Model answer
Course: MBA; EXAM 2014
Semester: III
Subject: DSS and MIS

1. Short Answer questions

1-.Data mining is the analysis of data for relationships that have not previously been discovered. For example, the sales records for a particular brand of tennis racket might, if sufficiently analyzed and related to other market data, reveal a seasonal...

2- In order to be useful, any information system must be readable, browsable, and searchable. This chapter enumerates guidelines and outlines qualities of readability, browsability, and searchability so you, as an information system manager, can incorporate these ideas into your products and services. An information system, in the present context, is any organized collection of information. In our culture, information systems abound. The dash board of our cars are information systems. Maps are information systems.

3-Data Dictionary: A data dictionary is a file or a set of files that contains a database's metadata. The data dictionary contains records about other objects in the database, such as data ownership, data relationships to other objects, and other data. The data dictionary is a crucial component of any relational database. Ironically, because of its importance, it is invisible to most database users. Typically, only database administrators interact with the data dictionary.

5-E-commerce: Conducting business online. Selling goods, in the traditional sense, is possible to do electronically because of certain software programs that run the main functions of an e-commerce Web site, including product display, online ordering, and inventory management. The software resides on a commerce server and works in conjunction with online payment systems to process payments. Since these servers and data lines make up the backbone of the Internet, in a broad sense, e-commerce means doing business over interconnected networks.

The definition of e-commerce includes business activities that are business-to-business (B2B), business-to-consumer (B2C), extended enterprise computing (also known as "newly emerging value chains"), d-commerce, and m-commerce. E-commerce is a major factor in the U.S. economy because it assists companies with many levels of current business transactions, as well as creating new online business opportunities that are global in nature. Here are a few examples of e-commerce:

- accepting credit cards for commercial online sales
- generating online advertising revenue

6-A data warehouse is a central repository for all or significant parts of the current and historical data that an enterprise's various business systems collect. They can only be seen but updated.

7- A business process is a collection of linked tasks which find their end in the delivery of a service or product to a client. A business process has also been defined as a set of activities and tasks that, once completed, will accomplish an organizational goal. The process must involve clearly defined inputs and a single output. These inputs are made up of all of the factors which contribute (either directly or indirectly) to the added value of a service

or product. These factors can be categorized into management processes, operational processes and supporting processes.

8- Electronic communication Tools:

    a. Phones

    b. **Email**

    c. **Social Networks**

    d. **Instant Messaging and Skype**

Etc.

9- An employee whose job involves developing and using knowledge rather than producing goods or services. A person who works exclusively with information; a person who works in an information industry

Examples-Knowledge workers include those in the information technology fields, such as programmers, systems analysts, technical writers, academic professionals, researchers, and so forth.

10-Parallel testing is testing where the user reconciles the output of the new system to the output of the current system to verify the new system performs the operations correctly.

Section -B

Question no-2

To the managers, Management Information System is an implementation of the organizational systems and procedures. To a programmer it is nothing but file structures and file processing. However, it involves much more complexity. The three components in MIS gives a more complete and focused definition, where System suggests integration and holistic view, Information stands for processed data and Management is the ultimate user, the decision makers.

Management information system can thus be analyzed as:

Management: Management covers the planning, control, and administration of the operations of a concern. The top management handles planning; the middle management concentrates on controlling; and the lower management is concerned with actual administration.

Information: Information, in MIS, means the processed data that helps the management in planning, controlling and operations. Data means all the facts arising out of the operations of the concern. Data is processed i.e. recorded, summarized, compared and finally presented to the management in the form of MIS report.

System: Data is processed into information with the help of a system. A system is made up of inputs, processing, output and feedback or control. Thus MIS means a system for processing data in order to give proper information to the management for performing its functions.

