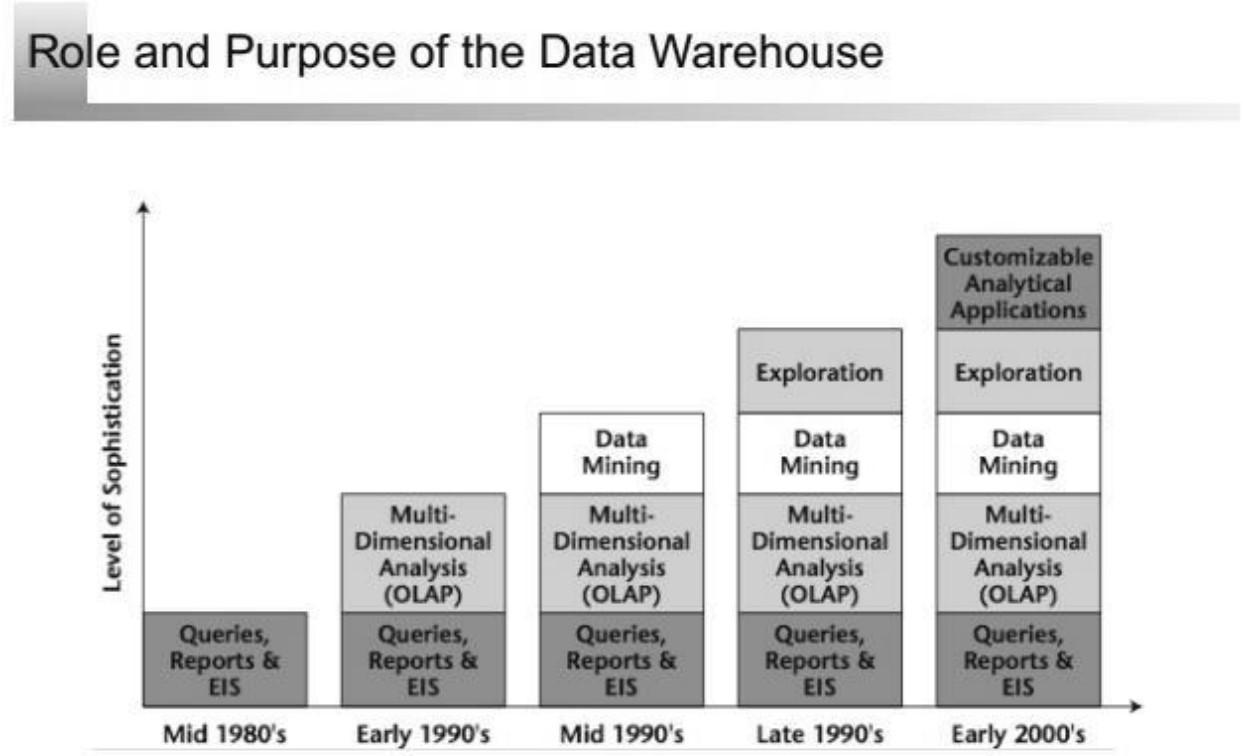
It is an amalgam of functions of a technical directory business directory and information navigator. Its main function is to help the information users to find out what data is available on the different databases. What format it is in and how to access it. It also helps the DBAs to manage the data warehouse. The information directory gets its metadata by discovering which databases are on the network and the querying their metadata repositories. DBA use the information directory to access system level metadata keep track of data sources, data targets, cleanup rules, transformation rules and details about predefined rules and reports.

4. Dos tool support

Is provided via SQL most vendors support ODBC and some other protocol. In summary DBA must be able to assemble data from different sources, replicate it, clean it , store it, catalog it and the make it available to DSS tools. Data mining is one of them that refer loosely to finding relevant information from a large volume of data. Data mining attempts to discover pre defined/user defined rules & pattern automatically from data.
Architecture of a typical data warehouse



need
It should be enterprise focused
! Its design should be as resilient to change as possible.
! It should be designed to load massive amounts of data in very short amounts of time.
! It should be designed for optimal data extraction processing by the data delivery programs.
! Its data should be in a format that supports any and all possible BI analyses in any and all technologies.



Need for Data Warehousing
Integrated, Integrated, company-wide company-wide view view of of high-quality high-quality
information (from disparate databases)
Separation of (OLTP) and
systems systems and and data data (for (for improved improved performance) performance)
Q2b) Explain the significance and requirements of EIS (*executive information system*) and *ESS* (*executive support system*). Also, write the differences between MIS and EIS.
Answer: b1 u3
Applications
EIS enables executives to find those data according to user-defined criteria and promote information-based insight and understanding. Unlike a traditional management information system presentation, EIS can distinguish between vital and seldom-used data, and track different key critical activities for executives, both which are helpful in evaluating if the company is meeting its corporate objectives. After realizing its advantages, people have applied EIS in many areas, especially, in manufacturing, marketing, and finance areas.

Manufacturing

Basically, manufacturing is the transformation of raw materials into finished goods for sale, or intermediate processes involving the production or finishing of semi-manufactures. It is a large branch of industry and of secondary production. Manufacturing operational control focuses on day-to-day operations, and the central idea of this process is effectiveness and efficiency.

Marketing

In an organization, marketing executives' role is to create the future. Their main duty is managing available marketing resources to create a more effective future. For this, they need make judgments about risk and uncertainty of a project and its impact on the company in short term and long term. To assist marketing executives in making effective marketing decisions, an EIS can be applied. EIS provides an approach to sales forecasting, which can allow the market executive to compare sales forecast with past sales. EIS also offers an approach to product price, which is found in venture analysis. The market executive can evaluate pricing as related to competition along with the relationship of product quality with price charged. In summary, EIS software package enables marketing executives to manipulate the data by looking for trends, performing audits of the sales data, and calculating totals, averages, changes, variances, or ratios.

Financial

A financial analysis is one of the most important steps to companies today. The executive needs to use financial ratios and cash flow analysis to estimate the trends and make capital investment decisions. An EIS is a responsibility-oriented approach that integrates planning or budgeting with control of performance reporting, and it can be extremely helpful to finance executives. Basically, EIS focuses on accountability of financial performance and it recognizes the importance of cost standards and flexible budgeting in developing the quality of information provided for all executive levels.

Advantages and disadvantages

Advantages of EIS

- Easy for upper-level executives to use, extensive computer experience is not required in operations
- Provides timely delivery of company summary information
- Information that is provided is better understood
- EIS provides timely delivery of information. Management can make decisions more promptly.
- Improves tracking information
- Offers efficiency to decision makers

Disadvantages of EIS

- System dependent
- Limited functionality, by design
- Information overload for some managers
- Benefits hard to quantify
- High implementation costs

- System may become slow, large, and hard to manage
- Need good internal processes for data management
- May lead to less reliable and less secure data

Q 3 What are the advantages and limitations of data mining to support an Information system? Also, write the importance of business intelligence

Ans: Block 2 unit 3

Q 4 (a) What is „Copyright" protection? Explain its relevance in computer applications.

Ans: Block 2 Unit 4

(b) Explain MIS structure based on management activity.

Ans: block 1 unit 3

Q 5 Discuss the importance of security in Information System and explain the various measures against the threats to the system.