Nature and scope

Must explain in context of functional areas of management and business administration. Below diagram is also a basis for elaborating on scope of MIS.
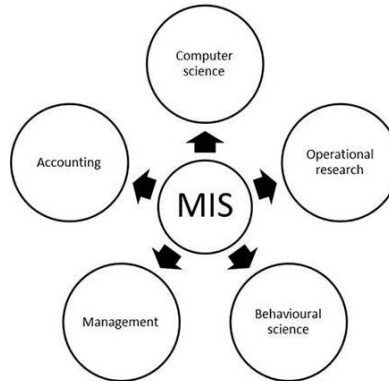
3- Types of systems

Systems are classified in different ways:

1. Physical or abstract systems.
2. Open or closed systems.
3. 'Man-made' information systems.
4. Formal information systems.
5. Informal information systems.
6. Computer-based information systems.
7. Real-time system.

Physical systems are tangible entities that may be static or dynamic in operation.

An open system has many interfaces with its environment. i.e. system that interacts freely with its environment, taking input and returning output. It permits interaction across its boundary; it receives inputs from and delivers outputs to the outside. A closed system does not interact with the environment; changes in the environment and adaptability are not issues for closed system.

TYPES OF SYSTEMS

There are four basic types of system depending on whether the parts and the whole can display choice, and therefore, be purposeful..

Now consider each type of system in a bit more detail.

   a. In such Systems, the interaction of the elements is known.
   b. As the behavior of the elements is pre determined, it becomes possible to work upon the reaction well in the advance.

- Components of a system
- Every system comprises of basic components which in coordination formulate a system. These are as follows:

  Input elements: The information entered into a system. For instance raw data input to the computer system.

- ·Process: Any specific treatment defined in the system to be performed on the data entered into the system, for instance, computation, analysis, application of any model.

- Output elements: The results given by the system after the process has been performed on the data being input to the system.

- Control mechanism: Every system is expected to generate some sort of standardized output. Hence actual output needs to be compared with what it is supposed to generate. This comparison of actual with expected output is done with the help of control mechanism.

- Feedback system: Once the control mechanism has been devised, it needs to a reporting mechanism, which should respond with a corrective action, if required.

- Objectives: We just mentioned that a control mechanism should compare actual output with expected/Ideal output. But before this is being done, there needs to be a list of specific objectives which define expected output

4-

The Master of Science in Management Information Systems Program (MS in MIS) offers a unique blend of theoretical business coursework and hands-on application that enables graduates to gain practical experience in the design and maintenance of information systems.

According to Dr. Meg Kletke, MIS coordinator and professor of management science and information systems, "The MS in MIS prepares graduates not only to understand business processes and the concepts behind the information systems they work with, but also to develop, modify, use and protect these rapidly-changing computing systems through their technical expertise. Three options, Digital Business Systems, Knowledge Management Systems, and Information Assurance and Security, afford the student opportunities to focus on software design and implementation, information retrieval and analysis, or management of network and information system security to protect information systems against unauthorized intrusion."

Contemporary approaches to MIS-When an information system is being developed; much importance should be given to the structure of the organization, culture of the organization, etc. But along with these, especial attention should also be given to the technical side of MIS. The various contemporary approaches to MIS development can be summarized as

1.The Technical Approach

a) Based on the mathematical and the normative models

b) Physical technology forms the back bone of such an approach

c) Such an approach mainly finds much needed contributions from the disciplines like computer science, management science, operations research etc.

2.TheBehavioralApproach

a) Based on the impact of the behavior and also on the response of the people in the organization.

b) Motivational Feasibility forms a very important and demanding part of such an approach towards MIS development.

3. The Socio-Technical Approach:

a) In the beginning, this approach was finding it hard to survive – but now it is being accepted worldwide and is also being implemented at a very large scale.

b) Involves key involvement of both of the above explained approaches.

c) Improves the performance of the information system as a whole.

Porter Millar postulates:

Porter and Millar were the ones, who explained the affect of the information technology on the competition. According to them information technology is affecting competition in the following ways: a) Causes changes in the structure of the industry and as a result of this, rule of competitions are altered. b) Spawning of the whole new business takes place, and in much of the cases – it is caused from within the company's existing operations

c) Competitive advantage is created usually because of the new ways; the companies get to outperform their rivals.

5-Steps in the System Development Life Cycle

Brainstorming ideas is one of the first steps in project development.

The System Development Life Cycle (SDLC) is a series of six steps that a project team works through in order to conceptualize, analyze, design, construct and implement a new information technology system. Adhering to a SDLC increases efficiency and accuracy and reduces the risk of product failure.

Planning

During the planning phase, the objective of the project is determined and the requirements to produce the product are considered. An estimate of resources, such as personnel and costs, is prepared, along with a concept for the new product. All of the information is analyzed to see if there is an alternative solution to creating a new product. If there is no other viable alternative, the information is assembled into a project plan and presented to management for approval.

Analysis

During the analysis stage the project team determines the end-user requirements. Often this is done with the assistance of client focus groups, which provide an explanation of their needs and what their expectations are for the finished product and how it will perform. The project team documents all of the user requirements and gets a sign-off from the client and management to move forward with system design.

Design

The design phase is the "architectural" phase of system design. The flow of data processing is developed into charts, and the project team determines the most logical design and structure for data flow and storage. For the user interface, the project team designs mock-up screen layouts that the developers uses to write the code for the actual interface.

Construction

During the construction phase developers execute the plans laid out in the design phase. The developers design the database, generate the code for the data flow process and design the actual user interface screens. During the construction phase, test data is prepared and processed as many times as necessary to refine the code.

Test

During the test phase all aspects of the system are tested for functionality and performance. The system is tested for integration with other products as well as any previous versions with which it needs to communicate. Essentially, the

key elements of the testing phase are to verify that the system contains all the end user requirements laid out in the analysis phase, that all the functions are accurately processing data, that the new system works with all other systems or prior systems, and that the new system meets the quality standards of the company and the customers.

Rollout, Control and Feedback.

The rollout phase is when customers receive the new system as an update or a full-scale conversion. Once rollout begins, feedback from clients begins, and the code is tweaked for any performance issues or the mishandling of data.

6- Executive Support System

How do you make business decisions? If you're like most executives, then you probably have one of those enormous Excel spreadsheets, a dozen tabs wide, with data from various departments.

It is painstaking to build and update a spreadsheet with figures from every department of your organization. The data always needs massaging to fit together nicely and there is a high risk for human error. Add in trying to spot trends and it's nearly impossible. Even if all the numbers are keyed in correctly, when analyzing the data, the sharpest CEO will often miss a reoccurring pattern or red flag amongst their KPIs.

The opportunity costs of this kind of manual process are also staggering. Crunching numbers in spreadsheets leaves executives, or the staff developing these reports, with very little time and energy to then analyze that data and create forecasts that positively influence business decisions.

An Executive Support System (ESS), can revolutionize the way executives and business owners gather and leverage data for business intelligence. An ESS is a software solution that can aggregate data company-wide so that it flows into an on-demand database that's searchable and malleable. Leading ESS solutions are built to integrate with and leverage data from existing sources within the organization.

An ESS is more than just a searchable database. A good ESS system offers an intuitive way to automatically deliver customized analysis, alerts, reports and predictions. With relevant data and analysis at their fingertips, executives can make more pro-active business decisions.

Let me give you two quick examples of an executive operating with and without ESS. These two examples will illustrate how ESS allows companies to make more pro-active decisions.

Without ESS: A Re-Active Business Decision

A CEO receives a call from an online advertising company offering an incredible rate on pay-per-click ads, but for a limited time. Now it's up to the CEO to quickly figure out which products will yield the most return on the advertising investment. First the executive logs into an online advertising dashboard to compare costs, response rates and return from previous campaigns. Then he gets on the phone with a warehouse account manager, or logs into an inventory management database. From the warehouse, he finds out the cost to ship each product, the list price of each product and which products have been sitting on the shelves the longest or accruing the most storage fees. With all of this data and information in place, the executive can figure out which product will likely yield the highest return and finally respond to the advertising offer before the deadline expires.

With ESS: A Pro-Active Business Decision

Now let's work backwards from that example, but with an ESS in place. The ESS sends an alert to the company CEO that product "X" was stored for "X" number of days, or that the warehouse storage costs for product "X" have

exceeded a certain total dollar amount. Working from that report, the executive alerts his sales and marketing employees to research the most cost-effective ways to move product "X" off the shelves. Here the CEO is not scrambling to reply to an outside call from an advertising company. The ESS alert put him in the driver's seat and gave the sales and marketing team lead time to find the best solutions to move those products.