Ans: Information is the crown jewels of business. Your business partners want to know if you have done enough to protect your information assets. The BS 7799 Information Security Management System outlines the best practices that one should follow and is a benchmark for security certification in business. by Avinash Kadam
Name a key ingredient that drives your business. All those who said 'information' got it right. That's because most businesses cannot function if this ingredient is not available or is unreliable. Availability, integrity and confidentiality of information are paramount concerns today. How do you know that your organization is taking good care of all the information it has so diligently acquired, over the years?
The manufacturing records, sales records, financial records, customer records are all kept on computers. In today's networked world, these may be accessible from anywhere, via the Internet. You can't be too sure that all your digitized information is secure. Your personal and confidential records will be with banks, finance and insurance companies; your medical records are with hospitals and laboratories; your credit card details have to be tendered whenever you buy something on the Internet. Is there any guarantee that all this information is really kept confidential? Shouldn't there be a way to tell if an organization can be entrusted with confidential information and if it maintains Information Security?
In fact there is. Heard of the BS 7799 Information Security Management System?
BS 7799 standard
Anyone who wants to ascertain the quality of a business process will look for an ISO 9001:2000 certificate. This gives an assurance that the organization has achieved the minimum requirements for establishing a Quality Management System (QMS). Similarly, the British Standards Institute (BSI) has established a standard for Information Security Management

System (ISMS). The BS 7799 was first issued in 1995 and was revised in 1999. Latest revision i.e. BS 7799 -2 2002 is due on 5th Sept. 2002.

The BS 7799 standard comprises two parts:

- Part 1: Code of Practice for Information security management.
- Part 2: Specifications of Information Security Management Systems.

Part 1 outlines the recommended best practices that one should follow and Part 2 gives the specifications against which an organization will be evaluated to determine whether it deserves to be certified.

Assessing your Security Requirements

BS7799 depends heavily on risk assessment. You are expected to carry out a thorough risk evaluation exercise. To prepare for this exercise, you have to take a complete inventory of all your information assets. These include not only the usual suspects like hardware assets—servers and networking devices, but also software assets like programs and databases. Also consider paper assets and infrastructure assets like power, light and air-conditioning. A risk like 'Denial of Service' is usually attributed to an external attack from the Internet, but it can also be an internal attack—someone can remove the power fuse in the server room.

The next step is to classify all the information assets according to their sensitivity and criticality, with respect to business needs. A risk evaluation exercise helps to identify the risk scenarios. The probability and consequences of a particular risk scenario in terms of business losses needs to be documented. If the losses could be quantified, that's good. Otherwise, these could be categorized into high, medium and low categories.

Security Domains and Control Objectives

After risk categorization and prioritization, the next obvious step is risk mitigation. This is where we revisit BS 7799 controls. These are given in BS 7799 Part 2: Specification for Information Security Management System. These are divided into 10 domains:

1. Security policy.
2. Security organization.
3. Asset classification and control.
4. Personnel Security.
5. Physical and environmental security.
6. Communication and operations management.
7. Access control.
8. System development and
maintenance.
9. Business continuity management.
10. Compliance

These are further categorized into 36 control objectives, which are to be achieved by fulfilling 127 specified controls.

As an example of this hierarchy, let us look at the domain of 'Communication and operations management.' This domain has seven control objectives to be fulfilled. One of these seven control objectives is 'Exchange of information and software.' The objective is 'To prevent loss, modification or misuse of information exchanged between organizations.' The steps to achieve this objective are:

- Step 1: Does the risk analysis point out that there is a business risk in exchange of information? Is this control objective applicable for protection of your business?
- Step 2: If the answer is no, prepare a statement justifying the exclusion.
- Step 3: If the answer is yes, look at each of the seven control statements under this particular control objective.

Each of these control statements has the word 'shall', which means compliance with the requirements is mandatory, unless you have a valid justification.
For example, one control is:
"Electronic commerce security: Electronic commerce security shall be protected against fraudulent activity, contract dispute and disclosure or modification of information."
So if you have E-Commerce activity, you will have to prove that you are protected against each of the stipulated risk factors.

- Step 4: Select the appropriate policy, procedure, process or product that will fulfill the requirement of each applicable control. You should be able to prove that the control is effective in reducing the risk, which you have identified.

You will realize that there's not much to help you decide what is required to be done. The control statements are extremely general in nature. They do not provide any further recommendations, technical or otherwise. On one hand, this makes the standard independent of technology but on other hand, it introduces subjectivity of interpretation.