That's just one example of how an ESS can streamline business intelligence and decision-making. Stay tuned for future blog posts that dig deeper into the capabilities of ESS.

An Executive Support System is a class of information systems that supports business and organizational decision-making activities. It is an interactive software-based system …made to help decision makers compile useful information from a combination of raw data to identify and solve problems and make decisions. It supports the following:- 1. An inventory of all of current information assets. 2. Comparative sales figures between one week and the next. 3. projected revenue figures based on new product sales assumptions. Its key-points are: - Improves personal efficiency Speed up the progress of problems solving in an organization. Facilitates interpersonal communication Promotes learning or training Increases organizational control Generates new evidence in support of a decision Creates a competitive advantage over competition Encourages exploration and discovery on the part of the decision maker Reveals new approaches to thinking about the problem space Helps automate the managerial processes.

7-Advantages of DBMS

The database management system has promising potential advantages, which are explained below:

1. Controlling Redundancy: In file system, each application has its own private files, which cannot be shared between multiple applications. 1:his can often lead to considerable redundancy in the stored data, which results in wastage of storage space. By having centralized database most of this can be avoided. It is not possible that all redundancy should be eliminated. Sometimes there are sound business and technical reasons for· maintaining multiple copies of the same data. In a database system, however this redundancy can be controlled. For example: In case of college database, there may be the number of applications like General Office, Library, Account Office, Hostel etc. Each of these applications may maintain the following information into own private file applications:

General Office	Library	Hostel	Account Office
Roll No	Roll No	Roll No	Roll No
Name	Name	Name	Name
Class	Class	Class	Class
Father_Name	Address	Father_Name	Address
Date_of_Birth	Date at Birth	Date of Birth	Phone No
Address	Phone No	Address	Fee
Phone No	No of books issued	Phone No	Installments
Previous Record	Fine	Mess bill	Discount
Attendance	etc	RoomNo	Balance
Marks		etc.	Total
etc.			etc.

It is clear from the above file systems, that there is some common data of the student which has to be mentioned in each application, like Rollno, Name, Class, Phone_No~ Address etc. This will cause the problem of redundancy

which results in wastage of storage space and difficult to maintain, but in case of centralized database, data can be shared by number of applications and the whole college can maintain its computerized data with the following database:

General Office	Library	Hostel	Account Office
Rollno Name Class Father_Name Address Phone - No Date_of_birth Previous_Record Attendance Marks etc.	Rollno No_of_books_issued Fine etc.	Rollno RoomNo Mess_Bill etc.	Rollno Fee Installments Discount Balance Total etc.

It is clear in the above database that Rollno, Name, Class, Father_Name, Address,

Phone_No, Date_of_birth which are stored repeatedly in file system in each application, need not be stored repeatedly in case of database, because every other application can access this information by joining of relations on the basis of common column i.e. Rollno. Suppose any user of Library system need the Name, Address of any particular student and by joining of Library and General Office relations on the basis of column Rollno he/she can easily retrieve this information. Thus, we can say that centralized system of DBMS reduces the redundancy of data to great extent but cannot eliminate the redundancy because RollNo is still repeated in all the relations.

2. Integrity can be enforced: Integrity of data means that data in database is always accurate, such that incorrect information cannot be stored in database. In order to maintain the integrity of data, some integrity constraints are enforced on the database. A DBMS should provide capabilities for defining and enforcing the constraints.

For Example: Let us consider the case of college database and suppose that college having only BTech, MTech, MSc, BCA, BBA and BCOM classes. But if a \.,ser enters the class MCA, then this incorrect information must not be stored in database and must be prompted that this is an invalid data entry. In order to enforce this, the integrity constraint must be applied to the class attribute of the student entity. But, in case of file system tins constraint must be enforced on all the application separately (because all applications have a class field).

In case of DBMS, this integrity constraint is applied only once on the class field of the

General Office (because class field appears only once in the whole database), and all other applications will get the class information about the student from the General Office table so the integrity constraint is applied to the whole database. So, we can conclude that integrity constraint can be easily enforced in centralized DBMS system as compared to file system.

3. Inconsistency can be avoided: When the same data is duplicated and changes are made at one site, which is not propagated to the other site, it gives rise to inconsistency and the two entries regarding the same data will not agree. At such times the data is said to be inconsistent. So, if the redundancy is removed chances of having inconsistent data is also removed.

Let us again, consider the college system and suppose that in case of General_Office file

it is indicated that Roll_Number 5 lives in Amritsar but in library file it is indicated that

Roll_Number 5 lives in Jalandhar. Then, this is a state at which tIle two entries of the same object do not agree with each other (that is one is updated and other is not). At such time the database is said to be inconsistent.

An inconsistent database is capable of supplying incorrect or conflicting information. So there should be no inconsistency in database. It can be clearly shown that inconsistency can be avoided in centralized system very well as compared to file system.

Let us consider again, the example of college system and suppose that RollNo 5 is .shifted from Amritsar to Jalandhar, then address information of Roll Number 5 must be updated, whenever Roll number and address occurs in the system. In case of file system, the information must be updated separately in each application, but if we make updation only at three places and forget to make updation at fourth application, then the whole system show the inconsistent results about Roll Number 5. In case of DBMS, Roll number and address occurs together only single time in General Office table. So, it needs single updation and then another application retrieve the address information from General_Office which is updated so, all application will get the current and latest information by providing single update operation and this single update operation is propagated to the whole database or all other application automatically, this property is called as Propagation of Update. We can say the redundancy of data greatly affect the consistency of data. If redundancy is less, it is easy to implement consistency of data. Thus, DBMS system can avoid inconsistency to great extent.

4. Data can be shared: As explained earlier, the data about Name, Class, Father __name etc. of General_Office is shared by multiple applications in centralized DBMS as compared to file system so now applications can be developed to operate against the same stored data. The applications may be developed without having to create any new stored files.

5. Standards can be enforced: Since DBMS is a central system, so standard can be enforced easily may be at Company level, Department level, National level or International level. The standardized data is very helpful during migration or interchanging of data. The file system is an independent system so standard cannot be easily enforced on multiple independent applications.

6. Restricting unauthorized access: When multiple users share a database, it is likely that some users will not be authorized to access all information in the database. For example, account office data is often considered confidential, and hence only authorized persons are allowed to access such data. In addition, some users may be permitted only to retrieve data, whereas other are allowed both to retrieve and to update. Hence, the type of access operation retrieval or update must also be controlled. Typically, users or user groups are given account numbers protected by passwords, which they can use to gain access to the database. A DBMS should provide a security and authorization subsystem, which the DBA uses to create accounts and to specify account restrictions. The DBMS should then enforce these restrictions automatically.

7. Solving Enterprise Requirement than Individual Requirement: Since many types of users with varying level of technical knowledge use a database, a DBMS should provide a variety of user interface. The overall requirements of the enterprise are more important than the individual user requirements. So, the DBA can structure the database system to provide an overall service that is "best for the enterprise".

For example: A representation can be chosen for the data in storage that gives fast access for the most important application at the cost of poor performance in some other application. But, the file system favors the individual requirements than the enterprise requirements

8. Providing Backup and Recovery: A DBMS must provide facilities for recovering from hardware or software failures. The backup and recovery subsystem of the DBMS is responsible for recovery. For example, if the computer system fails in the middle of a complex update program, the recovery subsystem is responsible for making sure that the .database is restored to the state it was in before the program started executing.

9. Cost of developing and maintaining system is lower: It is much easier to respond to unanticipated requests when data is centralized in a database than when it is stored in a conventional file system. Although the initial cost of setting up of a database can be large, but the cost of developing and maintaining application programs to be far lower than for similar service using conventional systems. The productivity of programmers can be higher in using non-procedural languages that have been developed with DBMS than using procedural languages.