Advantages of BS 7799 Certification

Despite these shortcomings, BS 7799 presents the following advantages:
1. You will have a structured, risk based approach to information security.
2. Your employees will have to take security seriously as you will have framed adequate policies and penalties for any breach of security.
3. Your clients will be assured about your security seriousness.
4. Foreign companies that are paranoid about information security, may feel comfortable dealing with you, if they have not already made it mandatory for you to get certified or audited by a security consultant.
5. Since availability is one of the critical components of information security, you would have set up adequate business continuity management plans.
6. You may do all of the above things without aiming for a certification, but you may even get a marketing advantage if you are certified.
7. And finally, you will definitely sleep better.

How to proceed

You can aspire for BS 7799 certification with the following steps.

- Step 1: Establish importance of information security in the organization. In the current scenario, this should not be difficult. However, it will help if you identify the critical business processes, which are dependent on information, and what is the business risk if any—check if the three pillars of information security are compromised (i.e. confidentiality, integrity and availability).
- Step 2: Set up a Security Organization. You will need organizational involvement to define and implement security measures. A steering committee for BS 7799 project, a

security forum with representation of key business and technology departments, appointment of an Information Security Officer and defining security responsibilities for protection of various assets will have to be done.

- Step 3: Define the Security Policy for the company. This should be endorsed by top management and should convey their concern and commitment.
- Step 4: Define the scope of Information Security Management System (ISMS). This could be business specific, location specific or function specific.
- Step 5: Undertake risk assessment. Start with business risk assessment. This will help you in identifying the risk areas for detailed risk evaluation. Identify and prioritize all the risks.
- Step 6: Identify the controls objectives and the control options.
- Step 7: Select appropriate controls to fulfill the control objectives. These controls will be in the form of security policies, procedures and products. Prepare guidelines on how to implement these controls.
- Step 8: Implement and monitor the controls. You should be able to prove adequacy of the controls in reducing the risks.
- Step 9: Make a table of all the 127 controls and map the controls implemented by you against relevant control objectives. One control may address more than one control objective. If there are some gaps, find out, whether these are omissions or there are no requirements of controls. Fill up all the gaps.
- Step 10: Make statement of applicability, which justifies the controls in place as well as those, which really are not required. For all exclusions, you should have a justification backed by risk assessment.
- Step 11: Invite a certification body for pre-assessment. Some of the accredited certification agencies are DNV, BSI, STQC.
- Step 12: Take appropriate measures to comply with all observations.
- Step 13: Get the final assessment done.
- Step 14: Acquire the coveted certificate, which is valid for three years. An external audit will be done once a year.

How to implement the standard

If you perform all the 14 steps mentioned above, you will have implemented the standard. Alternatively, if you are short of manpower or expertise, employ an external agency to implement it for you. This will be especially useful while performing a detailed and objective risk analysis. A consultant will use a risk analysis questionnaire, which has been enhanced by his experience. The period taken for entire implementation depends on the size of the organization. It could be between 3 to 9 months.

Difference between BS 7799 and ISO 17799

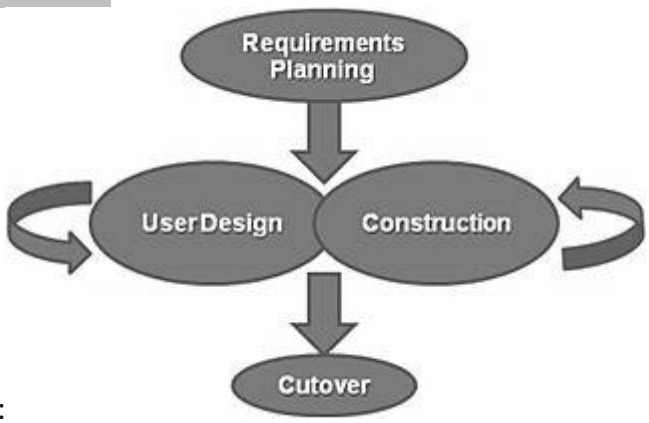
ISO has adapted the BS 7799 Part 1 and numbered it as ISO 17799. As we discussed earlier, Part 1 covers the Code of Practice and as such only provides guidelines. ISO has not yet adapted the BS 7799 Part 2. So, there are no specifications, which an implementer or an auditor can refer to. An organization cannot be evaluated or certified today as an ISO 17799 compliant organization, but it can be certified as a BS 7799 compliant organization.