10. Data Model can be developed: The centralized system is able to represent the complex data and interfile relationships, which results better data modeling properties. The data madding properties of relational model is based on Entity and their Relationship, which is discussed in detail in chapter 4 of the book.

11. Concurrency Control: DBMS systems provide mechanisms to provide concurrent access of data to multiple users.

Disadvantages of Traditional File System

A traditional file system has the following disadvantages

1) Data Redundancy: Since each application has its own data file, the same data may have to be recorded and stored in many files. For example, personal file and payroll file, both contain data on employee name, designation etc. The result is unnecessary duplicate or redundant data items. This redundancy requires additional or higher storage space, costs extra time and money, and requires additional efforts to keep all files upto-date.

2) Data Inconsistency: Data redundancy leads to data inconsistency especially when data is to be updated. Data inconsistency occurs due to the same data items that appear in more than one file do not get updated simultaneously in each and every file. For example, an employee is promoted from Clerk to Superintendent and the same is immediately updated in the payroll file may not necessarily be updated in provident fund file. This results in two different designations of an employee at the same time. Over the period of time, such discrepancies degrade the quality of information contain in the data file that affects the accuracy of reports.

3) Lack of Data Integration: Since independent data file exists, users face difficulty in getting information on any ad hoc query that requires accessing the data stored in many files. In such a case complicated programs have to be developed to retrieve data from every file or the users have to manually collect the required information.

4) Program Dependence: The reports produced by the file processing system are program dependent, which means if any change in the format or structure of data and records in the file is to be made, the programs have to modify correspondingly. Also, a new program will have to be developed to produce a new report.

5) Data Dependence: The Applications/programs in file processing system are data dependent i.e., the file organization, its physical location and retrieval from the storage media are dictated by the requirements of the particular application. For example, in payroll application, the file may be organised on employee records sorted on their last name, which implies that accessing of any employee's record has to be through the last name only.

6) Limited Data Sharing: There is limited data sharing possibilities with the traditional file system. Each application has its own private files and users have little choice to share the data outside their own applications. Complex programs required to be written to obtain data from several incompatible files. 7) Poor Data Control: There was no centralised control at the data element level, hence a traditional file system is decentralised in nature. It could be possible that the data field may have multiple names defined by the different departments of an organization and depending on the file it was in. This situation leads to differentmeaning of a data field in different context or same meaning for different fields. This causes poor data control. Problem of Security: It is very difficult to enforce security checks and access rights in a traditional file system, since application programs are added in an adhoc manner.

8. Data Manipulation Capability is Inadequate: The data manipulation capability is very limited in traditional file systems since they do not provide strong relationships between data in different files. Needs Excessive Programming: An excessive programming effort was needed to develop a new application program due to very high interdependence between program and data in a file system. Each new application requires that the developers start from the scratch by designing new file formats and descriptions and then write the file access logic for each new file.

8- Data Storage Hierarchy

TeamSite Forms Publisher uses a data storage hierarchy based on data categories and types. The directory structure supporting this hierarchy resides in the work area for each Team Site FormsPublisher user. The directory structure follows. Items in boxes are directories; items not in boxes are files; items in dotted boxes are for information that is not a required part of the FormsPublisher structure.

The template data directory is at the highest level in the hierarchy.

Data categories are at the next level in the hierarchy and contain one or more data types. For example, the data category beverages could contain separate directories for the data types tea, coffee, milk, and so on. Data categories must be unique; data types within a category must also be unique. In addition to residing in this directory structure, data categories and types must also be listed in the templating.cfg configuration file to be made available to TeamSite FormsPublisher. See Mapping Users, Templates, and Content Records, for more information. The components directory that stores component templates and the tutorials directory are optional subdirectories of template data.

Management   system

Database management system (DBMS) is a collection of interrelated data and a set of programs to access those data. Some of the very well known DBMS are Microsoft Access, Microsoft SQL Server, Oracle, SAP, dBASE, FoxPro, IBM dB2, SQLite etc.

A file management system is an abstraction to store, retrieve, manage and update a set of files. A File Management System keep track on the files and also manage them. Let's take an example of hierarchical Management System using its directories manage the different files in a tree structure.

The disadvantages of file management system over DBMS

a)Data redundancy and inconsistency

b) Difficulty in accessing data

c)Data isolation

d)Integrity problems

e)Atomicity problems

f) Concurrent access anomalies

Response DBMS or file management system

Fast response to information requests: Because data are integrated into a single database,

complex requests can be handled much more rapidly if the data were located in separate,

non-integrated files. In many businesses, faster response means better customer service.

DBMS provide following levels of data abstraction

a) Physical level

b) Logical level

Difference between DBMS and file management system in terms of ACID properties

DBMS ensures data integrity by managing transactions through ACID test = atomicity, consistency, isolation,

durability. While such integrity is absent in file management system.

 The advantages of DBMS over file management system are:

a) Control redundancy

b) Restrict unauthorized access

c) Provide multiple user interfaces

d) Enforce integrity constraints.

e) Provide backup and recover

These are basic differences between DBMS and file management

1) Flexibility

2) Fast response to information requests

3) multiple access

4) Lower user training costs

5) Less storage

Following are the goal differences between File Management System and DBMS-
1) Data Management- An FMS should provide data management services to the application. The FMS data abstractions and access methods should remain unchanged irrespective of the devices involved in data storage.

2) Validity- An FMS should guarantee that at any given moment the stored data reflect the operations performed on them.

3) Protection- Illegal or potentially dangerous operations on the data should be controlled by the FMS.

4) Concurrency- In multiprogramming systems, concurrent access to the data should be allowed with minimal differences.

5) Performance- Compromise data access speed and data transfer rate with functionality.

9- Knowledge Management Processes

This section will deal with the actual knowledge management processes. So far, I have presented an introduction to knowledge management as well as several frameworks. Now it is time to talk about the different processes and initiatives.

This section, as well as the subsequent one on knowledge management strategy, will be structured according to the layout of the integrated knowledge management model presented earlier.

Under the initiative referred to as "act", the integrated model outlines a series of knowledge management processes. They will be used as headings for the subsections presented here, and can be accessed through the menu on the left. These are:

- Knowledge Discovery & Detection
- Knowledge Organization & Assessment
- Knowledge Sharing

Knowledge Reuse

- Knowledge Creation
- Knowledge Acquisition

Benefits- Well, for a start, effective knowledge management should dramatically reduce costs. Most individuals, teams and organizations are today continually 'reinventing the wheel'. This is often because they simply do not know that what they are trying to do has already been done by elsewhere. They do not know what is already known, or they do not know where to access the knowledge. Continually reinventing the wheel is such a costly and inefficient activity, whereas a more systematic reuse of knowledge will show substantial cost benefits immediately.

But as well as reducing costs, effective knowledge management should also dramatically increase our speed of response as a direct result of better knowledge access and application.

Effective knowledge management, using more collective and systematic processes, will also reduce our tendency to 'repeat the same mistakes'. This is, again, extremely costly and inefficient. Effective knowledge management, therefore, can dramatically improve quality of products and/or services. Better knowing our stakeholder needs, customer needs, employee needs, industry needs, for example, has an obvious immediate effect on our relationship management.

So it is very easy to see how effective knowledge management will greatly contribute to improved excellence, which is to:

a) Dramatically reduce costs

b) Provide potential to expand and grow

c) Increase our value and/or profitability

d) Improve our products and services

e) Respond faster

Knowledge simply underpins everything we do. But the benefits of knowledge management for improved excellence, is simply 'one side of the coin'. There is more. Effective knowledge management, especially accelerated knowledge creation, is the driver for innovation. Increasingly, products and services are becoming 'smarter' and more knowledge based. Our ability to better collaborate in physical and virtual teams, as knowledge workers, is driving the process of new knowledge creation. Ideas can now be turned into innovative products and services much faster. As organizations, we are learning faster, and that means that individuals are learning faster. People are developing their competencies and confidence faster in organizations that practice effective knowledge management. In summary, we simply cannot afford not to mainstream, to embed and embody knowledge management principles, strategies, policies, processes, methods, tools and technologies into our daily personal, team and organizational lives.