Why BS 7799 certification?

BS 7799 may not be a perfect security certification but it provides excellent guidelines for

information security management. It presents a yardstick for measuring a company's security practices. The risk-oriented approach ensures that the organization does not become complacent after getting the certificate. If the risk has not been controlled, the ISMS may not be effective. So, apart from a periodic audit by an external auditor, the management could get regular feedback about the state of information security in the organization through the security management infrastructure created in the process of implementation of BS 7799.

Q 6 Explain the need for rapid system development tools and discuss CASE Tools, in detail, in this context.



Ans:

Pros and cons of various RAD types

Name	Pros	Cons
Agile	Minimizes feature creep by developing in short intervals resulting in miniature software projects and releasing the product in mini-increments.	Short iteration may add too little functionality, leading to significant delays in final iterations. Since Agile emphasizes real-time communication (preferably face-to-face), using it is problematic for large multi-team distributed system development. Agile methods produce very little written documentation and require a significant amount of post-project documentation.
Extreme	Lowers the cost of changes through quick spirals of new requirements. Most design activity occurs incrementally and on the fly.	Programmers must work in pairs, which is difficult for some people. No up-front "detailed design" occurs, which can result in more redesign effort in the long term. The business champion attached to the project full time can potentially become a single point of failure for the project and a major source of stress for a team.
Joint application	Captures the voice of the customer by involving them in the	The client may create an unrealistic product vision and request extensive gold-plating,

	design and development of the application through a series of collaborative workshops called JAD sessions.	leading a team to over- or underdevelop functionality.
Lean	Creates minimalist solutions (i.e., needs determine technology) and delivers less functionality earlier; per the policy that 80% today is better than 100% tomorrow.	Product may lose its competitive edge because of insufficient core functionality and may exhibit poor overall quality.
RAD	Promotes strong collaborative atmosphere and dynamic gathering of requirements. Business owner actively participates in prototyping, writing test cases and performing unit testing.	Dependence on strong cohesive teams and individual commitment to the project. Decision-making relies on the feature functionalityteam and a communal decision-making process with lesser degree of centralized project management and engineering authority.
Scrum	Improved productivity in teams previously paralyzed by heavy “process”, ability to prioritize work, use of backlog for completing items in a series of short iterations or sprints, daily measured progress and communications.	Reliance on facilitation by a master who may lack the political skills to remove impediments and deliver the sprint goal. Due to reliance on self-organizing teams and rejection of traditional centralized "process control", internal power struggles can paralyze a team.

3.0 Need of CASE

Software developers always looking for such CASE tools that help them in many different ways during the different development stages of software, so that they can understand the software and prepare a good end product that efficiently fulfill the user requirements. CASE tools provide the ways that can fulfill this requirement of software developers. These tools provide computerized setting to software developers to analyze a problem and then design its system model.

3.1 Good Points of CASE Tools

1. They provides better perceptive of system.
2. Facilitates communication among team members.
3. Tools are more effective for large scale systems and immense projects.
4. CASE tools provide visibility of processes and logic.
5. CASE tools improve quality and productivity of software.
6. CASE tools reduce the time for error correction and maintenance.
7. CASE tools provide clear readability and maintainability of the system.

Q 7 Write short notes on the following:

(i) Knowledge Management in Organizations

Ans : block 2 unit 3

(ii) Portfolio Management

Ans: Block 2 Unit 1